

# Pulse

Comes to You



The IBM logo, consisting of the letters 'IBM' in a bold, sans-serif font with horizontal stripes.

*Managing the World's Infrastructure*

## IBM perspective on Cloud Computing

The “next big thing” or “another fad”?

*Kadir Özmen*  
*SW IT ARCHITECT*  
*28 May 2009*

# AGENDA

- Compute Model For Smarter Planet
- What is Cloud Computing
- The Evolution of Cloud Computing
- A stepwise approach to Cloud Computing
  - IT Transformation Roadmap
  - Architectural Model
  - Workload Analysis
  - Deciding the Right Mix of Delivery Models
  - Implementation
- The Journey to Cloud
- Cloud Management Platform
- Computing on Demand
- Life Cycle Of Cloud Computing
- Green Clouds
- IBM's Cloud Labs
- Lessons Learned from Client Experiences
- In Summary



## Some macroscopic observations...

**In 2001, there were 60 millions transistor for every human on the planet ...  
... In 2010 there will be one billion per human...  
... Each costing 1/10 millionth of a cent.**

**Worldwide mobile telephone subscriptions reached 3.3 billion in 2007...**

**One billion camera phones were sold in 2007, up from 450 million in 2006**

**In 2005 there were 1.3 billion RFID tags in circulation...  
... by 2010 there will be 33 billion.**

**An estimated 2 billion people will be on the Web by 2011 ...  
... and a trillion connected objects – cars, appliances, cameras, roadways, pipelines – comprising the "Internet of Things."**



**We've thought about IT as the world of data centers, software, PCs, routers, bandwidth.**

**We've thought about infrastructure as the world of buildings, factories, hospitals, roads, pipelines.**

**Those worlds are converging.**

**We're confident that the world can become smarter.**



*Globalization and Globally Available Resources*

*Billions of mobile devices accessing the World Wide Web*

*Real-time data streams and information sharing*



**Cloud Computing**

*Rise of social networking and social computing*



# What is Cloud Computing?

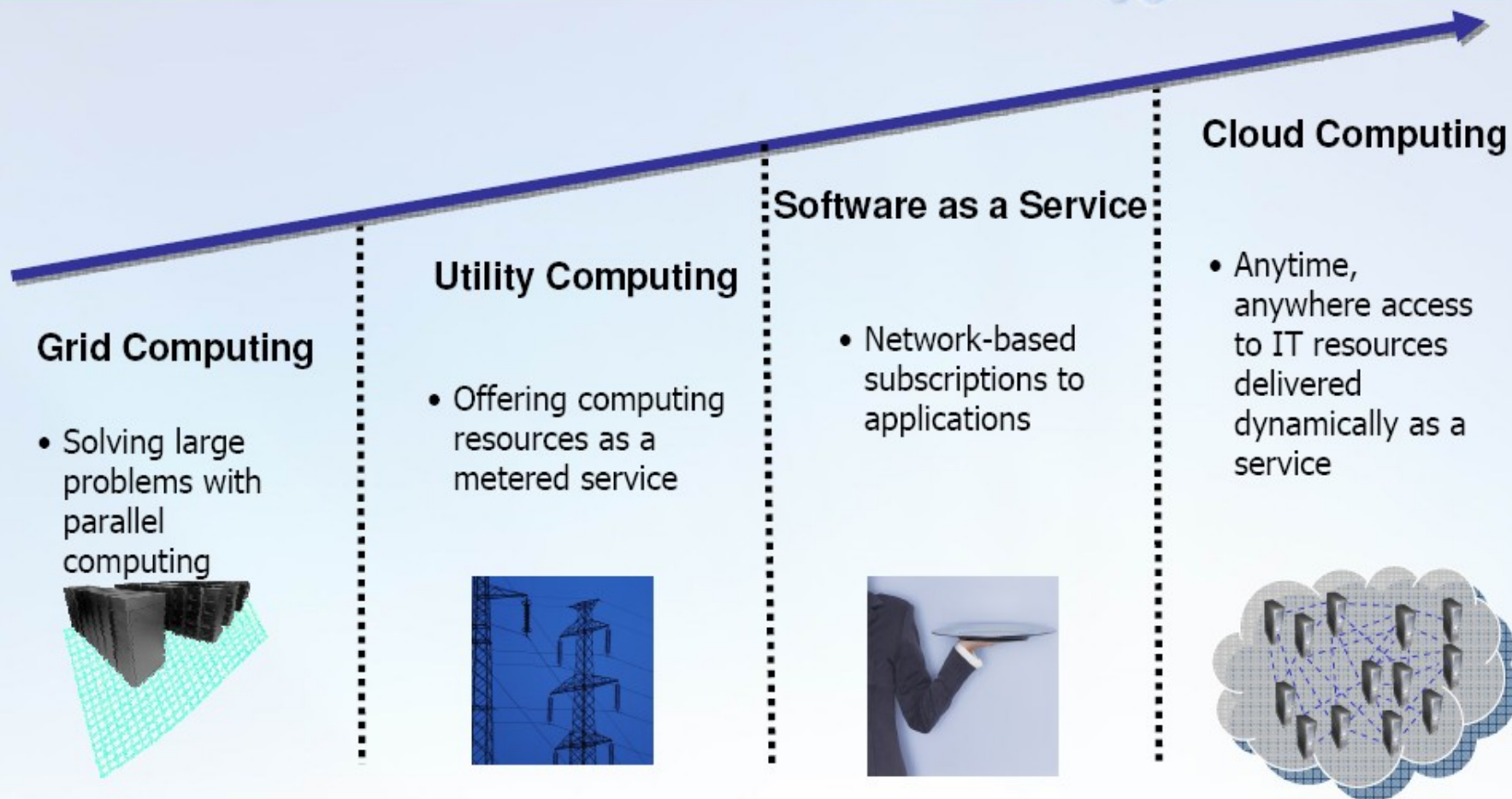
*“Cloud computing . . . is a style of computing where IT-related capabilities are provided ‘as a service,’ allowing users to access technology-enabled services ‘in the cloud’ without knowledge of, expertise with or control over the technology infrastructure that supports them.”*

— *Wikipedia, the free encyclopedia*

-A user experience and a business model

-A management and services delivery method for dynamic infrastructure





### Common Attributes of Clouds:

Enhanced user experience, Elastic scaling, Automated provisioning, Highly virtualized, Flexible Pricing



‘Services’ as a service

**IBM Cloud technology...**

- supports the full spectrum of Cloud services
- allows building private clouds while leveraging public clouds

**Applications, Processes and Information as a service**

**Platform as a service**

(optimized middleware – application servers, database servers, portal servers, etc.)

