

# **IT Transformation and The Cloud**

**New Technologies, New Solutions, New Challenges**

Richard Villars

June, 2011

Exploring the Cloud Menagerie

IT and the Public Cloud  
(What is it good for?)

Private Cloud or Converged IT Infrastructure  
(What's the Difference?)

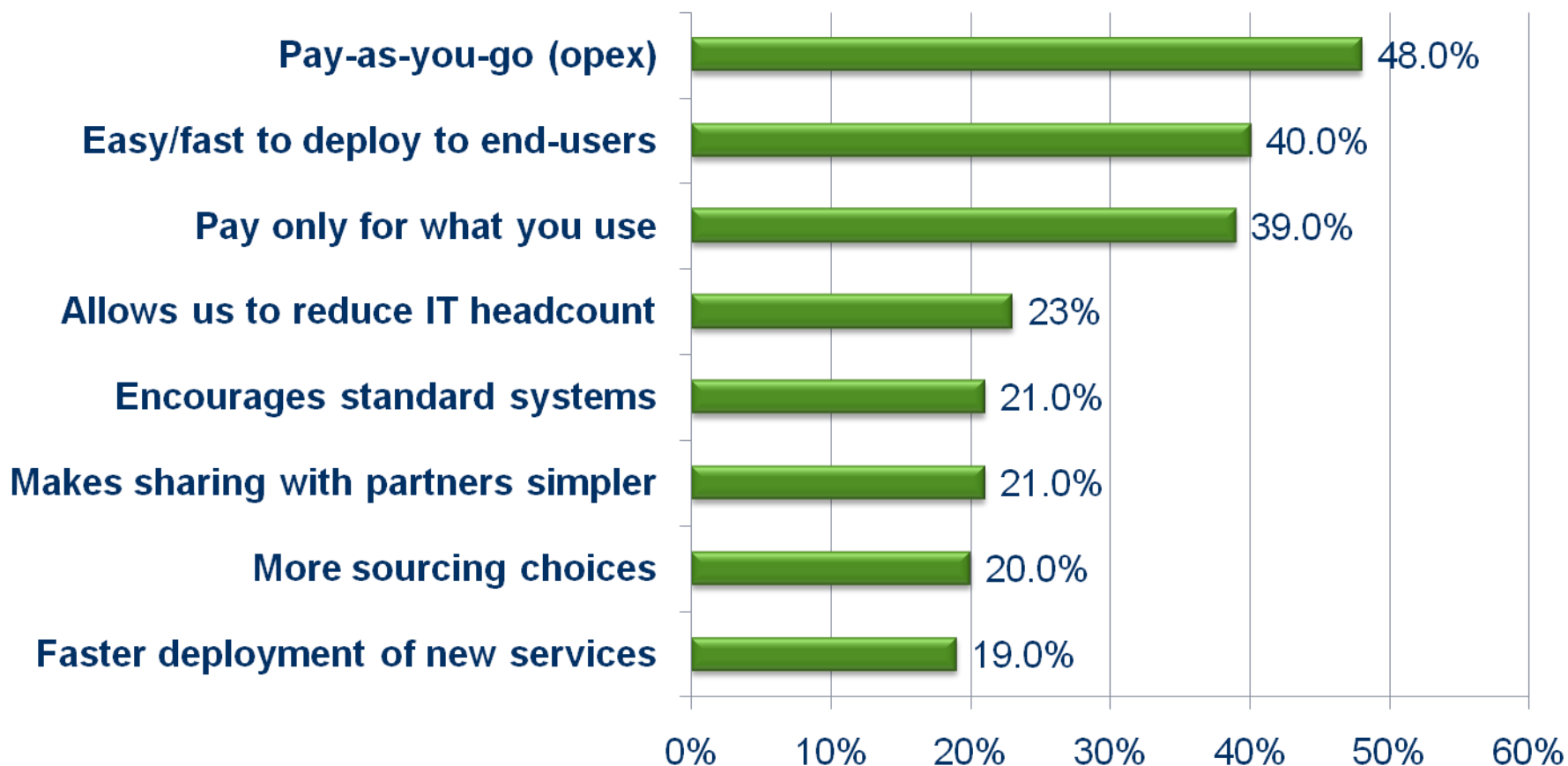
The Coming Age of Big IT  
(Is your IT Organization Cloud-ready?)

