

Extending the Cloud Value Chain - Lessons Learned and Beyond

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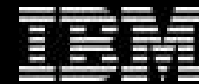


IBM Opens Cloud Computing Laboratory in Singapore

Helps businesses, government and research institutions design, adopt and realize ROI of cloud technologies for growth

Partnership between IBM and iDA

IBM as key enabler and partner for the realization of iDA's 2015 master plan and creation of a Smarter Singapore



Enabling innovation

Collaborating with businesses, government and academic institutions to successfully adopt cloud



Driving expertise into the region

Staffed with experts in cloud computing, bringing together industry leading knowledge to Singapore and ASEAN

Operations have industrialized to become smarter

Telcos automate traffic through switches to assure service and lower cost.



Manufacturers use robotics to improve quality and lower cost.



Banks use automated teller machines to improve service and lower cost.



... breakthroughs like these are enabled by service management systems.

Today's IT infrastructure is under tremendous pressure and is finding it difficult to keep up...

It will reach a breaking point

85% idle

In distributed computing environments, up to 85 percent of computing capacity sits idle

82%

Percentage of executives who report a security breach and aren't confident they can prevent future breaches

70¢ per US\$1

70 percent is spent on maintaining current IT infrastructures versus adding new capabilities

78%

Percentage of CIOs who want to improve the way they use and manage their data

Cloud: Consumption & Delivery Models Optimized by Workload

“Cloud” is a new consumption and delivery model inspired by consumer Internet services.

Enabled by Virtualization, (Service) Automation, Standardization

Cloud enables:

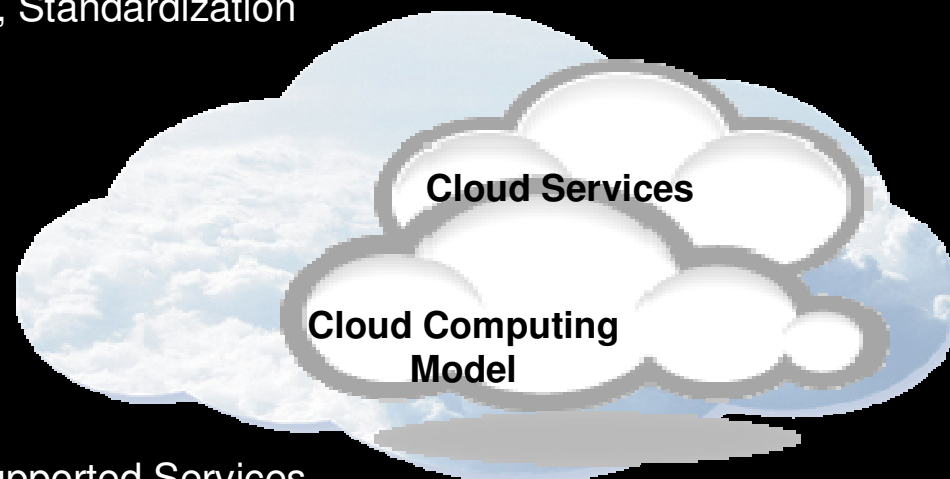
- Self-service
- Sourcing options
- Economies-of-scale

“Cloud” represents:

- The Industrialization of Delivery for IT supported Services

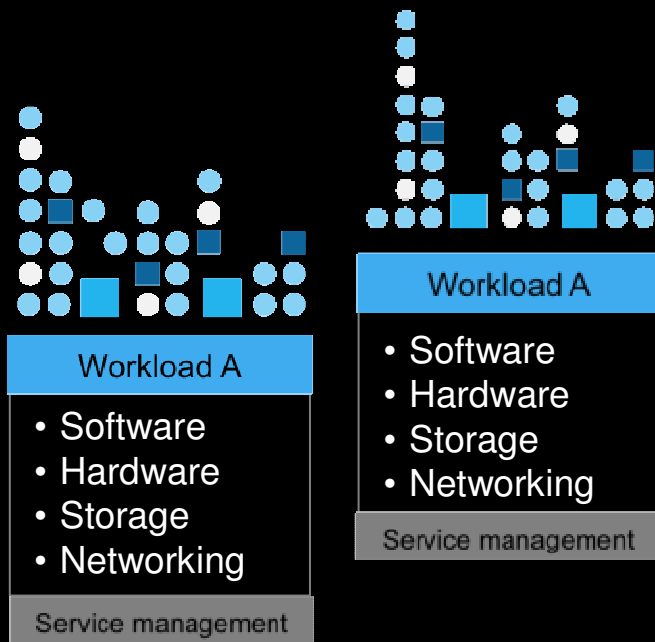
Multiple Types of Clouds will co-exist:

- Private, Public and Hybrid
- Workload and / or Programming Model Specific

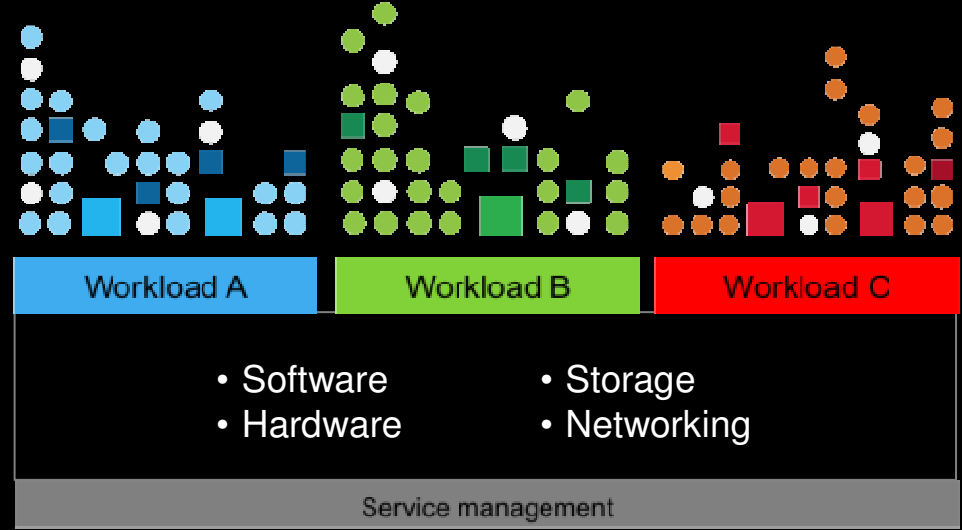


What is different about cloud computing?

Without cloud computing



With cloud computing



- Virtualized resources
- Automated service management
- Standardized services
- Location independent
- Rapid scalability
- Self-service

Adoption of cloud computing will be workload driven

- **Workload characteristics determine standardization**

Test for Standardization

- Web infrastructure applications
- Collaborative infrastructure
- Development and test
- High Performance Computing
- ...

Examine for Risk

- Database
- Transaction processing
- ERP workloads
- Highly regulated workloads
- ...

Explore New Workloads

- High volume, low cost analytics
- Collaborative Business Networks
- Industry scale “smart” applications
- ...



Workloads ready for cloud computing

Analytics

- Data mining, text mining or other analytics
- Data warehouses or data marts
- Transactional databases

Business services

- Customer relationship management (CRM) or sales force automation
- E-mail
- Enterprise resource planning (ERP) applications
- Industry-specific applications

Collaboration

- Audio/video/Web conferencing
- Unified communications
- VoIP infrastructure

Desktop and devices

- Desktop
- Service/help desk

Development and test

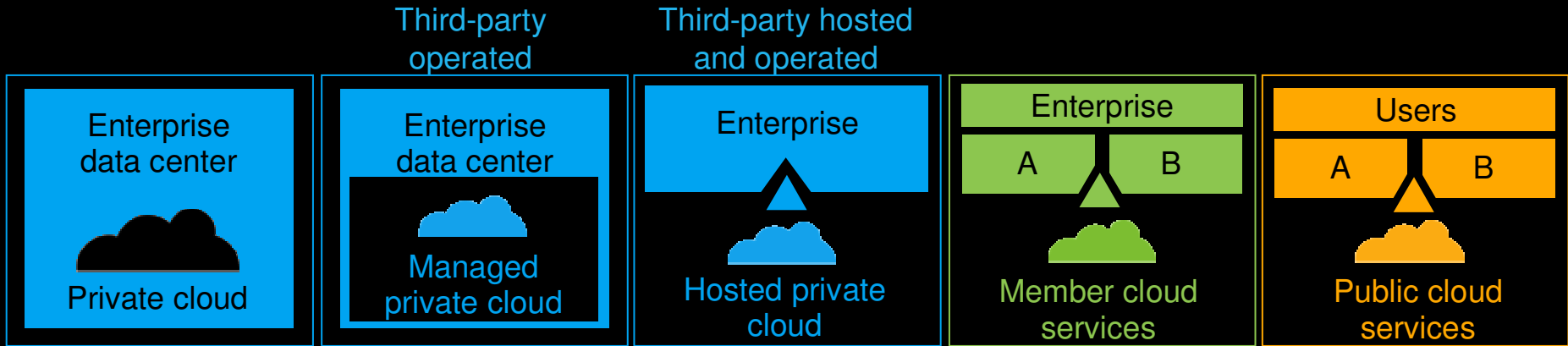
- Development environment
- Test environment

Infrastructure

- Application servers
- Application streaming
- Business continuity/disaster recovery
- Data archiving
- Data backup
- Data center network capacity
- Security
- Servers
- Storage
- Training infrastructure
- Wide area network (WAN) capacity



There is a spectrum of deployment options for cloud computing



Private
IT capabilities are provided “as a service,” over an intranet, within the enterprise and behind the firewall

Hybrid
Internal and external service delivery methods are integrated

Public
IT activities / functions are provided “as a service,” over the Internet



Public and Private Clouds are preferred for different workloads

Top private workloads

- Data mining, text mining, or other analytics
- Security
- Data warehouses or data marts
- Business continuity and disaster recovery
- Test environment infrastructure
- Long-term data archiving/preservation
- Transactional databases
- Industry-specific applications
- ERP applications