**Infrastructure as a service**

(virtualized servers, storage, networking)



# Cloud-onomics...

## CLOUD COMPUTING



...leverages virtualization, standardization and automation to free up operational budget for new investment



...allowing you to optimize new investments for direct business benefits



# The key building blocks for clouds are familiar

## *Simplification / Consolidation*



- Consolidation, systems management, and monitoring
- Reduce infrastructure complexity, staffing needs, and costs
- Improve business resilience and utilization

## *Advanced Virtual Resource Pools*



- Remove physical resource boundaries
- Allocate less than physical boundary
- Improve scalability, increase utilization
- Reduce hardware costs

## *Advanced Service Management*



- Service catalog, metering, and automated deployment of virtualized resources
- Integrated virtualization management with IT processes
- Reduce overhead, improve productivity

## *User Self Service*

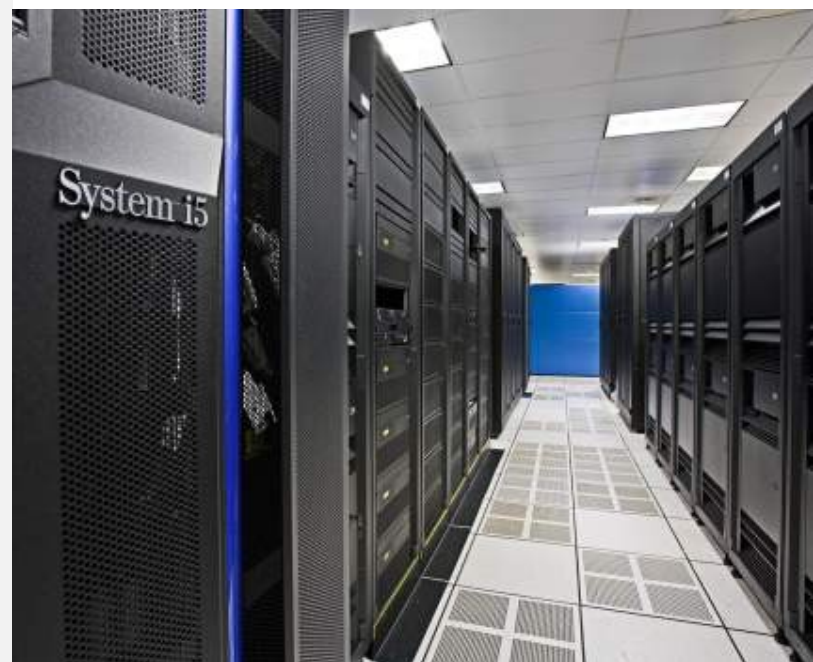


- Centralized, robust, self serve portal for 24X7 access to services
- Improve user satisfaction & productivity
- Control and manage delivery, support & admin costs

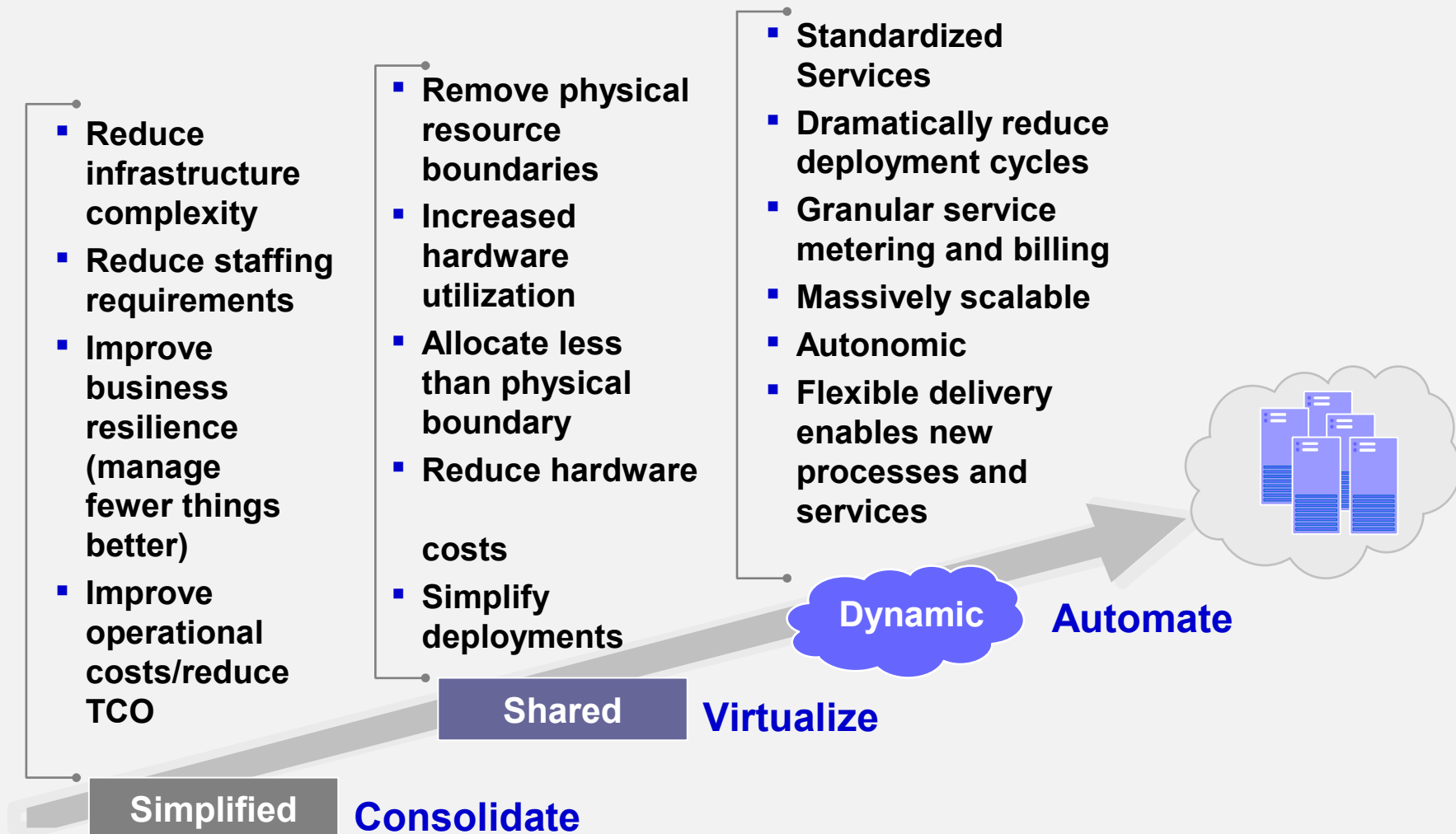


# A stepwise approach to Cloud Computing

1. Create an IT Transformation Roadmap
1. Define an Architectural Model for Cloud Computing
1. Complete a Workload Analysis
1. Decide the Right Mix of Delivery Models
1. Implement a Cloud Solution