Questions

# What's **Appealing** About the Cloud?

## Q. Primary **drivers** for using/considering public clouds?

(scale: 1-5; 1=most important, 5=least important)



% responding 3, 4 or 5

Source: IDC Cloud Survey (unpublished), December 2010 n=603



# What is Cloud for Providers of IT Hardware, Software, and Services?

## Cloud is an architecture

- Services-oriented applications running on converged servers, storage, and networks in an optimally managed and designed data center

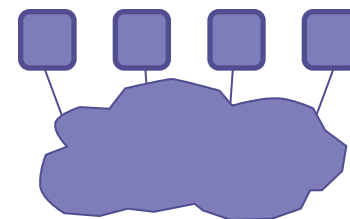
## Cloud is a customer base

- BPaaS, SaaS, Web 2.0, and other service providers

## Cloud is a delivery strategy (ITaaS)

- Basic IT resources (Capacity, processing)
- Advanced IT applications
  - asset management
  - information management
  - security

# Two (Three) Approaches to Cloud



## Private

- Designed for, and access restricted to, a single enterprise (or extended enterprise)
- An internal shared resource, not a commercial offering
- IT Org is the “vendor” of the shared/std service to its users

## Hybrid




- Enterprise’s cloud services portfolio includes both private and public cloud services
- Some specific services are delivered through a combination of public and private models (e.g., private cloud “bursting to” a public cloud service)



## Public




- Designed for a market, not a single enterprise
- Open to a largely unrestricted universe of potential users

# Many Dimensions of Cloud

Who has access to it?  **Public/Marketplace**  
 **Private/Enterprise, extended enterprise**

Where is it?  Customer premises (e.g., private cloud)  
 3<sup>rd</sup> party premises (e.g., public cloud, virtual private cloud)  
 Both (hybrid cloud)

Who's operating it?  Customer staff (e.g., private cloud)  
 3<sup>rd</sup> party staff  
(e.g., public cloud, virtual private cloud, managed private cloud)

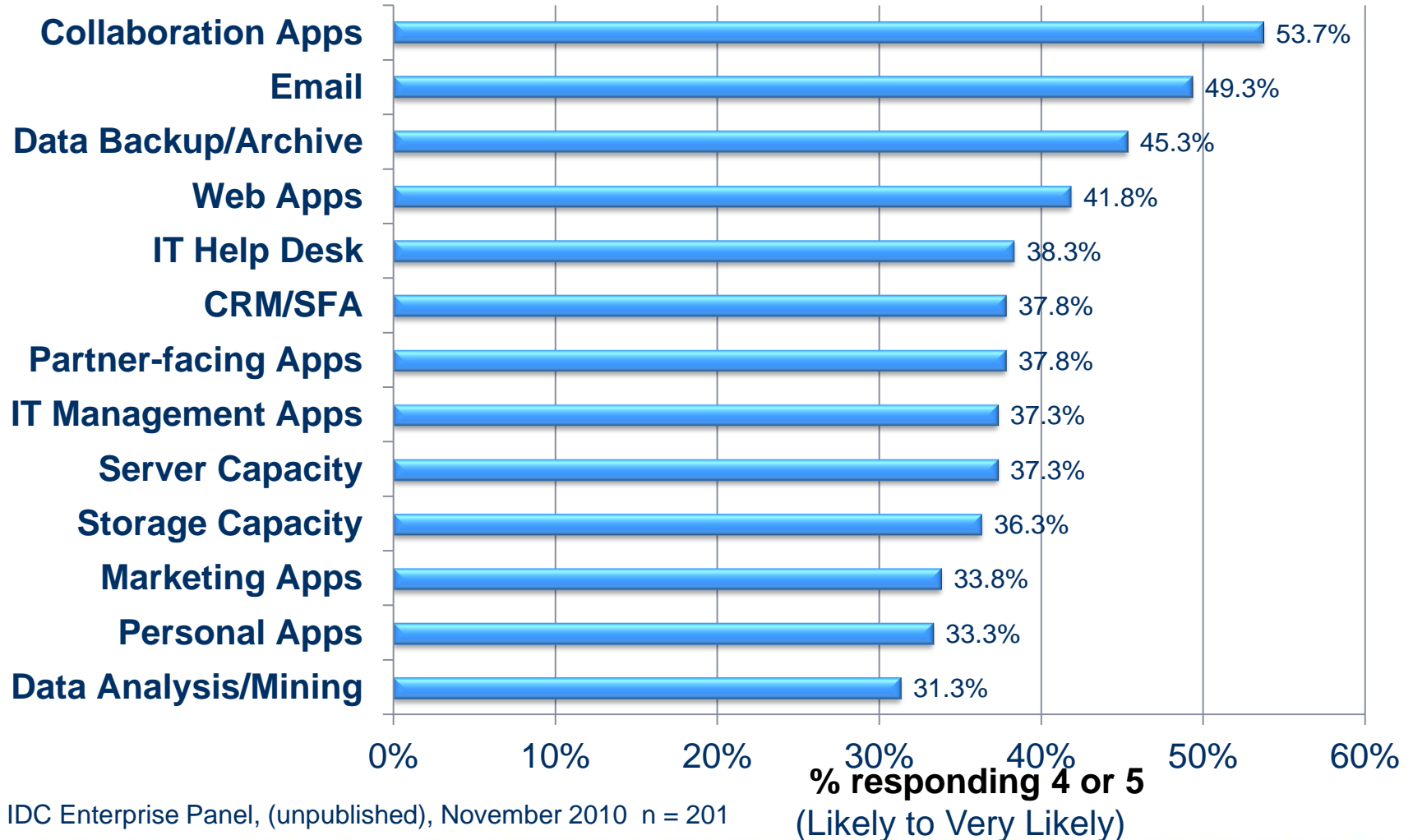
How is it deployed?  Remote service  
 Local system, custom-developed/integrated  
 Pre-integrated Appliance – SW only, SW-HW integrated, et al



