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# Cloud Computing and the Cloud Standards Customer Council

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OBJECT MANAGEMENT GROUP



## A Story from My Hometown

- Great Baltimore Fire of 1904
- Response from Philadelphia, Washington, New York, Virginia, Atlantic City... hundreds of firefighters
- Burned two days, 140 acres



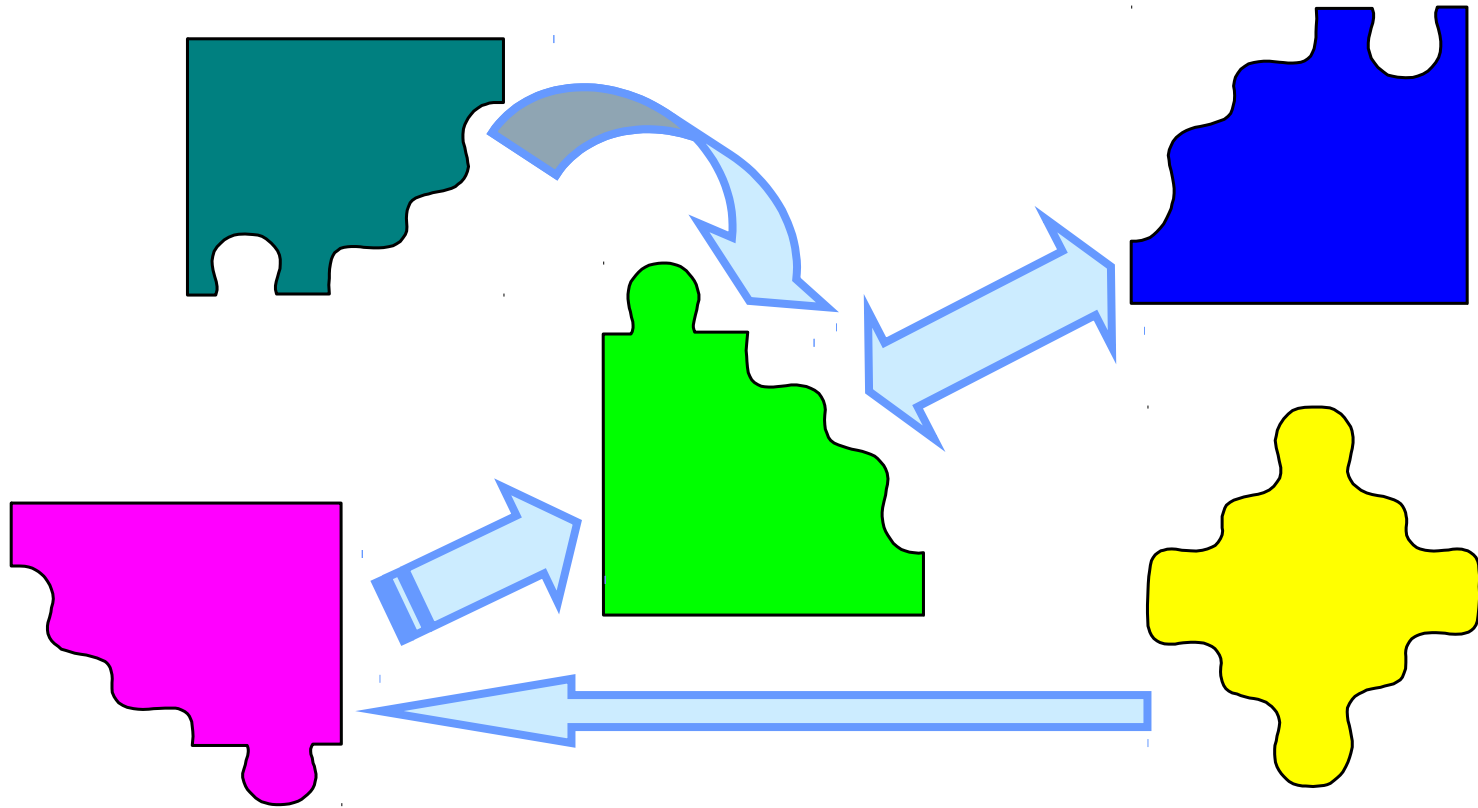
## Standards Are Important

- Sometimes they have life-or-death consequences
- Successful standards start, maintain and build ecosystems & businesses
- Standards are product differentiators:
  - Marks of quality
  - Expertise (certification, validation)
  - Interoperability, Portability & Reuse

