

# Believe the Hype Cloud Computing /s the Next Big Thing

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*Previously known as GRIDtoday*

# Definitions Matter

## What's under the cloud umbrella?

- Cloud computing (external *or* internal)
  - Infrastructure as a service
    - Computing
    - Test labs
    - Storage
    - Etc.
- Cloud services
  - SaaS
  - Collaboration tools
  - Social networking
  - Etc.

# Internal Clouds Already in Place

- DISA – Rapid Access Computing Environment
  - Cloud computing “something we absolutely have to do.” – John Garing, CIO, DISA
- Merrill Lynch – Stateless Computing
  - Shared server network: allocating capacity rather than machines
- Internet companies
  - Amazon, Google, eBay, etc.
- IT vendors
  - IBM’s internal cloud basis for “Blue Cloud”
- Grid computing users
  - Federating application-specific grids into enterprise-wide services platforms

# External Cloud Use Cases

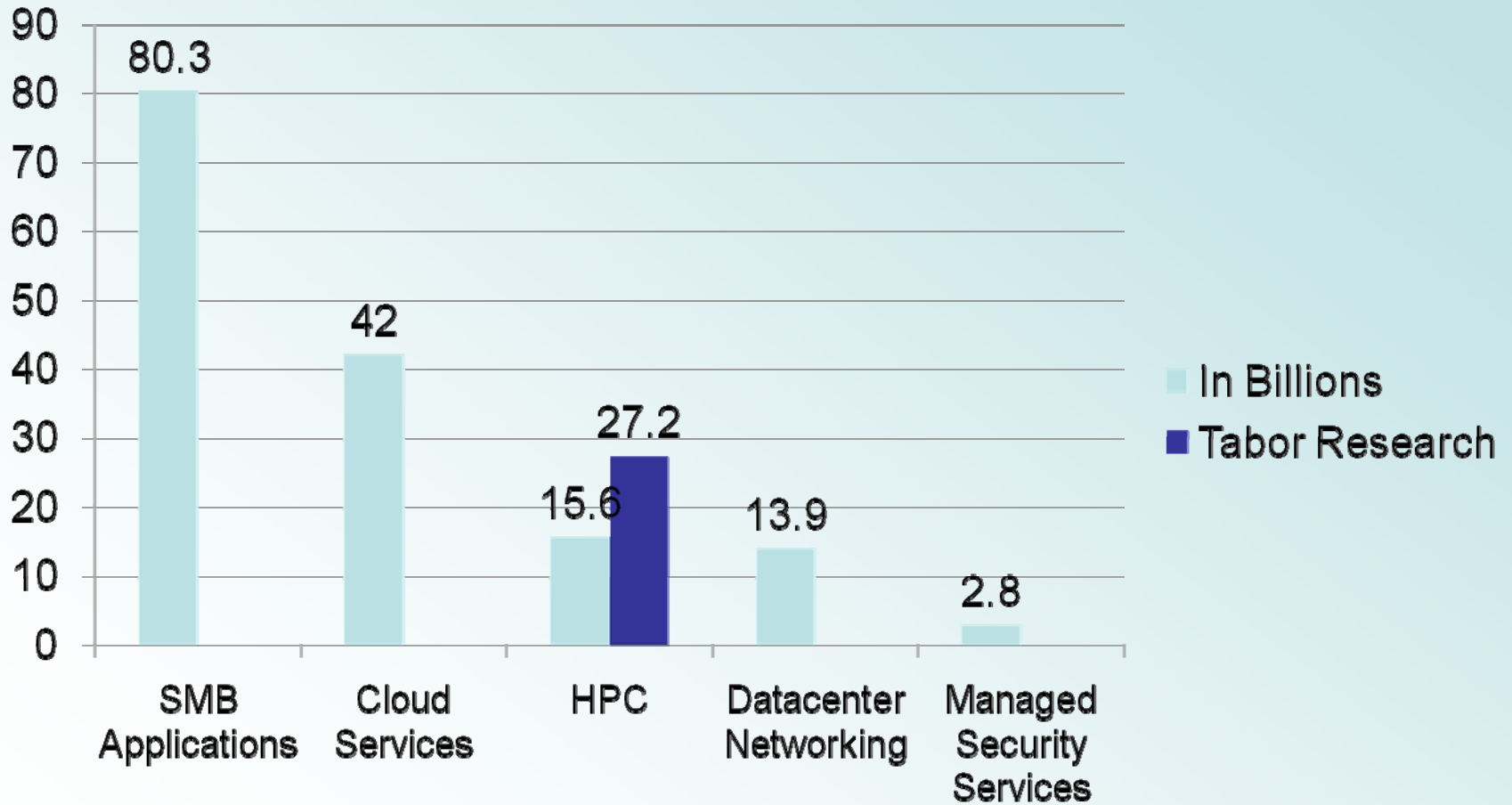
- Virtual labs/testing and development
- “Cloud bursting”
  - Offloading excess workloads to the cloud
- Batch processing workloads
  - New York Times digitizes decades of newspapers using EC2
  - Monte Carlo simulations in financial services
  - Drug development in pharma (GlaxoSmithKline publicly doing this via service-oriented grid platform)
- SaaS platform
  - Callidus using Sun Grid as on-demand delivery platform
- Start-ups and Web companies
  - Whole infrastructure in the cloud
    - Exemplifies stated benefit of focusing on innovation rather than managing datacenters