# Step 1: IT Transformation Roadmap

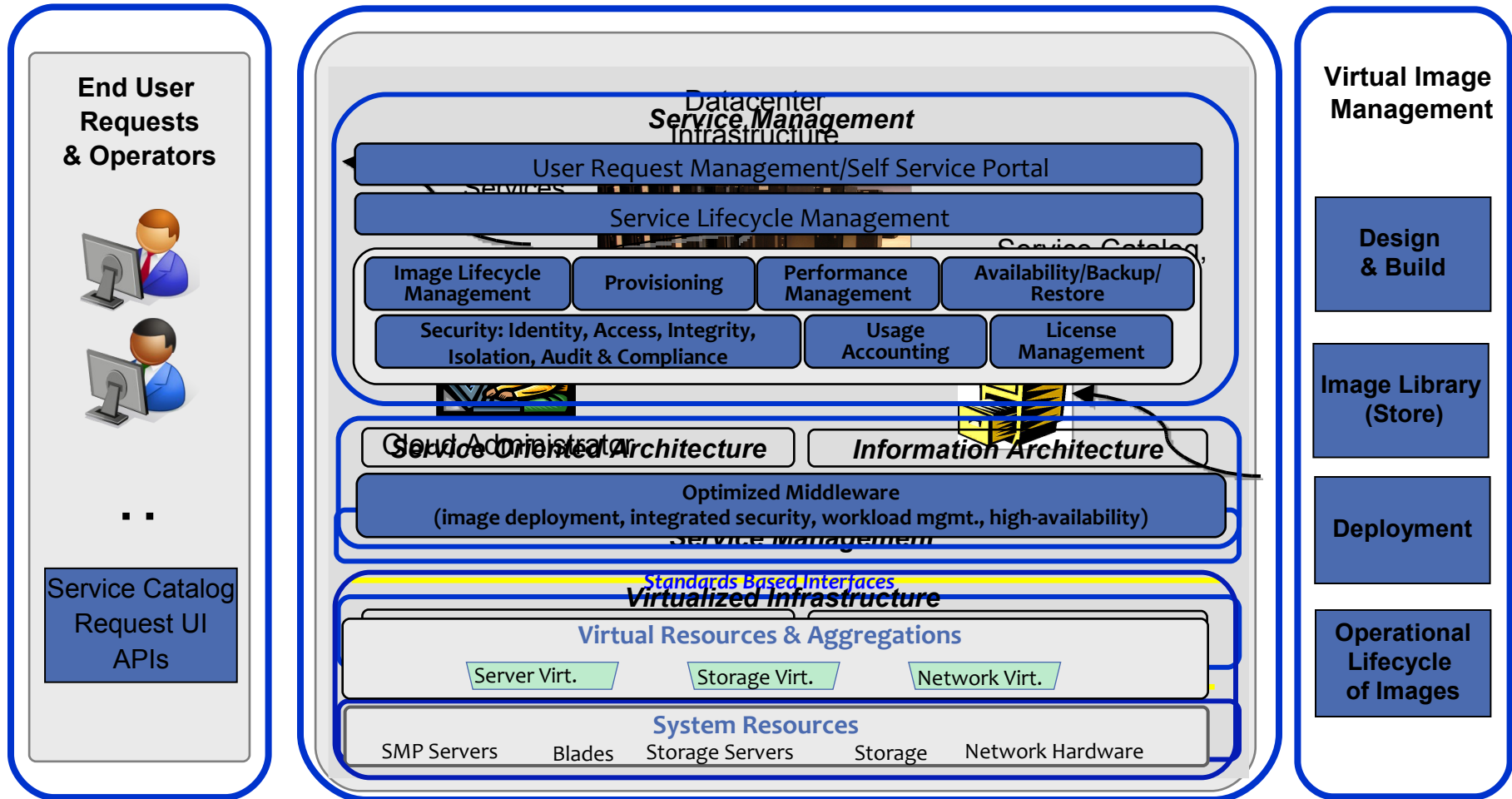


# Step 2: Architectural Model for Cloud Computing

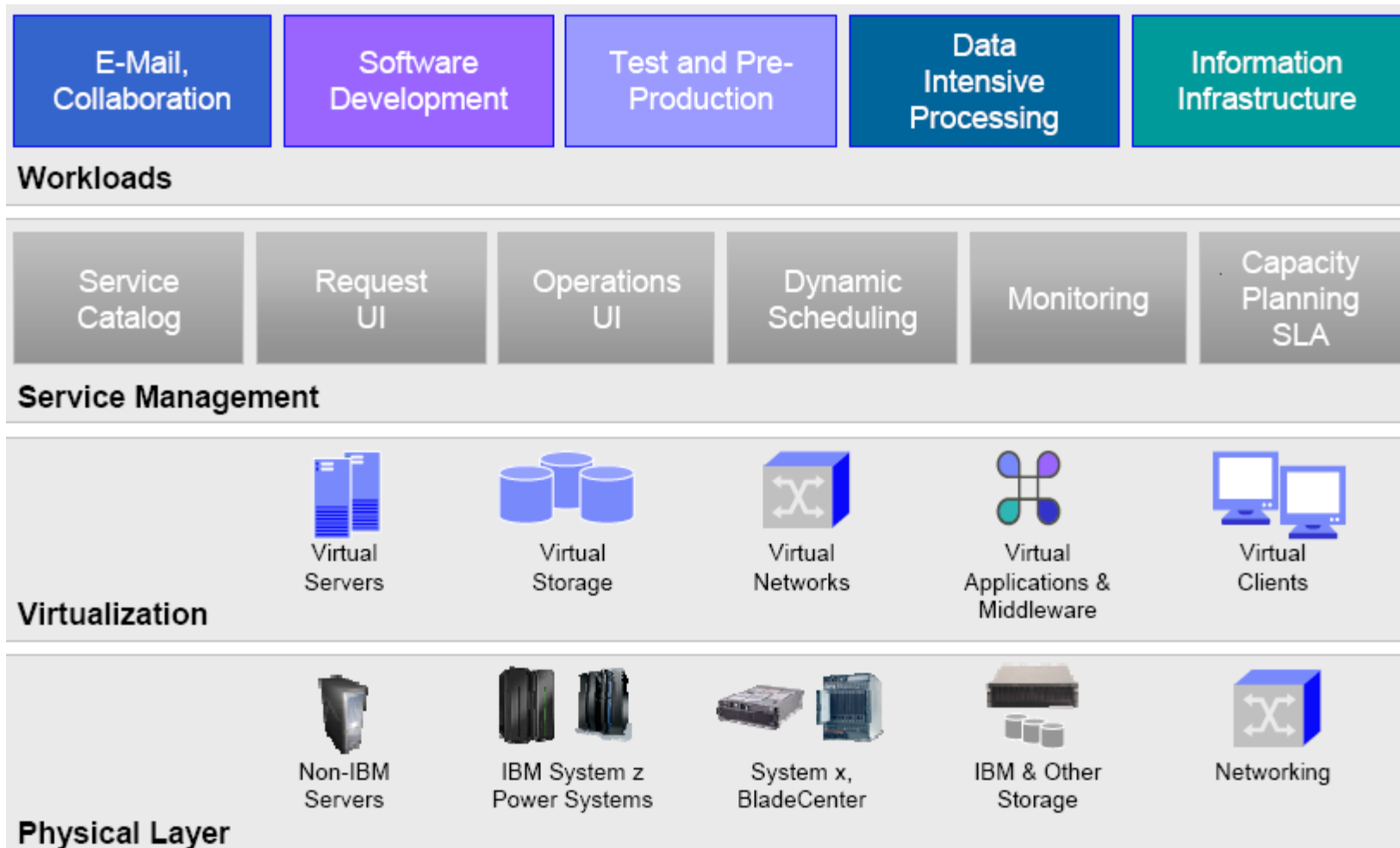
Service Request & Operations

IT Infrastructure & Application Provider

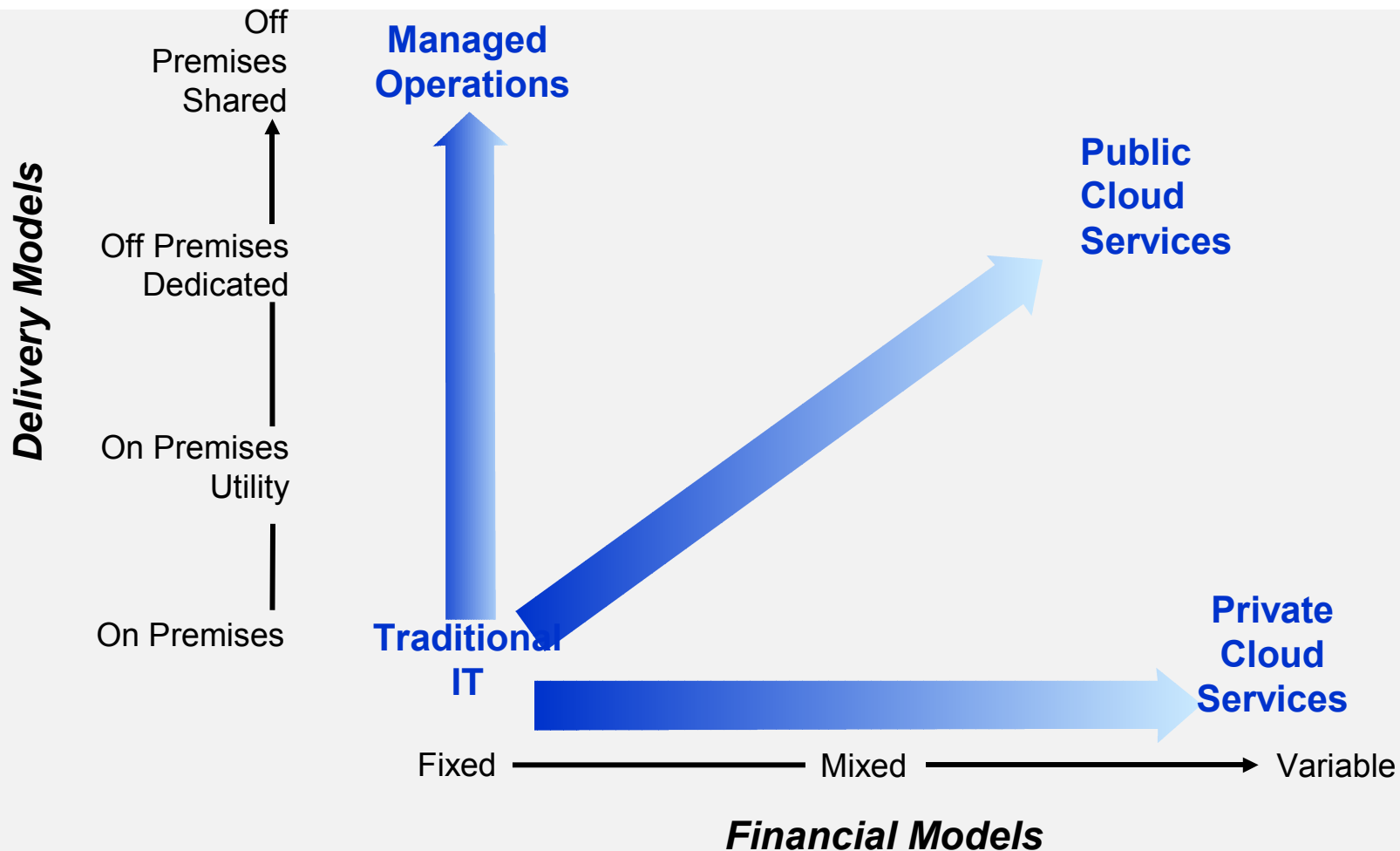
Service Creation & Deployment



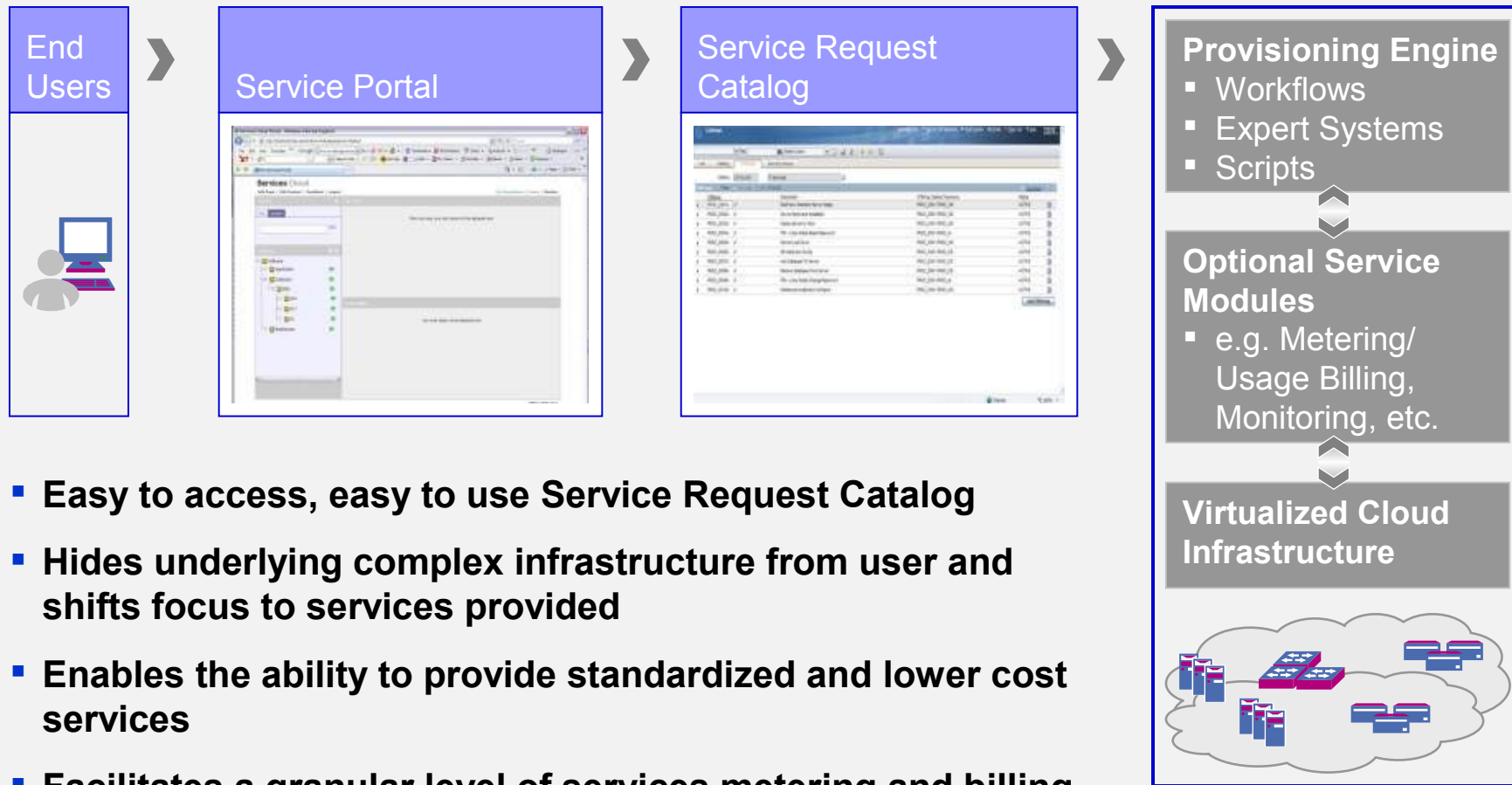
# Step 3: Workload Analysis



# Step 4: Deciding the Right Mix of Delivery Models



# Step 5: Implementation



- **Easy to access, easy to use Service Request Catalog**