## Heterogeneity is Permanent

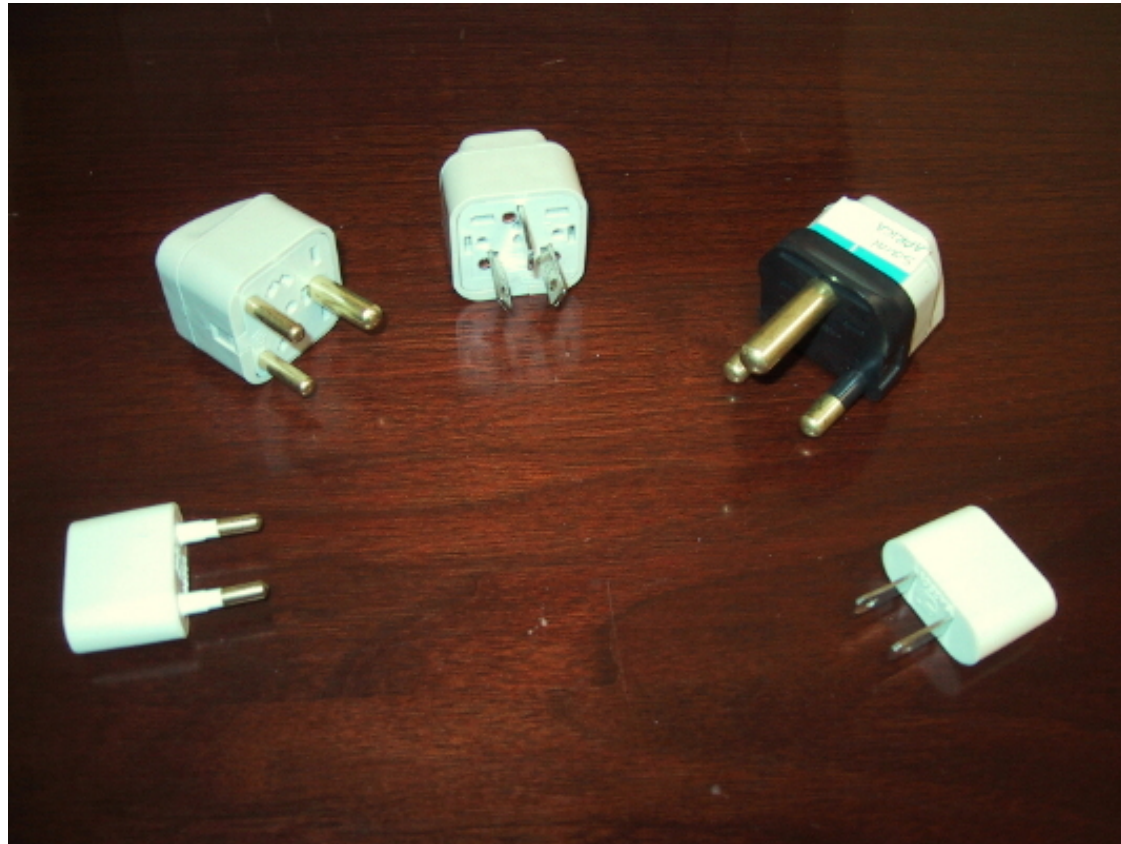
- Programming languages
  - ~3 million COBOL programmers
  - ~1.6 million VB programmers
  - ~1.1 million C/C++ programmers
- Operating systems
  - Unix, MVS, VMS, MacOS, Windows (all 8!), PalmOS...
  - Windows 3.1: it's still out there!
  - Embedded devices (mobile, set-top, etc.)
- Networks
  - Ethernet, ATM, IP, SS7, Firewire, USB
  - Bluetooth, 802.11b, HomeRF

The integration picture is always changing



*Executive decisions, mergers & acquisitions have a way of surprising us...*

## Bringing Down Cost of Adaptation



## OMG's Mission Since 1989

- Develop an architecture, using appropriate technology, for modeling & distributed application integration, guaranteeing:
  - reusability of components
  - interoperability & portability
  - basis in commercially available software
- Specifications *freely available*
- Implementations exist
- Member-controlled not-for-profit

# Who Are OMG?

ACORD

Hitachi

NIST

Siemens

Adaptive

IBM

No Magic

SINTEF

Boeing

Johns Hopkins U.

