



# Developing a Cloud Strategy

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Public Sector Manager  
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# Today's Key IT Challenges

## Security

70% of respondents saying security is top concern in moving to public cloud<sup>1</sup>



## Efficiency

Today's technology would require building 45 new coal power plants to support 2015 IT infrastructure<sup>2</sup>

## Manageability

IT will spend ~\$2T on deployment and operations thru 2015 unless smarter infrastructure radically simplifies management of virtualized environments



## Lock-in

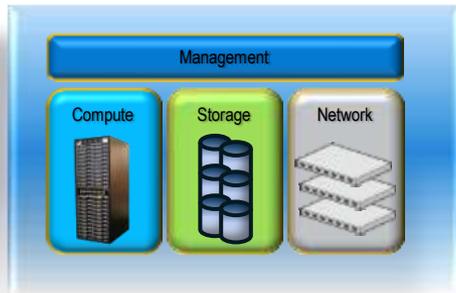
"We have seen lock-in return as a top concern... routinely seeking alternatives to proprietary virtualization and cloud computing technology" the (451)group

**Infrastructure Must Evolve to Address Key Challenges**

1. IDC Market Analysis, January 2010  
2. Source information in speaker notes  
3. Source information in speaker notes

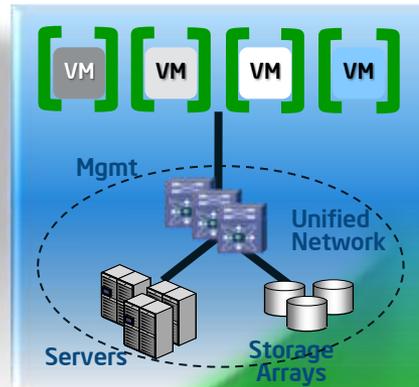
# Evolution of the Datacenter

## Discrete Datacenter



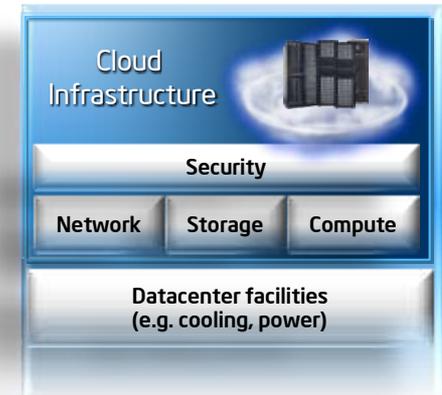
**Consolidation**  
**Discrete networks**

## Virtualized Datacenter



**Flexible Management**  
**10G Unified Network**

## Cloud Datacenter



**Efficient and Secure**  
**Open Architecture**  
**Simplified Network**

**Cloud: Opportunity to save \$25B in annual "excess" IT spend by 2015<sup>1</sup>**

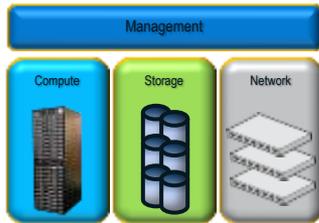
1 source: Source: Cut \$25B in annual "excess" by 2015 making deployment of clouds simpler. Projects out \$142B in annual Bain spending estimates on infrastructure and assumes we can reduce by 15% by 2015. Extrapolating on 2013 yearly estimate of \$142B, assumes 15% reduction. 2013: \$142B spend in infrastructure / support that doesn't add value but is "overhead" of deployment (source: Bain)

# Business Value of Cloud Computing



## Cloud Computing

- An evolution in IT consumption and delivery made available self service via the Internet with a flexible, pay as you go business model
- Requires a highly scalable and efficient Cloud Architecture