Database- and application-oriented workloads emerge as most appropriate

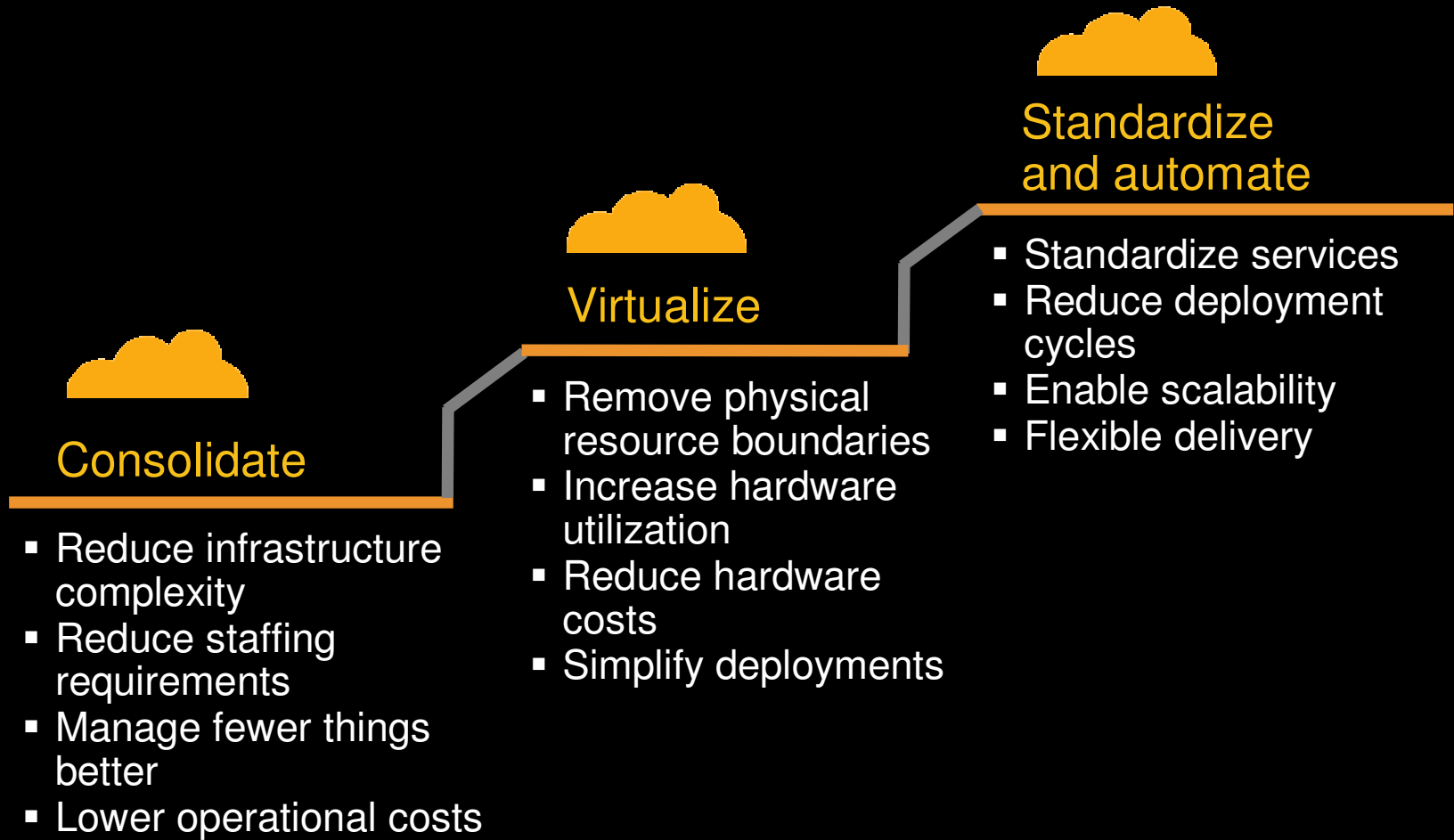
Top public workloads

- Audio/video/Web conferencing
- Service help desk
- Infrastructure for training and demonstration
- WAN capacity, VOIP Infrastructure
- Desktop
- Test environment infrastructure
- Storage
- Data center network capacity
- Server

