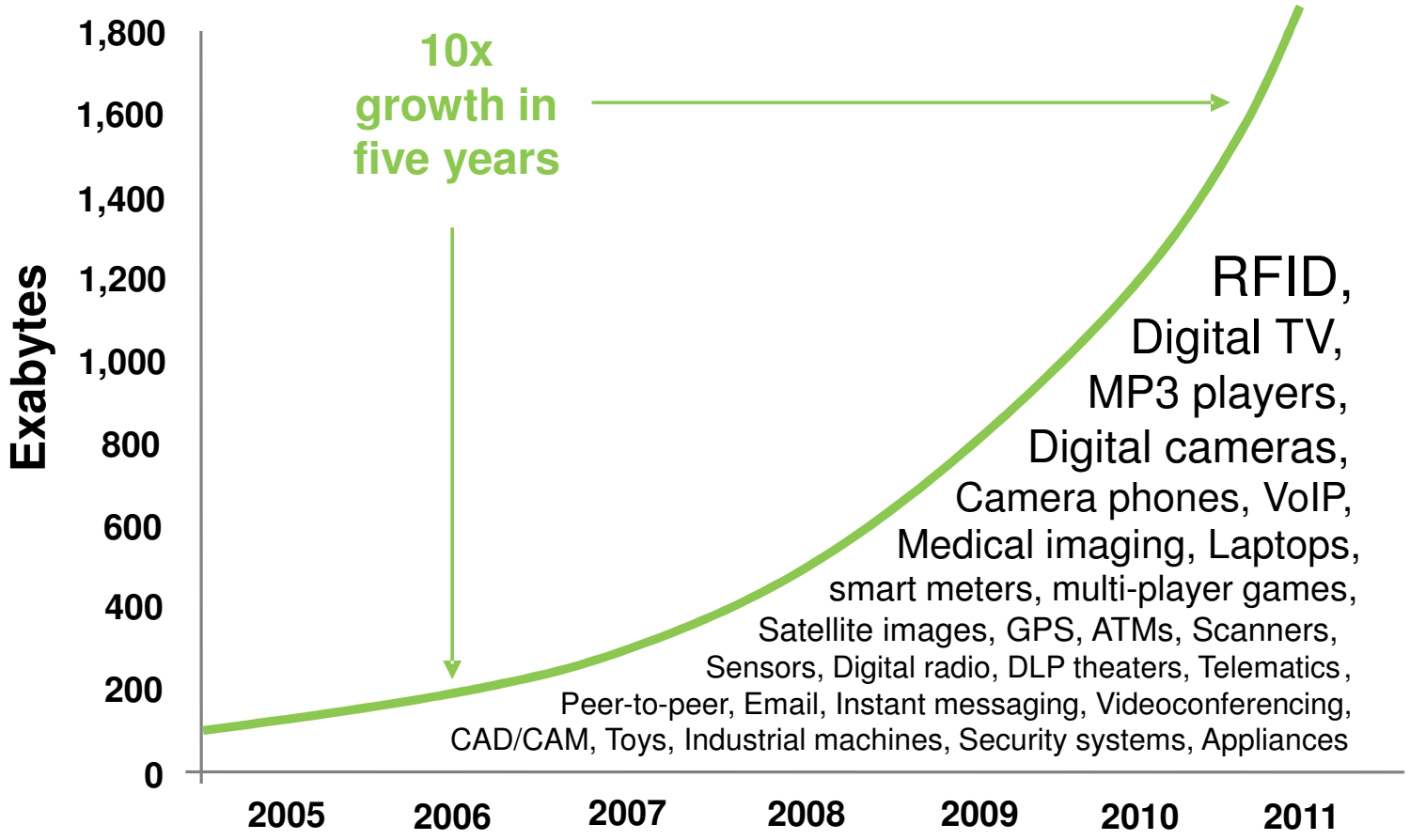
From Simple Data Center Automation to the Cloud: How to Reach the Stratosphere From Where You Stand Today

