



**2009 ESRI User Conference**  
**Technical Workshops**  
July 14–17, 2009

**Enterprise Architecture Special Interest Group (SIG)**

*Michael Young – ESRI*

*Doug Tidwell – IBM*

Sponsored by:



# Agenda

- **Intros**
- **Discuss Hot Issues from Last SIG**
- **Cloud Services**
- **EA Topics**
- **Conclusions / Action Items**

# Intros

- **Michael Young – ESRI Sr. Enterprise Architect**
- **Doug Tidwell – IBM – Cloud Computing Evangelist**
- **You**
  - **Less than 30 seconds please ☺**
  - **Name, Role, Key Enterprise Issues**

# Hot Issues From Last SIG

- **Location for Exchanging Enterprise Architecture Issues / Knowledge**
- **Virtualization Support**

# Location for Exchanging Enterprise Architecture Issues / Knowledge

- During the last couple SIGs it was suggested to have a knowledge exchange area for Enterprise topics
  - In July the [Enterprise GIS Resource Center](#) went live
- Your feedback and suggestions will be the driver for new content

**ArcGIS** Enterprise GIS Resource Centers

Customer Care | Support | Careers

Resources Gateway | Resources | Community

### Getting Started

- [ArcGIS Application Architectures](#)
- [ArcGIS Security](#)
- [ArcGIS Performance and Scalability](#)
- [ArcGIS Interoperability and Standards](#)
- Browse the [Implementation Gallery](#) for reference implementations, benchmarks, and more

### Helpful Resources

- [What is ArcGIS?](#)
- [What's New in ArcGIS 9.3.12](#)
- [What's New in ArcGIS 9.3?](#)

### What is the Enterprise GIS Resource Center?

This resource center is a technology-focused website providing unified access to Enterprise-related content. It is intended primarily to help IT Professionals implement a sustainable Enterprise GIS by presenting best practices, patterns and guidance in the areas of Security, Performance and Scalability, Application Architecture, and Interoperability. This is supplemented by a community area that showcases reference implementations and benchmarks, as well as a blog focusing on the latest topics and trends.

The Enterprise GIS Resource Center is the place for you to:

- Learn about the trade-offs between performance, cost, maintainability, and other system attributes associated with standard patterns
- Find performance benchmarks, reference implementations, and other resources to help with implementing your Enterprise GIS
- Share your experiences, and communicate with other professionals like you

Feedback | Contact ESRI | Copyright © ESRI | Privacy

# Virtualization Support

- **ArcGIS Server now fully supported with virtualized platforms**
  - Testing indicates 20-30% performance/throughput degradation due to high I/O demands of GIS imagery and functions
  - 60% degradation has been observed so testing is key to identifying your needs
  - Creating one VM per core increases performance and throughput sometimes.
  - Products being used now:
    - VMWare
    - Microsoft Hyper-V
    - Sun Microsystems Solaris Containers
    - Citrix XenServer and Citrix Essentials

# IBM Cloud Computing Strategy





# The cloud

- 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.

