

AgilePath Webinar

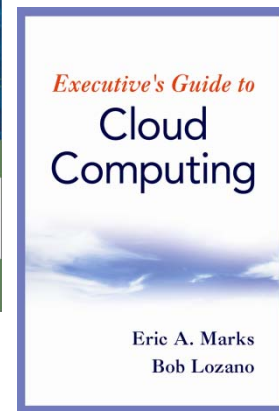
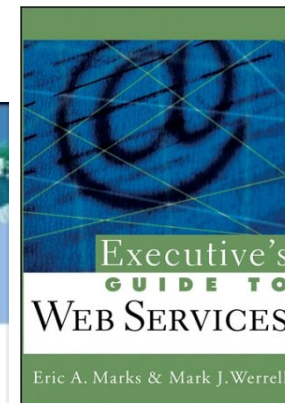
Cloud Computing Reference Model (CC-RM) Overview

October 8, 2009



AgilePath Corporation
38 Merrimac St.
Newburyport, MA 01950

www.agile-path.com



Webinar Housekeeping

- Welcome
- Questions and Answers
- Additional Materials
- Copies of Slides

AgilePath Corporation™

Introduction

- Founded and Incorporated: 2003, Privately Held
- Achieved # 723 on Inc 500/5000 in August 2009



- Founder and CEO: Eric Marks

- ❖ Co-Author: "Executive's Guide to Web Services" (2003)
- ❖ Co-Author: "SOA: A Planning and Implementation Guide for Business and Technology", (Marks and Bell, 2006)
- ❖ Author: "SOA Governance for the Services-Diven Enterprise" (Marks, 2008)
- ❖ **Co-Author: Executive's Guide to Cloud Computing (Winter 2010)**

- Locations

- ❖ Headquarters: Newburyport, MA
- ❖ Herndon, VA
- ❖ www.agile-path.com

- Customers

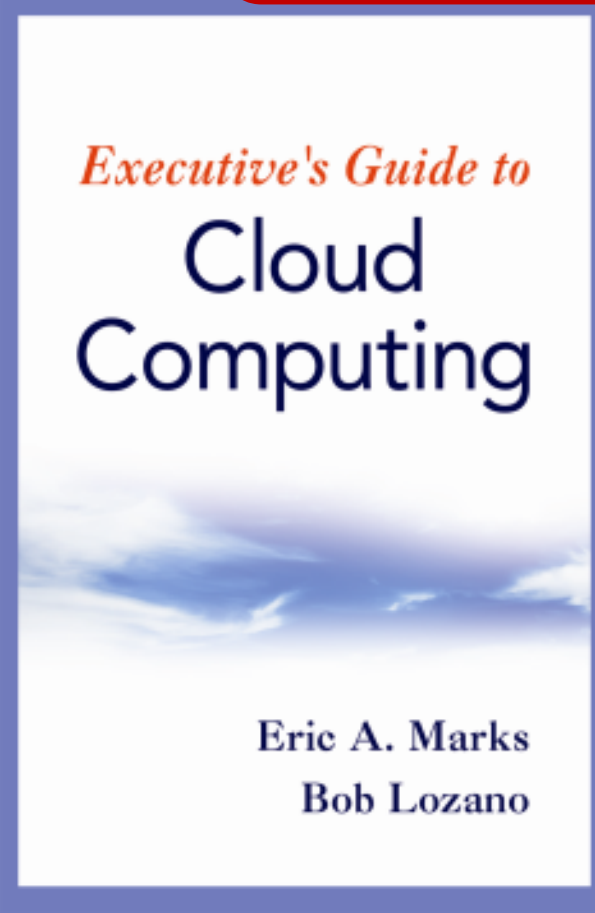
- ❖ US Department of Defense (DoD)
- ❖ Intelligence Community (IC)
- ❖ Federal Civilian Agencies
- ❖ Commercial F1000

- Clearance

- ❖ Top Secret Facility Clearance



AgilePath Corporation Solution Framework



Practices & Competencies

Solution Delivery

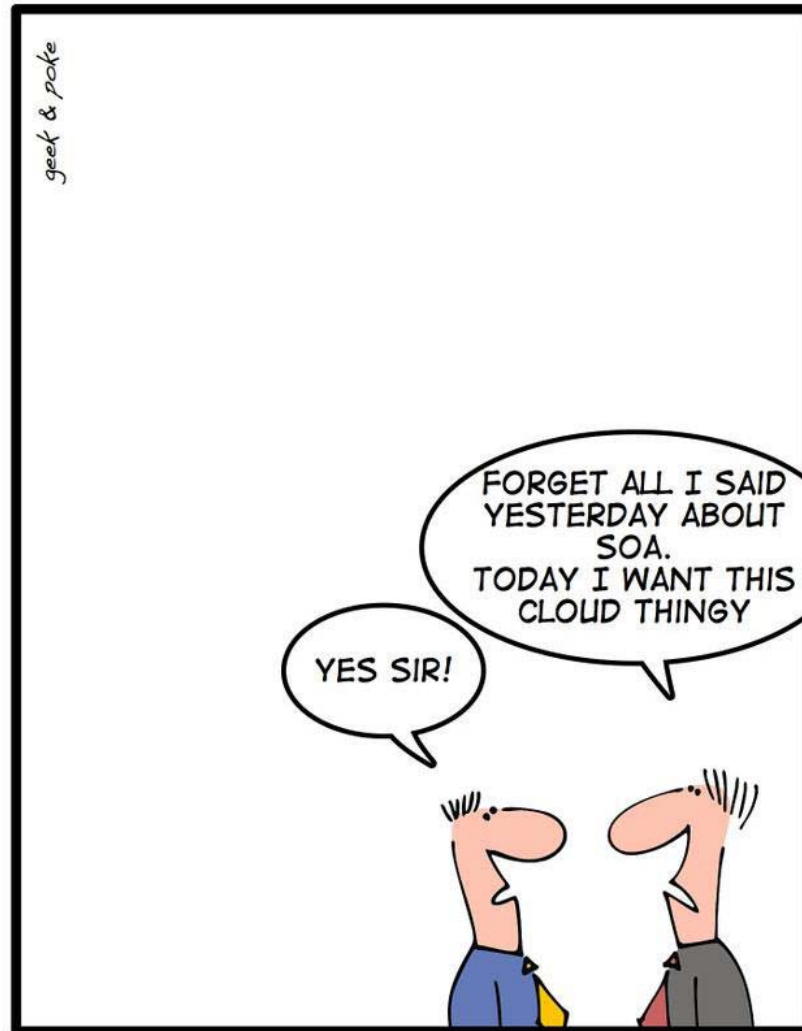
Methodologies & Thought Leadership

What's the Rush to Cloud??

- Normal transition for IT (Every 10 and 5 years)
- Economic collapse, jobs erosion, market malaise
- SOA is too tough, we're moving to Cloud
- Struggling with SOA, looking for the next silver bullet
- Any IT cost savings are worth pursuing (IT infrastructure for \$0.10 on the dollar???)
- Everyone else is talking about it, we should too



Every Five Years...



SIMPLY EXPLAINED - PART 37:
AGILITY

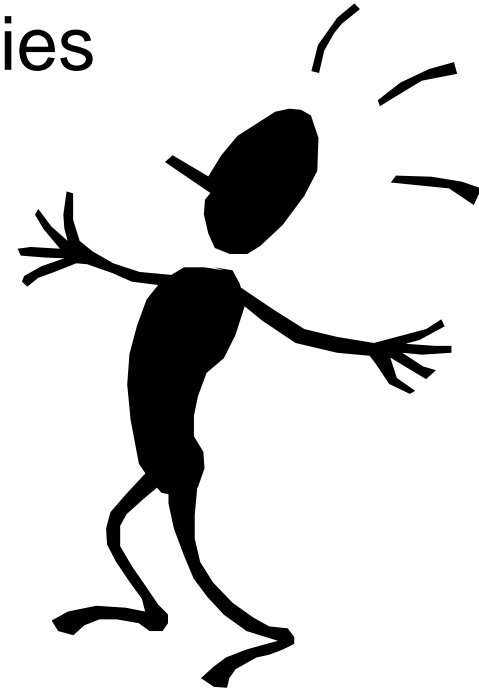
What's the Rush to Cloud??