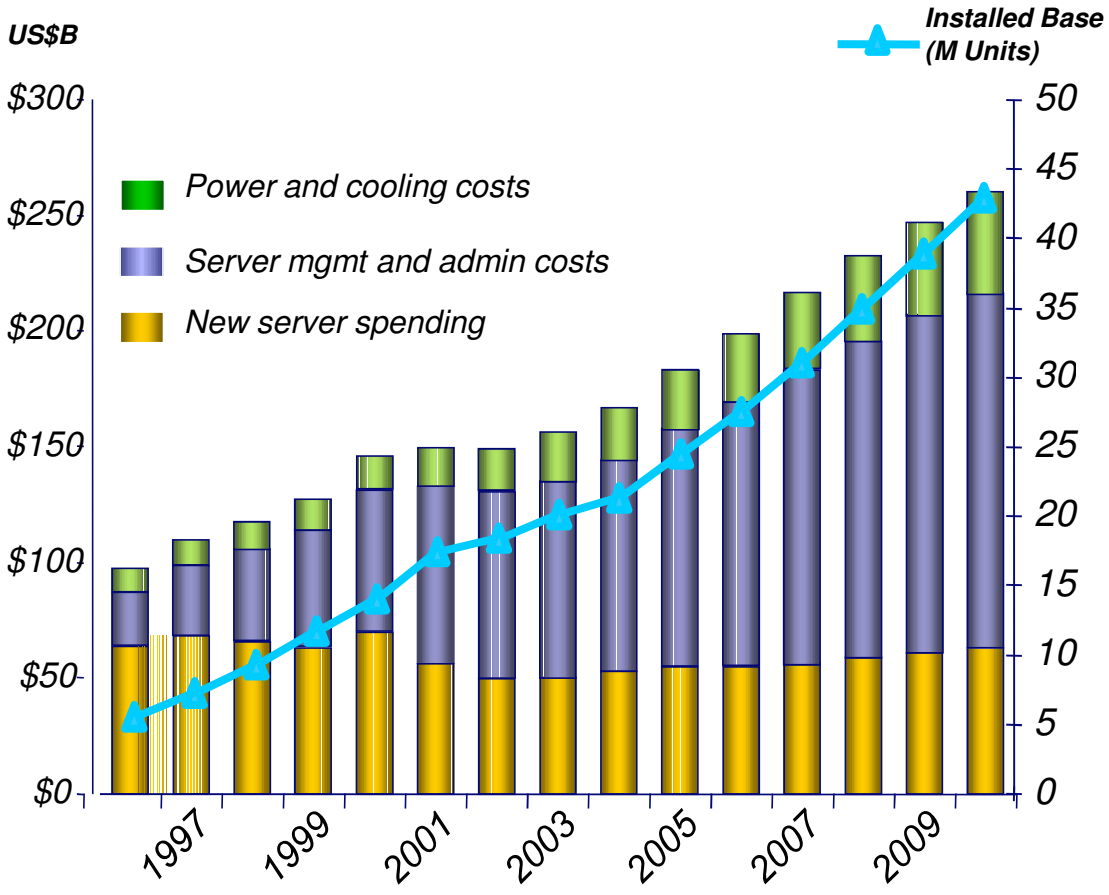
Michael O'Mara
Integrated Service Management Executive – Asia Pacific

By 2011, the world will be 10 times more instrumented then it was in 2006. Internet connected devices will leap from 500M to 1 Trillion.



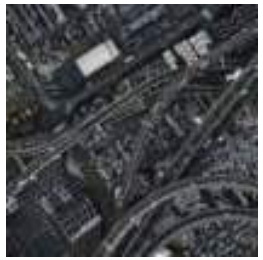
This is Currently Driving Rapidly Increasing IT Costs And Demands

- ***Costs to manage systems has doubled since 2000***
- ***Costs to power and cool systems has doubled since 2000***
- ***Devices accessing data over networks doubling every 2.5 years***
- ***Bandwidth consumed doubling every 1.5 years***
- ***Data Doubling every 18 months[1]***
- ***Server processing capacity doubling every 3 years[2]***
- ***10G Ethernet ports tripling over the next 5 years***



Source: IDC, 2008
[1]WW TB Capacity Shipped on Enterprise Disk Storage Systems
[2]Server processing consumption doubles every 3 years

As the world gets smarter – more instrumented, interconnected, intelligent…..


