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BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Proceeding	92057344
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CloudPath v. Racemi
CLD0000181

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BYOD, Mobile Security and Mobile Device Management (MDM)

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- Independent consultant and industry analyst specializing in wireless and mobility
- Consult with vendors, carriers, and end users on the full range of mobility issues
- Speak at numerous industry conferences including InterOp, Info Week 500, and Enterprise Connect where I chair the mobility track
- Write regularly on mobility topics for Information Week, NoJitter.com, Webtorials, Network Computing, and UCStrategies.com
- Published hundreds of columns and articles as well as white papers, reports, product comparisons, and industry research including the State of UC and the State of Mobile Security surveys for Information Week
- Wrote the book: *Voice over Wireless LANs- The Complete Guide* (Elsevier, 2007)

Session Outline

BYOD, Mobile Security and Mobile Device Management

- Developments in Enterprise Mobility
- Mobility Management and BYOD
- Mobile Policy Development
- Mobile Device Management
- Panel: Managing Mobility in a BYOD World (11:30 AM to Noon)
- Mobile Device Ecosystems
- The Tablet Revolution
- Mobile Security Overview
- Authentication Options
- Encryption and Privacy
- Software Security
- WLAN Security
- Panel: WLAN Developments: Trends, Technologies, and What Enterprise Users Should Be Doing Them (3:45 to 4:15 PM)
- Wrap Up

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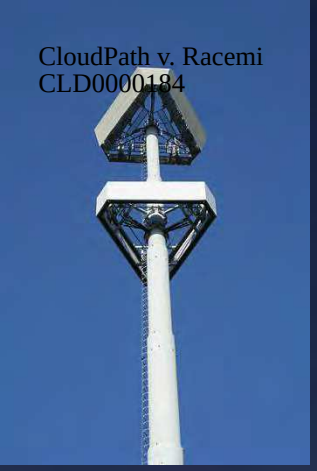

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Developments in Enterprise Mobility

Wireless Landscape

- Consumer focus dominates
- Consumer mobile experiences shape enterprise user expectations- enterprise will still require security, management, and support
- Devices Rule:
  - Mobile operators still key in selling and "financing" smartphones
  - Tablets are taking a different route to market
- With 4G, wireless networks now rival wired in reliability and capacity
- Spectrum demand still outstripping supply- Wi-Fi opportunity!
- Battery Challenges Persist

Macro Issues in Mobility

- WebRTC: Real time communications in a Web Browser
- HTML5: End of "Apps"?
- Rich Communication Service (RCS): UC-like capabilities from mobile operators
- Industry analyst Chetan Sharma predicts mobile data will be 95% of global mobile traffic by 2015
- VoLTE: VoIP comes to the mobile network
- Shared Data Plans : Shift from "ARPU" to "ARPA" ("Account")
- Fear of the dreaded "dumb pipe scenario"

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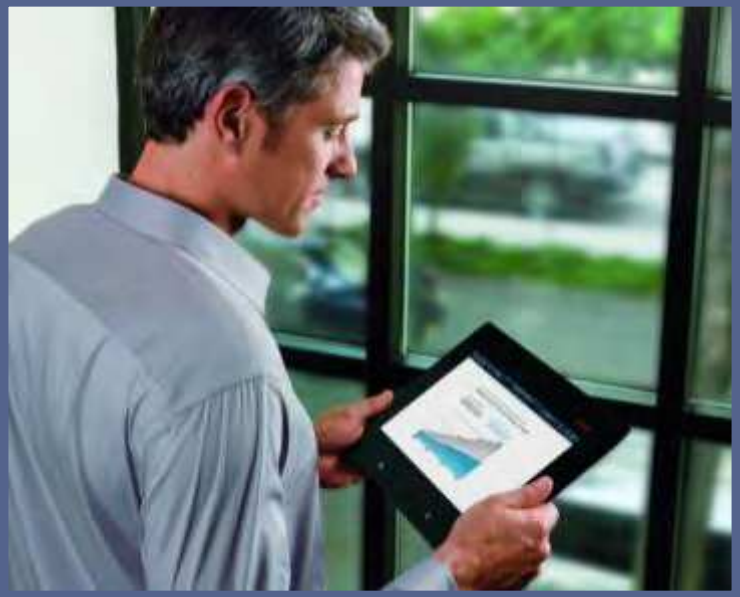
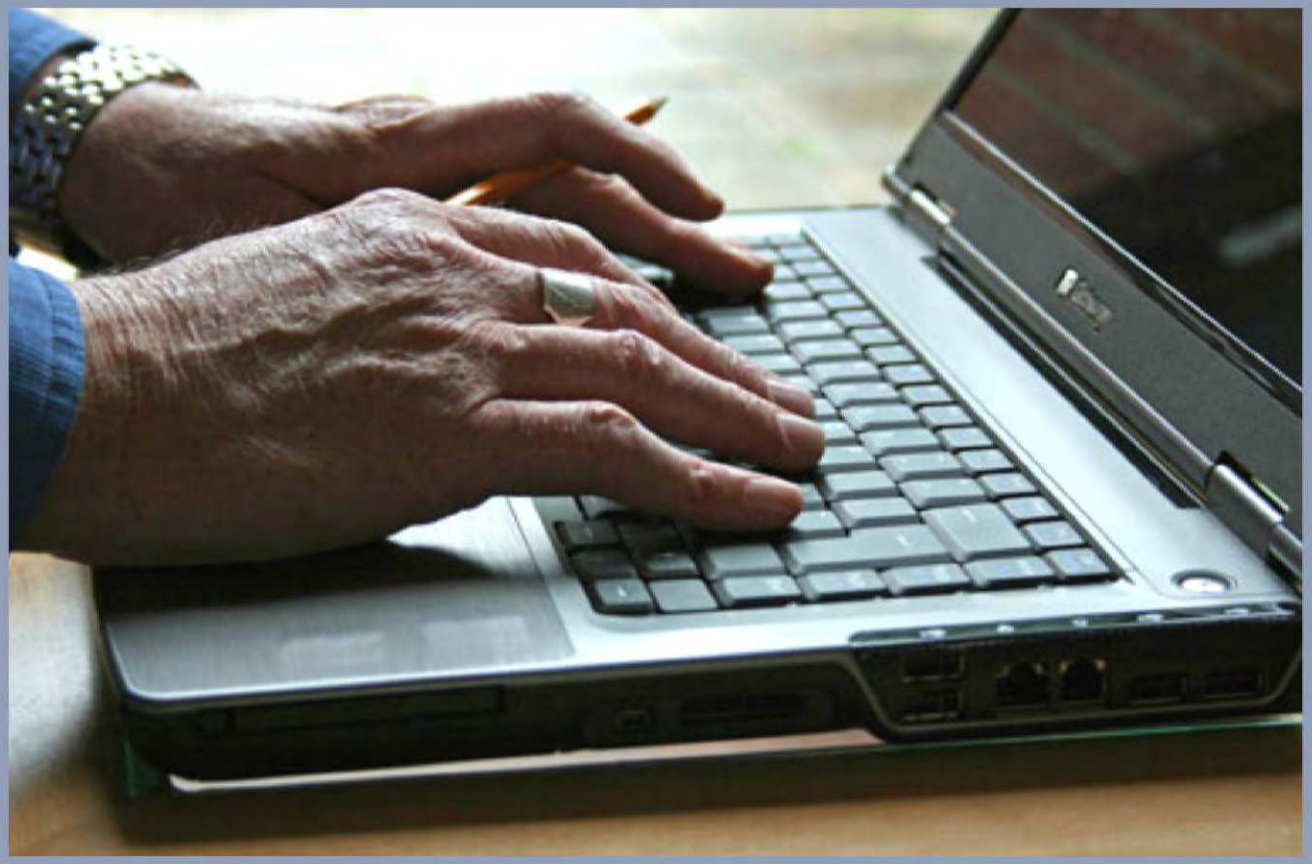
Rich Communications Services

- Standalone Messaging
- 1-2-1-Chat
- Group Chat
- File Transfer
- Content Sharing
- Social Presence Information
- IP Voice Call
- Best Effort Video call
- Geolocation Exchange
- Network based blacklist
- Capability Exchange based on Presence or SIP OPTIONS

Is This "Mobility"?



Or Is This "Mobility"?



How About This?

Or Is M2M "Mobility"?

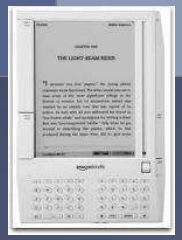
Smart Cars

Smart Machines

Smart Meters

Mobility Market

Networks	Devices	Applications
Public ○ Cellular - 2G, 3G, 4G ○ WiMAX ○ Specialized	○ Basic Phones ○ Feature Phones ○ Smartphones ○ Tablets ○ Laptops ○ Dongles/Wi-Fi Routers ○ Mobile Computers ○ M2M: Meter reading, healthcare monitoring, eBook readers, etc.	○ Voice ○ Non-Voice Communications - Text, pictures, email ○ Personal Info Management ○ Entertainment ○Business to Consumer (B2C) ○ Business to Employee (B2E) - Generic (Expense Tracking) - "Canned" (Salesforce.com) - Customized Line of Busine
Private ○ Wi-Fi ○ DECT ○ Specialized		



Mobility Use Cases

	Fixed	Nomadic	Local Mobile	Wide Area Mobile
Description	Stationary regular work location	Stationary but not at a regular work location	Mobile within the office	"Out and About"
Equipment	Desktop, Laptop, "Docked" Tablet	Laptop, netbook, tablet	Smartphone, tablet, mobile computer	Smartphone, tablet, mobile computer
Network Services	Wired LAN	Public Hot Spot, Home Wi-Fi,3G-4G	WLAN, 3G/4G	3G/4G

Average and Peak Up/Downstream 3G &4G Data Rates

Source: PC Magazine's Fastest Mobile Networks 2012

	Down Stream (Mbps)		Upstream (Mbps)	
	Average	Maximum	Average	Maximum
AT&T- 4G	13.71 Mbps	56.07 Mbps	2.87 Mbps	4.98 Mbps
Sprint- 4G	3.50 Mbps	11.98 Mbps	0.91 Mbps	1.62 Mbps
Verizon- 4G	8.89 Mbps	49.22 Mbps	6.46 Mbps	17.24 Mbps

Theoretical Maximum Data Rates for GSM Cellular Data Services

Technology	Peak Data Rate (Mbps)	
	Downstream	Upstream
GPRS	170 Kbps	170 Kbps
EDGE	473.6 Kbps	384 Kbps
UMTS	2.40 Mbps	307 Kbps
HSPA	28.0 Mbps	11.5 Mbps
HSPA+	42.0 Mbps	11.5 Mbps
4G LTE (Cat 3- 20 MHz Channel)	100 Mbps	50.0 Mbps

IEEE 802.11ac

- Main Features
  - More bandwidth efficient coding up to 256-QAM (max. was 64-QAM in 802.11b, 33% increase)
  - Channel Bandwidths to 160 MHz (up from 40 MHz in 802.11n)
  - Up to 8-spatial streams (up from a max of 4 in 802.11n)

    Note: Mobile devices will likely use only one spatial stream to conserve battery
  - Multi-User MIMO: Allows an AP to transmit to up to 4 clients simultaneously
  - FCC announced it is adding an additional 195 MHz to the U-NII band (5 GHz)

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IEEE 802.11ac

Theoretical Maximum Data Rate per Spatial Stream (in Mbps)										
MCS index	Modulation type	FEC Coding Rate	20 MHz Channel		40 MHz Channel		80 MHz Channel		160 MHz Channel	
			800ns GI	400ns GI	800ns GI	400ns GI	800ns GI	400ns GI	800ns GI	400ns GI
0	BPSK	1/2	6.5	7.2	13.5	15	29.3	32.5	58.5	65
1	QPSK	1/2	13	14.4	27	30	58.5	65	117	130
2	QPSK	3/4	19.5	21.7	40.5	45	87.8	97.5	175.5	195
3	16-QAM	1/2	26	28.9	54	60	117	130	234	260
4	16-QAM	3/4	39	43.3	81	90	175.5	195	351	390
5	64-QAM	2/3	52	57.8	108	120	234	260	468	520
6	64-QAM	3/4	58.5	65	121.5	135	263.3	292.5	526.5	585
7	64-QAM	5/6	65	72.2	135	150	292.5	325	585	650
8	256-QAM	3/4	78	86.7	162	180	351	390	702	780
9	256-QAM	5/6	N/A	N/A	180	200	390	433.3	780	866.7

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Max 802.11ac Data Rates

Channel Bandwidth	Theoretical Maximum Transmission Rate
20 MHZ	693.6 Mbps
40 MHZ	1.60 Gbps
80 MHZ	3.47 Gbps
160 MHZ	6.93 Gbps

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Enterprise Mobility Challenge

* Doing "business" with "consumer" tools
* Balancing user requests/preferences with enterprise requirements for security, control, and support
* Enabling business transformation based on mobility

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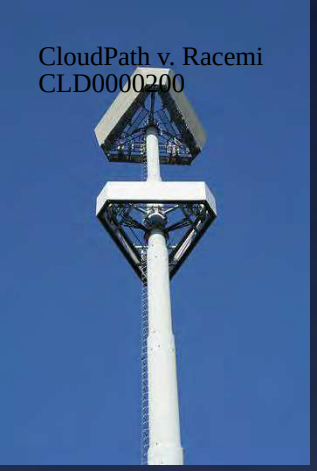

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Mobility Management and BYOD

Enterprise Mobility Benefits- Speed

* Accessibility: Reach critical people at critical times
* Productivity: Work more effectively out of the office
* Information Access: Immediate access to information to make decisions and respond to customers
* The Result
  1. Business Responsiveness: More efficient, effective, productive workers for faster decision making and better customer service
  2. Business Transformation: Access to information is one of the few ways a company can differentiate itself today
     * The right information
     * In the right hands
     * At the right time
     * For competitive advantage

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Business Transformation

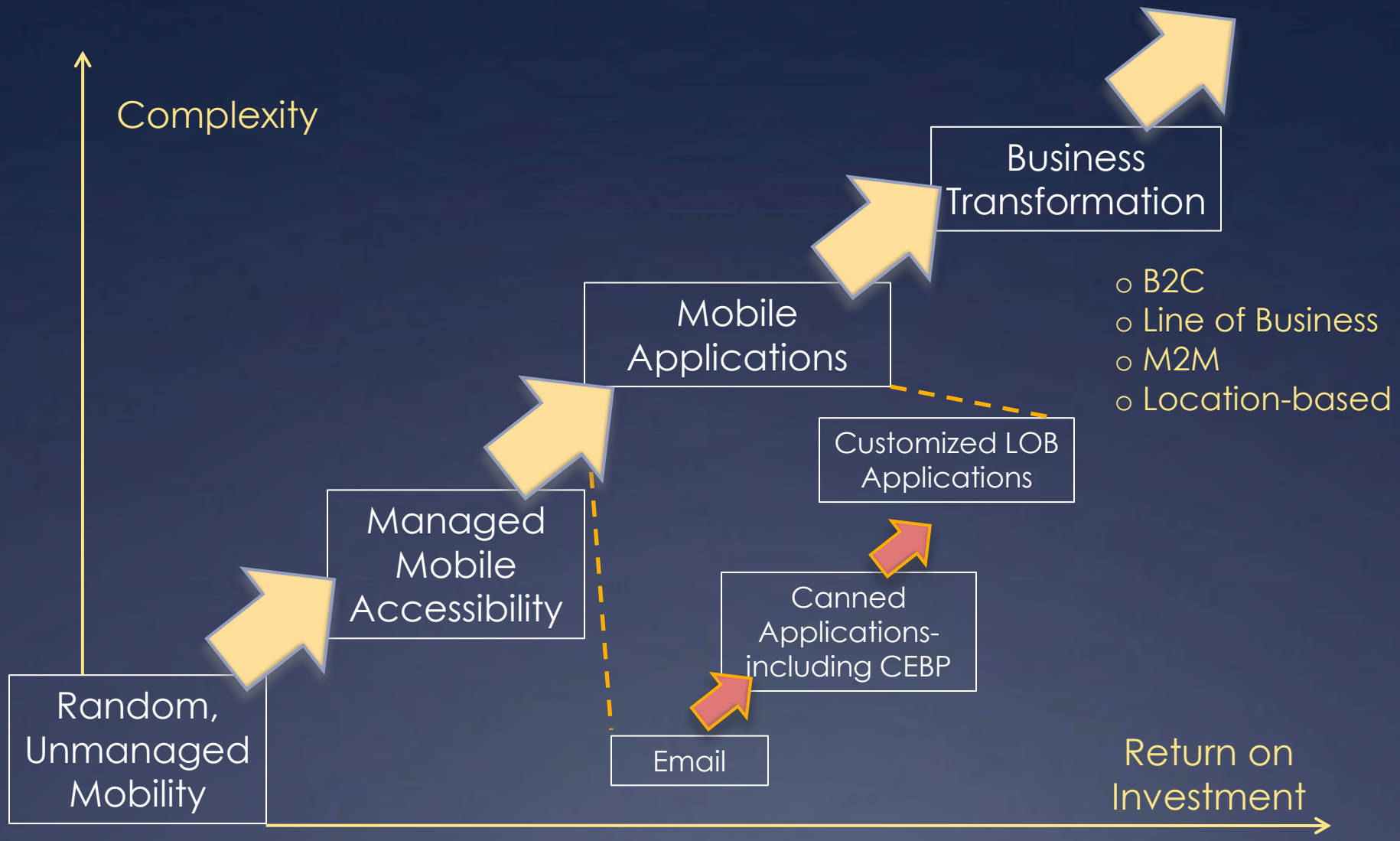
- In 1986, the company introduced the "SuperTracker", the hand-held bar code scanner- a first in the shipping industry.
- At the time, mobile data networks ran at 4800 bps!
  - Cellular Digital Packet Data (CDPD)
  - ARDIS
  - Mobitex/BellSouth Wireless Data
- Every one of their competitors has had to emulate it
- Package tracking is now one of the major features of online shopping- talk about anticipating a trend!

Business Transformation

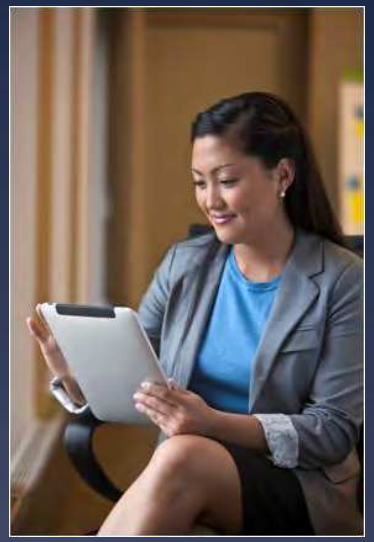
* Thousands of companies have launched app projects in the B2C space
  - The majority of those have been outsourced to external developers
  - Often those projects were initiated and executed outside of the IT area
  - Mobile customer service integration is one hot new area

* Our primary focus will be on B2E (Business to Employee) mobility initiatives

Mobile Applications Progression



Why BYOD?



- Increase user satisfaction
- Increase user productivity
- Reduce cost :
  - Devices and network services
  - User support and administration
  - More off-hours work
- Accelerate mobile technology adoption

Why Not BYOD?

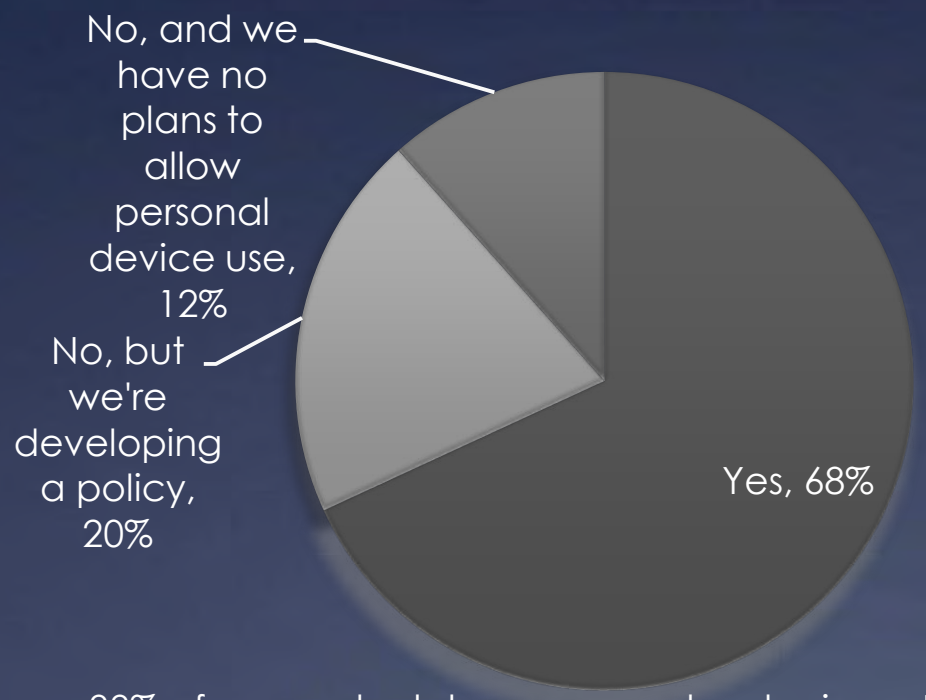
- Cost Savings or Cost "Transfer"- HR Impact
- Gray Areas: Traveling on business internationally
- Support "Transfer": Is this how you want your employees spending their work time?
- Security: Costs time and money
- More difficult to deploy LoB applications
- Ongoing commitment for IT to vet new devices and determine acceptability
- Mobility is the most important development in IT- we shouldn't disengage from it?

Will BYOD Save Money?

- Depends entirely on how you design the program
  - What (if any) level of reimbursement will you pay?
  - What level of support will be provided?
  - How technically capable is the work force?
  - Will you be implementing an MDM system?
  - Do you count "soft dollar" productivity gains?
  - Can we accurately measure the amount of time IT will be investing?
- The goal should be to better enable productivity and responsiveness

BYOD Acceptance

Does your mobility policy allow employees to use personal mobile devices for work?

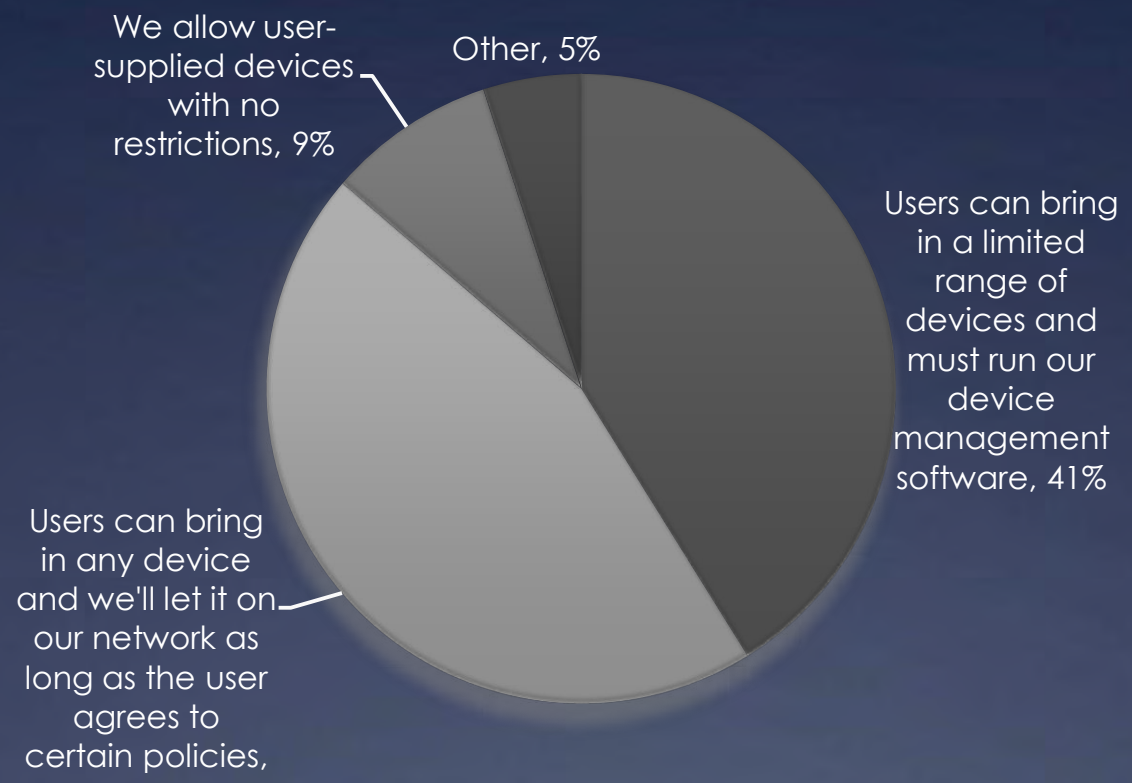


88% of respondents have or are developing a BYOD policy

Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

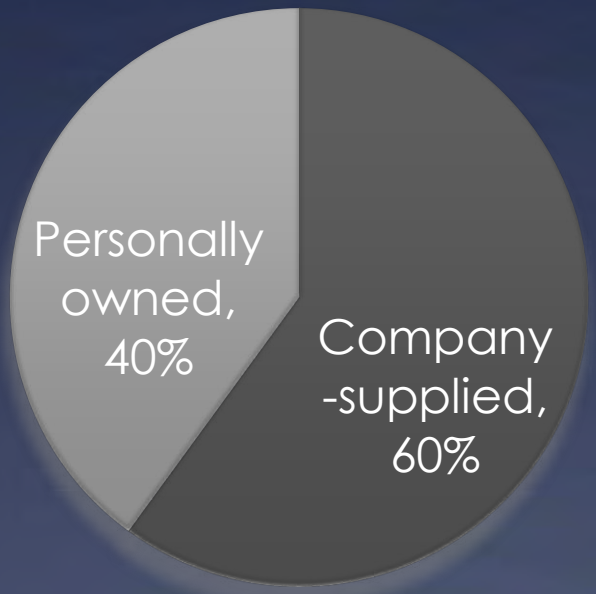
BYOD Policies

Which best describes your mobile device policy?



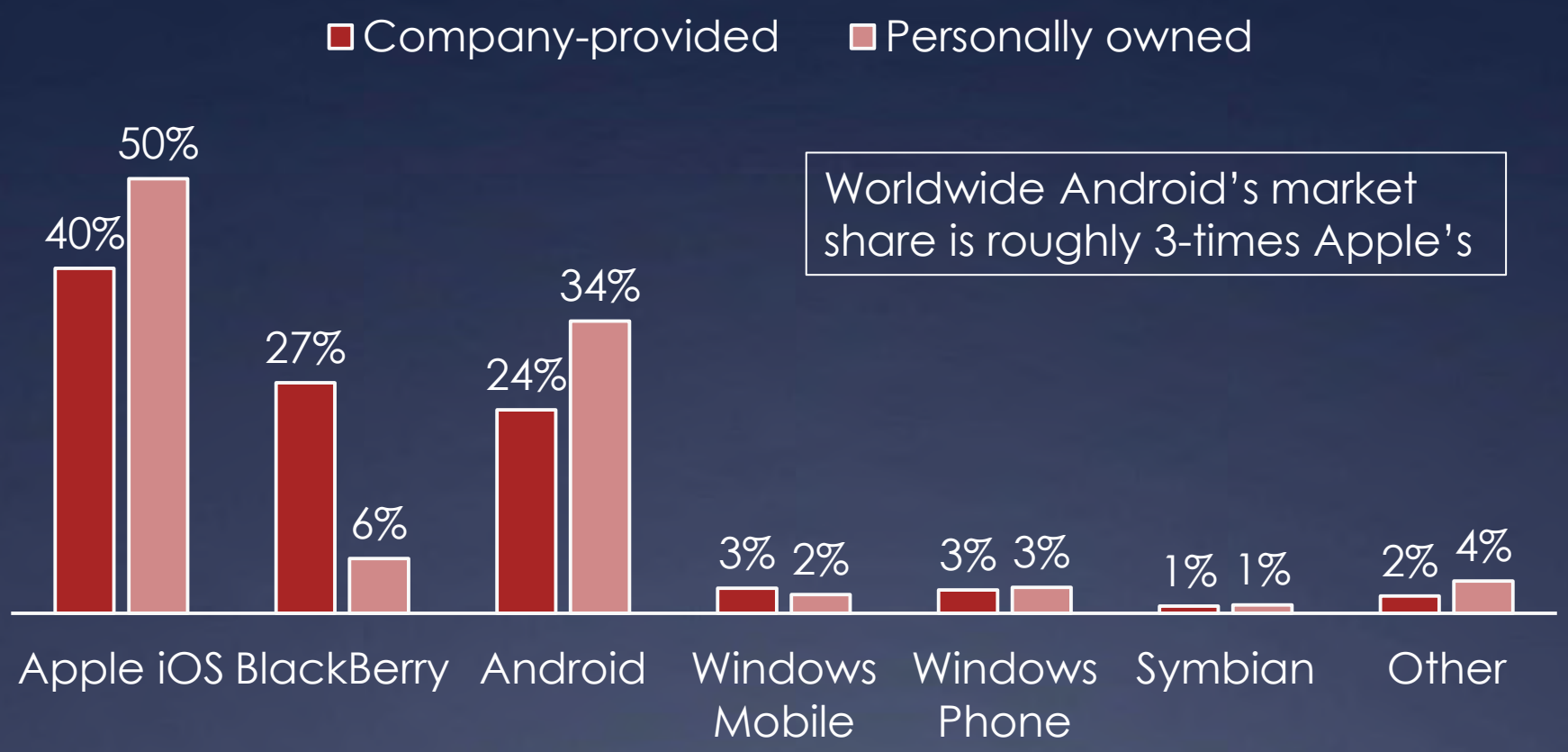
Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 375 respondents at organizations with, or developing, a policy for personal mobile device use

Percentage of Devices Accessing Corporate Email



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

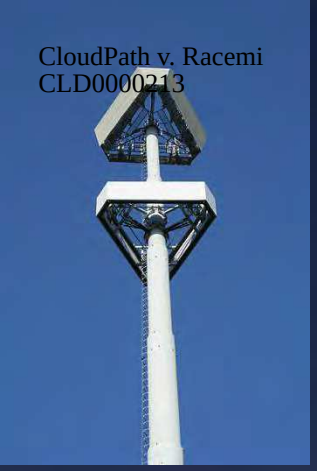
Percentage of Personally- vs Company-Owned Mobile Devices Accessing Corporate Email



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

IT Posture for BYOD

- For most organizations, BYOD is the reality
- IT is still responsible for security, management and compliance
- IT departments need to change focus:
  - Arguing with users is a losing battle
  - "Head in the sand", means "Career in the toilet"
  - Need to help users find the right tools (including "consumer" tools) and ensure security, management, and support are appropriate



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Mobile Policy Development

Mobile Policy Development

What you really need is a mobility plan- possibly different plans for company-owned and user-owned devices.

The "Mobility Policy" is simply where we write down the rules, roles, and responsibilities

Lifecycle Management

Mobility Policy

Selection, Purchasing and Procurement (Company-owned)

Provisioning/Enrollment
- Set-up
- Delivery
- Training (Security Awareness)
- User Acceptance

Ongoing Management
- Security Maintenance
- Applications Maintenance
- Expense Management
- Help Desk

End-of-Life
- Secure wipe
- Recycle/Release
- Replacement

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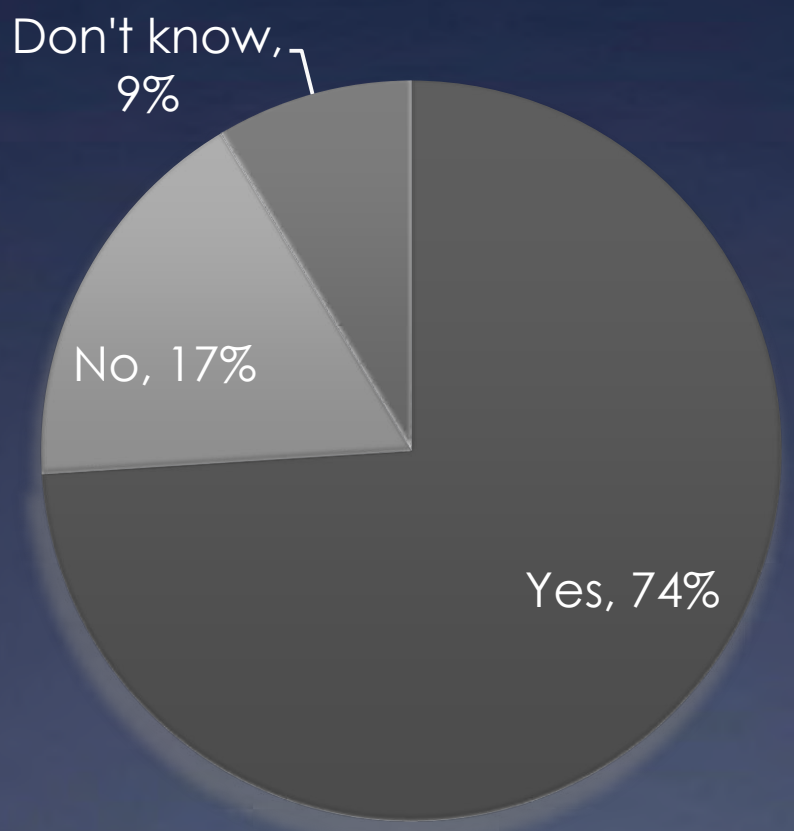
Policy Acceptance

Does, or will, the user have to read and accept the mobility policy before their device is allowed to access corporate email and other systems?



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 375 respondents at organizations with, or developing, a policy for personal mobile device use

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Some Questions to Ask

- Who is responsible for the mobility policy?
- Are all or just "some" devices going to be BYOD?
- Who should get a corporate provided phone?
- Who should be allowed to bring their own?
- How much (if any) of a stipend will be paid for personal owned devices?
- What are the tax, HR, and labor relations implications?
- Who will pay for MDM and other support systems?
- What kind of devices will be supported (dumb, smart, tablet, laptop)?
- For what purpose (voice, email, text, LoB, etc.)?
- What level of support will we provide, and will the same level of support be provided for all platforms regardless of ownership?
- What ecosystems, O/S releases, and hardware are supported?
- Who will be responsible for certifying new devices to be supported?
- Can we have group policies for for specific job categories?

More Questions to Ask

- Are the security and support policies the same for corporate and individually owned devices?
- How do we manage and maintain apps, including LoB apps, on multiple platforms?
- How will we manage and secure data/devices (including mobile malware and "jailbreak" detection)?
- Is the security on the internal Wi-Fi network sufficient?
- Will remote access through public hot spots be allowed?
- What will be used for remote access/over-the-air security?
- Do we need to control contact numbers?
- What are the procedures for BYOD device activation, training, and termination
- What are the procedures for corporate-owned device procurement, activation, training, and termination
- User responsibilities and penalties for non- compliance?
- How often do we revisit this policy?

Who's In Charge?

If you're serious about mobility, you need to have someone in charge, a Mobility Manager

- Should address all mobile technologies,- cellular, Wi-Fi, whatever (i.e. "anything with a radio")
- Passionate about wireless
- Recognize the importance of consumer technologies
- Also requires a strong IT background for security, project management, app maintenance, etc.
- Leader and team builder

Who Gets a Phone?

- Is this a business tool or a "perk"?
- Who gets a company-provided device?
- Typical BYOD Stipends:
  - Voice: $40/month
  - Voice and Data: $70/month
  - Taxable?
- Different treatment for executive, managerial, task worker, union member?
- Policy definition should be by job role
- Can union workers get emails after hours (overtime!)

What Ecosystems?

- There are significant differences in the security profiles of the various mobile O/S's
- The first step is to determine how serious a concern security is for the organization
- Mobile device management (MDM) systems can help ensure security, however, they too are limited based on the APIs that are exposed.
- You also need a system for vetting new devices and ecosystems before they are added to the approved list

Applications Management

- Supporting multiple ecosystems also makes it more difficult to mobilize apps
- Mobile Enterprise Application Platforms (MEAPs) that allow you to "write once, run on many" can ease the burden somewhat
- ISVs often have professionally developed apps for their systems
- Longer term, HTML5 may reduce or eliminate the problem by building capabilities into the browser
- In the end, "Business transformation" not "short-term employee satisfaction" should be the goal

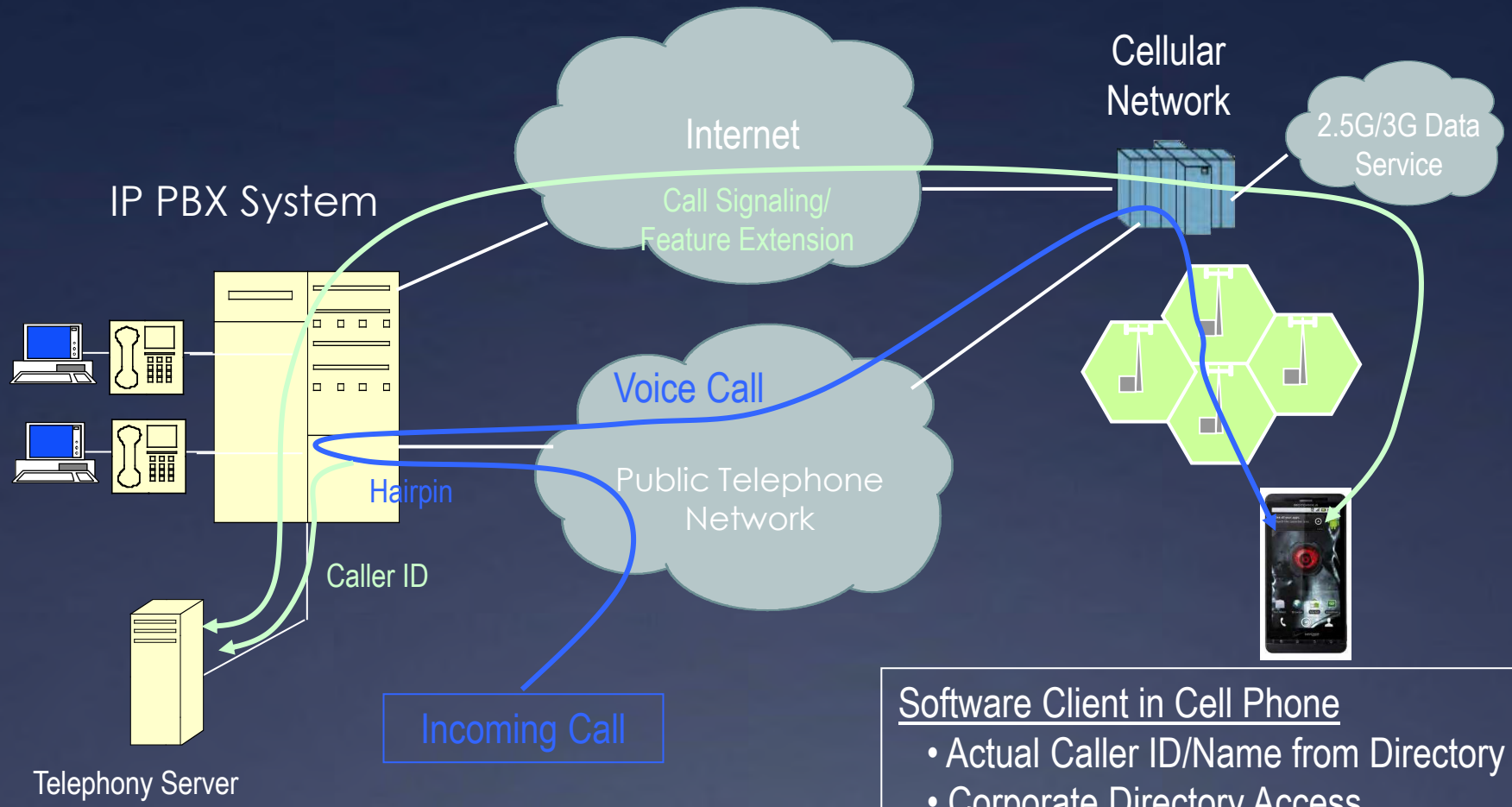
Security Management

- Need to understand the various threat vectors (malware, unencrypted data on lost devices, weak passwords, message interception, etc)
- Then determine how vulnerable each of the supported platforms are to each class of threat
- Develop a workable solution to ensure security or limit the services available to specific platforms
- If a platform can't meet your security requirements, limit what it can access or don't allow it
- Addressing general security awareness is important, but it is not a surefire solution- "Trust but verify"
- There should be penalties for risky behavior

Control of Contact Numbers

- Does the enterprise need to "own" the mobile number?
  - Customer facing personnel?
  - Can the user bring their own number?
  - Can we effectively prevent it?
  - Mobile UC clients (Lync Mobile, Cisco Jabber, Avaya oneX, …) hide the mobile number- but users hate them!
  - Companies have found numerous policy options
- If the number is a corporate asset, the onboarding process requires that the employee relinquish control

Mobile UC Clients



Software Client in Cell Phone

- Actual Caller ID/Name from Directory
- Corporate Directory Access
- Visual Voice Mail
- 4-digit dialing
- Desk phone Features

Cell Phone Use While Driving

* "Inattention Blindness"
  The failure to notice a fully-visible, but unexpected object because attention was engaged on another task, event or object.
* Cell phone use (regardless of "Hands-free") was associated with a 4-fold increase in accident risk and was comparable to driving with a blood alcohol level above the legal limit. University of Utah
* Regardless of who owns the phone, if an employee talking on company business is involved in an accident, the lawyers are coming after the company!

Employer Liability

- In 2010, the National Highway Traffic Safety Administration (NHTSA) estimated on-the-job crashes cost employers:
  - $24,500 per crash,
  - $150,000 per injury
  - $3.6 million per fatality
- Some cases to consider:
  - $21.6 million, technology company - 2007 crash where driver in company car talking on phone rear-ended a vehicle, causing one fatality
  - $24.7 million, commercial transportation company - 2008 crash where a driver was reaching for his cell phone, killed three people and injured 15
  - $21 million, beverage company - 2010 crash where employee using hands-free device crashed, resulting in severe injury

User Support

- Increasing the range of devices supported can also increase support costs
- Some organizations have simply withdrawn support for user-owned devices (bad move!)
- Others assist users in setting up email, but push other support issues to the mobile operators
- IT needs to stay engaged with users on mobility

User Support- Best Practices

- Consider different levels of support for different platforms
- Device specific questions should go to the carrier
- Give the users tools to help themselves:
  - Most assist in getting on email- do it with a good description on the mobile help web page
  - Develop Wiki's, crowd sourcing, knowledge bases
  - Post links to help forums
  - Don't be afraid to provide guidance on what you have learned in IT or from users
  - Be helpful, stay engaged, communicate!

Conclusion- Procedures

- The policy is simply where we write down rules, roles, and responsibilities
- What you really need is a plan for cradle-to-grave support for mobile devices and services
- Procedures for acquisition (if CRU), enrollment, operation, and disposal/termination will be required
- Recognize that "inconvenience" is a necessary byproduct of security- communicate the "whys"!
- Think in terms of "customer service" with the goal of making users productive with their mobility tools
- All of these plans should be revisited on an annual basis as a minimum

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Mobility Action Plan

* Pick a Leader: The first step will be to identify a manager to head up the mobility initiative with responsibility for all mobile technologies.
* Form a Team: All key stakeholders be included in the process including legal, human resources, accounting, security/compliance, and the business units.
* Determine what you have: Inventory the major types of devices and operating systems in use and seek input from users
* Develop the Mobility Plan and Policy and acquire the tools to support it
* Engage the Business Units: Reach out to the various business units to see how these mobile technologies can be integrated into business processes.
* Implement, Learn, Adjust, and Continue: Don't expect perfection on the first go-round.

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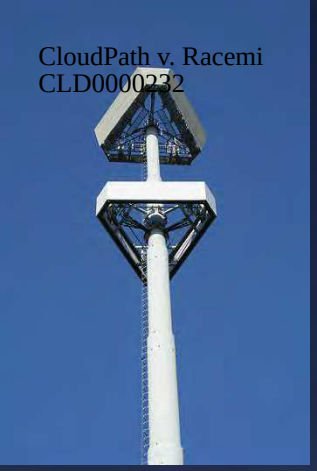
CloudPath v. Racemi
CLD0000232



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Mobile Device Management

Mobile Device Management (MDM)

- Can be a major element in both managing and securing mobile assets
- Pioneered by BlackBerry with the BES, now expanding to all platforms
- Capabilities vary with the mobile operating system
- SaaS and premises options available, $10 to $85 per device per year

SYBASE | An SAP Company

MobileIron

airwatch™

Tangoe

MaaS360 by Fiberlink

BoxTone Mobile Service Management

BlackBerry

zenprise Automating Mobile Management

Now Citrix

MDM Functions

- Asset Management: View devices, carriers, IMEI's, phone numbers, installed apps, usage information, etc
- On-boarding/Cancellation: Methods used to add new devices to the system (on-boarding), self-service capabilities, interface to directories (AD, LDAP), termination procedures, check user abilities to over-ride
- Software Management: Internal app store, manage updates, white-/black-lists, jailbreak/rooting detection, anti-malware
- Configuration Management: Centralized configuration of settings and registry entries, certificates, Wi-Fi profiles, etc. typically done by policy groupings

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MDM Functions

- Security Management: Enforce password (either "power-on" or for access to the secure container), password strength, idle timeout, onboard encryption (including SDI card), remote locking, geolocation for lost devices, "sandboxing" for corporate data, and ability to wipe of all or part of the data stored on the device
- Performance & Diagnostics: Memory, battery, and network information along with reporting and alert capabilities
- Back-up & Restore Device: In the event of major malfunction
- Expense Management: Monitor and alert for heavy usage (e.g. streaming video while traveling overseas)

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MDM Status

- BlackBerry essentially invented MD with the BES, which has now added supporting iOS and Android devices in BES 10 (formerly "Fusion")
- The need to support non-BlackBerry devices (primarily iOS and Android) brought MDM to the forefront
- Currently about 39% of organizations have MDM systems, but many more plan to acquire them
- Fragmented Market:
  Gartner found over 100 MDM vendors

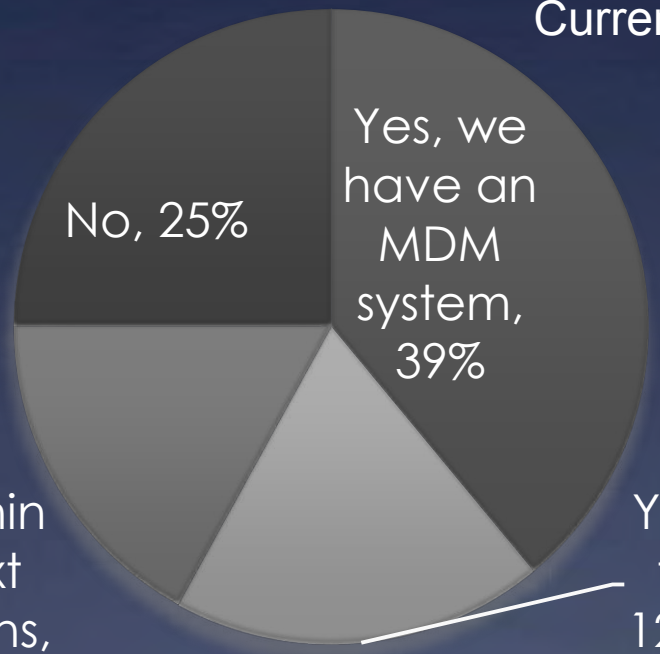
Active Sync/Notes Traveler Option

- Microsoft's Exchange Active Sync (EAS) and IBM's Lotus Notes Traveler can provide "the basics"
  - Password enforcement
  - Password strength
  - Remote wipe- Total!
- Information Week Survey on Mobile Security 2013
  - 34% of EAS users relying on it for password policy enforcement and remote wipe capability
  - 30% of EAS users have a separate MDM system

MDM Plans and Installations

Does your organization have or plan to acquire a mobile device management system?