Northrop Grumman

Technologic Arts

CA

IKV

OASIS

Toshiba

Citigroup

Lockheed Martin

Oracle

Toyota

CSC

Microsoft

OSD

Unisys

Fraunhofer

MITRE

PM-ISE

Visumpoint

Fujitsu

National Archives

Progress Software

WebRatio

Harris

Red Hat

XBRL

Hewlett Packard

NEC

SAP

Zurcher Kantonalbank

NEHTA



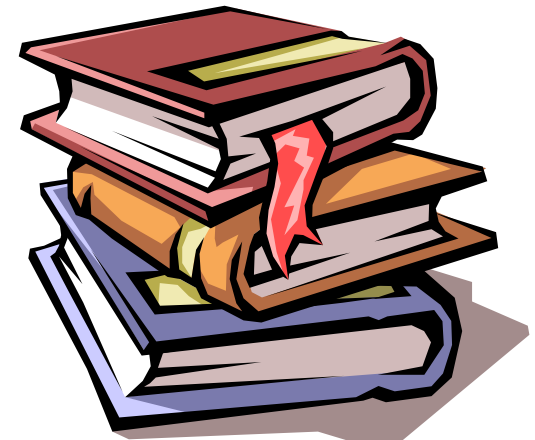


# Liaison Relationships



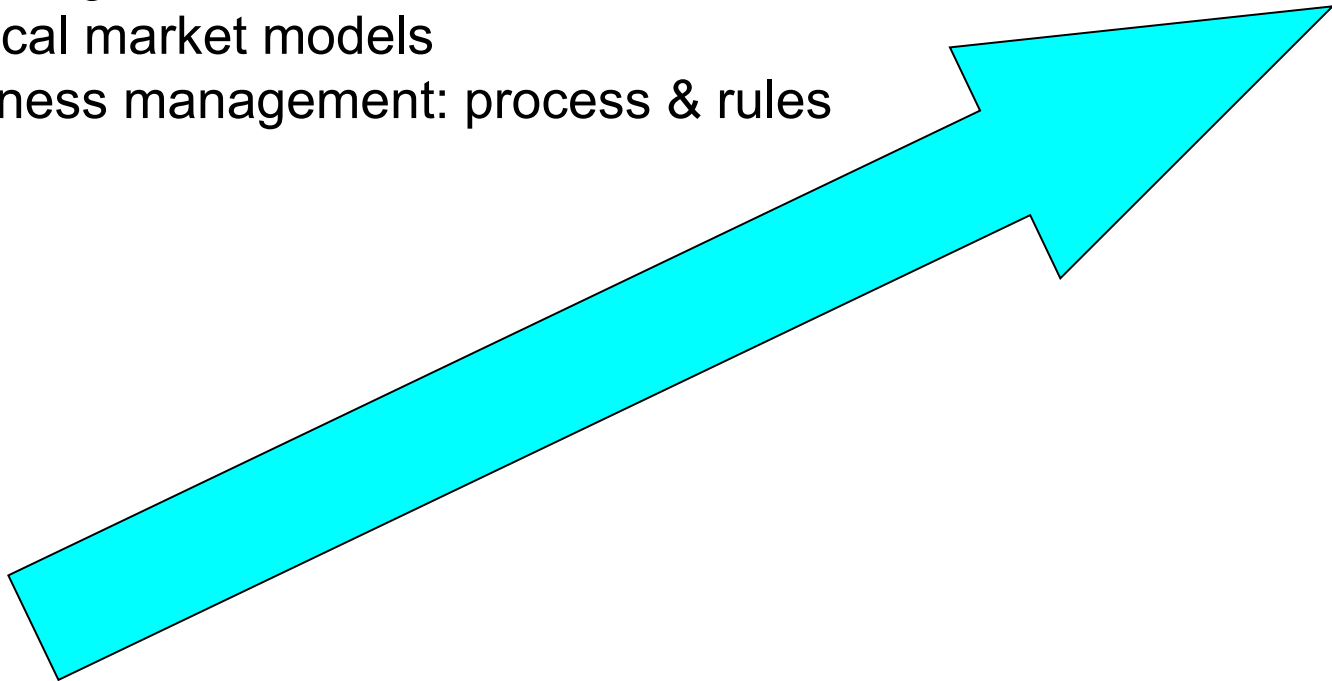
## OMG's Best-Known Successes

- Common Object Request Broker Architecture
  - CORBA® (and the DDS™ Publish/Subscribe model) remains the only language- and platform-neutral interoperability standard
- Unified Modeling Language
  - UML® the world's mostly widely adopted standard modeling language
- Common Warehouse Metamodel
  - CWM™, the integration of the last two data warehousing initiatives
- Business Process Modeling Notation
  - BPMN™ widely adopted for business analysis
- Meta-Object Facility
  - MOF™, the language-defining language
- XML Metadata Interchange
  - XMI™, the XML-UML standard



## Going “Up The Stack”

- OMG’s history has been to address the “technology stack” from the bottom up:
  - Object orientation
  - Distributed middleware
  - Modeling
  - Vertical market models
  - Business management: process & rules



## OMG's Breadth of Standards

- Besides key modeling, distributed computing & realtime/embedded standards, OMG develops standards in

|              |                     |                    |
|--------------|---------------------|--------------------|
| Healthcare   | Financial Services  | Telecommunications |
| Government   | Military Logistics  | Manufacturing      |
| Robotics     | Systems Engineering | Military Comms     |
| Smart Energy | Device Safety       | etc.....           |

## Some Examples

- Cloud computing
  - Cofounded [cloudstandards.org](http://cloudstandards.org); focused on *portable deployment* to support many business models
- Enterprise Architecture
  - DoDAF/MODAF architecture frameworks
  - Languages for interoperability
- Military systems
  - Both communications and C4I command/control
- Civil Government
  - Electronic records management
  - Skills management (Japanese-led)
- Robotics, Healthcare, Manufacturing, etc.
- Software Quality