Smart traffic systems

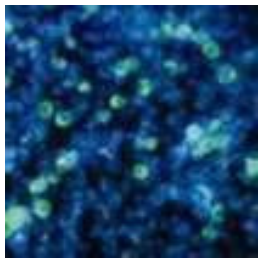
Intelligent oil field technologies

Smart food systems

Smart healthcare

Smart energy grids

Smart retail


Smart water management

Smart supply chains

Smart countries

Smart weather

Smart regions

Smart cities

…. companies that exploit these emerging capabilities will have significant advantage over those that do not.

The Value Progression from Virtualization to Cloud

Virtualization

- Improve utilization
- Reduce costs
- Increase flexibility

Automation

- Standardize application configuration
- Reduce deployment time

Service Management

- Discover, monitor, meter, secure and automate deployment of virtualized resources
- Assure SLA achievement
- Integrated virtualization management with IT processes

Cloud

- Always available
- Elastic scaling
- Pay for use
- Automated provisioning
- Simplified user interface

Customer Value – Virtualization to Cloud

Key Customer Pain Points	How Cloud Delivers Value
Lost business opportunity because IT too slow to react. Lack of agility.	Ability to dynamically scale IT services to meet business demands in real time
Long deployment timelines for new systems (weeks/months+).	Automate the provisioning and deployment of new systems
Operations that cross functional IT groups are slow and inefficient	Standardize and automate both requests and fulfilment across IT silos
Many steps are manual and prone to error	Utilizes repeatable, standardized and automated procedure to reduce errors
Huge up-front infrastructure investment for small projects or infrequent peaks	Abstracts IT services from IT resources facilitating reuse & overflow pooling
Server sprawl with low server/resource utilization	Leverage dynamic allocation linked to a reservation system for higher utilization
Compliance, auditing, and security patching costly	Standardize and reduce number of configurations used
Don't know what compute resources are used and what they cost	Integrated, usage-based metering, billing and license compliance

Virtualization

Virtualization

- Virtual Server/ Hypervisor
- Virtual Storage & Network
- Image Management

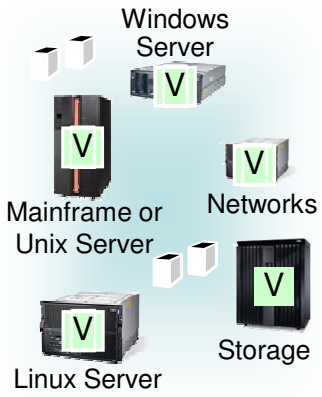
Automation

Service Management

Cloud

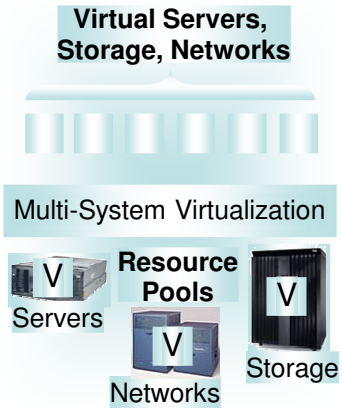
Virtualization: The Key to Optimization

Physical Consolidation



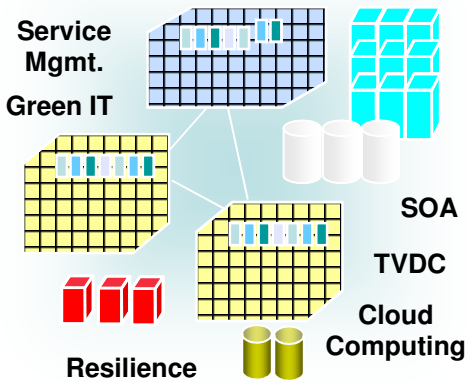
- Better hardware utilization
- Improved IT agility
- Lower power consumption

Abstraction and Pooling



- Better software migration
- Simplified HA solutions
- Improved resource optimization
- Ready-to-run packaged software

Integration and Simplification



- Decouple complexity from scale
- Integrated autonomic mgmt
- Dynamic energy optimization
- Data center security foundation