# Cloud Services a No-Brainer

- Software as a service
  - Salesforce.com
  - Google Apps
  - Hosted Exchange
- Social networking
- Web services
  - Search
  - Maps
  - Animoto (EC2 poster child)



# IDC Forecasts for 2012



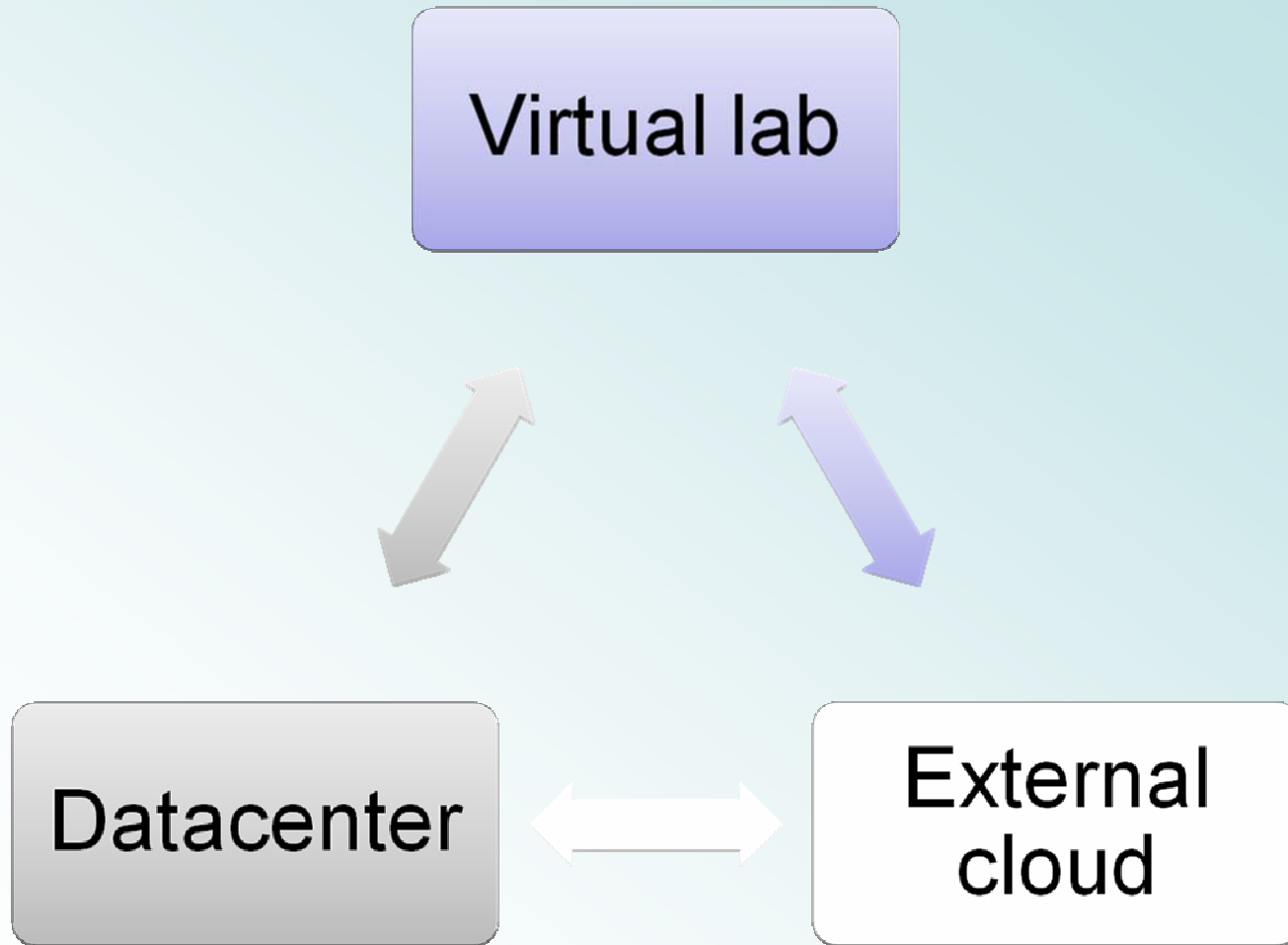
# Clouds on the Horizon

100% Chance of  
Precipitation

# Why Cloud Computing *Will* Succeed

- Cost
  - OPEX and CAPEX savings just too compelling
  - Energy savings/lack of power
- Competitive edge
  - Focus on differentiating tasks
  - Agility
  - Flexibility
  - Speed
- Decreasing barriers to entry
  - Windows support
  - Improving SLAs
  - Trusted names
    - Microsoft
    - IBM
    - VMware
    - AT&T