# Cloud Standards Mess

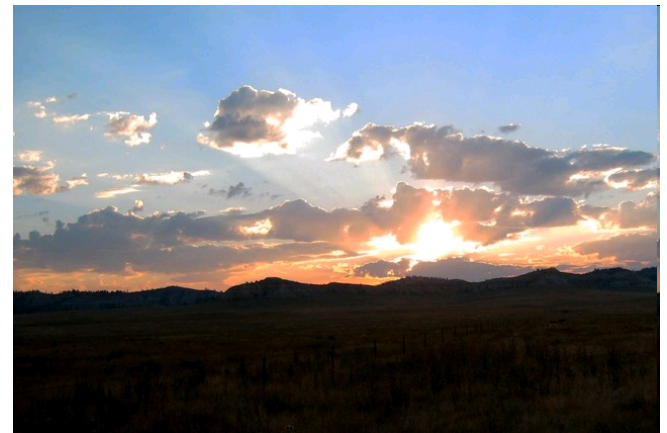


## The Cloud Decision

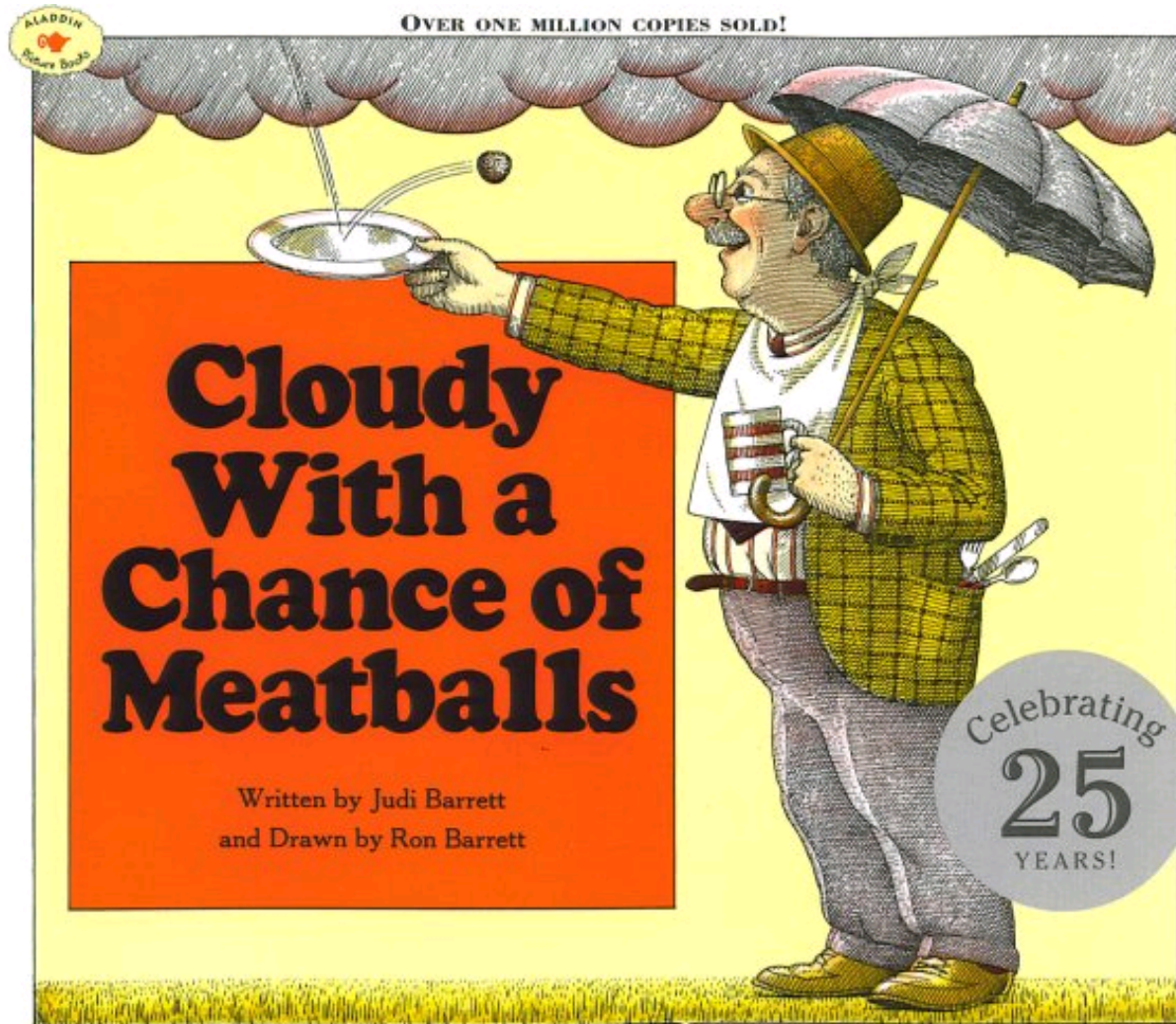
Key idea: get the decision down to a simple “rent vs. buy” calculation

- Get standards in place rapidly and we win
  - Portable, interoperable services
  - Cybersecurity built in
  - Supporting a fast-growing market for services with standardized SLA’s
- Provide the foundation for innovation

***Standards are the greatest force for innovation in the world.***



## Getting it Wrong





## A Joint Resource

- *Cloud-standards.org is a joint resource to find out what's going on in the industry, available from vendors and among end-users about cloud computing standards:*
  - What standards exist or are under development
  - What products implement those standards
  - Who has used those products
  - How well they have worked (success & failure stories)



## Cloud Standards Collaboration

- The leading Standards Development Organizations (SDO's) are collaborating to coordinate and communicate standards for Cloud computing and storage; working group established this year
- Many SDO's are already collaborating, more are welcome
- Committed to development of a joint resource on cloud computing strategies, standards and implementations
- Different SDO's are bringing together different but complementary abilities: storage, execution models, deployment models, service level agreements, security, authentication, privacy