NEW

IBM Implementation Services for Power™ Systems - Planning and Implementing a Virtual IO Server
IBM Microsoft Server Virtualization - Microsoft Server 2008 Migration
IBM Web Infrastructure Optimization & Virtualization
Tivoli Provisioning (Virtualization) Manager V7.1
Provisioning manager for OS Deployment with tie-in to Systems Director 6.1

Automation

Virtualization

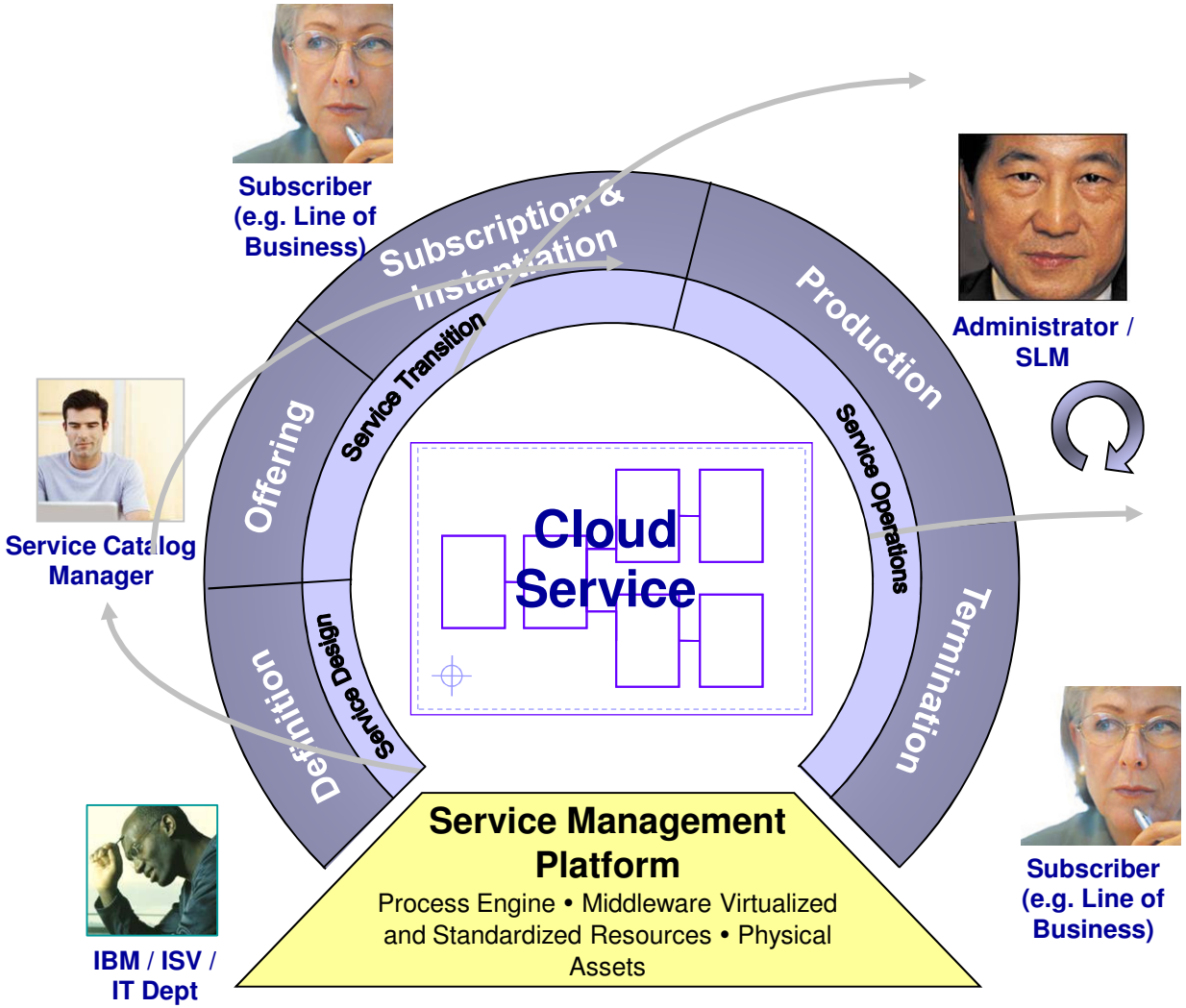
Automation

- Automate manual tasks
- Leverage speed of virtualization
- Integrate into automated solutions