- Agility
- IT cost savings
- Improved asset utilization (data centers, IT personnel)
- Utility computing model/pay as you go
- Convert fixed costs to variable costs
- Bypass slow acquisition and procurement processes
- Easy onramp to IT infrastructure for new start ups



The Compelling Cloud Idea

- Rapid time to market for new capabilities
- Acquisition end around
- Competitive time compression
- Asymmetric competition
- New start-ups **LOATHE** infrastructure
- Better asset utilization – hardware/infrastructure
- Better asset utilization – people resources
- Convert fixed costs to variable costs



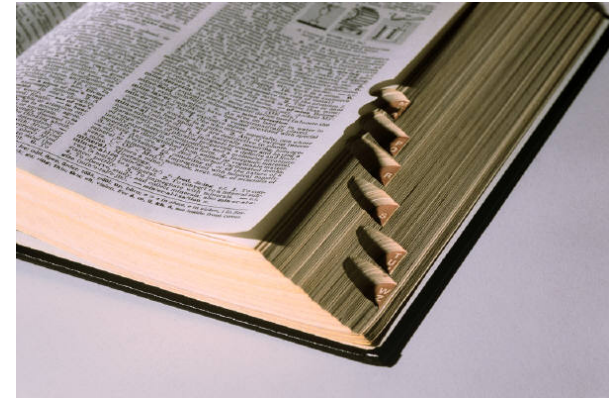
Cloud Adoption Demographics

- **Mature enterprises**
 - Infrastructure optimization, cost savings
 - Cloud as an innovation enabler
- **Internet start-ups**
 - Infrastructure avoidance at all costs!!!!
 - IT capabilities via public cloud
- **Small businesses**
 - Expand IT capabilities at a low price point
 - BigCo capabilities affordably, e.g. SF.com
- **Midsize businesses**
 - Get to next level; optimize IT and add new business capabilities, expansion
- **DoD/IC**
 - Consolidate development and testing infrastructure
 - Support data access, provisioning and exploitation
 - Global scaling and provisioning of IT infrastructure



Definition of Cloud Computing

- According to Gartner Group, **Cloud Computing is ...**
- **“...a style of computing where massively scalable IT-related capabilities are provided ‘as a service’ across the Internet to multiple external customers.”**

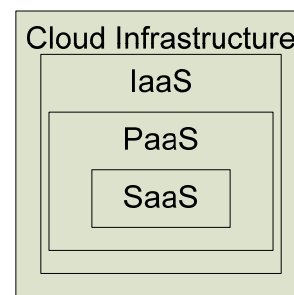
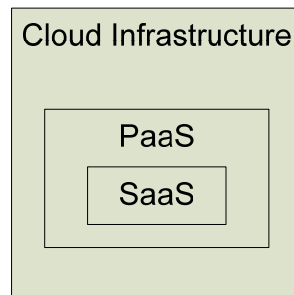
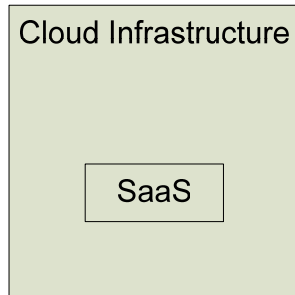


NIST Definition

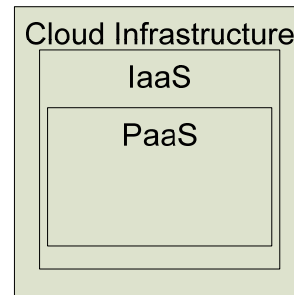
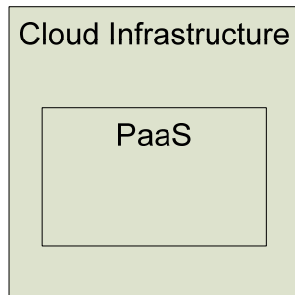
- A computing capability where the architecture surrounding massive clusters of computers is abstracted from the applications using it ...
- ...and a software and server framework (usually based on virtualization) provides clients scalable utility computing capabilities...
- ...to elastically provide many servers for a single software-as-a-service style application or to host many such applications on a few servers.



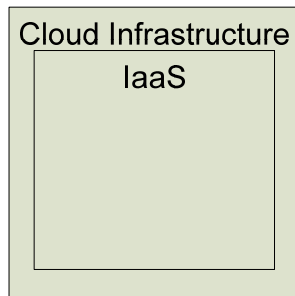
NIST: Cloud Delivery Model Architectures



Software as a Service
(SaaS)
Architectures



Platform as a Service (PaaS)
Architectures



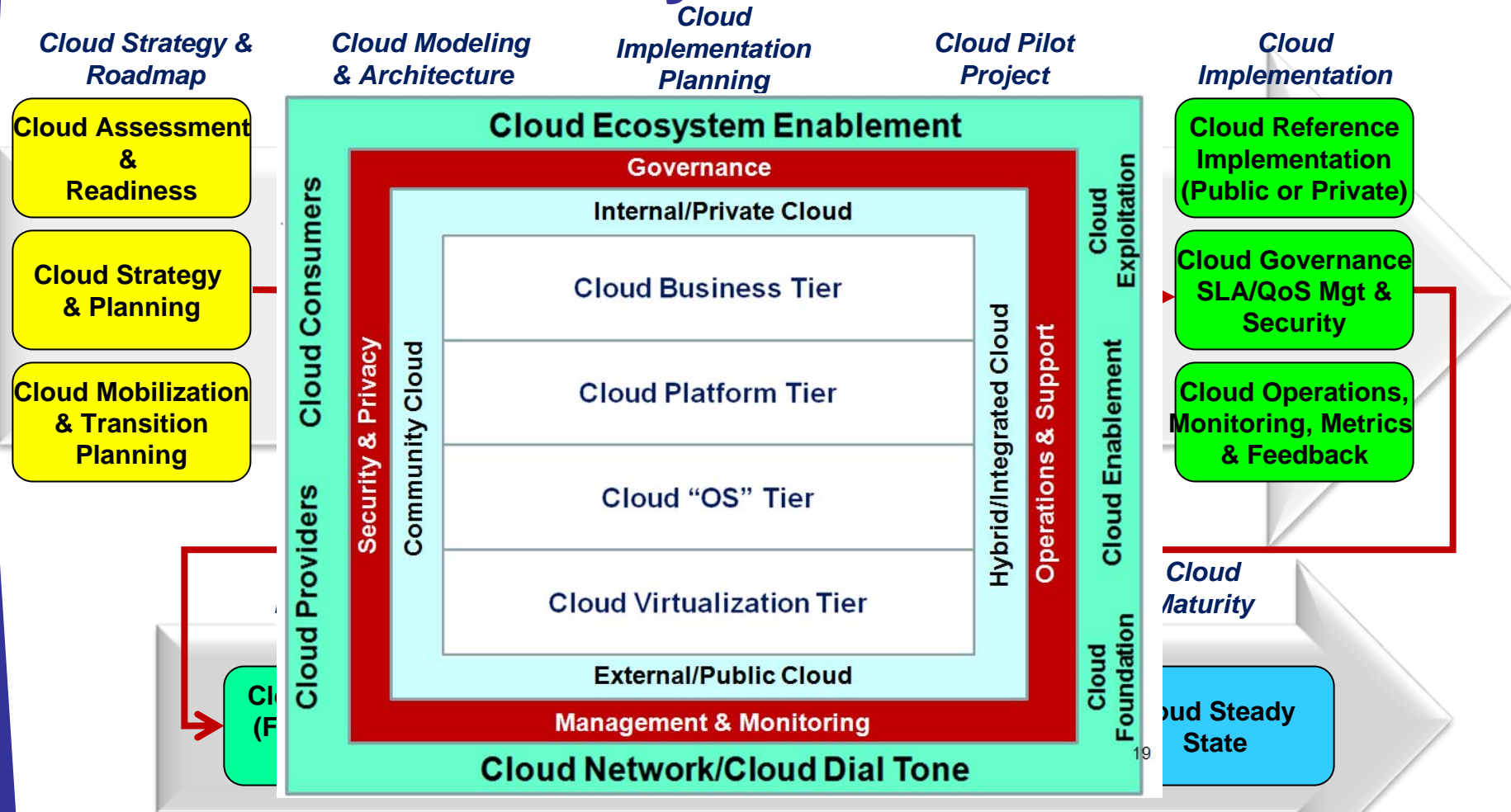
Infrastructure as a Service (IaaS)
Architectures

From NIST: "Effectively and Securely Using the Cloud Computing Paradigm," May 15, 2009. Peter Mell, et al