# Cloud Standards Clarity



## Standardization Areas

- Security (e.g. authentication, authorization)
- Interfaces to IaaS (e.g., compute, storage)
- PaaS & deployment model formats for Cloud applications
  - Resource descriptions (Required, Available)
  - Service & SLA models
- Management Frameworks
  - Governance and Policy Enforcement
  - Regulatory agreements (e.g. Data location and security)
  - SLA formats (e.g. Performance, Availability)
- Portable component descriptions (e.g. VM's)
- Data exchange formats (to and from Clouds)
- Cloud Taxonomies and Reference Models

## OMG's Focus

- **Variation of Capital versus Expense Models**
- **Product Agnostic Description**
  - UML profile for Cloud provides the same value as the soaML provides for SOA
  - Service Level Agreement modeling supports portable SLA
  - Initial specification through provisioning
  - Multi-cloud vendor support
- **Integrated, and trusted Cloud Cyber Security**
  - Cloud-specific Threats and Attack patterns
  - Advanced Forensic specifications
  - Non-signature as well as signature-based
  - Inter-cloud trusted protocol(s)
  - Leveraging OMG Systems Assurance efforts

## But what is *your* focus?

Cloud computing end-users haven't had their say about cloud computing standards:

- What do we need?
- When do we need it?
- What are the priorities?





Making Cloud Standards Customer Driven

## We are reaching a breaking point ...

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

# 85% idle

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

# 70%

 per US\$1

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

# 80%

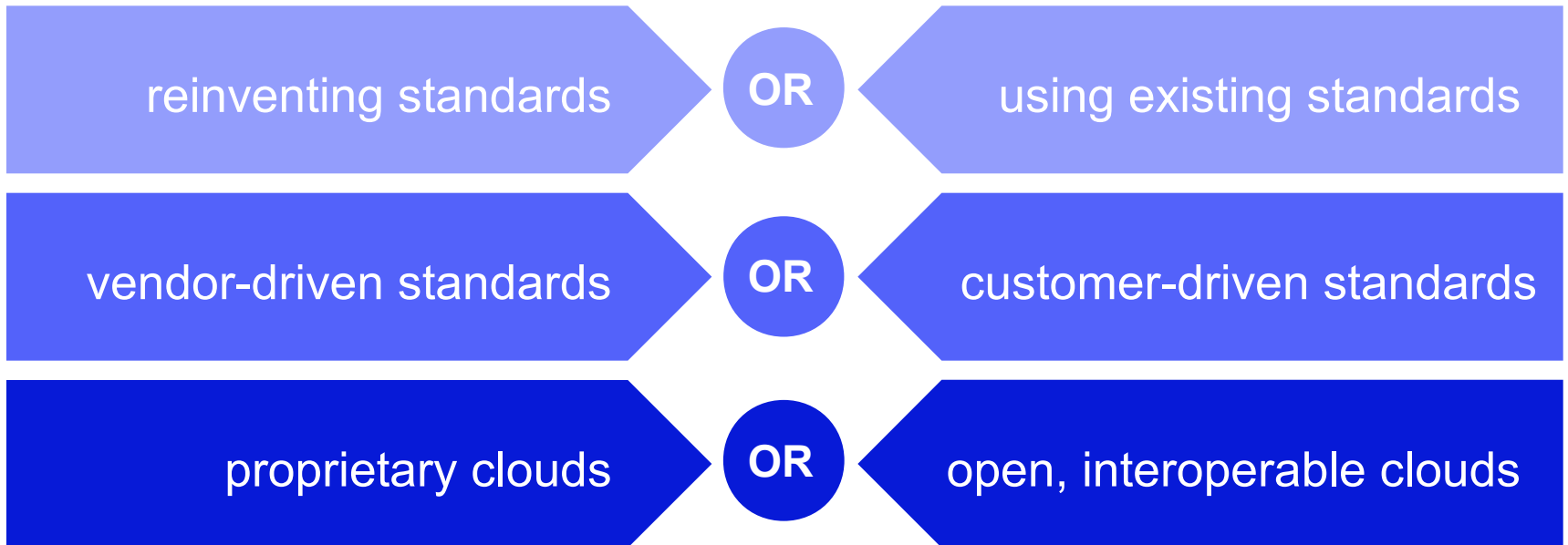
Percentage of executives who report a security breach and aren't confident they can prevent future breaches

# 78%

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



# Open Standards: Invention? Or Reinvention?



**Or is it somewhere in between...?**

## Context for cloud standards

Cloud computing is a model for *enabling cost effective business outcomes through the use of shared application and computing services*. The value .... if possible .... is better economics in the execution of business processes.