Service Management

Cloud

Service Lifecycle Management And Automation



Service Management

Virtualization

Automation

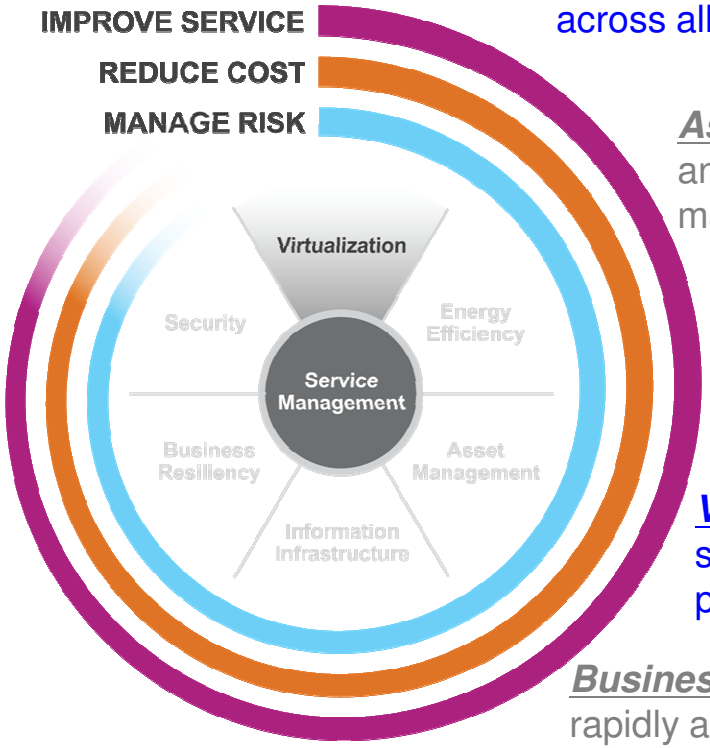
Service Management

- Integrated ITIL-based managment
- Incorporate full systems management infrastructure

Cloud

Dynamic Infrastructure

Delivering superior business and IT services with agility and speed



Service Management – Provide visibility, control and automation across all the business and IT assets to deliver higher value services.

Asset Management – Maximizing the value of critical business and IT assets over their lifecycle with industry tailored asset management solutions.

Energy Efficiency – Address energy, environment, and sustainability challenges and opportunities across your infrastructure.

Virtualization – Leadership virtualization and consolidation solutions that reduce cost, improve asset utilization, and speed provisioning of new services.

Business Resiliency – Maintaining continuous business operations while rapidly adapting and responding to risks and opportunities.

Security – End to end industry customized governance, risk management and compliance solutions.

Information Infrastructure – Helping businesses achieve information compliance, availability, retention, and security objectives.