Currently 39% but 75% in 2-years
(Up from 25% in 2012)



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 352 respondents who had knowledge of their organization's MDM plans

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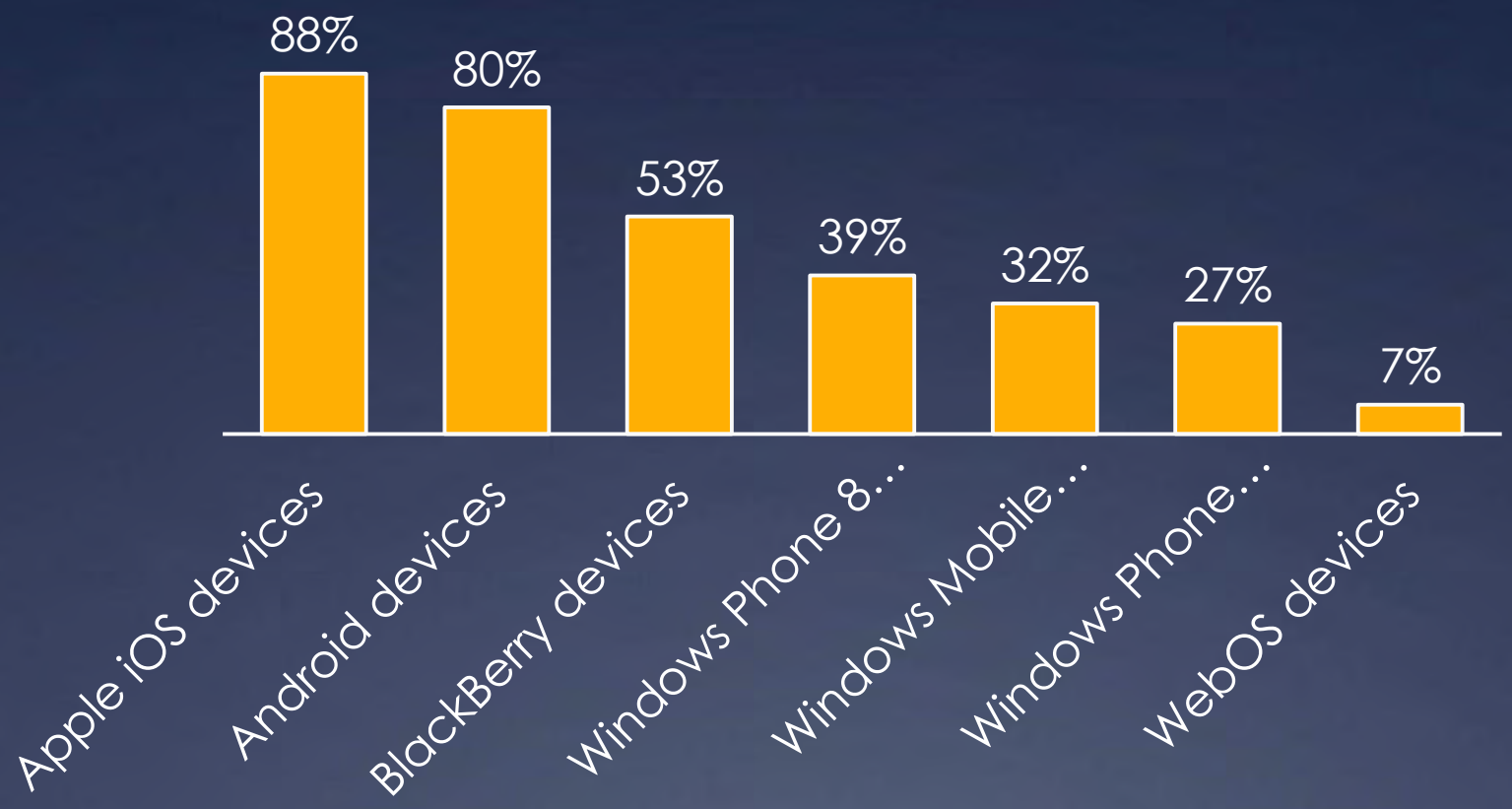
Devices Supported with MDM

Which of the following mobile platforms are, or will be, supported by your MDM system?



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 262 respondents currently using, or planning to use, a mobile device management system

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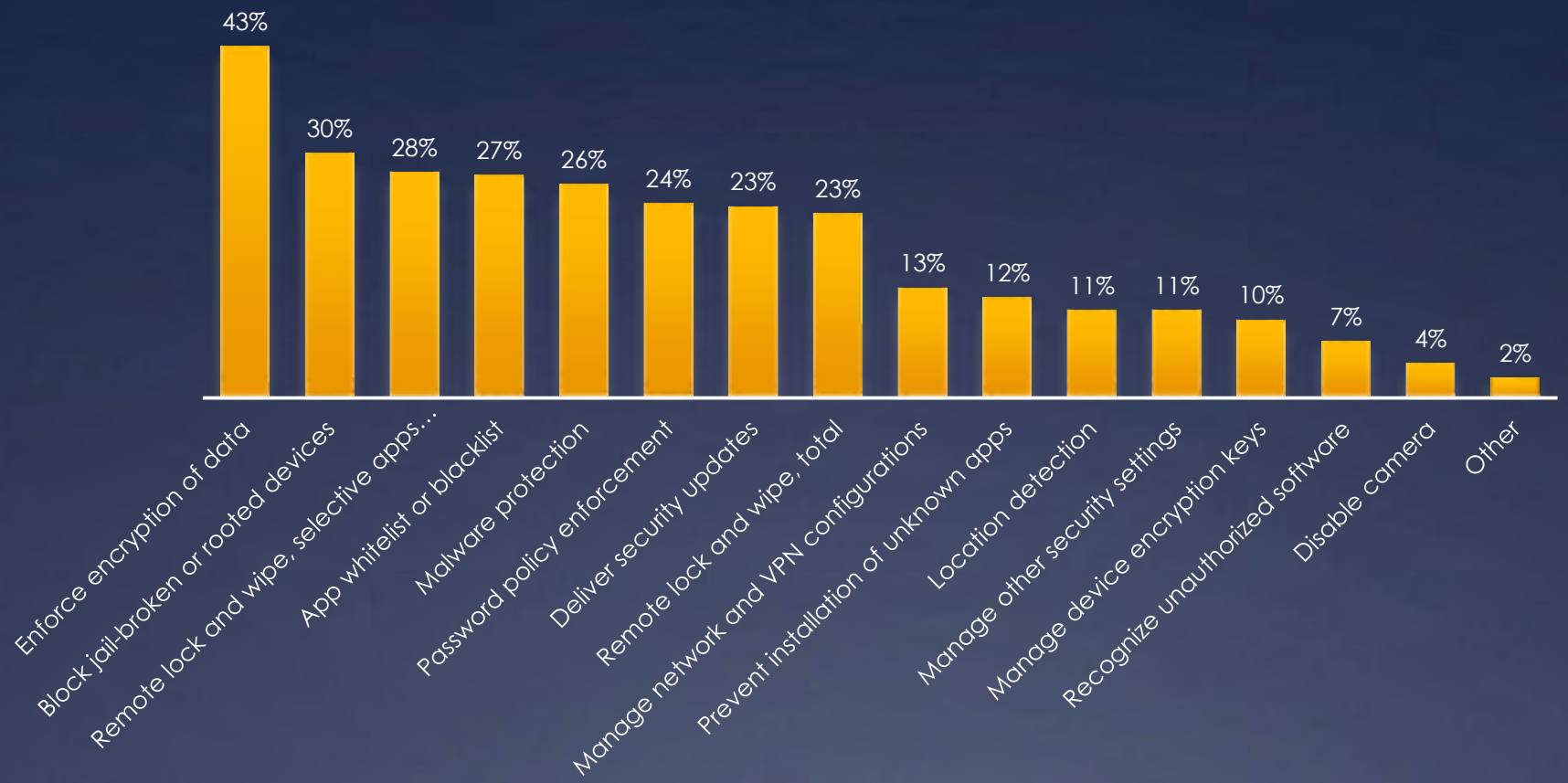
MDM System Functions

What do you consider the most critical security functions for an MDM system (Up to three responses allowed?



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 262 respondents currently, or planning to use, a mobile device management system

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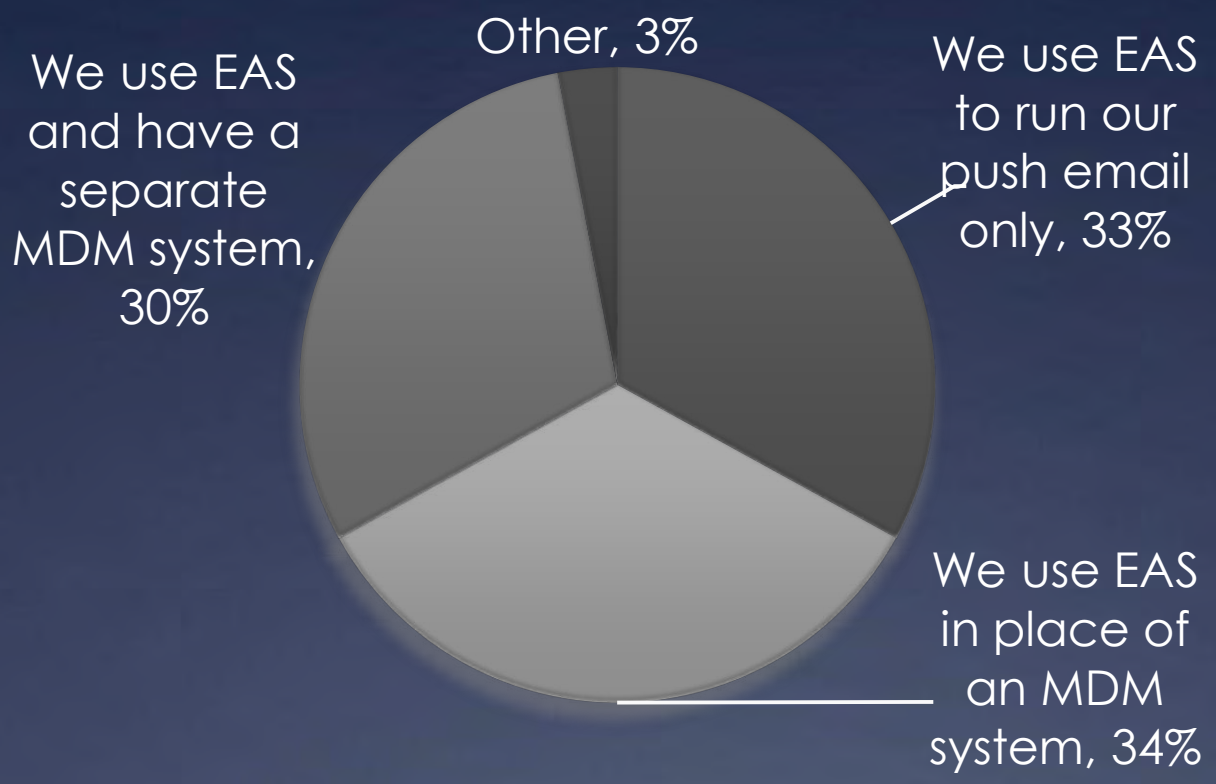
EAS As An MDM Solution

Which of the following best describes your organization's use of Microsoft's Exchange Active Sync?



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: Base: 259 respondents who use EAS

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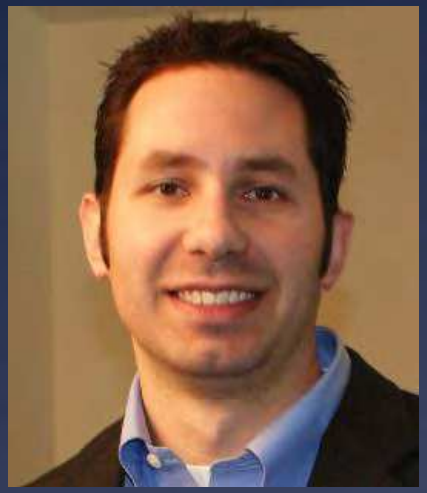
Gartner's Magic Quadrant for MDM

Key Steps in MDM Selection

- Have a mobility plan in place
- Determine what features/functions are most important to your organization
- Decide what deployment options are acceptable (e.g. on-prem, hosted, etc.)
- Identify the full range of devices you will need to support (hardware, O/S, releases)
- Develop a scoring system for key features <u>before</u> you begin the analysis

Panel:
Managing Mobility in a BYOD World



Jonathan Dale
Director of Marketing

MaaS360 by Fiberlink

Rob Haviland
Mgr. TME FlexCampus

hp

Sean Wisdom
Dir. End User Computing

DELL

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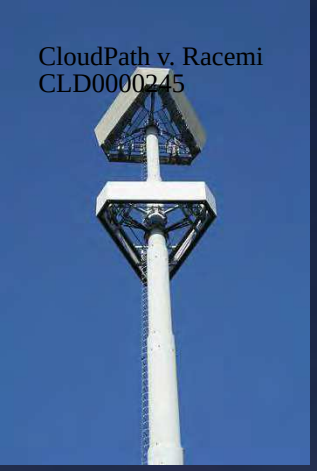

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Mobile Device Ecosystems

Mobile OS Environments

Worldwide Smartphone Sales

(Source: Gartner)

Operating System	4Q'11 Units (000s)	4Q11 Market Share	4Q'12 Units (000s)	4Q12 Market Share
Android	77,054.2	51.3%	144,720.3	69.7%
Apple iOS	35,456.0	23.6%	43,457.4	20.9%
BlackBerry	13,184.5	8.8%	7,333.0	3.5%
Microsoft	2,759.0	1.8%	6,185.5	3.0%
Bada	3,111.3	2.1%	2,684.0	1.3%
Symbian	17,458.4	11.6%	2,569.1	1.2%
Others	1,166.5	0.8%	713.1	0.3%
Total	**150,189.9**	**100.0%**	**207,662.4**	**100.0%**

Smartphones represent 44% of the WW handset market (207MM of 472MM devices) for 4Q 2012;
Y-to-Y smartphone growth rate was 38%

Worldwide Devices Shipments by OS (Thousands of Units)

Operating System	2012	2013	2014	2015
Android	497,082	860,937	1,069,503	1,468,619
Windows	346,457	354,410	397,533	570,937
iOS/Mac OS	212,899	293,428	359,483	504,147
RIM	34,722	31,253	27,150	24,121
Others	1,122,213	871,718	702,786	396,959
Total	**2,213,373**	**2,411,796**	**2,556,455**	**2,964,783**

(Source: Gartner, April 2013)

Top US Smartphones in Use

(Avg. for 3 Months Ending December 2012)
(Source: comScore MobiLens)

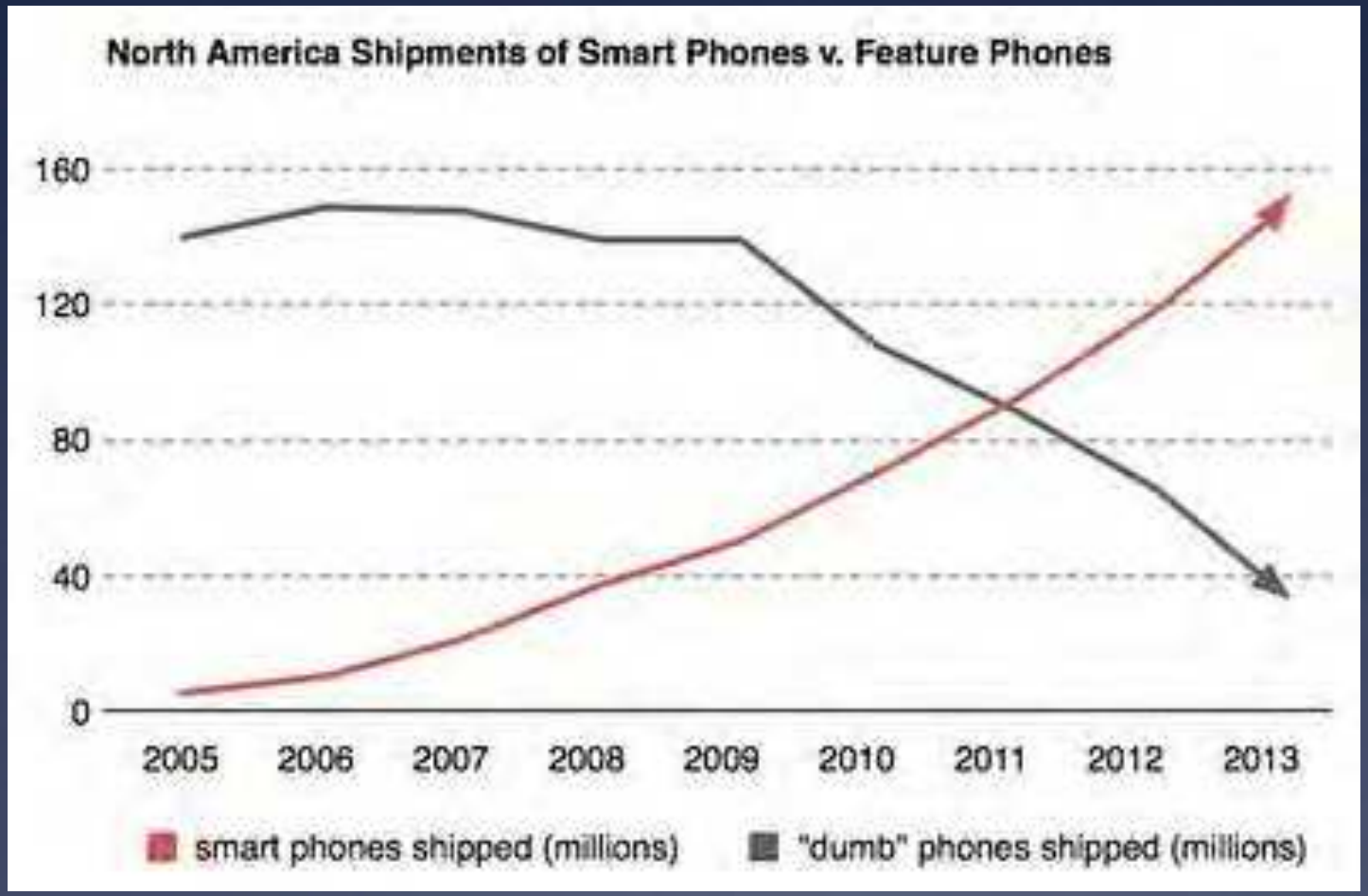
Operating System	Units (000s)	Share Dec'12
Android	67,230.6	53.4%
Apple iOS	45,701.7	36.3%
BlackBerry	8,057.6	6.4%
Microsoft	3,651.1	2.9%
Symbian	755.4	0.6%
Other	503.6	0.4%
Total	125,900.0	100%

70% to 21% Worldwide

Smartphones represent 54% of the US handset market (125.9MM of 233.2MM devices).

No. Amer Smartphone vs. Feature Phone Shipments

(Source: orbitmedia.com)



Not All Mobile O/S's Are Equal

- Need on device encryption and the ability to manage them remotely
- On Device Encryption:
  - BlackBerry- All models
  - iOS 3.0 and up
  - Android 3.0 (Tablets Only), 4.0 and up
  - Windows Phone 8 and up
- Good Technologies and the other MDM suppliers also offer encrypted "containers" or "sandboxes"

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Android

- Jumped past RIM and Apple to take the lead in the US and worldwide smartphone O/S markets
- Software Fragmentation: Eleven different releases in circulation and each handset manufacturer can add its own "wrapper"
- Control Fragmentation: Amazon and Chinese Internet giants Baidu and Tencent use Android but skip Google revenue apps like Gmail, Google Maps and YouTube. Kindle Fire cannot access the Android Market
- Two major steps between Google and the customer (handset manufacturer and mobile operator)- both of whom want to sell you a new phone rather than a software upgrade.
- Wide open development environment yields the best integrated mobile UC capabilities- and the most malware problems!
- Versions earlier than 3.0 lack onboard encryption unless used with a third-party solution like Good Technologies or 3LM
- Lots of controls to play with- favored by techies

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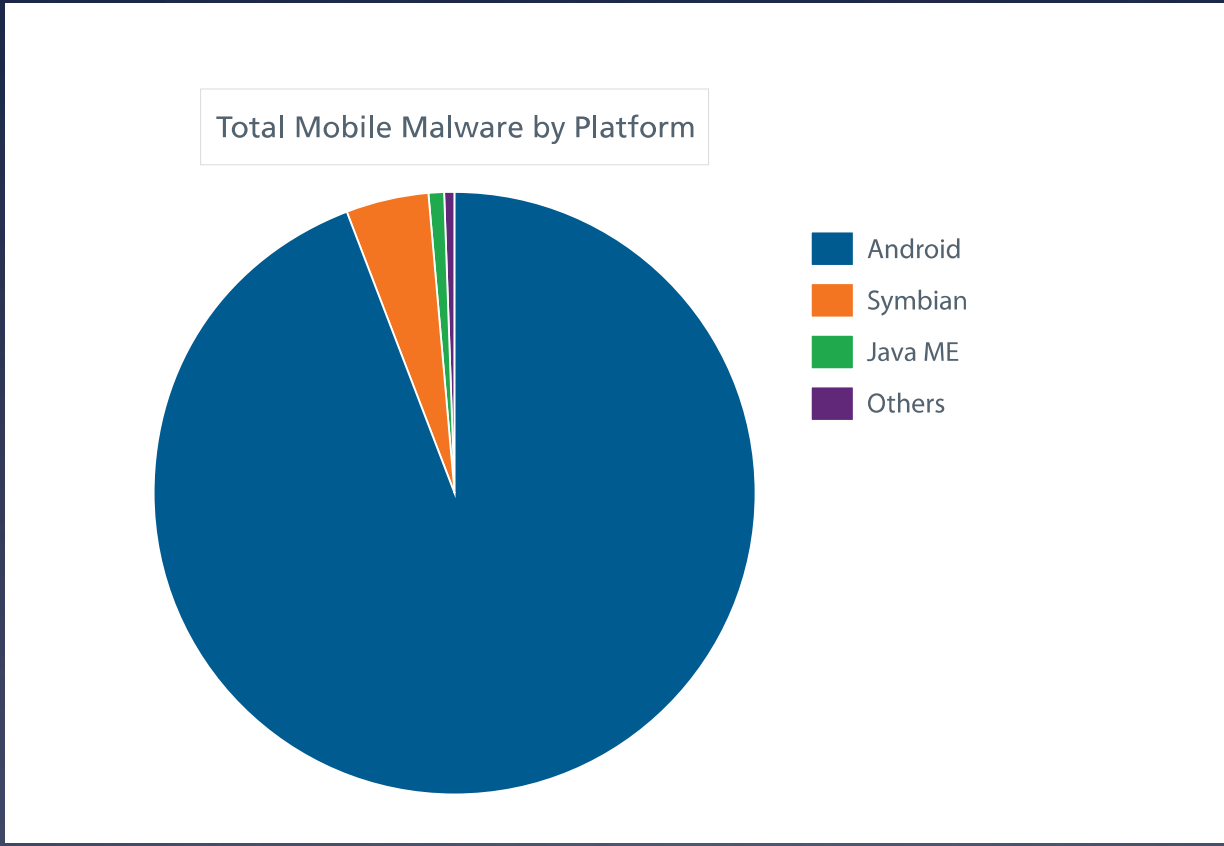
CLD0000253

Samsung SAFE/Knox

- Samsung has set up a separate marketing group specifically to targe
- SAFE™ (Samsung for
  - Virtual Private Netwo
  - On-Device Encryptio
  - MDM Partners:
    - MobileIron™, SAP, SC process
- Samsung Knox™
  - Dual Persona- Sec
  - App Managemen
  - On Device Encryp

Malware Threats



Source: McAfee Threats Report- Third Quarter 2013

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Apple iOS

- Still the smoothest and best integrated experience- if you happen to like it. Those who do are "wild" about it.
- "One size fits all" philosophy- few models, few options, no keyboards.
- Key to success has been letting the carriers sell the device while still controlling the software and maintaining contact with the customer
- Definitely improving with regard to enterprise requirements- most widely approved enterprise device after BlackBerry.
- Closed developer environment has been great for security but blocks developers from things like the dialer and Wi-Fi signal strength
- Excellent track record on application security
- Some concerns regarding Apple's ability to continue to drive the market in the post-Jobs era

BlackBerry

- Pioneer in enterprise mobility (and still has 76 million users worldwide), but a decline of momentous proportions- the stock went from $148 to under $8
- Strong loyalty in government and financial services
- Benefit of controlling both the mobile O/S and the MDM solution (i.e. BES):
  - BlackBerry Balance: Best integrated dual persona capability
  - Still marketing the MVS FMC solution
- Some interest in BES 10 as a multi-platform MDM solution

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Windows Phone

- A good product but has trailed with enterprise features
- Windows Phone 8 added on-device encryption and hooks for MDM systems
- Attractive "Metro" user interface (or whatever the new name is) will be ported to Windows 8-- "active tiles"
- Introduced a Lync client with "Mango" release (Phone 7.5), and Lync clients are now available for iOS, Android, and BlackBerry.
- Leveraging their strength in the enterprise market could make them a successor to RIM, but they seem reluctant to pursue extensions of the phone O/S to better integrate with other Microsoft products
- With RIM's decline, Microsoft may find a seat at the table
- Success will hinge on converting the Symbian population, or generating a groundswell- doesn't look likely at the moment.

Dark Horses

Windows Mobile/Windows Embedded Handheld

- The new name for Windows Mobile
- Still important for the mobile computing market (e.g. Motorola/Symbol Technologies, InterMec)
- Everything a mobile O/S shouldn't be- not making a comeback

Symbian

- Five years ago, Symbian was the number 1 mobile O/S in the world primarily due to its presence in Europe and AsiaPac
- Lost market share leadership to Android and iOS- insignificant in the US and shrinking elsewhere
- "Orphan" status with Nokia's shift to Windows Phone ("Osborned")
- Nokia sold more Symbian than Win Phone devices thru mid-2012!

Bada

- Developed by Samsung but virtually non-existent outside of AsiaPac

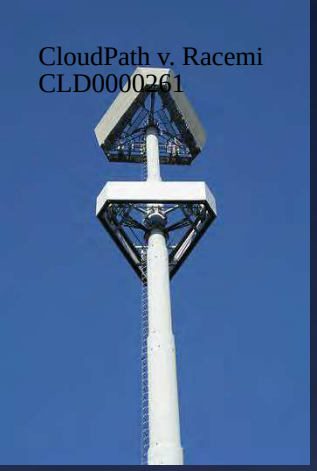
Support of Enterprise-Class Security Features

On a scale of 1 to 5, where 1 is "not at all secure" and 5 is "extremely secure", how would you rate these platforms' support for enterprise-class security features?

Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

Conclusion

- It is difficult to stay on top for long in the smartphone market- Palm to BlackBerry to iPhone to Android in about 12-years!
- Consumer issues drive product decisions far more than enterprise requirements
- Your mobility plan has to plan for an ongoing barrage of new device and O/S offerings
- Today it's "all about apps", but that imperative could change with the development of HTML5 and WebRTC
- While the frenzy is about mobile video, media players, and "fart apps", enterprise IT needs to focus on:
  1. How we make people more accessible and productive in the near term
  2. How these technologies can be integrated to optimize business processes over time



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The Tablet

Revolution

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CLD0000262

Tablet Differentiators

- Screen size: 7-inch, 10-inch (Round numbers)
- Operating Systems
  - Mobile: iOS, Android(s), QNX, Windows Phone, Windows RT (Windows on ARM)
  - Desktop/Laptop: Windows 7, Windows 8

- Network Support
  - 2G/3G/4G (few sales- multi device data plans may help)
  - Wi-Fi: 802.11a/b/g/n; 2.4 GHz, 5 GHz
- Memory and Processor Speed
- Peripheral interfaces (USB, HDMI, etc.)

Where we began…

Basic Phone

BlackBerry

Laptop

This was the mobile device line-up just 7-years ago

Where we began…

Basic Phone

BlackBerry

Laptop

"Finding a solution to a problem you didn't know you had"

Proliferation of Devices

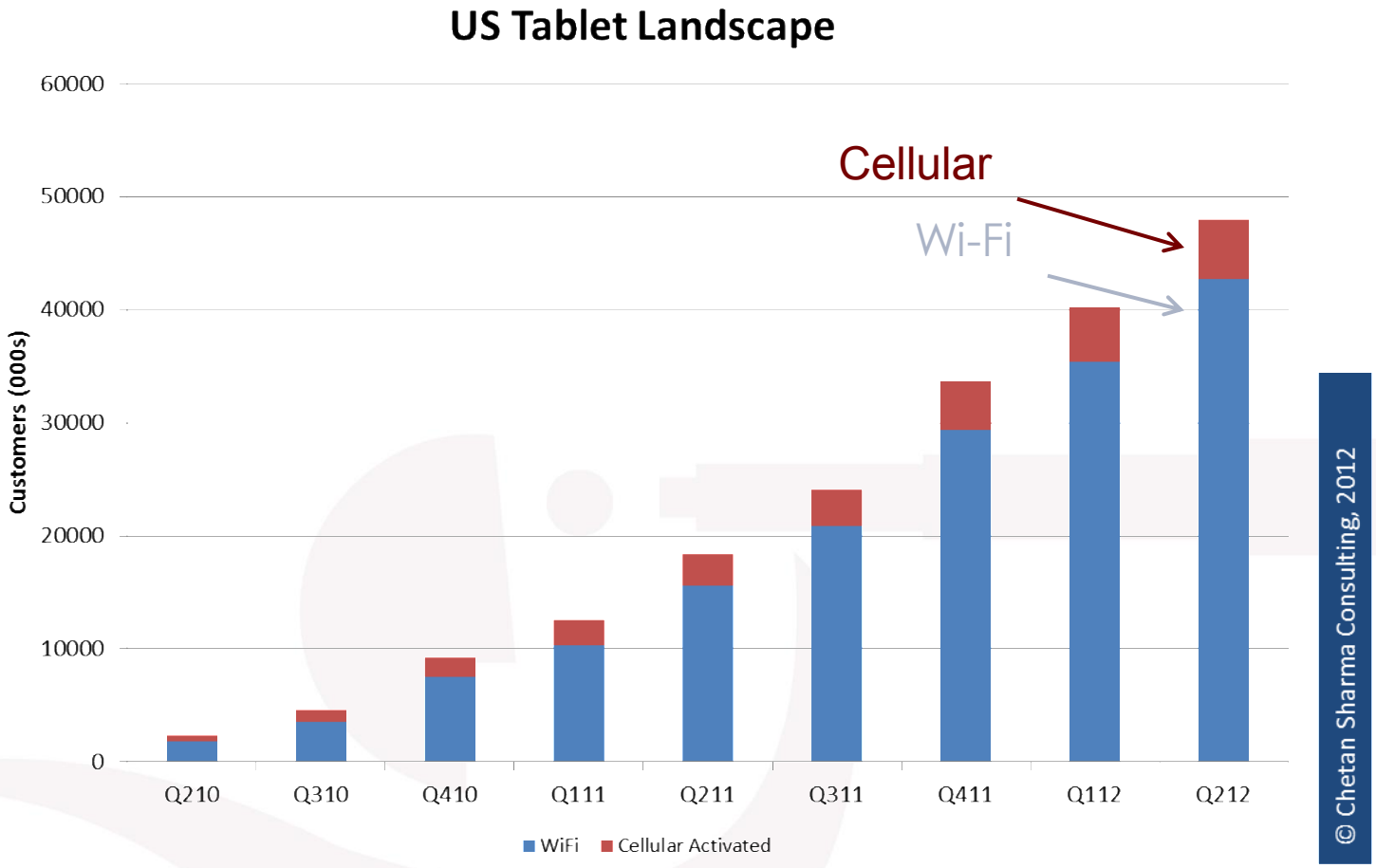
Basic | Feature Phone | Smart Phone | 7-inch Tablet | 10-inch Tablet | Netbook | Laptop

Closed O/S

Mobile O/S

Desktop/Laptop O/S

US Tablet Market



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Passion for Innovation

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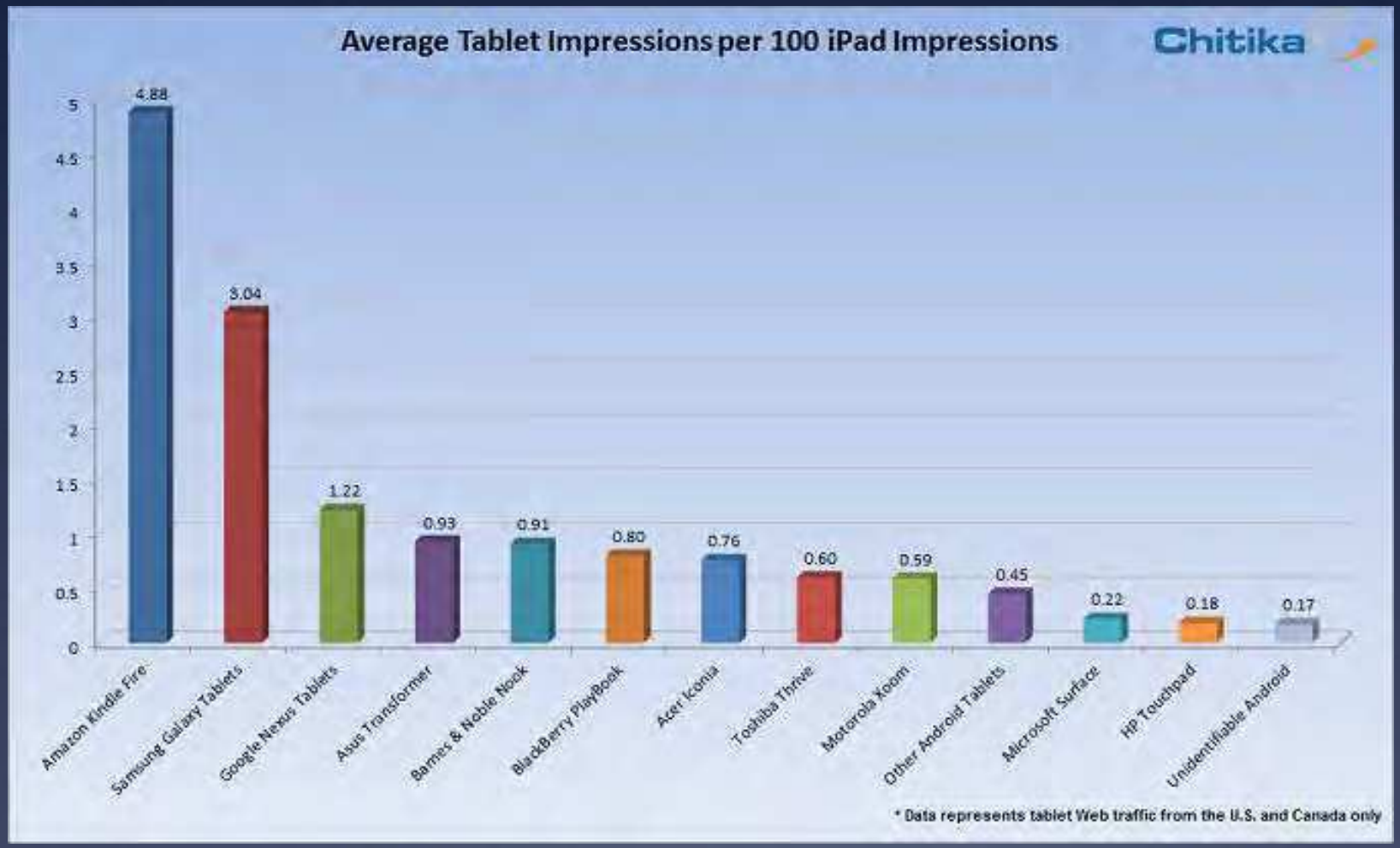
Worldwide Tablet Shipments By O/S

Source: IDC (Tablets); Gartner (Smartphones)

	4Q 2011		4Q 2012	
	Shipments (000s)	Market Share (%)	Shipments (000s)	Market Share (%)
Apple	15,500	51.7%	22,900	43.6%
Samsung	2,200	7.3%	7,900	15.1%
Amazon	4,700	15.9%	6,000	11.5%
ASUS	600	2.0%	3,100	5.8%
Barnes & Noble	1,400	4.6%	1,000	1.9%
Other	5,500	18.5%	11,600	22.1%
Tablet Totals	**29,900**	**100.0%**	**52,500**	**100.0%**
Smartphones	**150,189**		**207,662**	

Year-to-Year tablet growth = 78%!

iPad Versus Other Tablet Types



December 8th to December 14th 2012- U.S. and Canada only

W'wide Device Shipments by Segment
(000's of Units)

400% Growth
2012 to 2015

	2012	2013	2014	2015
PC (Desk, Notebook	341,263	315,229	302,315	271,612
Ultramobile	9,822	23,592	38,687	96,350
Tablet	116,113	197,202	265,731	467,951
Mobile Phone	1,746,176	1,875,774	1,949,722	2,128,871
Total	**2,213,373**	**2,411,796**	**2,556,455**	**2,964,783**

Source: Gartner (April 2013)

Tablet Assessment

* Proliferation of devices has given users more choices- something for everyone
* Engaging user interface makes you want to find things to do with it
* Short term, major "cool factor"- sales presentations
* Lots of arguments over 7- versus 10-inch
* Data input capabilities still challenging
* Tablet (like "Mobile") O/S's leave a lot to be desired

Tablet Applications

- Data Consumption
- Voice/Audio Conferencing
  - As tablets lack a basic cell phone capability, voice must be done as VoIP over Wi-Fi or 3G/4G cellular
- Video
  - Considerable consumer interest - Business demand unknown
  - Products from Apple, Avaya, Damaka, Polycom, and Vidyo
- Web Collaboration/Screen Sharing
  - Appears to be the sweet spot for tablet collaboration
- With keyboard and desktop O/S (i.e. "Windows Tablet")
  - Anything you can do with a netbook or laptop

Windows Tablets

* New category- Having it both ways
* Fast booting
* Data consumption: Still fun and easy
* Presentations: Same "Wow Factor" as other tablets
* Carry one device instead of two
* Email/Web Surfing: Fun and easy, but with a better reply capability
* Content Creation: With hard keyboard and docking station it effectively "becomes" a PC with Office

Market Developments

- Apple still holds a commanding lead
- Android coming on strong- Replay of smartphones?
  - $200 price point: Kindle Fire, Google Nexus
  - Cisco quit; Avaya still trying (sort of)
- Microsoft Surface hedging its bets (Surface RT, Surface Pro)
- Windows-based tablets make it a "work" device, without losing the touch interface users prize

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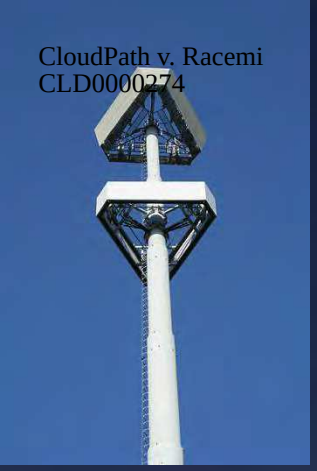

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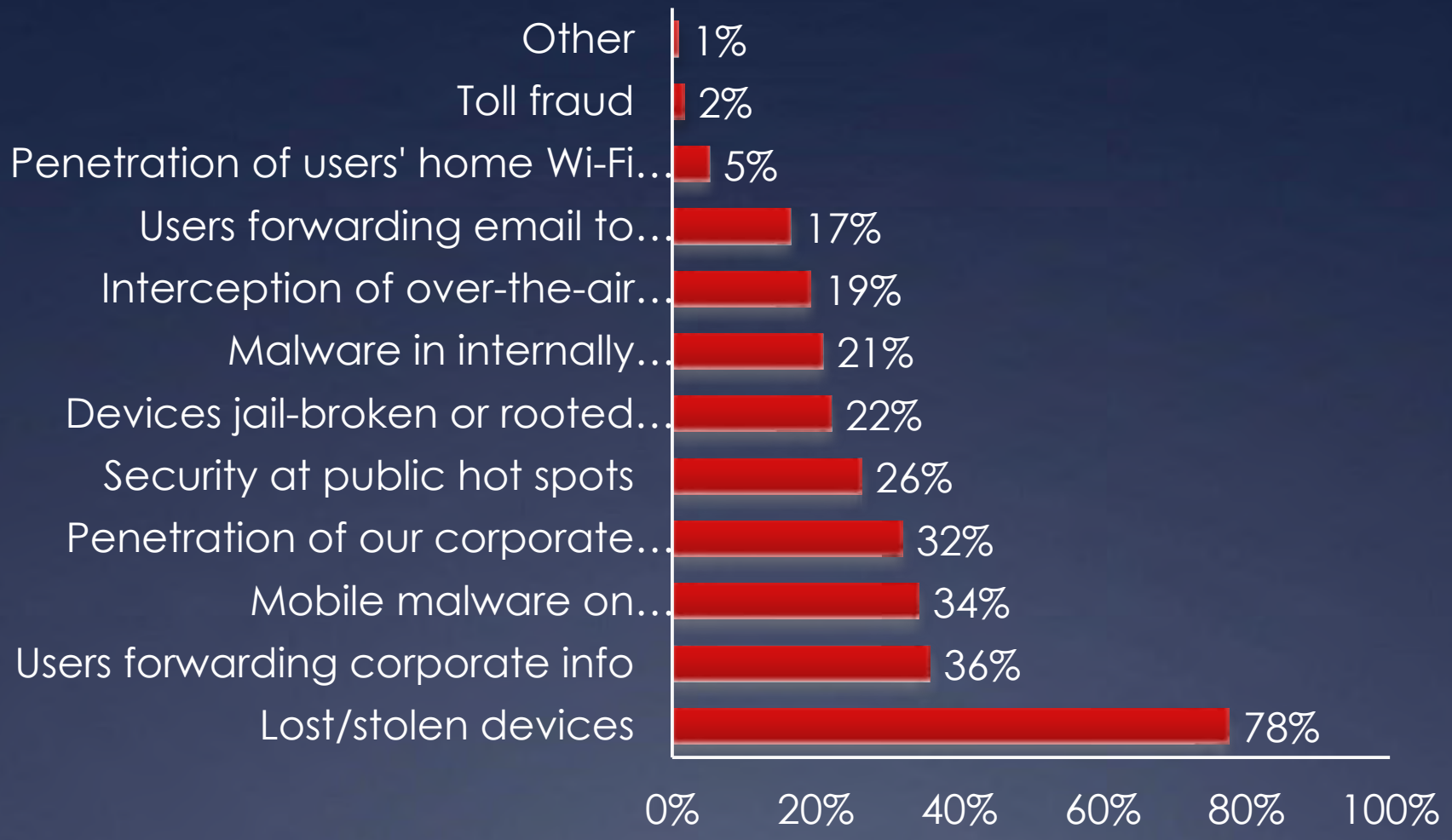
Mobile Security Overview

Mobile Security Expert

Mobile Security Management

- Need to understand the various threat vectors (malware, unencrypted data on lost devices, weak passwords, message interception, etc)
- Then determine how vulnerable each of the supported platforms are to each class of threat
- Develop a workable solution to ensure security or limit the services available to specific platforms
- If a platform can't meet your security requirements, limit what it can access or don't allow it
- Addressing general security awareness is important, but it is not a surefire solution- "Trust but verify"
- There should be penalties for risky behavior

Mobile Security Concerns



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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Mobile Security Landscape

- The range of vulnerabilities varies with the type of network and type of wireless devices being used
- Desktops and laptops are secured- smartphones and tablets, "not so much"
- Wi-Fi was our first exposure to mobile security, but smartphone/tablet security is now the bigger issue
- Lack of a well-publicized mobility disaster can make it difficult to get management attention and funding
- Most organizations haven't recognized the shift that occurs in going from BlackBerry to BYOD

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Variety is Not the "Spice of Life"

- Wireless Networks
  - Cellular: 2G (GSM, CDMA), 3G, 4G
  - WiMAX
  - Wi-Fi
  - Bluetooth
  - Specialized

- Wireless Devices
  - PC Operating Systems: Windows, Mac, Linux
  - Mobile Operating Systems: Android, iOS, BlackBerry, Windows Embedded Handheld, Windows Phone, Bada

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Challenges in Wireless Security

- Radio Networks
  - Anyone with a receiver tuned to the right frequency can read the signal
  - We can add radio jamming to the list of denial of service options
- Variety in Wireless Devices
  - Each of those devices (laptops, smart phones, VoWi-Fi handsets, credit card terminals, etc.) may have a different operating system and can support multiple wireless interfaces
- Variety of Wireless Networks
  - Cellular, Wi-Fi, and Bluetooth, and possibly WiMAX, satellite, or point-to-point microwave systems
- Data Leakage
  - Easy to forward emails or files to unsecure locations (e.g. Dropbox)

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Special Challenges

- Mobile devices are easy to lose and are great targets for theft. New carrier program for lost/stolen devices may help
- "Security" is inconvenient, so left unsupervised employees often fail to follow policies regarding what information can be stored on a mobile device, the requirement to secure that information, or do regular back-ups
- BYOD: When devices are owned by employees, do we have the right to erase them? Not in France, Germany, or So. Korea!
- There is a general lack of recognition for the value of information that is stored ("It's just my calendar")
- IT needs to communicate the severity of the threat to users and build a "culture of security"

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Major Regulatory Requirements

Regulation	Major Requirements
Sarbanes-Oxley	All publicly-traded companies must: • Maintain adequate internal control structures and procedures for financial reporting • Assess the effectiveness of internal control structures
HIPAA	Requires maintenance of administrative, technical, and physical safeguards to: • Ensure the integrity and confidentiality of patient information • Protect against threats or hazards and unauthorized uses or disclosures of patient information
PCI Data Security Standard	Any merchant using payment cards must: • Build and maintain a secure network • Protect and encrypt cardholder data • Regularly monitor and test networks, including wireless networks

Major Regulatory Requirements

Regulation	Major Requirements
Graham-Leach-Bliley Act	Protects personal financial information held by financial institutions
California Senate Bill 1368	Requires that any organization that does business in California and owns or licenses computerized personal information to disclose any security breach to any resident whose information was believed to have been disclosed
PIPEDA	Personal Information Protection and Electronic Documents Act (Canada) Established privacy principles such as providing adequate security for the protection of personal information collected, used, or disclosed in the course of commercial activities

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The Cost of Security Breaches

- Regulatory fines
- Criminal liability from banks and customers for failing to protect confidential information
- Loss of customer and investor confidence
- Damage to the corporate brand
- Loss of business information that could put the company at a competitive disadvantage
- IT staff time and loss of user productivity to recover

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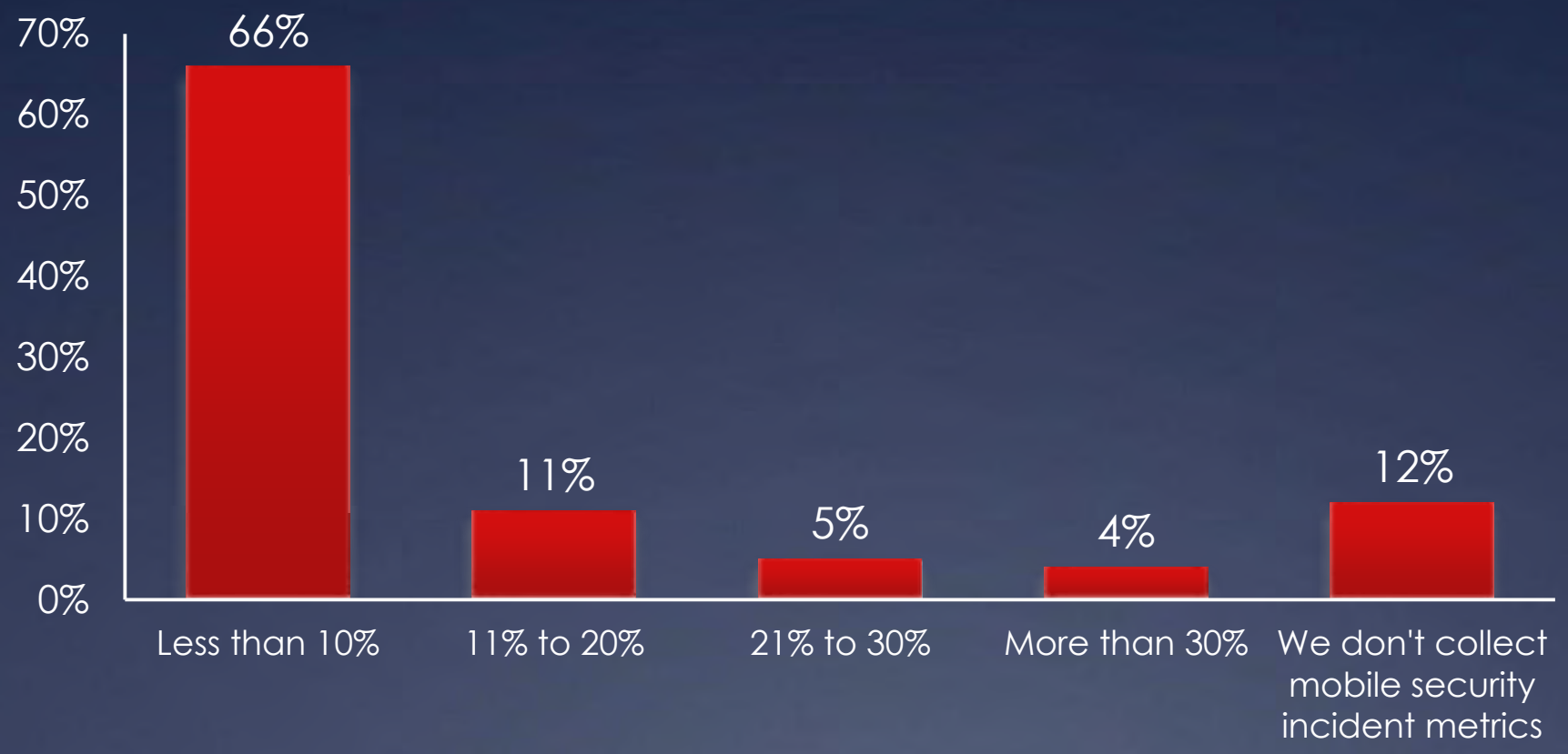
Security Incidents

What percentage of the mobile devices you manage, including laptops, experience security incidents in a given year



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 382 respondents with knowledge of mobile security breaches

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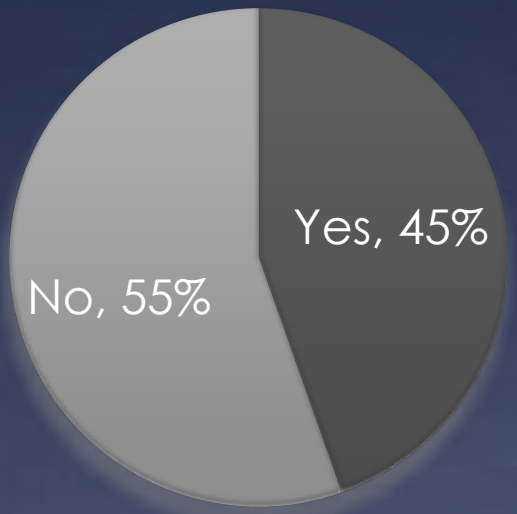
Missing Mobile Devices

In the past 12 months, has any mobile device containing enterprise data, including laptops or netbooks, come up missing (including accidental loss and theft)?