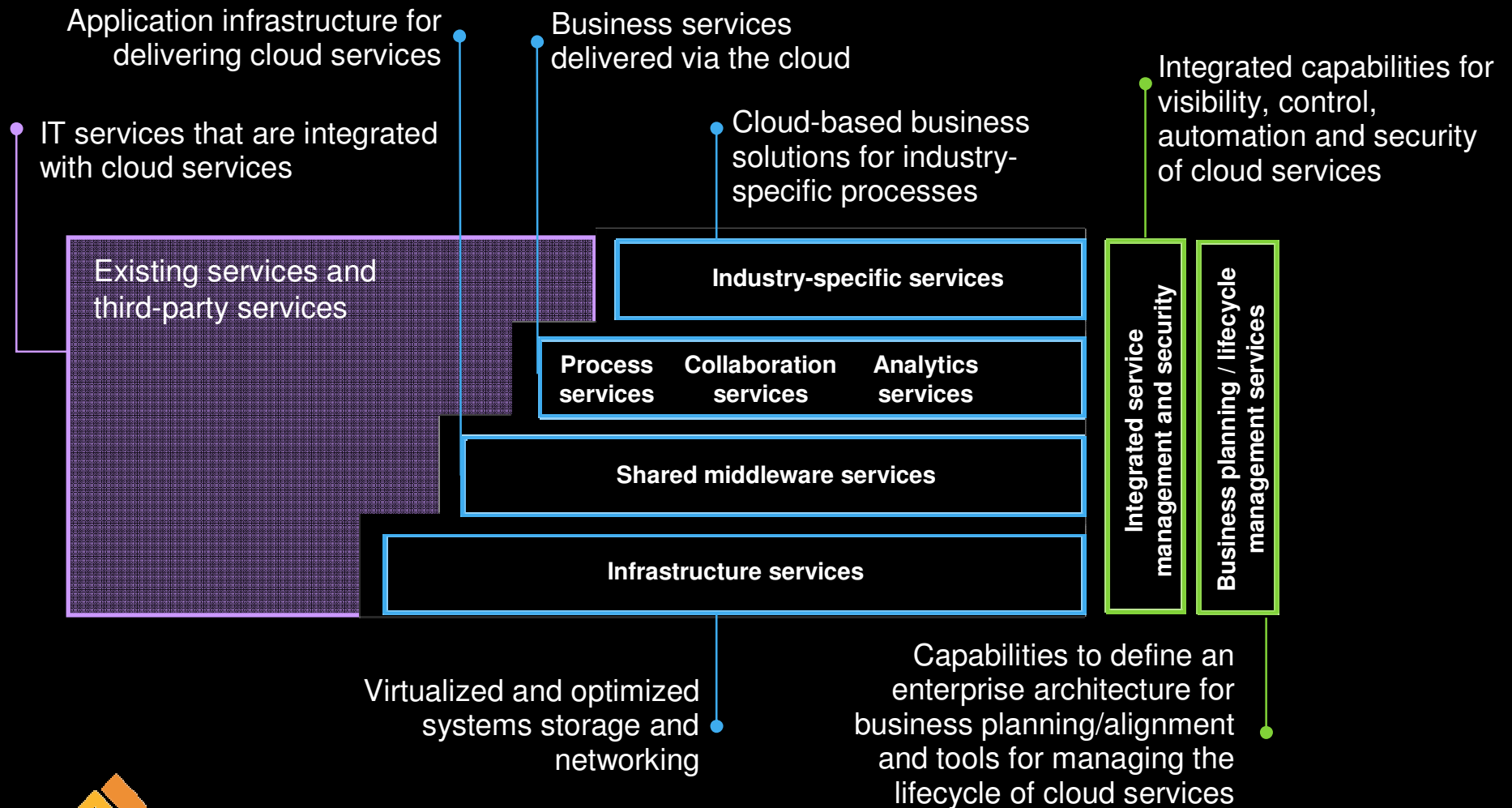
Infrastructure workloads emerge as most appropriate

