Rethinking Enterprise Computing
How to Mix Cloud, Infrastructure, and End User Computing to Reach Your Business Objectives

David Linthicum, SVP, Cloud Technology Partners

events.techtarget.com

Agenda

- The problems and opportunities of cloud computing…what works, and what does not.

- How to consider infrastructure around the adoption of cloud computing.

- How to consider end-user computing around the adoption of cloud computing.

- How to ready a cloud computing roadmap, including what's important and what's not.

- How to understand your own business issues and define a path forward.

- How to create a cloud computing strategy that will work now, and take you into the future.

The Problems and Opportunities of Cloud Computing… What Works and What Does Not

Reflecting on the Hype

- *Gartner* - Cloud computing revenue will soar faster than expected and will exceed $150 billion within five years.
- *Forrester* - Cloud-based email is often cheaper than on-premise email.
- Vivek Kundra, CTO of Obama Government: "Growing adoption of cloud computing could improve data sharing and promote collaboration among federal, state and local governments." E.g: fedbizopps.gov
- Merrill Lynch: "By 2011 the volume of cloud computing market opportunity would amount to $160bn, including $95bn in business and productivity apps (email, office, CRM, etc.) and $65bn in online advertising."
- IDC: "Spending on IT cloud services will triple in the next 5 years, reaching $42 billion and capturing 25% of IT spending growth in 2012."

Data centers Emerge

Rise of Timesharing

Distributed Computing

Grids

1940

1950

1960

1970

1980

1990

2000

2010

Rise of the PC

Rise of Client/Server

Rise of the Web

Rise of "The Cloud"

Hardware/Software/Infrastructure On-Demand

2010

2012

Rise of
"Big Data"

2014

Rise of
"IT In-a-Box"

Rise of
"Home
Clouds"

IT On-Demand

2016

Rise of
"Commodity
Data Services"

2018

Distributed
Service Sharing

The "Big
Migration" Begins

2020

Rise of Shared
Enterprise Business
Services

2022

2024

From Hype to Growth

Public Cloud Services Market and Annual Growth Rate, 2010-2016
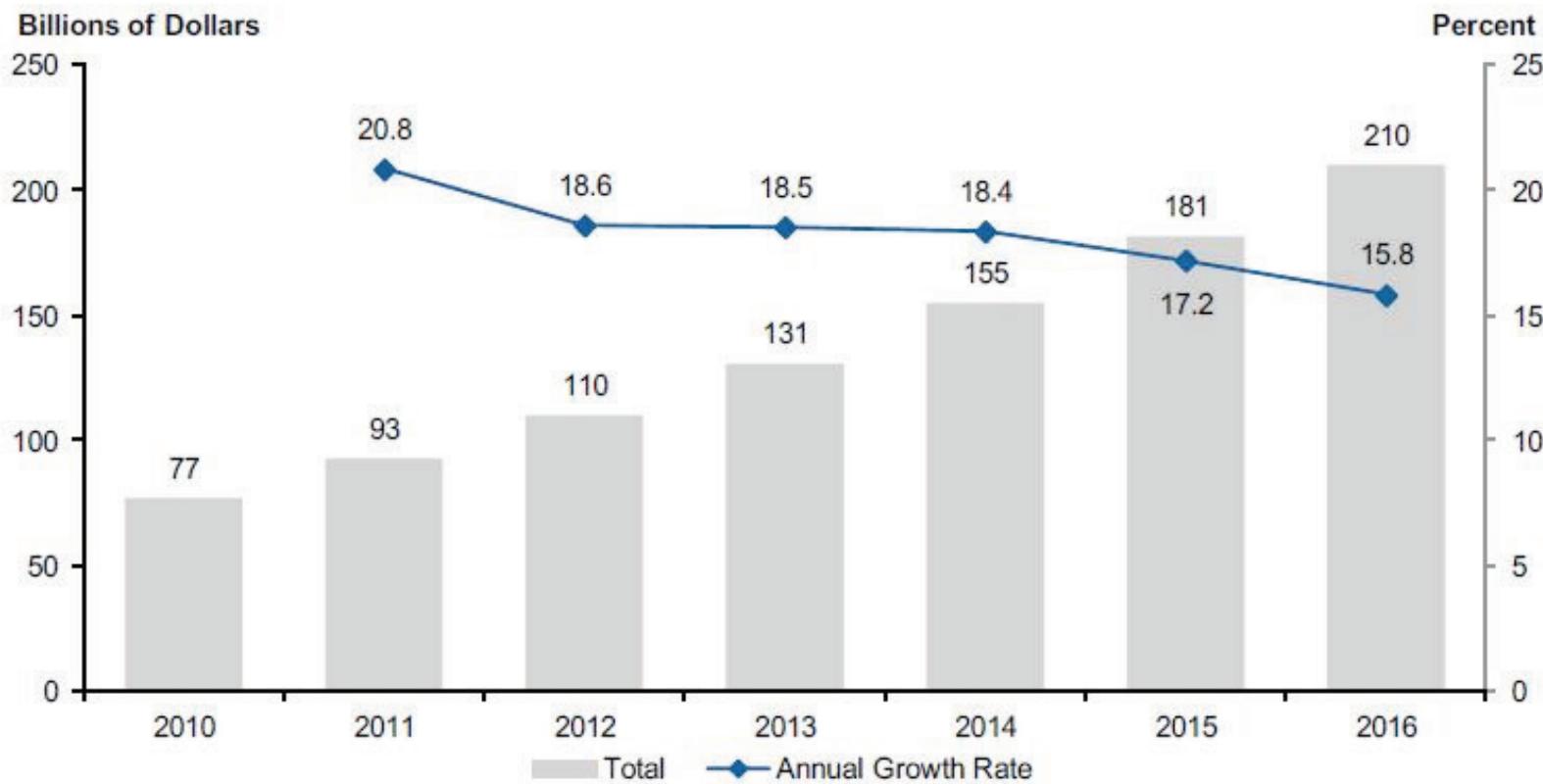
Source: Gartner (February 2013)