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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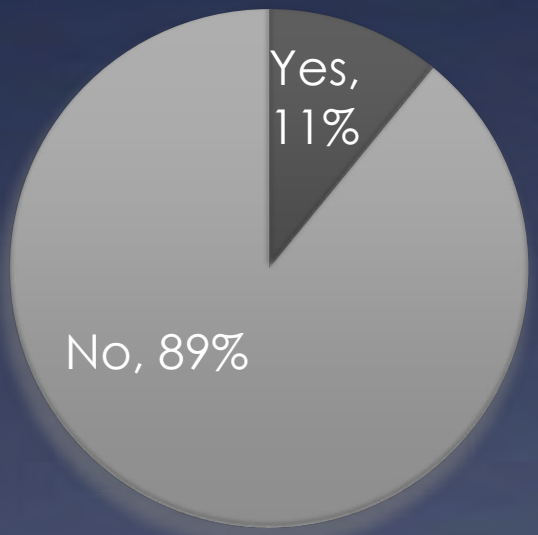
Public Disclosure Requirement

Did that data loss issue require public disclosure?



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 189 respondents at organizations with missing mobile devices containing enterprise data

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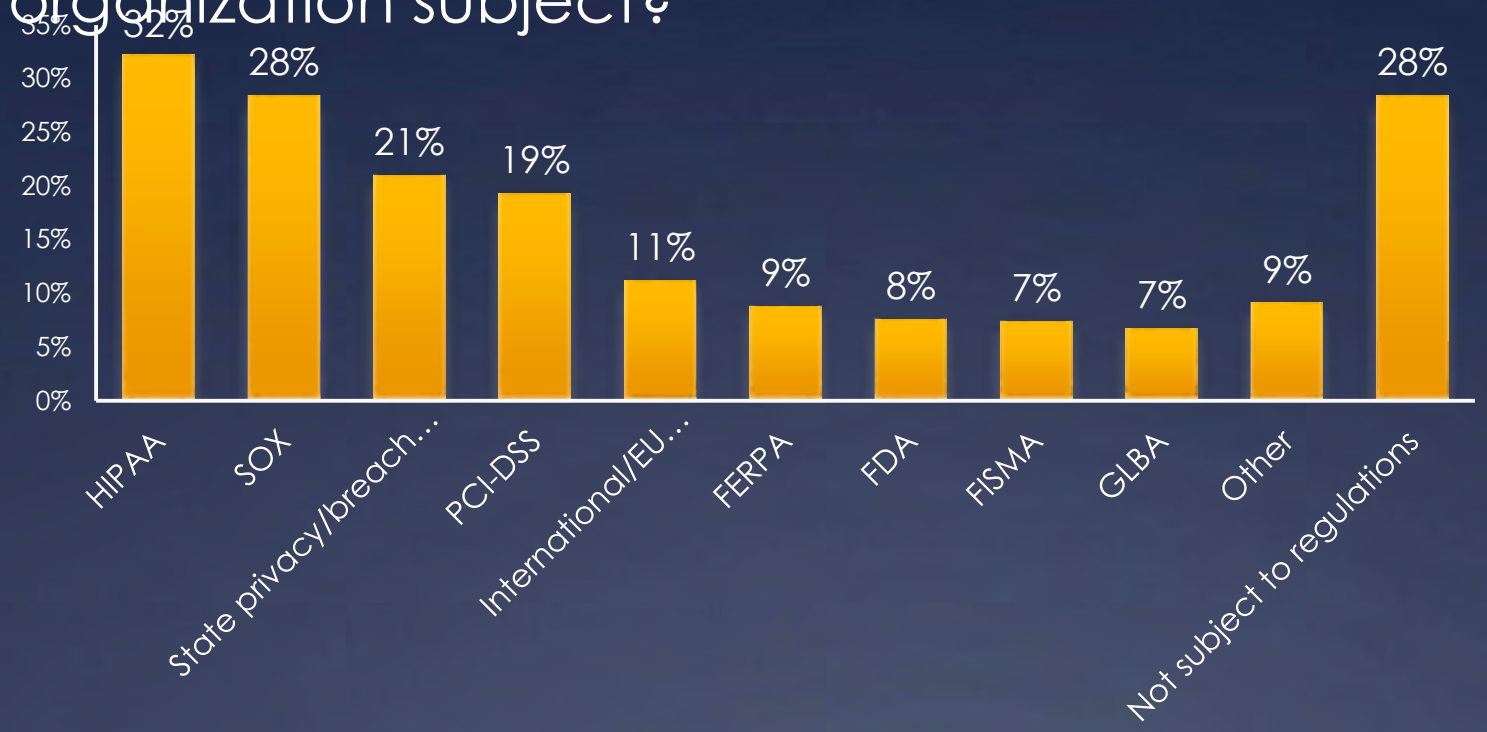
Regulatory Compliance

To which of the following regulations is your organization subject?



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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Network Security: Defense in Depth

- Defense in Depth is an ongoing process describing a multilayered approach to network security
- Adequate network security cannot (and should not) be accomplished with a single device or a single product
- And it's not just several "rings of protection", it's protecting against all threat vectors

Threat Vectors

Data in Transit
(Manageable Concern)

Data at Rest
(Major Concern)

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Security Balance

Four Factors in Network Security

1. Authentication:
   - Insuring that only authorized users are provided access and the appropriate level of access
2. Privacy:
   - Protection from eavesdropping on data in transit
   - Protection from theft of data stored on devices or servers
3. Software Security
   - Protection from viruses, worms, spyware, trojans, key loggers and other malware that is designed to steal data or degrade system performance
4. Network/System Availability:
   - Denial of Service attacks against networks or servers

Mobile Security Policy Recommendations

- Even if the devices are user-owned, IT is still responsible for security
- Security standards should be consistent regardless of who owns the device
- Management must be appraised of the threat that security flaws can create, understand the inconvenience factor in all security systems, and take an active role in ongoing compliance
- The policy should be written and address all mobile and wireless devices, including those at remote sites (i.e. not just headquarters)
- All data leaving the premises, via communications or transportable media, must be adequately encrypted (VPN, SSL, WPA2, SRTP, etc) and accessible only with a strong password
- On-device encryption and strong power-on passwords for all devices should be required
- Require procedures for ensuring software updates on all devices

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Mobile Security Policy Recommendations (Cont'd)

- All portable devices should require regular back-ups
- Continuous Wi-Fi monitoring should be required within all company facilities to insure policy compliance (Smartphone hot spots are a growing problem)
- Policy should address all wireless devices including wireless keyboards, cordless phones, and specialized devices
- Particular attention should be paid to legacy devices that do not support the latest security features
- Ongoing end user education/alerts must be a central element of the security plan along with real penalties for non-compliance
- "Trust but Verify"

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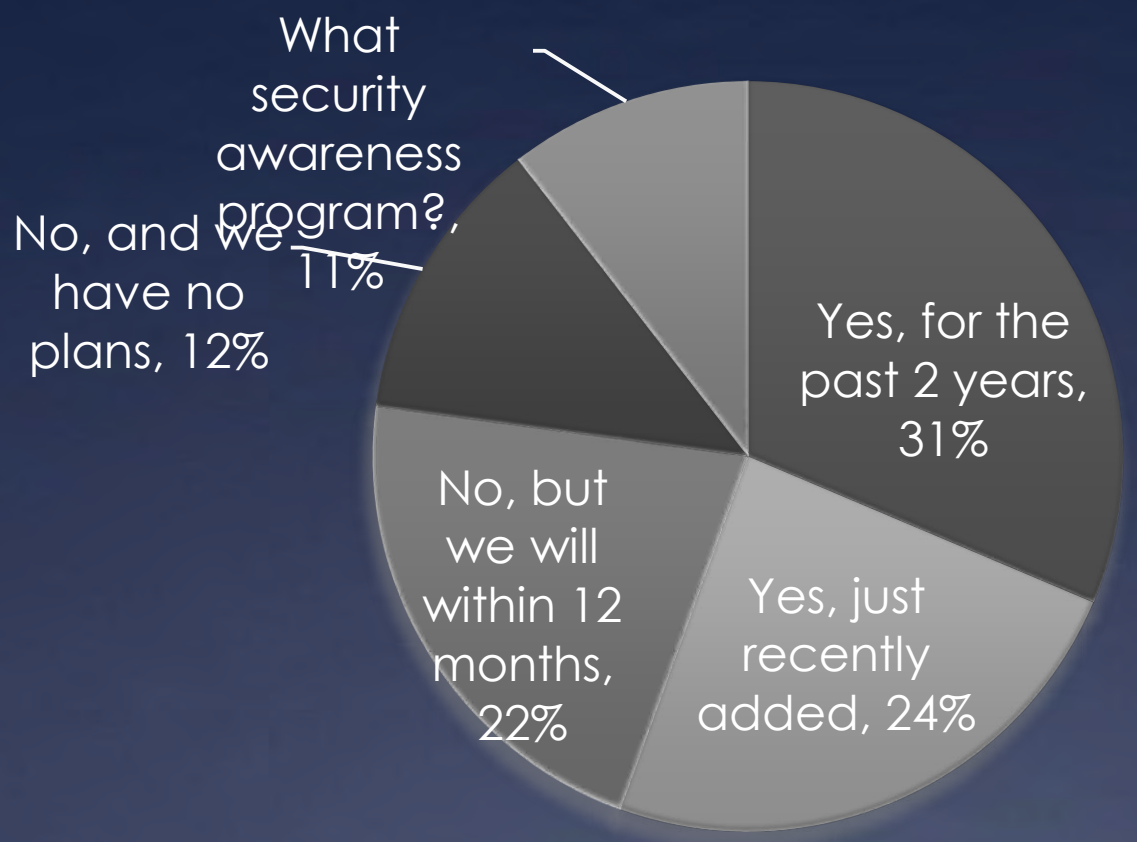
Security Awareness Training



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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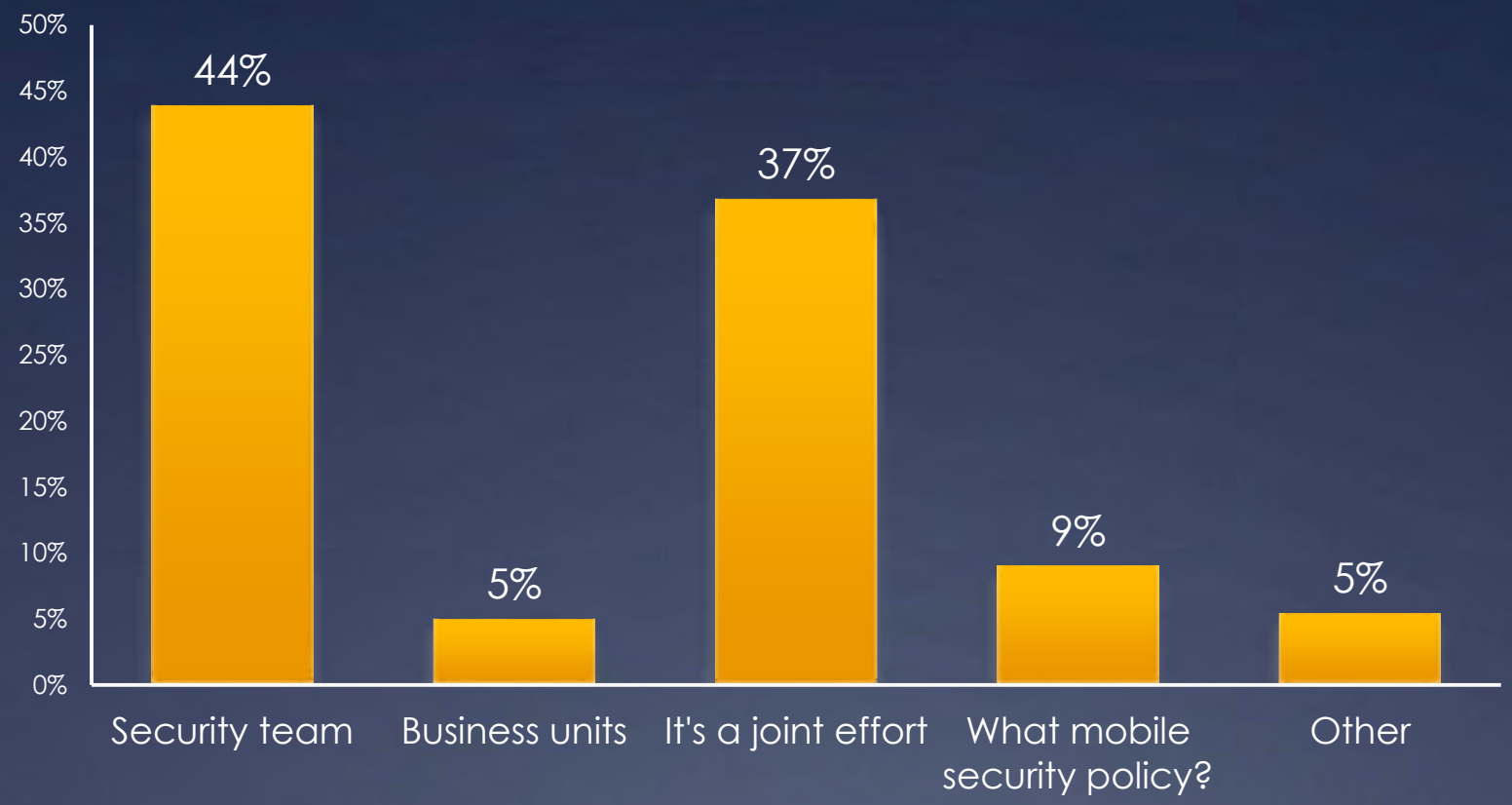
Security Responsibility

Who is primarily accountable for developing, implementing and enforcing your mobile security policy?



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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Recommendations

- "Take all comers" device policy is not a workable option
- Poll users to identify "preferred" devices
- Publish approved device list on a web page and clearly identify models and O/S releases
- Have a process for vetting new devices and operating systems
- Consider different support policies for different devices or crowd-sourcing support to minimize cost
- Assisting users in selection is a good idea all around

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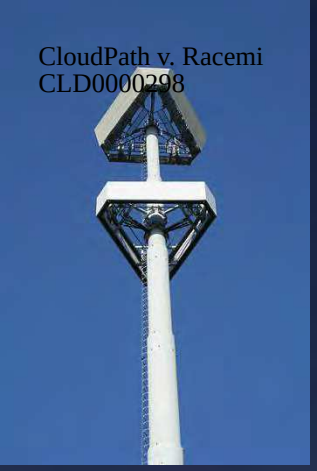
CloudPath v. Racemi
CLD0000298



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Authentication Options

Authentication Options:
Power-On and Applications Access

- User Name/Password
- Second Factors
  - Secure Tokens (RSA Tokens)
  - Call-back (Microsoft- PhoneFactor)
  - Grid Cards (Entrust)
- On-Device Certificates
- "Exotic"
  - Biometrics, facial recognition, touch pattern, etc.

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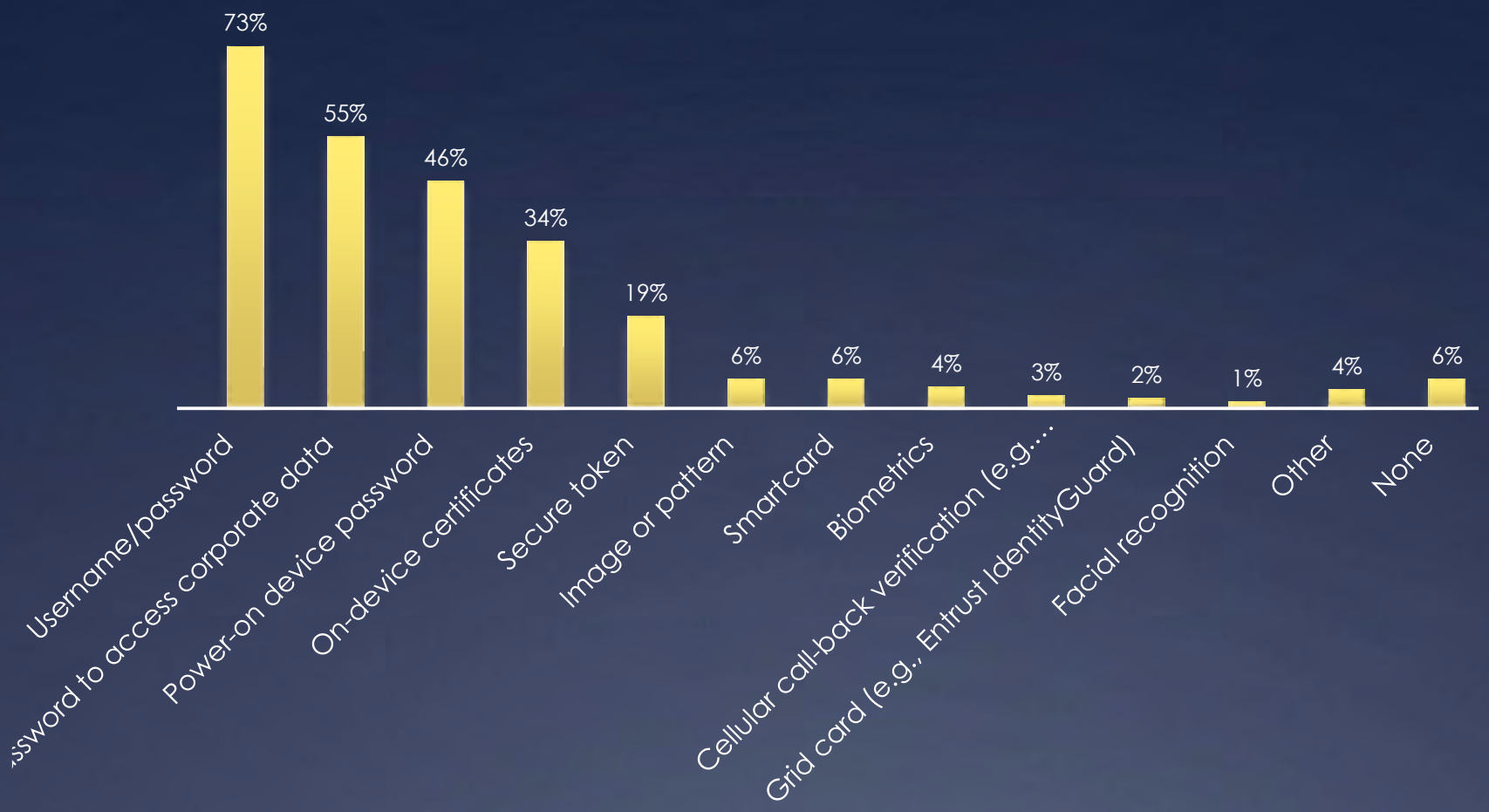
Authentication Mechanisms



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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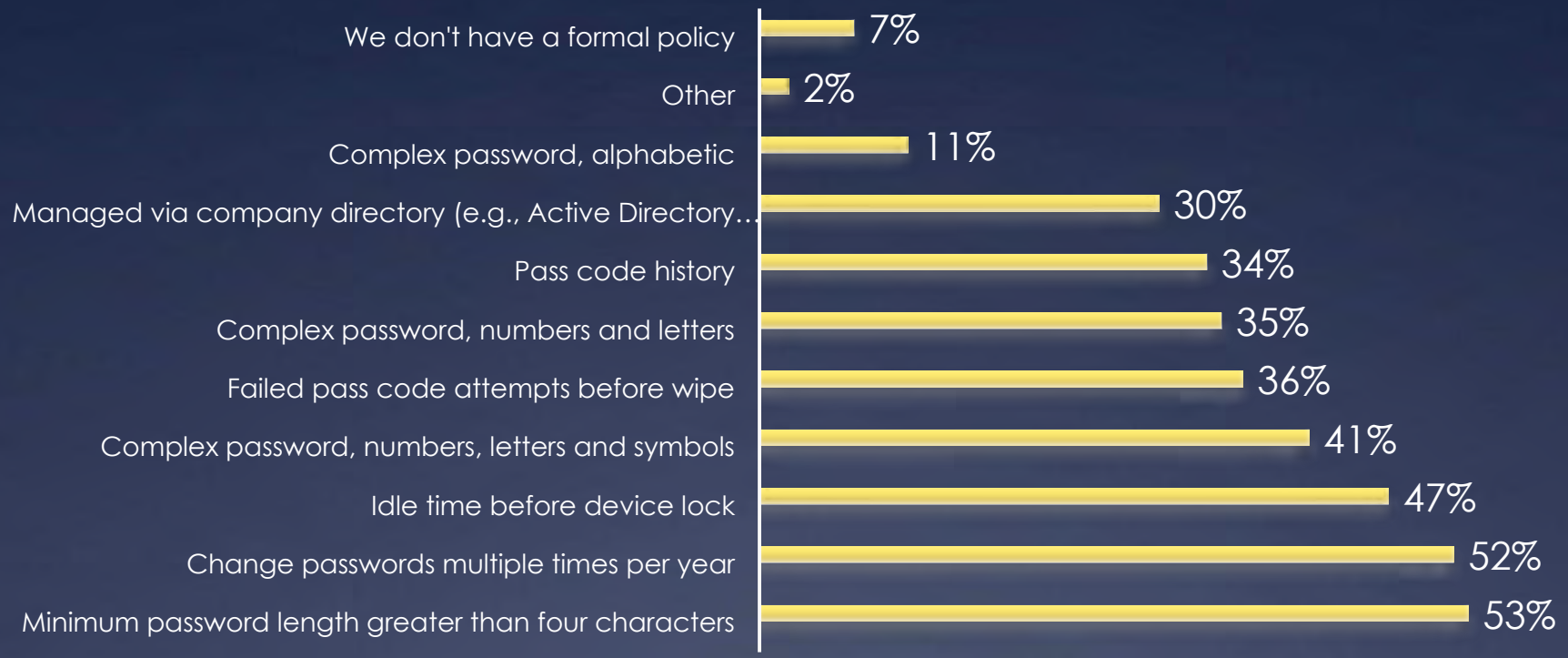
Password Requirements



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 365 respondents in at organizations authenticating mobile devices via power-on device password

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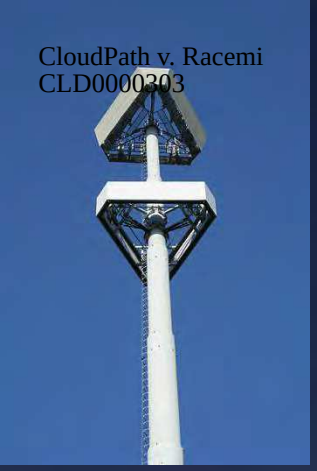
Recommendations

- Mandatory, strong passwords either power-on or to access corporate "container"
- Employee communications to build support
- Two-factor authentication for applications access
- Absolute and fool-proof deauthentication for termination or lost/stolen device
- Emergency recovery procedures



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Encryption and Privacy

Data Privacy/Encryption

- Data Privacy has three main areas:
  - Data stored on the device (Lost, stolen, or malware infected device)
  - Data in transit
  - Data Loss Prevention (DLP)
- Strength of encryption based on:
  - Encryption algorithm (DES, 3DES, AES, etc.)
  - Length of key
  - Where and how the key is stored
  - Can be either hardware or software based

Network Security Vulnerabilities

- Cellular
  - Security measures in cellular networks are generally considered strong but not foolproof- and they're not end-to-end
  - Some versions of GSM encryption have been broken
  - Secure tunnel technologies (VPN, SSL) should always be used over over cellular or public Wi-Fi networks
  - NetMotion Wireless and IBM Lotus offer "persistent wireless" solutions for users moving between Wi-Fi and cellular connections
  - However, if the device itself is compromised (e.g. malware infected), corporate systems can still be exposed

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Network Security Vulnerabilities

- Wi-Fi
  - In the early days, Wi-Fi had virtually useless security capabilities
    - Easy to crack encryption/authentication
    - Authentication and encryption using the same key
    - Dopey ideas like MAC-based authentication and SSID shielding
  - VPN secure tunnels were a "convenient" work-around
  - Many companies report using totally inadequate Wi-Fi security measures
  - More on this later…

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In-Transit Options

- Cellular OTA Encryption
  - Not end-to-end
  - Some (e.g. Sprint Data Link) offer end-to-end security
- VPN Secure Tunnel or Secure Socket Layer
  - Should be used on all cellular and public Wi-Fi connections
- Persistent Wireless
  - Maintain tunnel as user moves from cellular to Wi-Fi
- Virtual Desktop (VDI)

VDI for Security

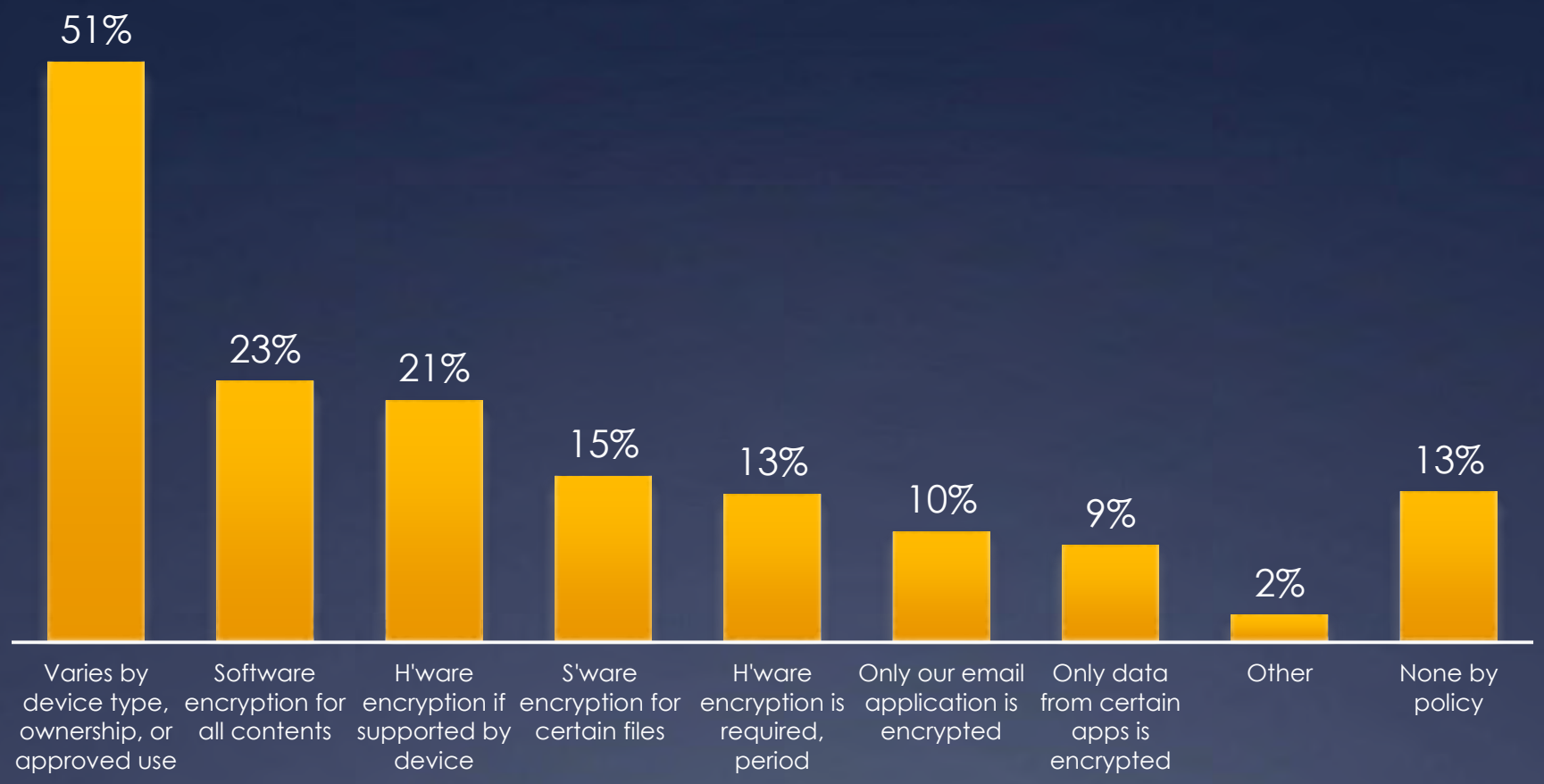
- Virtual Desktop Integration (VDI) offers a unique capability for mobile security
- No data is stored on the device and the connection to the VDI server is highly secure
- Citrix Receiver and VMWare View available for iOS and Android
- Test performance and user interface acceptability carefully before full rollout

On-Device Encryption/DLP

* Any sensitive company information stored on a mobile device (either in main memory or on removable media) should be encrypted and made accessible only after a password is entered.
* Data should not able to be forwarded out of the secure container either by email, file transfer or copy-and-paste.

CloudPath v. Racemi
CLD0000310

On-Device Encryption Policy



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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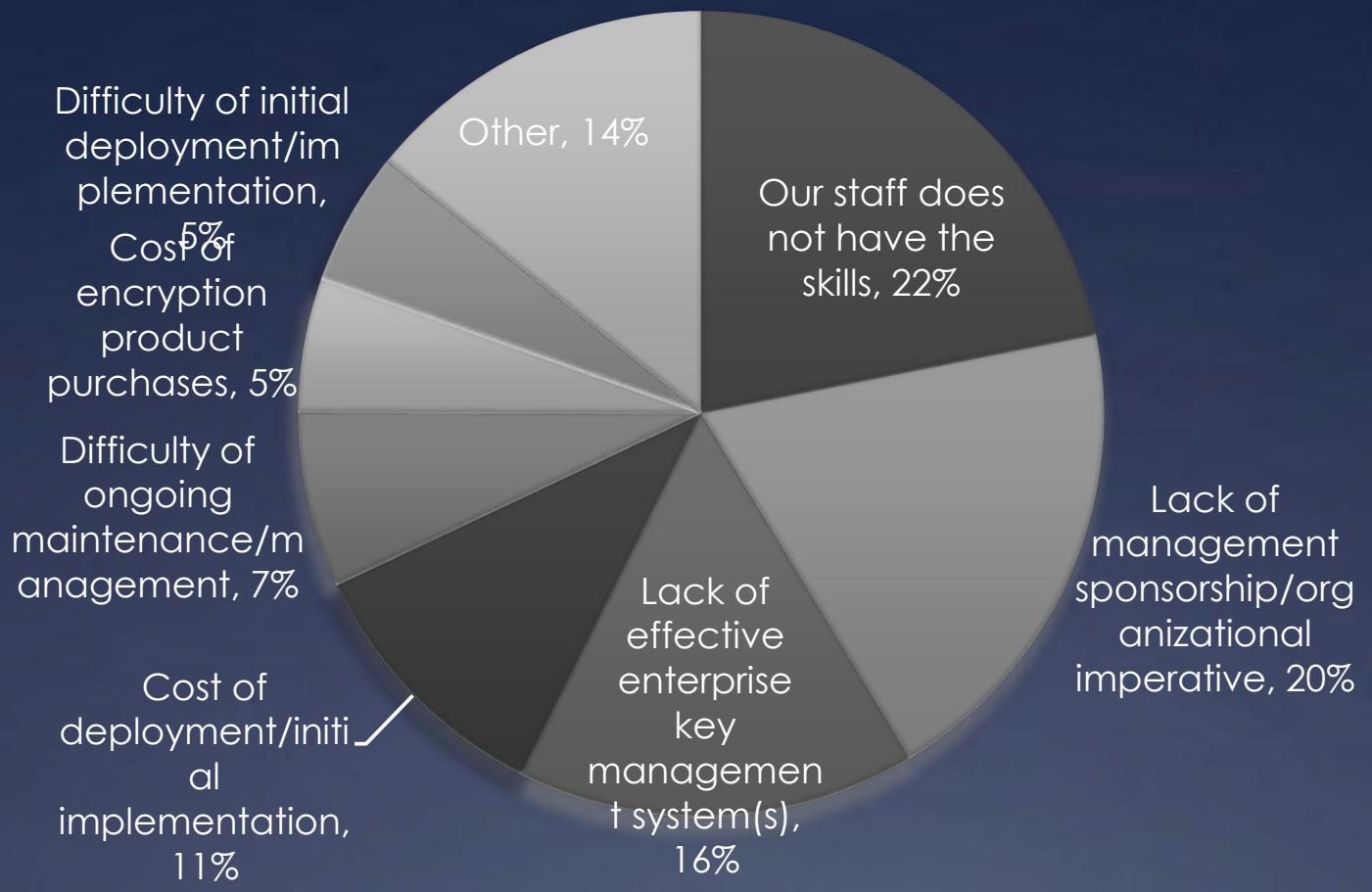
Why Not?



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 56 respondents at organizations not requiring data encryption on mobile devices

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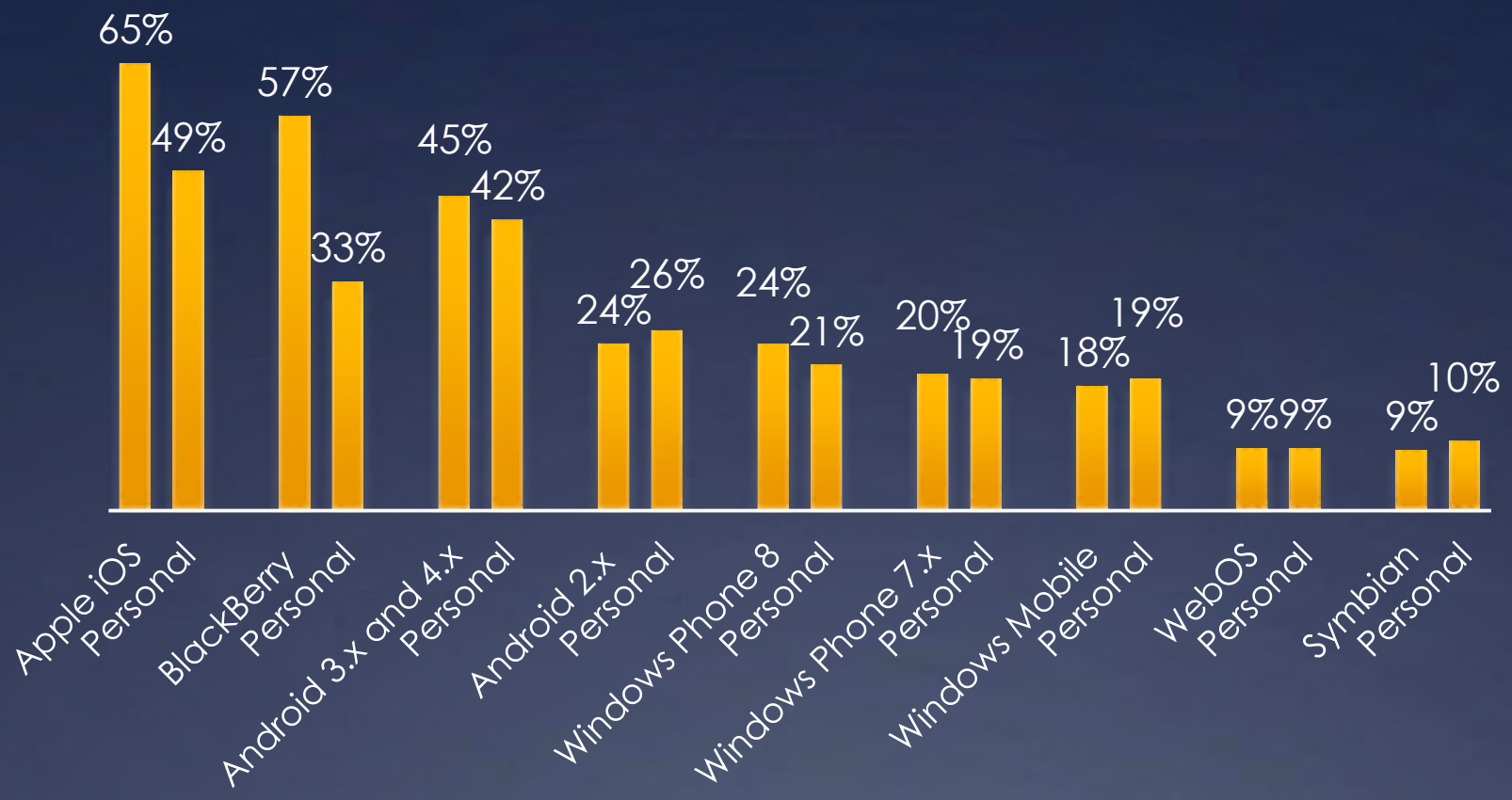
Company Data on Corp vs Personal Devices

Does your organization permit corporate data to be stored on the following corporate-owned or personally-owned mobile device platforms?



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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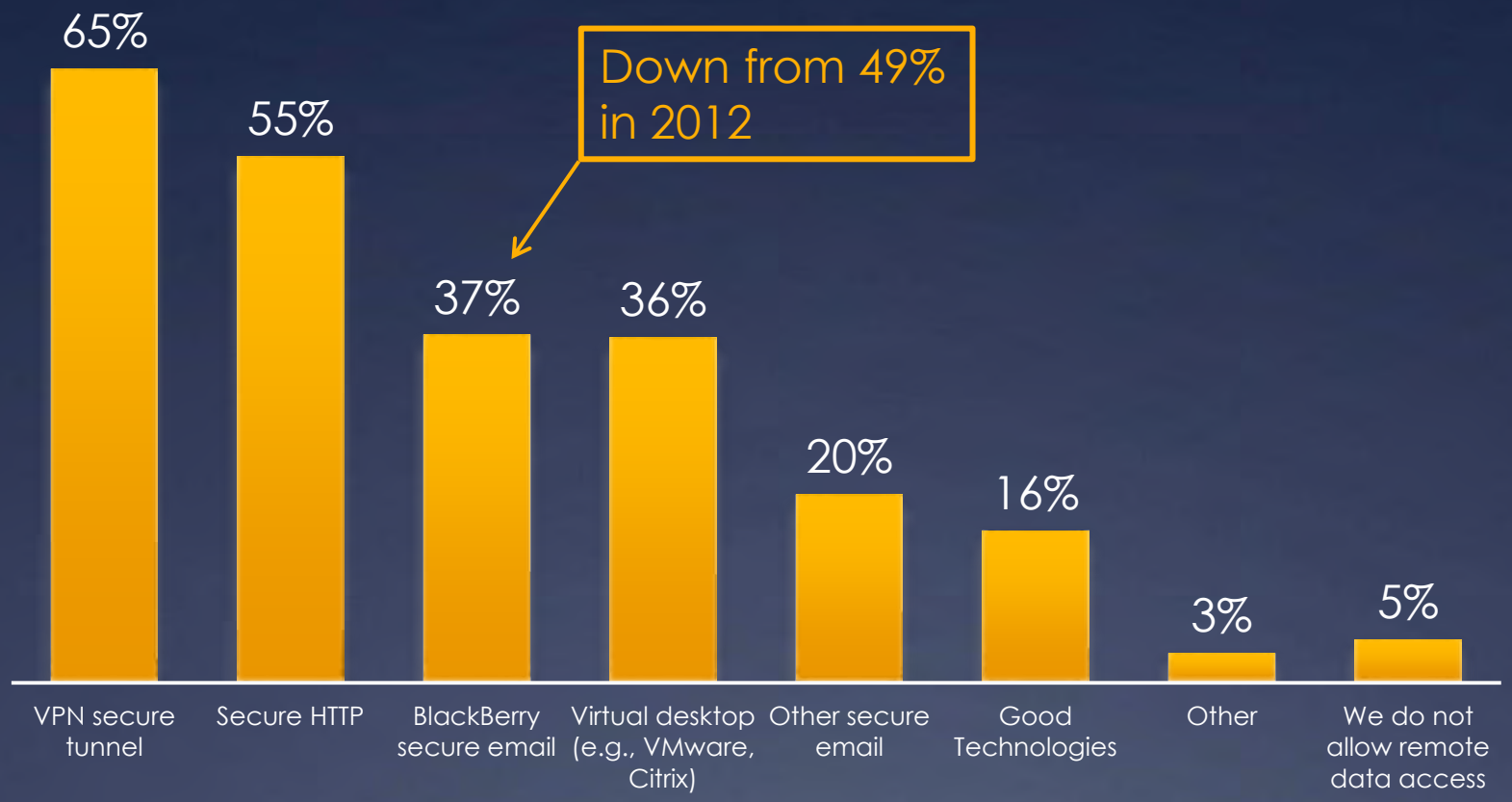
Data in Transit

What methods do you employ to ensure security of data in transit?