Cloud Computing

Virtualization

Automation

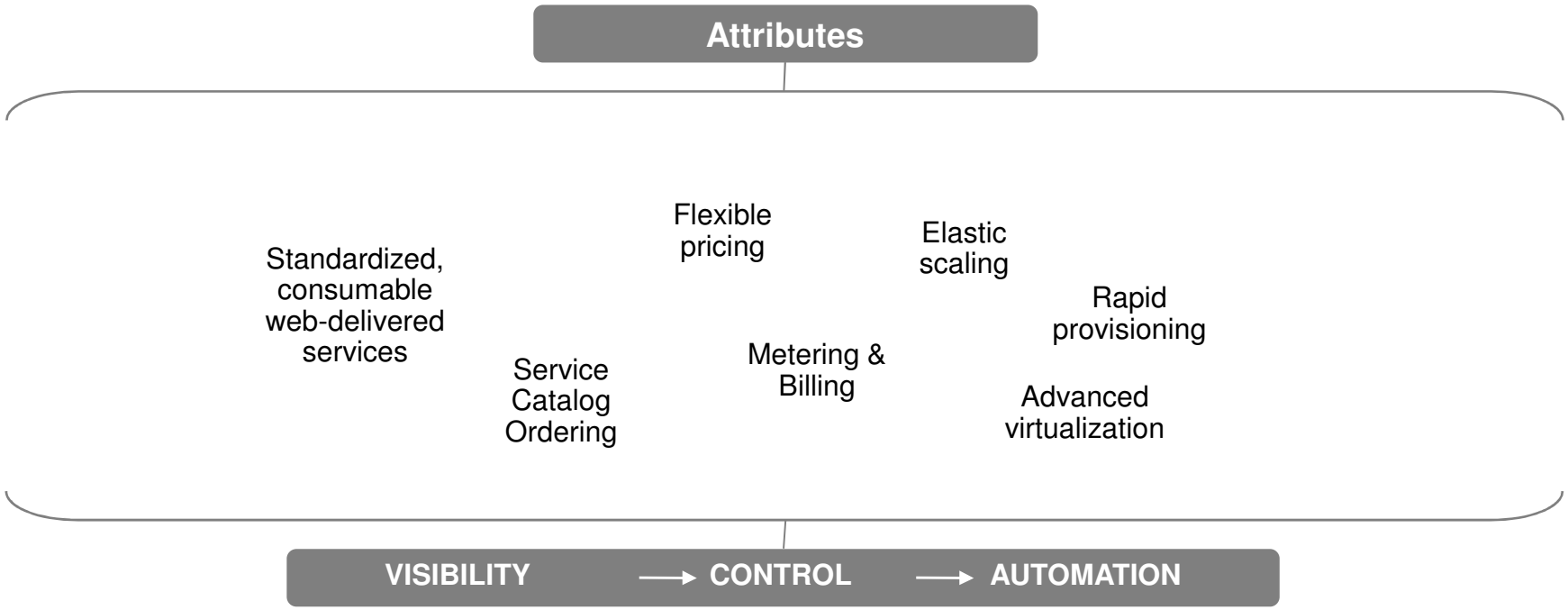
Service Management

Cloud

- Leverage underlying Virtualization, Automation and Service Management
- Deliver IT services from an end-user perspective
- Enable new models for capital and operating expense