# Likely **Public Cloud** Workloads

**Q. Likely to deploy via *Public Cloud* in 2-3 years?**

(scale: 1-5; 1=not likely, 5=very likely)



Source: IDC Enterprise Panel, (unpublished), November 2010 n = 201

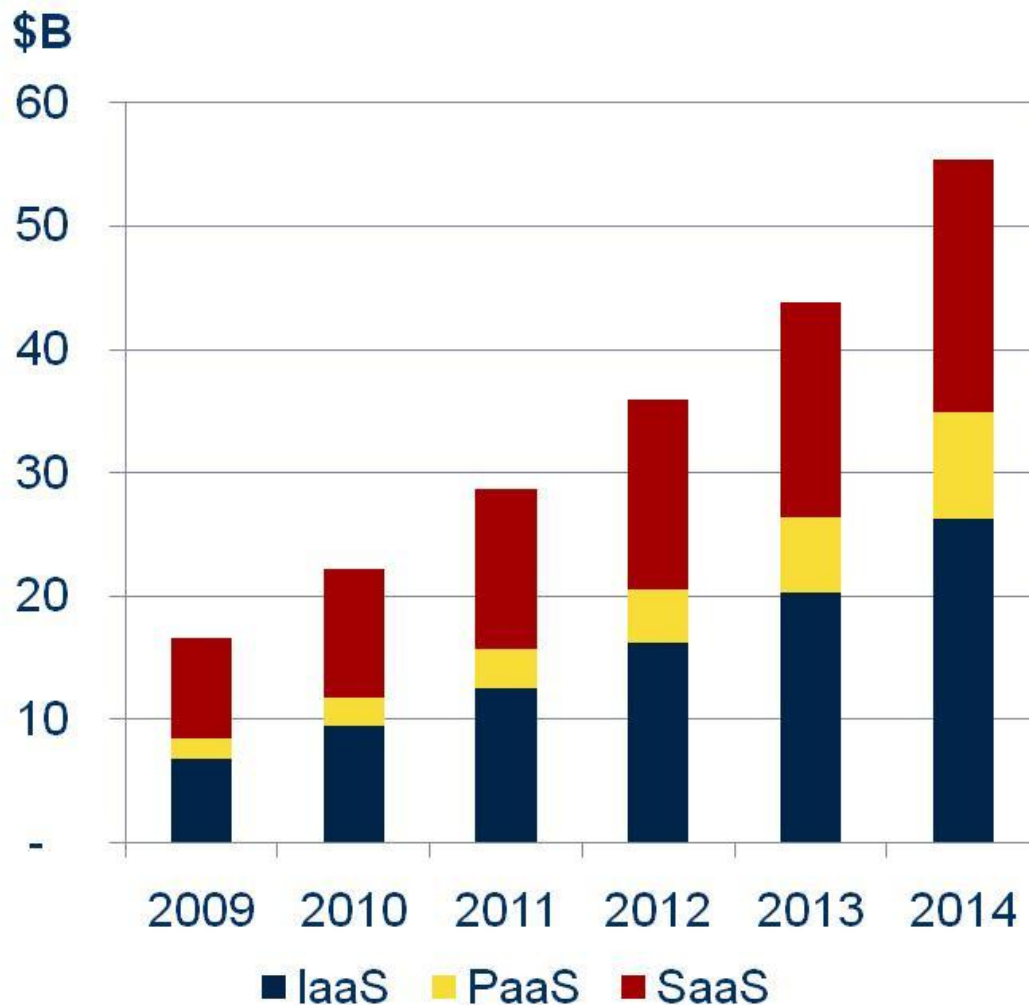
# Why Use the Public Cloud?