Source: IBM Market Insights, *Cloud Computing Research*, July 2009. n=1,090

Create a roadmap for cloud as part of the existing IT optimization strategy

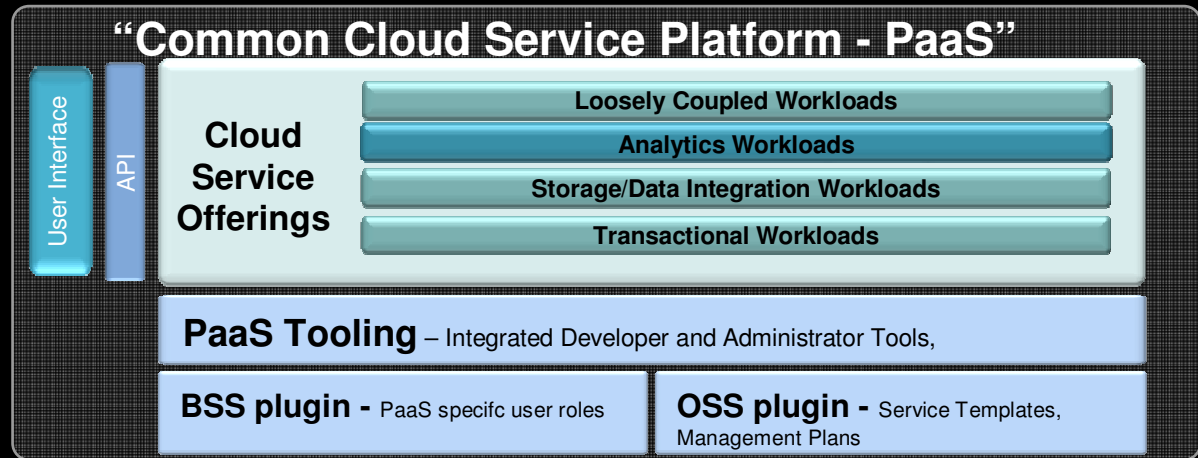


A framework for cloud computing

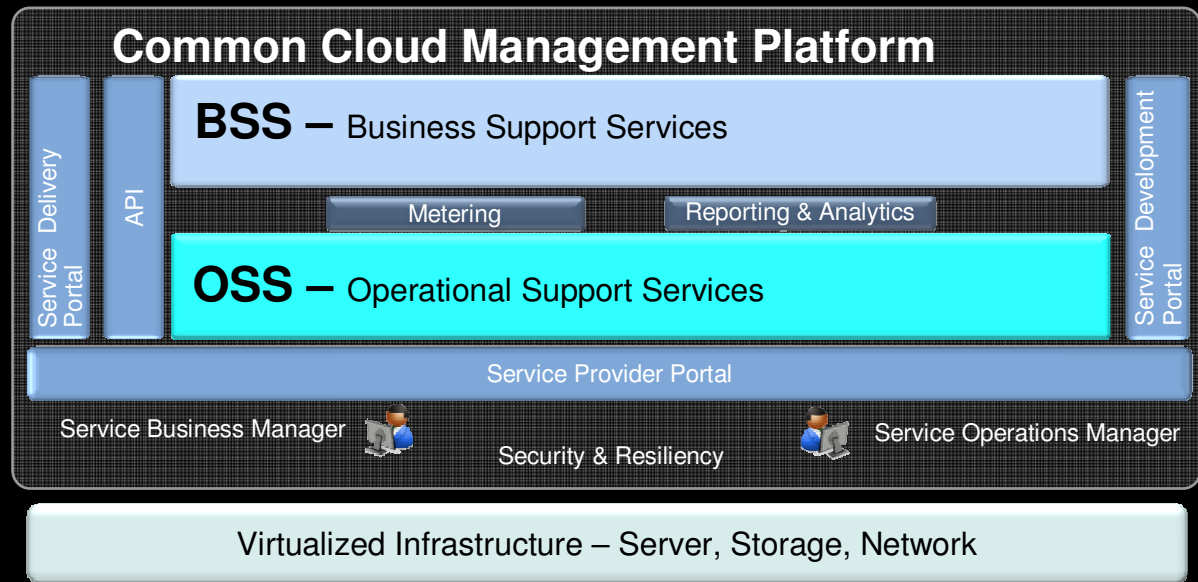


The Common Cloud Platform

- Emerging and existing programming models
- Hybrid Environments



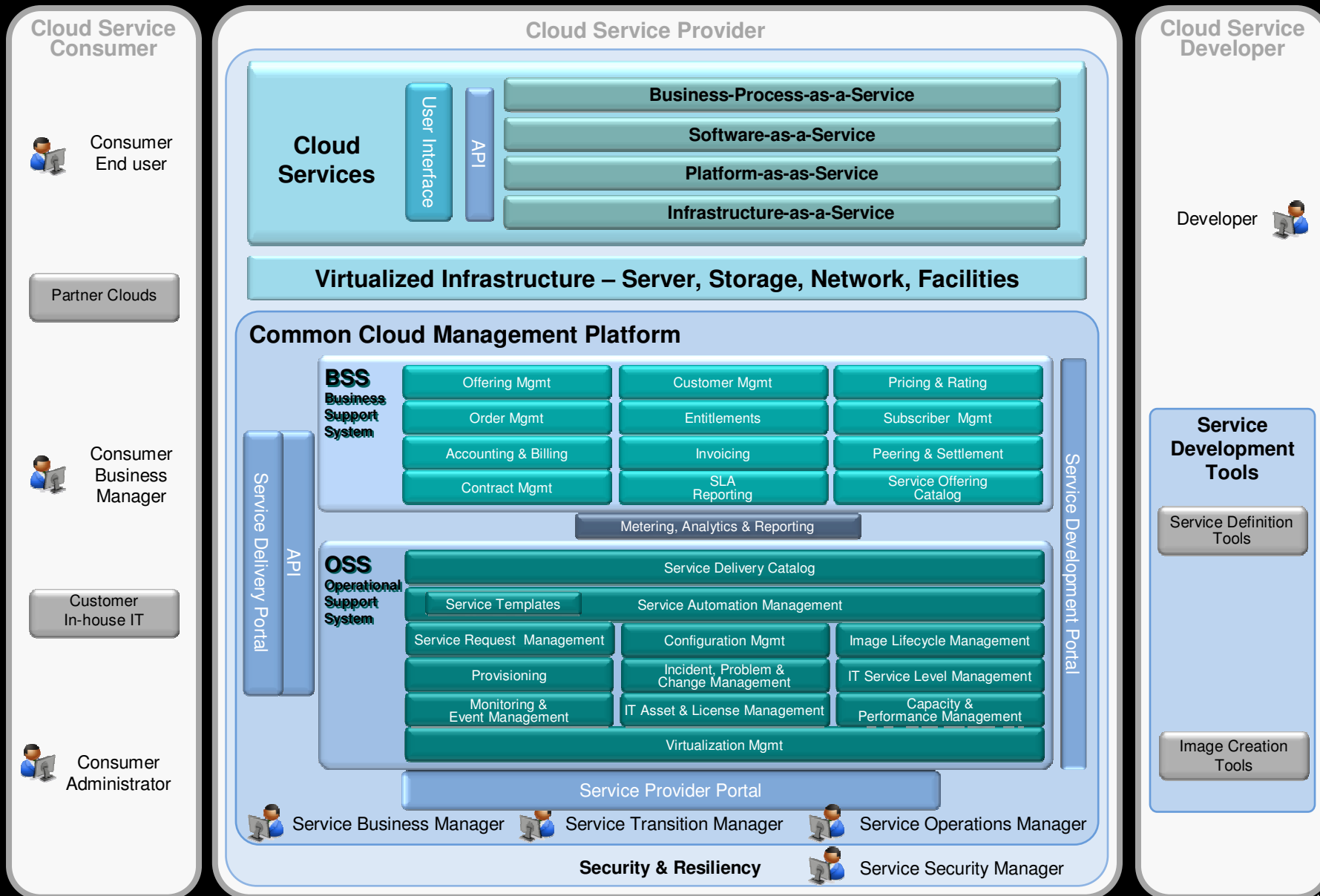
- Unified service management driving delivery economics



Common Cloud Management Platform Reference Architecture: Architecture Overview Diagram – OSS/BSS Details