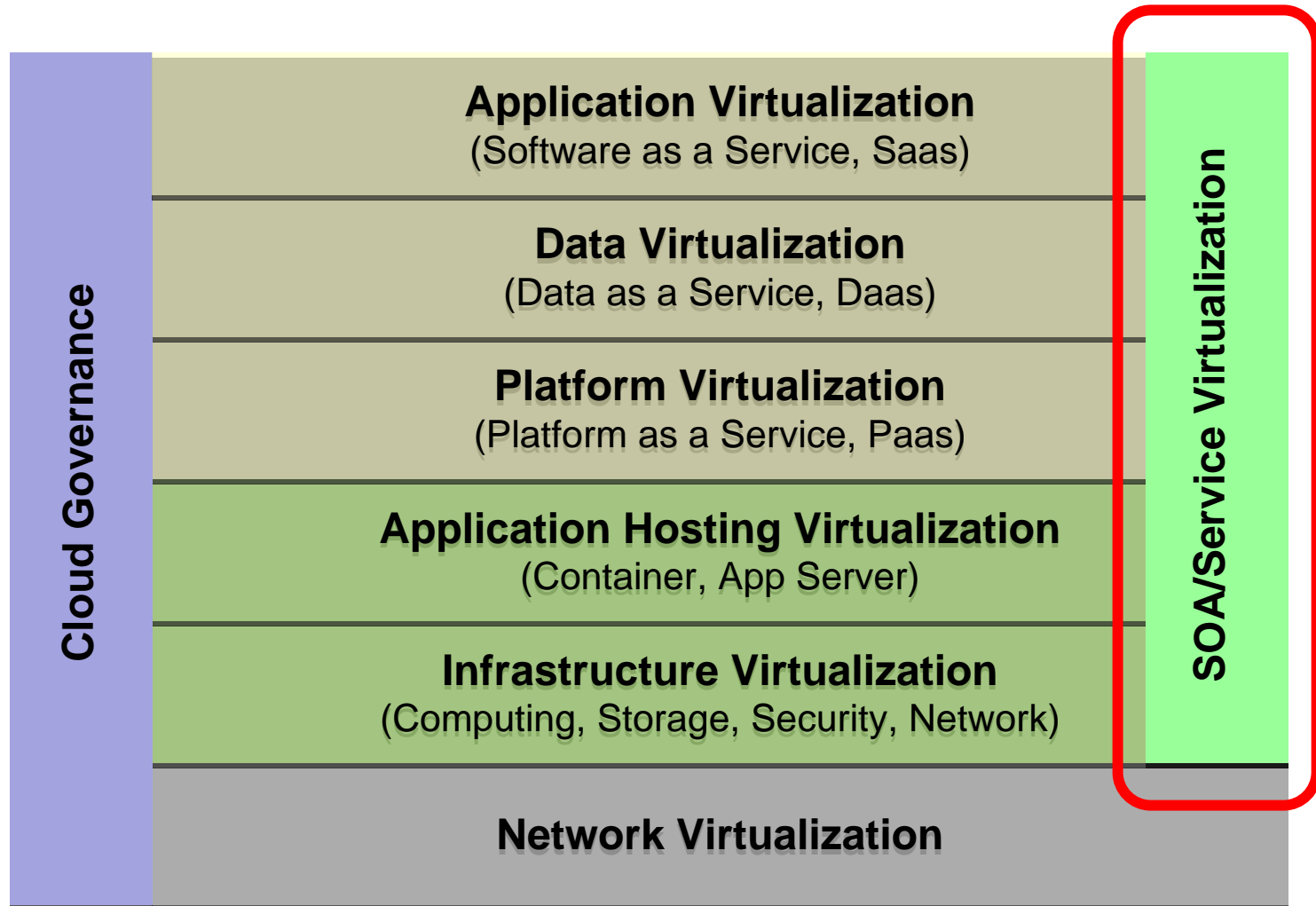
Cloud Modeling and Architecture

- Very immature to nonexistent discipline
- Lack of Cloud modeling frameworks and approaches
- Industry standards in progress, cannot keep up with marketplace
- Current Cloud Computing “Reference Frameworks” are insufficient for enterprise Cloud planning, modeling, architecture, deployment and operations

Cloud Computing Adoption Playbook™

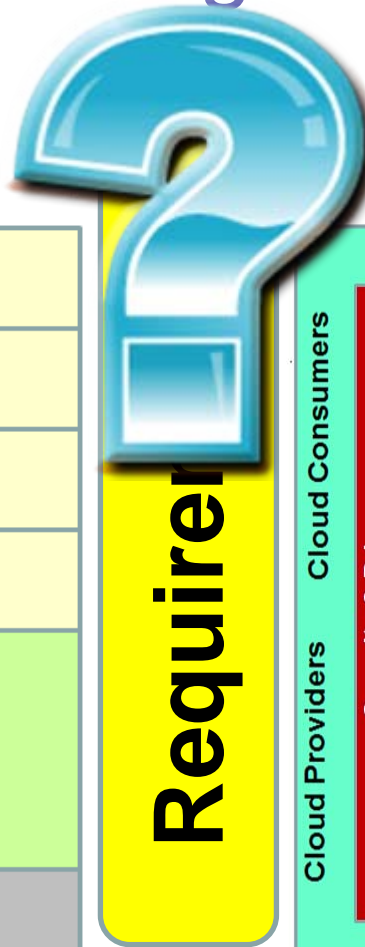
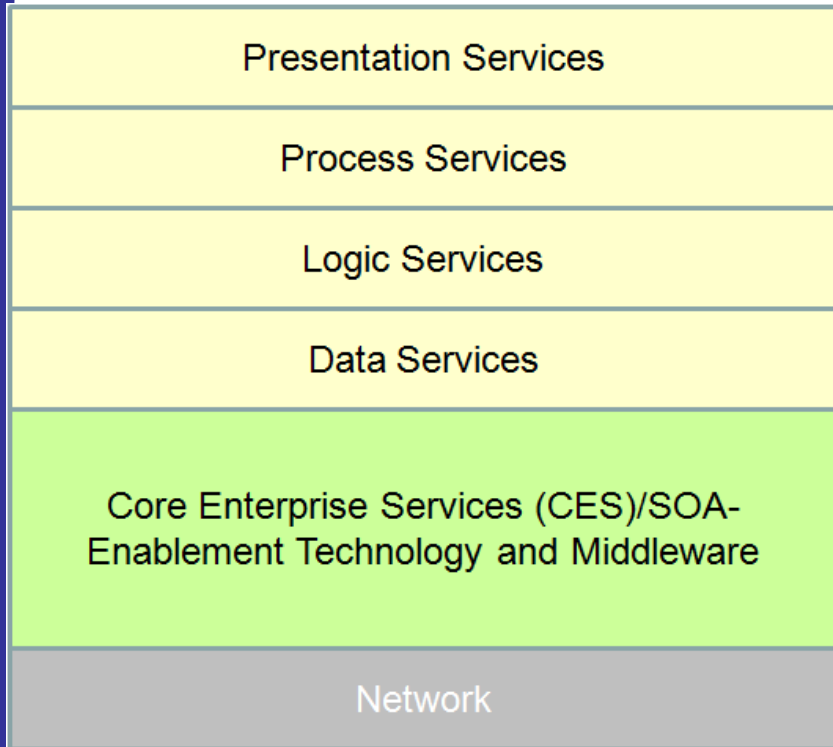


A Logical Cloud Stack

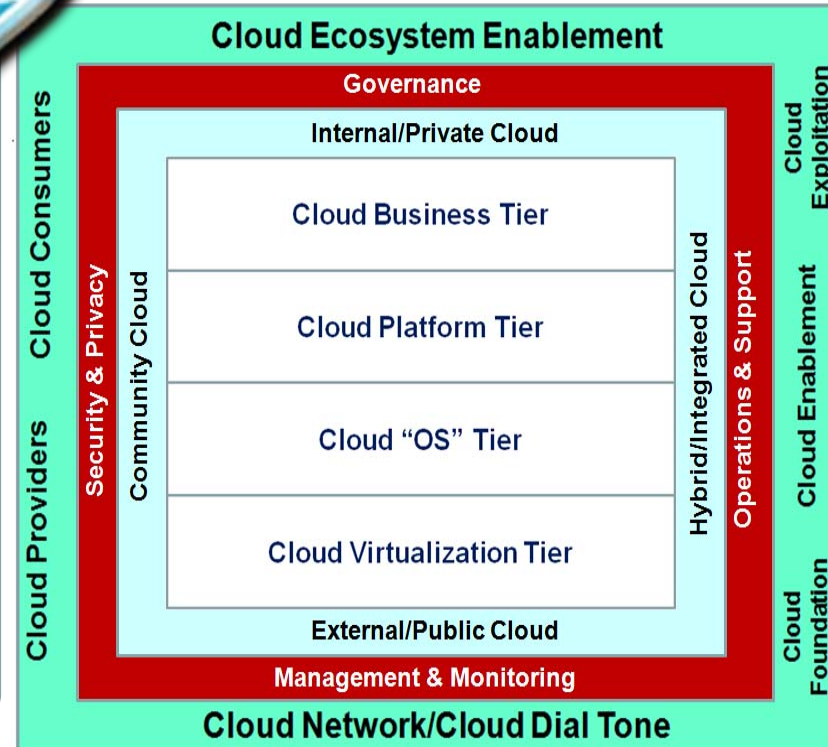


SOA- versus Cloud-enablement Strategies

My requirements call for a SOA-based approach



My requirements call for a Cloud-based approach



Cloud Computing Reference Model (CC-RM)

- **Four supporting sub-Models**
 - Cloud Enablement Model
 - Cloud Deployment Model
 - Cloud Governance and Operations Model
 - Cloud Ecosystem Model
- Seeks to develop **repeatable Cloud Patterns** that offer solution development based on Cloud-enabled resources
- A more robust framework to begin **Cloud Modeling and Architecture** efforts