Data is the "Killer App" for Cloud
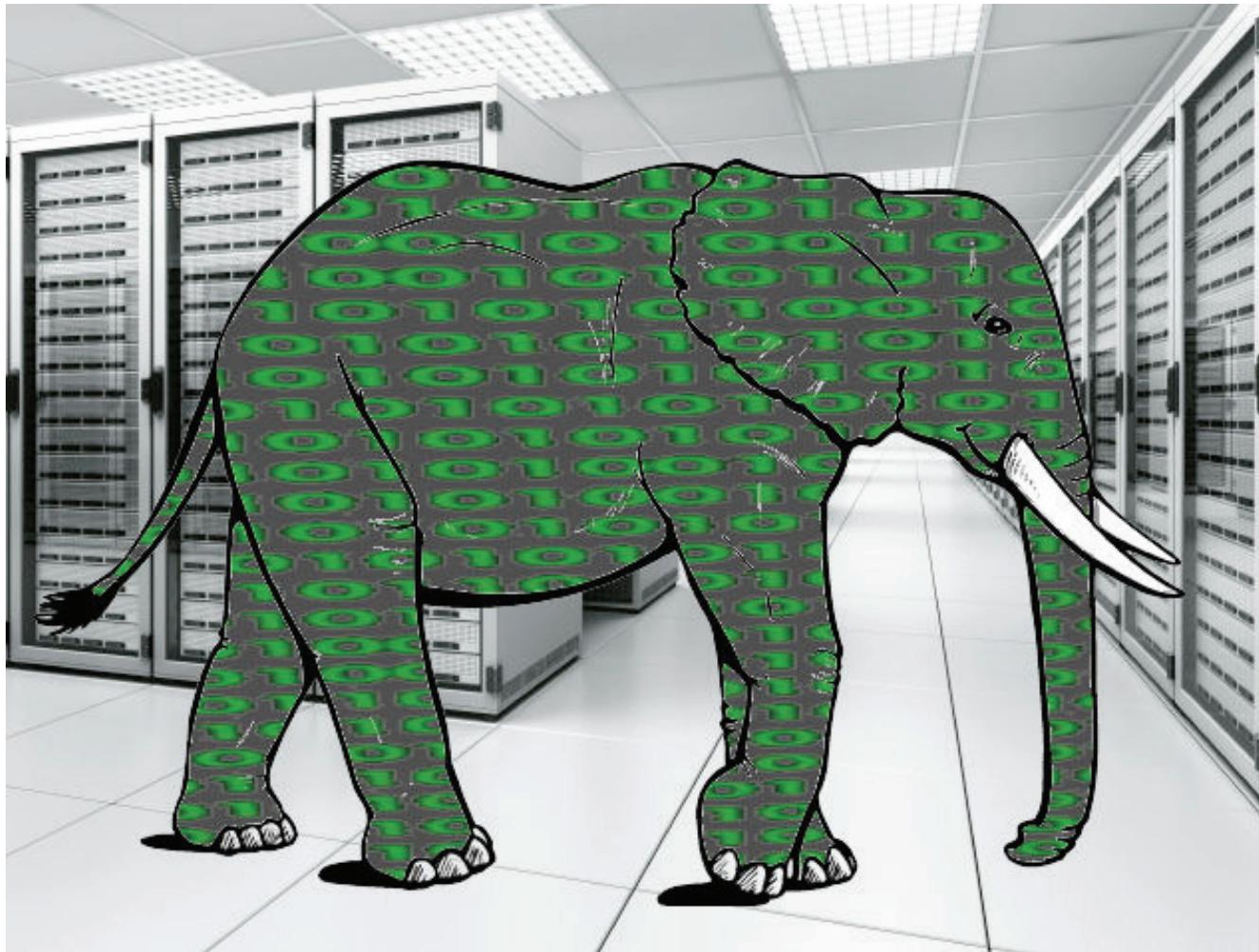
Big Data Trends

- Data aggregation in the cloud for common analytics within verticals.

- Combining enterprise data into common data sets.

- Critical BI.

NIST defines cloud computing as a set of characteristics, delivery models, and deployment models

5 Characteristics

- *On-demand self-service*
- *Ubiquitous network access*
- *Resource pooling*
- *Rapid elasticity*
- *Pay per use*

3 Delivery Models

- *Software as a Service (SaaS)*
- *Platform as a Service (PaaS)*
- *Infrastructure as a Service (IaaS)*

4 Deployment Models

- *Private Cloud*
- *Community Cloud*
- *Public Cloud*
- *Hybrid Cloud*

Delivery Models Morphing

- Software as a Service (SaaS)
  - Applications as a Service
  - Utilities as a Service
  - Connected and Disconnected
- Platform as a Service (PaaS)
  - Design as a Service
  - Process as a Service
  - Testing as a Service
- Infrastructure as a Service (IaaS)
  - Database as a Service
  - Management as a Service
  - Middleware as a Service
  - Integration as a Service
  - Information as a Service
- …And more.

Newer and More Comprehensive and Complex Stack is Emerging

Testing-as-a-Service

Management/Governance-as-a-Service

Security-as-a-Service

Integration-as-a-Service

Software-as-a-Service

Process-as-a-Service

Information-as-a-Service

Database-as-a-Service

Storage-as-a-Service

Platform-as-a-Service

Infrastructure-as-a-Service

What Works in the Cloud:

- The ability to expand storage quickly, and at a lower cost.

- DevOps, around the use of PaaS.

- Large and highly expandable data systems.

- SaaS-delivered enterprise applications.

- New or small business support.

- High performance computing on-demand.

- Office automation applications.

What Does Not Work in the Cloud:

- Most legacy system migrations.
- Systems that require a high degree of security.
- Systems that are subject to a lot of regulatory control.
- Systems that need to be tightly integrated with local systems and data.
- Enterprises that have made a significant investment in hardware and software.
- Enterprises with substandard network infrastructure.

How to Consider Infrastructure Around the Adoption of Cloud Computing

Consider the New Architecture

Enterprise data center	Third-party hosted	Third-party hosted and operated		
Enterprise data center	**Enterprise data center**	**Enterprise**	Enterprise A / Enterprise B	Users / A / B
Private cloud	Managed private cloud	Hosted private cloud	Shared cloud services	Public cloud services

Private cloud
- Private
- Implemented on client premises
- Client runs/manages

Managed private cloud
- Third-party operated
- Enterprise owned
- Mission critical
- Packaged applications

Hosted private cloud
- Third-party owned and operated
- Standardization
- Centralization
- Security
- Internal network

Shared cloud services
- Mix of shared and dedicated resources
- Shared facility and staff
- Virtual private network (VPN) access
- Subscription or membership based

Public cloud services
- Shared resources
- Elastic scaling
- Pay as you go
- Public Internet

Corporate Firewall

Source: Jimmy Mills, IBM

Cloud is Changing Enterprise Buying Patterns

New Economic Model for the Datacenter

Worldwide Spending on Servers, Power and Cooling, and Management/Administration
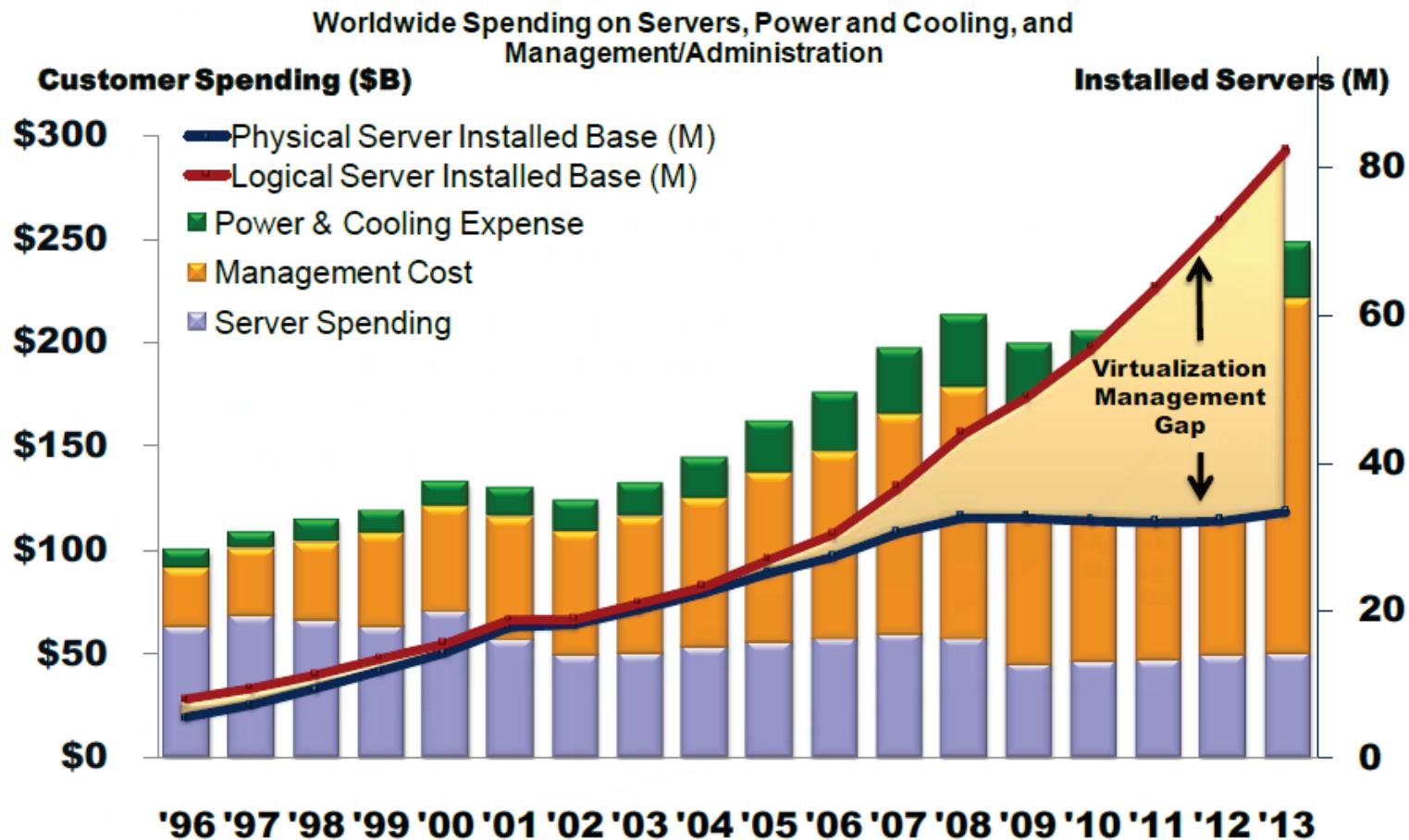
Source: IDC, 2011