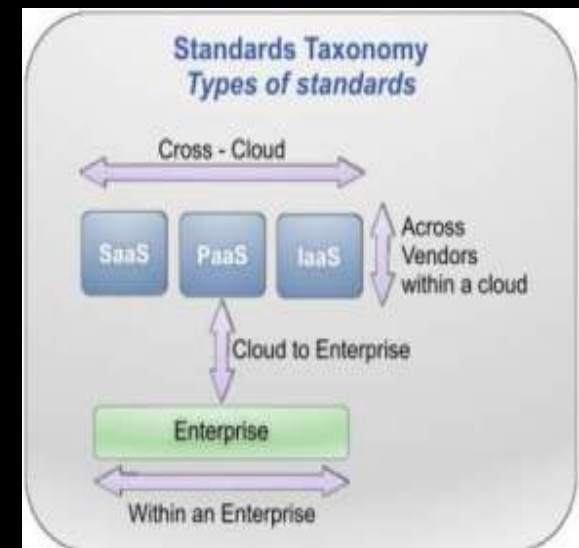


IBM cloud computing



IBM's View on Cloud Standards

- Since there is a diversity in the types of cloud platforms and models, open standards are a critical customer requirement
- IBM believes that the industry should align around a core set of principles outlined in the Open Cloud Manifesto
- IBM initiated a community based use case effort that collects customer requirements for an open cloud
- IBM partners with Zend, Microsoft and others on common API's for developers: SimpleCloudAPI.org
- We are working with standard orgs to drive standards in several key areas



IBM leadership across the Cloud Computing Standards Ecosystem

Architecture		✓	✓	✓			✓	
API	✓			✓		✓		
Virtualization	✓							
Management	✓	✓	✓			✓		✓
Storage						✓		✓
SLA		✓	✓					
Network								
Security	✓	✓	✓		✓			



Security is among a top concern with cloud computing...

The IBM Security Framework provides a structure to address this concern



People and identity

Mitigate the risks associated with user access to corporate resources



Application and process

Help keep applications secure, protected from malicious or fraudulent use, and hardened against failure



Network, server and end point

Optimize service availability by mitigating risks to network components



Physical infrastructure

Provide actionable intelligence on the desired state of physical infrastructure security and make improvements



Data and information

Understand, deploy and properly test controls for access to and usage of sensitive data