## Cloud Architecture

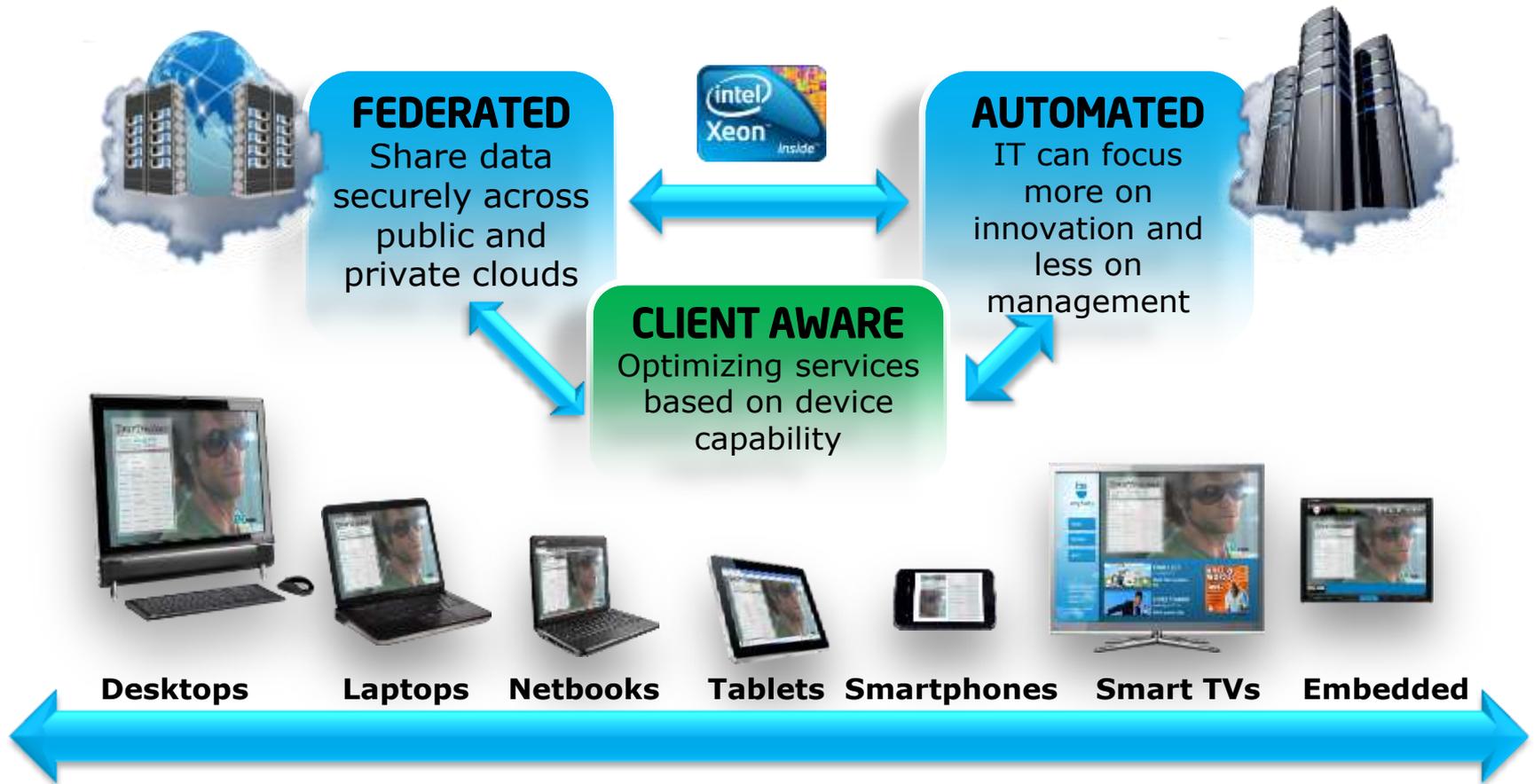
- Data resides in shared, dynamically scalable resource pools
- Based on virtualization and/or scale-out application environments

Multiple stakeholders have varied expectations of cloud....

- **CEO** wants IT to support **business growth**
- **CIO** wants IT to impact **business value**
- **CFO** wants effective IT **asset utilization**
- **Shareholders** want IT to support **business flexibility**

**Cloud Computing provides a services delivery framework**

# Intel's Cloud 2015 Vision



# What is Holding Back the Cloud Today?

## Technology Maturation

Security  
Lack of automation  
More power efficiency  
Standards



## Acceptance of Risk

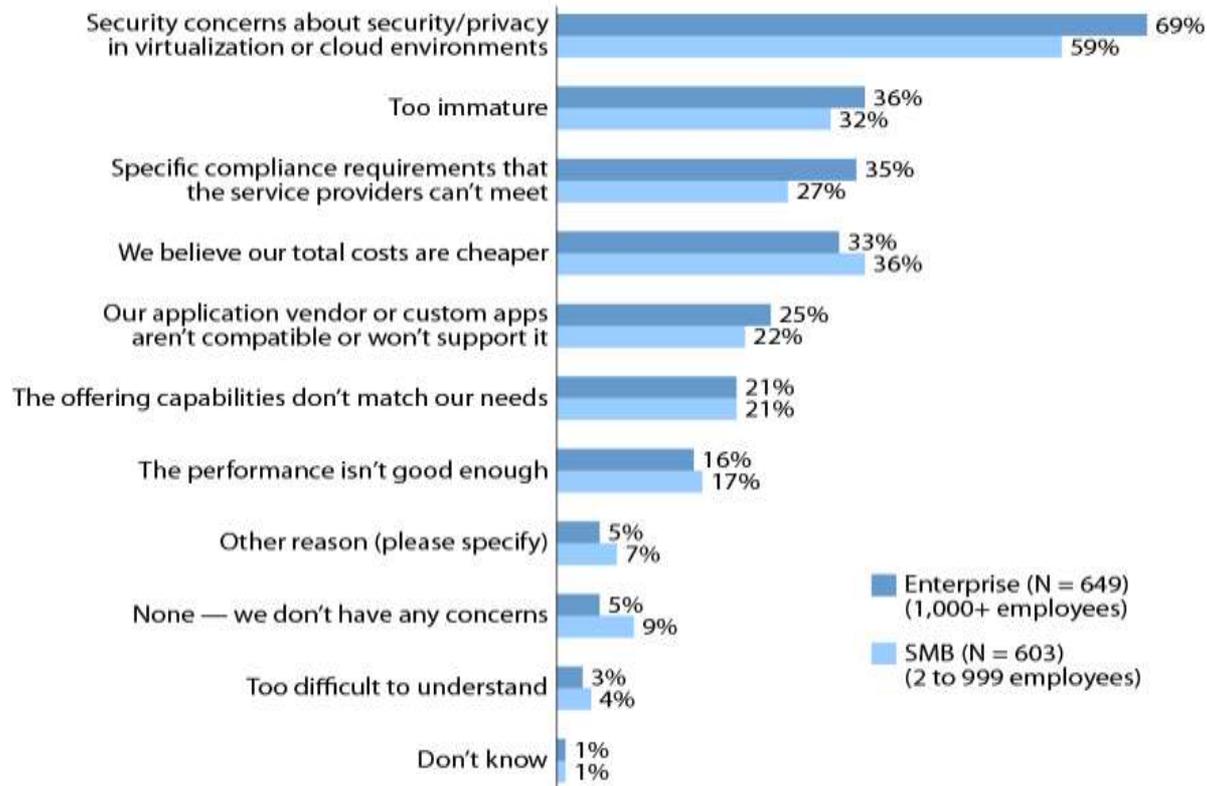
IP protection  
Interoperability and lock in  
Compliance and audit  
Guaranteed quality of service