- **Hides underlying complex infrastructure from user and shifts focus to services provided**
- **Enables the ability to provide standardized and lower cost services**
- **Facilitates a granular level of services metering and billing**
- **Workload standardization eases complexity**



# The Journey to Cloud...

Business Value

Centralize



Consolidate



Virtualize



Automate



Optimize



The Journey to Cloud...

Organization Culture Governance

...requires an integrated and orchestrated approach.

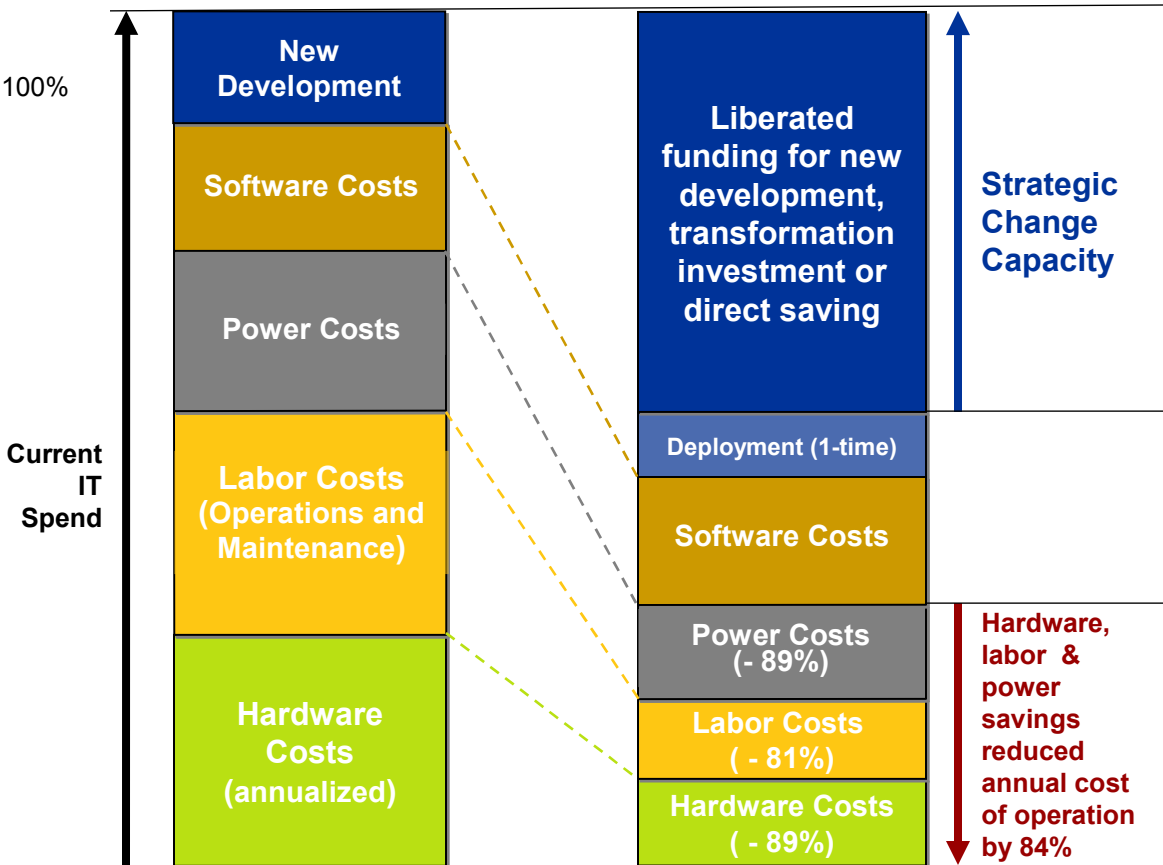


# Cloud Computing can Deliver ROI

*An Example: IBM Technology Adoption Program (TAP), an innovation cloud for 100,000 subscribers*

## Without Cloud

## With Cloud



**Reduced Capital Expenditure**  
**Reduced Operations Expenditure**  
**Additional Benefits**

Reduced risk, less idle time, more efficient use of energy, acceleration of innovation projects, enhanced customer service

**Business Case Results:**  
**Annual savings: \$3.3M (84%)**

Payback Period: 73 days  
 Net Present Value (NPV): \$7.5M  
 Internal Rate of Return (IRR): 496%  
 Return On Investment (ROI): 1039%