## Cloud solutions address many business requirements

- I don't want to build a data center
  - Lower cost of entry for start ups (SaaS, Web 2.0, departments, etc...)
- Its where the users are
  - Efficient delivery of information/applications to Internet and mobile users
- I have a temporary problem
  - IT on-demand for intermittent, bursty or unpredictable workloads (e.g., reporting, analytics, media launch)
- I need to park some data for a long time
  - Lower/shared cost solutions for long term archiving of digital assets (medical records, personal images, backups. eDiscovery archives)



# WW Public Cloud Services Revenue



Public IT cloud services will grow at over five times the rate of traditional IT products

Mix will shift toward more IaaS and PaaS

- Emergence of wholesale IaaS market
- PaaS becomes primary entry point

US dominance will begin to fade

- 70% in 2009
- 51% in 2014

Source: IDC Worldwide and Regional Public IT Cloud Services 2010–2014 Forecast (# 223549)

Virtualization is the gateway drug

- Finally cutting the physical device umbilical

Cloud is not just the “Horseless” Buggy

- New applications before replacement
- Business units, not IT are main drivers

You too may soon be a cloud provider

- Are your ready?

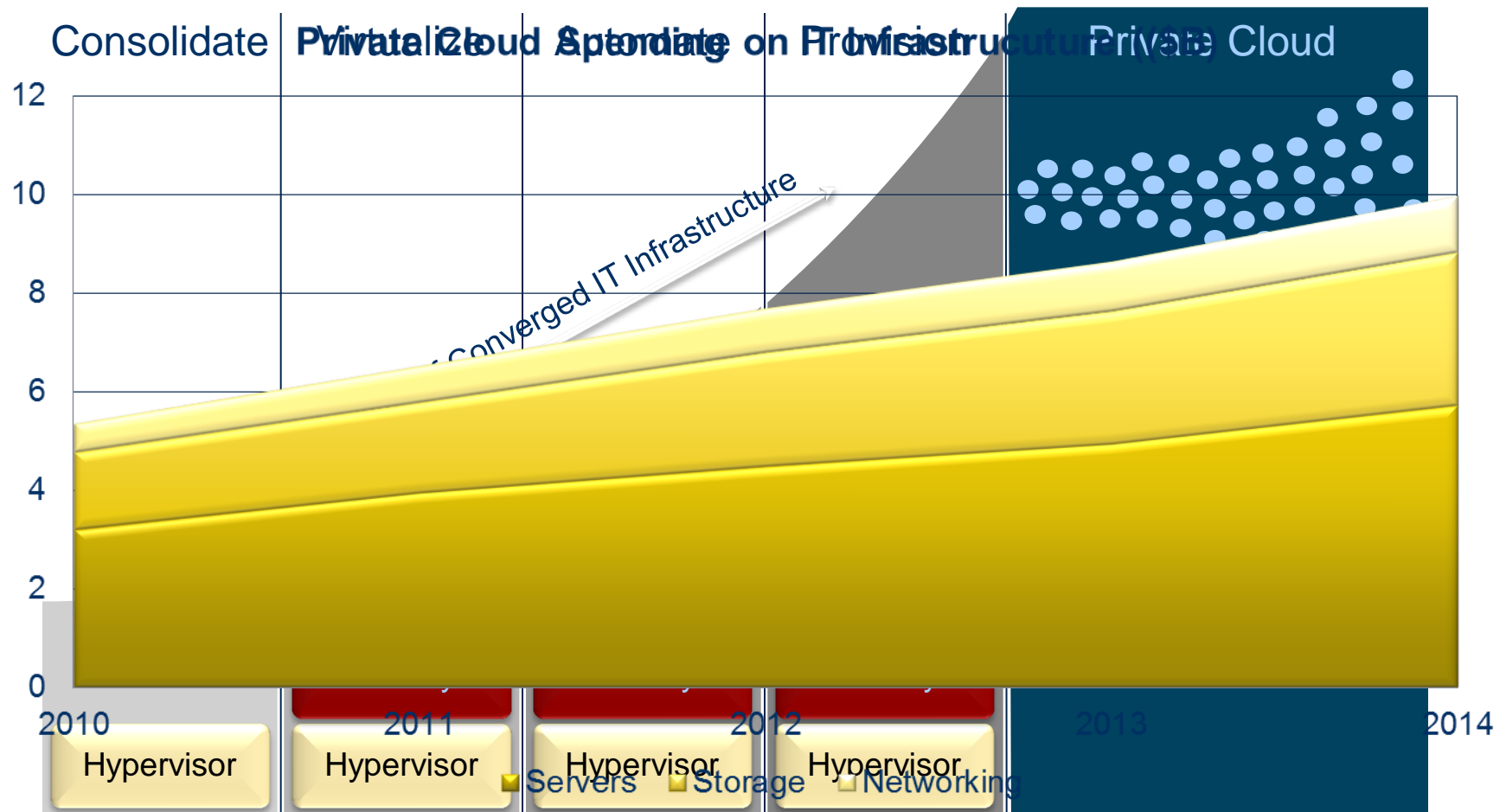




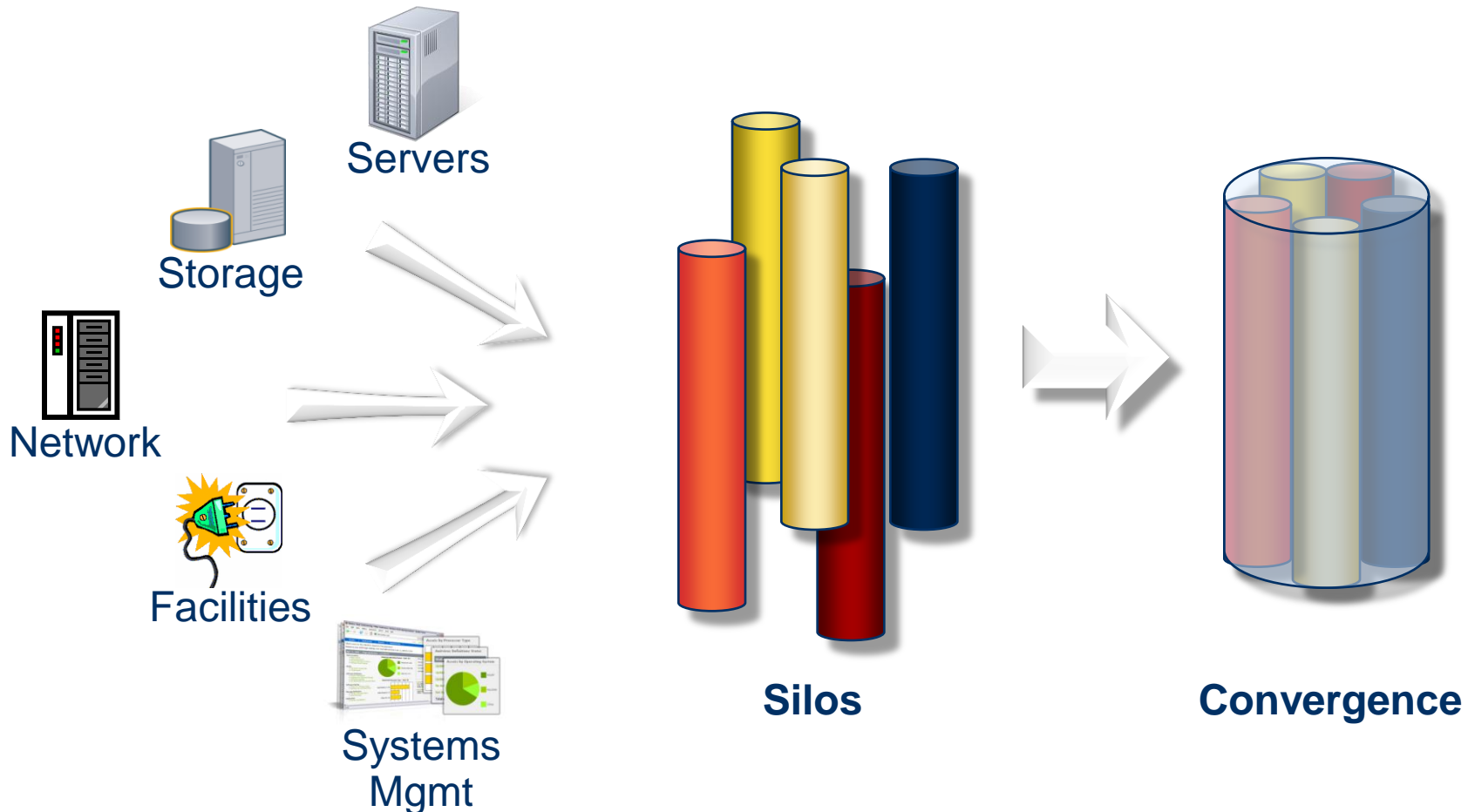
# WHAT ABOUT PRIVATE CLOUDS?