**A Cultural Shift And Technology Advancement Is Needed**

# Cloud Computing Concerns

## Security Concerns Continue To Cloud The Use Of Public IaaS Offerings

**“What are your firm’s concerns, if any, with pay-per-use hosting of virtual servers (also known as cloud computing infrastructure-as-a-service or IaaS)?”**



Base: 1,252 North American and European IT executives and technology decision-makers

Source: Forrester's Forrsights Hardware Survey, Q3 2010

Forrester Research Inc, November 2010 "Companies Building Private Clouds Focus On Infrastructure But Not Operations"

FORRESTER

Concerns over Security and Compliance drive need for private cloud



# Considering Cloud Deployment

## *Private Clouds*



### **Behind the Firewall**

- ✓ Security
- ✓ Compliance and Governance
- ✓ Interoperability

*Virtual Private and Hybrid clouds*



*Cloud Brokers*

## *Public Clouds*



### **Multi-tenant**

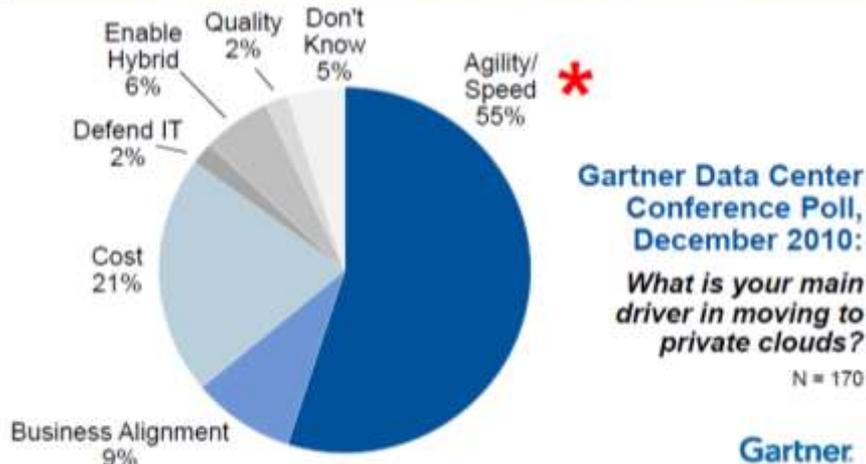
- ✓ Rapid Deployment
- ✓ Reduced Capital Expenditure
- ✓ External vendor expertise

Potential IT strategy: Develop private clouds while adopting best of breed public cloud services

# Value and Evolution to Private Cloud

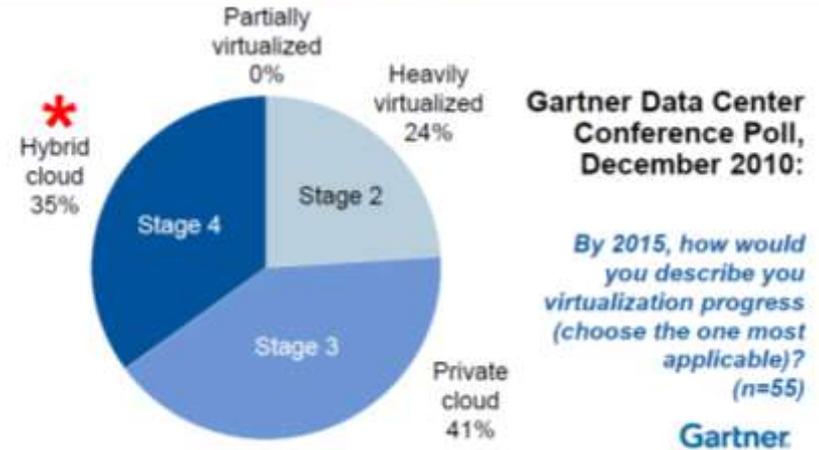
## Private Cloud Drivers<sup>1</sup>

Message: Most customers "get" the idea that private cloud is for agility and speed, not saving money (In other words, an investment)



## Virtualization and Private Cloud Roadmap Plans<sup>2</sup>

Hybrid may be in the future for most customers, but they are already planning for it.