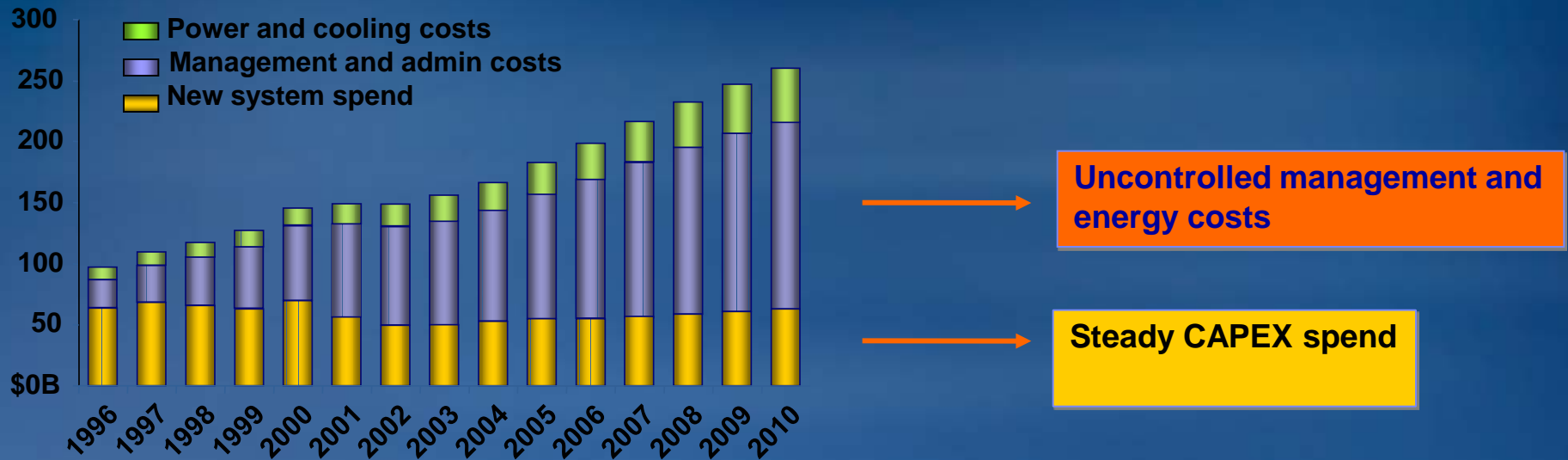
–From Wikipedia

- Everybody has a slightly different idea of what cloud computing really is.



# A Crisis of Complexity

Global Annual Server Spending  
(IDC)



To make progress, delivery organizations must address the server, storage and network **operating cost** problem, not just CAPEX

# Similarities between SOA and the cloud

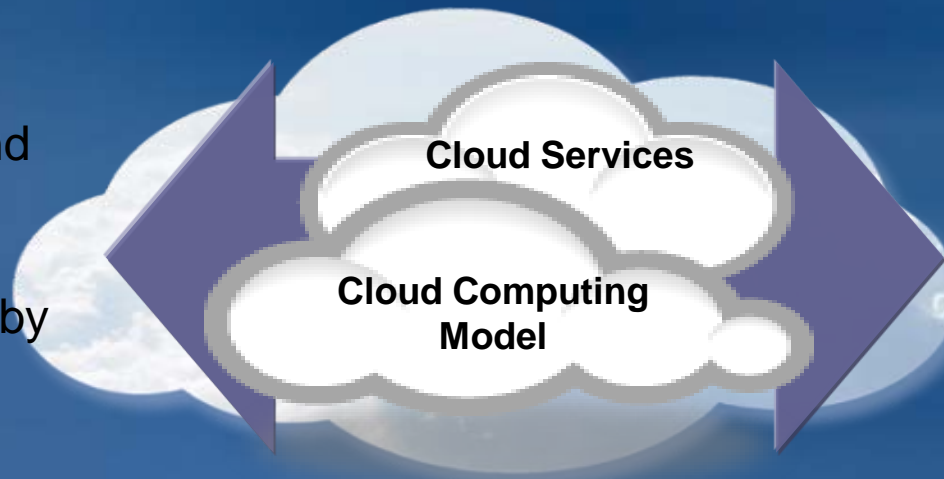
- Both started bottom-up
- Both started with massive hype
- Both don't work without governance
  - You need an architect, a blueprint, and an executive who is both enlightened and powerful.
- SOA and cloud computing aren't simply coding issues.

# Cloud Drives New Sourcing Options

## Private ...

- Client owned and managed.
- Access defined by client.