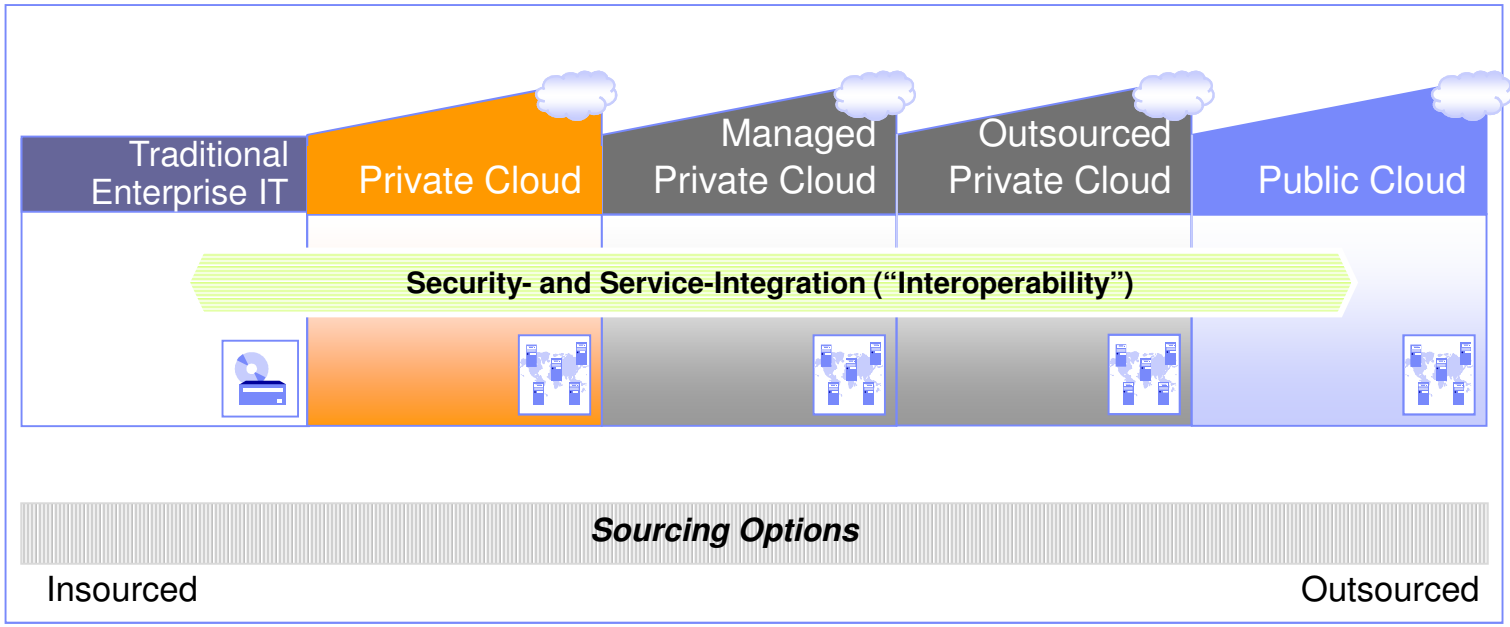
Cloud Computing …

"Cloud" is an emerging consumption and delivery model for many IT-based services, in which the user sees only the service, and has no need to know anything about the technology or implementation



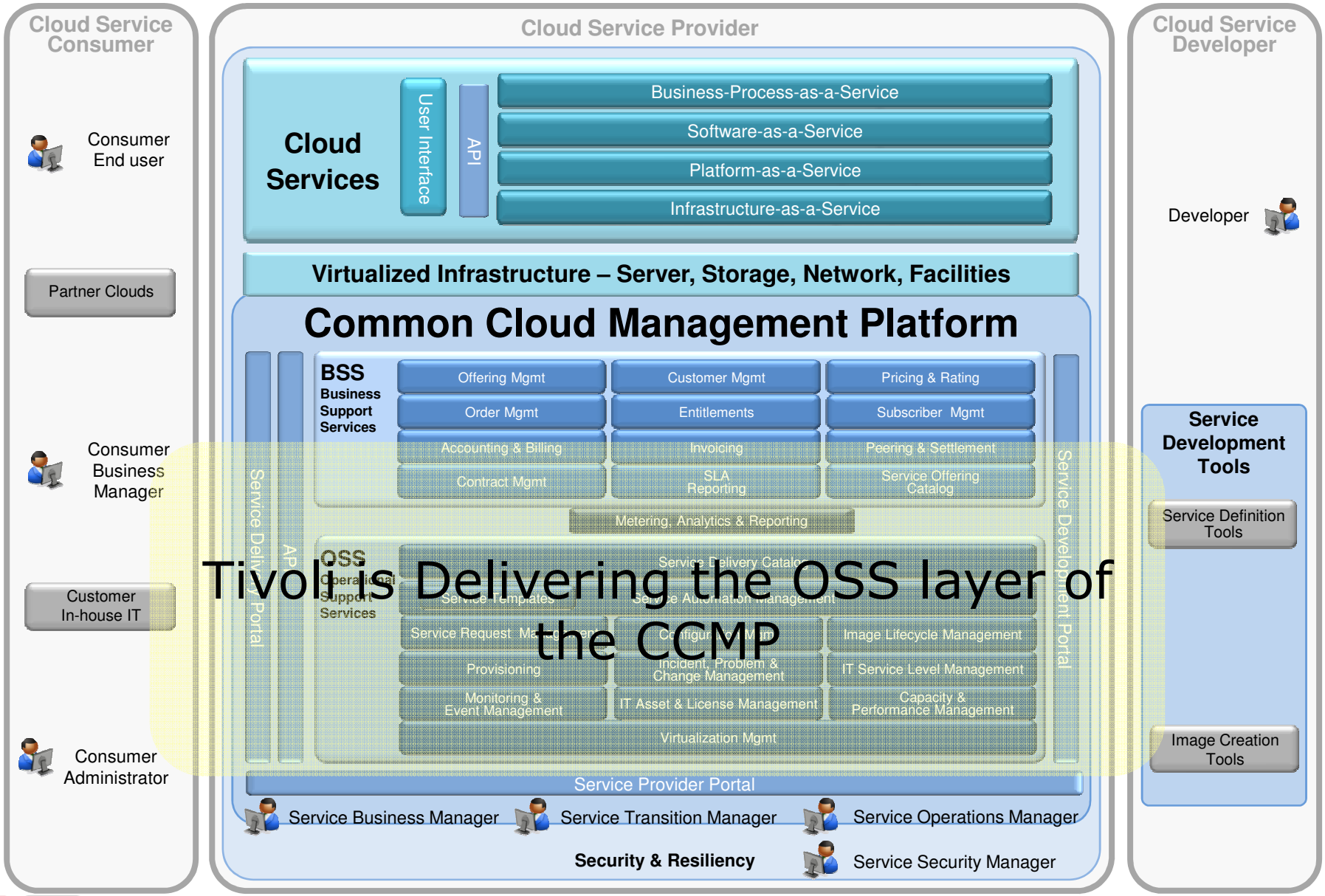
....service oriented and service managed