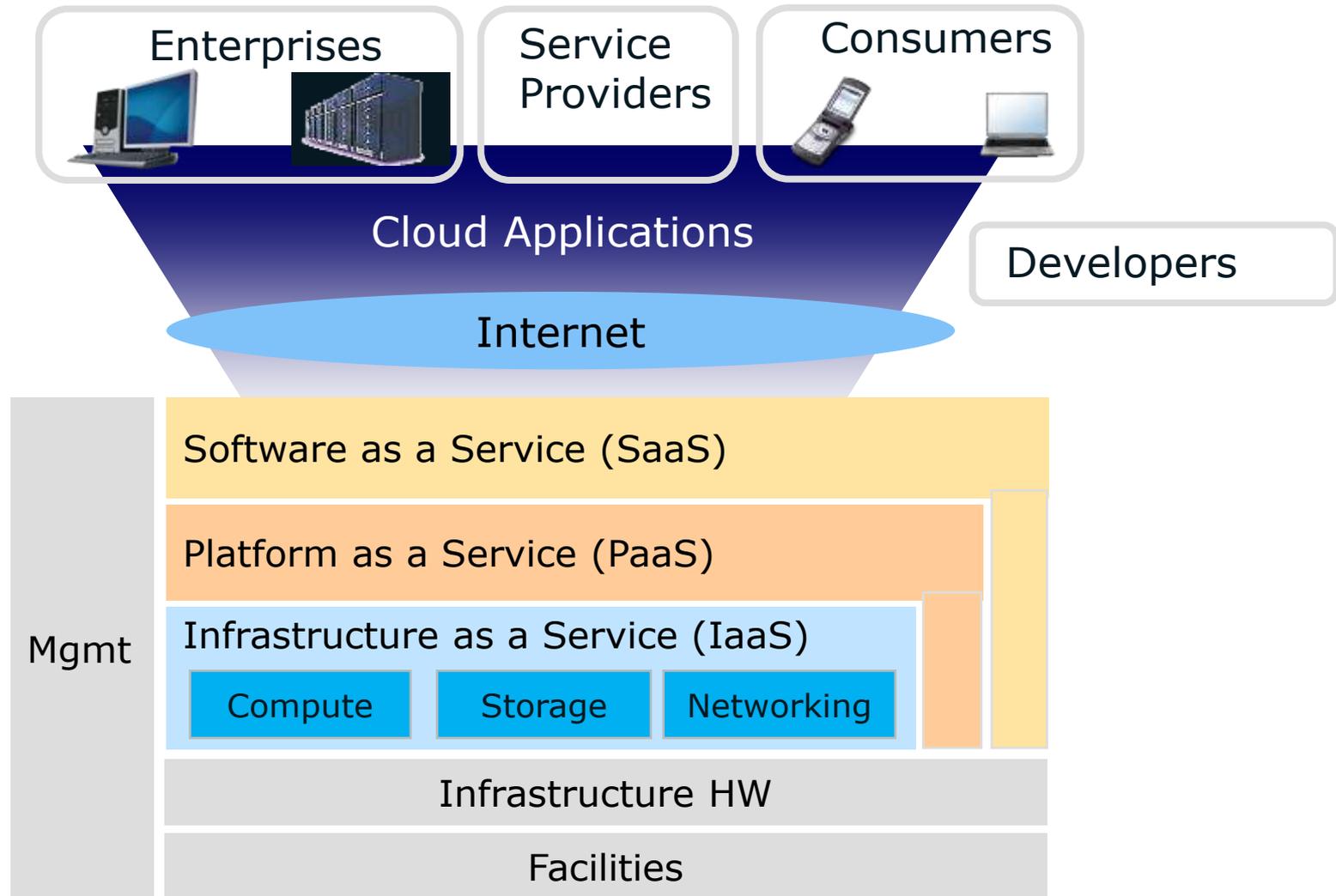


Source: Gartner, December 2010

1 The Drivers and Challenges of Private Cloud Computing (G00210705)

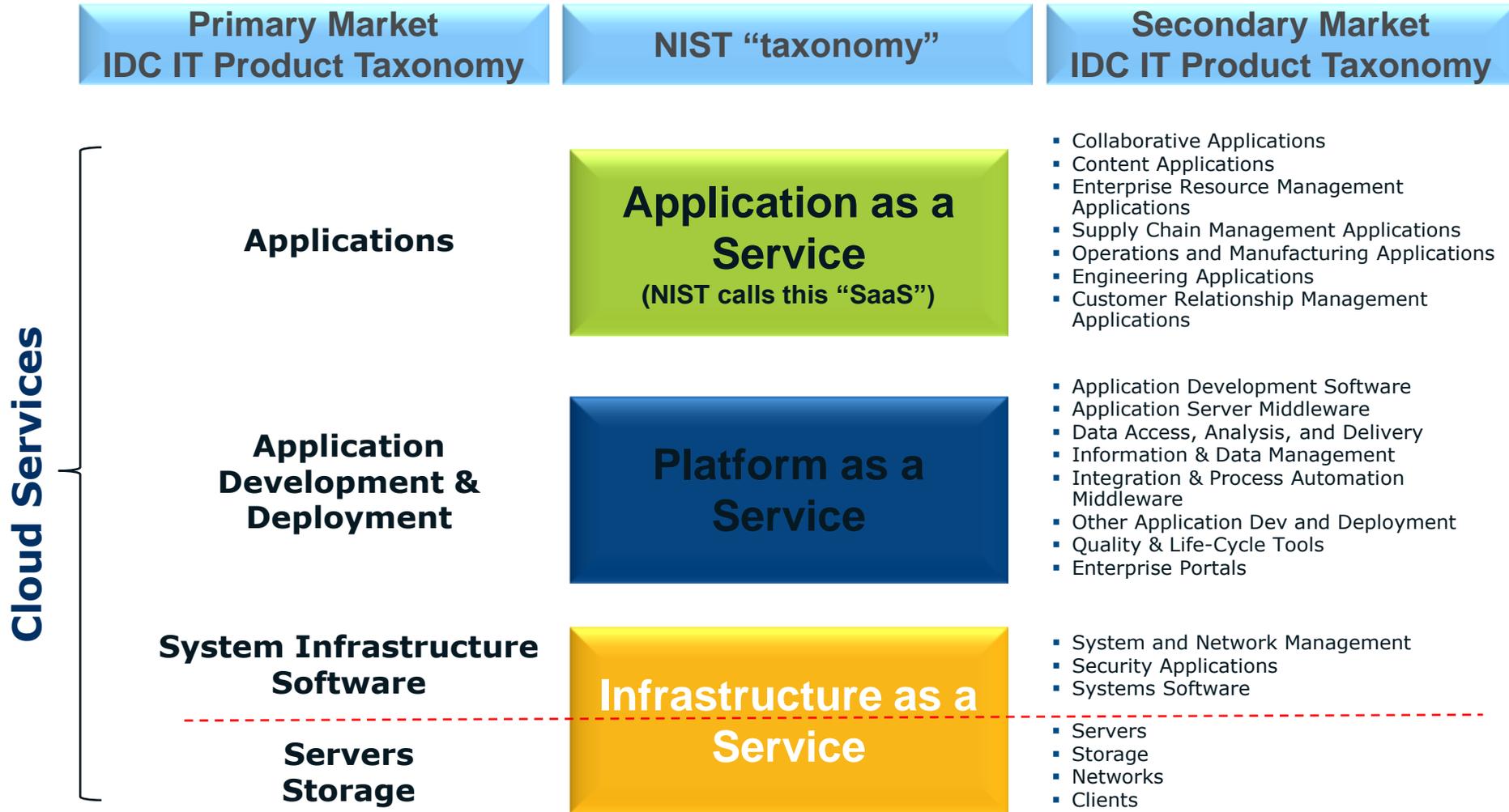
2 The Road Map From Virtualization to Cloud Computing (G00210845)