# IBM Cloud Computing Leadership

- 
- 1 Establishing cloud reference architectures**
  - 2 Delivering cloud enabling technologies and products**
  - 3 Managing cloud computing centers around the world**
  - 4 Providing consulting and implementation services**
  - 5 Helping clients speed time to market and reduce costs**



# Growing Portfolio of IBM Cloud Computing Offerings

*A growing portfolio of leadership products and services for optimizing with cloud computing to support customers with cloud building and cloud delivered offerings.*

## Cloud Consulting



- Infrastructure Consulting Services for Cloud Computing
- Business Cloud Consulting Services
- Security and Resiliency Consulting Services for Cloud
- Resiliency Certification for Cloud Computing

## Cloud Implementation



- Service Management for Cloud Computing
- Test and Developer Cloud Services
- Managed Security Services for Cloud Computing
- End User Cloud Services
- Scale out File Services

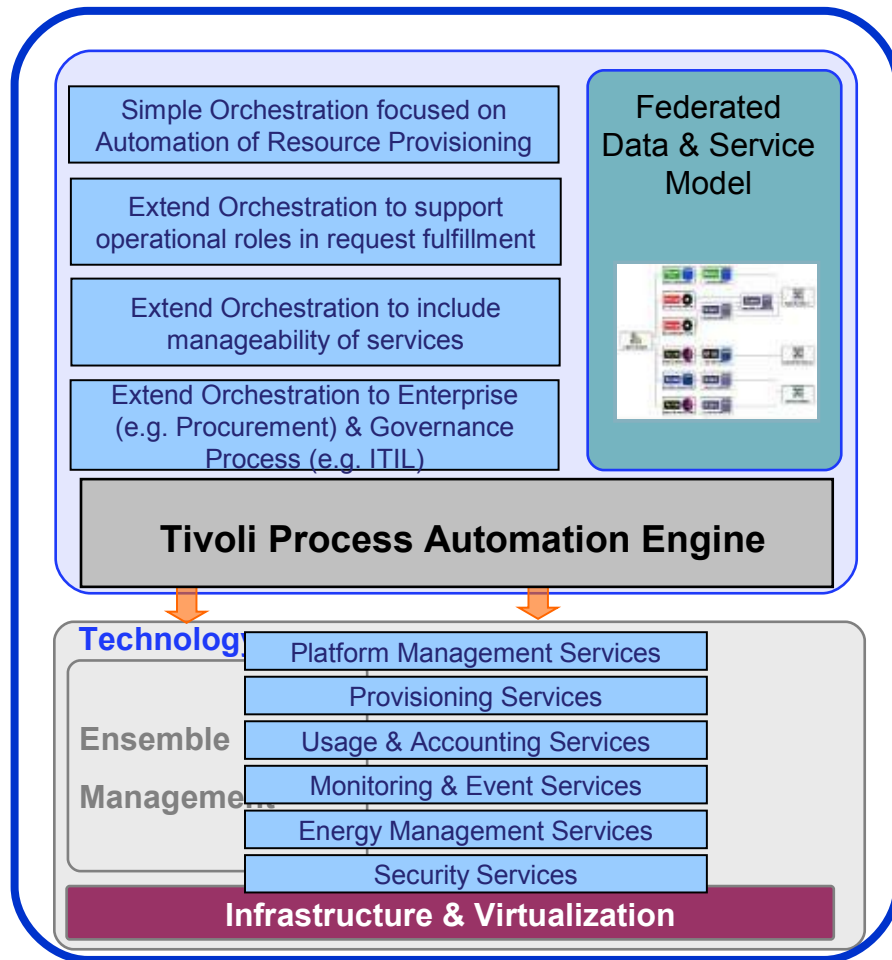
## Cloud Delivered



- LotusLive
- Computing on Demand
- Information Protection Services
- Managed Data Protection for desktops and laptops
- IBM products on Amazon EC2



# Cloud Management Platform: Tivoli Services Automation Manager



- Provides an integrated service delivery platform
- Accelerates adoption of foundational capabilities for deploying & managing Cloud Services
- Enables dynamic instantiation and management of Cloud Services along their entire lifecycle
- Facilitates automation based on build & management plans including humans and management components

# Infrastructure as a Service: IBM® Computing on Demand (CoD)



- Global, security rich, production cloud centers throughout the world
- Access to scalable, high performance systems when you need them
- Secure client environments with choice of physical servers or **new virtualized server instances**
- Low cost, flexible rental options -  
by the hour, week, or year