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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Recommendations

- Strong password access and on-device encryption on all mobile devices regardless of ownership
- Strong end-to-end encryption on all over-the-air transmissions
- Protection from corporate data being forwarded out of secure envelope (Gmail, Drop Box)
- Absolute and fool-proof removal of all corporate data on termination or for lost/stolen device

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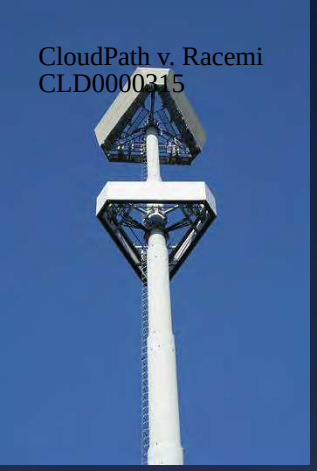
CloudPath v. Racemi
CLD0000315



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Software Security

Application Security Issues

- Mobile devices have operating systems are are as vulnerable as other computer devices to malware.
- Major difference among O/S environments regarding malware exposure
- Most enterprises have anti-malware solutions for 100% of Windows laptops (Mac's may get there soon!)
- Enterprises moving to internal app stores to control software on their mobile devices
- Internal App Stores: Apperian , App Central, App47, Symantec (Nukona), and MDM Systems

Areas to Address

- App Distribution: Public, In-house, Secure
- Whitelist/Blacklist/Mandatory
- Jailbreak/Rooted Device Detection
- Pushing Updates
- Anti-malware

Platform Vulnerabilities

- Mobile applications typically isolated from one another, though "permissions" may give access to address book, calendar, location and other info
- In Apple, RIM, and Microsoft environments, the manufacturer vets apps before posting
- Android is the most open and the most vulnerable to malware
- Anti-Malware Downside: Potential performance degradation, zero-day threats
- While organizations recognize the threat, most seem to ignore it

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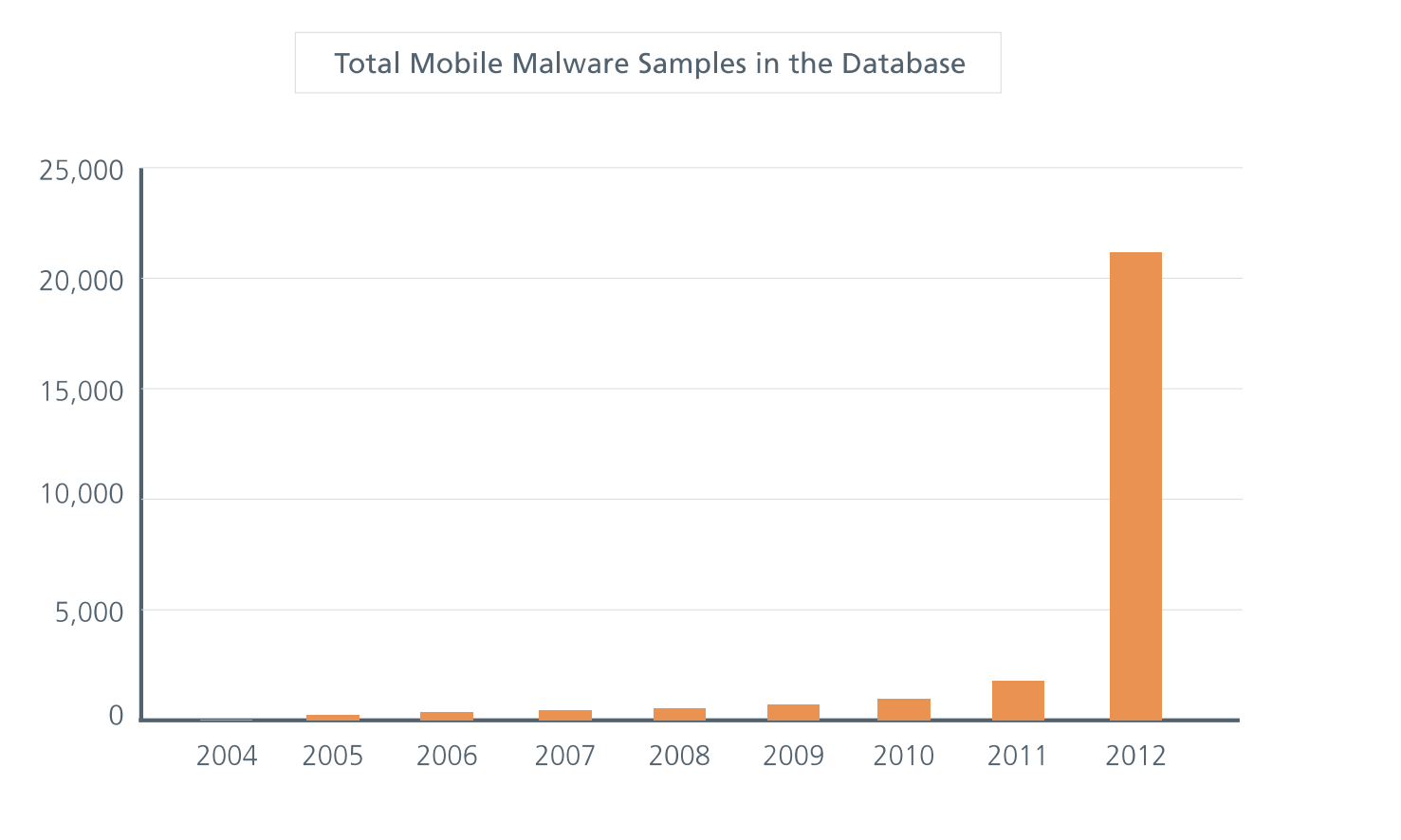
Mobile Malware Threats



Source: McAfee Threats Report- Third Quarter 2012

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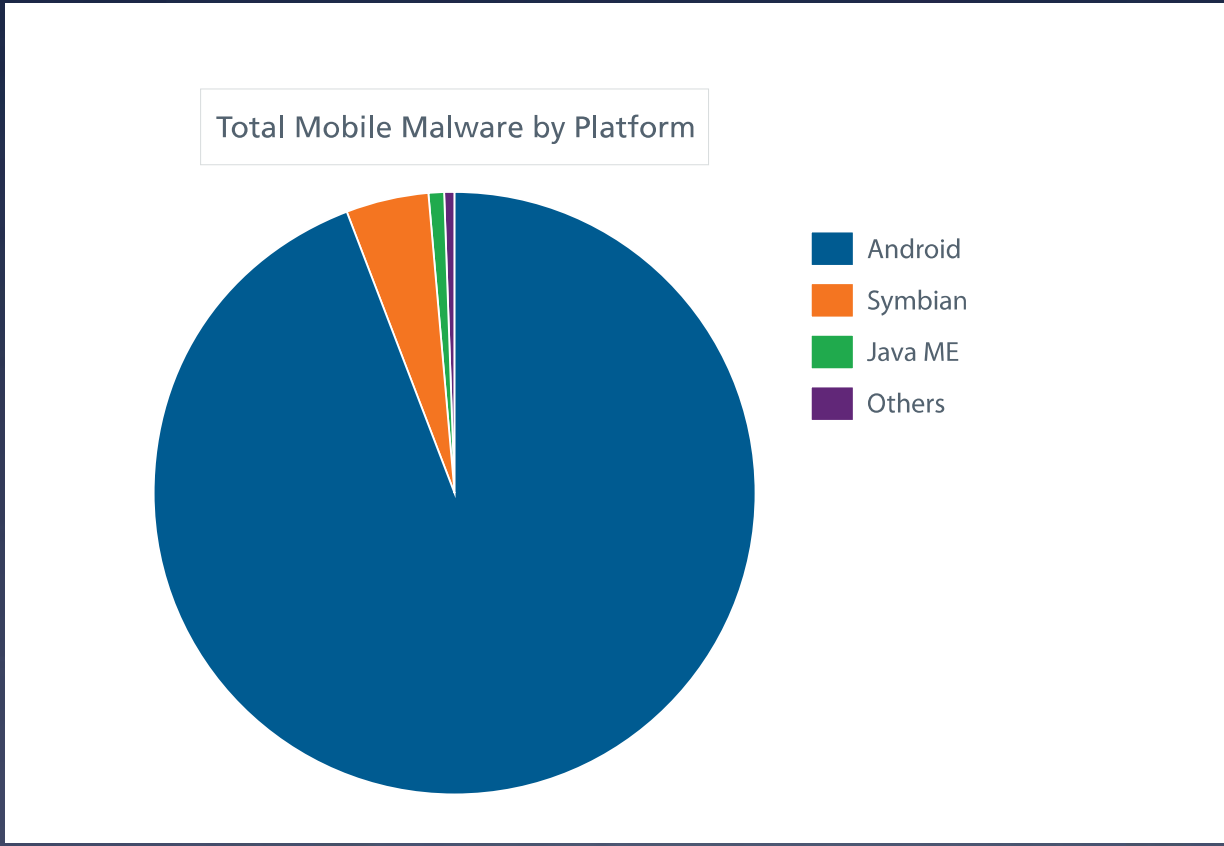
Malware Threats



Source: McAfee Threats Report- Third Quarter 2012

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Android Malware Protection

Product	Average Family Detection	
avast! Free Mobile Security		%90<
Dr.Web anti-virus Light		
F-Secure Mobile Security		
IKARUS mobile.security LITE		
Kaspersky Mobile Security (Lite)		
Lookout Security & Antivirus		
Zoner AntiVirus Free		
AegisLab Antivirus Free		%59<
AVG Mobilation Anti-Virus Free		
Bitdefender Mobile Security		
ESET Mobile Security		
Norton Mobile Security Lite		
Quick Heal Mobile Security		
Super Security		
Trend Micro Mobile Security		
Vipre Mobile Security (BETA)		
Webroot SecureAnywhere Mobile		
BullGuard Mobile Security		%40<
Comodo Mobile Security		
G Data MobileSecurity		
McAfee Mobile Security		
NQ Mobile Security		
Total Defense Mobile Security		
ALYac Android		%0<
Antivirus Free		
BlackBelt AntiVirus		
BluePoint Security Free		
CMC Mobile Security		
Fastscan Anti-Virus Free		
GuardX Antivirus		
Kinetoo Malware Scan		
MobiShield Mobile Security		
Privateer LITE		
Snap Secure		
TrustGo Mobile Security		
Android Antivirus		%0
Android Defender		
LabMSF Antivirus beta		
MobileBot Antivirus		
MT Antivirus		
MYAndroid Protection Antivirus		

Source: AV-Test
www.av-test.org/

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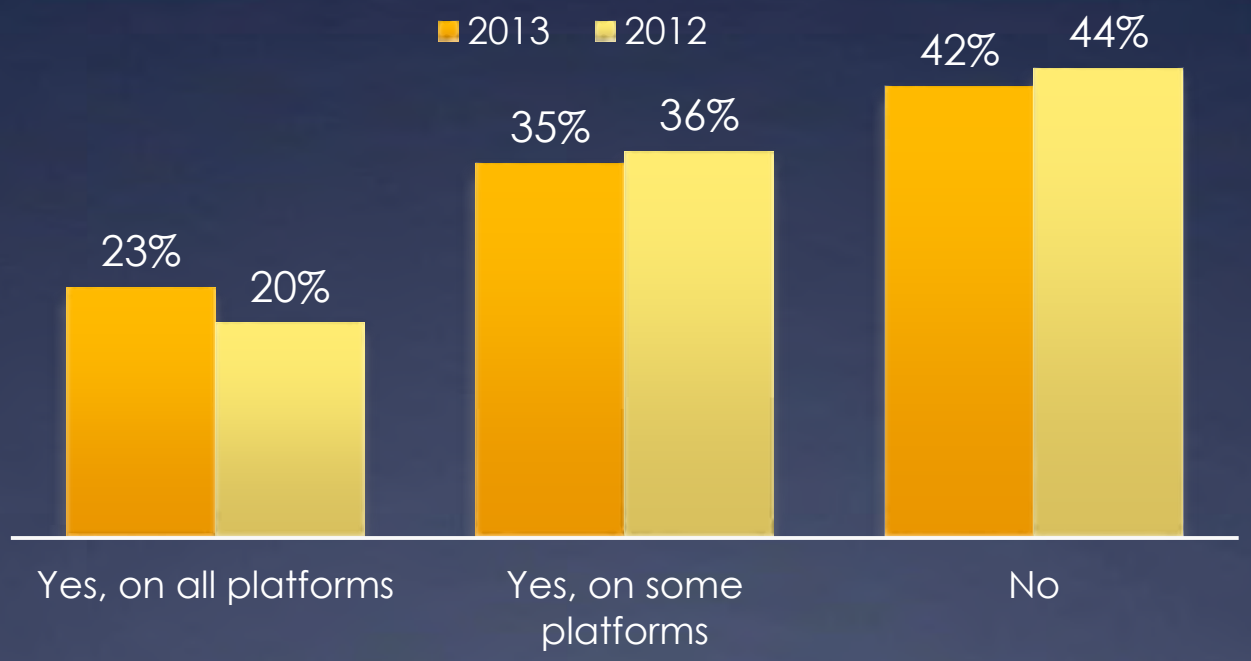
Mobile Malware Protection

Beyond mobile device management (MDM), does your organization have specialized tools to combat mobile malware, such as those from Symantec, Kaspersky or F-Secure?



Source: *InformationWeek* Mobile Security Survey of business technology professionals
Base: 424 respondents in April 2013 and 322 in March 2012

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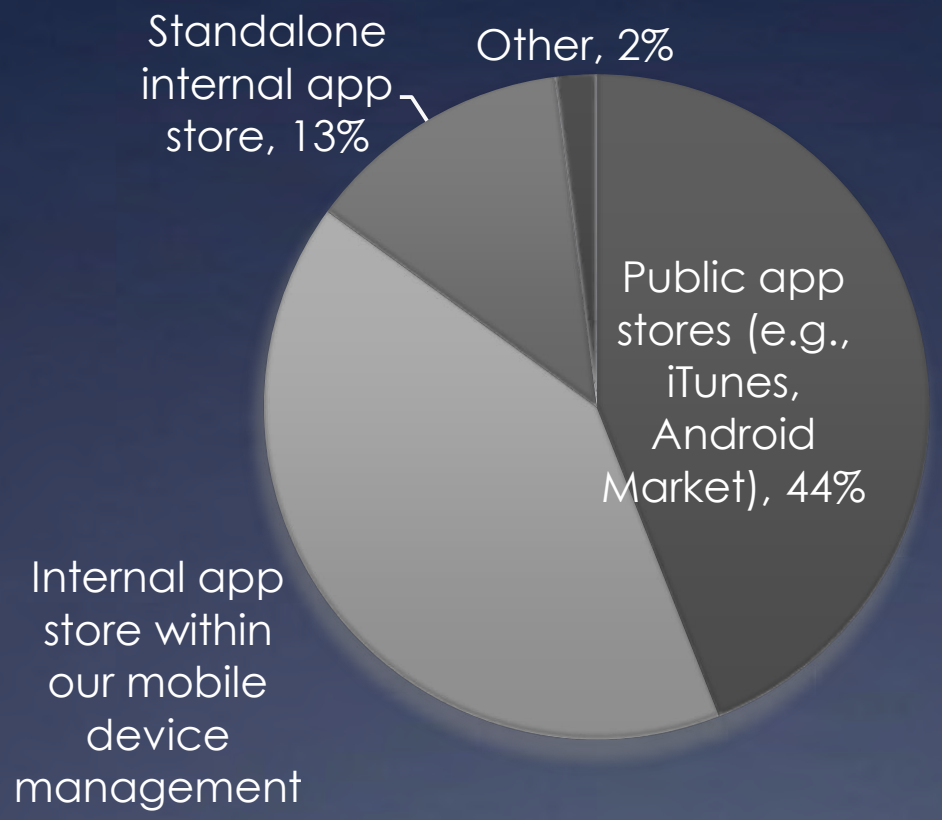
Application Distribution

How do you distribute mobile applications?



Source: *InformationWeek* 2013 Mobile Security Survey of business technology professionals, April 2013
Base: 237 respondents who distribute mobile apps

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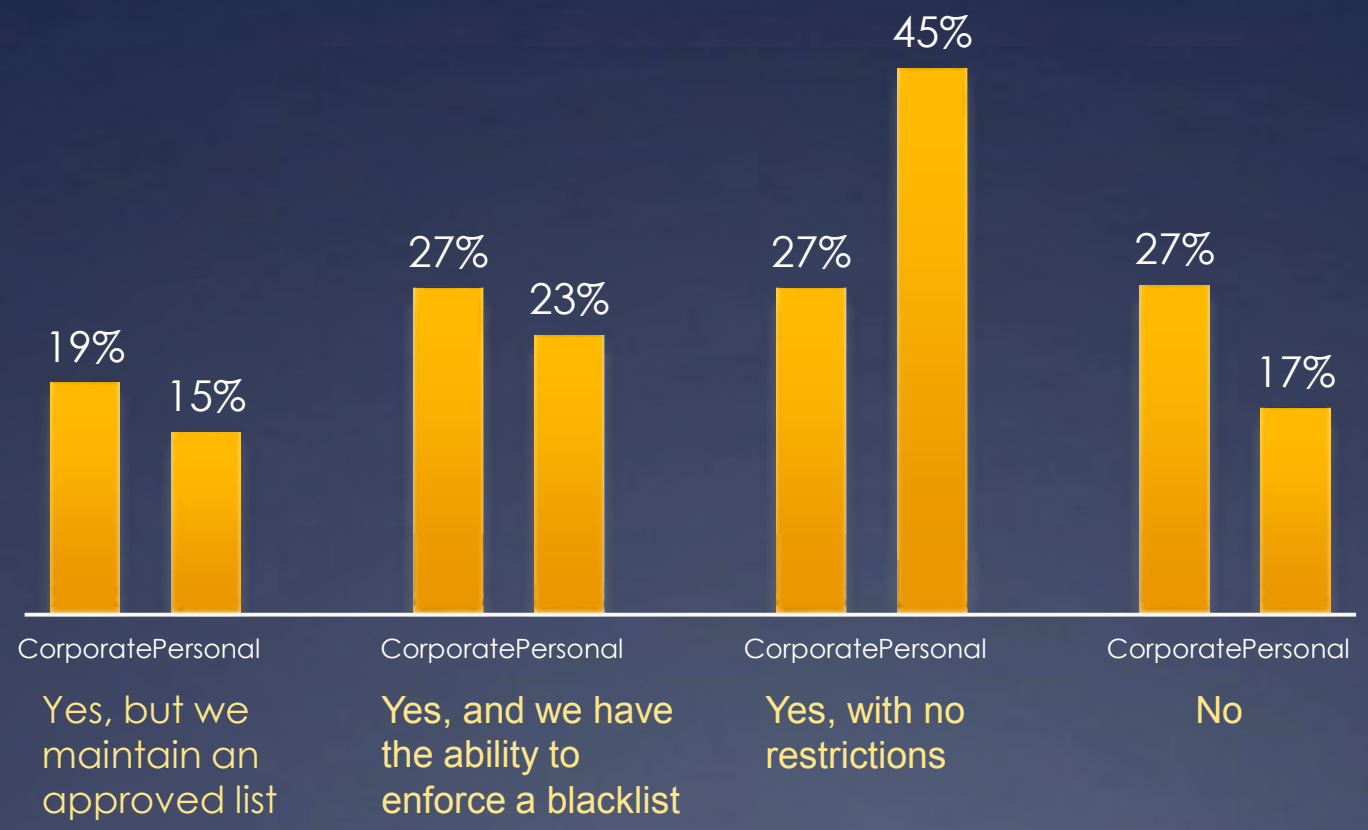
Personal Applications on Devices

Do you allow employees to install personal applications on corporate-owned or personal-owned mobile devices that have access to corporate data or networks?



Source: *InformationWeek* 2013 Mobile Security Survey of 424 business technology professionals, April 2013

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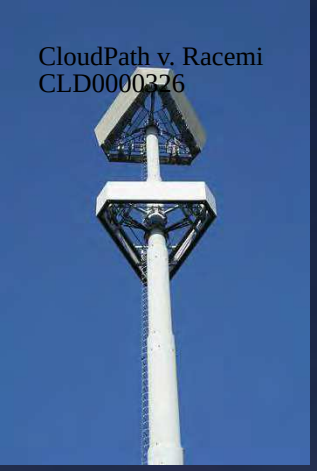
Recommendations

- For now, anti-malware protection is very important for the Android platform
- Jailbreak/Rooting detection should be in place
- Internal app stores should definitely be considered and used to improve the overall user experience (including "recommended" applications)



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WLAN Security

Section Objectives

- Look at the major security exposure introduced through the use of wireless LANs
- Describe the three generations of WLAN security:
  - Pre-Security- WEP:
    - The basic capabilities of Wired Equivalent Privacy (WEP) standard, and how it can be used most effectively
    - The VLAN/VPN security "work around"
  - Current Acceptable Practices:
    - Wi-Fi Protected Access (WPA) and its Temporal Key Integrity Protocol (TKIP)
  - Best Practices Security Solutions:
    - IEEE 802.11i privacy based on the Advanced Encryption Standard
    - IEEE 802.1x authentication using the Extensible authentication protocol framework and the options it supports

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WLAN Security Options

	Description	Encryption	Authentication
Wired Equivalent Privacy (WEP)	WEP	40- or 104-bit RC4	Shared Key
	Dynamic WEP	40- or 104-bit RC4	802.1x with Per-Session keys
	VPN/VLAN Configuration	168-bit 3DES	802.1x
Wi-Fi Protected Access (WPA)	Intermediate term option- software rather than hardware based	128-bit RC4 with TKIP	Personal: User implemented pre-shared key
		128-bit RC4 with TKIP	Enterprise: 802.1x with key distribution
802.11i/WPA2	Best Option for WLAN security	AES/CCBP	Personal: User implemented pre-shared key
	Best Option for WLAN security	AES/CCBP	Enterprise: 802.1x with key distribution

WLAN Security Exposure

- Recognized Threats:
  - Eavesdropping on unprotected wireless transmissions
  - Eavesdropping on user deployed "rogue" access points or Ad Hoc networks with no security
  - Introducing "malicious" access points by hackers looking to gain access through man-in-the-middle attacks
  - Denial of service (DoS) attacks
    - Layer 1- Radio Jamming
    - Layer 2- WLAN Protocol Attacks (e.g. Association flood)
    - Layer 3 and 4- Traditional TCP/IP Attacks
  - Management Frame Attacks: While the content of a WLAN frame may be encrypted, the header fields are sent in the clear
  - Providing visitors uncontrolled "perpetual" network access
  - Large number of BYOD devices needing to be added
  - Access through lost or stolen client devices

- Web Resources:
  - The Wireless LAN Security Framework (www.wlsec.net/void11)
  - SANS Institute (www.sans.org)

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Radio Jamming Works Too!

Wi-Fi/Bluetooth Jammers
(Why you don't run security cameras on Wi-Fi!)

Tri-Band Cell Phone Jammer
(50 meter Radius)

Basic Wireless LAN Security Tips

- Minimize radio leakage
- Turn off SSID Broadcast
- If WEP Encryption: Change the key or use session-based keys if available (Dynamic WEP)
- Use WPA or 801.11i/WPA2 if available
- Physically Secure Access Points
- Promulgate the organization's policy regarding WLANs
- Monitor for Rogue APs, AD Hoc Networks and Spoofed Access Points
- Employ Real Time Security

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Original IEEE 802.11 WEP Security

Original 802.11 standards provided for three basic security measures:

1. Wired Equivalent Privacy (WEP): RC4 encryption with a static 40- or 104-bit key (Key size didn't matter!)
2. Shared Key Authentication: Uses the WEP key to authenticate users
3. MAC Address Filtering: Manual address list to restrict access

- All of these security features can be easily defeated
- WEP should never be used as the sole form of network security in enterprise environments

Note: Better security could have been provided, but then current US government requirements regarding encryption would have banned it from export!

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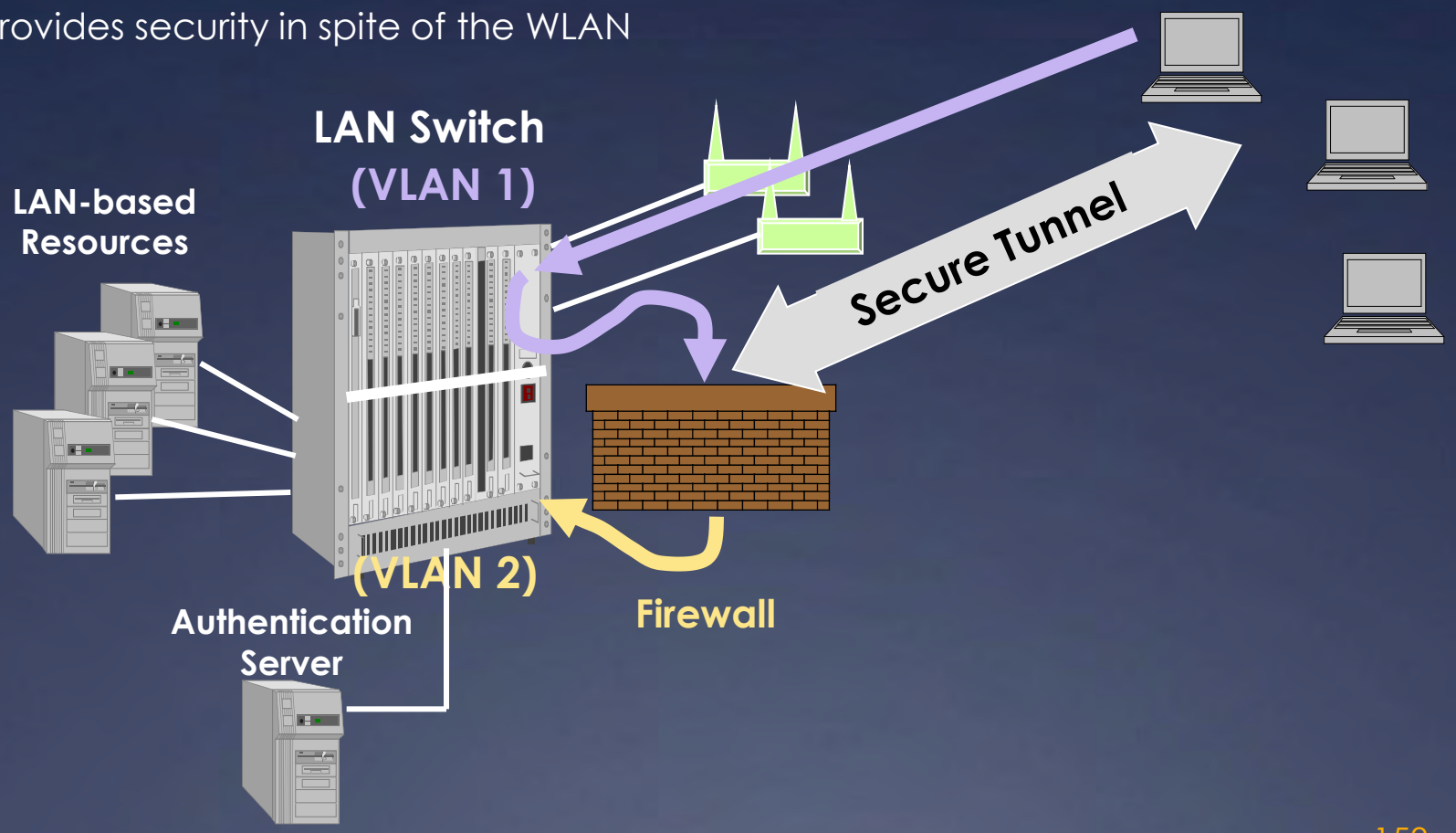
The VLAN/VPN Stopgap

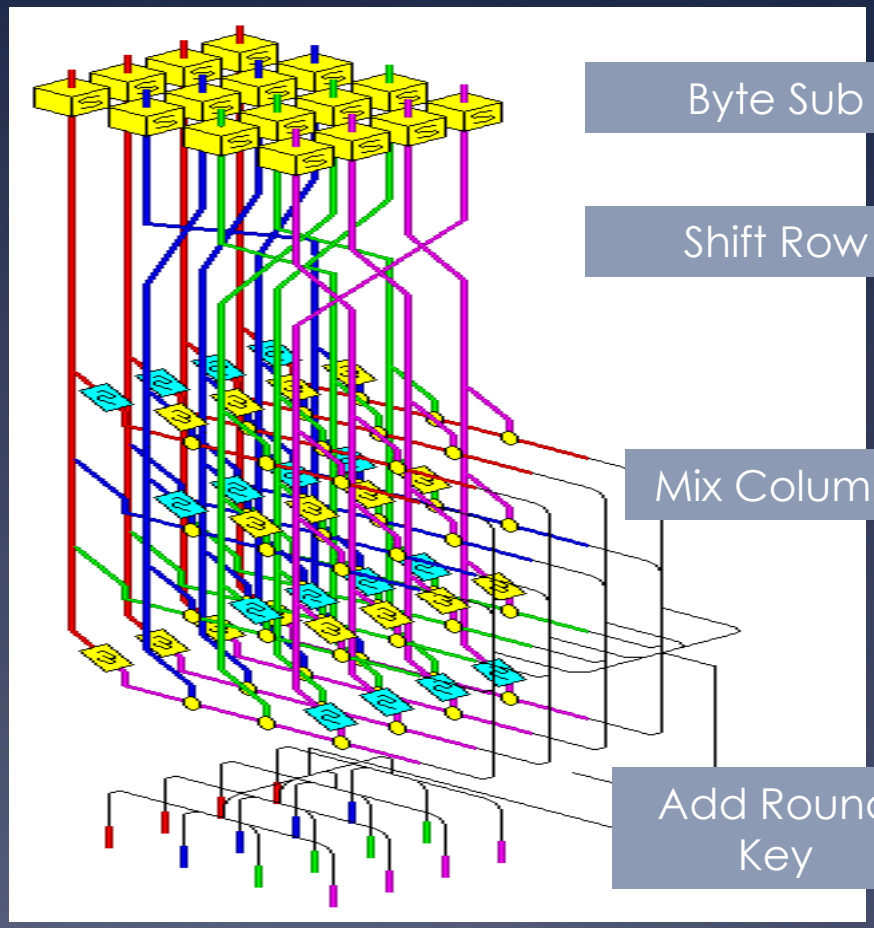
* Define all APs in a separate VLAN
* Require authentication and secure tunnel access to all LAN-based resources
* Provides security in spite of the WLAN



IEEE 802.11i/WPA2

- Advanced Encryption Standard
  - Official encryption standard for the US Government (FIPS 197)
- Symmetrical block cipher called "Rijndael"
  - Blocks are 128-bits long and key can be 128-, 192-, or 256-bits
  - Block and key expandable in 32-bit increments
- Wi-Fi Alliance: WPA2-Certified
  - Full 802.11i capability
  - Peer-to-peer security-
    For AD Hoc Networks
  - First devices certified in Sept 2004
  - Mandatory on all new Wi-Fi certified devices since 2006

Illustration of the AES Encryption Algorithm



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Wi-Fi Alliance's WPA Security

- Wi-Fi Protected Access (WPA-Certified)
  - The Wi-Fi Alliance recognized the flaws in WEP security and the migration problems associated with 802.11i
  - Developed WPA that incorporates a vastly improved security mechanism that can be implemented in software
    - Temporal Key Integrity Protocol (TKIP)
    - Message Integrity Check (MIC) to defeat "spoofed" access points
- Temporal Key Integrity Protocol
  - Uses WEP's RC4 encryption with 128-bit key plus 24-bit IV, but changes the key for every frame to thwart brute force attacks
- WPA Vulnerability
  - The key change protocol used in TKIP is published
  - If the first key can be guessed through a dictionary attack, WPA can be hacked
  - Using a challenging initial key should thwart this attack strategy

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WPA/WPA2- Personal or Enterprise

- Two potential implementations for WPA and WPA2
  - Personal
  - Enterprise
- Personal- Pre-shared Key (PSK)
  - User inputs key in the access point on the clients
  - Not recommended for WPA2
- Enterprise
  - Requires an authentication server
  - Uses one of the 802.1x authentication protocols with key distribution

Adjunct Security Systems

- Two additional security systems to consider:
  - Guest Access Systems
  - Wireless Intrusion Detection Systems/Spectrum Analysis
- Guest Access Systems
  - Visitors should be provided trackable, time limited access, to defined resources (e.g. Internet)
  - Unique credentials for each visitor
  - Challenging in university environments
  - WLAN vendors (Cisco, Aruba, Aerohive, etc.) all active in this
  - Cloudpath provides certificate-based access using either LDAP or Facebook credentials

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Wireless Intrusion Detection (WIDS) and Spectrum Analysis Systems

- WIDS: Stand-alone or WLAN Switch based systems for monitoring WLAN Signals
  - Detect Wi-Fi transmissions not on the corporate WLAN: Rogue APs, Hacking Attempts, and unsecured Ad Hoc users
  - Access points are identified in the system, and "friendly" APs (e.g. your neighbor's WLAN) are marked as benign
  - Most provide location assistance and can disable rogue devices
  - Smartphone APs are becoming a major concern
- Spectrum Analyzers
  - Detect non Wi-Fi transmissions in the same frequency band (e.g. microwave ovens)
  - Radio "noise" will impair performance of Wi-Fi devices

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Wi-Fi Security

What techniques do you use to secure your wireless LANs? (Multiple responses allowed)

Source: *InformationWeek* Mobile Security Survey of business technology professionals.
Base: 424 respondents in April 2013 and 322 in March 2012

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Conclusion

- Security concerns are still the most frequently cited reason why enterprise users do not deploy wireless LANs- that view is largely out of date.
- There are adequate tools to secure wireless LANs today, but their implementation is the user's responsibility. If nothing else, use secure tunnels.
- The vulnerability picture changes continuously, so it is important that you remain appraised of new attack strategies.
- Some security environments will continue to avoid wireless LANs entirely (e.g. National security, intelligence, and financial services)
- For the vast majority of commercial users, however, we should have acceptable levels of security today

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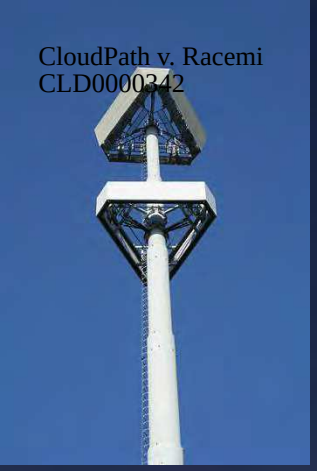
Panel: WLAN Developments

Mahesh Bommareddy
Dir, Product Mgmt and Business Development

Bruce Miller
VP, Product Marketing

Amith Nair
Sr. Dir. Sales and Marketing



SEE IT AT
INTEROP MAY 6-10, 2013 LAS VEGAS

Wrap-up

Ongoing Management

- Organizations need to have people and procedures dedicated to managing mobility
- Mobility Manager
  - Overall manager for all mobility initiatives (cellular, Wi-Fi, etc.)
  - Responsible for maintaining the mobility policy
  - Lead the team that decides on changes and additions
  - Monitors industry developments and makes recommendations to business units and management
  - Coordinates with other IT areas on any initiative that involves mobility

Mobile Management Areas

- Security
  - Typically a specialty area inside of the security department
  - Monitor developments and new potential threat vectors in conjunction with the Mobility Manager
  - Assist in vetting new devices to be added to the supported list
- MDM Operations
  - Responsible for maintaining the MDM system
  - Ensures that mobility policies are being followed
  - May assist in problem resolution

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Mobile Management Areas

- User Support
  - Set-up- Onboarding, email set-up, etc.
  - Customer Service- Device and application selection
  - Help Desk- May offload device issues to the carrier
  - In-house blogs, Wikis, help forums
- Applications Management
  - Responsible for developing, selecting and maintaining mobile apps in conjunction with business units
  - Defines white/black-lists and recommended apps
  - Monitors malware developments and vulnerabilities

Mobile Management Areas

- Expense Management
  - Monitor usage for corporate liable devices
  - Negotiates contracts with the mobile operators
  - Makes recommendations regarding best practices for cost control (e.g. international travelers)

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Wrap-up

- "Attitude"
  - IT's job is changing from "technology dictator" to "technology enabler".
  - "Abdicating responsibility" is not an option ("Head in the sand, …"
  - Regardless of whose device it is, IT's job is to foster smart, efficient, secure manageable implementation of technology.
  - Users may be "tech savvy", but the enterprise requires "tech smart"
  - Consumer tools may be the best choice, but IT needs to ensure they meet guidelines for security and manageability.
  - Letting users have their own devices is a short term goal- the real goal is enabling business transformation through these technologies.
  - The key is integrating the technology into business processes effectively.

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Wrap-up

- "Execution"
  - In reality, IT's job doesn't change that much.
  - More challenges in mastering more devices, tools, and applications- and wireless networks always have a way of making us look like idiots!
  - Good "systems thinking", systems design, project management, feedback/process improvement are all still part of what counts towards success.
  - Need to think the process through cradle-to-grave.
  - Also need to understand the user, their job, and develop "mobile appropriate" solutions.
  - An integrated solution (wired and wireless) is likely best, but only if it meets the requirements of both populations.
  - Go forth and multiply!

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CloudPath v. Racemi
CLD0000349

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BYOD, Mobile Security and Mobile Device Management (MDM)

Michael F. Finneran
Principal, dBrn Associates, Inc.
mfinneran@dbrnassociates.com

CloudPath v. Racemi

Racemi Cloud Path for IBM Demo

Cloud Path for IBM power | SoftLayer -

https://demo-ibm.racemi.com/#tasks-migrate

for IBM Cloud Path | Home | Actions | Resources | Status | Settings | Help | Support | Logout | User: Tutorial User | Powered By Racemi

Cloud Path for IBM power | SoftLayer - CloudLayer Co

SoftLayer Technologies, Inc [US] https://manage.softlayer.com/CloudLayer/computing

home | faq | forum | vpn | mini | new portal | notifications (1)

SOFTLAYER an IBM Company

portal home

- active user:
- date: 03-17-14 19:59 (GMT-0500)
- billing date: 03/19/2014
- account balance: $2.81

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computing: index

Verify your server was created correctly and begin cut over process.

Search Options

Criteria	Data
Fully Qualified Domain Name	my

Search

Computing Instances

Computing Instance Name	Notes	Public IP	Private IP	Datacenter	Action
mylinuxcloud.racemi.com		208.	10.100.181.3	Washington, DC 1	View

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SOFTLAYER

PuTTY Configuration

Category:

- Session
  - Logging
- Terminal
  - Keyboard
  - Bell
  - Features
- Window
  - Appearance
  - Behaviour
  - Translation
  - Selection
  - Colours
- Connection
  - Data
  - Proxy
  - Telnet
  - Rlogin
  - SSH
  - Serial

Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address): 208 | Port: 22

Connection type: Raw | Telnet | Rlogin | SSH | Serial

Load, save or delete a stored session

Saved Sessions

Load | Save | Delete

Close window on exit: Always | Never | Only on clean exit

About | Open | Cancel

CloudPath v. Racemi

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for IBM Cloud Path

Home | Actions | Resources | Status | Settings | Help | Support | Logout

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Tasks

Capture

Deploy

Source Servers

Search:

Servers per page: 10

Server Name	Cloud Domain	Project	Group	Location
10.34.6.5				

Page 1 of

Displaying 1 - 1 of 1

Refresh | Migrate | Remove from Inventory | Home

Help

Server Information

Server Name:	my-linux-ser
Cloud Domain:	Select
Project:	Select
Group:	Select
Location:	Select
Server UUID:	0acd4d0e-ab3b-4f0f-a7be-1eab165a4002
Architecture:	x86_64
Operating System:	CentOS_Linux-5_8_*-x86_64
Primary MAC Addr:	00:50:56:AA:3A:14
Primary IP Addr:	10.34.6.5
Status:	running
Max capture points:	3 Use default ☑
File Systems to Capture	Mount Point / Size 2.88 GB Used 1.14 GB; swap 1 GB 1 GB; /boot 98.72 MB 12.71 MB
Network Layout:	eth0 10.34.6.5

Save | Close

2:19 / 4:50

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https://demo-ibm.racemi.com/#tasks-migrate

Cloud Path for IBM

Home | Actions | Resources | Status | Settings | Help | Support | Logout

User: Tutorial User

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Tasks

Capture

Deploy

Source Servers

Search:

Servers per page: 10

Server Name	Cloud Domain	Project	Group	Location
10.34.6.5				

Page 1 of

Displaying 1 - 1 of 1

Refresh | Migrate | Remove from Inventory | Home

Help

Server Information

Server Name:	my-linux-ser
Cloud Domain:	Select
Project:	Select
Group:	Select
Location:	Select
Server UUID:	0acd4d0e-ab3b-4f0f-a7be-1eab165a4002
Architecture:	x86_64
Operating System:	CentOS_Linux-5_8_*-x86_64
Primary MAC Addr:	00:50:56:AA:3A:14
Primary IP Addr:	10.34.6.5
Status:	running
Max capture points:	3 Use default ☑
File Systems to Capture	Mount Point / Size 2.88 GB Used 1.14 GB; swap 1 GB 1 GB; /boot 98.72 MB 12.71 MB
Network Layout:	eth0 10.34.6.5

Save | Close

2:19 / 4:50

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CIP0000355

CLD0000556

LeadLander Weekly Report for kkoster - Message (HTML)

File | Message | Adobe PDF

Ignore | Junk | Delete | Reply | Reply All | Forward | Meeting | IM | More | Marketing | Team E-mail | Reply & Delete | To Manager | Done | Create New | Move | Rules | Actions | Mark Unread | Categorize | Follow Up | Translate | Find | Related | Select | Zoom

From: LeadLander Reports <reports@leadlander.com>
To: kevin@cloudpath.net
Cc:
Subject: LeadLander Weekly Report for kkoster

Sent: Mon 4/14/2014 1:52 AM

4	Southern Alberta Institute of Technology Calgary, AB, Canada
4	Krypt Technologies Orange, CA, United States
4	Cognizant Technology Solution India Pvt India Cochin, India
4	jozafat dudek Orange, CA, United States
4	Goldsmiths, University of London London
4	Province Of British Columbia Vancouver, BC, Canada
4	Port Townsend Paper Corporation Port Townsend, WA, United States
4	Florida Agricultural and Mechanical University Tallahassee, FL, United States
4	Krypt Technologies Orange, CA, United States
4	Google Mountain View, CA, United States
4	Twitter San Francisco, CA, United States
4	Leadqual Owosso, MI, United States
4	Aerohive United States
4	RCOM-Static-DIA Ghaziabad, India
4	Wideorbit Littleton, CO, United States Searched for: cloud path networks
4	Southeast Colorado Power Association La Junta, CO, United States
4	Starr International Usa New York, NY, United States
3	Prgmr.com Sunnyvale, CA, United States
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Business Systems Agility

Racemi Cloud Path For CSPs

Speed Recurring Revenues
Reduce Time To Close
Expand Footprint
Minimize Attrition

Migrate

Racemi **Cloud Path** is a fast, cost effective cloud migration **SaaS** that automatically migrates existing **physical or virtual servers into the cloud** or between cloud providers! That means no painful manual server migrations and there is no infrastructure to buy, install, manage, or support. Cloud Path is:

- Fast - automated server migrations takes minutes instead of days
- Reliable - migrates your proven application server configuration
- Zero Risk - pay as you go pricing, with no management headaches

Learn More About Automated Server Migrations

Collaborate

Whether you're an **MSP or cloud provider** looking to migrate new customers or a **Systems Integrator** who needs fast, reliable server migration solutions with flexible licensing, you can **partner with Racemi** on application migration solutions to meet your needs. Racemi server migration solutions offer:

- Accelerated MRR - quickly migrate new customers
- Flexible Licensing - Pay As You Go options available
- Broad Platform Support - Windows and Linux supported

Learn More About Collaborating with Racemi

"SoftLayer is about delivering innovation, choice, and performance to our customers and we

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Racemi
Business Systems Agility

Cloud Migration -

With **Racemi Cloud Path**, you can automatically move your *existing* server application workloads to a variety of supported public clouds or even *between* cloud providers. There's no need to rebuild from scratch or use templates since Cloud Path's automated cloud migration process moves the entire server "stack" – operating system, applications, network, and storage configuration – for you.

Consider Cloud Path if you:

- Need to migrate an existing physical or virtual server to a cloud provider
- Need to migrate a cloud server instance to another cloud provider
- Have concerns regarding cloud vendor "lock-in"
- Want to save time and money versus a manual migration

Learn More About Racemi Cloud Path, our Cloud Migration SaaS

Learn More About Racemi Cloud Migration Promotions

Learn More About Racemi Cloud Migration Services

Racemi Cloud Path currently supports server migrations to the following public cloud providers:

amazon web services™

GOGRID Complex Infrastructure Made Easy™

rackspace HOSTING

SOFTLAYER®

terremark

At-A-Glance

- **Fast and cost effective**
- **No infrastructure to deploy**
- **Supports migration of physical, virtual,or cloud based systems**
- **Supports a variety of public cloud vendors**
- **Eliminates vendor lock-in**

"Migration has been pegged by both cloud providers and platform developers as one of the chief inhibiting factors in cloud deployment." – Arthur Cole, IT Business Edge, 5/9/2011

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Racemi
Business Systems Agility

Data Center Migration and Consolidation -

Direct Customers

Need to consolidate data centers to save on costs? How will you move your critical applications and servers? How will you migrate them between different hardware or virtual platforms? Dismayed by the high cost of "pack and ship" solutions? Racemi can help. Contact our experienced service professionals to learn more about how we can help you get a handle on your data center migration/consolidation project today.

Learn More About Racemi Server Migration Services

MSP and Cloud Providers

Looking to consolidate existing data centers to reduce expenses? Need to migrate customer servers to a new location? Want to migrate customers from legacy infrastructure to new platforms and services? Racemi DynaCenter makes it easy to migrate servers between locations and physical and virtual platforms.

Learn More About Racemi DynaCenter, our on premise server migration software

Learn More About Partnering with Racemi for server migration solutions

System Integrators

Need a tool to help speed data center migration and consolidation projects and create competitive advantage? Racemi DynaCenter can speed migration times by as much as 500% and our flexible licensing program is SI friendly, ensuring that your engagements are still profitable.

Learn More About Racemi DynaCenter, our on premise server migration software

Learn More About Partnering with Racemi for server migration solutions

ISV and Solution Providers

Looking to add data center migration and consolidation capabilities to your product portfolio? Racemi supports a broad range of physical and virtual platforms and has features like VxV hypervisor conversion which allows you to migrate between virtual platforms with minimal service disruption.

At-A-Glance

- **Supports a broad range of physical, virtual, and cloud platforms**
- **Supports Live Capture for mimimal service disruption**
- **Migrates network and storage configurations**

"Another method that is gaining widespread popularity is the logical move, which does not involve physically relocating any assets. Logical moves are used for existing virtual machines or as an opportunity to migrate physical systems to virtual platforms. Many organizations find that data center relocation creates opportunities to gain increased efficiencies such as those that come from consolidating physical systems."
-eWeek 7/7/2010

Disaster Recovery -

Are you an MSP or cloud provider looking for a way to quickly stand up new servers as part of your disaster recovery process? Are you an ISV looking to add DR capabilities to your product portfolio?

In business, you may hope for the best, but need to plan for the worst because in life, anything, from technology failures and human error to natural disasters, can and will happen. As such, every organization must ensure that a solid disaster recovery solution is part of their business continuity plan.

Racemi DynaCenter's server migration technology is the faster way to recover servers and get your business back on it's feet.

Racemi DynaCenter offers:

- Speed – image based provisioning technology is can provision large number of bare metal systems quickly and easily.
- Reliability – image based provisioning technology has been the foundation of system provisioning for over 20 years.
- Flexibility – DynaCenter supports server migrations between dissimilar physical, virtual, and cloud platforms offering customers unparalleled choice in recovery options.

With Racemi, you can rest assured that your business has the right server migration solutions in place to ensure a smooth recovery from any disaster.

Learn more about Racemi DynaCenter, our server migration and DR solution.

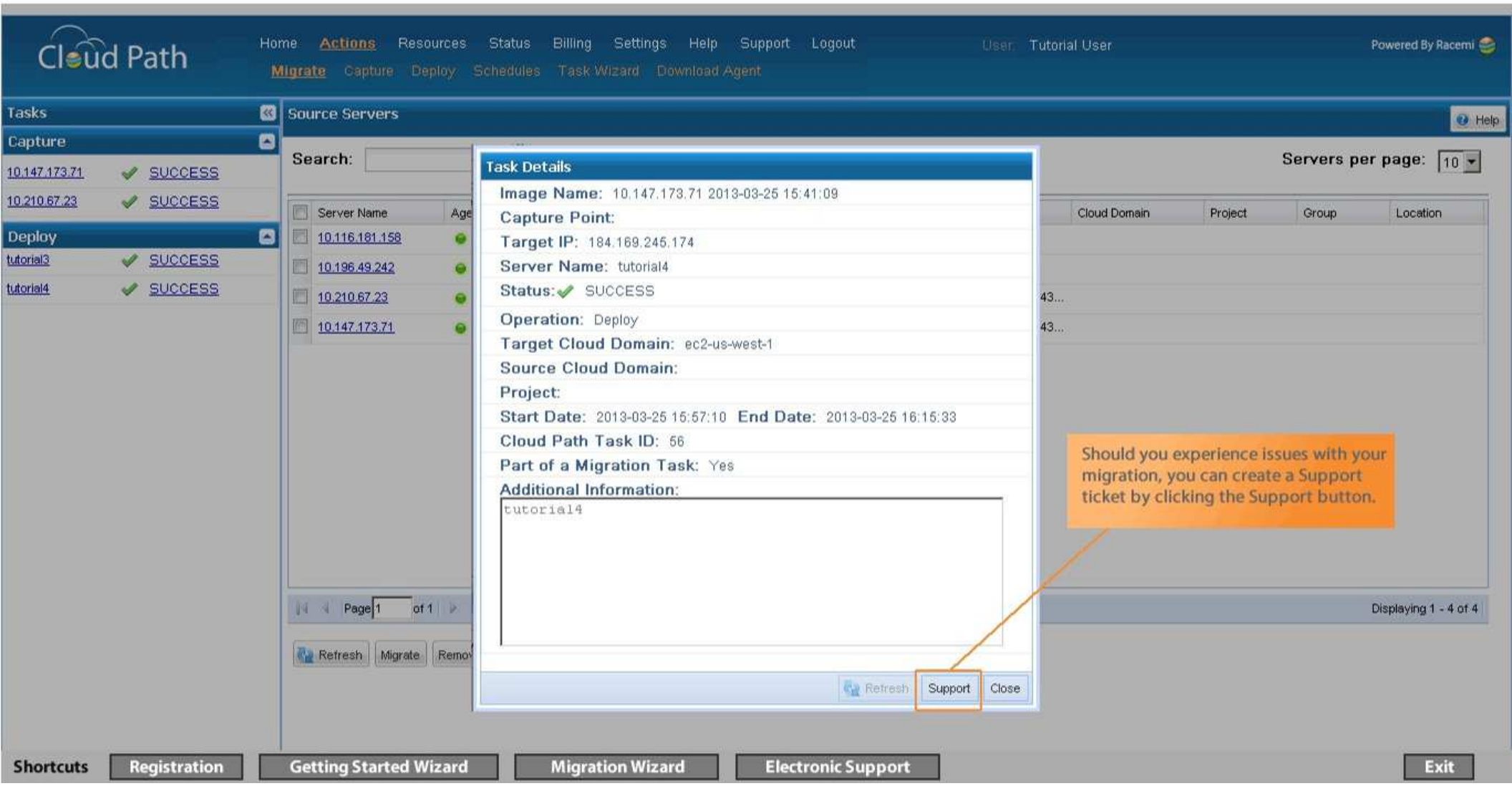
Learn more about Racemi Cloud Path, our cloud migration SaaS solution.