Is Your Network Ready For Cloud Computing?

Source: Colin McNamara
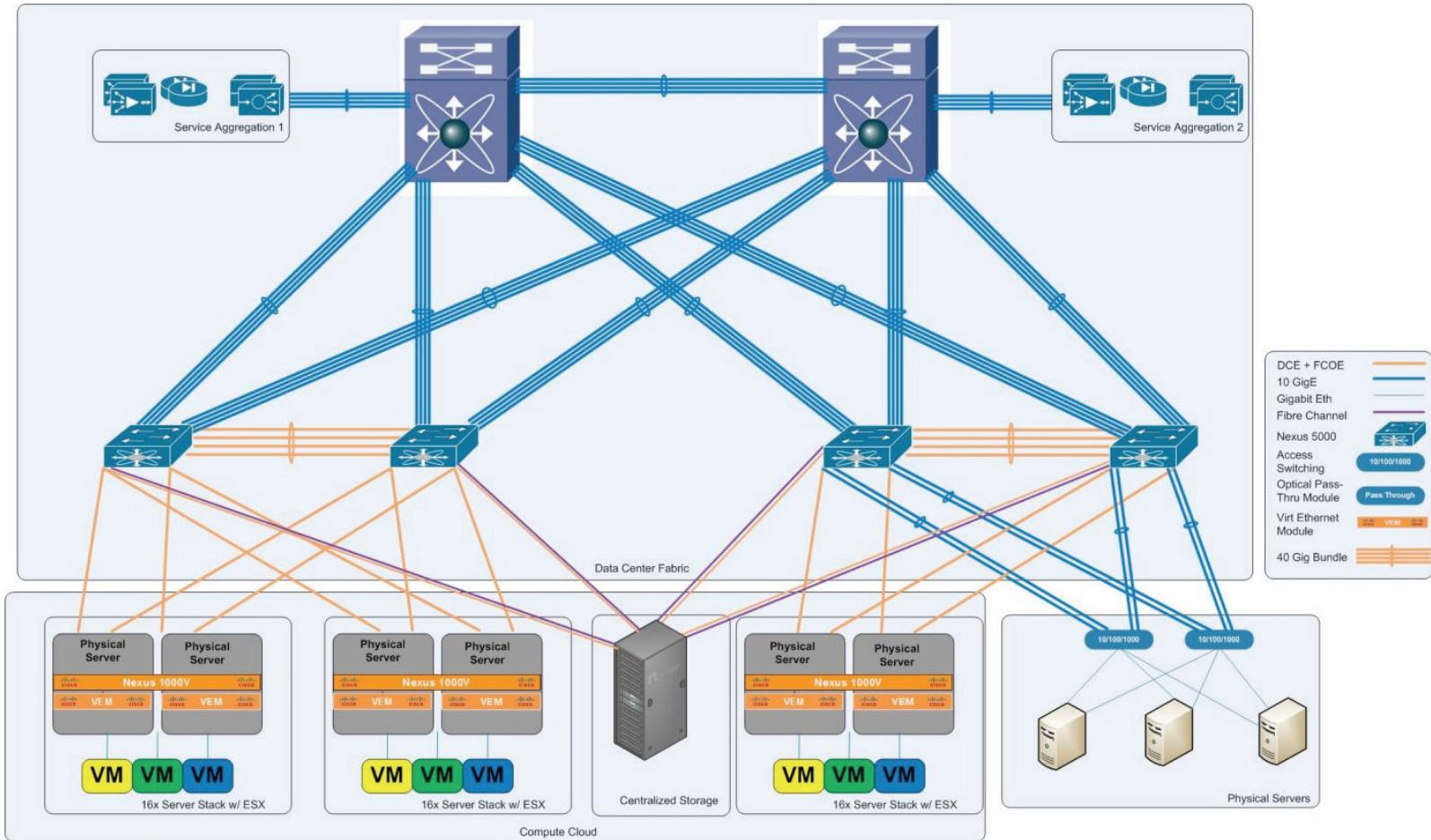
What I've Learned:

- Cloud-based infrastructure (e.g., storage and compute), should be considered an extension of your existing enterprise infrastructure.

- Check your networks. Many enterprises will need to upgrade network infrastructure before moving to public, or even private cloud computing.

- Check your data center. Most enterprise data centers are not ready for the cloud, and upgrading and retraining will have to occur.
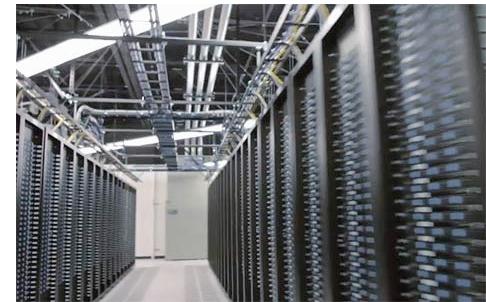
How to Consider End-user Computing Around the Adoption of Cloud Computing

Different View of EUC

- **"Brian Gammage**, Chief Market Technologist at VMware says the way to accommodate shifting end user computing demands is to attack the problem at the point where resources are accessed, which will break the inertia of "configuration standardization" and allow us to accommodate change."

- **"John Fanelli**, Vice President of Product Marketing, Enterprise Desktops and Applications at Citrix says it is all about building Personal Clouds, enabling employees to use any device to access their collaboration tools, data and applications."

Source: Network World

It's About "User Oriented Clouds"

Source: Everest Group

"The convergence of network capacity/availability, technology, and applications are about to create a whole new EUC experience both personal and professional – the cloud!"