# Summary of Cloud Services



**Infrastructure as a Service is the foundation of cloud services**

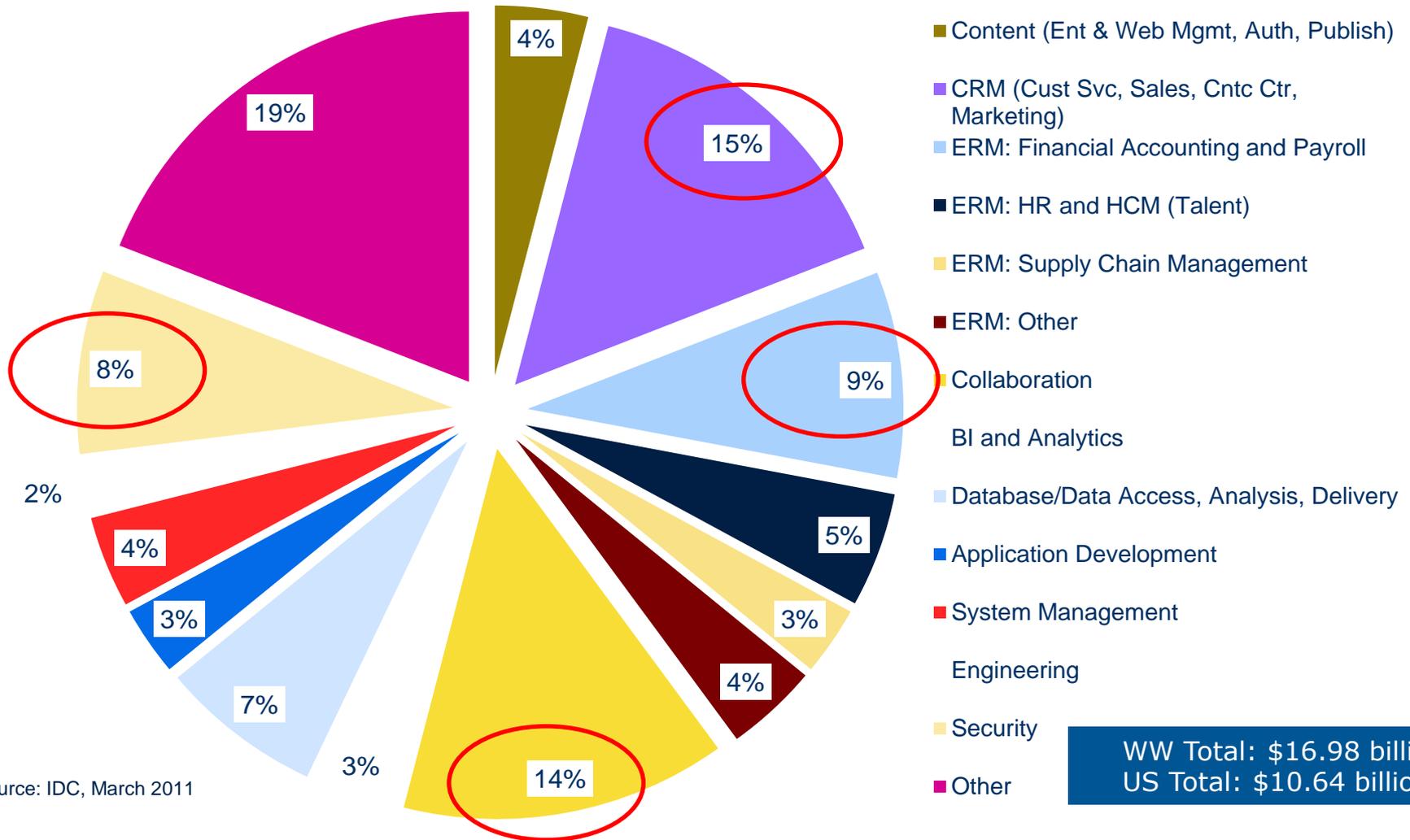
# Cloud Services Examples



Source: IDC March 2011

# Key Public Cloud Application Segments

2010 US Market Composition & Penetration



Source: IDC, March 2011

WW Total: \$16.98 billion  
US Total: \$10.64 billion

**CRM, collaboration, financial accounting/payroll, SCM highest deployed**

# 2010 Intel IT Vital Statistics

## 6,300 IT employees

Supporting 78,900 Intel employees in 150 sites

## 95 Data Centers

410,000 square feet  
55 MW Total Power Load  
4,976 Cabinets

**~100,000 Servers &  
>90,000 PCs** (80%+ mobile)

**177M e-mail messages**  
(per month)

**>20k hours of video  
collaboration**

IT@Intel



# Cloud Computing Business Drivers

## *Intel IT Enterprise Private Cloud Architecture*

### Business Benefits

**Efficiency**

### High-Level IT Strategies and Goals

- Accelerate virtualization to create a **multiple tenant O/E** environment
- Deploy new, retire old servers to **improve energy efficiency**
- Drive **higher utilization** via **resource pools** and consolidation
- **Measure services** for VM utilization, health and IT capacity management

**Agility**

- Improve **provisioning time** from days to hours with on-demand self service
- **Automate workflows** to enable consistency, agility and elasticity
- **Streamline business processes** with on-demand self-service portal
- **Opportunistic use** of federated public cloud services, when applicable