Cloud Ecosystem Enablement

Governance

Internal/Private Cloud

Cloud Business Tier

Cloud Platform Tier

Cloud "OS" Tier

Cloud Virtualization Tier

External/Public Cloud

Management & Monitoring

Cloud Network/Cloud Dial Tone

Cloud Providers Cloud Consumers

Security & Privacy

Community Cloud

Hybrid/Integrated Cloud

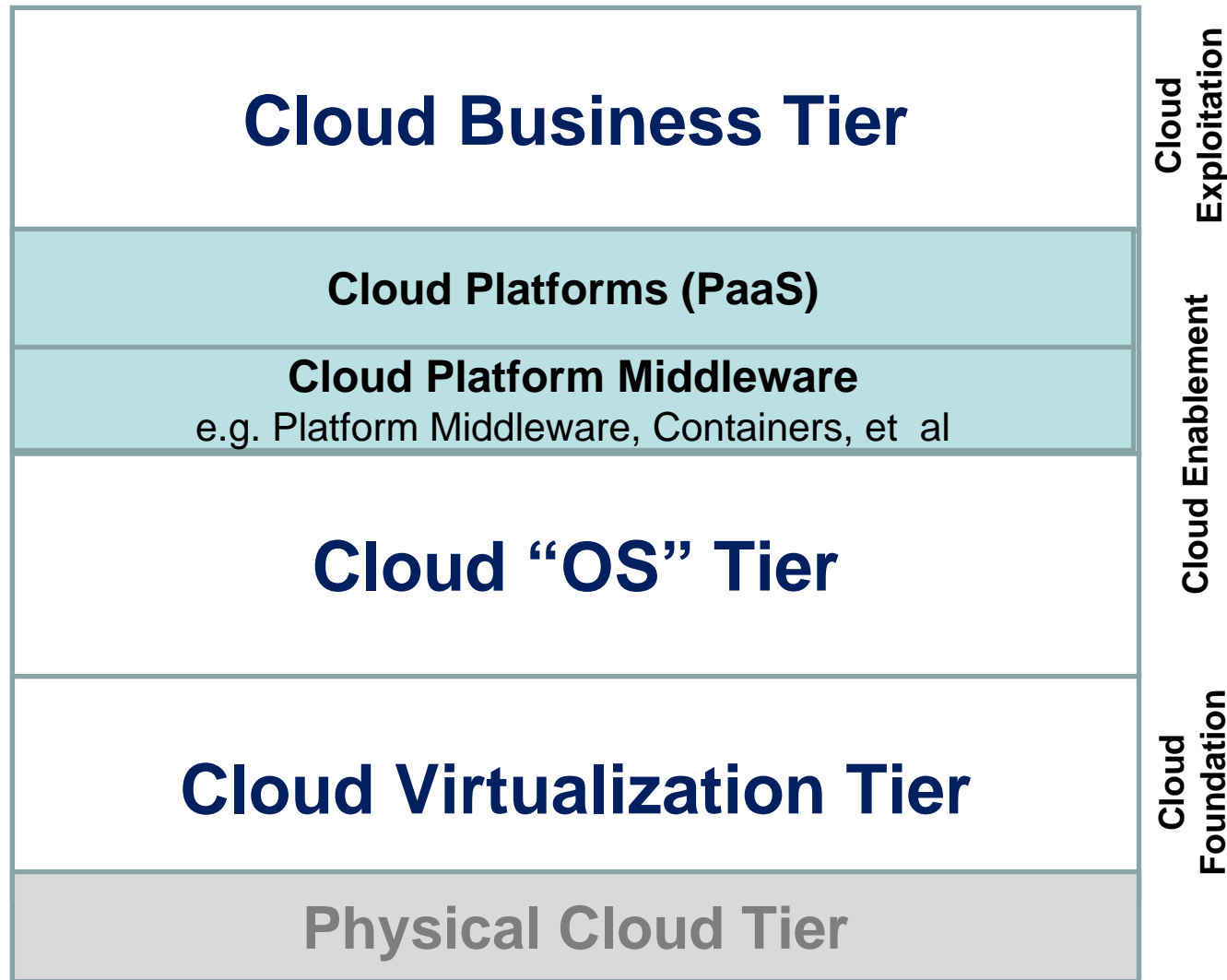
Operations & Support

Cloud Foundation Cloud Enablement Cloud Exploitation

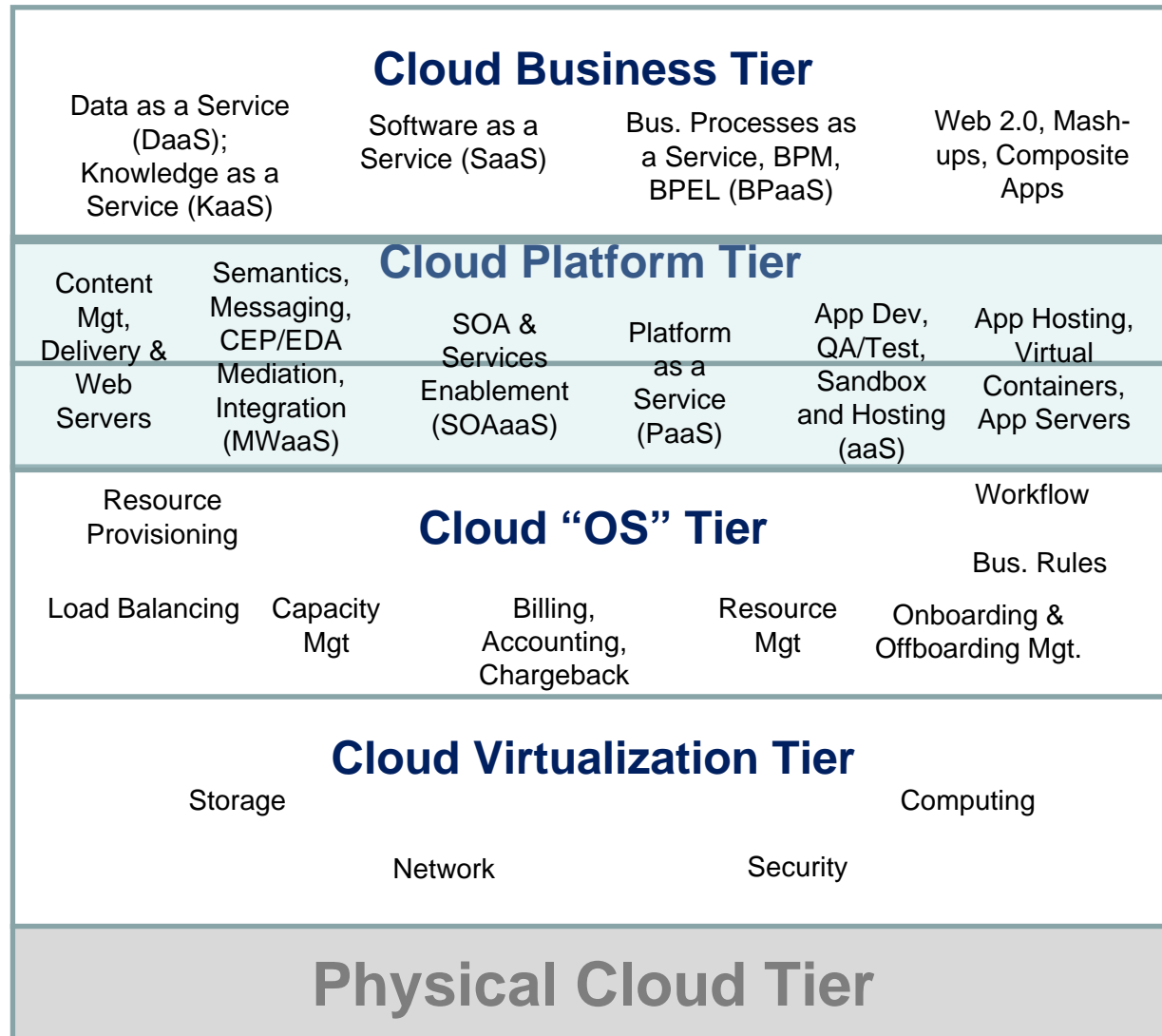
Cloud Enablement Model



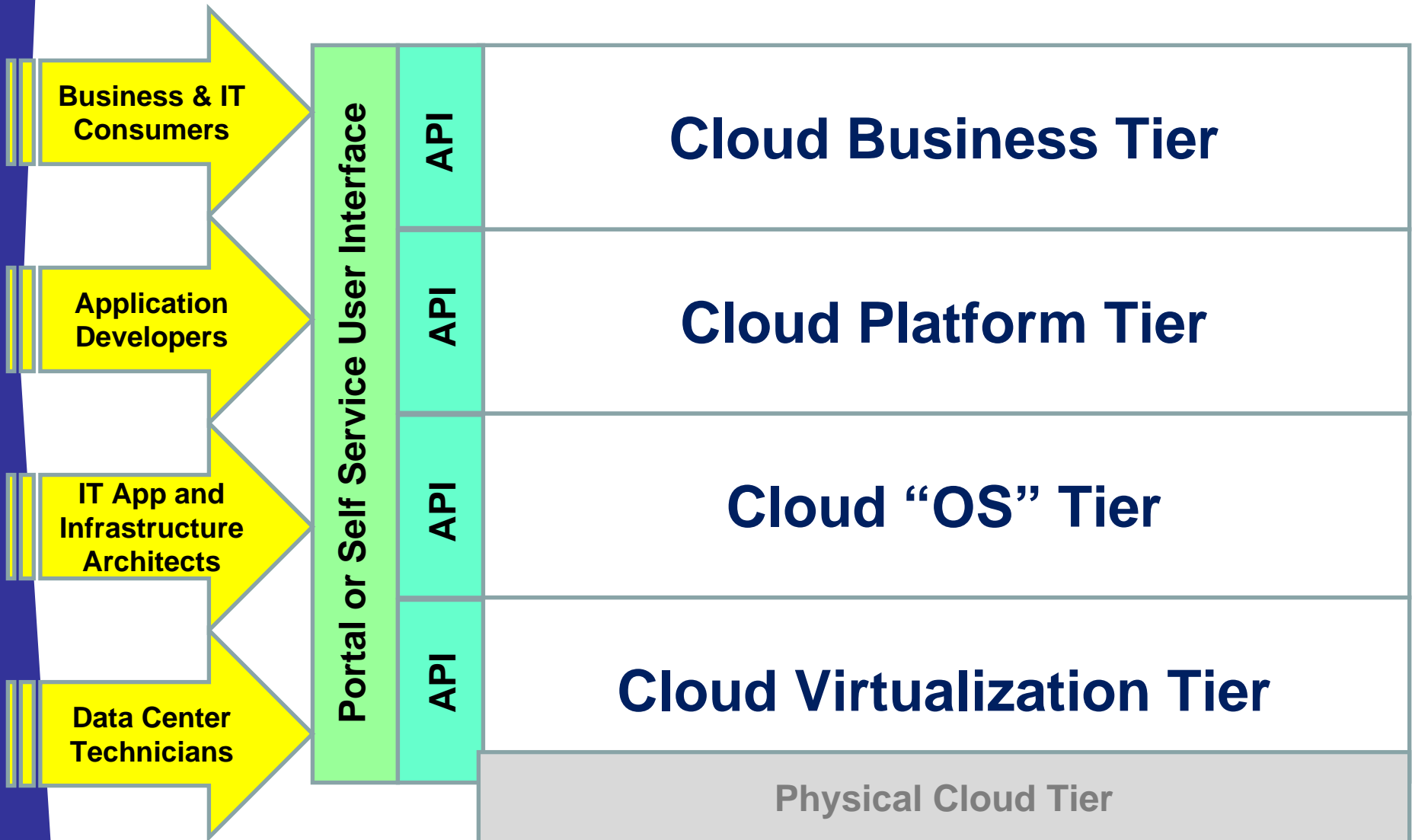
Cloud Enablement Model



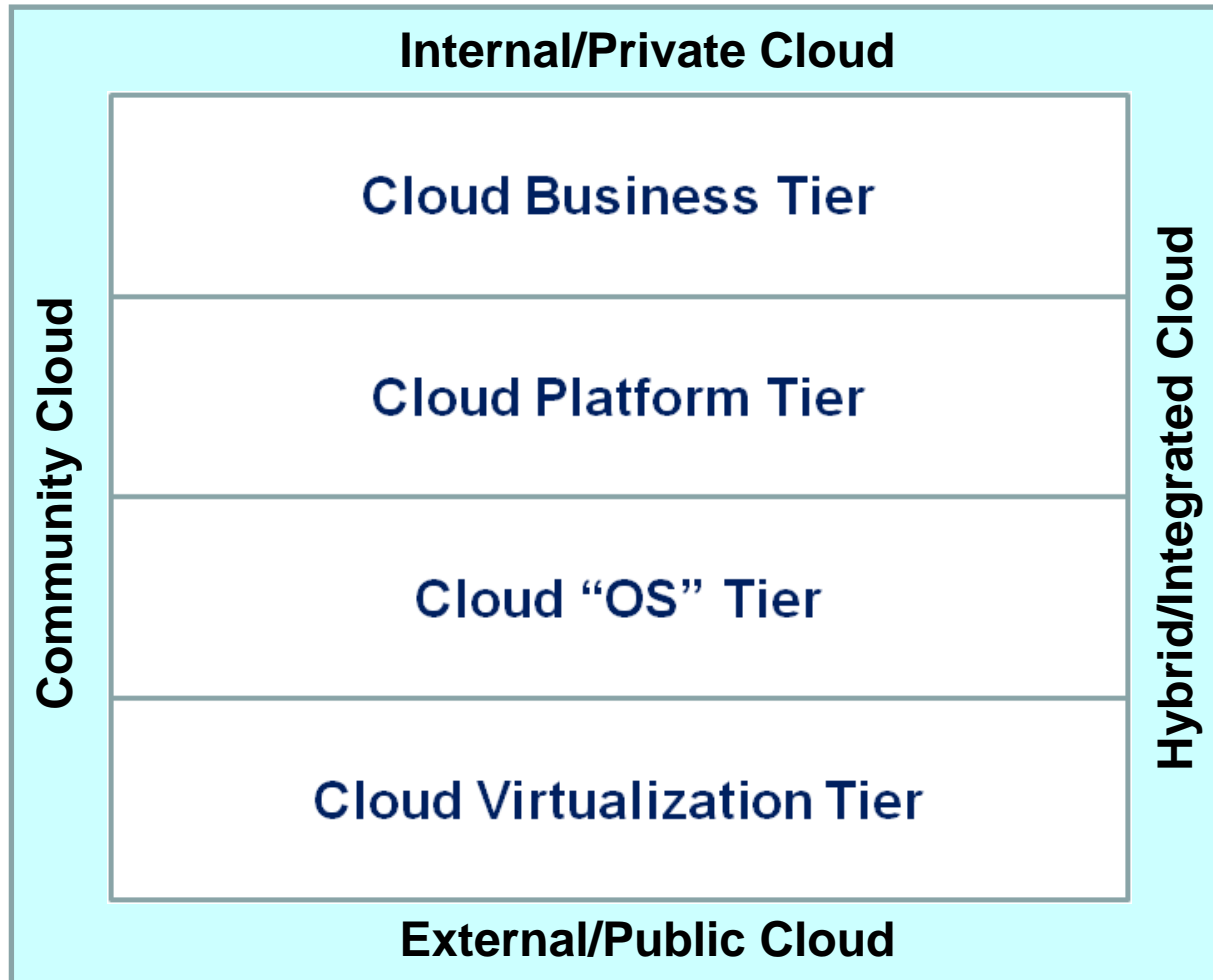
Cloud Enablement Model Details



Sample Cloud Consumers by Tier...