- Rick Lucas
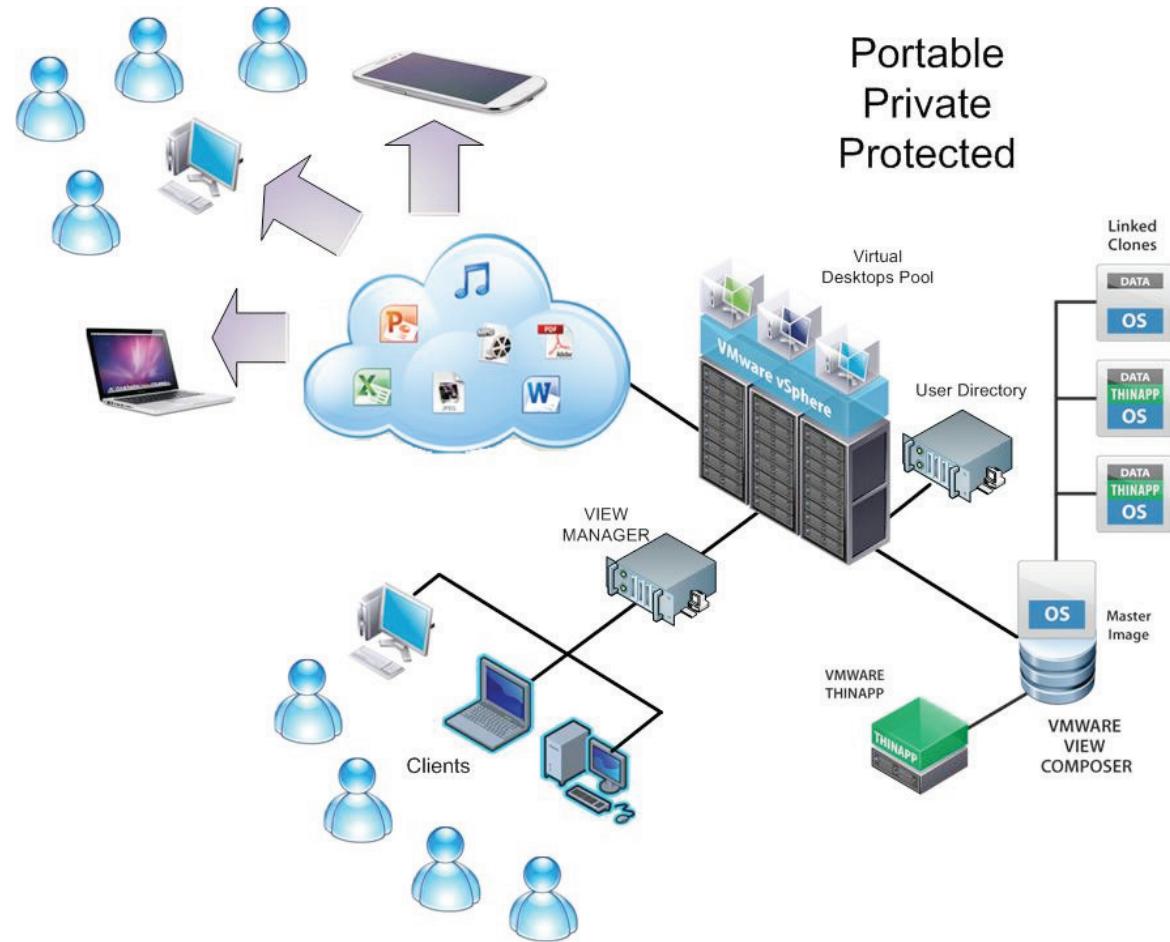
We're Using More Devices…Duh!

The spreadsheet associated with this figure contains details about this forecast methodology.

2-1 There will be 2 billion personal device sales in 2016, but most market growth is in mobile

Global personal computing device sales by OS
(units, millions)

Legend:
- Other
- Microsoft
- Proprietary Android brands
- Google
- Apple
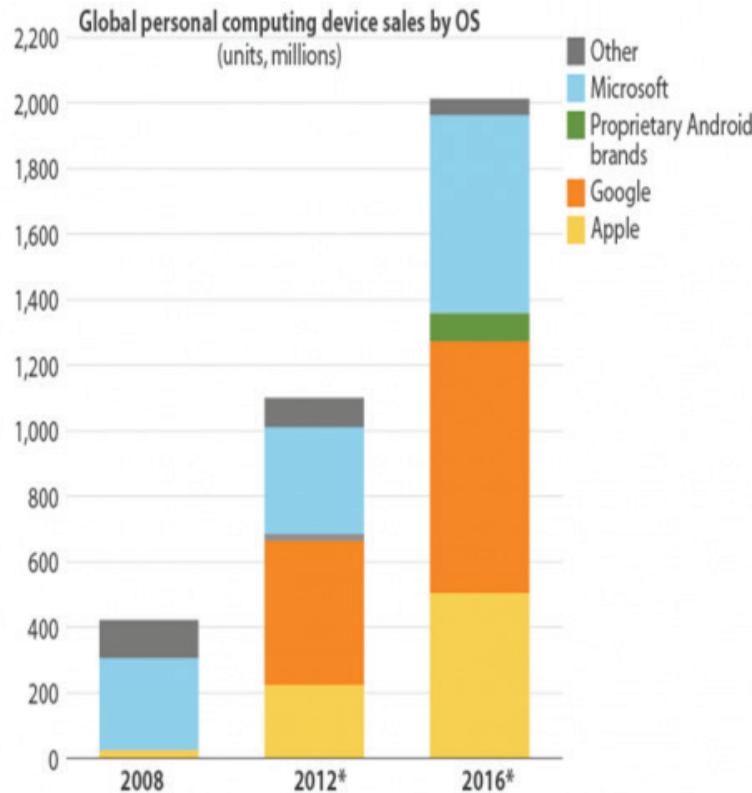
Note: Forecast includes annual estimates of global IT and consumer purchased devices in 62 leading countries.
Source: Forrester Research; company reports.
*Forrester forecast

How to Ready a Cloud Computing Roadmap, Including What's Important and What's Not