There is a **lack of a customer driven prioritization** and focus within the cloud standards development process.

Hype around cloud has created a flurry of standards and open source activity leading to **market confusion**.

As important as **current standards development efforts** are, they are **not enough**.



# The reality of cloud standards



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



Dozens of new communities and organizations have formed around cloud standards including industries and governments (e.g. China CESI).

# Cloud Standards Customer Council



On April 7, 2011 industry leaders from across the world formed the ***first customer led consortium*** designed to shape the face of open standards based cloud computing.

- Drive user requirements into standards development process.
- Establish the criteria for open standards based cloud computing.
- Deliver content in the form of best practices, case studies, use cases, requirements, gap analysis and recommendations for cloud standards.

## Structure

- Participation – Primarily C-Level executive, VP of Development, IT management, Enterprise architects, cloud strategy
- Meetings – Monthly virtual meetings. Quarterly face-to-face co-located at OMG events. Participation through forums and subgroups.
- Oversight – Managed by OMG
- Leadership – Founding members and elected end-user members form steering committee
- Standards Development – This group will not produce standards but will provide guidance to existing standards development organizations

## Deliverables

- Web Presence – Community, Webcasts, Case studies, blog, vendor showcase, whitepapers, case studies awards.
- Candidate Deliverables – ready to use content in the form of use cases, case studies, requirements, gap analysis and recommendations for cloud standards, and training.
- Awareness – Drumbeat of awareness utilizing events, press, books, analysts partnerships and media.

## Cloud Standards Customer Council Working Groups



CSCC members have formed 17 working groups. Members have presented their work in progress, which includes developing mission statements and action plans for deliverables.

- Business Patterns in the Cloud
- Cloud Interoperability
- Education
- Financial Services
- Government
- Healthcare
- IaaS: Evolution from infrastructure to workload management
- Legal
- Media
- PaaS: Landscape and boundary
- Practical Guide to Cloud Computing Working Group
- Reference Architecture
- Retail
- SaaS: Industry Vertical (Retail, Finance, Telco)
- Security
- Social Business Standards for Cloud
- Telecommunication

# Who's Listening? Setting Priorities & Requirements for Standards



# Practical Guide to Cloud Computing



One of the first major deliverables from the CSCC was the “Practical Guide to Cloud Computing.” The full guide is available *now*.

## Why was the Practical Guide to Cloud Computing Developed?

*Cloud adoption is a journey, not a series of disconnected decisions. The goal of the Guide is to provide guidance to IT and Business decision makers looking at adoption cloud computing. It identifies key elements to consider and pitfalls to avoid.*

## What's Covered in the Practical Guide to Cloud Computing?

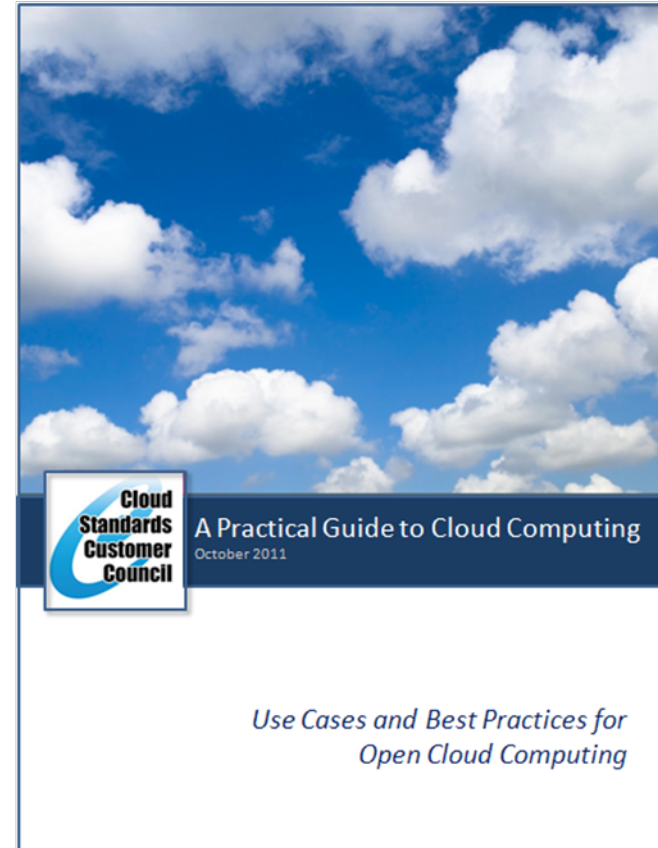
- Discusses “what does cloud computing adoption really mean?”
- What needs to happen to successfully adopt cloud computing technology to move the business forward?
- Key sections cover:
  - A Rational for Cloud Computing
  - Cloud Computing Vision
  - Keys to a Successful Implementation of Cloud Computing
  - Roadmap for Cloud Computing
  - Gaps and Next Steps
  - Also includes a glossary and references