.... Customization, efficiency, resiliency, security and privacy



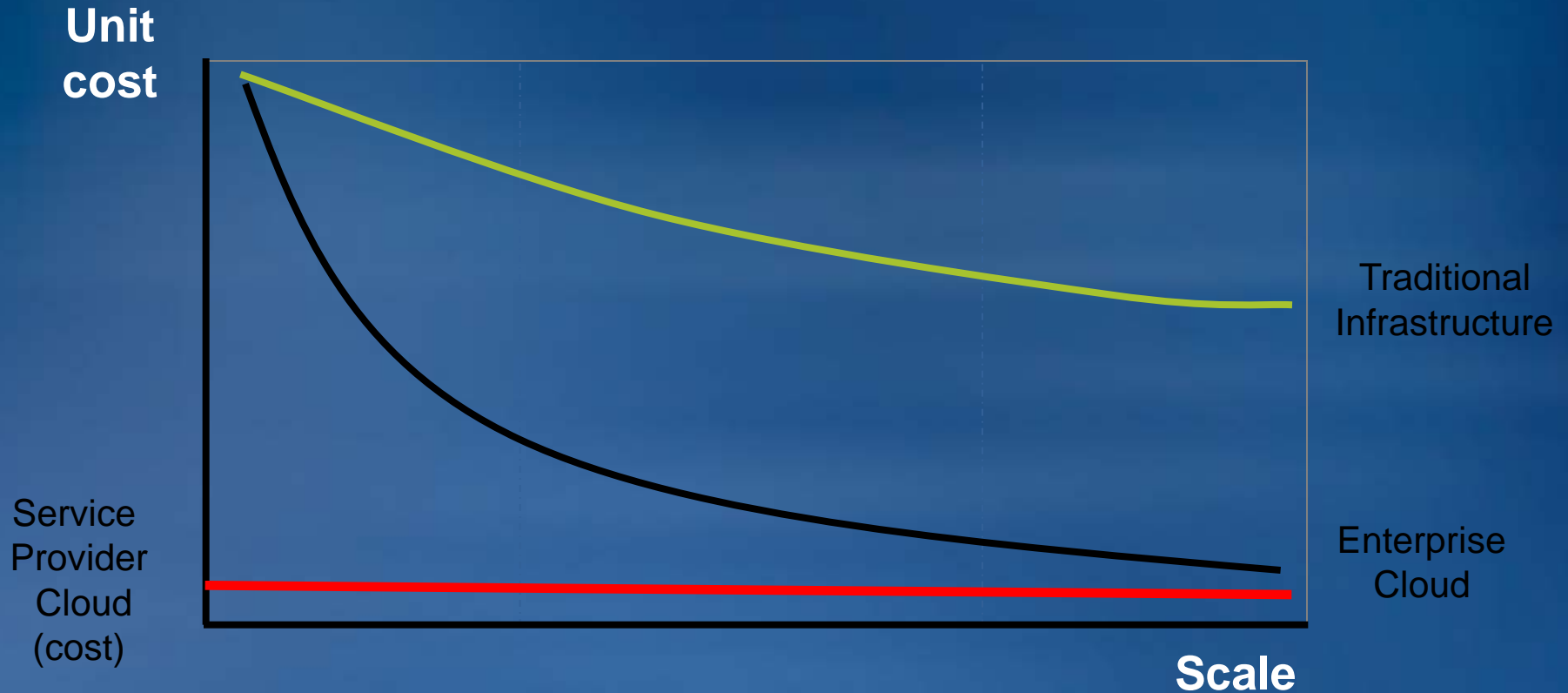
## Public ...

- Service provider owned and managed.
- Access by subscription.