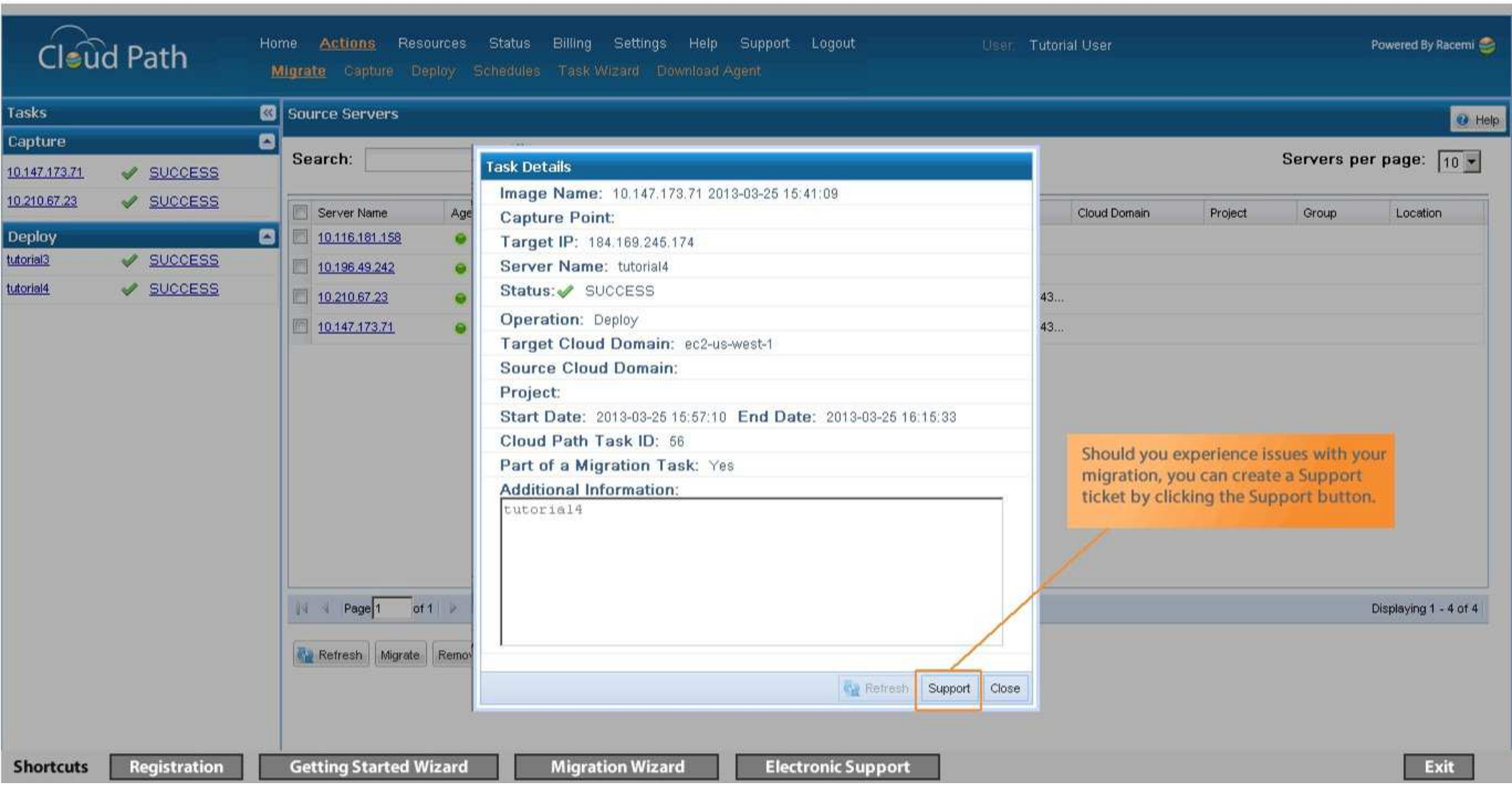
At-A-Glance

- **Supports a broad range of physical, virtual, and cloud platforms**
- **Supports Live Capture for mimimal service disruption**
- **Migrates network and storage configurations**
- **Supports bi-directional conversion between Hyper-V, VMware, and Xen**

"Even though DR has come a long way, enterprises still face several management challenges, beginning with initial configuration and setup, particularly in scenarios where a multi-site, multi-mode disaster recovery configuration is concerned..."

- via Arthur Cole, IT Business Edge 12/10/2010


Cloud Path
Home Actions Resources Status Billing Settings Help Support Logout
User: Tutorial User
Powered By Racemi
Migrate Capture Deploy Schedules Task Wizard Download Agent
Tasks
Capture
10.147.173.71 SUCCESS
10.210.67.23 SUCCESS
Deploy
tutorial3 SUCCESS
tutorial4 SUCCESS
Source Servers
Help
Search:
Servers per page: 10
Server Name
Age
Cloud Domain
Project
Group
Location
10.116.181.158
10.196.49.242
10.210.67.23
10.147.173.71
Page 1 of 1
Displaying 1 - 4 of 4
Refresh
Migrate
Task Details
Image Name: 10.147.173.71 2013-03-25 15:41:09
Capture Point:
Target IP: 184.169.245.174
Server Name: tutorial4
Status: SUCCESS
Operation: Deploy
Target Cloud Domain: ec2-us-west-1
Source Cloud Domain:
Project:
Start Date: 2013-03-25 15:57:10 End Date: 2013-03-25 16:15:33
Cloud Path Task ID: 56
Part of a Migration Task: Yes
Additional Information:
tutorial4
Refresh
Support
Close
Should you experience issues with your migration, you can create a Support ticket by clicking the Support button.
Shortcuts
Registration
Getting Started Wizard
Migration Wizard
Electronic Support
Exit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Cloud Domain
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10.210.67.23
10.147.173.71
Page 1 of 1
Displaying 1 - 4 of 4
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Capture Point:
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Server Name: tutorial4
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Shortcuts
Registration
Getting Started Wizard
Migration Wizard
Electronic Support
Exit

Racemi Cloud Path Pricing - Cloud Migration Software

First 4 Migrations	Next 5 Migrations	10+ Migrations
USD $299 per	USD $249 per	Call
Racemi Storage - $0.20 GB/Month	Racemi Storage - $0.20 GB/Month	Racemi Storage - $0.20 GB/Month
AWS Storage - $0.05 GB/Month	AWS Storage - $0.05 GB/Month	AWS Storage - $0.05 GB/Month
Bandwidth - $0.10 GB	Bandwidth - $0.10 GB	Bandwidth - $0.10 GB

Racemi Cloud Path is our cloud migration software as a service, available to customers as a zero risk, "Pay As You Go" service with no up front commitment or fees. This allows businesses to use our cloud migration service with the confidence that they will only be billed for successful cloud migrations.Cloud or Managed Service providers interested in having their cloud supported by Racemi Cloud Path should contact Racemi for additional pricing and terms.

Authorize.Net Verified Merchant

Migration Fees

Cloud Path customers are billed monthly for any successful cloud migrations during the course of the billing period. Discounts based on volume are automatically applied as specified volume thresholds are reached.

Example:

A customer migrates 6 servers in a given billing period. At the end of the billing period, the customer is charged $299 each for the first 4 successful cloud deploys and $249 each for the 5th and 6th deploys for a total deployment charge of $1694. As the customer has now completed 6 migrations, they will automatically start the next billing period at the discounted $249 per migration rate.

Promotions

Racemi frequently offers promotional codes for Cloud Path users. Check our Promotions page frequently for current special promotions.

Sign Up For Cloud Path Cloud Migration SaaS Now

Storage Fees

If you use **Racemi's secure, multi-tenant cloud-based storage** (the default option) to host your server images, you will be billed at **$.20 per GB per month** for the storage of any images you capture during the migration process. If you have an active Amazon AWS account, you can choose to use your account to store your server images in your **private S3 storage** library. **Amazon will bill you per their current billing rates/policy and Racemi will charge you $.05 per GB per month** to help cover our operational/support overhead. The storage fee is based on the size and quantity of the images

Racemi Cloud Path Pricing - Cloud Migration Software

First 4 Migrations	Next 5 Migrations	10+ Migrations
USD $299 per	USD $249 per	Call
Racemi Storage - $0.20 GB/Month	Racemi Storage - $0.20 GB/Month	Racemi Storage - $0.20 GB/Month
AWS Storage - $0.05 GB/Month	AWS Storage - $0.05 GB/Month	AWS Storage - $0.05 GB/Month
Bandwidth - $0.10 GB	Bandwidth - $0.10 GB	Bandwidth - $0.10 GB

Racemi Cloud Path is our cloud migration software as a service, available to customers as a zero risk, "Pay As You Go" service with no up front commitment or fees. This allows businesses to use our cloud migration service with the confidence that they will only be billed for successful cloud migrations.Cloud or Managed Service providers interested in having their cloud supported by Racemi Cloud Path should contact Racemi for additional pricing and terms.

Authorize.Net Verified Merchant

Migration Fees

Cloud Path customers are billed monthly for any successful cloud migrations during the course of the billing period. Discounts based on volume are automatically applied as specified volume thresholds are reached.

Example:

A customer migrates 6 servers in a given billing period. At the end of the billing period, the customer is charged $299 each for the first 4 successful cloud deploys and $249 each for the 5th and 6th deploys for a total deployment charge of $1694. As the customer has now completed 6 migrations, they will automatically start the next billing period at the discounted $249 per migration rate.

Promotions

Racemi frequently offers promotional codes for Cloud Path users. Check our Promotions page frequently for current special promotions.

Sign Up For Cloud Path Cloud Migration SaaS Now

Storage Fees

If you use **Racemi's secure, multi-tenant cloud-based storage** (the default option) to host your server images, you will be billed at **$.20 per GB per month** for the storage of any images you capture during the migration process. If you have an active Amazon AWS account, you can choose to use your account to store your server images in your **private S3 storage** library. **Amazon will bill you per their current billing rates/policy and Racemi will charge you $.05 per GB per month** to help cover our operational/support overhead. The storage fee is based on the size and quantity of the images

Your Progress

Welcome to Cloud Path!

This is the Racemi Getting Started Wizard. In the next few pages we collect everything we need to successfully migrate your servers to your chosen cloud provider.

Register your cloud credentials

Before you can use Cloud Path, we need some information from you. For each cloud vendor account you want to migrate servers to, Cloud Path needs the login information for the account. Registering these account credentials allows Cloud Path to deploy servers in to your cloud vendor account.

Where Can I Find My Cloud Vendor Credentials?

This link opens a Help topic that shows you where to locate your cloud credentials if you are not sure where to find them.

Vendor	Description	Cloud Vendor Status	Action
Amazon EC2	Amazon EC2 Cloud	Not Registered	Add
GoGrid	GoGrid Cloud	Not Registered	Add
Rackspace	Rackspace Cloud	Not Registered	
SoftLayer	SoftLayer CloudLayer Cloud	Not Registered	
Terremark	Terremark vCloud	Not Registered	

Cloud Path uses your cloud API credentials to create your new cloud servers in your cloud provider account. Click the Add button to register your credentials. *You must register at least one cloud,* but you can add more later.

You can access context sensitive Help topics at any point in the wizard.

Exit | Help | Take a Tour | Next

Shortcuts | Registration | Getting Started Wizard | Migration Wizard | Electronic Support | Exit

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Rackspace	Rackspace Cloud	Not Registered	
SoftLayer	SoftLayer CloudLayer Cloud	Not Registered	
Terremark	Terremark vCloud	Not Registered	

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Exit | Help | Take a Tour | Next

Shortcuts | Registration | Getting Started Wizard | Migration Wizard | Electronic Support | Exit

Racemi
Cloud Migration Simplifed

Search the Knowledgebase

Search | Search | Advanced Search

Categories

Cloud Path [10]
Amazon [0]

Recently Added

1. Change AWS keys
2. Storage Settings for Cloud Path
3. Opening Firewall Ports
4. Deleting a deployed server too soon after deployment causes the task to be marked as "Failed"
5. Image capture point is missing
6. Scheduled task fails to run
7. Where can I find my Cloud vendor credentials
8. Changing where my images are stored
9. Tasks seem to be hung
10. Maximum IP address limit for GoGrid

Racemi
Cloud Migration Simplifed

Search the Knowledgebase

Search | Search | Advanced Search

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Registration and Login
Cloud Path
Email Address:
Password:
Login
Sign Up
Take a Tour
Reset password
Powered By
Racemi

Registration and Login
Cloud Path
Email Address:
Password:
Login
Sign Up
Take a Tour
Reset password
Powered By
Racemi

(404) 892-5850 info@racemi.com

Racemi
Business Systems Agility

Racemi Cloud Path - Cloud Migration Software

Cloud Path

Cloud Path is a Software as a Service that enables businesses to quickly and automatically migrate their ***existing*** physical and virtual servers into and *between* supported public cloud providers, without the need to purchase, install, or manage any infrastructure.
With Cloud Path's automated, unattended server migration approach you can skip the manual application migration headaches and streamline your cloud migration project. With Cloud Path, you get:

- **Fully automated cloud migration** of your existing physical & virtual servers to supported cloud providers. You can even migrate application servers between clouds!
- **Pay as you go** pricing – no upfront costs and no long term contracts to worry about. Customers can literally get started in minutes!
- **Significant cost savings** – on average savings of $800 per server vs. a manual cloud migration!
- **Zero risk licensing** – our customers only pay for successful server migrations, and with no upfront costs and no lengthy implementation project, there is no risk to you and your business.

Sign Up For Cloud Path Now!

View Pricing Information

Step 1

Register With Racemi Cloud Path

Step 2

Install the Racemi Migration Agent on your source servers

Step 3

Choose your cloud server specs &

(404) 892-5850 info@racemi.com

Racemi
Business Systems Agility

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Pandora One - Listen to P | Google Calendar | USPTO TTABVUE, Proceed | Racemi - Cloud Migration | Cloud Path powered by R | no servers registered

www.racemi.com/tour/racemi/no%20servers%20registered.htm

Patent Bookmarks | Patents | Calendar | Bill4Time | Google | G-Docs | RPLink | Gmail | Facebook (1) | Pandora | GoogleMaps | GFinance | Weather | RqLive | ArchPatent | Other bookmarks

Cloud Path

Home Actions Resources Status Billing Settings Help Support Logout

User Tutorial User

Powered By Racemi

Tasks

Capture

Deploy

View Task Details | Refresh

Source Servers

Help

Search:

Servers per page: 10

Server Name	Agent Status	Server Type	Operating System	Last Captured	Cloud Domain	Project	Group	Location

Page 1 of 1

No data to display

Refresh | Migrate | Remove from Inventory | Home

Message

You currently have no servers registered. Download the Migration agent and install it on the server you want to capture. If you have already installed an agent, it might take a few minutes for the agent to register with Cloud Path.

Close

To migrate a server, you must install the Migration Agent on the server you want to migrate. View installation instructions here.

Shortcuts | Registration | Getting Started Wizard | Migration Wizard | Electronic Support | Exit

Pandora One - Listen to P | Google Calendar | USPTO TTABVUE, Proceed | Racemi - Cloud Migration | Cloud Path powered by R | no servers registered

www.racemi.com/tour/racemi/no%20servers%20registered.htm

Patent Bookmarks | Patents | Calendar | Bill4Time | Google | G-Docs | RPLink | Gmail | Facebook (1) | Pandora | GoogleMaps | GFinance | Weather | RqLive | ArchPatent | Other bookmarks

Cloud Path

Home Actions Resources Status Billing Settings Help Support Logout

User Tutorial User

Powered By Racemi

Tasks

Capture

Deploy

View Task Details | Refresh

Source Servers

Help

Search:

Servers per page: 10

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Page 1 of 1

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MSP and Cloud Providers - Racemi Server and Cloud Migration Software

Racemi server migration solutions can help you drive revenue and reduce costs while simultaneously improving customer adoption and retention rates. Racemi technology makes it point and click simple for customers to migrate their existing servers into your environment, whether it be managed hosting, cloud, virtual private cloud, or managed cloud. With Racemi you can:

- Quickly **migrate customer's existing physical and virtual servers** from their data center to your hosting or cloud environment, regardless of their current physical, virtual, or cloud environment.
- Migrate customer workloads **between** your **public cloud, managed cloud, virtual private cloud, or managed hosting** platforms.
- **Accelerate Monthly Recurring Revenues** buy speeding time to close and migrate new customers.
- **Grow revenue in existing accounts** by making it easy and cost effective to migrate existing apps to your cloud.
- Help customers easily migrate from their old cloud provider to your cloud.
- **SaaS** options mean no infrastructure to buy, manage, or maintain!
- Pay as you go licensing available!

For each customer you migrate using Racemi cloud migration and server migration software, you will generate net new monthly recurring revenues while reducing your operating costs at the same time.

Contact Us for more information on partnering with Racemi

Learn More about Racemi Server Migration and Cloud Migration Solutions

At-A-Glance

- Drive revenue and retention
- Flexible licensing to meet business needs
- Speed time to close and monthly recurring revenue
- Expand footprint in existing accounts
- Robust web API for simplified integration or automation

"Migration has been pegged by both cloud providers and platform developers as one of the chief inhibiting factors in cloud deployment." – Arthur Cole, IT Business Edge, 5/9/2011

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THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Cloudpath Network, Inc. Petitioner, v. Racemi, Inc. Registrant.	Cancellation No. 92057344 **PETITIONER'S NOTICE OF DEPOSITION PURSUANT TO RULE 30(B)(6)**

PLEASE TAKE NOTICE that, pursuant to Rule 30(b)(6) of the Federal Rules of Civil Procedure and Rule 404 et seq. of the TBMP, Petitioner Cloud Path, Inc. ("Cloud Path"), will take the deposition upon oral examination of Registrant Racemi, Inc. ("Racemi"), through the person(s) designated by Racemi pursuant to Rule 30(b)(6), before an officer authorized by law to administer oaths, at the offices of Alston & Bird LLP, 1201 Peachtree Street N.W., One Atlantic Center, Atlanta, GA 30309 on June 5th and 6th, 2014 beginning at 9:30am each day or at such other place, date and time as agreed upon by the parties.

PENGAD 800-631-6989
EXHIBIT
Strayer 1
MB 6-5-14

Racemi is requested to produce the person(s) most knowledgeable within its organization with respect to the following matters:

1. Racemi's "CLOUD PATH" trademarks as actually used in commerce in connection with the marketing, advertising, promotion and/or sale of the goods and services specifically listed in US Trademark Registration No. 4174640 from August 23, 2011 to the present;

2. The connotation and commercial impression of Racemi's "CLOUD PATH" trademarks as actually used in commerce in connection with the marketing, advertising, promotion and/or sale of the goods and services specifically listed in US Trademark Registration No. 4174640;

3. The established and likely to continue channels of trade through which the goods and services specifically listed in US Trademark Registration No. 4174640 bearing Racemi's "CLOUD PATH" trademarks are sold, marketed, advertised and promoted in the United States;

4. The actual dollar and unit sales of the goods and services specifically listed in US Trademark Registration No. 4174640 bearing Racemi's "CLOUD PATH" trademarks in the United States and any projected or estimated dollar and unit sales figures for the future;

5. The wholesale and retail price that Racemi has sold the goods and services specifically listed in US Trademark Registration No. 4174640 bearing Racemi's "CLOUD PATH" trademarks in the United States;

6. The manner in which the goods and services specifically listed in US Trademark Registration No. 4174640 bearing Racemi's "CLOUD PATH" trademarks are advertised, marketed and promoted in the United States;

7. The annual expenditure by Racemi for the advertising, marketing and promotion of the goods and services specifically listed in US Trademark Registration No. 4174640 bearing Racemi's "CLOUD PATH" trademarks;

8. Any and all instances of actual confusion (or mistake or deception) between the marks of Racemi and any of Petitioner's trademarks or products;

9. The preparation and prosecution of US Trademark Application Serial Nos. 85460848 including the decision to file the mark on a use-in-commerce basis, the choice of the specific identification of goods and services listed in the application, and the specimens submitted in connection with the application.

10. The knowledge of Petitioner's US Trademark Registration No. 4045900 prior to filing Racemi's Trademark Application No. 85460848 including the decision to file application No. 85460848 in light of Petitioner's Registration No. 4045900.

11. The substance of the responses provided by Racemi in its response to Petitioner's First Set of Interrogatories.

12. The preparation and gathering of documents produced by Racemi in response to Petitioner's First Set of Document Requests.

13. Any searches, investigations or opinions concerning the registrability of the Racemi CLOUD PATH trademarks, the results of those searches and the decision to move forward with application No. 85460848 in light of those investigations.

The deposition will continue from day to day, with adjournments as necessary, until completed. The deposition may be videotaped and may be conducted via telephone. You are invited to attend and cross-examine.

Dated: May 19, 2014

By: /Craig Neugeboren/

Craig Neugeboren
Neugeboren O'Dowd PC
1227 Spruce Street
Suite 200
Boulder, CO 80302
Attorney for Cloudpath, Inc.

Certificate of Service

I certify that on May 19, 2014, I had the foregoing documents served on Mr. Larry Jones, counsel for Racemi, Inc. via email, pursuant to an agreement between the parties to serve all such documents electronically.

/Craig Neugeboren/

Craig Neugeboren
Neugeboren O'Dowd PC
Attorneys for Cloudpath Networks, Inc.

United States of America

United States Patent and Trademark Office

Cloud Path

Reg. No. 4,174,640

Registered July 17, 2012

Int. Cl.: 42

SERVICE MARK

PRINCIPAL REGISTER

RACEMI, INC. (DELAWARE CORPORATION)
#360
360 INTERSTATE NORTH PARKWAY SE
ATLANTA, GA 30339

FOR: SOFTWARE AS A SERVICE (SAAS) SERVICES FEATURING A HOSTED COMPUTER SOFTWARE APPLICATION FOR MIGRATING COMPUTER OPERATING SYSTEMS, APPLICATIONS, AND DATA BETWEEN CUSTOMER DATA CENTERS AND PUBLIC CLOUD PROVIDERS, IN CLASS 42 (U.S. CLS. 100 AND 101).

FIRST USE 8-23-2011; IN COMMERCE 8-23-2011.

THE MARK CONSISTS OF STANDARD CHARACTERS WITHOUT CLAIM TO ANY PARTICULAR FONT, STYLE, SIZE, OR COLOR.

NO CLAIM IS MADE TO THE EXCLUSIVE RIGHT TO USE "CLOUD", APART FROM THE MARK AS SHOWN.

SER. NO. 85-460,848, FILED 10-31-2011.

ALAIN LAPTER, EXAMINING ATTORNEY

David J. Kappos

Director of the United States Patent and Trademark Office

PENGAD 800-631-6989

EXHIBIT

Strayer 5

MB 6-5-14

REQUIREMENTS TO MAINTAIN YOUR FEDERAL TRADEMARK REGISTRATION

WARNING: YOUR REGISTRATION WILL BE CANCELLED IF YOU DO NOT FILE THE DOCUMENTS BELOW DURING THE SPECIFIED TIME PERIODS.

Requirements in the First Ten Years*
What and When to File:

First Filing Deadline: You must file a Declaration of Use (or Excusable Nonuse) between the 5th and 6th years after the registration date. *See* 15 U.S.C. §§1058, 1141k. If the declaration is accepted, the registration will continue in force for the remainder of the ten-year period, calculated from the registration date, unless cancelled by an order of the Commissioner for Trademarks or a federal court.

Second Filing Deadline: You must file a Declaration of Use (or Excusable Nonuse) **and** an Application for Renewal between the 9th and 10th years after the registration date.* *See* 15 U.S.C. §1059.

Requirements in Successive Ten-Year Periods*
What and When to File:

You must file a Declaration of Use (or Excusable Nonuse) **and** an Application for Renewal between every 9th and 10th-year period, calculated from the registration date.*

Grace Period Filings*

The above documents will be accepted as timely if filed within six months after the deadlines listed above with the payment of an additional fee.

The United States Patent and Trademark Office (USPTO) will NOT send you any future notice or reminder of these filing requirements.

***ATTENTION MADRID PROTOCOL REGISTRANTS:** The holder of an international registration with an extension of protection to the United States under the Madrid Protocol must timely file the Declarations of Use (or Excusable Nonuse) referenced above directly with the USPTO. The time periods for filing are based on the U.S. registration date (not the international registration date). The deadlines and grace periods for the Declarations of Use (or Excusable Nonuse) are identical to those for nationally issued registrations. *See* 15 U.S.C. §§1058, 1141k. However, owners of international registrations do not file renewal applications at the USPTO. Instead, the holder must file a renewal of the underlying international registration at the International Bureau of the World Intellectual Property Organization, under Article 7 of the Madrid Protocol, before the expiration of each ten-year term of protection, calculated from the date of the international registration. *See* 15 U.S.C. §1141j. For more information and renewal forms for the international registration, see http://www.wipo.int/madrid/en/.

NOTE: Fees and requirements for maintaining registrations are subject to change. Please check the USPTO website for further information. With the exception of renewal applications for registered extensions of protection, you can file the registration maintenance documents referenced above online at http://www.uspto.gov.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Cloudpath Networks, Inc.,	§	
	§	Cancellation No. 92057344
Petitioner,	§	(Registration No. 4,174,640)
	§	
vs.	§	**Note: This Document Contains Information**
	§	**Which Has Been Designated "TRADE SECRET/**
Racemi, Inc.,	§	**COMMERCIALLY SENSITIVE" Pursuant**
	§	**to the Board's Standardized Protective Order**
Registrant.	§	
	§	

REGISTRANT'S RESPONSES TO PETITIONER'S
FIRST SET OF INTERROGATORIES

Pursuant to 37 C.F.R. § 2.120 and Rules 26 and 33 of the Federal Rules of Civil Procedure, Registrant, Racemi, Inc. ("Racemi" or "Registrant"), hereby provides the following responses to *Cloudpath's First Set of Interrogatories to Racemi, Inc.*

GENERAL OBJECTIONS

1. Racemi objects to each and every interrogatory to the extent that it seeks information protected from discovery by the attorney-client communications privilege or the attorney work product immunity doctrine.

2. Racemi objects to each and every definition, instruction and interrogatory to the extent that it purports to require Racemi to search for information not within Racemi's possession, custody or control. To do so would place an undue added burden upon Racemi.

3. Racemi objects to each and every definition, instruction and interrogatory to the extent it purports to require Racemi to provide discovery or information and materials not otherwise required under 37 C.F.R. § 2.120 and the applicable Federal Rules of Civil Procedure.

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EXHIBIT
Strayer 6
MB 6-5-14

4. Racemi objects to any requirement that it identify or provide a list of any documents withheld from discovery pursuant to either the attorney-client communications privilege and/or the attorney work product immunity doctrine and which documents were created on or after June 14, 2013, the date on which the *Petition to Cancel* was filed in this proceeding. Such a requirement would be unduly burdensome and would interfere with this proceeding by deterring the creation of such documents.

5. Racemi objects to the putative definition of the term "Racemi" to the extent that it is intended to refer to any natural person or entity other than Registrant Racemi, Inc. Racemi also objects to the putative definition of "Racemi" because of the ambiguity arising from the incorporation of the self-contradictory term "Registrant/Petitioner" in that putative definition.

6. Racemi objects to the putative definition of the terms "Racemi mark," "Cloudpath's CLOUDPATH mark" and "Cloudpath's Mark" to the extent that each putative definition purports to include any "federal trademark registration" inasmuch as a federal trademark registration itself is incapable of being a mark and thus the definition is nonsensical or, at best, vague and ambiguous.

7. Racemi also objects to the putative definition of the terms "Cloudpath's CLOUDPATH mark" and "Cloudpath's Mark" to the extent that each putative definition refers erroneously to the subject of U.S. Registration No. 4,045,900 as "CLOUD PATH," whereas, in fact, the subject of that registration is the service mark "CLOUDPATH," and thus the definition is vague and ambiguous.

8. Racemi objects to the putative instruction in Paragraph I that it "supply information as requested in Paragraph C above" inasmuch as Paragraph C contains no such requested information, and thus the instruction is nonsensical or, at best, vague and ambiguous.

9. These responses are made without waiver of and with preservation of:

(a) all questions as to competency, relevancy, materiality, privilege and admissibility of the responses and the subject matter thereof as evidence for any purpose and in any further proceeding in this action and in any other action;

(b) the right to object to the use of any such responses or the subject matter thereof, on any ground in any further proceeding in this action and any other action;

(c) the right to object on any ground at any time to a demand or request for further response to these or any other interrogatories or other discovery requests involved or related to the subject matter of the discovery to which these responses are provided; and

(d) the right at any time to review, correct, add to, supplement or clarify any of the responses contained herein.

10. The following responses are based upon information and documents presently available to and located by Racemi and its attorneys. Racemi has not completed its investigation of the facts relating to this proceeding, has not completed its discovery in this proceeding, and has not completed its preparation of its testimony. The responses given herein to the discovery requests are without prejudice to Racemi's right to produce evidence of any additional facts or materials.

These general objections apply to all of Racemi's interrogatories. To the extent that the specific General Objections are cited herein in response to specific discovery requests, those specific citations are provided because they are believed to be particularly applicable to the requests and are not to be construed a waiver of any other General Objections applicable to information or materials falling within the scope of the requests.

RESPONSES TO INTERROGATORY NOS 1-22

Interrogatory No 1:

Identify all officers and directors of Racemi from 2008 to the present.

Response to Interrogatory No. 1:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory on the grounds, *inter alia*, that the putative instruction of Paragraph F, as applied to this interrogatory, is overly broad, unduly burdensome, and would require the provision of information which is neither relevant to any issue to be determined in this proceeding nor reasonably likely to lead to the discovery of admissible evidence relevant to any issue to be determined in this proceeding.

Without waiving any of its objections, Racemi further responds that its present officers and directors are the following individuals who hold the particular positions identified below:

Officers:

Lawrence Guillory – Chief Executive Officer

Darren Metherell – Senior Vice President Worldwide Sales

Lorraine Bassett – Vice President of Sales and Business Development

Scott Mewett – Vice President of Engineering

James H. Strayer – Vice President Product Management and Marketing

Charles T. Watt – Chief Technology Officer

Adiascar Cisneros – Director of Operations

Christian Nelson – Vice President of Finance

Directors:

Arun Gore (President and CEO of Gray Ghost Ventures)

Wayne Hunter (Managing Partner of Harbert Venture Partners)

Philip Eliot (Principal of Paladin)

Lawrence Guillory (Chief Executive Officer of Racemi, Inc.)

Interrogatory No 2:

Identify those persons most knowledgeable about Racemi's actual and/or intended sales, advertising and sales promotion, adoption and use, licensing, and/or assignment or other transfer of rights with respect to the Racemi mark.

Response to Interrogatory No. 2:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory on the grounds, *inter alia*, that the putative instruction of Paragraph F, as applied to this interrogatory, is overly broad, unduly burdensome, and would require the provision of information which is neither relevant to any issue to be determined in this proceeding nor reasonably likely to lead to the discovery of admissible evidence relevant to any issue to be determined in this proceeding.

Without waiving any of its objections, Racemi responds that the following individuals are generally knowledgeable about the particular topics identified below:

Racemi's adoption of the CLOUD PATH mark: James H. Strayer – Vice President Product Management and Marketing

Racemi's marketing and sales of services under the CLOUD PATH mark: James H. Strayer – Vice President Product Management and Marketing

There is no one knowledgeable about the topic "licensing and/or assignment or other transfer of rights with respect to the Racemi mark."

Interrogatory No 3:

Identify all state and federal registrations, applications for registration, trademarks, service marks, trade names and uses known to Racemi that include the word "CLOUD" and identify all documents relating thereto.

Response to Interrogatory No. 3:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory to the extent that it seeks responsive information, if any such information is presently known to Racemi, which is the subject of the attorney work product immunity and/or the attorney-client communications privilege and thus is privileged from discovery.

Racemi further objects to this interrogatory on the grounds that it is overly broad and unduly burdensome.

Interrogatory No 4:

Identify and fully describe each of the goods and/or services on or in connection with which Racemi currently uses, intends to use or has used Racemi's Cloud Path mark, with or without any design element or in a stylized format of any sort.

Response to Interrogatory No. 4:

Racemi incorporates by reference all of the foregoing objections.

As reflected more fully on Racemi's website, www.Racemi.com, Racemi, under its CLOUD PATH mark, provides server migration services, *i.e.*, support for migrating application workloads between dissimilar physical, virtual and cloud infrastructure. As such, Racemi's CLOUD PATH service is a cloud migration SaaS that automatically migrates existing physical or virtual servers into the cloud or between cloud providers.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 5:

For each of the goods and/or services identified in response to Interrogatory No. 4:

a. Identify the first use date(s) and/or the expected first use date of the Cloud Path mark with such goods or services;

b. Identify the state or geographic region where each such goods and/or services have been and/or are expected to be sold and/or advertised; and

c. Identify all documents supporting the responses to subparagraphs (a) and (b), above.

Response to Interrogatory No. 5:

Racemi incorporates by reference all of the foregoing objections.

Racemi began offering its CLOUD PATH server migration services in or about August 2011, and, since the commencement thereof, such services have been offered and/or provided to customers and potential customers nationwide.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 6:

For each of the goods and/or services identified in response to Interrogatory No. 4, set forth the dollar amount of the annual sales (projected and/or actual) of such goods and/or services, the dollar amount (projected and/or actual) of annual advertising expenditure, and the individual media through which such advertising took and/or is projected to take place and dollar amount (actual and/or projected) of advertising through each such media.

Response to Interrogatory No. 6:

Racemi incorporates by reference all of the foregoing objections.

Racemi objects to this interrogatory to the extent it exceeds the scope of discovery permitted under the rules and controlling precedents of the TTAB.

Without waiving any of its objections, Racemi provides the following information which Racemi designates as "**Trade Secret/Commercially Sensitive**" pursuant to the Board's standard protective order:

During its most recent fiscal year (*i.e.*, calendar year 2012), Racemi derived no revenue from the sales or provision of services under the CLOUD PATH mark.

During its most recent fiscal year (*i.e.*, calendar year 2012), Racemi's approximate advertising and promotion expenditures pertaining to its CLOUD PATH services were as follows:

- Search based ads - $15,000
- Additional online - $5,000
- Email Mktg - $1,000
- Print - $2,000
- Tradeshows
    - Show/sponsor fees - $68,000
    - Operational costs – shipping, internet, furniture, lead retrieval - $40,000
    - Travel - $52,000
- Analysts - $30,000
- Misc - $3,000
- Total: $216,000

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 7:

Identify all documents and set forth with specificity all facts regarding the selection by Racemi of Racemi's Cloud Path mark including, without limitation, the date on which Racemi decided to adopt Racemi's Cloud Path mark, the circumstances and method by which Racemi adopted Racemi's Cloud Path mark, and the reasons why any proposed marks or names, if any, were rejected.

Response to Interrogatory No. 7:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory on the grounds, *inter alia*, that the putative instruction of Paragraph E, as applied to this interrogatory, is overly broad, unduly burdensome, and would require the provision of information which is neither relevant to any issue to be determined in this proceeding nor reasonably likely to lead to the discovery of admissible evidence relevant to any issue to be determined in this proceeding.

Without waiving any of its objections, Racemi will provide copies of any non-privileged documents described in this interrogatory, if any such documents exist, which it is able to locate after a reasonable search.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 8:

Identify all persons who were involved in, or participated in any way with, the decision by Racemi to adopt and/or use Racemi's Cloud Path mark, and for each such person state his/her title and/or position, and the role he/she played in the decision to adopt and/or use Racemi's Cloud Path mark.

Response to Interrogatory No. 8:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory on the grounds, *inter alia*, that the putative instruction of Paragraph F, as applied to this interrogatory, is overly broad, unduly burdensome, and would require the provision of information which is neither relevant to any issue to be determined in this proceeding nor reasonably likely to lead to the discovery of admissible evidence relevant to any issue to be determined in this proceeding.

Without waiving any of its objections, Racemi further responds that the individual most familiar with Racemi's decision to adopt and use the CLOUD PATH mark is James H. Strayer – Vice President Product Management and Marketing.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 9:

State whether any searches or investigations were conducted by Racemi, its attorneys, or any person on its behalf to determine whether Racemi's Cloud Path mark was available for use and/or registration and, if so, identify each such search or investigation including the date such search or investigation was performed and all marks or uses located in such search or investigation.

Response to Interrogatory No. 9:

Racemi incorporates by reference all of the foregoing objections.

Without waiving any of its objections, Racemi further responds that, prior to adopting and applying to register the CLOUD PATH mark, it (*i.e.*, Mr. Strayer) conducted a search of USPTO website records and found no conflicting registrations or senior applications, which result was confirmed by the USPTO's subsequent approval of Racemi's application to register CLOUD PATH as a service mark for use in conjunction with the particular services listed in the subject application.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 10:

Identify all inquiries, investigations, surveys, evaluations and/or studies conducted by Racemi or by anyone acting for or on its behalf that refer or relate in any manner to Racemi's Cloud Path mark, including the date conducted, the name, address and title of each person who conducted it, the purpose for which it was conducted, the findings or conclusions made, and identify all documents which record, refer to, or relate to such inquiry, investigation, survey, evaluation or study.

Response to Interrogatory No. 10:

Racemi incorporates by reference all of the foregoing objections.

Without waiving any of its objections, Racemi further responds that, prior to adopting and applying to register the CLOUD PATH mark, it (*i.e.*, Mr. Strayer) conducted a search of USPTO website records and found no conflicting registrations or senior applications, which result was confirmed by the USPTO's subsequent approval of Racemi's application to register CLOUD PATH as a service mark for use in conjunction with the particular services listed in the subject application.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 11:

Identify each communication, oral or written, received by or known to Racemi which suggests, implies or infers that Racemi and/or its affiliates may be connected or associated with Cloudpath and/or Cloudpath's Cloud Path mark, or which inquires as to whether there is or may be such a connection or association and identify any response by Racemi to each such communication.

Response to Interrogatory No. 11:

Racemi incorporates by reference all of the foregoing objections.

Without waiving any of its objections, Racemi further responds that, as presently informed, it is not aware of any such communication.

Interrogatory No 12:

Identify all documents and set forth with specificity all facts with respect to any instance where a person or entity has been confused, mistaken, and/or deceived as to whether any goods and/or services advertised or sold under the Cloud Path mark were those of Racemi, or whether any goods or services advertised or sold under Racemi's Cloud Path marks were those of Cloudpath, and/or its affiliates, and for each such instance provide the date of such instance, the identity of the person or entity, and a detailed description of the circumstances of such confusion, mistake and/or deception.

Response to Interrogatory No. 12:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory to the extent that it pertains to instances involving whether "goods and/or services under the Cloud Path mark were those of Racemi" inasmuch as Racemi routinely designates its services as CLOUD PATH services, and thus that portion of the interrogatory is non-sensical.

With respect to any other instances referenced in this interrogatory, Racemi further responds that, as presently informed, it is not aware of any such instances.

Interrogatory No 13:

Identify each person employed by Racemi, or each outside agency or agent retained by Racemi, who has been or now is responsible for the following activity with respect to any goods or services intended to be offered or rendered or actually offered or rendered under Racemi's Cloud Path mark:

a. marketing;

b. advertising and promotion; and

c. bookkeeping and accounting.

Response to Interrogatory No. 13:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory on the grounds, *inter alia*, that the putative instruction of Paragraph F, as applied to this interrogatory, is overly broad, unduly burdensome, and would require the provision of information which is neither relevant to any issue to be determined in this proceeding nor reasonably likely to lead to the discovery of admissible evidence relevant to any issue to be determined in this proceeding.

Without waiving any of its objections, Racemi further responds that the following individuals are generally knowledgeable about the topics identified below:

Racemi's marketing, advertising and promotion of CLOUD PATH services – James H. Strayer – Vice President Product Management and Marketing

Racemi's bookkeeping and accounting practices – Christian Nelson – Vice President of Finance

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 14:

Has Racemi ever licensed, or had negotiations to license, assign or otherwise grant rights to third parties to use, Racemi's Cloud Path mark or any mark incorporating the term "Cloud Path"? If so, identify the party or parties who have received or sought such license or other right, state the nature and extent of any such license or right, given or negotiated, and identify and describe all documents comprising or containing any such license or other right.

Response to Interrogatory No. 14:

Racemi incorporates by reference all of the foregoing objections.

Without waiving any of its objections, Racemi further responds that, as presently informed, it believes that no such instance has occurred.

Interrogatory No 15:

Has Racemi ever received a license, or had negotiations to license, acquire, receive rights to a mark by assignment, or otherwise been the recipient of a grant from a third party to use a designation containing the term "Cloud Path?" If so, identify the party or parties who have received such license or other right, state the nature and extent of any such license or right, given or negotiated, and identify and describe all documents comprising or containing any such license or other right.

Response to Interrogatory No. 15:

Racemi incorporates by reference all of the foregoing objections.

Without waiving any of its objections, Racemi further responds that, as presently informed, it believes that no such instance has occurred.

Interrogatory No 16:

State in detail the channels of trade through which Racemi's Cloudpath mark is used or is intended to be used, including the geographic area by city, state, and territory or possession in which Racemi's Cloudpath mark is used or is intended to be used, the geographical reach of each

such channel, and the approximate percentage of total sales (actual or projected) of goods and/or services through each such channel.

Response to Interrogatory No. 16:

Racemi incorporates by reference all of the foregoing objections.

Racemi objects to this interrogatory on the grounds that Petitioner's references therein to "Racemi's Cloudpath [vis-a-vis Cloud Path] mark" are, at best, misleading and, at worst, purposefully deceitful.

Without waiving any of its objections, Racemi further responds that it offers and provides its CLOUD PATH services nationwide to highly sophisticated entities and individuals having particular expertise, knowledge and skills, which entities and individuals commonly include cloud service providers, system integrators, and enterprise IT administrators. Such trade channels are described more fully within Racemi's website at http://Racemi.com/partners-list/.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 17:

Identify with specificity the marketing methods used and/or intended to be used in the advertising and/or sale of goods and/or services by or for Racemi under Racemi's Cloud Path mark, including, without limitation, the names of newspapers, magazines, trade journals, websites and/or periodicals in which Racemi has advertised and/or intends to advertise its goods and/or services under Racemi's Cloud Path mark.

Response to Interrogatory No. 17:

Racemi incorporates by reference all of the foregoing objections.

Without waiving any of its objections, Racemi incorporates herein its response to Interrogatory No. 16 and further responds that it advertises and promotes it CLOUD PATH services primarily via the following means and media:

- Google Adwords search advertising

- Online advertising
    - GigaOM website advertising
    - Cloud Expo website advertising
- Partner programs/web presence
    - AWS website – partner program
    - GoGrid website – partner program
    - IBM website – partner
    - Rackspace website – partner program
    - VMware website – partner program
- Tradeshows – Amazon re:Invent, VMworld, VMworld PEX, IBM Impact, Microsoft Management Summit, Cloud Expo, OpenStack Summit, AWS Summit
- Email marketing using Constant Contact and customer/prospect lists
- Social Media - Twitter, LinkedIn, Facebook, Google+

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 18:

Identify and describe in detail the ordinary purchaser or expected ordinary purchaser of the goods and/or services sold or to be sold under Racemi's Cloud Path mark including, without limitation, the level of care exercised by such an ordinary purchaser in purchasing the goods and/or services sold under Racemi's Cloud Path mark.

Response to Interrogatory No. 18:

Racemi incorporates by reference all of the foregoing objections.

Racemi objects to this interrogatory on the grounds that Petitioner's references therein to "Racemi's Cloudpath [vis-a-vis Cloud Path] mark" are, at best, misleading and, at worst, purposefully deceitful.

Without waiving any of its objections, Racemi further responds that it offers and provides its CLOUD PATH services nationwide to highly sophisticated entities and individuals having particular expertise, knowledge and skills, which entities and individuals commonly include cloud service providers, system integrators, and enterprise IT administrators. Such trade channels are described more fully within Racemi's website at http://Racemi.com/partners-list/.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 19:

State when Racemi first became aware of Cloudpath and the use by Cloudpath of the mark CLOUDPATH and describe in detail the circumstances made under which Racemi first became aware of such use, and identify any documents referring or relating thereto.

Response to Interrogatory No. 19:

Racemi incorporates by reference all of the foregoing objections.

Racemi objects to this interrogatory on the grounds that the phrase "describe in detail the circumstances made" is vague and ambiguous.

Without waiving any of its objections, Racemi further responds that, as presently informed, it believes that it first became aware of Registrant and its claimed use of the designation CLOUDPATH when Mr. Strayer considered Racemi's potential adoption and use of the designation CLOUD PATH as a service mark for Racemi's server migration services.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 20:

Identify each person who participated in or supplied information used in answering any of the above interrogatories; beside the name of each such person, state the number of the interrogatory answer(s) with respect to which that person participated in or supplied information.

Response to Interrogatory No. 20:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory on the grounds that it seeks information that is neither relevant to any issue to be determined in this proceeding nor reasonably likely to lead to the discovery of admissible evidence relevant to any issue to be determined in this proceeding.

Interrogatory No 21:

Set forth with particularity, including an identification of all documents in support of Racemi's declaration in Racemi's trademark application for the CLOUD PATH mark, that Racemi has offered software as a service (SAAS) services featuring a hosted computer software application for migrating computer operating systems, applications, and data between customer data centers and public cloud providers, under the mark and name CLOUD PATH and/or CLOUDPATH continuously since at least as early as 2011.

Response to Interrogatory No. 21:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory on the grounds, *inter alia*, that the putative instruction of Paragraph E, as applied to this interrogatory, is overly broad, unduly burdensome, and would require the provision of information which is neither relevant to any issue to be determined in this proceeding nor reasonably likely to lead to the discovery of admissible evidence relevant to any issue to be determined in this proceeding.

Without waiving any of its objections, Racemi further responds by identifying the web pages of its website, www.Racemi.com.

Otherwise, Racemi objects to this interrogatory on the grounds that it is vague, ambiguous, and, as presently understood, overly broad and unduly burdensome.

Interrogatory No 22:

Identify each person who attended a conference or trade show since 2008 as a representative or staff member of Racemi, and identify the names, locations, and dates of any attended conferences or trade shows.

Response to Interrogatory No. 22:

Racemi incorporates by reference all of the foregoing objections.

Racemi also objects to this interrogatory on the grounds, *inter alia*, that the putative instruction of Paragraph F, as applied to this interrogatory, is overly broad, unduly burdensome, and would require the provision of information which is neither relevant to any issue to be determined in this proceeding nor reasonably likely to lead to the discovery of admissible evidence relevant to any issue to be determined in this proceeding.

Racemi also objects to this interrogatory on the grounds that it is overly broad and unduly burdensome.

Racemi also objects to this interrogatory on the grounds that it seeks information that is neither relevant to any issue to be determined in this proceeding nor reasonably likely to lead to the discovery of admissible evidence relevant to any issue to be determined in this proceeding.

Respectfully submitted,

Larry C. Jones
Carla H. Clements
Alston & Bird, LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, North Carolina 28280-4000
Telephone: (704) 444-1000

Attorneys for Registrant,
Racemi, Inc.

VERIFICATION

I, Charles Watt, have read the foregoing *Registrant's Responses to Petitioner's First Set of Interrogatories*, and I believe the same to be true and correct based either upon my personal knowledge or upon information supplied to me by others which I believe to be true and correct.

This 25th day of October, 2013

CERTIFICATE OF SERVICE

I hereby certify that the foregoing "Registrant's Responses to Petitioner's First Set of Interrogatories" was duly served on Petitioner via email as shown below on October 25, 2013, pursuant to an agreement between the parties to serve all such documents electronically:

Craig Neugeboren (Craig@NeugeborenLaw.com)
Steve Gruber (Steve@NeugeborenLaw.com)
Rene Roskam (Rene@NeugeborenLaw.com)
Neugeboren O'Dowd PC
1227 Spruce St., Suite 200
Boulder, CO 80302

Larry C. Jones

EXHIBIT
PENGAD 800-631-6989
Strayer 7
MB 6-5-14

Racemi

At-a-Glance

Provides fast, reliable, and cost-effective server migrations across dissimilar physical, virtual, or cloud platforms. Whether you are moving physical or virtual servers to the cloud, Racemi automates the server migration process saving you valuable time and money.

ADVANTAGES

- Migrates existing physical, virtual, or cloud servers
- No infrastructure to buy or maintain
- Zero risk, pay as you go pricing
- Works across dissimilar physical, virtual, and cloud platforms

"For beleaguered systems administrators, the prospect of moving physical servers into cloud services from...a point-and-click Web portal is little short of miraculous..."
- Rachel Chalmers, 451 Research

The Moving Company For The Cloud

Racemi products and services simplify the cloud migration process for physical and virtual servers, making it fast, reliable, and cost-effective to **migrate existing applications to the cloud**. The key to our hassle free migration approach is Racemi's fast and reliable image-based provisioning technology, which automates the entire cloud migration process and supports a broad range of physical and virtual platforms including VMware, Xen, and Hyper-V.

Why is Racemi the Best Choice for Cloud Migration?

Innovative Products

There are few good options out there for **migrating existing applications to the cloud**, in fact, businesses must often rebuild servers in the cloud manually at considerable time and expense. In contrast, with Racemi, you can automatically "capture" your live server workloads and migrate them between dissimilar physical, virtual, and cloud platforms "as is". There's no need to rebuild servers manually from templates or the base OS since Racemi's automated migration process moves the entire server "stack" - operating system, applications, network, and storage configuration for you.