# CSCC Practical Guide to Cloud Computing

The CSCC Practical Guide to cloud computing details a prescriptive nine step plan for success

- 1 • Assemble your team
- 2 • Develop business case and an enterprise cloud strategy
- 3 • Select cloud deployment model(s)
- 4 • Select cloud service model(s)
- 5 • Determine who will develop, test and deploy the cloud services
- 6 • Develop a proof-of-concept (POC) before moving to production
- 7 • Integrate with existing enterprise services
- 8 • Develop and manage SLAs
- 9 • Manage the cloud environment

[http://www.cloudstandardscustomerCouncil.org/CSCC\\_PG2CC-10-04-11.pdf](http://www.cloudstandardscustomerCouncil.org/CSCC_PG2CC-10-04-11.pdf)



World wide launch & public release webcast hosted by Melvin Greer (Lockheed Martin – CSCC Steering Group Chair) on Oct 5, 2011



## 10 Steps to Evaluate Cloud SLAs

- Understand roles and responsibilities
- Evaluate business level policies
- Understand service and deployment model differences
- Identify critical performance objectives
- Evaluate security and privacy requirements
- Identify service management requirements
- Prepare for service failure management
- Understand the disaster recovery plan
- Implement an effective management process
- Understand the exit process

# CSCC Annual Case Study Competition



***The goal of the Cloud Computing Case Study Competition is to highlight business success stories and lessons learned to provide proof points and insights for other organizations considering or pursuing cloud computing adoption.***

- Business success stories and lessons learned
- Provide proof points and insights for other organizations considering or pursuing cloud implementations
- Projects must be complete with demonstrated business results
- Judges selected from WG leaders, steering committee, and partners will judge entries based upon:
  - Complexity of the business problem addressed
  - ROI/Business Value
  - Level of the cross-organizational collaboration (Business/Technical)
  - Cloud deployment and delivery methods and supporting technology

*In addition to one overall winner, organizations will be recognized in various industries, based upon the range of submissions.*

# CSCC Membership

Membership has grown 5X since OMG's April 2011 announcement - Over 400 companies



## Summary

- **Fast growing community**
  - From 45 at launch to more than 400 members and growing
- **Valuable Resources Already in Place**
  - CSCC website contains use cases, case studies, whitepapers, and webcasts
- ***Practical Guide to Cloud Computing***
  - Available free to anyone
- **Practical Guide to Developing a Cloud SLA**
  - Available free to anyone
- **Practical Guide to Cloud Security**
  - Available soon, free to anyone
- **Focused on ensuring buyers of cloud services understand, easily implement and get maximum value from cloud computing revolution**



# Where's the Intersection Between Cloud Computing & Modeling?

- Frankly, all over the place:
  - The key piece missing in cloud computing standards is *how do we model cloud deployment*
    - Application programming interfaces
    - Shared libraries
    - Communications between cloud instances
    - Service level agreements
  - But don't forget the “other direction”
    - Modeling from any client, regardless of how small (mobile phones!)
    - Integrated cloud services, from validation to integration to simulation
    - Shared model development
    - Model presentation and remote simulation
    - Business model activation from any device
  - What about “standards reuse”?







OBJECT MANAGEMENT GROUP

*Thank you for your time!*

## Questions?

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