Cloud Deployment Model

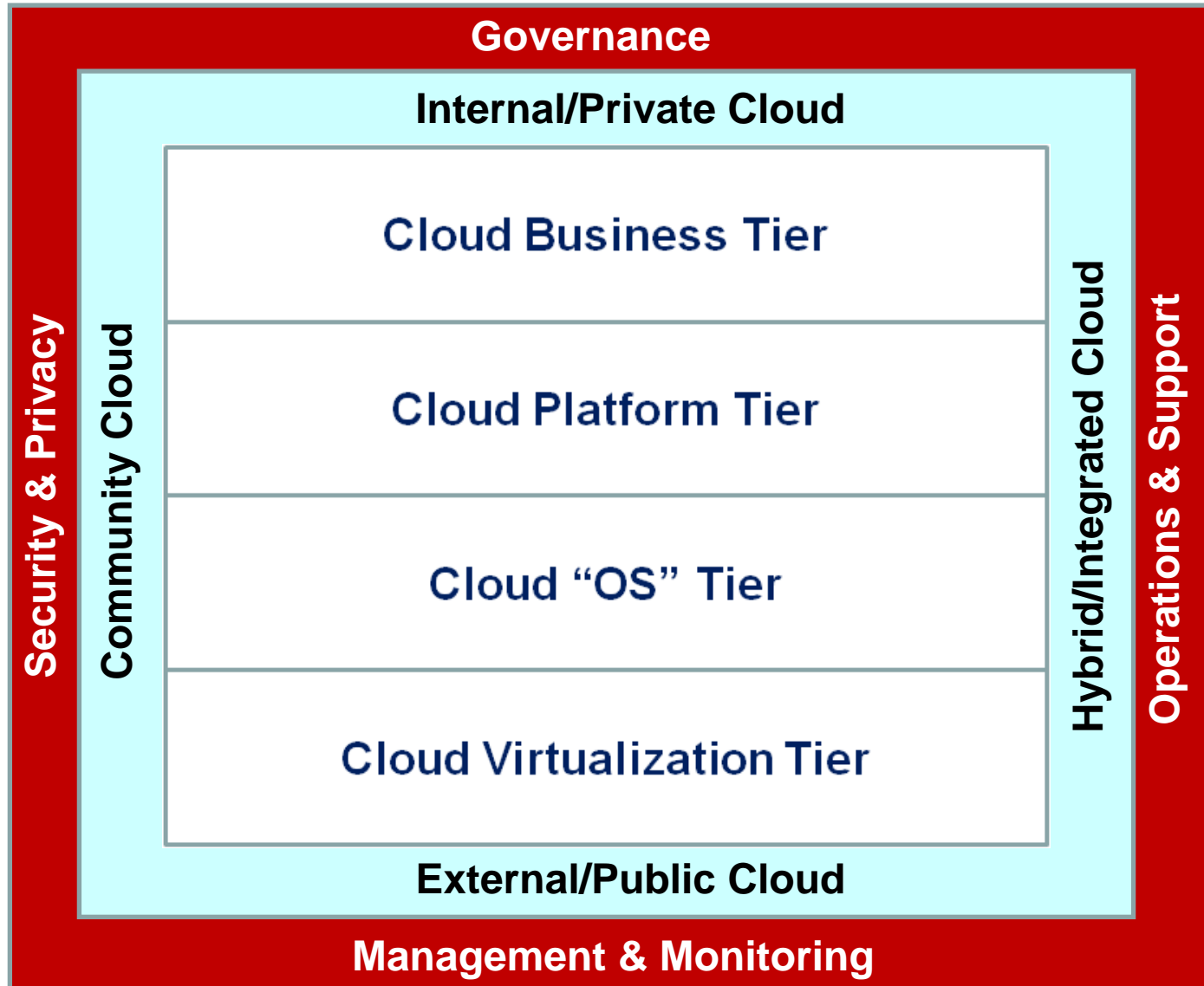


Cloud Deployment Model

- **Public:** Leverage external, 3rd party
- **Private Cloud:** internal, leverage your own security, private networks and corporate governance
- **Hybrid:** Blend aspects of public and private clouds
- **Community/Other**

Are there really only hybrid Clouds?

Cloud Governance & Mgt Model



Cloud Governance and Operations Model

- Cloud Governance
- Cloud Security and Privacy
- Cloud Management and Monitoring
- Cloud Operations and Support

Cloud Governance

- Cloud governance is an emerging requirement of Cloud computing
- **The end-to-end Cloud Lifecycle is not well understood**
- Encompasses a broad set of business and technical requirements, from the planning and architecture process through the design-time considerations of Cloud computing, functional and non-functional requirements analysis,
- As well as the actual process of onboarding your enterprise onto a cloud (internal, public or hybrid), and the critical monitoring and operational requirements of Cloud once you have successfully deployed.

Cloud Ecosystem Enablement

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Internal/Private Cloud

Cloud Business Tier

Cloud Platform Tier

Cloud "OS" Tier

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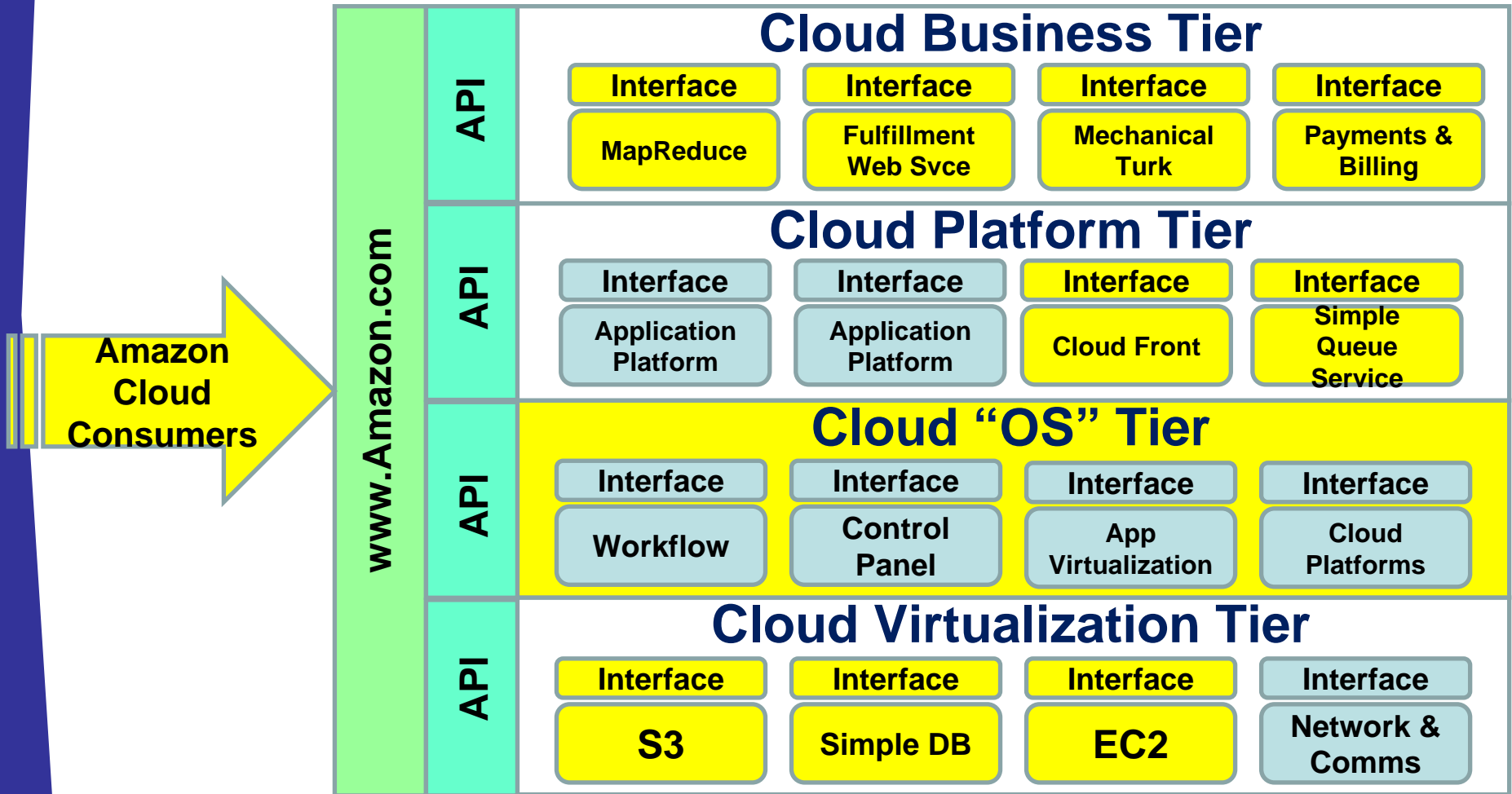
Cloud Ecosystem Model

- Cloud Ecosystem Enablement
- Cloud Consumers and Providers
- Cloud Network/ Cloud Dial Tone
- Cloud Enablement Continuum – Foundation, Enablement and Exploitation

Testing the CC-RM: Amazon's Cloud Capabilities

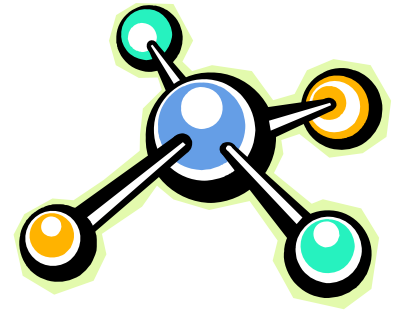
- Amazon Simple Storage Service (S3)
- Amazon Elastic Compute Cloud (EC2)
- Amazon Simple DB
- Amazon CloudFront (Content delivery, similar to Akamai)
- Amazon Simple Queue Service (SQS)
- Amazon Elastic Map Reduce

Amazon Web Services Mapped to Cloud Reference Model Tiers



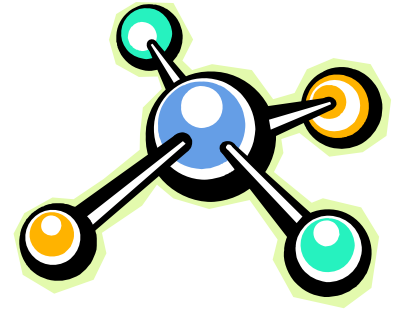
Cloud Modeling Summary

- **Define Cloud Business Scenarios,** Use Cases, User Stories, et al
- **ID Cloud consumer(s) and provider(s)**
- **Define Cloud Enablement Model &** required Cloud resources
- **Define the Cloud Deployment Model**
- Iterate
- **Define the Cloud Governance and Operations Model**
- **Define the Cloud Ecosystem Model**