Migration Expertise

Whether you need guidance developing a comprehensive cloud strategy or just a little help migrating your servers, Racemi's experienced professional services team can help get you to the cloud faster, with more predictable results. Racemi professionals can help you:

- Determine which of your applications are right for the cloud.
- Select a cloud provider that best meets your business needs.
- Leverage industry leading Racemi tools to automate the migration.

Flexible Options

Racemi offers a range of products and services with flexible, zero risk licensing plans to help take the headache out of cloud migration. Our most popular option is Racemi Cloud Path, a SaaS application that makes it point and click simple to migrate a server into the cloud, with no infrastructure to buy or maintain and no up front fees or long term contracts.

Cloudpath v. Racemi
CLD0000027

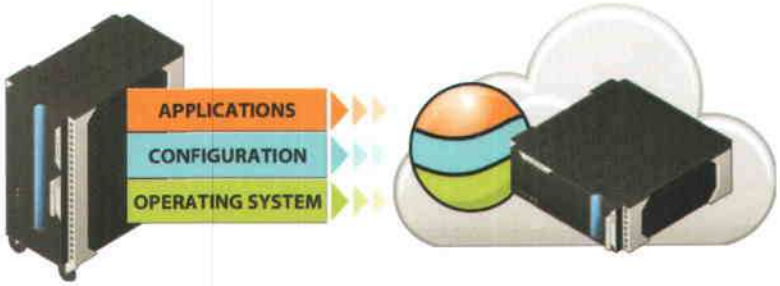
When Should I Consider Racemi?

Consider Racemi if you need:

- **Fast and cost-effective migration** of physical or virtual environments to the cloud.
- Freedom to easily move between cloud providers to **minimize risk of vendor lock-in.**
- Ability to **migrate existing applications to, from, and between cloud services** without modifying your workloads.
- High-availability **deployments across multiple availability zones or cloud providers** to protect from service outages and minimize risk to your business services.
- **Cost effective disaster recovery** to quickly and easily stand up servers in your local data center or another cloud provider.

How Does Racemi Work?

Racemi captures **OS, configuration, application files, and other information** from a source server in an image and stores it in a library. These images can be **deployed to other local or cloud-based servers** with your deployment "profile" applied. **Profiles include information such as storage and network configurations**, which can be modified to address a wide range of environments and configurations. Racemi also **applies any necessary drivers and virtual tools "in flight"** to prepare the image for the target platform. This enables Racemi to quickly and easily migrate server images to dissimilar physical, virtual, and cloud platforms.



Key Additional Features Include:

- Fully unattended automated migration process supported.
- Live Capture with CPU throttling eliminates need to power down servers during migrations.
- Automatically configures disk layout and network interfaces.
- Supports migrations between dissimilar physical, virtual, and cloud platforms.
- Zero risk, pay as you go licensing available.
- No infrastructure to buy or maintain (SaaS.)

How Do I Learn More About Racemi?

To learn more about how Racemi can simplify your cloud migration project, visit **www.racemi.com** or email **info@racemi.com**

Racemi
Cloud Migration Simplified

Watch our introductory video on how Cloud Path helps businesses migrate to the cloud at **http://www.racemi.com**

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All other trademarks and registered trademarks are the properties of their respective holders.

M power × SoftLayer -

https://demo-ibm.racemi.com/#tasks-migrate

IBM. ath

Home Actions Resources Status Settings Help Support Logout User: Tutorial User

M power × SoftLayer - CloudLayer Co ×

SoftLayer Technologies, Inc [US] https://manage.softlayer.com/CloudLayer/computing

home faq forum vpn mini new portal notifications (1)

SOFTLAYER an IBM Company

portal home

- active user:
- date: 03-17-14 19:59 (GMT-0500)
- billing date: 03/19/2014
- account balance: $2.81

Edit Profile Logout

Best deal on our fastest deploying bare metal.

$20/mo off + FREE upgrades

Order Now.

- Contact Sales
  Toll Free: 1-866-398-7638
  sales chat
  sales@softlayer.com
- Contact Support
  Toll Free: 1-866-403-7638

ADMINISTRATIVE | SUPPORT | SECURITY | HARDWARE | SOFTWARE | CLOUDLAYER™ | PUBLIC NETWORK | PRIVATE NETWORK | SALES

Monitoring | Image Templates | Public Images | Reboot
Order Monthly Computing Instance | Order Hourly Computing Instance
Build Your Own Cloud | Tag Search

computing: index

Verify your server was created correctly and begin cut over process.

Search Options

Criteria	Data
Fully Qualified Domain Name	my

Search

EXHIBIT
Strayer 8
MB 6-5-14
PENGAD 800-631-6989

Computing Instances

Computing Instance Name	Notes	Public IP	Private IP	Datacenter	Action
mylinuxcloud.racemi.com		208.	10.100.181.3	Washington, DC 1	View

Administrative | Support | Security | Hardware | Software | Public Network | Private Network | Sales

SOFTLAYER

CloudPath v. Racemi

Racemi Cloud Path for IBM Demo

Cloud Path for IBM powe | SoftLayer -

https://demo-ibm.racemi.com/#tasks-migrate

for IBM Cloud Path | Home | Actions | Resources | Status | Settings | Help | Support | Logout | User Tutorial User | Powered By Racemi

Cloud Path for IBM powe | SoftLayer - CloudLayer C

SoftLayer Technologies, Inc [US] https://manage.softlayer.com/CloudLayer/computing

home | tag | forum | vpn | mini | new portal | notifications (1)

SOFTLAYER an IBM Company

portal home

- active user:
- date: 03-17-14 19:59 (GMT-0500)
- billing date: 03/19/2014
- account balance: $2.81

Edit Profile | Logout

Best deal on our fastest deploying bare metal.

$20/mo off + FREE upgrades

Order Now.

- Contact Sales
  Toll Free: 1-866-398-7638
  sales chat
  sales@softlayer.com
- Contact Support
  Toll Free: 1-866-403-7638

ADMINISTRATIVE | SUPPORT | SECURITY | HARDWARE | SOFTWARE | CLOUDLAYER™ | PUBLIC NETWORK | PRIVATE NETWORK | SALES

Monitoring | Image Templates | Public Images | Reboot
Order Monthly Computing Instance | Order Hourly Computing Instance
Build Your Own Cloud | Tag Search

computing: index

Verify your server was created correctly and begin cut over process.

Search Options

Criteria	Data
Fully Qualified Domain Name	my

Search

Computing Instances

Computing Instance Name	Notes	Public IP	Private IP	Datacenter	Action
mylinuxcloud.racemi.com		208.	10.100.181.3	Washington, DC 1	View

Administrative | Support | Security | Hardware | Software | Public Network | Private Network | Sales

SOFTLAYER

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Watt 8-1
MB 6-6-14
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.racemi.com/#tasks-migrate

Actions Resources Status Settings Help Support Logout User: Tutorial User Powered By Racemi

ource Servers

Help

Search:

Servers per page: 10

Server Name	Cloud Domain	Project	Group	Location
10.34.6.5				

Page 1 of

Displaying 1 - 1 of 1

Refresh Migrate Remove from inventory Home

Server Information

Server Name:	my-linux-ser
Cloud Domain:	Select
Project:	Select
Group:	Select
Location:	Select
Server UUID:	0acd4d0e-ab3b-4f0f-a7be-1eab165a4002
Architecture:	x86_64
Operating System:	CentOS_Linux-5_8_*-x86_64
Primary MAC Addr:	00:50:56:AA:3A:14
Primary IP Addr:	10.34.6.5
Status:	running
Max capture points:	3 Use default ☑

File Systems to Capture

Mount Point	Size	Used
/	2.88 GB	1.14 GB
swap	1 GB	1 GB
/boot	98.72 MB	12.71 MB

Network Layout: eth0 10.34.6.5

Save Close

EXHIBIT
Strayer 9
MB 6-5-14
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CloudPath v. Racemi

Racemi Cloud Path for IBM Demo

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https://demo-ibm.racemi.com/#tasks-migrate

for IBM Cloud Path

Home Actions Resources Status Settings Help Support Logout User: Tutorial User

Powered By Racemi

Tasks

Capture

Deploy

Source Servers

Search:

Server Name

10.34.6.5

Server Information

Server Name: my-linux-ser

Cloud Domain: Select

Project: Select

Group: Select

Location: Select

Server UUID: 0acd4d0e-ab3b-4f0f-a7be-1eab165a4002

Architecture: x86_64

Operating System: CentOS_Linux-5_8_*-x86_64

Primary MAC Addr: 00:50:56:AA:3A:14

Primary IP Addr: 10.34.6.5

Status: running

Max capture points: 3 Use default

File Systems to Capture

Mount Point	Size	Used
/	2.98 GB	1.14 GB
swap	1 GB	1 GB
/boot	98.72 MB	12.71 MB

Network Layout: eth0 10.34.6.5

Save Close

Help

Servers per page: 10

Server Name	Cloud Domain	Project	Group	Location
10.34.6.5				

Page 1 of

Displaying 1 - 1 of 1

Refresh Migrate Remove from Inventory Home

EXHIBIT

Watt 9-1

MB 6-6-14

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CloudPath v. Racemi
CLD0000382

www.racemi.com/partners-list/

Current Cloud and Services Partners Include:

windstream
smart solutions. personalized service.

2ND WATCH

amazon web services | Partner Network
TECHNOLOGY PARTNER

ca

CISCO

CITRIX®

GOGRID
Complex Infrastructure Made Easy™

HOSTING
TAKING YOU FURTHER

IBM

PhoenixNAP

SAVVIS
A CenturyLink Company

SOFTLAYER

T · · Systems ·

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EXHIBIT
Strayer 10
MB 6-5-14

Foundation Technology Partners:

Cloud Migration Simplified

Racemi **Cloud Path® for IBM** is a no charge* Software as a Service **(SaaS)** that enables customers to automatically migrate their existing physical, virtual, or cloud servers to **IBM's SoftLayer** platform with no server downtime. This service only takes a few minutes to sign up for and can greatly simplify your Windows or Linux server migration to SoftLayer.

Getting Started

1. Go to https://cloudpath4IBM.racemi.com
2. Click on the Sign Up button and enter your information
3. Verify your account via your registered email address.
4. Register your SoftLayer user name and API key.
5. Install the Racemi Migration Agent on the servers you wish to migrate.

- Sign Up
- Product Information Sheet
- Case Study
- Product Tutorial
- Frequently Asked Questions
- Product Documentation

www.racemi.com/oem/

Racemi's offers OEM partners complete control over packaging and branding. Build your brand equity and drive revenue while reducing your operational costs.

Flexible Licensing Models

Racemi offers a wide range of licensing models to fit your business needs, ranging from traditional "per server" pricing to usage based subscriptions.

"Migration has been pegged by both cloud providers and platform developers as one of the chief inhibiting factors in cloud deployment." – Arthur Cole, IT Business Edge, 5/9/2011

For More Information on Racemi's OEM Partner Program, please Contact Us

Learn More About Racemi Server Provisioning and Cloud Provisioning Products

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Server and Cloud Migration Partners - Racemi

Racemi partners with some of the most recognizable names in cloud computing and virtualization. With a variety of partner programs and flexible licensing options, Racemi is sure to have a server migration or cloud migration solution that fits your business needs. See the links below for additional partners and details of our partner programs.

MSP and Cloud Providers

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Join todays Demo [Webcast] 3pm(CET) on @Racemi's #CloudPath migration tool for moving your workloads to SoftLayer https://ibm.biz/BdRH5M

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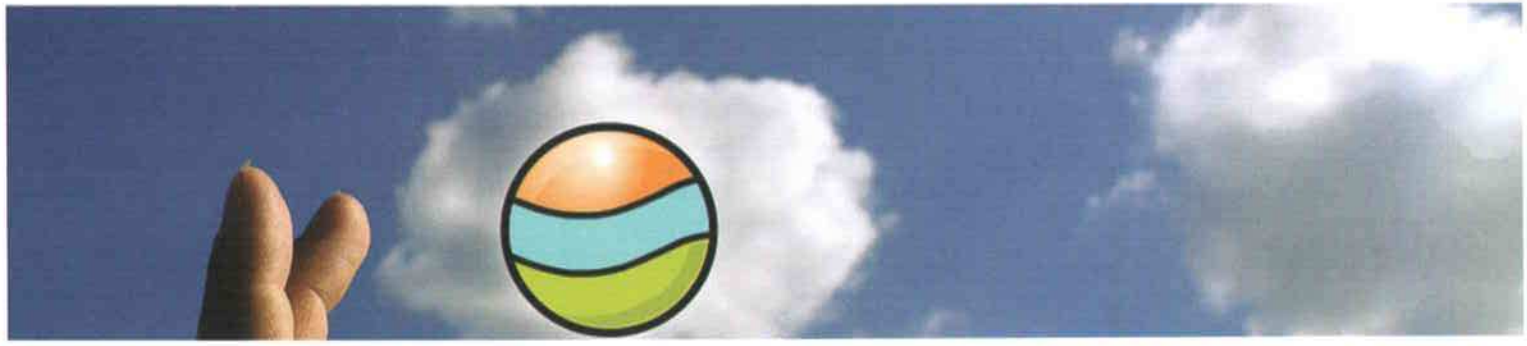

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Separate Yourself From The Pack

Racemi's powerful server migration software allows System Integrators to **better predict operational costs, streamline project timelines, and win more business**. Billable hours can be

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have the right tool for the job.

Point.

Server Virtualization and Consolidation

Have prospects looking to **virtualize applications** or consolidate their existing virtual environment? Racemi can simplify the virtualization process and speed project timelines. With support for VMware, Hyper-V, and Xen Racemi can even help customers **migrate between virtual infrastructures** quickly and easily.

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FIVE POINT

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Simon A R Baker @SimonARBaker · Dec 11
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Migrate to SoftLayer: Migrating VM instances from SCE to SoftLayer using Racemi Cloud Path service

With Racemi Cloud Path for IBM®, you can now automatically move your existing IBM SmartCloud® Enterprise (SCE) servers to the new SoftLayer platform and experience minimal downtime of your existing SCE workload. Cloud Path for IBM provides an automated cloud instances migration process that moves the entire server stack to the new SoftLayer environment in a few easy-to-follow steps, without the need to make additional setting changes on the SCE servers.

The Image Center defines the process and best practices to create high quality master images for IBM SmartCloud Enterprise and IBM SmartCloud Infrastructure on IBM SoftLayer. It also provides guidance for IBM groups and external partners. The Center is responsible for creating, testing, promoting and maintaining a wide set of SmartCloud-compatible OS images based on Windows, RedHat and SuSE.

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30 October 2013

Also available in Japanese

Sample configuration for migration and Cloud Path for IBM setup

Develop software in the cloud.
JazzHub
Create a project

This article assumes that you have one active SCE instance and shows you how to migrate it to SoftLayer using the Racemi Cloud Path for IBM migration method.

After the migration, the same type of instance with the same configuration should be running on the SoftLayer platform.

This article also assumes that you have active SCE and SoftLayer accounts. Begin by creating the Racemi account.

Create the Racemi Cloud Path for IBM account

1. Access the Racemi Cloud Path.
2. Click **Sign Up** in the Registration and Login window.
3. Complete the user, password, and other information in the registration form.
4. Check your email and click on the link to complete the registration process.

For more information, review the Racemi tutorial.

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Get started with Cloud Path for IBM

When you first log in to CloudPath4ibm, you are presented with options to register your cloud credentials and download your migration agent.

1. Register your cloud credentials for SCE by clicking **Add** on the credentials screen and fill in your SCE dashboard username and password.
2. Register your cloud credentials for SoftLayer by clicking **Add** on the credentials screen and fill in your

SoftLayer username and API key. To retrieve your API key, access the SoftLayer Customer Portal using your unique credentials. Click your username next to the "Logged in as" label showed in the Navigation Pane and locate your API key in the API Access Information section.

3. After you have registered your cloud credentials click **Next** and choose the geographic region for image library storage from the available options. The closer it is to the location (data center) where you have your SCE instances, the better performance and transfer speed. For example, if you have instances in the BLD data center, choose United States.
4. Click **Next**. A window opens where you can download the migration agent (for Linux® or Windows®). This agent needs to be installed on your instances before you can migrate them.

Note that the agent is generated for your account and can only work with your instances. You can also download the agent from the **Actions –> Download Agent** menu in CloudPath4ibm portal later.

Compatibility assessment

Currently, only the following operating systems are supported for this type of migration:

Red Hat 5.x (32 and 64bit)

Red Hat 6.x (32 and 64bit)

Windows 2008R2

CentOS (even though the operating system is not officially supported by IBM, instances already imported into SCE can be migrated to SoftLayer)

The server size will match an appropriate size in the SoftLayer offering list.

Prepare for migration

Remember that an instance migration from SCE to SoftLayer may cause service disruption. Although the original SCE instance should remain active during the entire migration process, we recommend that you keep continuous changes to the instance to a minimum in order to prevent data errors on the newly migrated SoftLayer Cloud Compute Instance (CCI).

Based on the configuration you selected when creating the SCE instance, the migration tool builds an equivalent offering on SoftLayer and transfers your instance into this newly created CCI.

For RHEL instances you can uninstall the RHUI configuration, as it will not be functional in SoftLayer. To do that:

1. Switch to root user.
2. Get the name of the package installed on your server.
3. Uninstall the package:

```
[root@vhost1138 idcuser]# rpm -qa |grep ibm_sce_rhel
          ibm_sce_rhel6-2.0-20120928.noarch
[root@vhost1138 idcuser]# rpm -e ibm_sce_rhel6-2.0-20120928.noarch
```

4. Remove the RHUI startup script:

```
rm -f /etc/cloud/*install-RHUI*
```

Checklist prior to migration

Make sure that the instance is running at the time of migration.

Verify access to your instance (Linux instances need to be accessible via SSH key and Windows instances via RDP).

Since the post migration login is done using the same credentials as in SCE, make sure you back up the SSH key or account credentials for Windows.

Make sure the Racemi migration agent is installed (see the next section).

Make sure port 443 is opened for Internet access (mandatory check for private VLAN instances).

Deactivate the RHUI confidential for RHEL instances.

Migrate your server

Use the following how-to articles to migrate your server:

Red Hat Enterprise Linux 5.x or 6.x

Microsoft Windows 2008 R2

IBM DB2® Enterprise Developer 9.7.1 64-bit BYOL

IBM WebSphere® Application Server V8.0 BYOL

IBM Cognos® Business Intelligence 10.2 64b BYOL

Post migration configuration, validation and update procedures

You must perform certain post migration configurations. Check the articles referenced in the previous section for more information.

After the migration process is completed, your old server is still available on SCE and clients can connect to that server. Client migration procedures are necessary to redirect the traffic to the newly created server. Remember that the new server will have different IP settings.

Here is an example of this change:

Listing 1. Original SCE instance:

```
[idcuser@vhost5112 ~]$ cat /etc/resolv.conf
domain site2.compute.ihost.com
nameserver 129.35.212.106
nameserver 129.35.212.107
[idcuser@vhost5112 ~]$ hostname --long
vhost5112.site2.compute.ihost.com
```

Listing 2. SoftLayer migrated instance:

```
[idcuser@mgrh64enh ~]$ hostname --long
mgrh64enh.racemi.com
[idcuser@mgrh64enh ~]$ cat /etc/resolv.conf
nameserver 10.0.80.11
nameserver 10.0.80.12
```

Known issues and limitations

SoftLayer's standard image templates should not be used with migrated RHEL workloads. A resolution is expected soon. In the interim, to create an image template of your RHEL migrated CCI use the SoftLayer Flex image template.

Logging in to the CCI instances must be done with the SCE authentication method and credentials.

There is currently no support for SUSE Linux Enterprise, Microsoft Windows Server 2003, Microsoft

Windows 2008R1, and Microsoft Windows Server 2012 operating systems.

SoftLayer cannot create partitions larger than 300GB on local storage. If you plan to migrate partitions larger than 300GB, use SAN storage as server configuration in the Racemi Cloud Path migration tool, which supports up to approximately 2TB partitions.
When you plan to migrate, consider that when Windows creates a partition, it allocates a small amount of partition space to the NTFS file system table. This space varies depending on the partition size, so the actual available space on the partition will be less than the partition size.

For example, a SoftLayer 2TB partition has 199,985GB free space. If your SCE partition size is more than this size, the migration will fail. To overcome this issue, either split your partitions into multiple smaller partitions, or, if you have enough free space, shrink the partition to a size smaller than 199,985GB.

Linux only: While there is a 2TB limit for partitions in SoftLayer, you can migrate up to an 8TB persistent storage partition, as Racemi will span 4 SAN drives (4x2TB) to recreate the 8TB partition.

Linux only: /etc/fstab must be updated with all the mounted partitions the customer wishes to migrate. If it is not in fstab, it will not migrate.

Linux only: If a Capture error occurs in Racemi it can be caused by incorrect UUID references in the fstab file.

Creating Flex images from migrated Red Hat Enterprise Linux VMs requires that SSH root access be enabled (disabled by default in SCE).

Currently the network interfaces will not be migrated to SoftLayer. All the migrated CCIs will have a NIC with a public IP and a secondary NIC with a private IP, regardless of the number of interfaces the SCE instance had. If you require more IP addresses, you can request additional IPs by logging in to the old portal (https://manage.SoftLayer.com) and clicking **Add IP Addresses** in the Sales menu. You can then add the IP addresses to one of the instance NIC by following this Knowledge Layer guide:

Windows

Red Hat

If you make any major file system structure changes on the SCE instance, such as resizing a partition or attaching/detaching storage, a reboot of the instance or a restart of the dynacenter service is required in order for the Racemi agent to be able to update the settings before the migration process begins.

Activation scripts will not be transferred to SoftLayer. Upon saving a SoftLayer image, you should consider migrating the SCE activation scripts to the SoftLayer Provisioning Scripts. Check the KnowledgeLayer section for details.

Linux only: The /etc/cloud, /etc/init.d/cloud-startup3.sh, /etc/init.d/cloud-startup5.sh and the equivalent Start and Kill scripts in /etc/rc.d/ are removed during the post provision phase. Custom build SCE images that rely on parameters.xml can encounter issues when booting up in SoftLayer. A workaround is to `tar` the above files before the capture and restore after the migration.

The agent does not have a resume mechanism in case there is a loss of network connectivity during the migration. However, the migration workflow is the combination of two phases: capture and deploy. If the interruption occurred during the deploy phase after a successful capture, then it is not necessary to

recapture the server. In this case, the image can be redeployed in Cloud Path by clicking **Deploy Image** on the **Resources** -> **Image Library** view.

If the deploy fails, Racemi keeps a saved image of your instance for seven days so you do not need to recapture it.

Resources

Learn

Find migration resources at SmartCloud Enterprise to SoftLayer migration.

Learn more about IBM SoftLayer.

Explore Cloud computing on developerWorks, where you can find valuable community discussions and learn about new technical resources related to the cloud.

Get products and technologies

Evaluate IBM products by downloading a product trial.

SoftLayer trial: Free cloud server for a month.

Discuss

Review known issues with SCE to SoftLayer migration in the SCE Support Community Forum.

Get involved in the developerWorks community. Connect with other developerWorks users while exploring the developer-driven blogs, forums, groups, and wikis.

Dig deeper into Cloud computing on developerWorks

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Racemi Automates Migrations to IBM Cloud Services

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Racemi, a provider of automated server migration software that streamlines the process of migrating workloads to public, private, and hybrid clouds, has announced global support for IBM public cloud offerings, providing clients an automated migration path to their IBM cloud of choice, at no charge for a limited time.

Racemi's Cloud Path software as a service (SaaS) enables IBM customers to migrate server workloads to IBM's SoftLayer cloud services at no charge (see terms and conditions here).

"Working closely with IBM, we are offering customers free migrations to IBM SoftLayer's public cloud services," said James Strayer, vice president of product management, Racemi. "This ensures there a fast, easy way to move existing workloads... Read more

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Racemi Cloud Path: Enabling One-Click Cloud Server Migration

Matthew Weinberger | *Talkin' Cloud* *Oct. 19, 2011*

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Cloud migration specialist Racemi is taking its offering to the next level with Racemi Cloud Path, a SaaS solution that aims to make it point-and-click easy to move applications into the cloud without the need for professional services or other intervention. In other words, Racemi Cloud Path is designed to remove the barriers between a company's servers and cloud service providers including Rackspace, GoGrid, Amazon EC2 and Terremark.

Racemi Cloud Path is essentially the SaaS-ified version of Racemi DynaCenter, which The VAR Guy covered in depth at its February 2011 launch but is essentially an image-based provisioning solution designed to help migrate virtualization environments from Citrix Xen to VMware to Hyper-V and back.

It seems Racemi has taken it upon itself to help cloud service providers avoid vendor lock-in – a nice side benefit of Racemi Cloud Path, according to the press release, is that it's just as useful for moving cloud instances between service providers.

Of course, there's some technical fine print:

> *Cloud Path will initially support the migration of RHEL and CentOS operating systems to Amazon EC2, GoGrid, Rackspace, and Terremark. As the beta progresses, additional OS platforms and cloud providers will be added to increase customer options.*

But there's nothing wrong with supporting some of the most popular cloud services platforms before getting to the others.

Longtime TalkinCloud readers may see this announcement and think of Racemi as a CloudShare competitor – but CloudShare's more focused on dev/test/demo clouds and throwing existing hardware into the cloud on a temporary basis, while Racemi Cloud Path is designed to facilitate long-term cloud moves.

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The Schwartz Cloud Report

Racemi Launches Server Image Migration Service

Racemi, a company that offers software to move Windows and Linux images from one bare-metal server to another, this week added cloud migrations to its portfolio. The company's new Cloud Path is a software as a service (SaaS) offering that lets administrators move server images to public cloud services.

IT pros can use Cloud Path from a Web browser to migrate physical and virtual servers to infrastructure as a service (IaaS) cloud providers. Atlanta-based Racemi claims migrations will cost on average $800 less than performing manual re-imaging of data.

Pricing is based on a usage-based model and eliminates the need to rely on experienced administrators, who can move server images without requiring templates or scripts. In addition to moving workloads from in-house systems to cloud-based servers, Cloud Path lets customers migrate cloud instances between different supported cloud providers.

Racemi charges $299 per successful migration, which includes an initial 20 GB of free storage. Customers can currently migrate Windows Server 2008 R2, Ret Hat Enterprise Linux and CentOS systems to cloud services provided by Amazon Web Services, GoGrid, Rackspace and Verizon's Terremark. Racemi said it plans to support additional server OSes and cloud service providers over time.

Posted by Jeffrey Schwartz on 09/06/2012 at 1:14 PM

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Cloud Newsmakers

Racemi Offers Easy Migration to Rackspace Open Cloud

November 15, 2012

Racemi's cloud migration software now makes it easier for organizations to migrate existing workloads to Rackspace's open cloud platform.

That means it's no longer necessary to rebuild servers from scratch in the cloud, which translates to significant time and cost savings.

Both its Cloud Path software as a service and DynaCenter on-premises software can now migrate servers running supported operating systems to Rackspace open cloud server instances.

Support for Rackspace's open cloud has been added to existing support for public clouds that include Amazon EC2, GoGrid, Rackspace (first generation cloud servers) and Terremark. Also, it's possible to automatically migrate cloud instances between cloud providers, which means existing Rackspace first generation cloud customers can now migrate to Rackspace open cloud instances in an automated, unattended fashion.

"With our Cloud Path automated, online migration service, customers now have more operating system (OS) and public cloud choices than anything else we know of," said James Strayer, vice president of product management, Racemi. "With investments in staffing and automation, our pace will be accelerating in the coming months, enabling us to support additional OS platforms and cloud providers."

"This update will not only help new Rackspace customers, but it will make it easier for existing Rackspace customers to move to our open cloud platform," said Bob Bardwell, business development manager at Rackspace. "We are pleased to be collaborating with a company like Racemi that continues to support our effort to reduce the barriers to cloud adoption."

Workloads are migrated to the cloud by automatically creating new cloud server instances, comparing the configurations of the source and destination servers, and then configuring the necessary cloud tools, virtual machine components, disk, and network layout "in-flight" to help ensure that the image can be run on the new cloud platform.

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Cloud Newsmakers

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Racemi Cloud Path - Cloud Migration Software

Cloud Path

Cloud Path is a Software as a Service that enables businesses to quickly and automatically migrate their ***existing*** physical and virtual servers into and *between* supported public cloud providers, without the need to purchase, install, or manage any infrastructure.
With Cloud Path's automated, unattended server migration approach you can skip the manual application migration headaches and streamline your cloud migration project. With Cloud Path, you get:

- **Fully automated cloud migration** of your existing physical & virtual servers to supported cloud providers. You can even migrate application servers between clouds!
- **Pay as you go** pricing – no upfront costs and no long term contracts to worry about. Customers can literally get started in minutes!
- **Significant cost savings** – on average savings of $800 per server vs. a manual cloud migration!
- **Zero risk licensing** – our customers only pay for successful server migrations, and with no upfront costs and no lengthy implementation project, there is no risk to you and your business.

Sign Up For Cloud Path Now!

View Pricing Information

Step 1

Register With Racemi Cloud Path

Step 2

Install the Racemi Migration Agent on your source servers

Step 3

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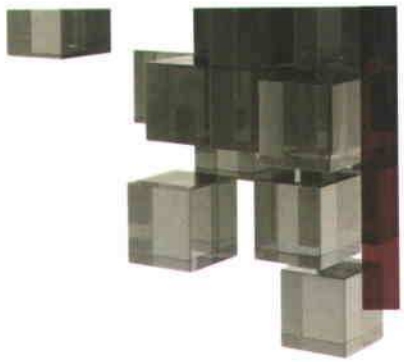

STRUCTURE RESEARCH

ARTICLE

GoGrid, Racemi push CloudPath; crucial for adoption, upside, hybrid

Posted on April 11, 2013 at 11:35 by

Summary: GoGrid deployed Racemi's CloudPath technology to facilitate migration of infrastructure to its data centres. It is also making a push to encourage uptake.

Details: Racemi automates migration of (Windows or Linux) servers (physical, virtual or cloud) to GoGrid cloud server instances. Racemi has supported GoGrid for a while now and the two are now making a push to get more adoption with a free offering. The move is about breaking down barriers to adoption and encouraging uptake by automating the process of both migration and configuration and in doing so taking that task out of the hands of customers. GoGrid also cited a migrating customer: Calydonian Interactive.

Angle: Migration is an area that has challenged cloud adoption and Racemi addresses that. But CloudPath can also be used to move between different infrastructure types within a hoster's portfolio. Without solving this problem hosters face a bottleneck that will slow adoption. Hosters that offer multiple services also can't realize the full value of having options available for customers (and sell the flexibility value proposition) if they can't move images seamlessly between services. We have spoken with some other hosters looking at deploying this technology and there are some like Internap that have built this capability internally. Needless to say, it is a big key to tapping into some significant upside.

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From: James Strayer <jstrayer@racemi.com>
To: Karen Docherty <kdocherty@racemi.com>;Scott Mewett <smewett@racemi.com>
Sent: 3/1/2012 12:48:23 PM
Subject: RE: Cloud Path name

I have a trademark submitted as of last September – the USPTO have some clarifications they need, but I think we will get Cloud Path.

From: Karen Docherty [mailto:kdocherty@racemi.com]
Sent: Thursday, March 01, 2012 7:17 AM
To: Scott Mewett; James Strayer
Subject: Cloud Path name

Gentlemen,

I did a Google search last night as part of my research for ticket #995 (Several customer-facing places where we have CloudPath not Cloud Path) and I noticed that Cloudscaling has an offering called Cloud Path (http://www.cloudscaling.com/solution/cloud-path/).

It looks like a services offering and it doesn't look like they have trademarked the term, but I wanted to mention it as I hadn't seen this result in previous Google searches.

Karen

Karen Docherty

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From: James Strayer <jstrayer@racemi.com>
To: Scott Leerssen <sleerssen@racemi.com>;Scott Mewett <smewett@racemi.com>
CC: Patrick Bryant <pbryant@racemi.com>
Sent: 10/17/2011 3:02:22 PM
Subject: RE: cloudpath already trademarked?

Yes, found both in our initial search about a month ago, but they have updated their website since then. The filing is in and we are waiting on approval – we'll see what happens. We tried to make our filing sound as unrelated as possible :)

The truth is that every "cloud *" term is taken in some way, shape or form. They awarded CloudPath and Cloudpath so hopefully they will award Cloud Path.

From: Scott Leerssen [mailto:sleerssen@racemi.com]
Sent: Monday, October 17, 2011 12:48 PM
To: Scott Mewett
Cc: James Strayer; Patrick Bryant
Subject: cloudpath already trademarked?

I just did a quick google search on cloudpath to see if I'd get a hit, and, sure enough, found pathway communications with cloudpath as a registered trademark. I think the rules for registered trademark usage permit the same name to be used for products that are in unrelated fields, but that might not be the case here. Here's the link:

Cloud Computing Service Providers in Canada | Cloud Hosting & Storage | CloudPath™

This is probably another collision that could cause trouble:

Cloudpath Networks - About Cloudpath Networks

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From: James Strayer <jstrayer@racemi.com>
To: 'Lawrence Guillory' <lguillory@racemi.com>
Sent: 8/25/2011 10:22:12 AM
Subject: more naming ideas

Still like **Cloud Connect**. I am guessing the Dropbox guy is probably in the funding phase and probably 12 months out. We could build enough brand recognition in the meantime that he would likely change the name to avoid conflict. I do worry a little about the keyword advertising costs, thanks to Google's Connector product.

Having said that, here are some alternatives I thought of last night:

- **Cloud Path** – it's the path you take to get to the cloud. Simple, intuitive, direct. Domain name is taken but there is only an error page up. There is a cloudpath.net that is up and has the TM for "Cloudpath" however. We could always mark Racemi Cloud Path or make a case for having a space in the mark as a differentiator.
- Thought up some variations as I like the general concept
  - **Cloud Pass** – parking page. No registered marks. Reminds me of a hall pass from school – you can go where ever you want.
  - **Cloud Course** – parking page, no TM

James Strayer
VP Product Management and Marketing
Racemi, Inc
Cell: 801-368-2543
jstrayer@racemi.com
http://www.racemi.com

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Strayer 30
MB 6-5-14

From: Racemi, Inc. <marketing@racemi.com>
To: jstrayer@racemi.com <jstrayer@racemi.com>
Sent: 11/8/2013 4:10:20 PM
Subject: 2nd Watch Chooses Racemi For On-Boarding to AWS

2nd Watch Choses Racemi for On-Boarding Workloads to AWS Cloud

We are very pleased to announce that 2nd Watch, Inc., a global leader in building and deploying Amazon Web Services (AWS) based IT operations for the enterprise, has selected Racemi for on-boarding customers to the AWS cloud-computing platform. Kris Bliesner, CEO and co-founder, of 2nd Watch said, "Our role is helping our clients take advantage of cloud computing to run their business more efficiently and cost-effectively, so Racemi's technology for fast, automated migrations is a great fit for us."

Racemi and 2nd Watch will both be exhibiting next week at AWS re:Invent in Las Vegas. Come by booth 629 where Racemi will be giving live demonstrations of our new AWS Cloud Path portal, showcasing support for international AWS regions and our new bandwidth-based pricing options.

We will have a number of executives in attendance to meet with customers and

partners. If you are interested in spending some time discussing your project/service offering and learning how Racemi solutions can assist you, send us an e-mail to schedule an appointment or drop by our booth.

Watch a three minute overview of our migration solution.

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451 Research

Racemi woos partners to help it accelerate cloud adoption

Analyst: Rachel Chalmers

23 Aug, 2012

Racemi is courting partners to help smooth the way to the cloud. What primary obstacle do potential cloud users face? According to Racemi, it's vendor lock-in at every layer in the stack. The company contends that Amazon doesn't support migration between its own regions. Four major cloud platforms are emerging – CloudStack, Eucalyptus, OpenStack and VMware vCloud – and in Racemi's view, none of them are truly interoperable. Many cloud service providers run multiple services side by side: a public offering, a virtual private cloud, some managed services, and so on. Try migrating between these and see how far you get.

The 451 Take

Racemi can package up an application and move it from physical to virtual resources, or from on-premises to cloud. That's more than most hypervisor or cloud platform vendors can do, let alone cloud service providers, the company says. So why isn't Racemi better known? Last year's launch of a SaaS offering has gone a long way toward redressing that situation. Company executives hope that a new focus on selling through affiliate partners will do even more to get its message out.

Context

In July, Racemi closed a $7m series B round of financing from Paladin Capital Group and Harbert Venture Partners. The funding adds to the $2.5m series A led by Gray Ghost Ventures, announced in October 2009, as well as earlier rounds from now-defunct firms Patillo Investments and Five Paces Ventures. Racemi provides server workload mobility between dissimilar physical, virtual and

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cloud platforms. It does so in order to help businesses migrate workloads around and between differently configured on-premises resources or up into the public cloud.

Technology

Racemi customers have a choice of options. The flagship software, DynaCenter, runs on-premises and includes a management server, image repository and database. Cloud Path, offered as SaaS, adds a Web server and an application server. Recently shipped DynaCenter 4.2 includes Windows cloud migrations and support for AppLogic 3.x. Cloud Path 1.0, just out of beta, supports 100 registered customers and more than 500 cloud deployments.

Strategy

The company has been focused on building its affiliate partner channel. It's particularly interested in wooing cloud and managed service providers (the Amazons, Rackspaces and SoftLayer Technologies of the world), services organizations like IBM and CSC, private cloud platform providers like Eucalyptus Systems, Citrix Systems with its CloudStack and the OpenStack ecosystem, as well as more conventional OEM players and direct sales. It targets MSPS and SPs of all sizes, but in professional services and the private cloud market Racemi is aiming for the midmarket and above. Where OEM sales are concerned, it's only looking for large enterprise players.

Partners

Racemi offers a multitiered partner program based on the volume to which its partner is willing to commit. Cloud Path, the SaaS offering that Racemi introduced last year, is offered in silver, gold and platinum tiers, while on-premises software is available only under the black label. The silver tier provides for joint marketing and a promo code for partners' customers. Gold adds accelerated support and product margin options. Platinum adds premium partner status and placement, while the black label provides all of the above, plus a private portal on cloud infrastructure and additional control over end-customer fees.

Competition

Racemi executives calculate that the Big Five management vendors – BMC Software, CA Technologies, Hewlett-Packard, IBM and late entrant Microsoft – are three years behind the state of the art in provisioning technology. That's a bold claim, considering that BMC acquired BladeLogic and HP reached for Opsware – the companies that, between them, invented modern provisioning

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automation. But Racemi justifies the charge on the grounds that none of the Big Five support migration across dissimilar hardware, between dissimilar hypervisors or to the public cloud.

Racemi's most constant rival, though, is PlateSpin, now part of Novell. Like Racemi, PlateSpin can encapsulate a server image in order to move it between physical and virtual hosts. Egenera, now partnering with HP, Scalent, now Advanced Infrastructure Manager within Dell, and RackWare each offer variations on dynamic workload management. Newer cloud-focused provisioning specialists include (but are not limited to) Verizon's CloudSwitch tool and RightScale. Both CloudSwitch and RightScale, however, depend on the presence of virtualization to permit them to capture images. It's Racemi Cloud Path's ability to take a physical server into the cloud that sets it apart.

SWOT Analysis

Strengths

Racemi solves a real problem – the lack of workload portability – with software that is by now reasonably robust and mature, at least in its on-premises form.

Weaknesses

The company's SaaS Cloud Path is just out of beta and while the numbers look good, it has not yet been tested at truly massive scale.

Opportunities

Every enterprise we talk to has some physical, some virtual and some cloud resources to contend with. All would like to avoid vendor lock-in at each of those layers. Racemi offers a way.

Threats

Verizon has enormous ambitions for its software in the cloud and along with Terremark, CloudSwitch takes pride of place in those plans.

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451 MARKET INSIGHT SERVICE | 18 October 2011 – Market Development

Racemi Cloud Path is SaaS for migrating existing applications to the cloud

Analyst: Rachel Chalmers

Racemi's new Cloud Path service migrates existing servers to the cloud via a point-and-click interface. Though it's still in beta, the service will be made available for free to the first 100 customers over the next 30 days – a price that should ease any implementation hurdles. Cloud Path is purpose-built for organizations that wish to take advantage of lower-cost cloud services without blowing the budget on labor-intensive migration efforts. It's hosted software itself, so there's no hardware to buy and nothing to maintain.

The 451 take

For beleaguered systems administrators, the prospect of moving physical servers into cloud services from Amazon, Rackspace, Terremark or GoGrid via a point-and-click Web portal is little short of miraculous. For MSPs and the clouds themselves, Racemi offers co-branded and private-label options, so they can help their own customers come on board. For Racemi's direct customers, Cloud Path should be a fast, low-touch, low-risk way to move into – and between – cloud providers.

Racemi Cloud Path compares the configurations of source and destination servers, then configures whatever network, storage and VM components are required in-flight. Of course there are some constraints on what Cloud Path can do: right now it only supports RHEL and CentOS servers. As the beta progresses, though, Racemi plans to add more OS platforms and cloud providers. When the promotional offer ends, the company will charge only for successful migrations, in order to position Cloud Path as a no-risk option.

Racemi was founded in 2001 – long before its time – to provision, consolidate and migrate datacenters. It remains privately held. Flagship product DynaCenter, now in release 4.1, works by capturing OS, configuration and application images from a source server and storing them in an image library. New features in the latest release include support for **CA Technologies'** AppLogic (rapidly picking up steam as an application fabric layer), SAN multipath support and support for double-byte character languages.

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Competition

Years ago, when Racemi first shifted its focus from blade server hardware to rapid provisioning software, it found itself facing new rivals **Altiris**, **Ejasent**, **Jareva Technologies**, **Moonlight Systems**, **Terraspring** and **Think Dynamics**. Where are they now? Altiris, acquired by **Symantec** in 2007, is still in the market as Altiris Server Management Suite. It can do scripted OS installs as well as automated configuration. Ejasent and Jareva also ended up somewhere inside Symantec, in their cases via **Veritas**. **Lumension Security**, formerly **PatchLink**, bought Moonlight Systems, **Sun** snagged Terraspring, and Think Dynamics remains the kernel of **IBM's** Tivoli Provisioning Manager.

Sadly for this generation of automation pioneers, their early efforts at rapid server provisioning were blindsided by the two biggest success stories in the history of automation: that is, **BladeLogic** and **Opsware**. Less subtle and capable but more widely adopted than their forebears, BladeLogic and Opsware prospered and eventually became the core of the much bigger automation portfolios now offered by **BMC** and **Hewlett-Packard**. In turn, BladeLogic and Opsware face a new generation of open source upstarts – **Cfengine**, **Puppet Labs** and **Opscode** (commercial backer of the Chef tool).

Racemi's most constant rival, though, is **PlateSpin**, now part of **Novell**. Like Racemi, PlateSpin can encapsulate a server image in order to move it between physical and virtual hosts. **Egenera**, now partnering with HP; Scalent, now Advanced Infrastructure Manager within **Dell**; and **RackWare** each offer variations on dynamic workload management. Newer cloud-focused provisioning specialists include (but are not limited to) **Verizon's CloudSwitch** tool and **RightScale**. Both CloudSwitch and RightScale, however, depend on the presence of virtualization to permit them to capture images. It's Racemi Cloud Path's ability to take a physical server into the cloud that sets it apart.

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From: James Strayer <jstrayer@racemi.com>
To: acadia@racemi.com <acadia@racemi.com>
Sent: 9/19/2011 12:42:56 PM
Subject: Acadia product name

And the official product name for Acadia is now….Racemi **Cloud Path**!
Got sign off from LG this morning, I will be tackling the console branding this week to ensure readiness for the October Beta.

James Strayer
VP Product Management and Marketing
Racemi, Inc
Mobile: 801-368-2543
jstrayer@racemi.com
http://www.racemi.com

From: Racemi, Inc. <marketing@racemi.com>
To: marketing@racemi.com <marketing@racemi.com>;jstrayer@racemi.com <jstrayer@racemi.com>;msage@racemi.com <msage@racemi.com>;kthaxton@racemi.com <kthaxton@racemi.com>
Sent: 4/10/2013 9:18:08 AM
Subject: Announcing Free Migrations to GoGrid's Cloud Platform

testing

Racemi Cloud Path

Announcing Cloud Path For GoGrid

Offering Free Migrations to GoGrid's Cloud Platform

We are pleased to announce Cloud Path for GoGrid, a joint offering from GoGrid and Racemi that offers free migration of your physical and virtual workloads to GoGrid's cloud platform.

Key features include:

- Supports migration of Windows and Linux servers.
- Automatic creation of your new GoGrid Cloud Servers
- Live Capture migration process means no server downtime.
- Secure data transfer over 256 bit SSL connection
- SaaS - no infrastructure to buy, manage, or maintain

See the GoGrid press release here for more information or go to http://www.racemi.com/gogrid to sign up today.

Sincerely,

James Strayer
Vice President Product Management and Marketing
Racemi, Inc.

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Racemi, Inc. | 360 Interstate North Pkwy SE | Suite 360 | Atlanta | GA | 30339

From: Racemi, Inc. <marketing@racemi.com>
To: marketing@racemi.com <marketing@racemi.com>
Sent: 8/14/2013 11:25:46 AM
Subject: Announcing Free Migrations to IBM SmartCloud Services

testing 4

Racemi Cloud Path for IBM

Providing Free Migrations to IBM SmartCloud Services

Dear James,

We are pleased to announce **Cloud Path for IBM**, a joint offering from IBM and Racemi that offers free migration* of your physical and virtual workloads to key **IBM SmartCloud Services**, for a limited time (*see offer Terms and Conditions for details).

Key features include:

- Automatic migration of Windows and Linux servers to IBM SCE or SoftLayer CloudLayer Servers
- Live Capture migration process means no server downtime.
- Secure data transfer over 256 bit SSL connection
- SaaS - no infrastructure to buy, manage, or maintain

Go to http://www.racemi.com/ibm for more information or go to http://cloudpath4ibm.racemi.com to sign up today.

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Vice President Product Management and Marketing
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Product Brief

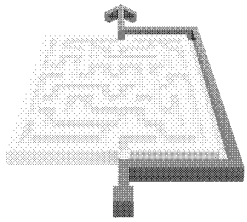
AT&T Professional Services Team presents:
Cloud Migration Services

What are Cloud Migration Services?
Cloud Migration Services areavailable for use with AT&T Hosting and Cloud Services such as Synaptic CaaS. It providesa fast, secure, and reliableway to migrate existing physical, virtual or cloud servers toAT&T Synaptic Caas or other AT&T Cloud and Hosting Services.

How does it work?
Cloud Migration Services captures a liveimage of your server workload and securely migrates it to a newly provisioned AT&T CaaScloud VM or vApp. As part of the migration process, the image is automatically converted to the vSphere virtual platformand the disk is automatically resized to fit the target server instance specs. The serviceis hosted inside of AT&T 's network on Cloud Edge to ensure complete security.

Benefits include:
- Automatically convert physical servers to CaaS VMs and vApps.
- Convert existing virtual servers to CaaS VMs/vApps in one automated process.
- Automatically migrate servers from AWS or other cloud providers to CaaS.

How can the AT&Tteam help?
- Easy-to-access Professional Services
  - Short-term agreements
  - Cost effective
- Environment assessment
- Requirements review & analysis
- Install, set-up and configure servers for migration
- Setupand configure migration software
- Perform server migrations
- Short and long-term support available
- Pro Services support available in increments of 2-hours



AT&T Cloud Migration
- Works with Windows and Linux
- Live Capture - no server downtime
- Leverages AT&T high speed networking for fast migrations.
- Secure and reliable file transfer.
- Scheduling support for off peak hours to minimize server impact.