Cloud Has Multiple Sourcing Options



Cloud Computing allows you to develop the right strategy to rapidly and dynamically deliver business and IT services at lower cost and foster innovation

Functional Cloud Management Platform Reference Architecture



Tivoli is Delivering the OSS layer of the CCMP

Examples of Client Innovation

SK telecom implemented a Korean language portal based on API extensions to Tivoli Service Automation Manager. Provides a development Platform-as-a-Service offering to allow Business Partners to quickly test, develop, and publish new end-user focused WAP services available on SK Telecom network. Delivers a service Management-enabled Cloud Delivery platform to run new WAP services in a workload optimized fashion.

US Dept of Interior – National Business Center

As part of their ongoing operations the agency has realized that providing infrastructure and applications to clients is expensive, not efficient, and results in increased management complexity Federated Data Center self service provisioning using TSAM and TPM, across 2 geographically separated data centers. The virtual servers will contain the base OS, pre-installed middleware and monitoring agents, and will be provisioned across a three-tier (web, application, database) architecture

Rome Tivoli Lab adopted TSAM for a private cloud in early 2009 for the development and test environment. Use request-driven provisioning to request servers, OS and storage on demand. Allow developers/testers to create, share, and manage their images.

Deployment time reduced from 4 days to 45 min for Windows box with WAS and DB2. Increased capital utilization across teams.

Tornado is an internal IBM cloud solution for automated deployment and management of test and development systems. The challenges are long times to approve, deploy and implement test environments in IBM labs.

Deployed in Toronto, Hursley and Silicon Valley labs reducing a 25 step process down to 5 steps – resulting in a labor savings of over 9 person years and a 305% ROI

Trademarks and disclaimers

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries./ Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both. Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both. IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce. ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office. UNIX is a registered trademark of The Open Group in the United States and other countries. Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both. Other company, product, or service names may be trademarks or service marks of others. Information is provided "AS IS" without warranty of any kind.

The customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics may vary by customer.

Information concerning non-IBM products was obtained from a supplier of these products, published announcement material, or other publicly available sources and does not constitute an endorsement of such products by IBM. Sources for non-IBM list prices and performance numbers are taken from publicly available information, including vendor announcements and vendor worldwide homepages. IBM has not tested these products and cannot confirm the accuracy of performance, capability, or any other claims related to non-IBM products. Questions on the capability of non-IBM products should be addressed to the supplier of those products.

All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Some information addresses anticipated future capabilities. Such information is not intended as a definitive statement of a commitment to specific levels of performance, function or delivery schedules with respect to any future products. Such commitments are only made in IBM product announcements. The information is presented here to communicate IBM's current investment and development activities as a good faith effort to help with our customers' future planning.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.

Prices are suggested U.S. list prices and are subject to change without notice. Starting price may not include a hard drive, operating system or other features. Contact your IBM representative or Business Partner for the most current pricing in your geography.

Photographs shown may be engineering prototypes. Changes may be incorporated in production models.

© IBM Corporation 1994-2010. All rights reserved.
References in this document to IBM products or services do not imply that IBM intends to make them available in every country.

Trademarks of International Business Machines Corporation in the United States, other countries, or both can be found on the World Wide Web at http://www.ibm.com/legal/copytrade.shtml.