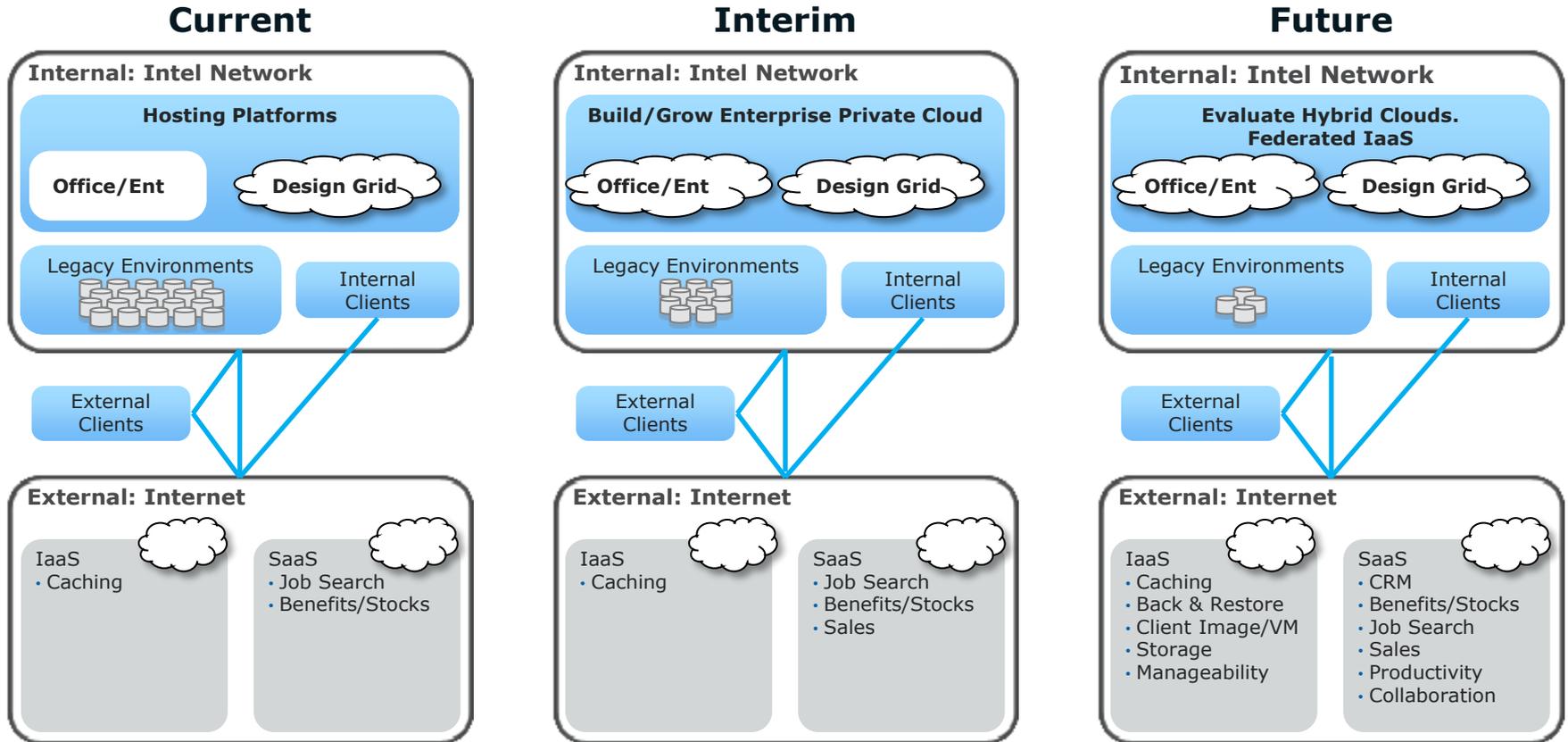
**Security**

- **Utilize** and build on **existing security infrastructure** and **safeguards**
- **Protect Intel IP, data** and **differentiated business processes**
- Provide **secure access** to **authenticated devices** and **users**