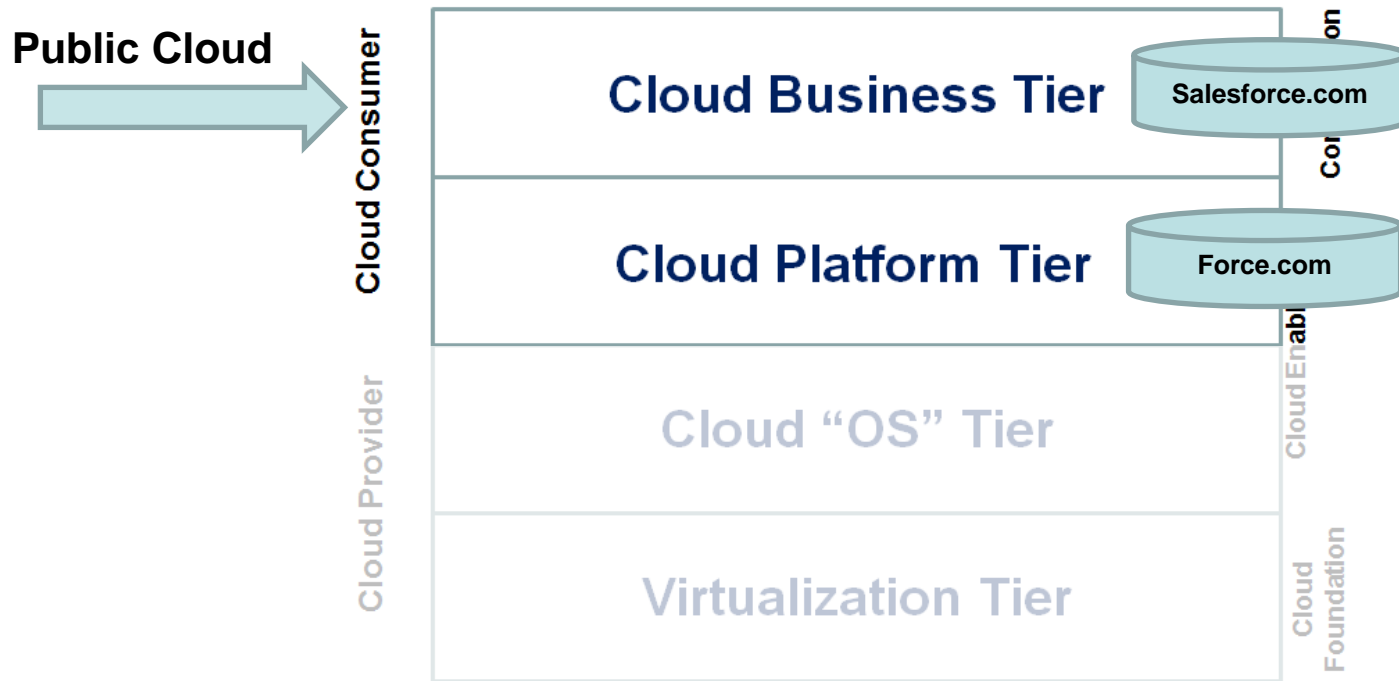


Cloud Modeling Approach

- **Begin the CC-RM Inside-Out, then Iterate.**
Start with the Cloud Enablement Model, then go to the Cloud Deployment Model, and iterate
- **Define your Cloud Enablement Model** based on key business, technology and economic drivers
- **Define the Cloud Deployment Model** based on key business, technology, economic and security drivers
- **Determine various Cloud patterns that may satisfy your requirements**
- **Iterate**
- **Complete the Rest of the CC-RM**
- **Proceed to Cloud Computing Reference Implementation (CC-RI)**



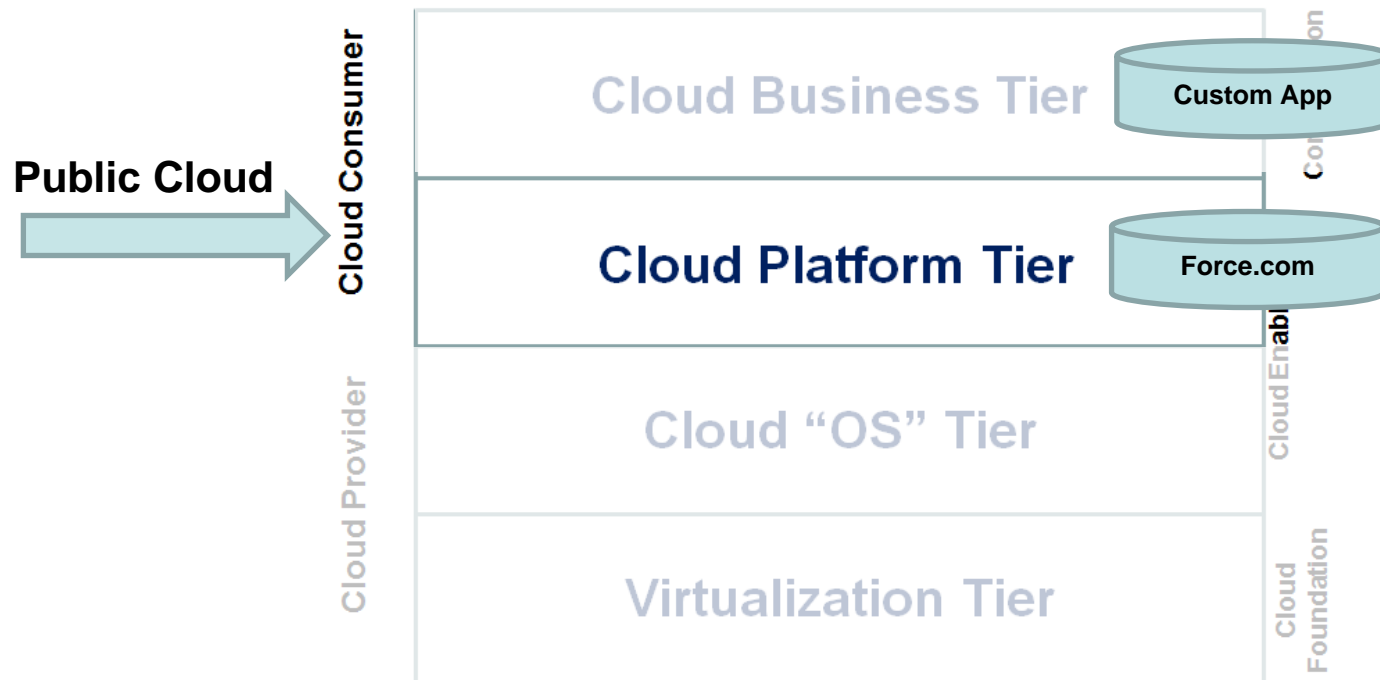
“I need a CRM business capability.” (SaaS)



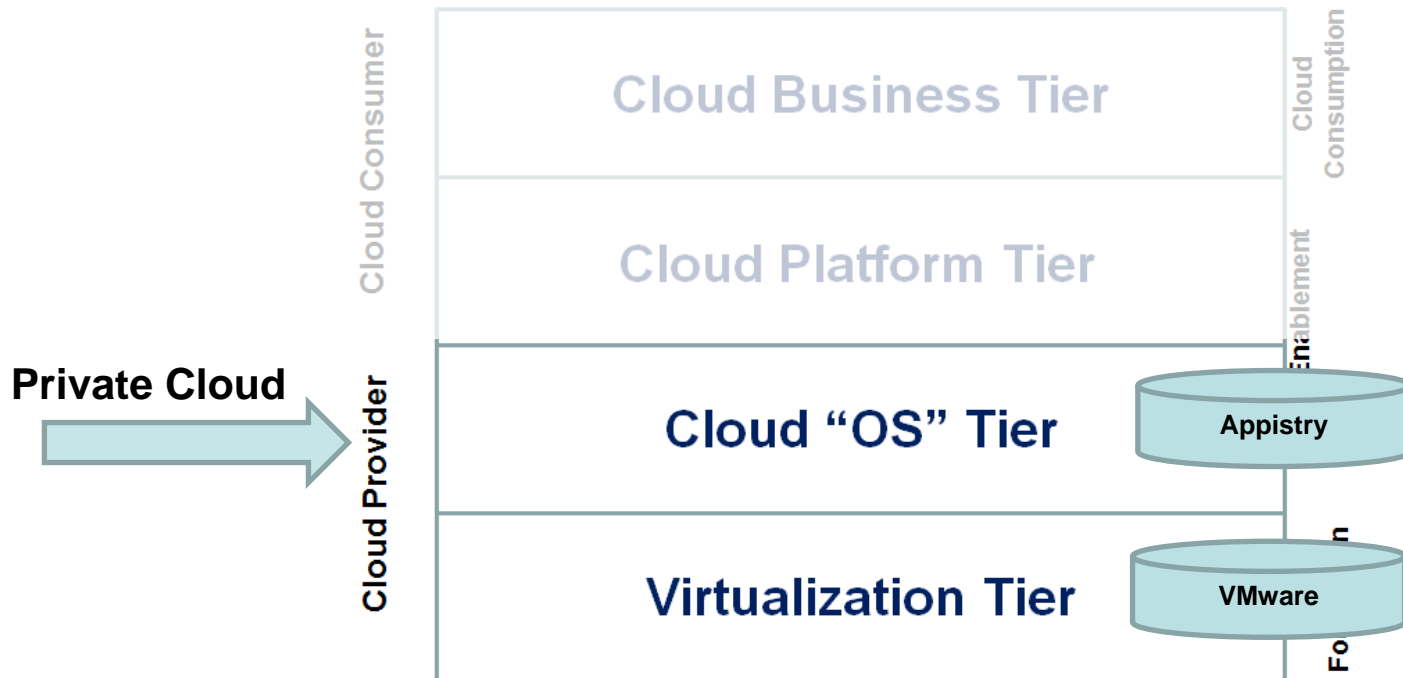
We need a distributed data model for real-time, EDA business model