# Hybrid Clouds

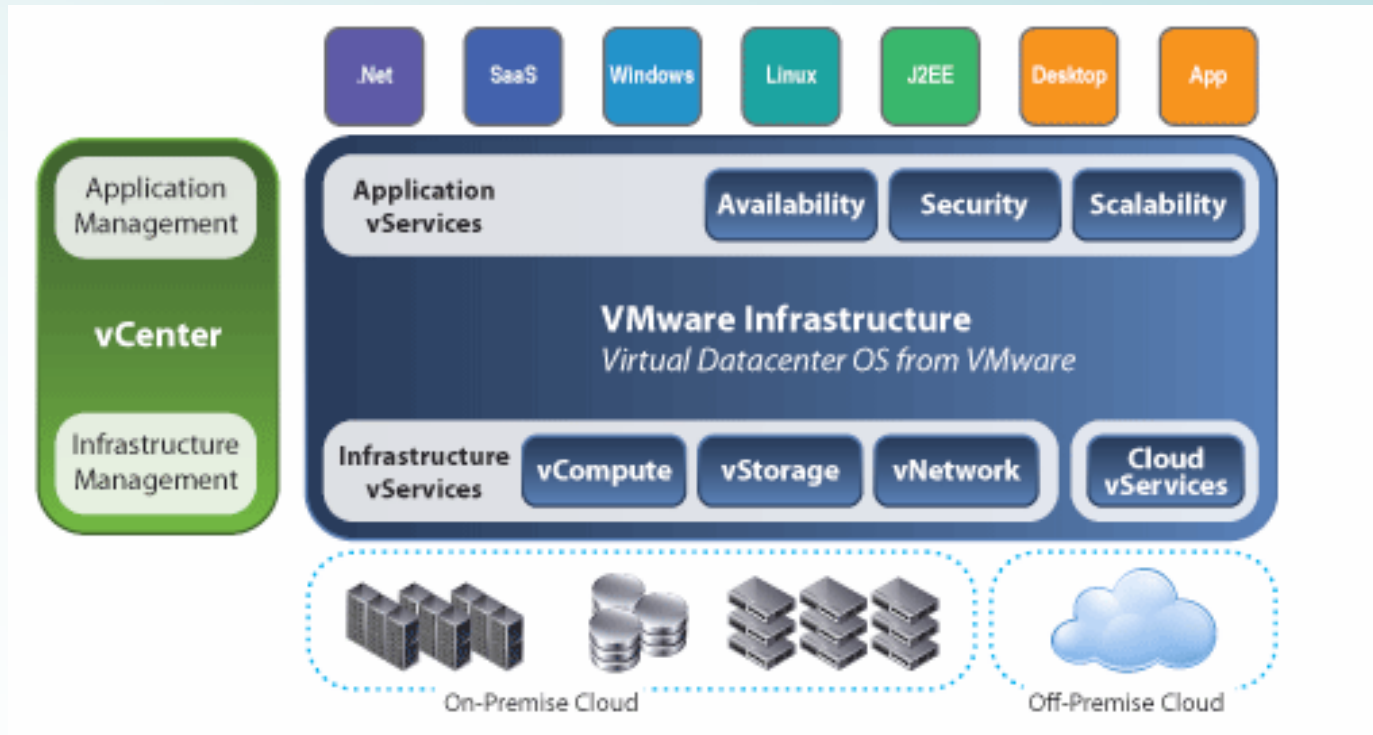


# Hybrid Clouds

- Transferring workloads and/or data between/among internal and external clouds
- Being pushed by big, trusted, proven vendors
- Increased portability via virtual appliances