**Availability**

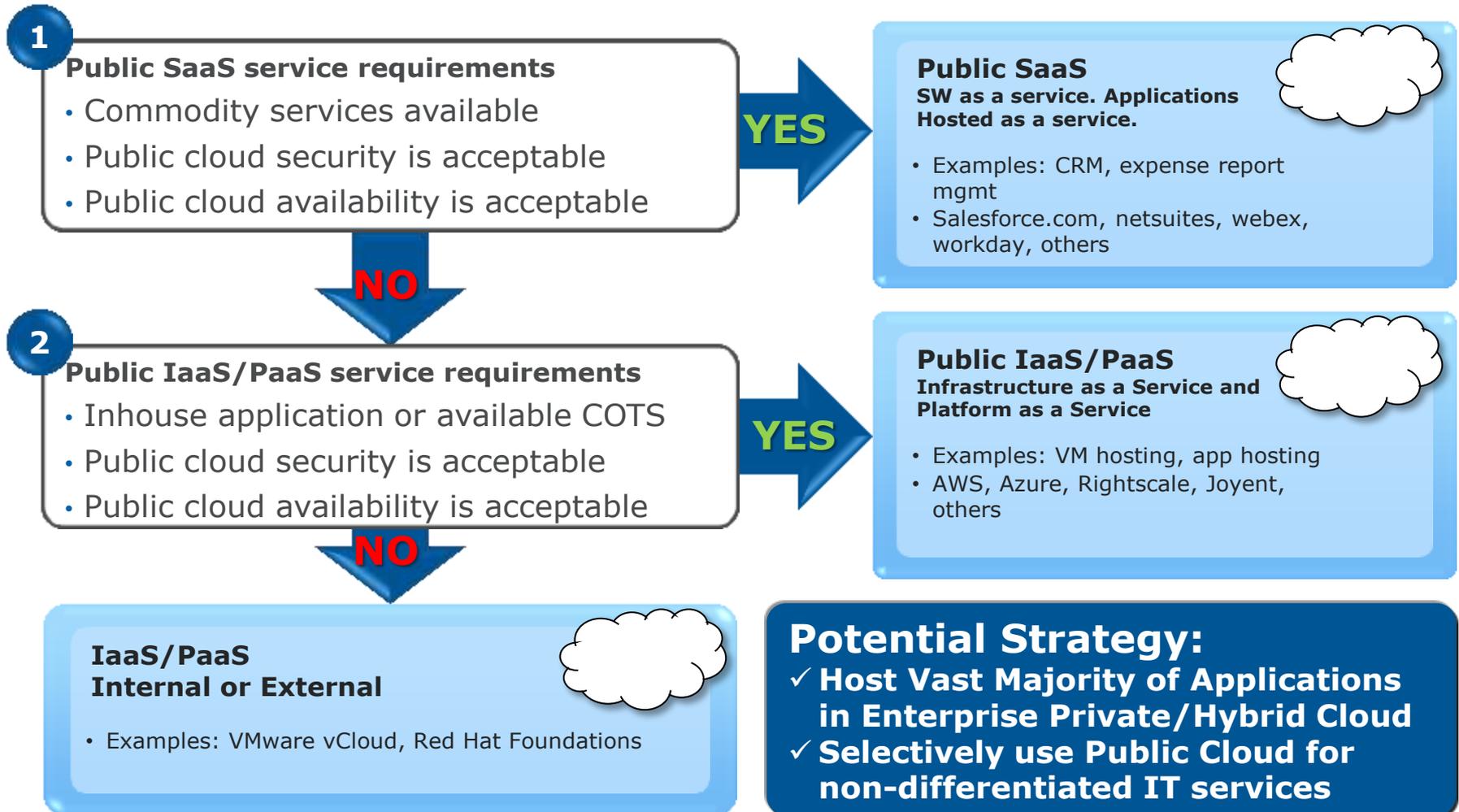
- Deliver **high availability** and drive **increased resiliency** for all IT services
- Use a consistent **disaster recovery** architecture for critical applications
- Adopt advanced technologies for **highest availability** on **mission-critical apps**