.... Standardization, capital preservation, flexibility and time-to-deploy

**GOVERNANCE**

# Cloud Scale Economics

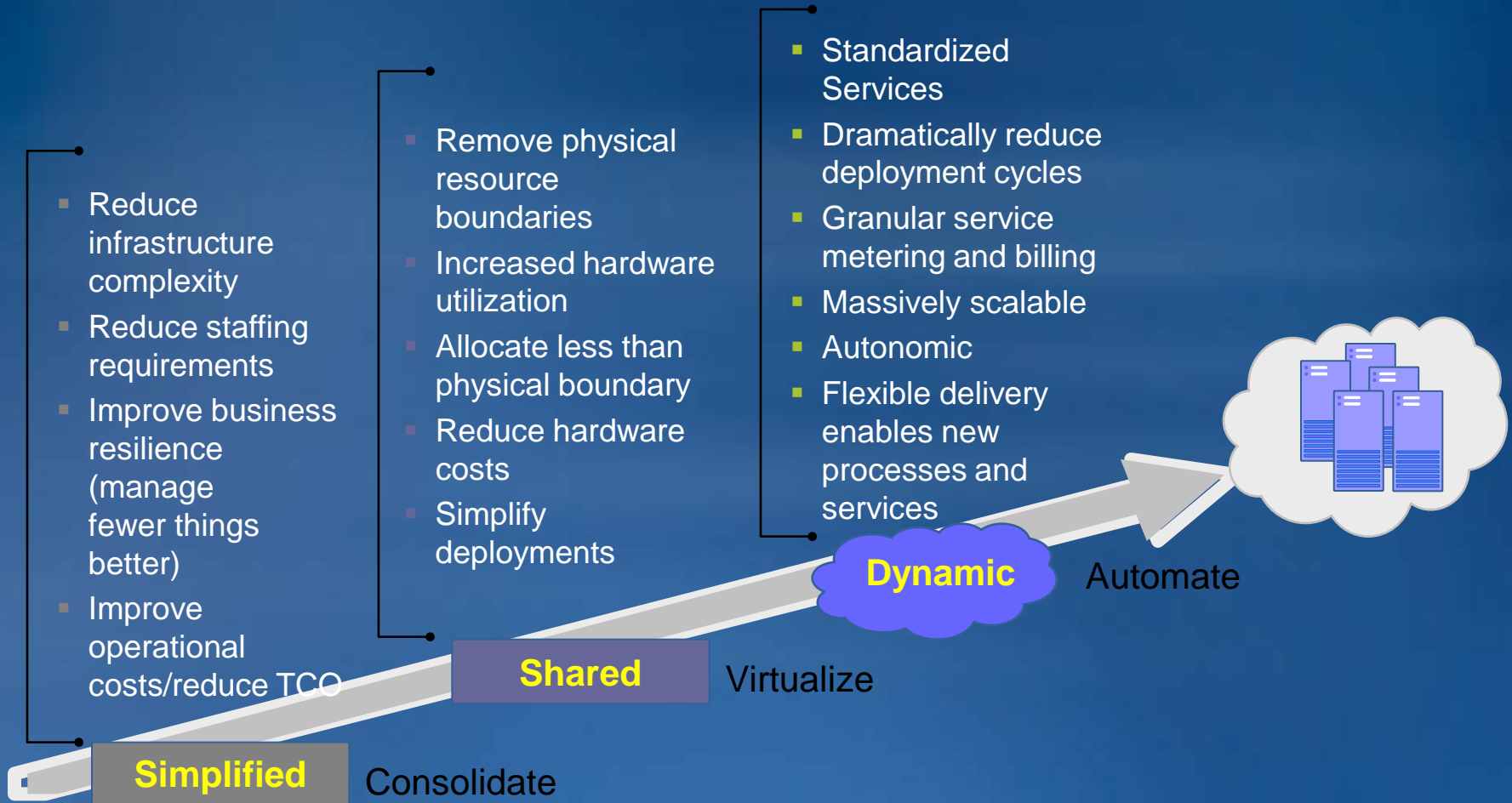


**Large enterprises can significantly reduce costs for some workloads compared with traditional IT**

# Introducing Cloud Computing in the Enterprise

- Transformation Roadmap
- Architectural Model for Cloud Computing
- Workload Analysis
- Deciding the Right Mix of Delivery Models
- Implementation

# IT Transformation Roadmap



# Architectural Model for Cloud Computing

Service Request & Operations

Service Provider

Service Creation & Deployment

End Users, Operators



Role-based Access

Service Catalog

Operational Console

Cloud Services

*Application, Process and Information Services*

*Standards Based Interfaces*

*Software Platform Services*

*Standards Based Interfaces*

*Infrastructure Services*

Cloud Management Platform

*Business Support Systems (BSS)*

*Standards Based Interfaces*

*Operational Support Systems (OSS)*

Service Planning

Service Definition Tools

Service Publishing Tools

Service Fulfillment & Configuration Tools

Service Reporting & Analytics



# Workload Analysis

## EXAMINE FOR RISK

Database  
Transaction processing  
ERP workloads

## TEST FOR STANDARDIZATION

Web infrastructure applications  
Collaborative infrastructure  
Development and test  
High Performance Computing

## EXPLORE NEW WORKLOADS

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

# Three choices to deploy workloads that matter to you for greater efficiency, productivity and control

## *Smart Business Services – cloud services delivered*

- 1. Standardized services on the IBM cloud*
- 2. Private cloud services, behind your firewall, built and/or run by IBM*

## *Smart Business Systems – purpose-built infrastructure*

- 3. Pre-integrated, workload optimized systems*



Analytics



Collaboration



Development  
and Test



Desktop and  
Devices



Infrastructure



Business  
Services

# Design and implementation for test environments



## Key Features

- Assessment of current test environment to project savings and ROI
- Strategy, planning, design and implementation services of the solution
- Create self-service portal with catalog of services
- Integrated platform combining service request management, provisioning / de-provisioning and change and configuration management

## Benefits

- **Reduce IT labor cost by 50% +** - reduce labor for configuration, operations, management and monitoring of the test environment
- **75% + Capital utilization improvement;** Significant license cost reduction
- **Reduce Test Provisioning cycle times from weeks to minutes**
- **Improve Quality-** eliminate 30% + of all defects that come from faulty configurations.

## WebSphere Cloudburst – A private cloud in a box



- Works with images of WAS Hypervisor Edition
- See [ibm.com/software/webservers/cloudburst/](http://ibm.com/software/webservers/cloudburst/)

# IBM CloudBurst

## Highlights:

- Self contained: Prepackaged hardware / software, based on Phoenix platform and Service Management extensions
- Plug and Play Workload Service Catalog – Allows clients to allocate, start and stop application workloads on “available” servers w/o requiring deep technical analysis
- Self-service: Zero touch administration
- “Lights-out” automated operation

Service Management stack serves as the Presentation and Runtime layer that the client uses to request driven provisioning of virtual computing resources through:

- a Web 2.0 Self-Service portal
- management of multi-customer, multi-project collections of virtual systems
- providing end-user reservation of compute and storage resources
- automated provisioning and de-provisioning of resources
- real-time monitoring of virtual resources
- Software sourced from HIPODS and Tivoli products

## *EMBEDDED BILL OF MATERIALS*



## *Base Hardware Configuration:*

- 1 42U rack
- 1 3650M2 Mgmt Server, 8 cores, 32GB Ram
- 1 H22 Blade for Thundercloud stack, 8 cores, 48GB RAM
- Base configuration:
  - 1x BladeCenter chassis
  - 3 – 13 managed H22 blades, 8 cores, 48GB RAM
- DS3400 FC attached storage

## *Cloud Software Configuration:*

- Phoenix stack runs on 3650M2 management server
  - Windows 2003R2 Enterprise
  - Systems Director 6.1.1, ToolsCenter 1.1, DS Storage Manager, VMware VirtualCenter 2.5, VMware ESXi, MS SQL Server
- BlueCloud v1.6.1 including appliance wizards
- Tivoli Provisioning Manager v7.1
  - DB2 9.5; WebSphere Application Server 6.1, Tivoli Directory Server 6.1
- Tivoli Monitoring v6.2
  - OS pack (active), Green Energy Manager (inactive)
- Tivoli Storage Manager client
  - OS, DB2, potentially WebSphere
- SUSE Enterprise Linux 10 sp2
- Thundercloud software stack will ship as VMware images to run on the H22 management blade



# IBM's 9 Cloud Labs support clients world-wide

Technology Incubation, Customer Engagements, In-Market Experimentation



# The Open Cloud Manifesto

- A statement of principles for openness in cloud computing
- More than 225 supporters and growing
- Join the “Open Cloud ” group
- Visit [opencloudmanifesto.org](http://opencloudmanifesto.org).
- Join us at [groups.google.com/group/cloud-computing-use-cases](https://groups.google.com/group/cloud-computing-use-cases).



The graphic is a landing page for the Open Cloud Manifesto. It features a dark blue background with a large orange rounded rectangle in the center. At the top left of the orange area is a blue cloud icon. To its right, the text "see who supports an open cloud" is displayed next to a white icon of two people. Below this, a vertical sidebar on the left contains three icons: an information icon labeled "about", a question mark icon labeled "faqs", and a circular arrow icon labeled "blogs, wikis, and more". The main orange area contains the text "open cloud manifesto" in a large font, followed by "dedicated to the belief that the cloud should be open" in a smaller font. At the bottom of the orange area, the text "view the manifesto!" is followed by a right-pointing arrow and a circular icon containing a document symbol. Below the orange area, the text "contact us" is visible. At the very bottom, there is a Creative Commons license logo (CC BY SA) and the text "This work is licensed under a Creative Commons Attribution-Share Alike 3.0 Unported License".

see who supports an open cloud 

about

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open cloud manifesto

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# The principles in action

- The Cloud Computing Use Cases Google group is building a white paper of common use cases.
- The identified use cases will be used to drive standards efforts.
- Draft 2 of the whitepaper is out now; the final version will be released July 31<sup>st</sup>.
- Join us at [groups.google.com/group/cloud-computing-use-cases](https://groups.google.com/group/cloud-computing-use-cases).



# In Summary...

- Enterprise cloud opportunity is early, but real
- Economics of private clouds are compelling
- Adoption of cloud computing will be driven by workload affinity
- Open standards are crucial
- IBM offers deployment choices for workloads that matter to you

# EA Topics



# EA Topics

- Enterprise Architecture Frameworks
  - Which ones are working best for you now?
    - FEAF
    - NIST
    - DODAF
    - TOGAF
    - EA3 Cubed
    - Zachman
    - Others?

# EA Tools

- **What EA tools are working best for you?**
  - Visio
  - System Architect (Telelogic/IBM)
  - Enterprise Architect (Sparx)
  - IBM Rational Software Architect
  - Others?
- **Useful overview of Enterprise Architecture Tools Updated for 2009**
  - <http://www.enterprise-architecture.info/Images/EA%20Tools/Enterprise%20Architecture%20Tool%20Selection%20Guide%20v50.pdf>

# EA Topics

- What technology standards are important to your org now?
  - SOAP
  - REST (yes, it's not a standard 😊)
  - UDDI – Is it mostly dead?
  - WSDL – Are dynamically generated service listings better?
  - Java CSA - Any usage yet?
  - MS WCF?
  - OGC?

# EA Topics

- **Anyone want to talk about Cloud Computing?**





# Conclusions / Action Items