# Virtualization and Private Cloud



# What is Converged IT?



Converged IT Infrastructure Integrates  
Server, Storage & Network Infrastructure as Resource Pools,  
to be Assigned as Needed to Business Services

# Converged IT Maturity Map

## Phase 1

Integration of traditional hardware functionality (e.g. combining servers, storage, and network in standard bundles or Pods)

## Phase 2

The second phase will witness tight integration of systems management and control software into hardware functionality

## Phase 3

Integration of services provisioning and coordinated resource management across Pods and data centers

Converged IT Maturity is a Function of the IT Organization, Not Necessarily the Technology . . .



# Tips for Making the Move to Converged Infrastructure and Private Clouds

## Clearly Understand The Impact Of Network Convergence

- Converged Infrastructure requires enhanced I/O and networks

## Embrace Standardization

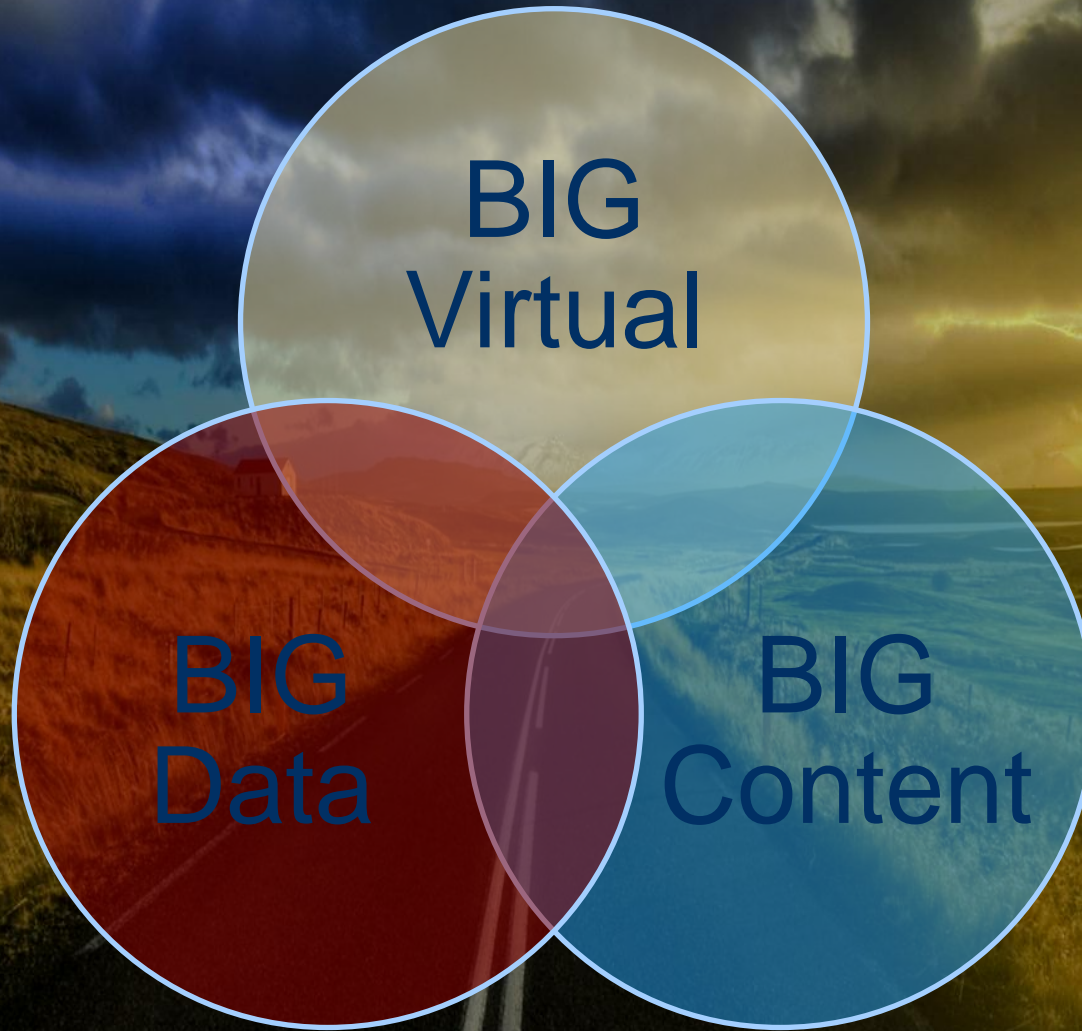
- Legacy systems need a seamless transition path