# Intel IT's Cloud Strategy & Roadmap



**Grow Cloud from the Inside Out**

# Service Hosting Decision Tree

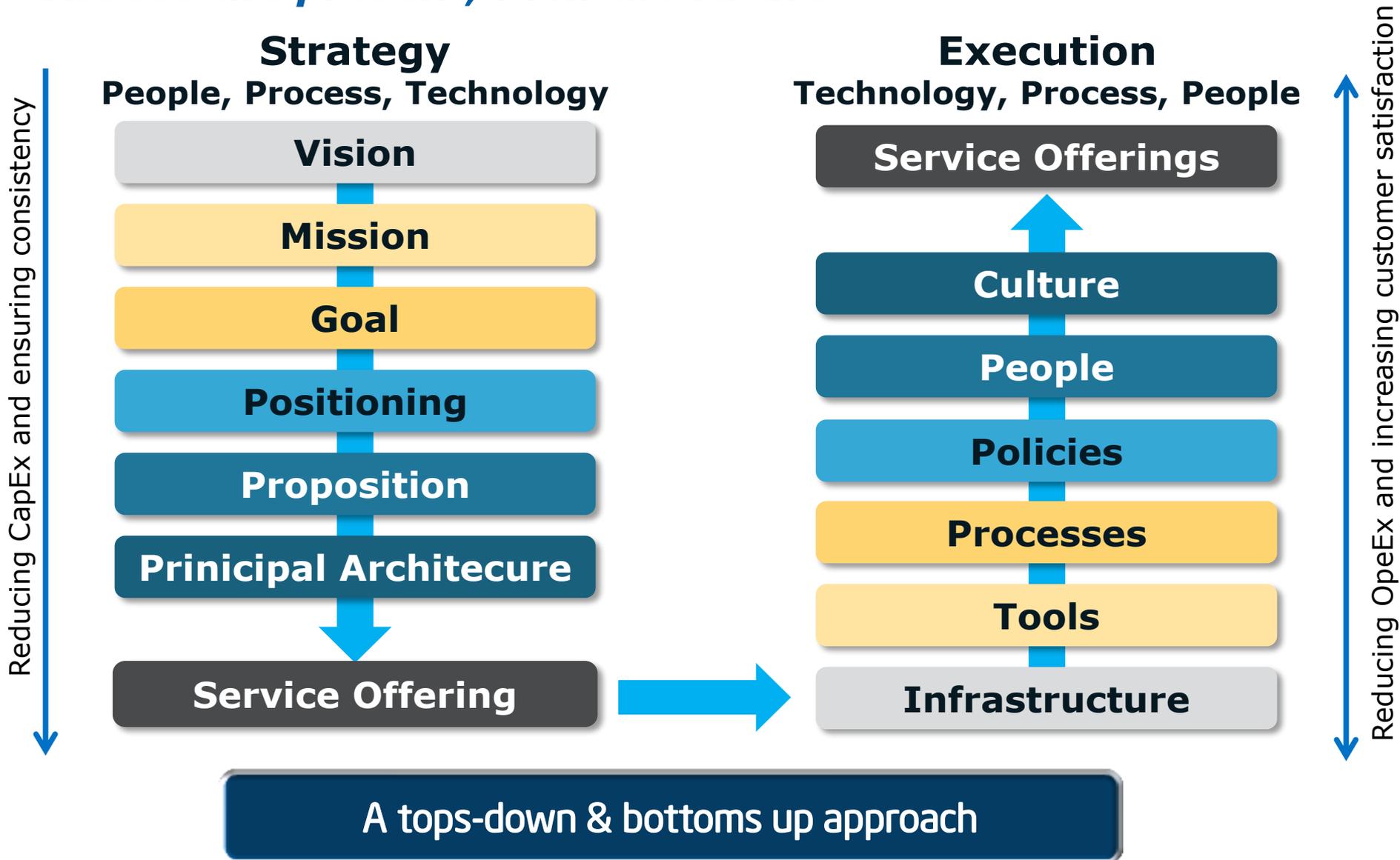


# Cloud Service Provider Checklist

- **Data handling, clarifying where the data is located and how it is managed.** This should include an inspection of the processes involved if the cloud service provider loses customer data.
- **Policies on data and data corruption,** asking if data is backed up and whether it can easily be reconstituted from the backups.
- **Clarify policies on identity management and access control.** This should cover issues that boil down to who is authorized to do what and under what circumstances.
- **Robust audit-checking procedures for data co-location** to ensure that a competitor of the customer cannot access the customer's information, even though both the customer and its competitor may be hosted on the same hardware.
- **Compliance with regulatory requirements** such as accounting and auditing standards, banking regulation, corporate governance, information provision requirements (such as Sarbanes-Oxley), data regulation, etc. The policies of the cloud service provider (such as the data protection policy) should also be carefully scrutinized. There are already data checks on export of data to certain jurisdictions.
- **How easy it is to terminate and move to another cloud service provider** -- not contractually but practically!

# Cloud Strategy and Execution:

*Assess the present, Plan the future*



# Summary & Next Steps

- Cloud represents an IT & business transformation
- Cloud Computing can offer compelling benefits
- Tradeoffs to consider in private vs public cloud deployments and services
- Learn more about Intel's Cloud 2015 Vision & Strategy to support your cloud evolution



Thank You