Everyone Has an Approach to This…
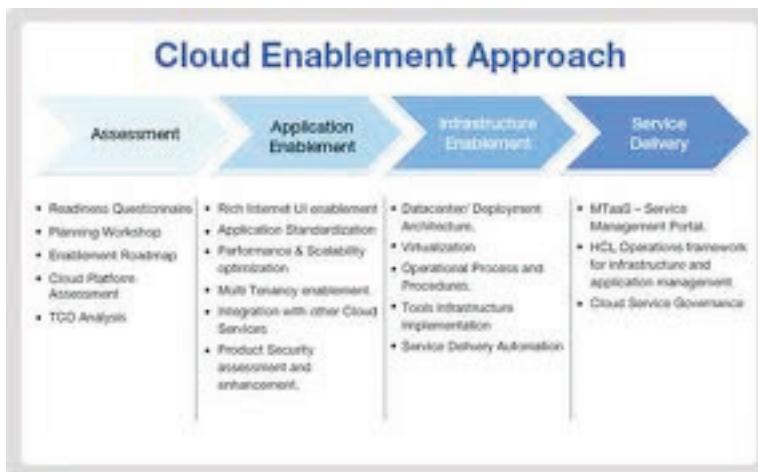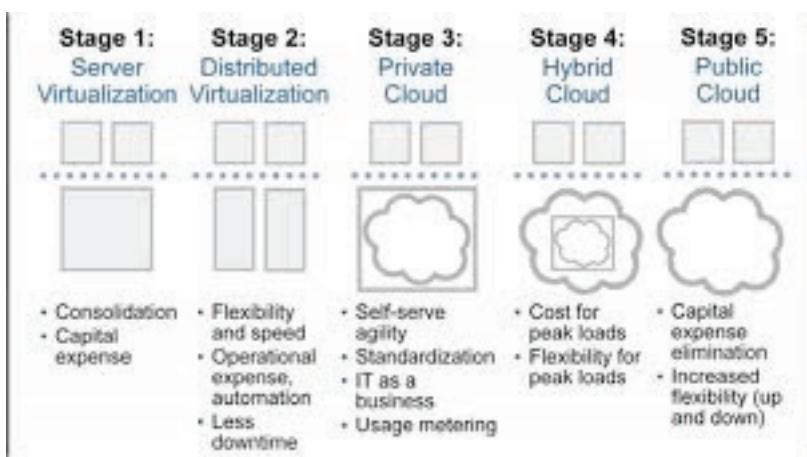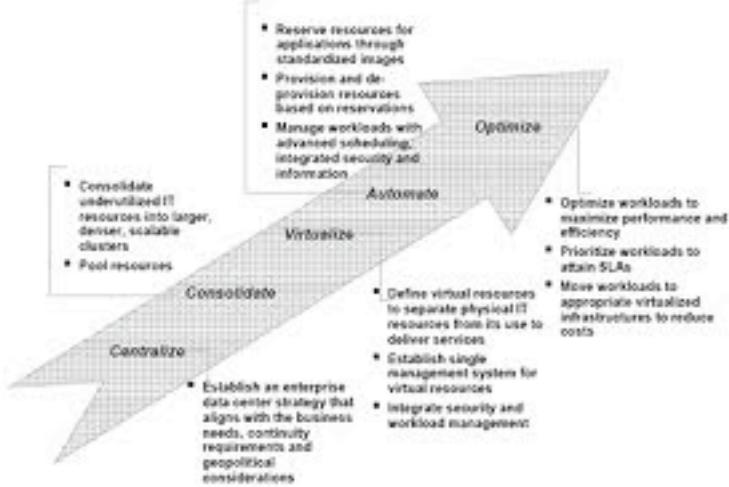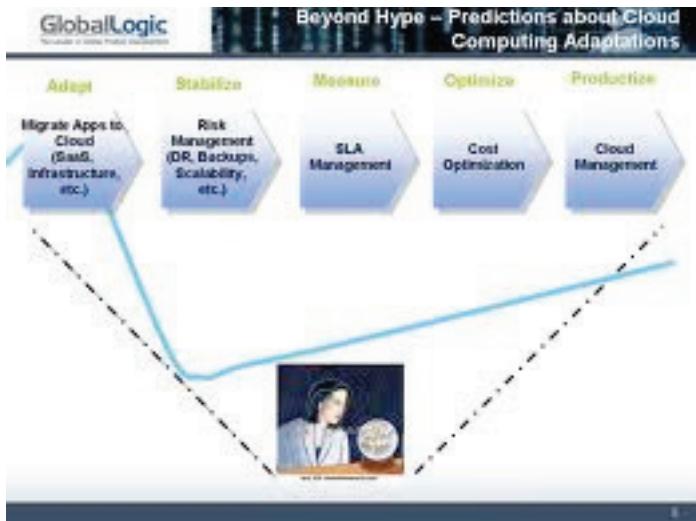
What's Important:

- ***Understand your business.*** This leads to the right cloud technology solutions.

- ***Understand your users.*** They ultimately decide if the movement to cloud computing is successful.

- ***Understand the technology.*** There are hundreds perhaps thousands of solution approaches and cloud technology providers.

- ***Define success.*** What are the objectives of moving to the cloud?

- ***Security, governance, and performance.*** Often overlooked. New models and technology typically required.

What's Not Important:

- **The hype.** Avoid following the crowd. What seems popular is likely not the correct solution for your enterprise.

- **The operational ROI.** Most of the money is made around the additional business agility.

- **FUD.** The fears around using cloud-based systems are typically inaccurate.

How to Understand Your Own Business Issues and Define a Path Forward

# The Operational Benefits Are Obvious
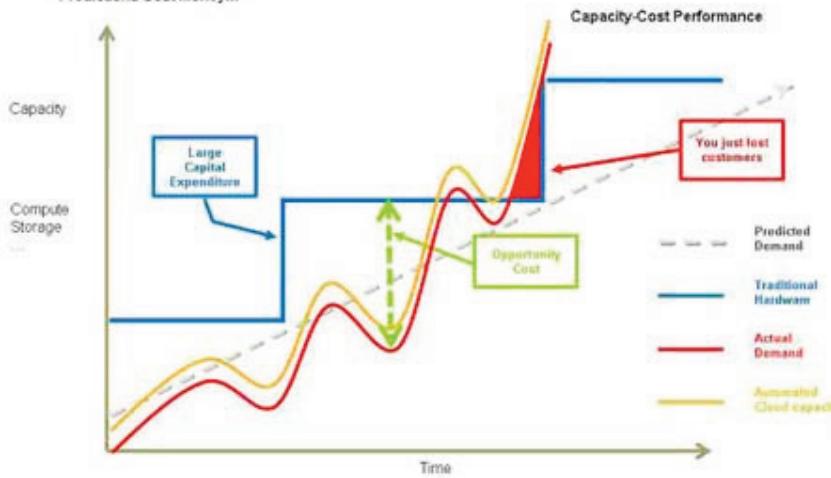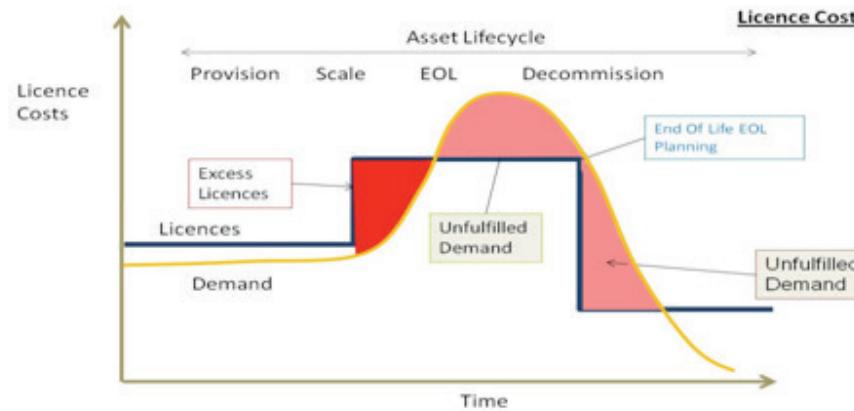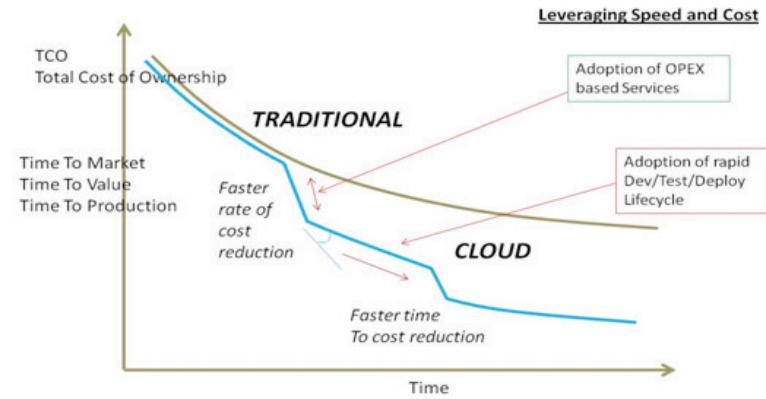
Business Agility is the Objective