## Implement A Mature Approach To Management Operations

- Invest in performance monitoring & analytics
- Install a charge back system



# The Coming Age of Big IT



# Big Content: Accelerating “Digitization”

Many industries have transformation agendas for the next 5 years

- Media/entertainment
- Healthcare (EMR)
- Mobile services (data services)
- Legal (eDiscovery)
- Physical Security  
(IP-based surveillance)

Collect, Archive, Deliver

- Business centric vs. IT centric
- Rethink long term archiving





# Big Content Example: Data-Intensive Social Networks



400M 'active' users  
60M status updates/day  
10B comments/mo  
20M videos uploaded/mo  
25M photos uploaded/mo

Assumption

Annual Footprint

10MB/user	4,000TB
0.25KB/update	5TB/yr
0.125KB/comment	15TB/yr
0.125KB/video	1,920TB/yr
0.125KB/photo	3,000TB/yr



~14,436 Terabytes of Content  
Creation in 2010

1TB/yr



2.5TB/yr



3M photo uploads/day

1MB/photo

1,096TB/yr



70M members  
1 new member every sec

0.1MB/profile

7TB

0.1MB/profile

3TB/yr

# Consumption VS Creation

624PB/yr	260B pg. views/mo
192PB/yr	2B vid. views/mo
9,131PB/yr	2B vid. views/day
0.5PB/yr	4.4B pg. views/mo
56PB/yr	30.4M views/day
0.2PB/yr	1.9B pg. views/mo



10MB/user	4,000TB
0.25KB/update	5TB/yr
0.125KB/update	15TB/yr
8MB/video	1,920TB/yr
100KB/photo	3,600TB/yr

12.5M	<b>14PB</b>	3,787TB/yr
125Bytes/tweet		2.4TB/yr

1MB/photo	1,096TB/yr
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0.1MB/profile	7TB
0.1MB/profile	3TB/yr

# Consumption VS Creation

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1MB/video	1,096TB/yr
1MB/photo	3,600TB/yr

**14PB**

Creation

**10,003PB  
Delivered**

Consumption

125MB/video	3,787TB/yr
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# So, What Is Big Data?

Big Data is about large collections of data or information that present a complex range of analysis and use challenges:

- Heterogeneous data from multiple sources, often structured and unstructured
- High volume (size and/or rate) of data that is dynamic and changing, rather than static
- Unpredictable contents—no apparent schema or structure
- A requirement for real time or near real time collection, analysis, and access