Professional services

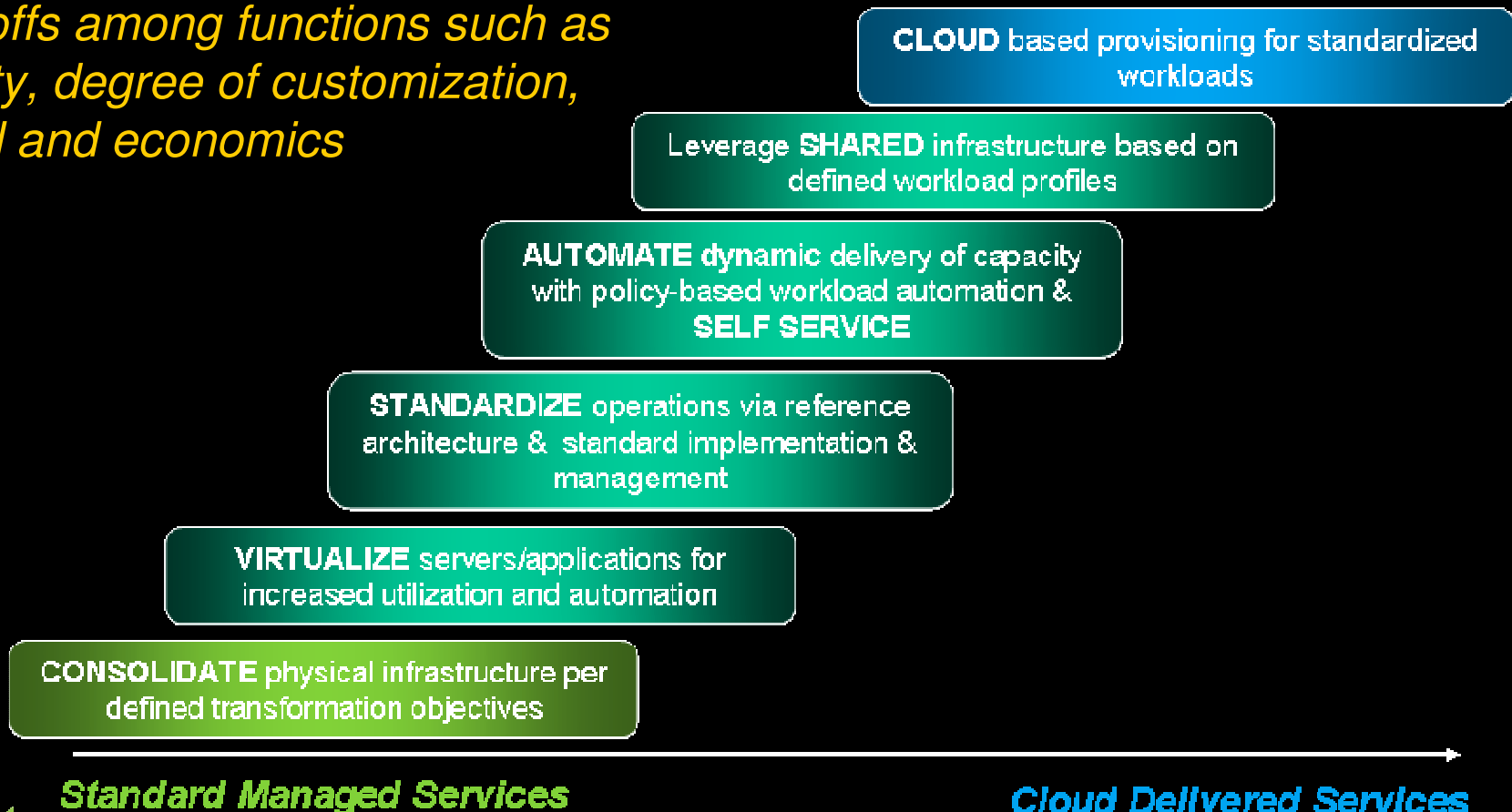
Managed services

Hardware and software



Movement from Traditional Environments to Cloud Can be in One Step or an Evolution

Clients will make workload-driven trade offs among functions such as security, degree of customization, control and economics



IBM's commitment to SaaS continues to grow

Offers Smart Business services on the IBM Cloud including:

- LotusLive
- Rational AppScan
- Information Protection Services
- Smart Business Development and Test

Helps enterprise customers to build their own 'private' cloud environments

- **Smart Business Cloud:** Private cloud services, behind your firewall, built and/or run by IBM
- **Smart Business Systems:** Pre-integrated, workload optimized systems including IBM Cloudburst



Helps customer integrate SaaS solutions into their business

- Global Business Services practices for Salesforce.com and SuccessFactors
- Rational tools for optimizing SaaS investments

Helps ISVs develop, deliver and market SaaS solutions

- SaaS Enablement and Partner program
- More than 200 ISV Partners

Ready-to-consume cloud services from IBM



IBM Smart Business on the IBM Cloud

Business processes	<ul style="list-style-type: none">▪ BPM BlueWorks▪ Smart business expense reporting on the IBM Cloud
Collaboration	<ul style="list-style-type: none">▪ IBM LotusLive
Service Management	<ul style="list-style-type: none">▪ IBM TivoliLive
Desktop and devices	<ul style="list-style-type: none">▪ IBM Smart Business Desktop on the IBM Cloud▪ IBM Smart Business End User Support
Development and test	<ul style="list-style-type: none">▪ IBM Smart Business Development and Test on the IBM Cloud
Infrastructure Compute	<ul style="list-style-type: none">▪ Computing on Demand
Infrastructure storage	<ul style="list-style-type: none">▪ IBM Information Protection Services



Companies have different motivations for leveraging cloud



U.S. AIR FORCE

Analytics & Security

Operations support 9 major commands, nearly 100 bases, & 700,000 active military personnel around the world. Design secure cloud infrastructure for defense & intelligence networks; insights about cyber attacks, network, system or application failures, while automatically preventing disruptions.

PayPal

Time to Value

Creates an ecosystem for PayPal 3rd Party developers

Reduces developer effort to deploy a work environment with seamless PayPal Test Sandbox access

Panasonic
ideas for life

Employee Productivity

Enable collaboration across 300K global employees as well as its network of customers, partners and suppliers. Saving 30 minutes per day or 120hr per year per person.

IBM LotusLive has 18 million users in 99 countries



MUFG

Risk & Compliance

34,000-employee bank deploying a private cloud from IBM to centralize management of desktops via an enterprise class data center rather than at the user stations, Gets *greater remote flexibility without sacrificing control to improve efficiency.*

Businesses that implement cloud computing are seeing significant results



Reduced IT labor cost by 50 percent in configuration, operations, management and monitoring