Fig. 5.2 Reasons for Moving to Cloud Computing

| Reason	Percentage
Business agility	49%
Cost efficiency	46%
Leverage core competencies and free IT resources to focus on innovation	22%
Disaster recovery and business continuity	13%
Part of a green initiative	3%
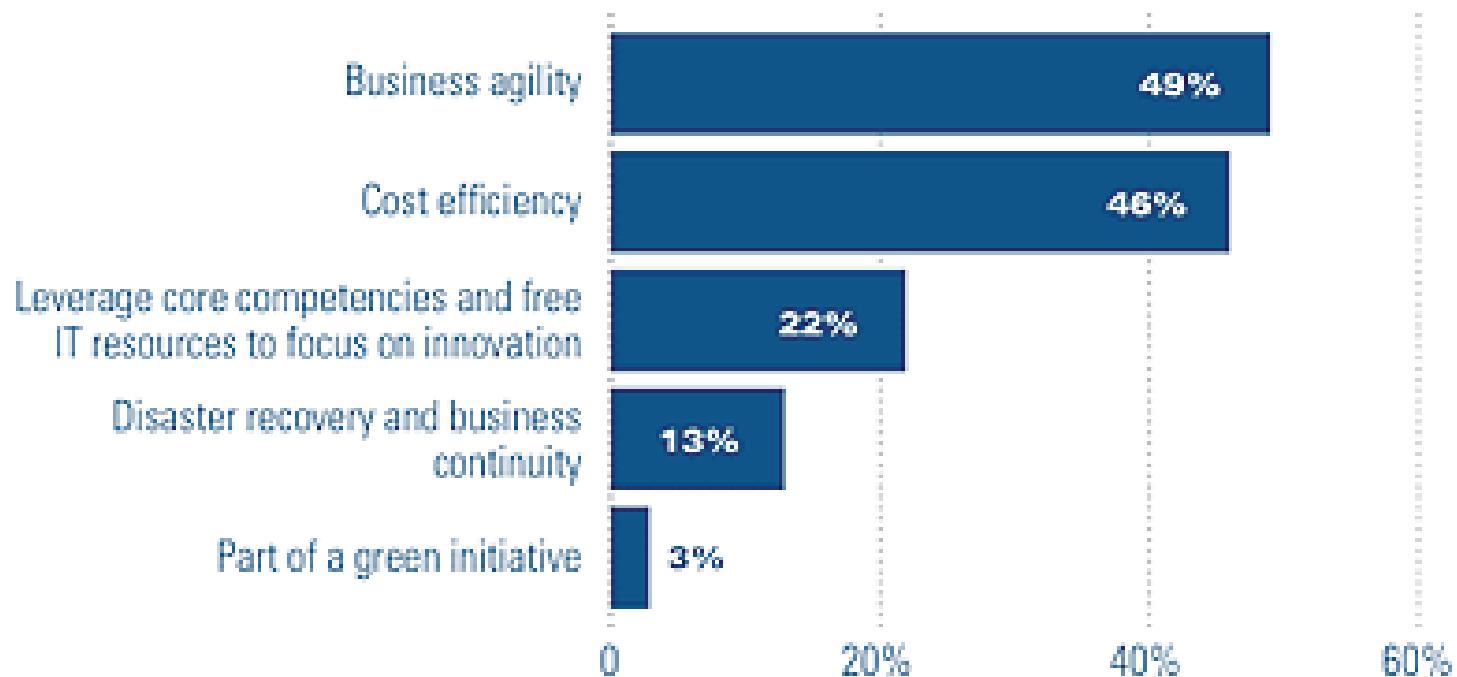
**Source:** Sand Hill Group Cloud Computing Survey 2010