**Test drive CoD today!**

**[ibm.com/deepcomputing/testdrive](http://ibm.com/deepcomputing/testdrive)**



# Computing on Demand Virtualized Server Instance

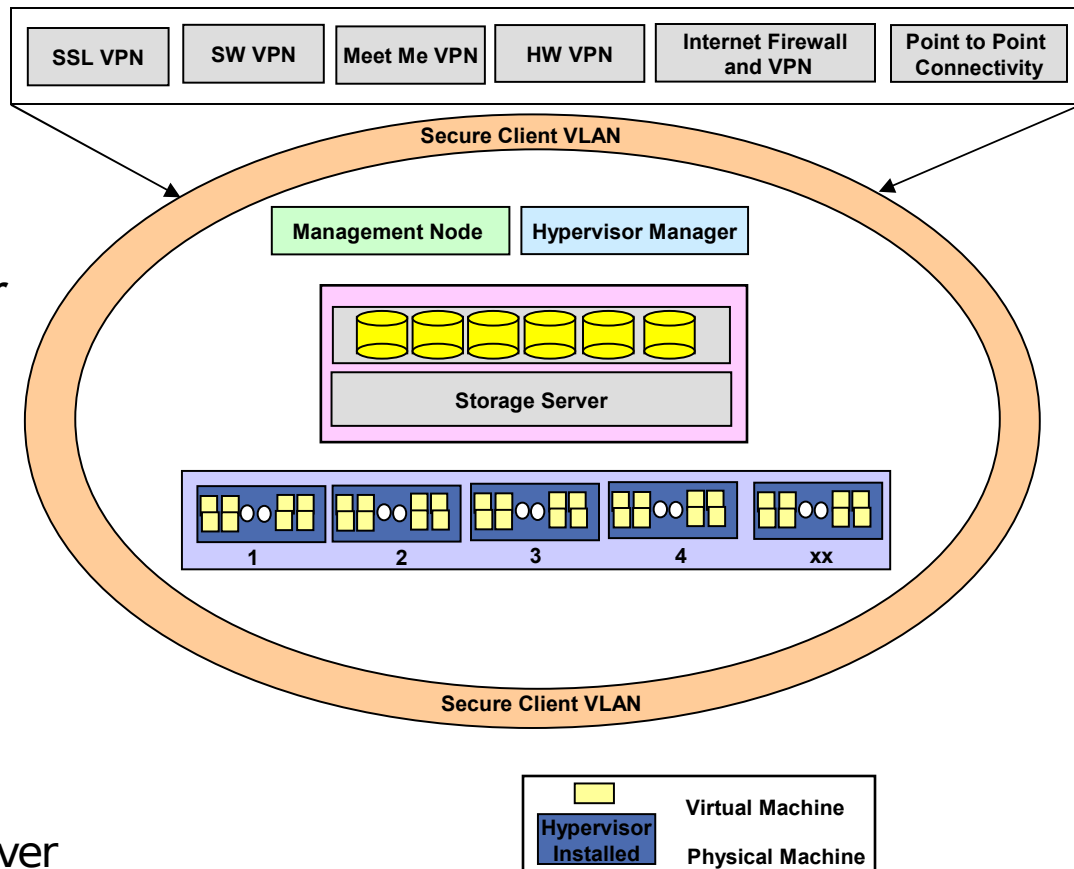
## Announced 4/28

### Highlights

- Enables clients to run multiple users or workloads on a physical server
- Flexible, client managed virtualized server (1 to n/server per client's performance goals)
- Secure client environment - physical and virtual servers dedicated to one client at a time

### Benefits

- Increased server utilization
- Reduced costs
  - No extra charge for data transfers
  - Multiple workstreams on same server
- Predictable performance and costs
- Benefits of virtualization extended to clients





**Service Offering Subscription & Instantiation**

- Select Service, specify parameters and SLA's
- Automatically instantiate the Service



**Subscriber**  
(e.g. Line of Business)

**Service Offering Creation & Registration**

- Define Service based on Template and register it in the Catalog



**Service Catalog Manager**

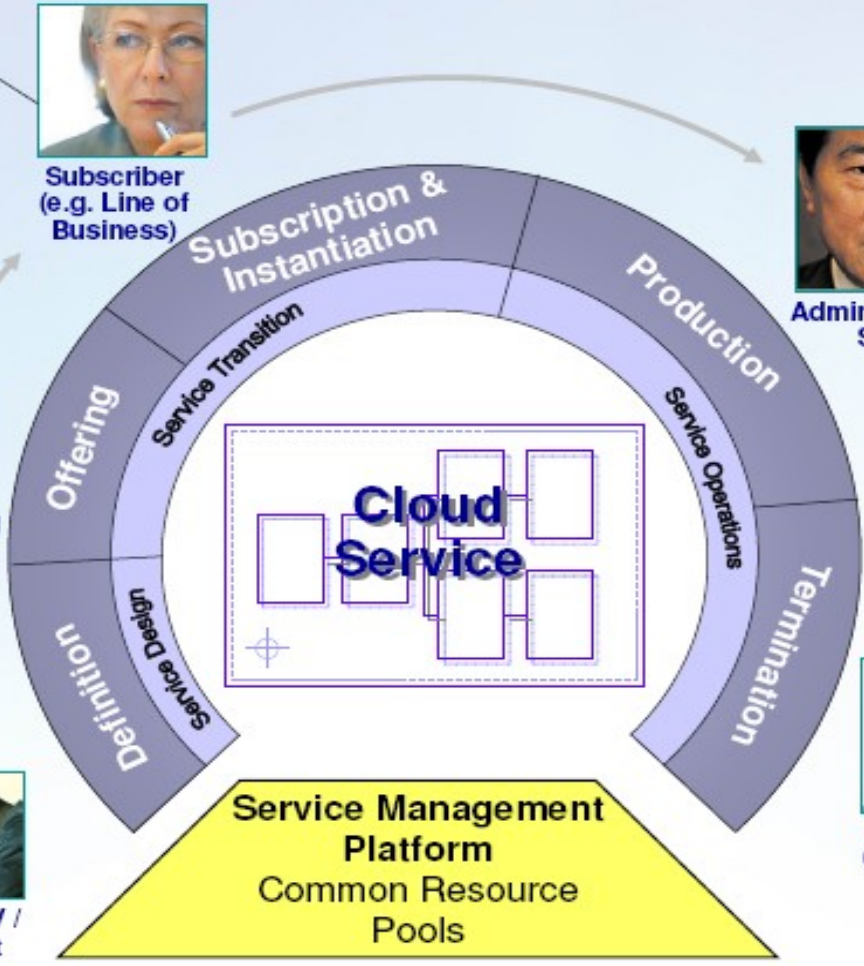


**Service Template Definition**

- Create Build- and Management Plans for Service



**IBM / ISV / IT Dept**



**Administrator / SLM**

**Manual or Autonomic Execution of Management Plans leveraging Automation and Virtualization**

Ensure SLA Conformance

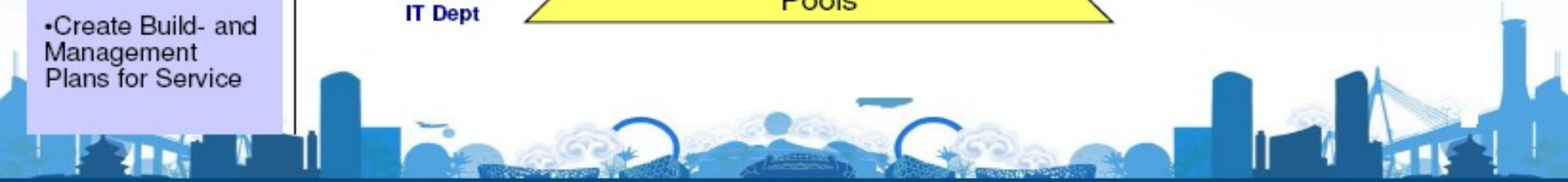


**Service Instance Termination**

Destroy Service and free up resources



**Subscriber**  
(e.g. Line of Business)





# Service Automation Management: 'Green Clouds'



## Deploy selected Cloud Offering

- Deploy ITM for Energy Management in support of KPI collection

## Operate on deployed Cloud

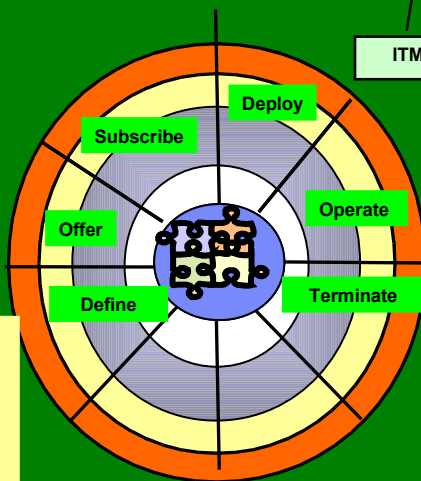
- React on energy consumption thresholds
- Integrated Incident and Problem Management