# VMware – VDC-OS



Source: VMware

# Citrix – C3



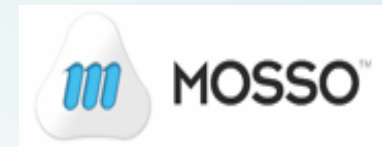
Source: Citrix

# Industry-Specific Clouds

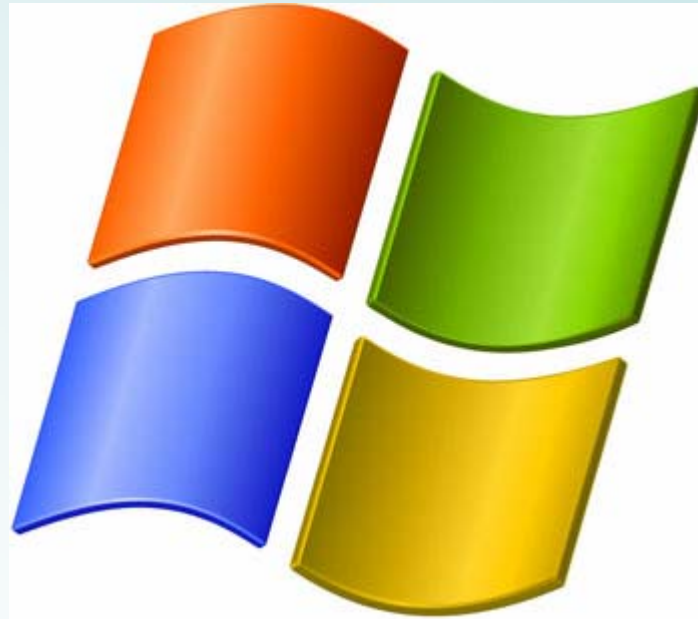
- Government
  - Discussions about cordoning off portions of public and wrapping in government security requirements
  - Strong urge to standardize, within agencies and overall
- Financial services
  - Consensus is that banks seek “smarter” computing
- Life sciences/pharmaceutical
- Automotive/aerospace manufacturing

# Improved SLAs

- Amazon EC2
  - 99.95% SLA
  - Probably not enterprise-class, but something
- Enterprise providers getting into the game
  - AT&T, IBM, Verizon, HP, Terremark, etc.
  - Enterprise-class SLAs, plus support, compliance, etc.
- Smaller providers tout service
  - GoGrid – 10,000% Guaranteed®
  - Flexiscale – 99.99% SLA
  - Rackspace/Mosso – SLA, Fanatical Support®



# Windows!



# Windows Support

- Why it matters?
  - Zillions of consumer users
  - Millions of enterprise users

} Familiarity
- Who's supporting it?
  - Amazon (in Beta)
  - GoGrid (bare metal access)
  - Flexiscale
  - Skytap (virtual lab)
  - Microsoft

# Microsoft Azure



Source: Microsoft

# Azure: What it Is

- Cloud operating system
- Collection of cloud services
- Cloud computing platform
- Web portal
- Supports Microsoft and non-Microsoft development
- Hybrid capabilities

# Azure: Why it Matters

- Zillions of Microsoft devotees = built-in customer base
- Instant credibility for cloud computing
  - Microsoft isn't amending successful, on-premise business model on a whim
- Competition breeds success
  - Immediate competition for Amazon, Google, VMware, etc.

# Others to Commercialize Offerings

- Google
  - Not yet a *cloud computing* leader
  - App Engine still in Alpha mode
- IBM
  - Blue Cloud deliverables
- Sun Microsystems
  - Project Hydrazine; Network.com revamp
- Hosting providers
  - Rackspace
  - Layered Tech
  - Savvis

# More Uses

- HPC workloads
  - Amazon EC2 – High-CPU instances
  - Appistry EAF available on GoGrid, Skytap
  - HPC-specific solutions (e.g., Parabon)
  - Grid vendors working with cloud providers
- Extreme Transaction Processing (XTP)
  - GigaSpaces XAP available on GoGrid, EC2
- Common OSes and databases
  - Oracle, Red Hat, Microsoft, offering EC2 instances

# Internal Clouds Not Done Yet

- Pressures forcing CIOs to consider internal cloud/service-oriented platforms
  - Solutions must remain competitive as external clouds advance
  - Constantly evolving virtualization management tools make the transition easier
- Innovative vendors, innovative solutions
  - Grid computing vendors looking at cloud
  - Grid-based app platforms already making cloud push
  - App-specific SLAs common, power management, multi-tenant, no code changes, standard development frameworks, utility billing, monitoring ...
- Virtualization marches on
  - Server, storage, I/O, management, etc. = more abstraction

# Interoperability/standards

- Standard APIs, data layers, security, compliance, etc.
  - Not just portability b/w internal and external resources
  - Want to pull apps off and move if there is a problem
- Also just clouds that work with each other or with other platforms
- Open Grid Forum?
  - Cloud is on OGF's radar
- EGEE/large-scale grid projects
  - Interested in leveraging clouds
  - Expertise in making this work together
  - Experience in international collaboration

# Contact me

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