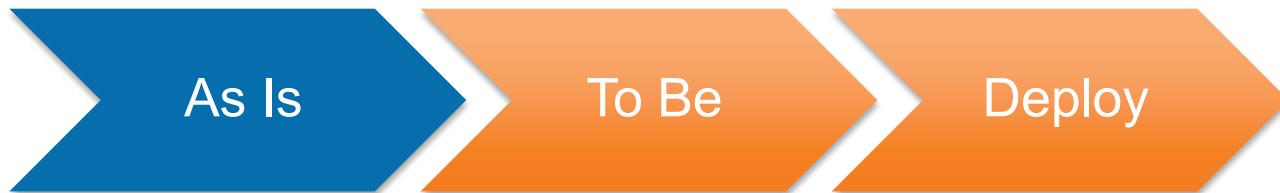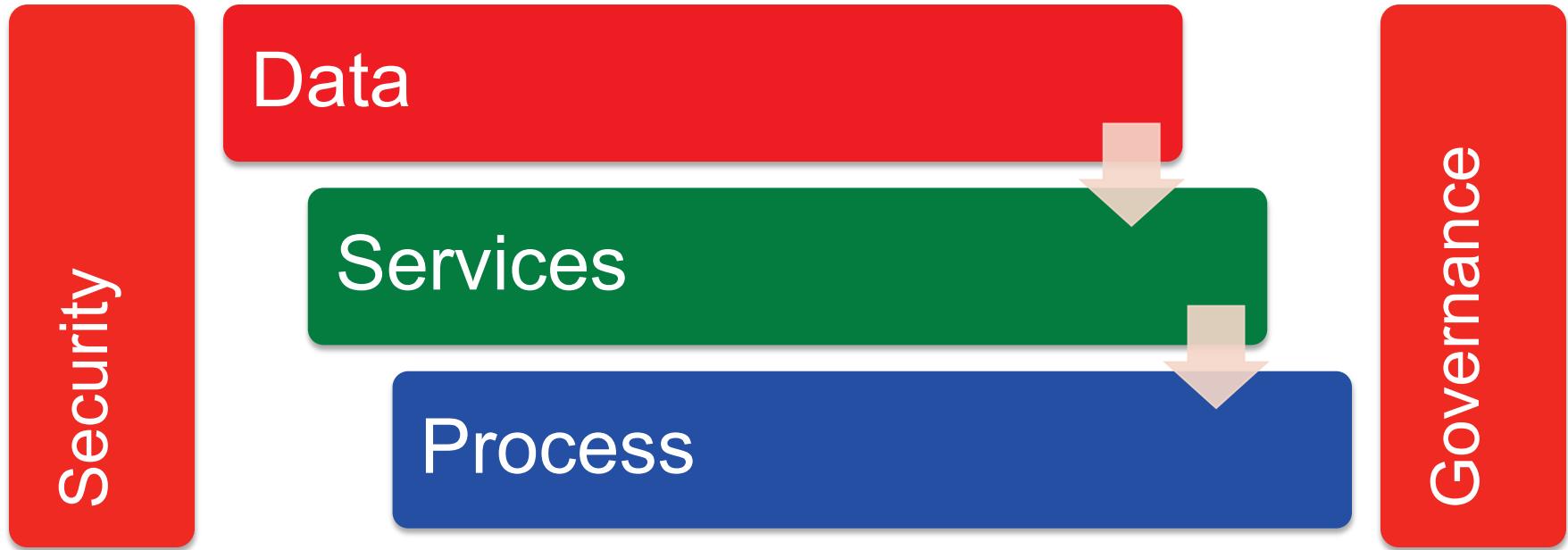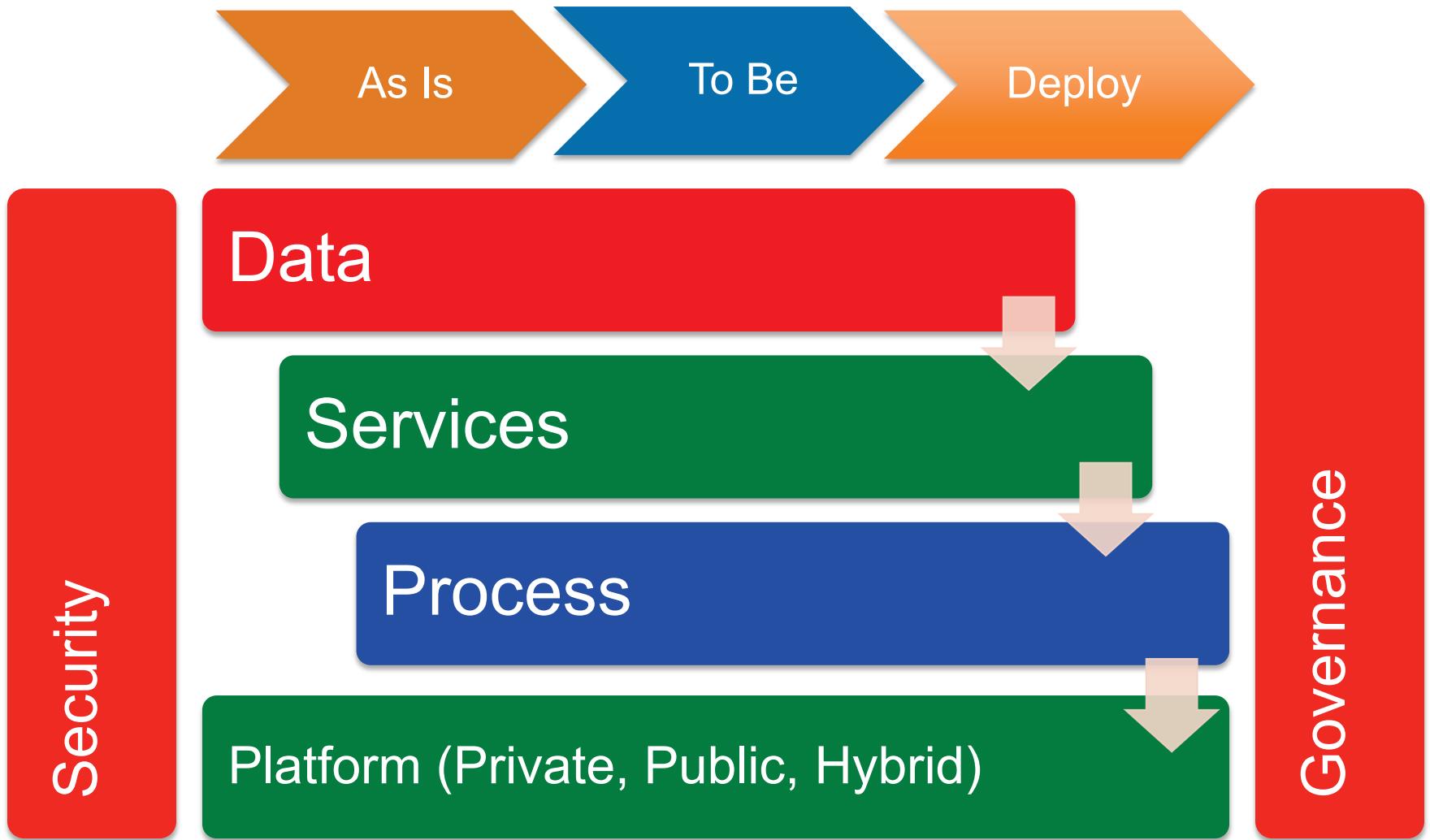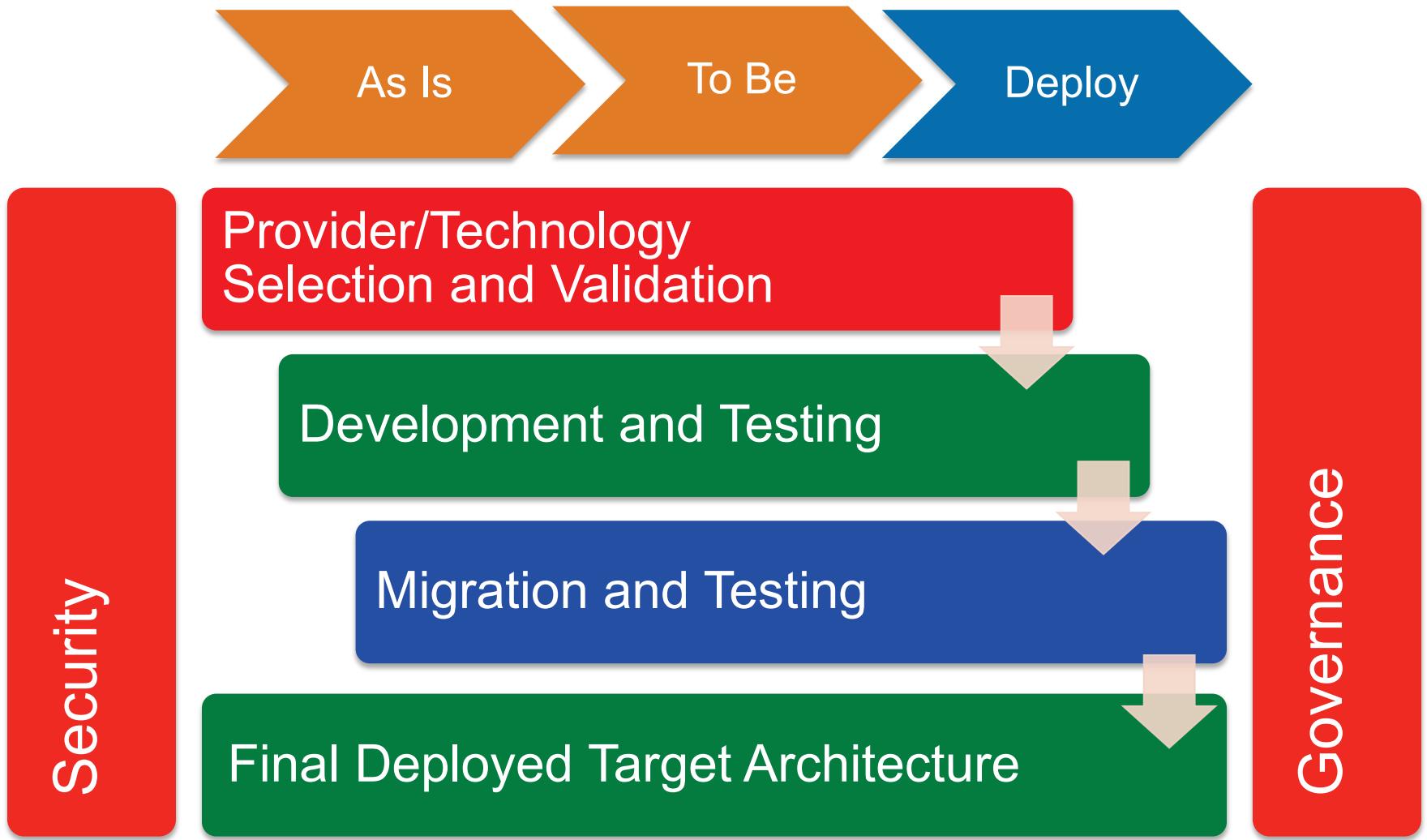
Stepping to the Clouds

1. Access the business.
2. Access the culture.
3. Access the value.
4. Understand your data.
5. Understand your services.
6. Understand your processes.
7. Understand the cloud resources.
8. Identify candidate data.
9. Identify candidate services.