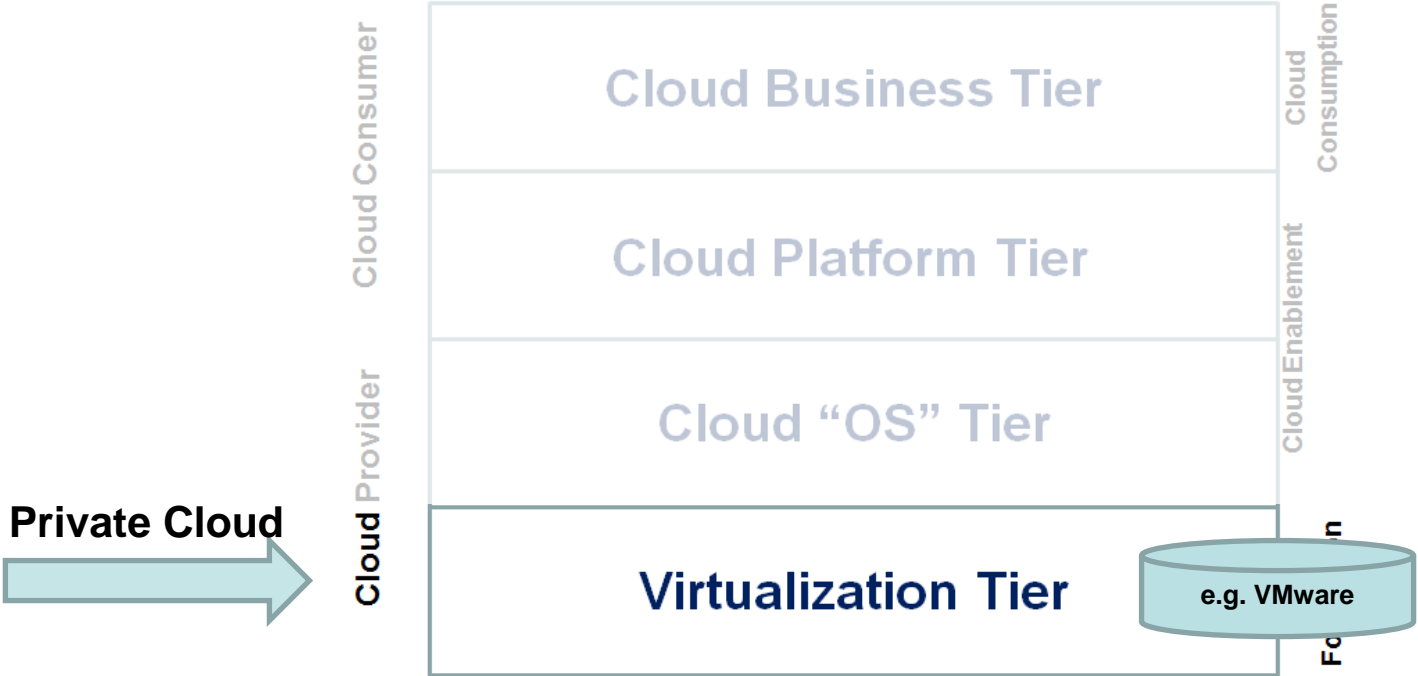
I need an application platform to build new custom business application....PaaS



We are having problems scaling a custom-built application for global use by the business



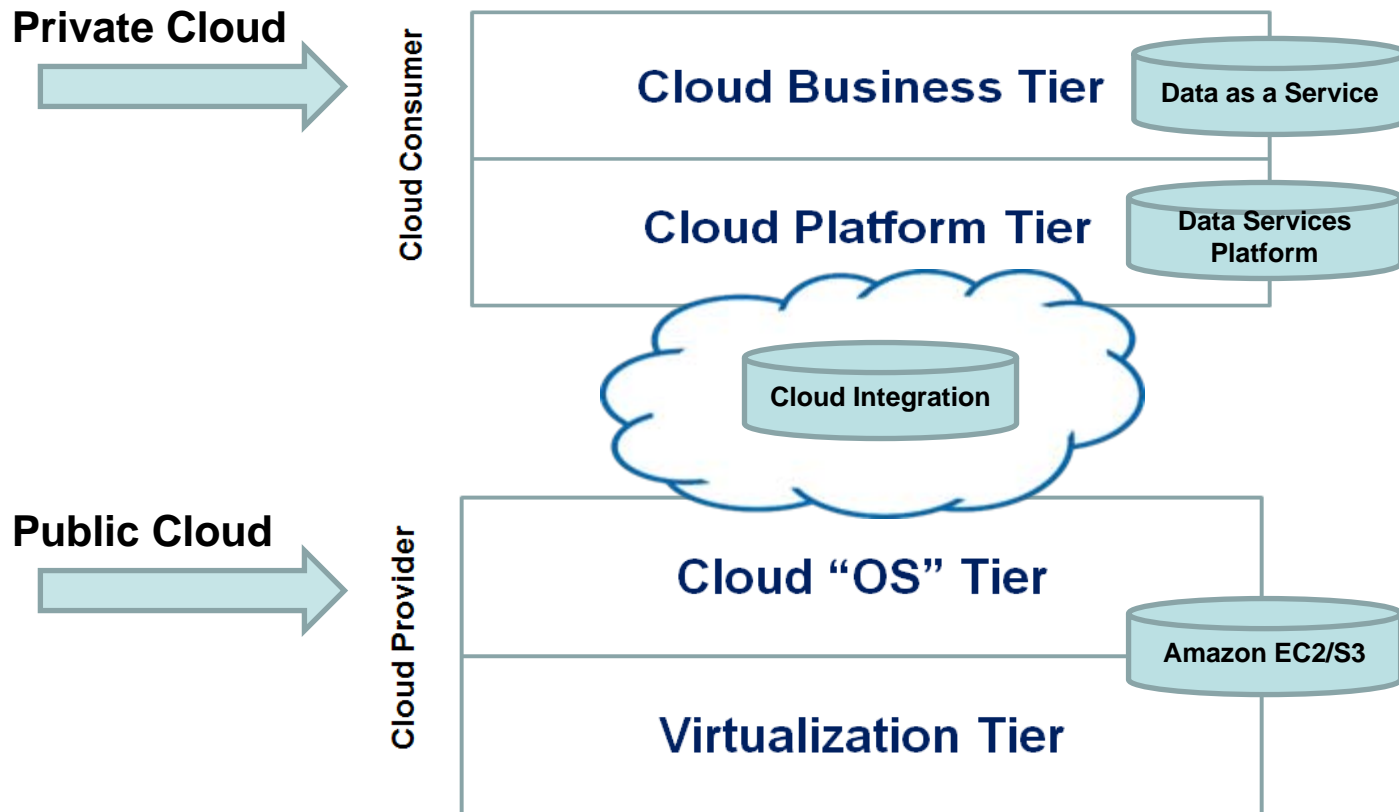
We want better utilization of data centers, server consolidation (IaaS)



We're Startup.com, and we need IT infrastructure cheaply and reliably, that will scale as we grow

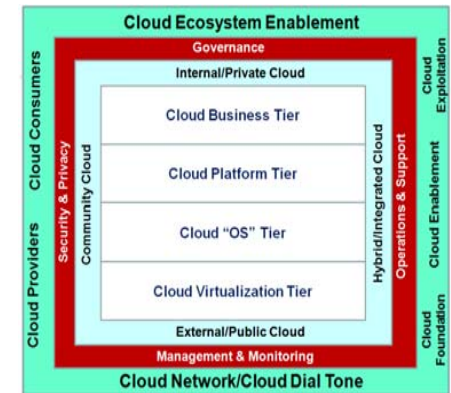


“I need a private Data Cloud supported by a public Cloud “OS” and Infrastructure as a Service (IaaS)



CC-RM Summary

- Comprised of four sub-models
- Pragmatic approach to Cloud modeling, architecture and deployment
- Enables mapping and alignment of SOA Reference Architectures to Cloud RM/RA
- Provides a foundation for Cloud adoption and Cloud value for your enterprise
- Will enable rapid Cloud value to be harnessed for our Enterprise



Things to Do Tomorrow



- Realize that **SOA and Cloud are complements**, not competitors, for IT funds
- **The Agility Double Play is uniquely enabled via both Cloud and SOA, not one or the other**
- **Understand your SOA to Cloud transition path**, whether from SOA success, SOA immaturity or SOA failure
- **Recognize Cloud Computing patterns and their relationship to SOA core patterns**; Cloud is not a one size fits all approach
- **Develop a Cloud strategy and model your Cloud requirements using the Cloud Modeling Framework**
- **Converge SOA and Cloud to drive Business and IT Value**, rather than technical convenience

Q&A?

Additional Reference Materials

- Marks, Eric and Robert Lozano, **Executive's Guide to Cloud Computing**, 2010, Wiley & Sons. Hoboken, New Jersey.
- AgilePath Corporation Whitepaper: **Cloud Computing and SOA: Enabling the Agility Double Play**, May 2009.
- AgilePath Corporate Whitepaper: **A Pragmatic Cloud Computing Reference Model**, September 2009.

Thank You!

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