Benefits
- Migrate servers in minutesinstead of days
- Hosted in AT&T Cloud Edge for complete security
- Leverages AT&T high speed networking

Features

- Compatible with Windows, Linux
- Live Capture support
- Supports P2C, V2C (e.g. Xen>AT&T CaaS),and C2C migrations (e.g. AWS>AT&T CaaS)
- Hypervisor conversion(from Hyper-V, Xen, KVM, to vSphere.)
- 2-3x "over the wire" data compression.
- Encrypted data transfer (256 bit SSL.)
- Transfer speeds up to 500MB/sec
- Scheduled, unattended migrations supported
- CPU sensitive image capture process

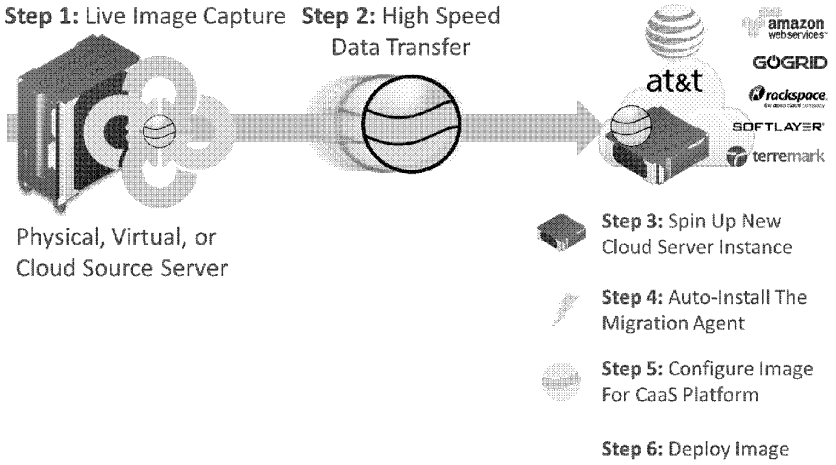
Getting Started
1. Document your customer's current backup environment
2. Determine total storage and retention requirements
3. Email customer information to: cloudsolutions@att.com(or visit cloudsolutions.att.com)

at&t

Cloud Migration Services Features

Broad OS Support	Microsoft Windows Server 2008 R2 (All editions except Foundation, Itanium, and HPC) Red Hat Enterprise Linux (5.x, 6.x) CentOS Linux (5.x, 6.x)
Live Capture	Cloud Migration Services can capture an image of the server while it is running – requires no server downtime. Capture process is also CPU sensitive to ensure availability of server.
Automated Disk Resizing	Cloud Migration Services automatically resizes the disk image to fit with the selected server disk size (must be at least as large as used disk space on old server).
Advanced Options	Secure data transfer over outbound HTTPS (SSL) Convert existing physical, virtual, or cloud based servers in a single automated step • Support for hypervisor conversion – migrate Hyper-V, KVM, or Xen based servers to vSphere • Convert from physical server toCaaS cloud VMs and vApps. • Convert servers on existing cloud platform such as AWS to AT&T CaaS VMs and vApps.

How It Works



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AT&T Professional Services

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at&t

amazon web services | Partner Network
TECHNOLOGY PARTNER

Who Is Racemi?

- Racemi is an AWS Technology Partner that provides EC2 and VPC cloud migration solutions.

What Is Racemi Cloud Path?

Cloud Path is a Software as a Service (**SaaS**) hosted on EC2 and S3 that enables **automated migration** of customer's existing servers to Amazon EC2 instances. Main benefits include:

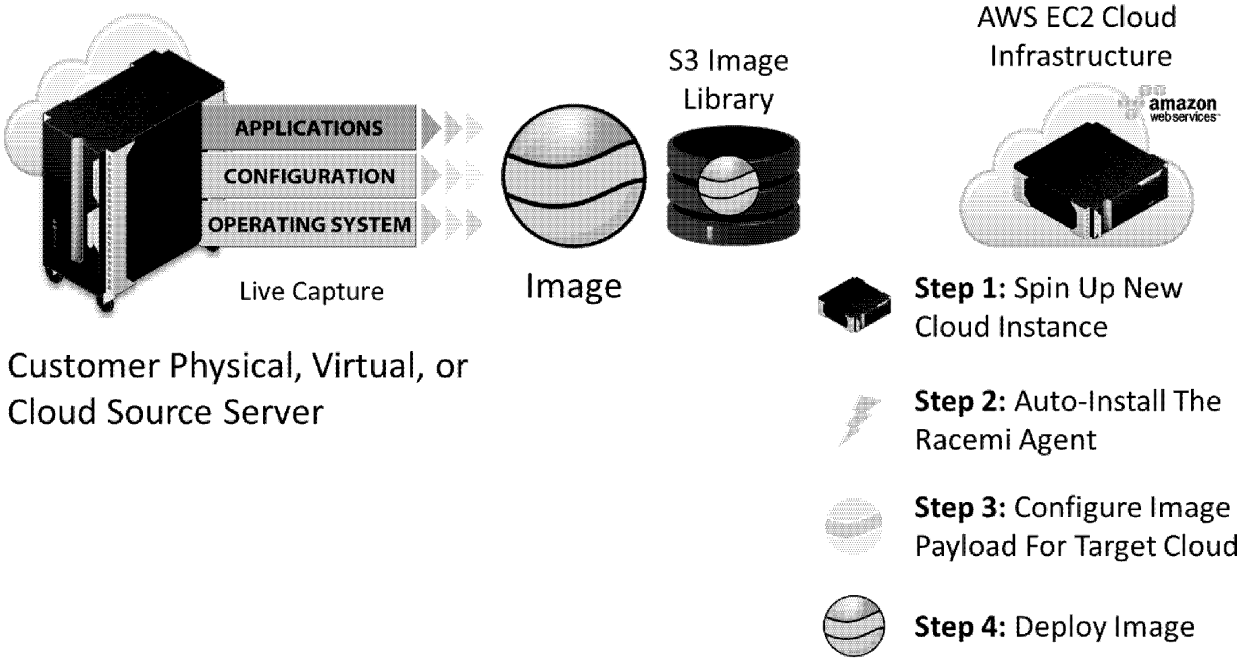
- Support for automated migration of **physical, virtual, and cloud servers** to Amazon EC2.
- **Migrate EC2 instances between AWS regions** and change instance sizing.
- **No infrastructure** to buy, deploy, or manage on the customer site. Simply install the Cloud Path agent and migrate the server via the easy to use web console.
- **No upfront customer costs** - customer only pays for successful migrations.

How is Cloud Path different from Amazon's VM import?

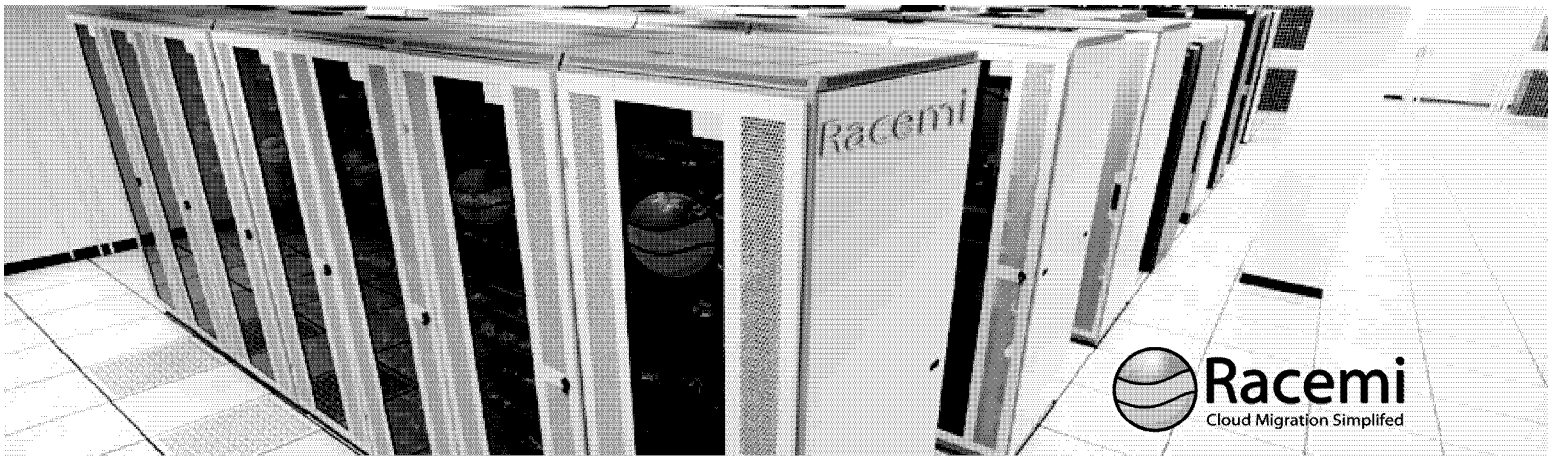
- Support for **Linux** Servers (RHEL, CentOS)
- In addition to virtual servers, Racemi supports the migration of ***physical*** servers in one automated step. Physical servers make up **more than 50% of the current IT market.**
- Cloud Path supports the **migration of cloud instances from other cloud providers** such as Rackspace, GoGrid, SoftLayer and Terremark into Amazon EC2.
- Racemi does a **Live Capture** of the server - no server down time required.
- Multiple disks on source supported.
- No need to unmount CD-ROMs or ISOs from source servers.
- User friendly web console for multiple, unattended migrations.

Where can I find info on Racemi cloud migration software & services?

- Visit http://www.racemi.com/aws or contact Kathleen Thaxton at kthaxton@racemi.com



Racemi
Cloud Migration Simplifed



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- Multiple disks on source supported
- No need to remove CD-ROMs or ISOs
- User friendly web console for multiple, unattended migrations

When should I refer a customer to Racemi?

- Customer wants to migrate **physical or virtual servers** to EC2
- Customer wants to migrate **to EC2 from another cloud provider**
-

What platforms does Cloud Path support?

- Operating System
  - RHEL 5.x, 6.x
  - CentOS 5.x, 6.x
  - Windows Server 2008 R2
- Hypervisors
  - VMware, Xen, Hyper-V, KVM

Where can AWS staff & customers learn more about Cloud Path?

Visit **http://www.racemi.com** or contact Kathleen Thaxton at kthaxton@racemi.com

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Fig, 1 - Racemi Cloud Path captures the entire server "stack" (OS, application, configuration) and automatically configures it to run correctly on an EC2 instance.

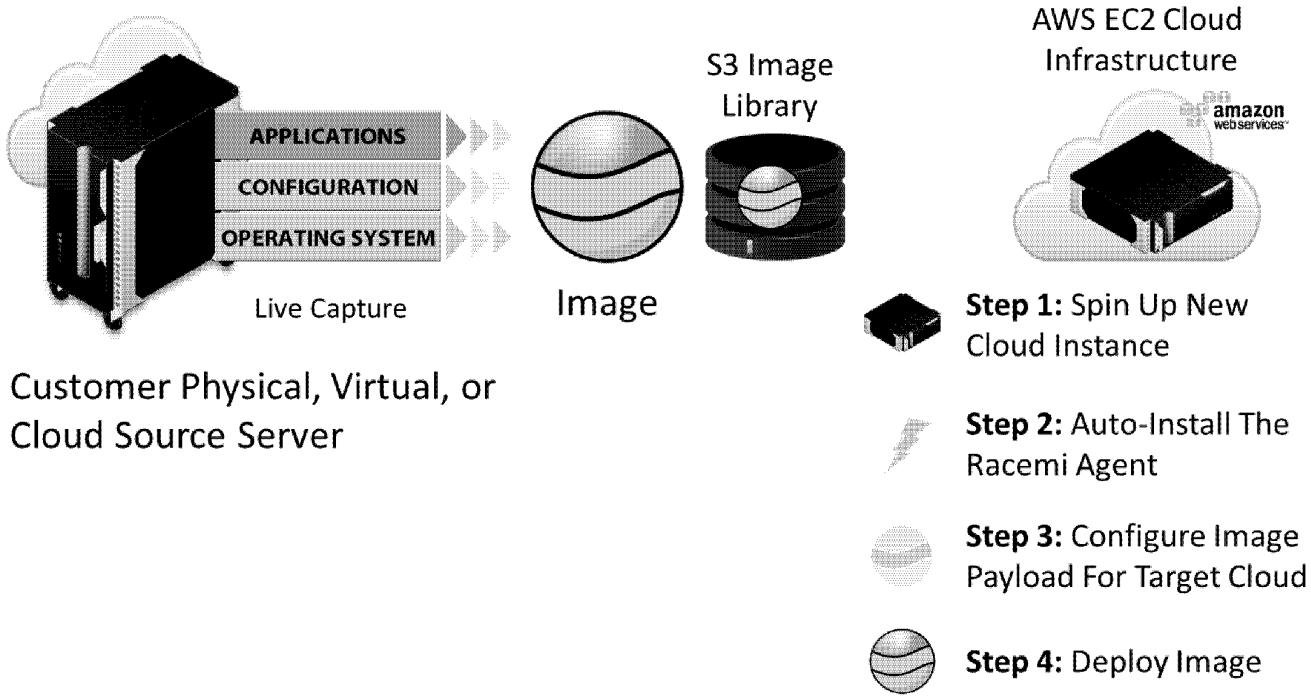
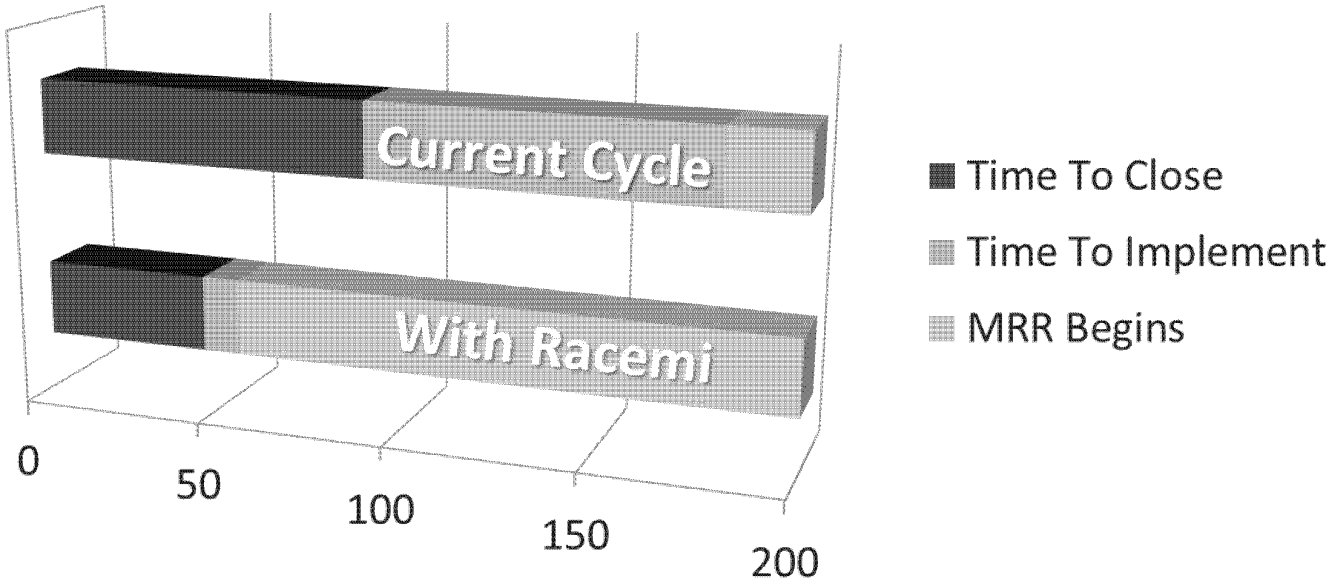


Fig. 2 - Racemi reduces the time it takes for AWS to close opportunities and implement customers.



Time To Monthly Recurring Revenues In Days

What People Are Saying

"Racemi Cloud Path was the clear choice for migrating my servers into Amazon. It was fast, automated, and easy to use, plus there were no upfront fees or long term contracts to hassle with. I can't imagine using anything else for my cloud migrations." - Rajiv Hira, Soci-Ads

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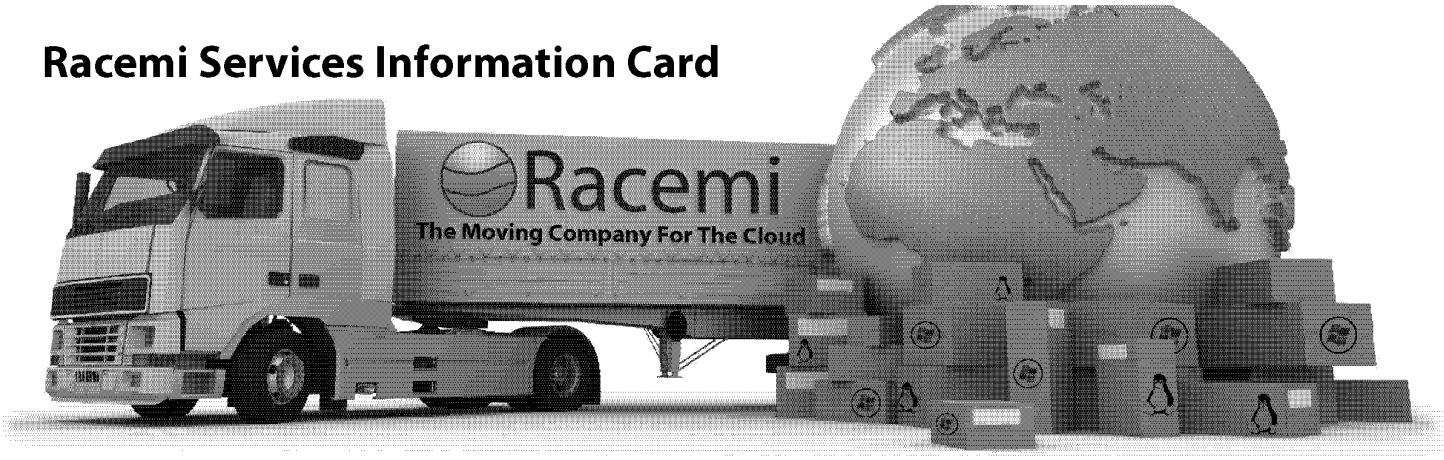
Racemi Services Information Card



Who Is Racemi?

- An AWS Technology Partner and leading provider of EC2 and VPC migration services.

Professional Services Solutions For Migrating to AWS

Racemi's Professional Services team can help customers with every stage of their cloud migration strategy, including the migration of their existing servers to **AWS EC2 and VPC.** Racemi's Services team leverages our patent pending technology to perform the migrations, saving customers time and money over other service providers. Racemi cloud migration services include:

- **Server migration** - migrate servers from customer data center to Rackspace & configure settings
- **Data synchronization** - ensure latest production data is migrated between servers
- **OS upgrade** - move to Windows Server 2008 R2 or later versions of RHEL/CentOS as part of the migration.

What platforms does Racemi support?

- Source Operating System
  - Windows Server 2008 R2
  - RedHat Enterprise Linux (RHEL) 5.x, 6.x
  - CentOS 5.x, 6.x
- Source Hypervisors
  - VMware, Xen, Hyper-V, KVM

How much do Racemi Services cost?

- Assisted Server Migration services start at $499 per server
- OS Upgrade and Migration services start at $599 per server

When should I refer a customer to Racemi Migration Services?

- Customer needs to migrate physical or virtual servers to AWS EC2 or VPC
- Customer needs to migrate to AWS EC2 or VPC from another cloud provider
- Customer needs help identifying which applications to migrate to EC2 or VPC
- Customer need to upgrade their OS version as part of EC2 or VPC migration

Where can I learn more about Racemi Migration Services?

Visit **http://www.racemi.com** OR

Contact **Kathleen Thaxton** **phone**: 1-720-244-4897 **email**: kthaxton@racemi.com

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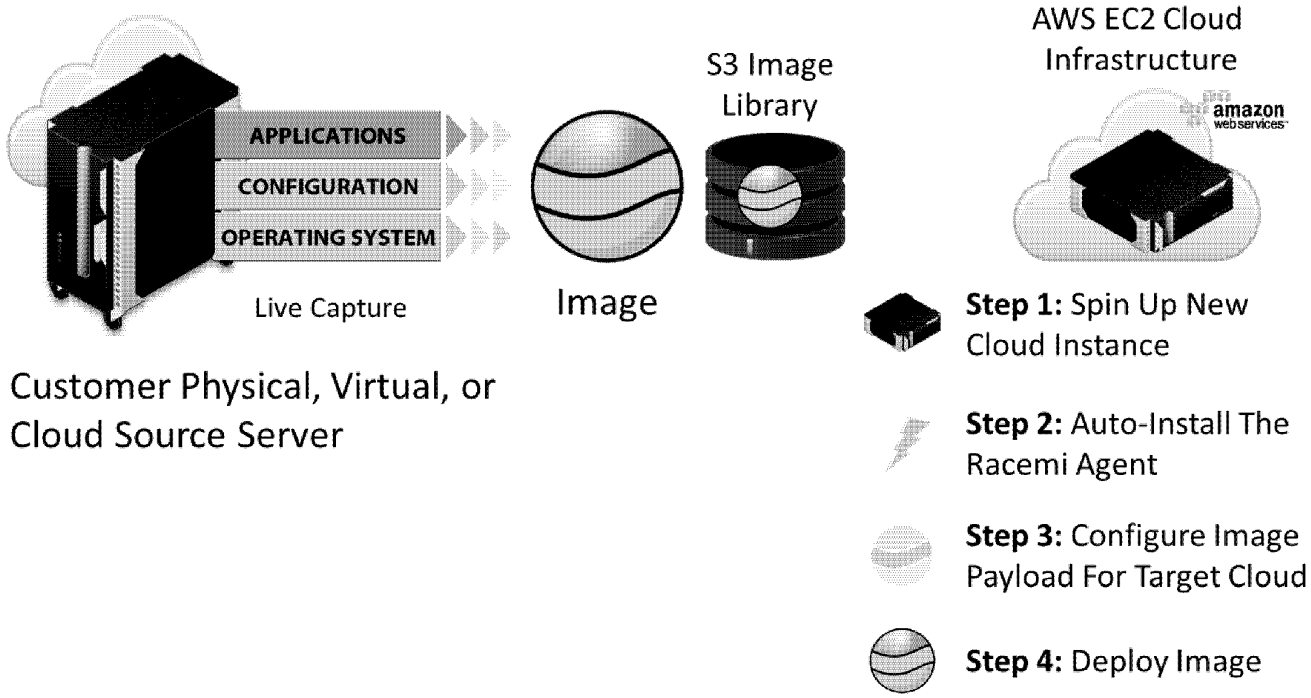
Racemi captures the entire server "stack" (OS, application, configuration) and automatically configures it to run correctly on a EC2 instance.



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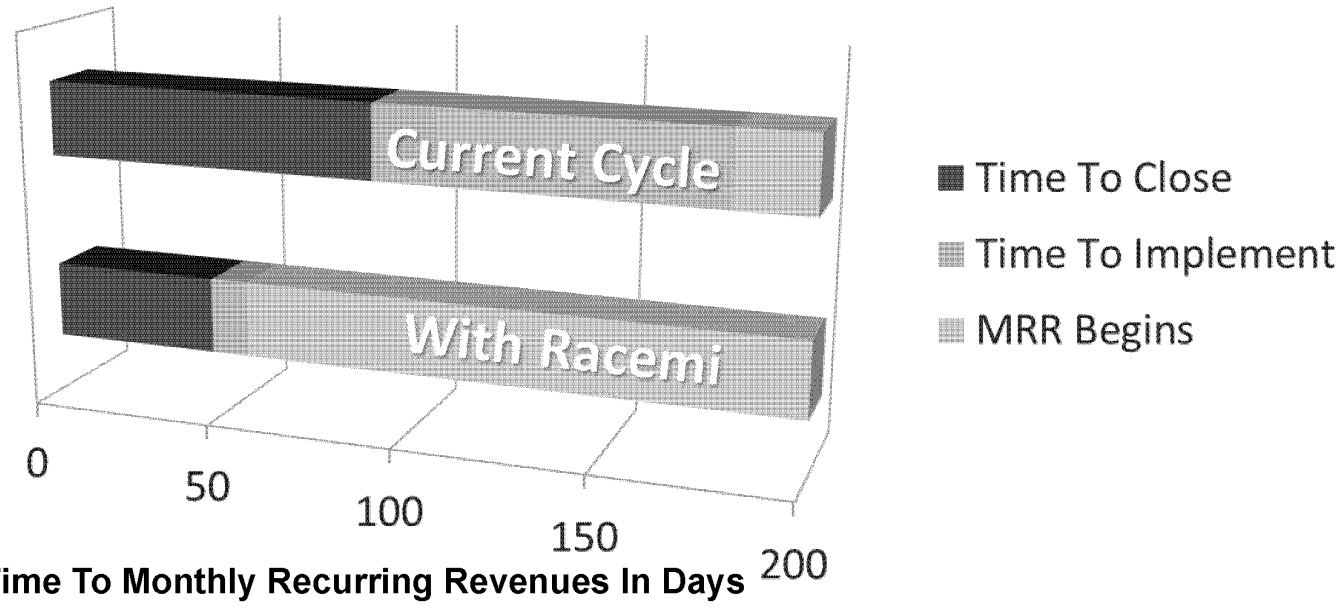

What People Are Saying

"For beleaguered systems administrators, the prospect of moving physical servers into cloud services from Amazon...via a point-and-click Web portal is little short of miraculous…Cloud Path should be a fast, low-touch, low-risk way to move into – and between – cloud providers."
- Rachel Chalmers, 451 Research

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Racemi - vCloud and vCHS Migration Simplified

Who Is Racemi?

- Racemi is **the only VMware certified partner** to offer VMware customers and partners the ability to migrate existing physical, virtual (Xen, Hyper-V, VMware, KVM), and even other cloud servers **into vCloud Hybrid Services and vCloud Powered data centers.**
- **<approved VMware quote from press release>**

How Can Racemi Help My Customers and Partners?

1. Racemi Cloud Path a is a Software as a Service (**SaaS**) that enables **automated migration** of VMware customer's ***existing*** **heterogeneous servers to vCHS** virtual machine instances.
2. Racemi also provides software for **vCloud partners** to provide heterogeneous migration services f**or their own public or private vCloud Powered data centers**.

Main benefits include:

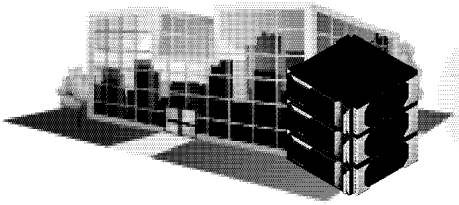
- Supports migrations from **other virtual (Xen, Hyper-V, KVM) and cloud (AWS, Rackspace, IBM, GoGrid, SoftLayer) platforms to vCloud or vCHS.**
- Supports **Windows Server 2008 R2 and Linux (RHEL/CentOS 5.x, 6.x)** servers**.**
- **No infrastructure** to buy, deploy, or manage on the customer site.
- Live capture of the source server means **no server downtime.**
- **Firewall friendly**, uses outbound HTTPs connection. Supports servers with non-public IP addresses
- Secure data transfer over **256 bit encrypted** SSL (HTTPS.)
- Supports over the wire **compression** of data (2-3x)

Racemi
Cloud Migration Simplifed

vmware®

How Is Racemi Different Than vCloud Connector?

- Live Capture of server - no downtime required
- Supports one step, automated migrations from:
  - Physical servers
  - Other virtual platforms (Hyper-V, Xen, KVM)
  - Other cloud platforms (AWS, Rackspace, GoGrid, IBM, SoftLayer)
- Automatically creates new instance of imported VM based on customer specs
- Highly scalable - migrate servers in bulk, scheduled for "off peak" hours.



vmware

Racemi migrates the entire server "stack" - operating system, applications, configuration, and data in one automated step.

Where can I find info on Racemi cloud migration software & services?

- Visit http://www.racemi.com/vmware or contact Bob Selph a bselph@racemi.com

Racemi
Cloud Migration Simplifed

www.racemi.com/vmware

Racemi - vCloud Migration Simplified

Who Is Racemi?

- Racemi offers VMware Service Provider Program participants the ability to quickly and easily onboard customer's existing physical servers, virtual servers (Xen, Hyper-V, VMware, KVM), and even other cloud based servers **(AWS, Rackspace, SoftLayer, etc) into their vCloud Powered data centers.**
- Racemi is **the only VMware certified partner** for vCloud Hybrid Service onboarding.

How Can Racemi Help My VSPP Partners?

1. Racemi **DynaCenter** is an on premise software solution for **vCloud partners** to quickly and easily offer heterogeneous migration services f**or their public or private vCloud Powered data centers**.
2. Racemi also offers **Cloud Path**, a Software as a Service (**SaaS**) that enables self-service **automated migration** of customer's ***existing* servers to vCloud** virtual machine instances. Racemi handles hosting, maintenance, and support of the solution to minimize partner's operational costs.

Main benefits include:

- Supports migrations from **other virtual (Xen, Hyper-V, KVM) and cloud (AWS, Rackspace, IBM, GoGrid, SoftLayer) platforms to vCloud.**
- Supports **Windows Server 2008 R2 and Linux (RHEL/CentOS 5.x, 6.x)** servers**.**
- **SaaS option - no infrastructure** to buy, deploy, or manage.
- Live capture of the source server means **no server downtime.**
- **Firewall friendly**, uses outbound HTTPs connection. Supports servers with non-public IP addresses
- Secure data transfer over **256 bit encrypted** SSL (HTTPS.)
- Supports **compression** of virtual machine image (2-3x)

Racemi
Cloud Migration Simplifed

vmware®

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- Supports one step, automated migrations from:
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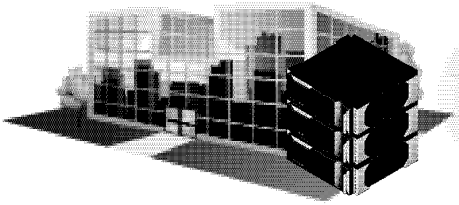

vmware

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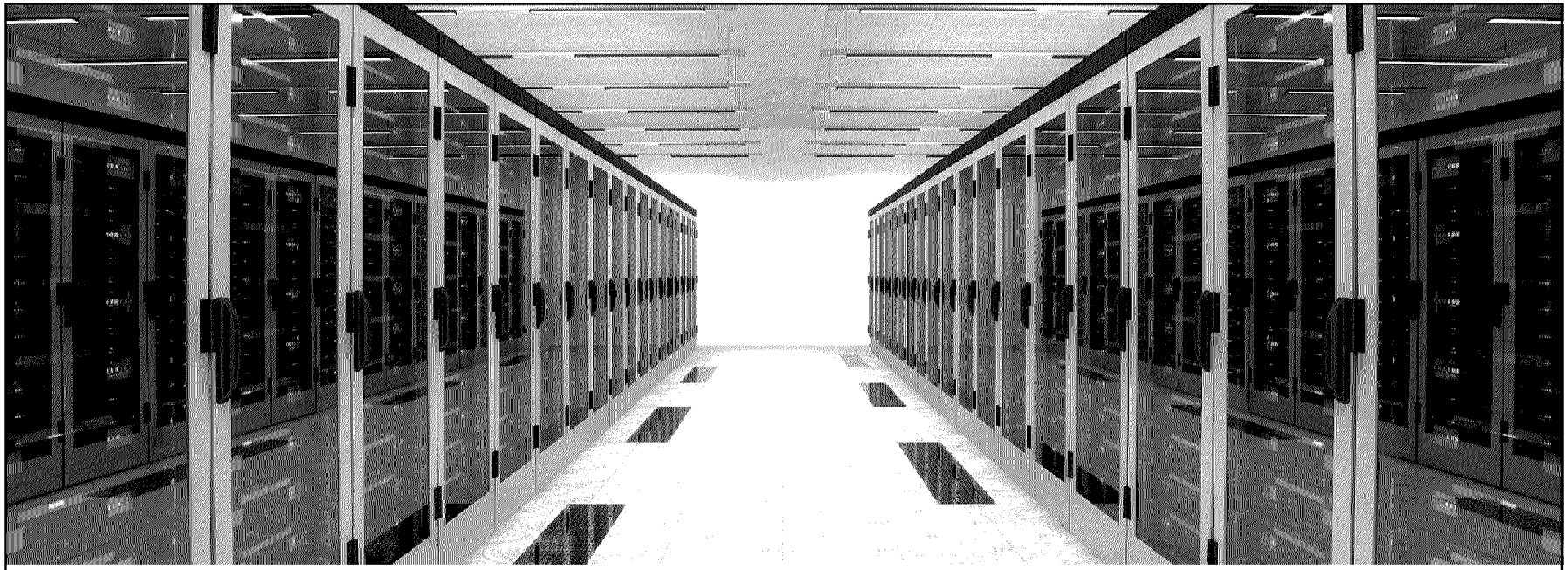
Cloud Migration Simplifed

www.racemi.com/vcloud



Racemi and Citrix

GETTING EXISTING APPLICATIONS INTO THE CLOUD

Racemi
Cloud Migration Simplifed

CITRIX®

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Agenda

- Migration Challenges

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Migration Challenges

Assessment

- Design
- Security
- Performance

Deployment

- Effort
- Costs
- Reliability

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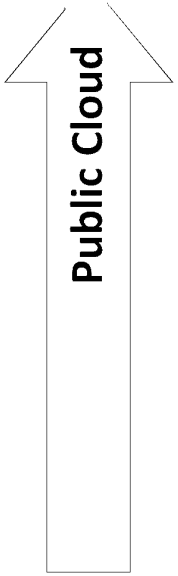
Application Analysis - Balancing Needs



Elasticity

High Availability

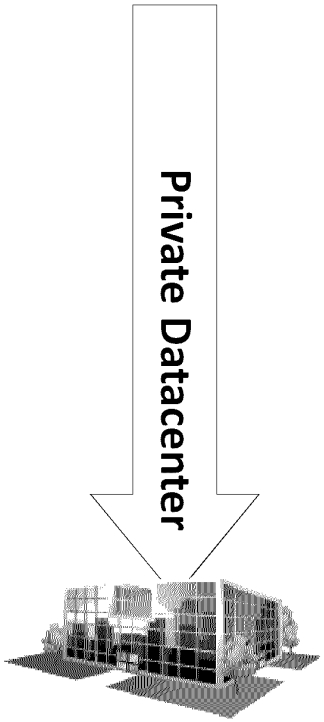
Capex Reduction

Security

Regulatory Compliance

Performance

Sunk Costs



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Deployment Methodologies

Rebuild

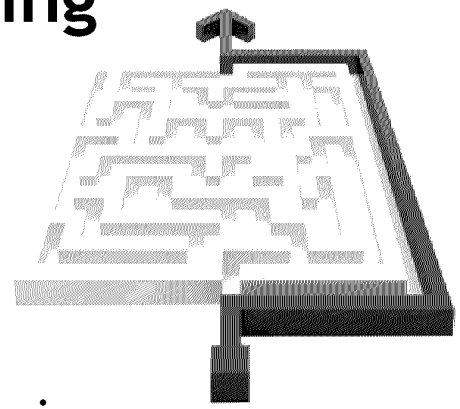
Pros

- Migrate to new version of app or stack
- Move to a management platform with add. benefits

Cons

- Time consuming
- Expensive
- High risk
- Vendor lock-in

Migrate Existing



Pros

- Speed
- Reliability
- Cost effective
- No vendor lock-in

Cons

- Might need to rework some networking/firewall configurations

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Deployment is Labor Intensive

complex app	52 weeks
average app	12 weeks
simple app	2 weeks

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Racemi is fast!

Avg time per server:
1 hour

Racemi®

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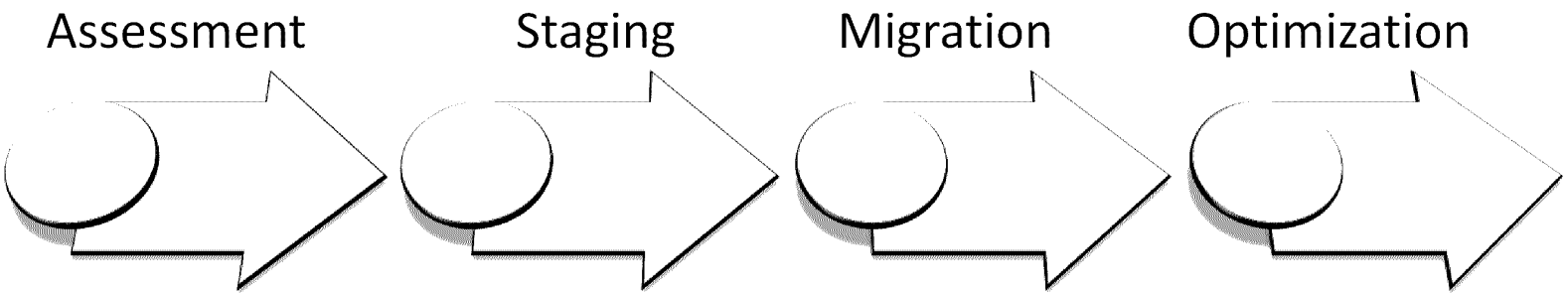
Migration Best Practices



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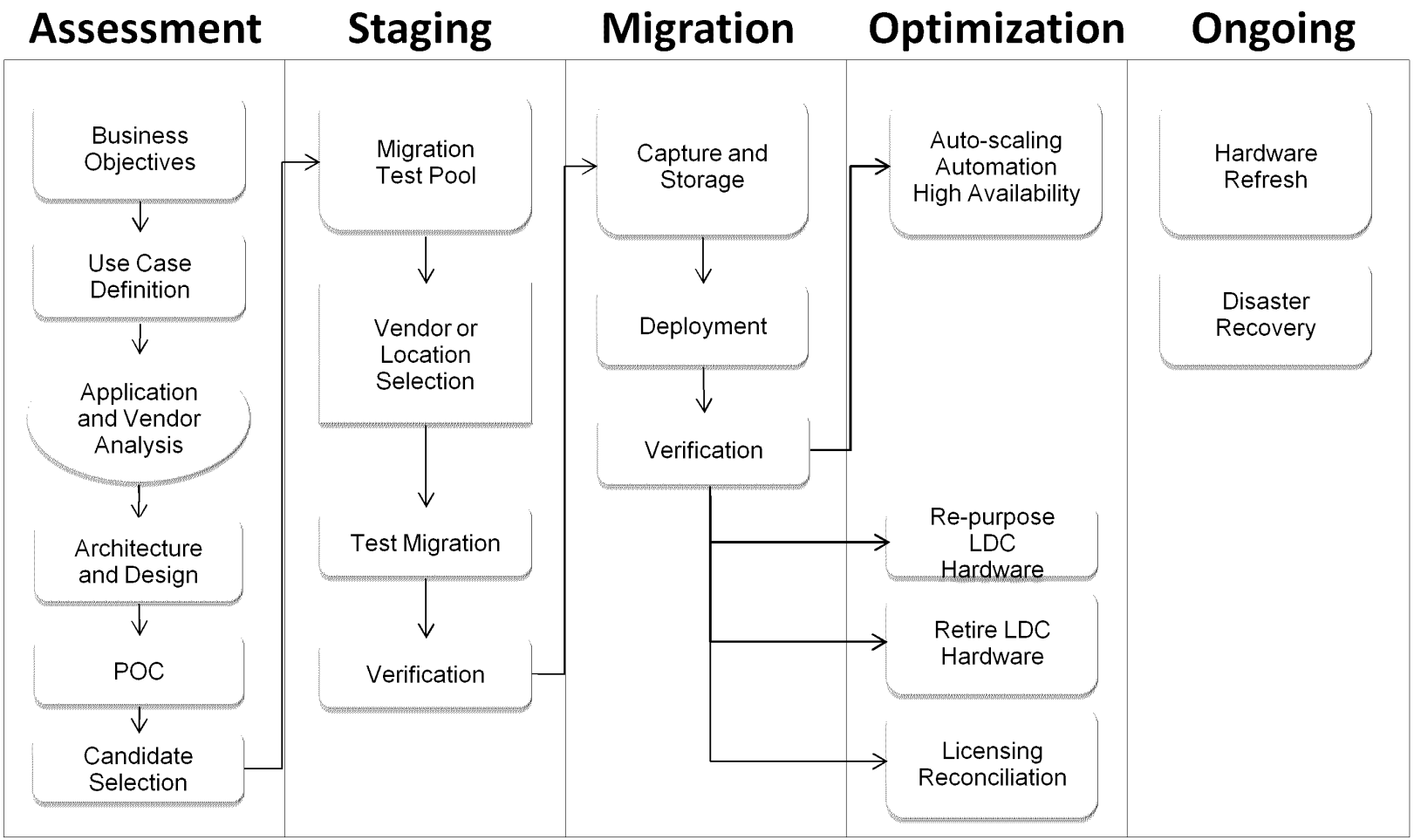
Sample Migration Workflow



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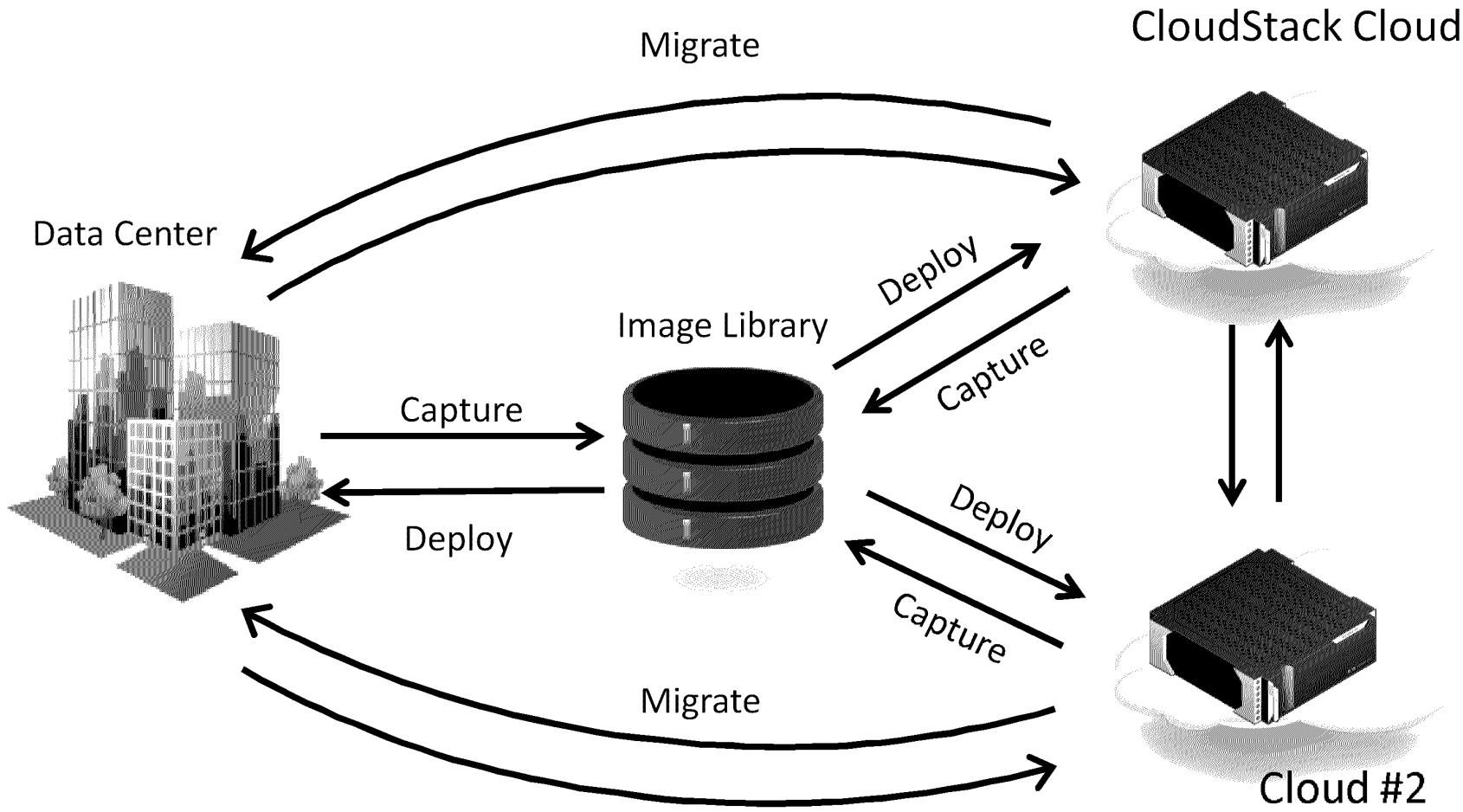
True Workload Mobility



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Racemi Offerings

- Cloud Path
  - SaaS offering – no infrastructure
  - Focused on cloud migrations (into and between clouds)
  - Ideal for simple to moderately complex applications
- DynaCenter
  - Traditional application
  - Advanced migration features and full workload mobility
  - Supports additional use cases
    - Data center consolidation
    - Disaster recovery
    - Bare metal provisioning

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Cloud Path Demo

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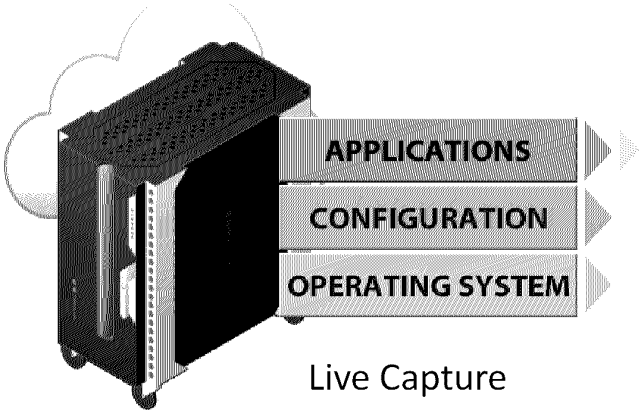
Racemi Cloud Migration



Live Capture

Physical, Virtual, or
Cloud Source Server

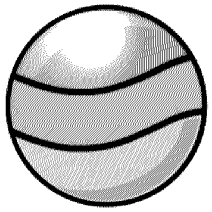


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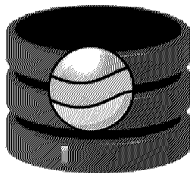
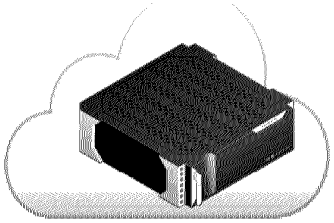
Image
Library



Cloud
Infrastructure



Step 1: Spin Up New Cloud Instance

Step 2: Auto-Install The Racemi Agent

Step 3: Configure Image Payload For Target Cloud

Step 4: Deploy Image

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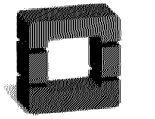
Supported Virtual & Cloud Platforms

IN BETA



Racemi®

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Cloud Path Customer Benefits

- SaaS Offering - No Infrastructure to Deploy
- Supports Migration of Existing Physical, Virtual, and Cloud Servers
- Zero Risk Licensing – Pay Only For Successful Migrations
- Volume Discounts Available

Racemi®

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Advanced CSP and Private Cloud Solutions

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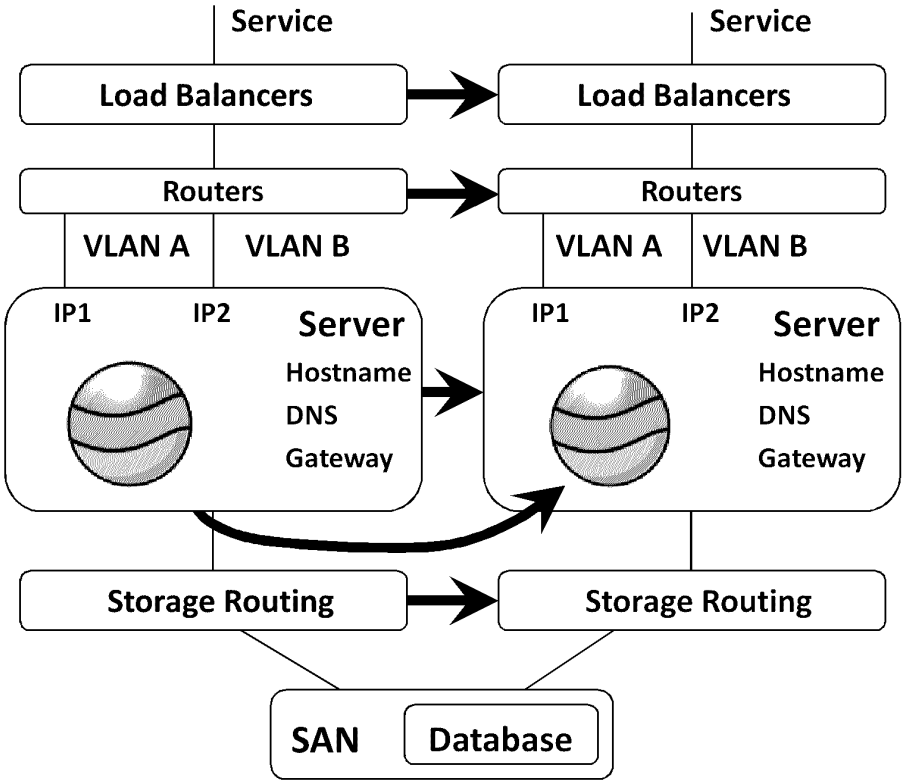
Using DynaCenter



DynaCenter can provide **automated configuration** of the infrastructure surrounding the server.