## Offer / Subscribe: to

Cloud offering with different energy requirements

Goals/KPIs



Incident Process



Energy Dashboard



Service Desk

Execution Mgmt Plans to relocate workload

ITM



Composite Application - Distributed WAS on p, DB2 on z,

## Define: Cloud Offerings:

- Build and Mgmt Plans incl.
- Config of Energy management and performance metrics from ITM
- Automated allocation for workloads



## Terminate selected Cloud Service

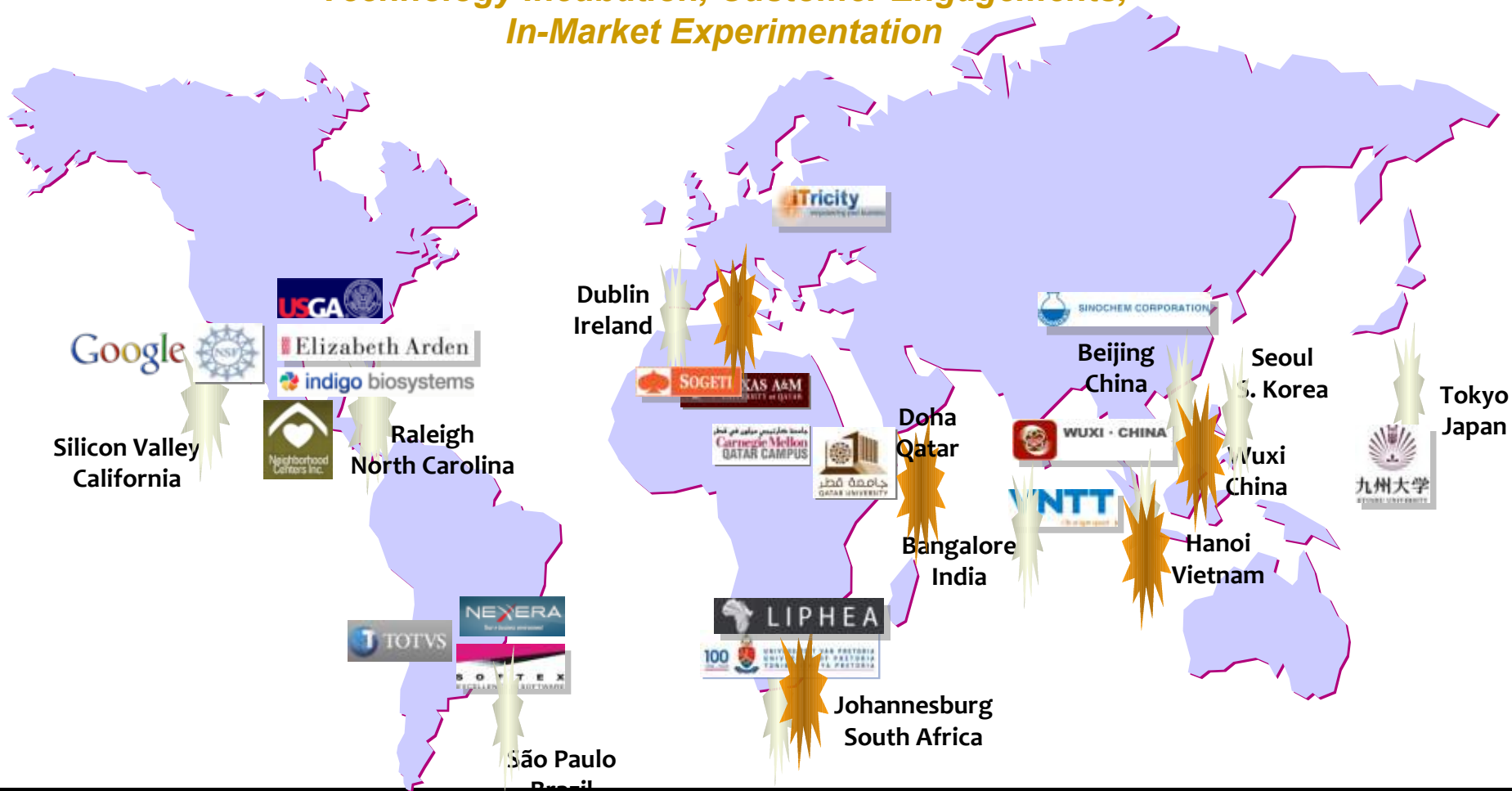
- free up resources



# IBM's Cloud Labs

## Supporting Clients Worldwide

*Technology Incubation, Customer Engagements,  
In-Market Experimentation*



# Lessons Learned from Client Experiences

- **“Don’t eat the elephant in one go!”** From Financial Company experiences.
- **Not only a technical problem – Organisation needs to be adapted also.** From Financial Company experiences.
- **This is transformative and crosses organizational boundaries.**  
**Executive sponsor support is vital.** From Financial Company experiences.
- **Cost is greatly reduced and capital expenditure is converted to operational expenditure** .[This lowers **barriers to entry** ]. Fom Wikipedia.
- **Open & adaptable Cloud management platform crucial. Support any hardware.** From Internet Company experiences.
- **Working closely with customer to identify short and long term business goals.** From China Cloud Computer experiences
- **The Benefits of Cloud Computing are real!** From IBM TAP experiences.
- **Open & adaptable Cloud management platform crucial. Support any hardware.** From Internet Company experiences..
- **Bringing together key skills at the right time is vital to drive success.** From Insurance Company experiences.



# In Summary

Cloud computing is a disruptive change to the way IT services are delivered.

- Standardized offerings, rapidly provisioned, flexibly priced
- Virtualized resources, managed as a single large resource, with elastic scaling

CIO teams need a cloud strategy.

1. IT Transformation Roadmap
2. Architecture and Governance
3. Selection of Workloads for Affinity for Cloud Computing
4. Mix of Delivery Models - private, public, hybrid
5. Choice of implementation partners

The benefits of cloud computing are real.

- Delivers ROI through reduced capital and operational expense.
- Frees up operational budget for new investment IT Transformation Roadmap

IBM can help!

- Cloud Consulting and Implementation Services
- Computing on Demand
- Cloud enabling technologies and products
- Managing cloud computing centers around the world



# *Thank you!*

*“Every human being, company, organization, city, nation, natural system and man-made system is becoming interconnected, instrumented and intelligent. This is leading to new savings and efficiency—but perhaps as important, new possibilities for progress.”*

**For more information, please visit:**

[ibm.com/cloud](http://ibm.com/cloud)

**Or contact me at:**

[kadiroz@tr.ibm.com](mailto:kadiroz@tr.ibm.com)



***Bu sunum 28 Mayıs 2009 tarihinde Swiss Otel'de yapılan Tivoli Pulse 2009 toplantısı için hazırlanmıştır.***

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