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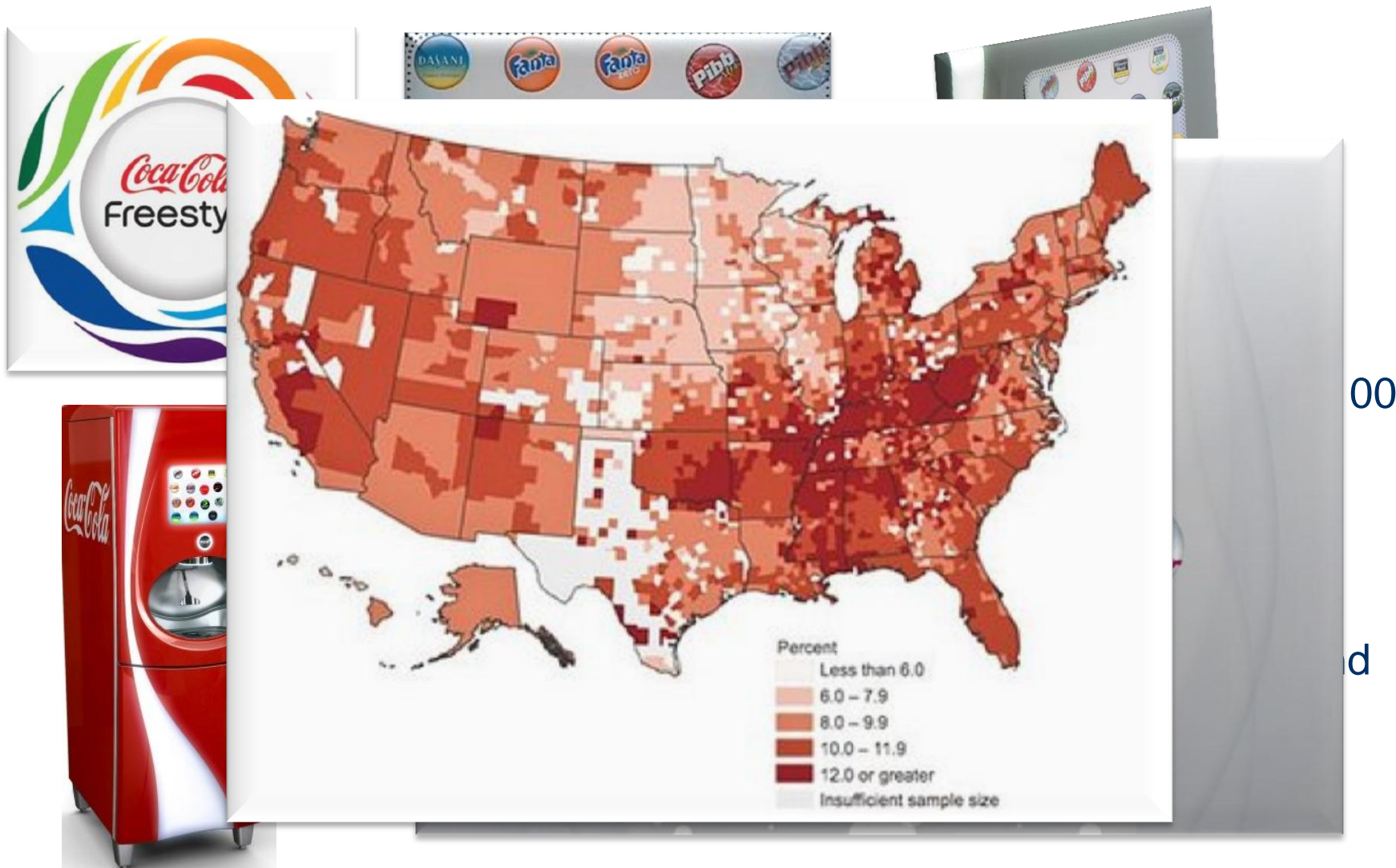


Coca-Cola  
freestyle





# Real-time Value in a Connected World





# Essential Guidance

## Rethink Your IT Organization For Clouds



- Information Facilities Team
  - Build, run, and optimize the “stuff “ in transformed data centers
  - Less about administering individual components and more about ensuring the entire facility is performing optimally
  - Data center architects will be the primary evaluators of public and private cloud infrastructure options
- Information Services Team
  - Face of IT when someone wants a new capability (e.g. Big Data)
  - Leaders in transition to a more services-orient IT model and evaluators of cloud-based platform and application services.
  - Comprehends the full life cycle of an application/service from idea, to launch, to refresh, to end of life
- Information Access Team
  - Ensuring the "right" people securely access information anytime and on any desired device (laptop, smartphone, or smart tablet)

# Questions?



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