- Move network addresses and VLANs
- Reroute service address
- Set
  - hostname
  - DNS
  - gateway
  - routes
- Remap LUNs and external storage

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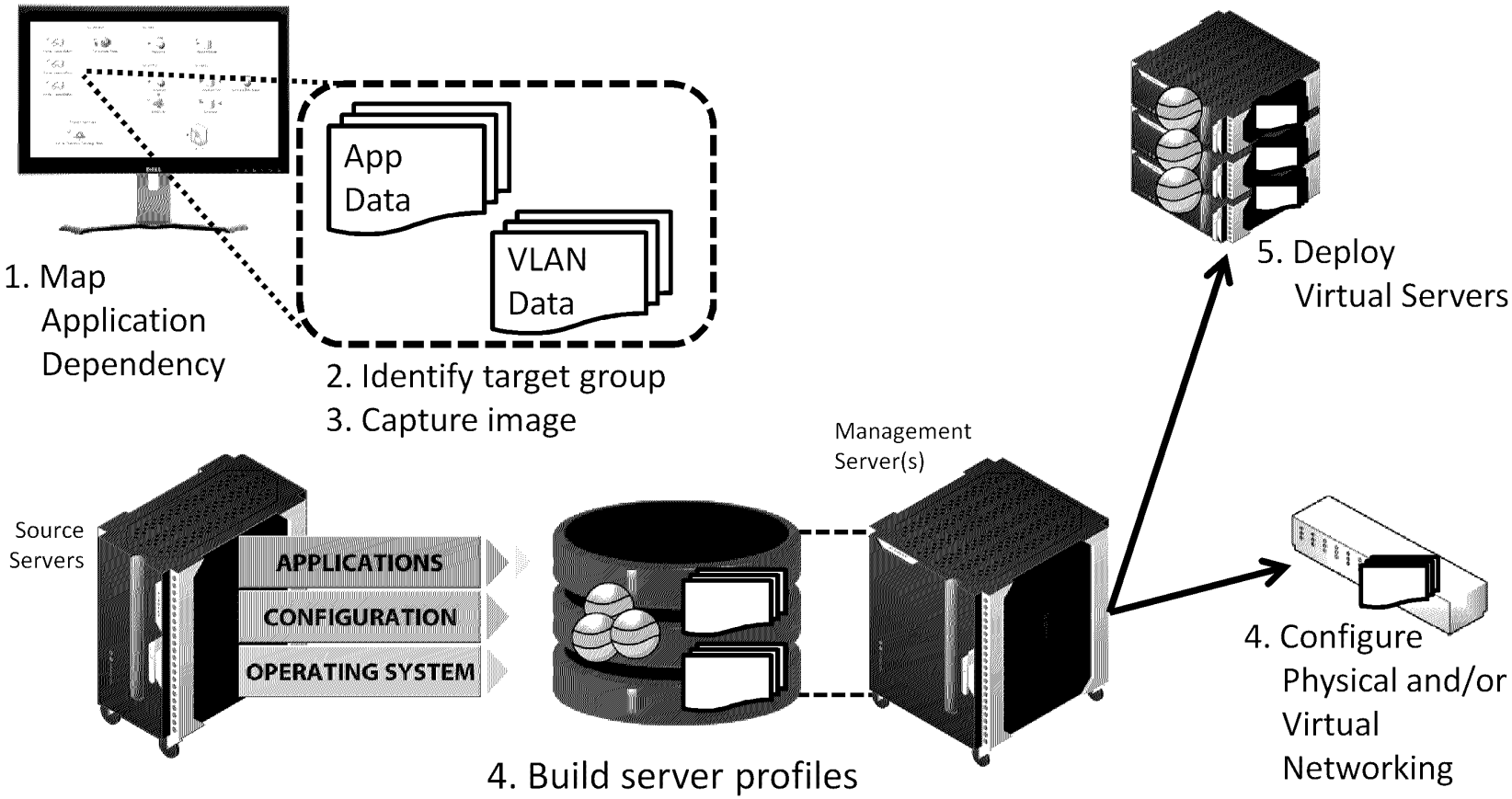
N-Tiered Application Migration



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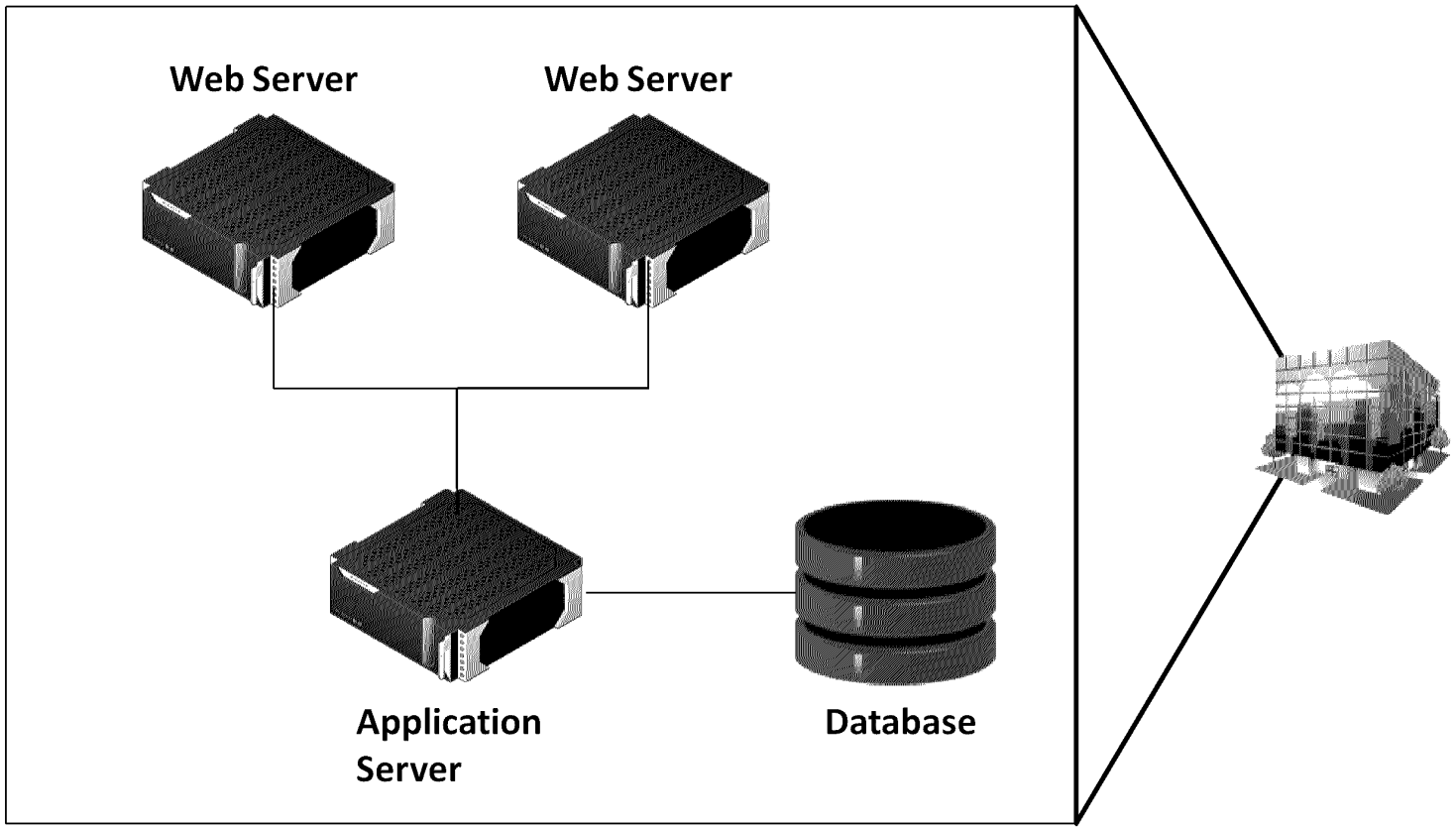
Reference Architecture – Local



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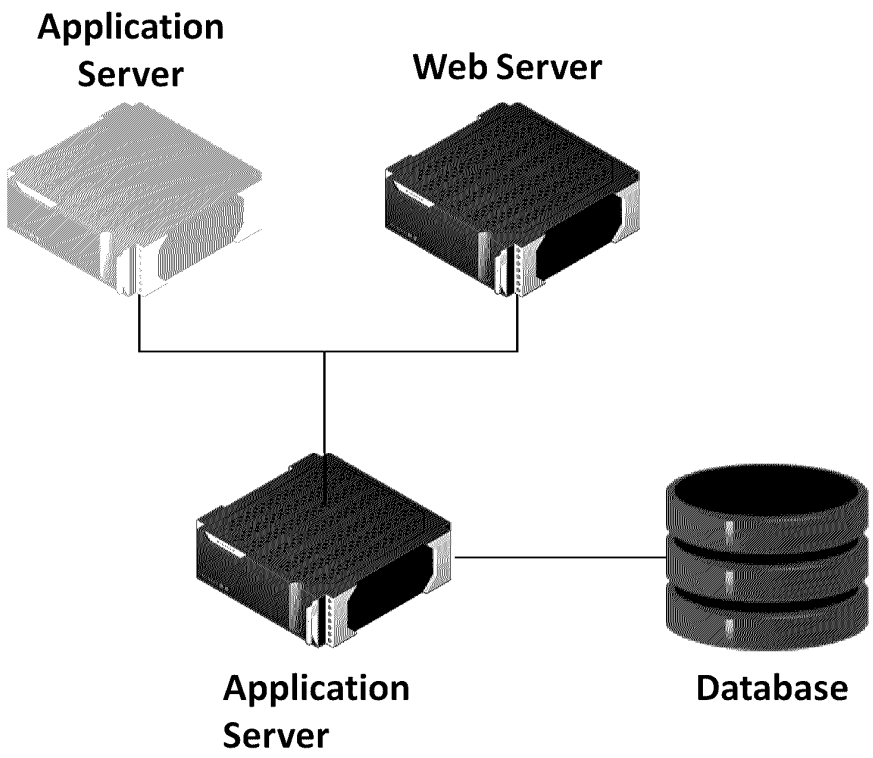
RA – Hosted Implementation



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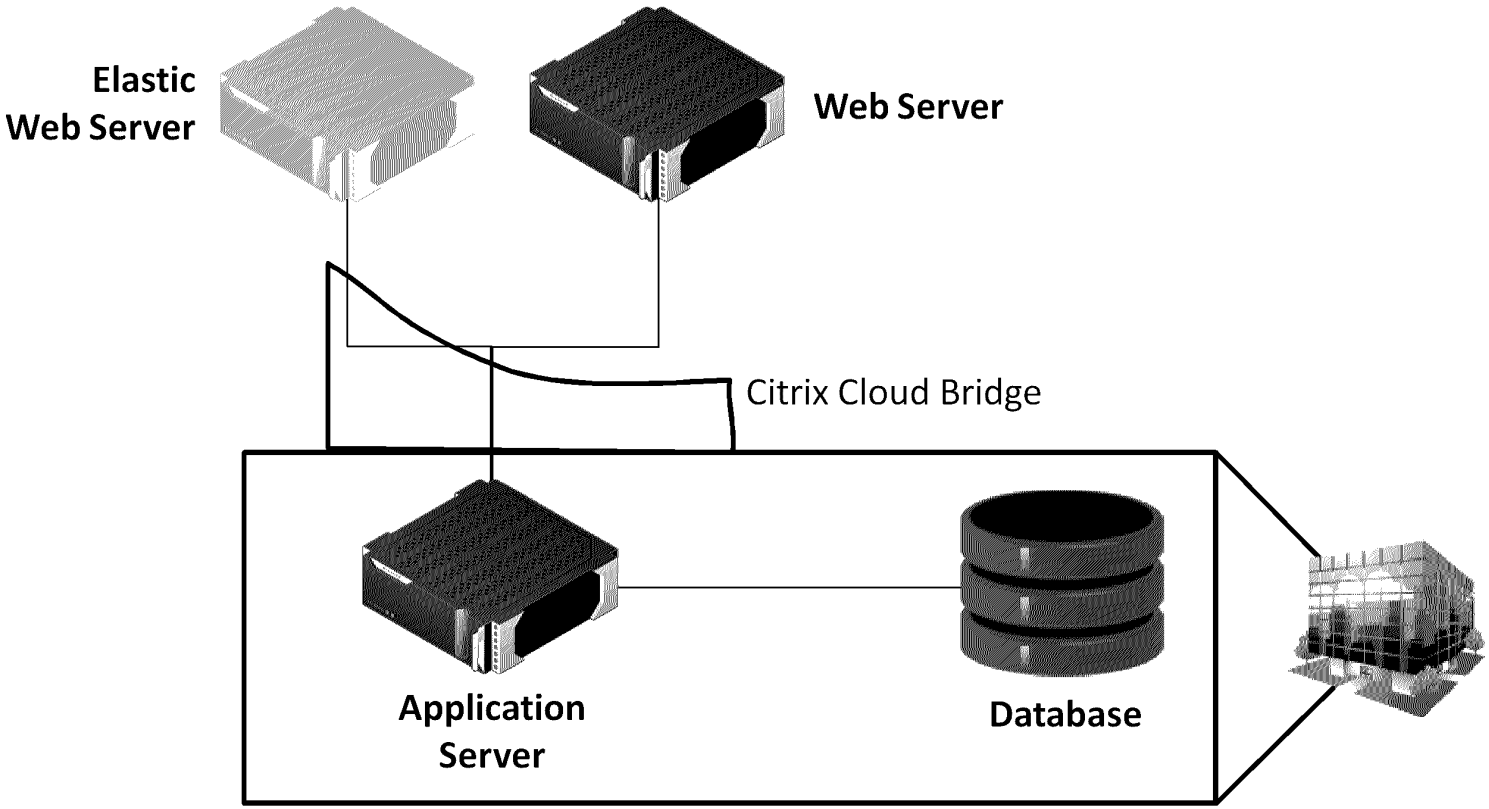
RA – Hybrid Implementation



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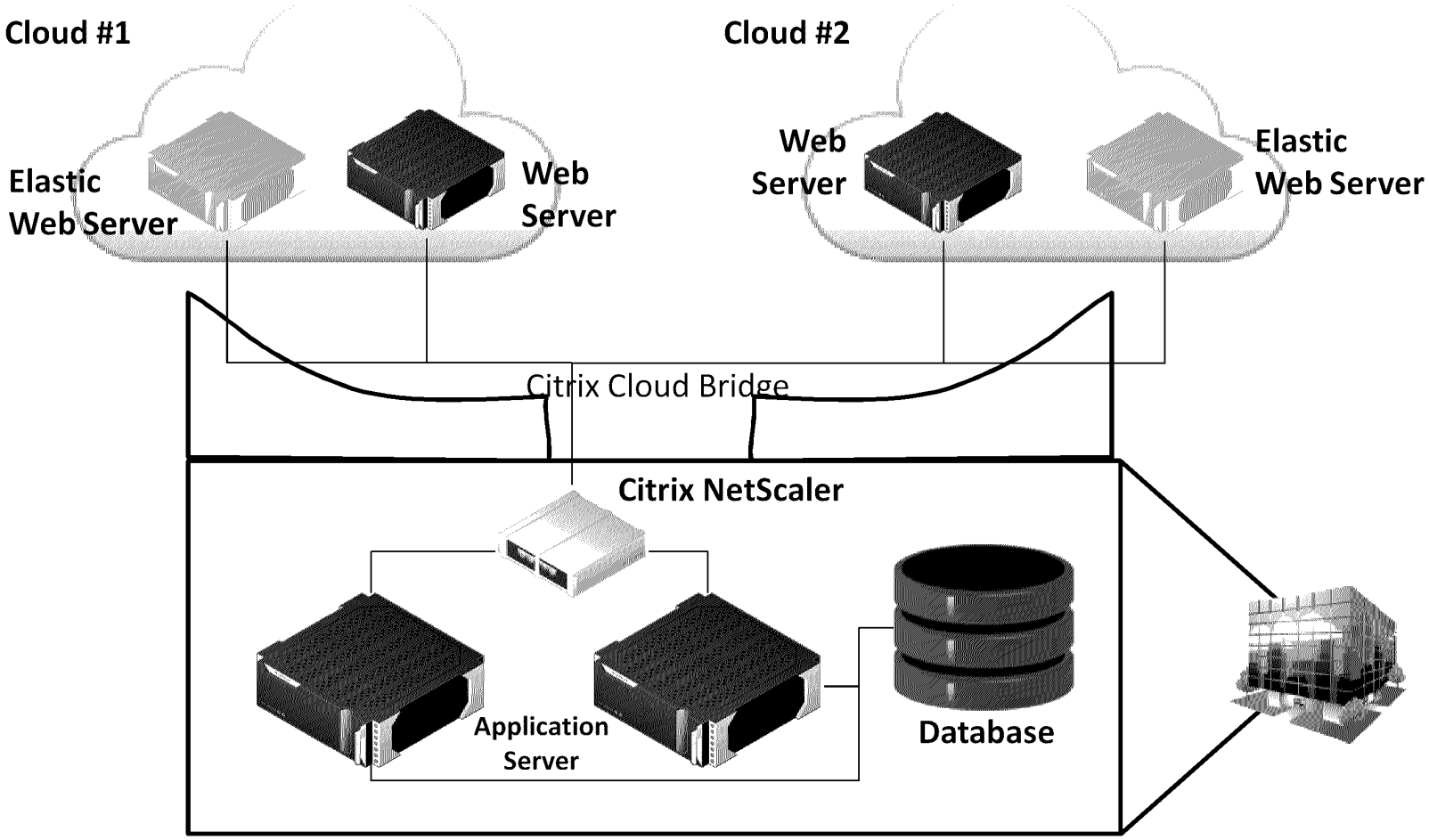
RA – Multi-vendor Hybrid Implementation



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Racemi Summary

Faster and More Reliable

Supports User Choice

Prevent Vendor Lock-In

Fastest ROI

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Questions?

- Lorraine Bassett
- VP Business Development and Sales
- lbassett@racemi.com
- 617-391-7834

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Racemi Announces Public Beta for Software-as-a-Service to Migrate Windows Servers to Public Clouds at Fraction of Typical Cost

Average migration savings of $800 per server, along with zero risk policy

ATLANTA, July 25, 2012 – Racemi, the moving company for the cloud, announced an update to its beta software as a service Cloud Path, which added support for migrating Windows Server 2008 server images to public clouds with no infrastructure to buy or maintain and no upfront costs or fees. The previous version of the beta was focused on RHEL/CentOS based Linux servers.

Cloud Path enables administrators to migrate their physical or virtual Windows or Linux servers to public cloud providers such as Amazon, Rackspace, and Terremark using an automated, unattended process. Cloud Path also supports automated migrations of cloud server instances between cloud providers, minimizing any unease over vendor lock-in.

"We're taking ease of use to a new level for any administrator that wants to migrate existing physical or virtual workloads to a public cloud resource," said James Strayer, vice president of product management at Racemi. "There is no need to rebuild from scratch or use templates and scripts. Our solution provides automated, unattended migrations with minimal user effort."

Racemi Cloud Path offers zero-risk, pay-as-you-go licensing to ensure that customers are only billed for successful migrations. There is no faster or lower risk way to migrate to the cloud. As part of this beta update, customers are eligible for a 50% discount through the end of August.

Additional information regarding Racemi Cloud Path is available at www.racemi.com/ /index.php/products/cloudpathmenu. The Cloud Path Beta supports the migration of Windows 2008, RHEL 5.x and CentOS 5.x operating systems to Amazon EC2, Rackspace, and Terremark. Additional OS platforms and cloud providers will be added in subsequent updates to increase customer options. [NOTE: Specific information on pricing and availability to be added here.]

Comment [BCG1]: Need URL as this seems to have changed

Workloads are migrated to the cloud by comparing the configurations of the source and destination servers, and then configuring the necessary cloud tools, virtual machine components, disk, and network layout "in-flight" to ensure that the image can be run on the target cloud platform. Unlike other technologies, Racemi's image-based provisioning software does not require modifications to the application.

About Racemi
Racemi, the moving company for the cloud, has been named a "Cool Vendor" and has received other industry awards.

The company builds server provisioning and cloud migration technology that allows businesses to quickly migrate their existing physical and virtual servers to, from and between cloud providers and across data centers. For CSPs (cloud service providers), Racemi is the fastest and best method for on-boarding customers to their cloud.

Racemi also enables customers and partners to automate private data center provisioning by leveraging its market-leading server imaging technology to rapidly provision physical, virtual or private cloud servers in any automated use case.

For more information, visit www.racemi.com.

# # #

Racemi, the moving company for the cloud are marks of Racemi. All other trademarks referenced herein are the property of their respective owners.

Contact:
Glenn Rossman, Baker Communications Group, 914-623-8354,
Racemi@bakercg.com

From: Karen Docherty <kdocherty@racemi.com>
To: Scott Mewett <smewett@racemi.com>;James Strayer <jstrayer@racemi.com>
Sent: 3/1/2012 7:16:34 AM
Subject: Cloud Path name

Gentlemen,

I did a Google search last night as part of my research for ticket #995 (Several customer-facing places where we have CloudPath not Cloud Path) and I noticed that Cloudscaling has an offering called Cloud Path (http://www.cloudscaling.com/solution/cloud-path/).

It looks like a services offering and it doesn't look like they have trademarked the term, but I wanted to mention it as I hadn't seen this result in previous Google searches.

Karen

Karen Docherty

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Racemi Announces Software-as-a-Service to Migrate Servers to Public Clouds at Fraction of Typical Cost

Average migration savings of $800 per server, with zero risk to customers

ATLANTA, August 29, 2012 – Racemi, the moving company for the cloud, announced that its Cloud Path software as a service is now generally available for migrating Windows and Linux server images to public clouds with no infrastructure to buy or maintain and no upfront costs or fees.

The fully-automated migration can be controlled from a web browser, with cost savings on average of $800 per server versus a manual migration to a public cloud provider, like Amazon EC2, GoGrid, Rackspace or Terremark.

In addition, Racemi Cloud Path's zero-risk, pay-as-you-go licensing plan ensures that customers are only billed for successful migrations. There is no faster or lower risk way to migrate to the cloud.

"We're taking ease of use to a new level for any administrator that wants to migrate existing physical or virtual workloads to a public cloud resource," said James Strayer, vice president of product management at Racemi. "There is no need to rebuild from scratch or use templates and scripts, which saves administrators time, which translates to significant cost savings versus migrating a server manually.."

"There are few options for moving existing applications to cloud platforms and most of these options are time-consuming and expensive. A typical approach calls for in-house or consulting personnel to rebuild servers from scratch and then migrate the configuration and data manually," said Rachel Chalmers, vice president of research, The 451 Group. "Cloud Path can automatically migrate existing physical or virtual servers to a cloud platform, meaning that it should be faster and more cost-effective than moving servers over by hand."

Also, with Cloud Path, it's possible to automatically migrate cloud instances between cloud providers, minimizing any unease over vendor lock-in, as well as enabling high availability or disaster recovery strategies that span providers.

Additional information regarding Racemi Cloud Path is available at www.racemi.com/cloudpathpromo. Cloud Path supports the migration of servers using Windows Server 2008 R2, RedHat Enterprise Linux, and CentOS,operating systems (OS) to Amazon EC2, GoGrid, Rackspace, and Terremark. Additional OS platforms and cloud providers will be added in future updates to the software.

The cost for a server migration is $299 (volume discounts are available) with a special offer valid until September 30, 2012 for $100 off of each migration, along with 20 GB free image storage, 20 GB free bandwidth. This offer islimited to the initial 100 customers that sign up.

Workloads are migrated to the cloud by automatically creating new cloud server instances, comparing the configurations of the source and destination servers, and then configuring the necessary cloud tools, virtual machine components, disk, and network layout "in-flight" to ensure that the image can be run on the new cloud platform. Unlike other technologies, Racemi's image-based provisioning software

does not require modifications to the application. The solution is fully automated, providing unattended migration support that require minimal user effort

About Racemi
Racemi, the moving company for the cloud, has been named a "Cool Vendor" and has received other industry awards.

The company builds server provisioning and cloud migration technology that allows businesses to quickly migrate their existing physical and virtual servers to, from and between cloud providers and across data centers. For CSPs (cloud service providers), Racemi is the fastest and best method for on-boarding customers to their cloud.

Racemi also enables customers and partners to automate private data center provisioning by leveraging its market-leading server imaging technology to rapidly provision physical, virtual or private cloud servers in any automated use case.

For more information, visit www.racemi.com.

# # #

Racemi, the moving company for the cloud are marks of Racemi. All other trademarks referenced herein are the property of their respective owners.

Contact:
Glenn Rossman, Baker Communications Group, 914-623-8354,
Racemi@bakercg.com

From: customer.service@yourtrademarkia.com
To: info@racemi.com <info@racemi.com>
Sent: 11/12/2011 8:02:29 AM
Subject: CLOUD PATH trademark status is Live with the USPTO

Dear Racemi, Inc.,

We are contacting you because you, Racemi, Inc. is listed as the legal correspondent of the CLOUD PATH trademark filed on Monday, October 31, 2011 for the owner Racemi, Inc.

The good news is that the CLOUD PATH trademark is currently live and appears to be in good standing with the United States Trademark Office. The current status is **NEW APPLICATION - RECORD INITIALIZED NOT ASSIGNED TO EXAMINER**.

You can see a detailed history of your CLOUD PATH trademark on Trademarkia at the link below.

http://www.trademarkia.com/cloud-path-85460848.html

Trademarkia, a Silicon Valley company, is the largest free U.S. trademark search engine. We also offer registered trademark owners a variety of tools to manage their trademark rights, including:

1. Free logo creator tool for the CLOUD PATH trademark.
2. Free alerts on updates to your CLOUD PATH trademark record.
3. Free search for CLOUD PATH infringement on social networks.
4. Send a **cease & desist letter** to someone infringing the CLOUD PATH mark.
5. File a new U.S. trademark application with USPTO.
6. File the CLOUD PATH trademark in up to 50 countries around the world.

You may wish to **file a new U.S. trademark** with the United States Trademark Office if you have recently updated or come up with a new name, logo, or slogan that you wish to protect. A licensed U.S. trademark attorney in the Trademarkia network can file new U.S. trademark applications for **just $159** plus government filing fees (Government Fee: $325 per class, Total Cost: $474).

Since you are a legal correspondent of a live U.S. trademark already, you can receive a **10%** discount if you enter this discount code at checkout: **ANOTHERMARK**

We hope you find our alerts useful. Please let me know if I can be of assistance or answer any questions that you may have.

Kind regards,

William Burnett Cleere

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To: marketing@racemi.com <marketing@racemi.com>;msage@racemi.com <msage@racemi.com>;jstrayer@racemi.com <jstrayer@racemi.com>;racemimktg@gmail.com <racemimktg@gmail.com>
Sent: 2/12/2013 12:02:54 PM
Subject: Cloud Path v1.3 Now Available

test

Having trouble viewing this email? Click here

Racemi Cloud Path

Announcing Support for SoftLayer CloudLayer

Cloud Path v1.3 Now Available

Just a quick note to let you know that we have recently updated Racemi Cloud Path to support server migrations to SoftLayer CloudLayer server instances.

SoftLayer is the largest privately-held, cloud infrastructure provider in the world, with 13 data centers and 17 points of presence spanning the U.S., Asia and Europe. SoftLayer is known for providing innovative cloud solutions and industry-leading performance. Adding SoftLayer support provides our customers with the broadest range of automated cloud migration options in the industry.

In addition, Racemi is pleased to be offering a special promotion to SoftLayer customers. Through the end of February 2013, SoftLayer customers will be able to migrate physical and virtual servers into CloudLayer **for just $99 per server!** Just click here to get more information on this limited time offer.

Sincerely,

James Strayer
Vice President Product Management and Marketing
Racemi, Inc.

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Racemi, Inc. | 360 Interstate North Pkwy SE | Suite 360 | Atlanta | GA | 30339

From: James Strayer <jstrayer@racemi.com>
To: 'Lawrence Guillory' <lguillory@racemi.com>
Sent: 8/30/2011 10:41:12 AM
Subject: cloudpath who is

Registrant:
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care of Network Solutions
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Drums, PA. US 18222

Domain Name: CLOUDPATH.COM

Administrative Contact, Technical Contact:
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James Strayer
VP Product Management and Marketing
Racemi, Inc
Cell: 801-368-2543
jstrayer@racemi.com
http://www.racemi.com

IBM SmartCloud Migration Simplfied

Cloud Path®

At-a-Glance

- Migrates existing physical, virtual, or cloud servers to SoftLayer CloudLayer.
- Live Capture of your systems - no server downtime
- SaaS - no infrastructure to install, manage, or support.
- Supports Windows and Linux.
- Secure data transfer over 256 bit SSL connections.
- No charge for IBM SCE customers

"This new migration service will expedite IBM clients' 'on-ramp' to the enterprise cloud. As more clients demand enterprise cloud capabilities, they are looking to IBM to deliver the security, privacy and reliability of open, private clouds with the economy and speed of a public cloud through IBM cloud."
– Kit Linton, Director of Cloud Infrastructure Offerings, IBM.

Migrating From SCE to CloudLayer

IBM has partnered with Racemi to help migrate existing SmartCloud Enterprise customers to SoftLayer CloudLayer. Effective immediately, SCE customers can sign up for Racemi Cloud Path, a self-service Software As A Service (SaaS) that automates migrations from IBM SmartCloud Enterprise to SoftLayer Cloud Layer at no charge.

Fast

With Cloud Path, you can automatically migrate your existing server workloads from IBM SmartCloud Enterprise to SoftLayer CloudLayer instances. Cloud Path's image-based provisioning technology automates the entire cloud migration process, so there is no need to rebuild from scratch or use templates since **Cloud Path's migrates the entire server "stack" - operating system, applications, and configuration.**

Reliable

Cloud Path migrates your existing server in its time tested configuration rather than requiring you to rebuild it from scratch or integrate additional technology. Its **image-based provisioning technology is industry proven, providing a reliable migration** method that's less error prone than other methods with fewer points of failure.

No Charge Self-Service Migrations

Racemi and IBM have teamed up to offer IBM customers this easy to use software as a service at no charge*, saving customers an average of $800 per server in labor vs. a manual migration. There is simply no faster or easier way to get existing server workloads from SmartCloud Enterprise into SoftLayer CloudLayer.

* See offer terms and conditions for details. The offer may be discontinued at any time. Cloud Path SaaS is provided by Racemi under Racemi agreement terms. IBM is not a party to such agreement and IBM provides no warranties, indemnities or liability, express or implied, with respect to such Racemi services.

IBM

Racemi Cloud Path for IBM

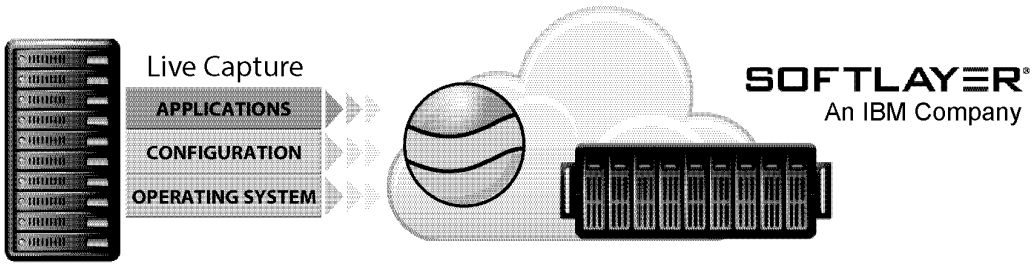
When Should I Use Cloud Path for IBM?

Use Racemi Cloud Path if you need to:

- **Migrate** an existing server workload from IBM SCE to SoftLayer CloudLayer.
- Migrate applications on Windows 2008 R2 or RHEL/CentOS 5.x, 6.x to SoftLayer CloudLayer.
- Migrate physical or virtual servers from a private data center to SoftLayer CloudLayer

How Does Cloud Path Work?

Cloud Path captures a live "image" of the **OS, configuration, application files, and other information** on your source server and deploys it **to a new SoftLayer CloudLayer server** instance. Cloud Path **applies any necessary drivers, virtual tools, and OS licenses "in flight"** to prepare the image for the SoftLayer CloudLayer platform. This enables Cloud Path to quickly and easily migrate servers from dissimilar physical, virtual, and cloud platforms.



Key Additional Features and Benefits Include:

- Live Capture means no server down time.
- Software as a Service (SaaS) - no infrastructure to install, manage, or support.
- Migration of data over 256 bit AES SSL (HTTPS) connections to ensure security.
- Firewall friendly outbound server communication for easy network traversal.
- Over the wire compression of data (2-3x).
- Auto update of your OS license.

Sign Up For Racemi Cloud Path for IBM at
http://www.racemi.com/ibm or http://www.ibm.com/migration

Racemi
Cloud Migration Simplifed

IBM

How Do I Learn More About Racemi Cloud Path?

To learn more about quickly and effectively migrating to the cloud, visit **www.racemi.com/ibm** or email **info@racemi.com**

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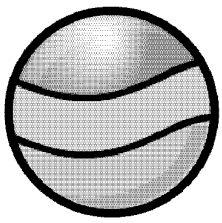
Cloud Path For GoGrid



GoGrid Migration Simplified

At-a-Glance

- Migrates existing physical, virtual, or cloud servers to GoGrid cloud servers
- Live Capture of your systems - no server downtime
- No infrastructure to install or maintain
- Supports Windows and Linux
- Free for GoGrid cloud
- platform customers
- Average cost savings of $800 per server vs. a manual migration
- Secure data transmission over 256 bit SSL (HTTPS)
- 2-3x over the wire data
- compression
- CPU sensitive Live Capture process

"Racemi and GoGrid ensured our migration process was completely hassle-free. The combination of GoGrid's flexible, low- cost cloud platform and an automated migration solution made our transition to cloud computing far easier than I'd dared hoped."
- Josh Vermette, Calydonian Interactive

Why Use Cloud Path for Your GoGrid Migration?

GoGrid provides industry-leading cloud services to businesses of all sizes. As these businesses look to refresh application services, offload capital expenses and take advantage of cloud flexibility, they are looking for faster and easier ways to migrate existing application workloads to the GoGrid cloud platform. Racemi's **Cloud Path for GoGrid** Software As A Service makes the migrations of physical and virtual servers to GoGrid fast, reliable, and cost-effective. Cloud Path's image-based provisioning technology automates the server migration process while supporting a broad range of physical and virtual platforms including VMware, Xen, and Hyper-V.

Fast

With Cloud Path for GoGrid's cloud platform, you can automatically migrate your existing Windows or Linux server workloads from dissimilar physical, virtual, and cloud platforms to GoGrid's cloud platform. There's no need to rebuild from scratch or use templates since **Cloud Path's automated migration process moves the entire server "stack" - operating system, applications, and configuration -** to GoGrid cloud server instances**.**

Reliable

Cloud Path migrates your existing server in its time tested configuration rather than requiring you to rebuild it from scratch or integrate additional technology. Its **image-based provisioning technology is industry proven, providing a reliable migration** method that's less error prone than other methods with fewer points of failure.

Free Of Charge

Racemi and GoGrid have joined together to provide this service free of charge to GoGrid cloud customers. There is simply no faster or easier way to get existing server workloads onto the GoGrid cloud platform.

Racemi
Cloud Migration Simplifed

Cloud Path For GoGrid

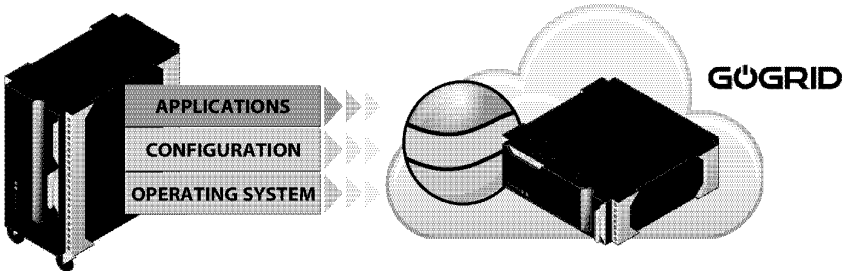
When Should I Use Cloud Path?

Use Racemi Cloud Path for GoGrid's cloud platform if you need:

- **Migration** of physical or virtual servers from a private data center to GoGrid's cloud platform.
- Migration of existing cloud servers to GoGrid's cloud platform.
- Migration of applications running on Windows 2008 R2 or RHEL/CentOS 5.x, 6.x.

How Does Cloud Path Work?

Cloud Path for GoGrid's cloud platform captures **OS, configuration, application files, and other information** from a source server in an image and stores it in a library. These images can then be **deployed as GoGrid cloud servers** across a wide range of configurations. Cloud Path **applies any necessary drivers and virtual tools "in flight"** to prepare the image for GoGrid's cloud platform. This enables Cloud Path to quickly and easily migrate server images between dissimilar physical, virtual, and cloud platforms.



Key Additional Features Include:

- Live Capture eliminates powering down servers during migrations.
- Supports migrations from almost any physical, virtual, and cloud platforms to GoGrid's cloud platform.
- No infrastructure to install or maintain.
- Works over outbound https (256 bit SSL) to ensure security and easy network traversal.

Racemi Cloud Path For GoGrid at
loudpath4gogrid.racemi.com

Racemi
Cloud Migration Simplifed

GOGRID
Complex Infrastructure Made Easy™

How Do I Learn More About Racemi Cloud Path for GoGrid?

To learn more about migrating your servers to GoGrid's cloud platform, visit:
http://www.racemi.com/gogrid or email **info@racemi.com**

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IBM SmartCloud Services Migration Simplfied

Cloud Path®

At-a-Glance

- Migrates existing physical, virtual, or cloud servers to IBM SmartCloud Enterprise or SoftLayer CloudLayer.
- Live Capture of your systems - no server downtime
- SaaS - no infrastructure to install, manage, or support.
- Supports Windows and Linux.
- Secure data transfer over 256 bit SSL connections.
- Free for qualified IBM customers (see offer terms and conditions for details.)

"This new migration service will expedite IBM clients' 'on-ramp' to the enterprise cloud. As more clients demand enterprise cloud capabilities, they are looking to IBM to deliver the security, privacy and reliability of open, private clouds with the economy and speed of a public cloud through IBM cloud."
– Kit Linton, Director of Cloud Infrastructure Offerings, IBM.

Why Use Racemi Cloud Path for Your IBM Smart-Cloud Services Migration?

Racemi's Cloud Path Software As A Service (SaaS) makes cloud migrations for physical and virtual servers fast, reliable, and cost-effective. Cloud Path's image-based provisioning technology automates the entire cloud migration process while supporting a broad range of physical and virtual platforms including VMware, Xen, KVM, and Hyper-V.

Fast

With Cloud Path, you can automatically migrate your existing server workloads from dissimilar physical, virtual, and cloud platforms to IBM SmartCloud Enterprise or SoftLayer CloudLayer instances. There's no need to rebuild from scratch or use templates since **Cloud Path's automated migration process moves the entire server "stack" - operating system, applications, and configuration.**

Reliable

Cloud Path migrates your existing server in its time tested configuration rather than requiring you to rebuild it from scratch or integrate additional technology. Its **image-based provisioning technology is industry proven, providing a reliable migration** method that's less error prone than other methods with fewer points of failure.

Free Of Charge

Racemi and IBM have teamed up to offer IBM customers this easy to use software as a service at no charge*, saving customers an average of $800 per server in labor vs. a manual migration. There is simply no faster or easier way to get existing server workloads into IBM Smart-Cloud Services.

* A limited number of migrations are available, see offer terms and conditions for details. The offer may be discontinued at any time. Cloud Path SaaS is provided by Racemi under Racemi agreement terms. IBM is not a party to such agreement and IBM provides no warranties, indemnities or liability, express or implied, with respect to such Racemi services.

IBM®

Racemi Cloud Path

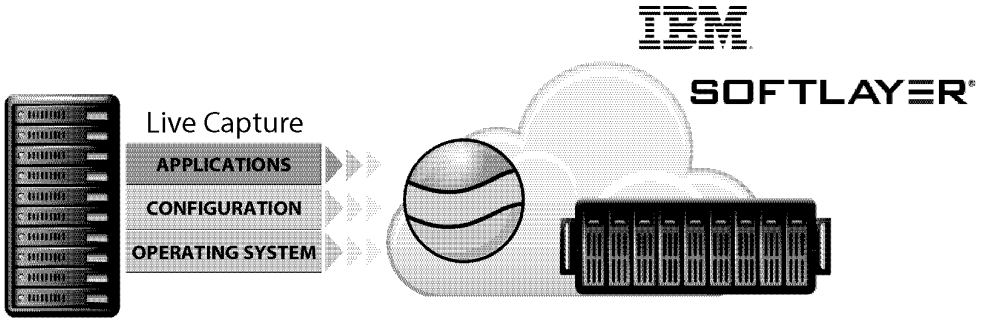
When Should I Use Cloud Path?

Use Racemi Cloud Path if you need to:

- **Migrate** physical or virtual servers from a private data center to IBM SmartCloud Services (SmartCloud-Enterprise or SoftLayer CloudLayer.)
- Migrate an existing cloud server from another provider to IBM SmartCloud Services.
- Migrate applications on Windows 2008 R2 or RHEL/CentOS 5.x, 6.x to IBM SmartCloud Services.

How Does Cloud Path Work?

Cloud Path captures a live "image" of the **OS, configuration, application files, and other information** on your source server and deploys it **to a new IBM SmartCloud Enterprise or SoftLayer CloudLayer server** instance. Cloud Path **applies any necessary drivers, virtual tools, and OS licenses "in flight"** to prepare the image for the specified IBM platform. This enables Cloud Path to quickly and easily migrate servers from dissimilar physical, virtual, and cloud platforms.



Key Additional Features and Benefits Include:

- Save an average of $800 per server vs. a manual migration.
- Live Capture means no server down time.
- Software as a Service (SaaS) - no infrastructure to install, manage, or support.
- Migration of data over 256 bit AES SSL (HTTPS) connections to ensure security.
- Firewall friendly outbound server communication for easy network traversal.
- Over the wire compression of data (2-3x).
- Auto update of your OS license.

Sign Up For Racemi Cloud Path at
http://www.racemi.com/ibm or http://www.ibm.com/migration

Racemi
Cloud Migration Simplifed

IBM

How Do I Learn More About Racemi Cloud Path?

To learn more about quickly and effectively migrating to the cloud, visit **www.racemi.com/ibm** or email **info@racemi.com**

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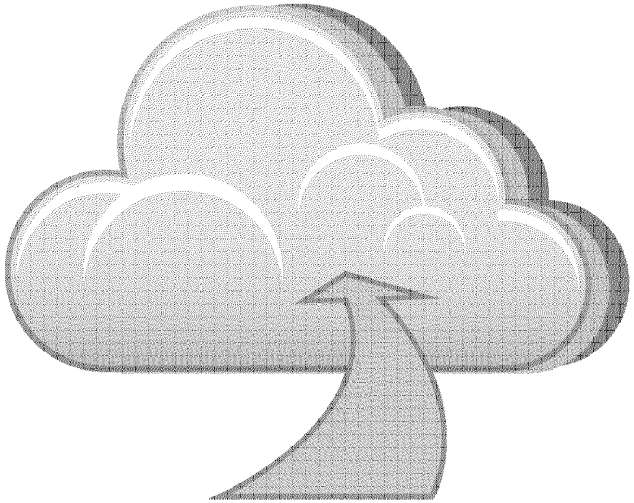

Cloud Path

Cloud Migration Simplified

From: Racemi, Inc. <marketing@racemi.com>
To: jstrayer@racemi.com <jstrayer@racemi.com>;jbarker@racemi.com <jbarker@racemi.com>
Sent: 8/22/2013 3:57:05 PM
Subject: Come See Us at VMworld 2013

test 2

Racemi Cloud Migration SaaS

Come Visit Us At VMworld Next week

Dear James,

Whether you are interested in migrating heterogeneous physical, virtual, or cloud servers to **vCloud Hybrid Service®** or to your own public or private **vCloud®** environment, Racemi has software and services that can significantly streamline your migration experience. Come by and see us at **VMworld®** next week in **booth #846** and see how Racemi can automatically migrate your existing servers to vCHS or other vCloud® providers and learn why Racemi is #1 in cloud migration.

Sincerely,

James Strayer
Vice President Product Management and Marketing
Racemi, Inc.

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Racemi, Inc. | 360 Interstate North Pkwy SE | Suite 360 | Atlanta | GA | 30339

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From: Racemi, Inc. <marketing@racemi.com>
To: marketing@racemi.com <marketing@racemi.com>;jstrayer@racemi.com <jstrayer@racemi.com>;msage@racemi.com <msage@racemi.com>
Sent: 4/15/2013 12:25:06 PM
Subject: Come See Us at AWS Summit New York or San Francisco

testing

Racemi Cloud Migration SaaS

Come See As At An AWS Summit!

Racemi is sponsoring the New York & San Francisco events

Dear James,

We're just dropping you a quick note to let you know we are sponsoring **AWS Summits in New York (April 18th) and San Francisco (April 30th)**, so please come by our booth, get a Cloud Path demo, and receive a promo code good for 5 free migrations to AWS EC2! To learn more about the AWS Summits check out these links

AWS Summit NYC

AWS Summit San Francisco

Sincerely,

James Strayer
Vice President Product Management and Marketing
Racemi, Inc.

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Racemi, Inc. | 360 Interstate North Pkwy SE | Suite 360 | Atlanta | GA | 30339

loud Path Staging Account Alert Inbox

donotreply@racemi.com 9:22 AM (0 minutes ago)
to awstutuser2

Cloud Path Account Alert

Your Cloud Path Staging Account was Successfully Created

Dear Tutorial User,

This email is to notify you that your Cloud Path Staging account has been successfully created.

Please click the link to activate your account:
https://demo-aws.racemi.com?activation_code=
d909db8e7ddc97b013b45dbcffa8dd76

Click the verification link to complete the registration process and be automatically returned to the Cloud Path login screen.

If you are unable to log in to your account, please contact Cloud Path Support at cloudpath-support@racemi.com immediately.

Sincerely,

Shortcuts | Registration | Getting Started Wizard | Migration Wizard | Electronic Support | Exit

RAC0000074

	A	B	C
1	**Domain Name**	**Domain**	**Product**
2	RapidProvisioning.com	x	
3	capture.com		
4	CAPTUREDEPLOY.COM		
5	CAPTUREPROVISION.COM		
6	CLOADER.COM	x	
7	C-LOADER.COM		
8	cloudboarder.com		
9	cloudboarding.com		
10	cloudbreak.com		
11	cloudlab.com		
12	cloudloader.com		
13	cloudmigration	x	
14	cloudmigrations		
15	cloudonboarding.com		
16	cloudprovisioning	x	
17	cloudramp.com		
18	cloudstarter.com		
19	cxc.com		
20	hybridc		
21	hypercloud		
22	p2v.com		
23	PROVISIONINGWORLD.COM		
24	servermigration.com		
25	server-migration.com		
26	snapcloud.com		
27	v2c		
28	v2v.com	x	
29	workload.com		
30	WORLDPROVISIONING.COM		

	A	B	C	D
1	**Domain Name**	**Domain**	**Product**	**PB Vote**
2	cloudbreak.com	x	x	1
3	cloudloader.com	x	x	
4	cloudmigration	x	x	
5	cloudonboarding.com	x		
6	cloudprovisioning	x		
7	cloudramp.com	x	x	2
8	servermigration.com	x		
9	snapcloud.com	x	x	3

	A
1	Blue Streak
2	Jetstream
3	Cloud Jump
4	Whirlwind
5	Cyclone
6	Stratus
7	Cloudcast
8	Cloudburst
9	Cloudsnap