Improved capital utilization by 75 percent, significantly reducing license costs

Reduced provisioning cycle times from weeks to minutes

Improved quality, eliminating 30 percent of software defects

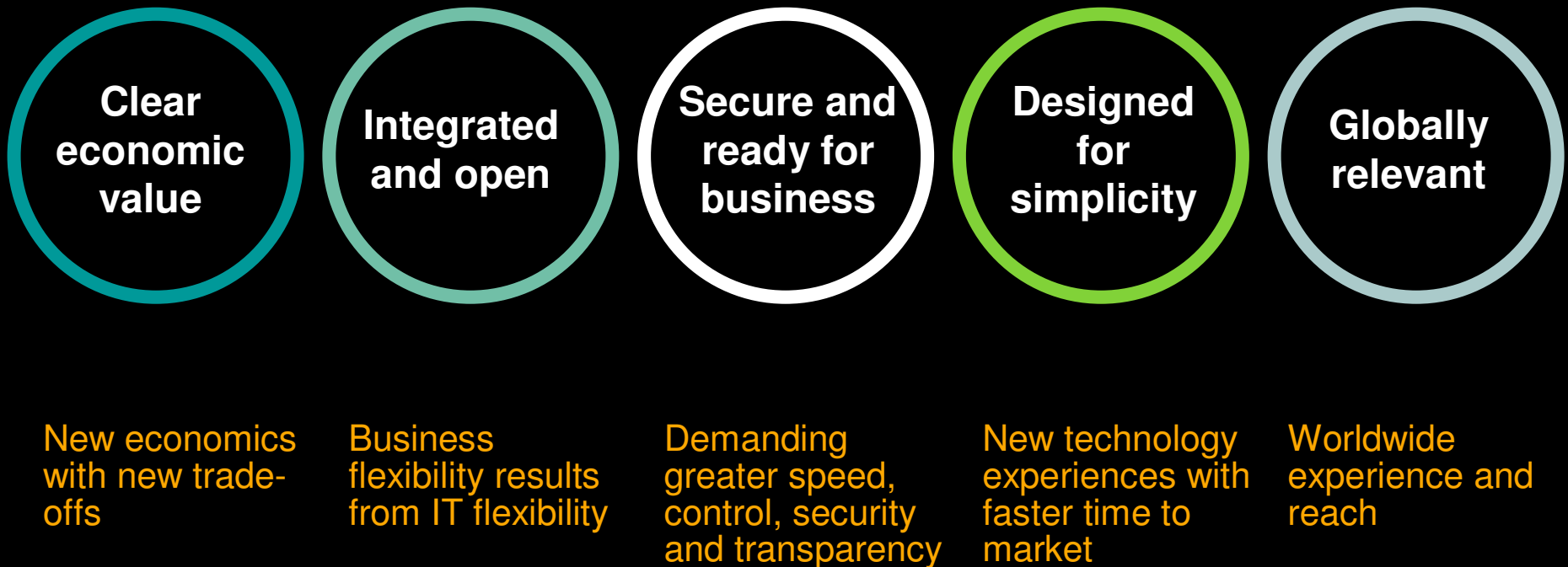
Reduced end user IT support costs by up to 40 percent

Simplified security management

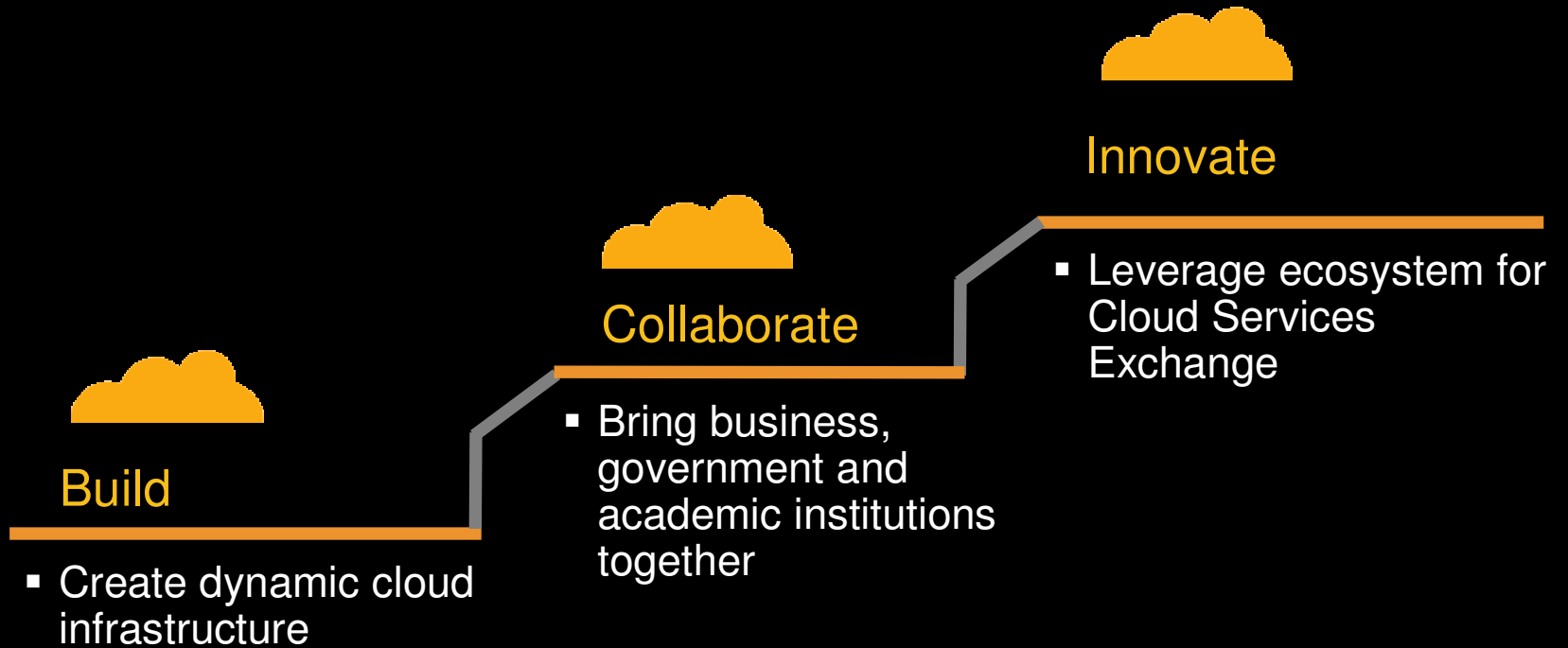
Working together with an ecosystem of IBM Business Partners to accelerate and optimize your cloud journey



What differentiates IBM in making cloud computing real



Roadmap for success in Singapore



IBM's Cloud Labs

Technology Incubation, Customer Engagements, In-Market Experimentation



<http://www.ibm.com/cloud>

QUESTIONS?

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May 4, 2010



Thank you!

For more information, please visit:
<http://www.ibm.com/ibm/cloud/>

Backup

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