10. Identify candidate processes.
11. Create a governance strategy.
12. Create a security strategy.
13. Bind candidate services to data and processes.
14. Relocate services, processes, and information.
15. Implement security.
16. Implement governance.
17. Implement operations.

How to Create a Cloud Computing Strategy That Will Work Now, and Take You into the Future

Source: http://talkcloudcomputing.com/wp-content/uploads/2012/05/strategy-cloud-computing.jpg
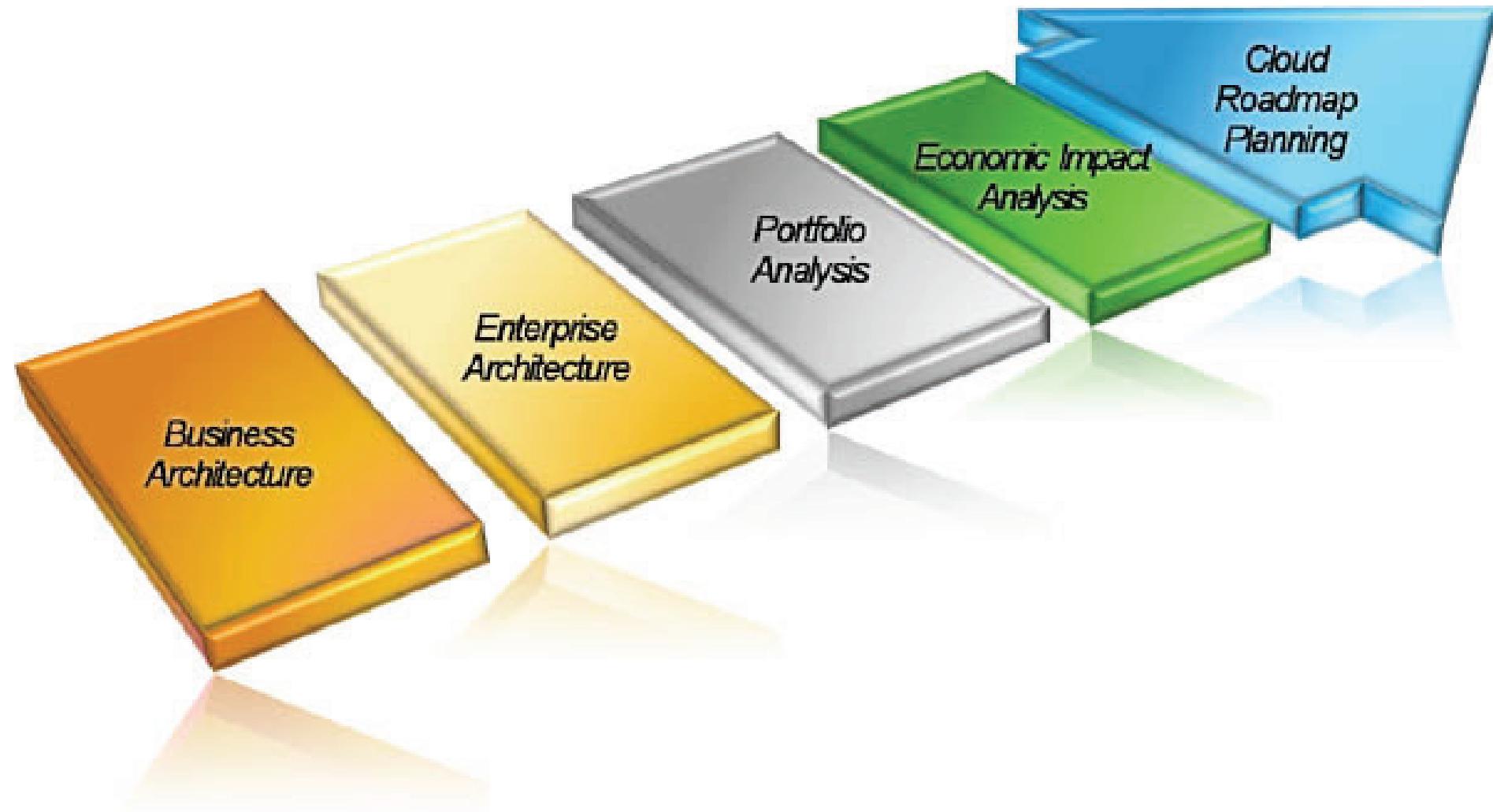
Components of the Strategy

1. Business Case
   a) Operational
   b) Business Agility
2. Requirements and Architecture
   a) Data
   b) Processes
   c) Services
   d) Applications
3. DevOps
4. Infrastructure
5. Security
6. Performance
7. Governance
8. Technology Analysis
9. Migration Planning
10. Test Planning
11. Acceptance Planning
12. "Rinse and repeat"

Business Architecture — Enterprise Architecture — Portfolio Analysis — Economic Impact Analysis — Cloud Roadmap Planning
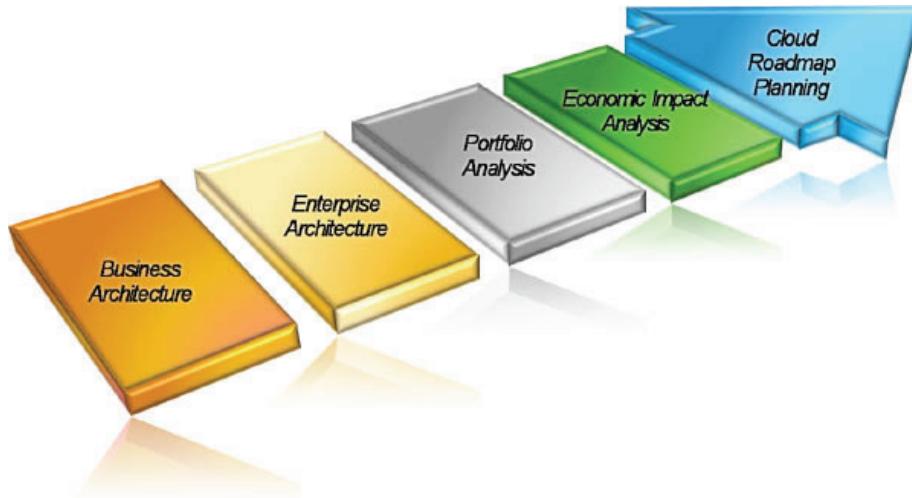
What I've Learned

1. This is a long term systemic change, that requires support from the top.

2. Don't lead with the technology. Lead with the business and user requirements.

3. This is about architecture and planning, not a shift in technology.

4. Splurge on training, and acquire the talent you need.

5. Dial in a few mistakes. Typical issues around the adoption of new technology.

6. Trust but verify. Testing will validate the solution.

7. Start small, and low risk.

Thank You! Questions?

Keep in Touch

- David.linthicum@cloudtp.com

- @DavidLinthicum

- www.cloudtp.com

- www.davidlinthicum.com

- Blogs:
    - InfoWorld
    - GigaOM Pro
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Where serious technology buyers decide