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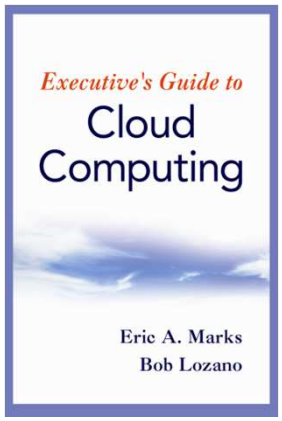
SOA in Healthcare:

Implementing Integrated Cloud Governance

June 13, 2011



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Implementing Integrated Cloud Governance

- **Healthcare IT Trends and Drivers**
  - SOA and Cloud
  - Industry Trends
- **Cloud Governance Introduction and Overview**
  - Cloud Governance Defined
  - Cloud Governance in a Cloud Architecture Roadmap
  - Cloud Governance in the Enterprise
  - Cloud Governance High-Level Requirements
- **Cloud Governance Lifecycle Overview**
  - Key Dimensions of Cloud Governance
  - A Closer Look at Cloud Governance Activities
- **Cloud Governance: Avoiding IT Disintermediation**
  - How Can IT Organizations Remain Relevant in the Age of Cloud?
  - A New Role for IT Organizations?
  - Cloud-Centric Leadership Principles Supporting IT in the Age of Cloud

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Healthcare IT Trends

- EMR, Health Information Networks, Federal Mandates, Healthcare Reform all are major forces of change and healthcare innovation worldwide
- Health Information Exchanges, HIN, EMR, Legacy system integration, data interoperability and portability are all potential SOA & Cloud opportunities
- Cost reductions & efficiencies, integration and data interoperability across the Healthcare value chain can be achieved via Cloud, SOA and appropriate adoption of technologies

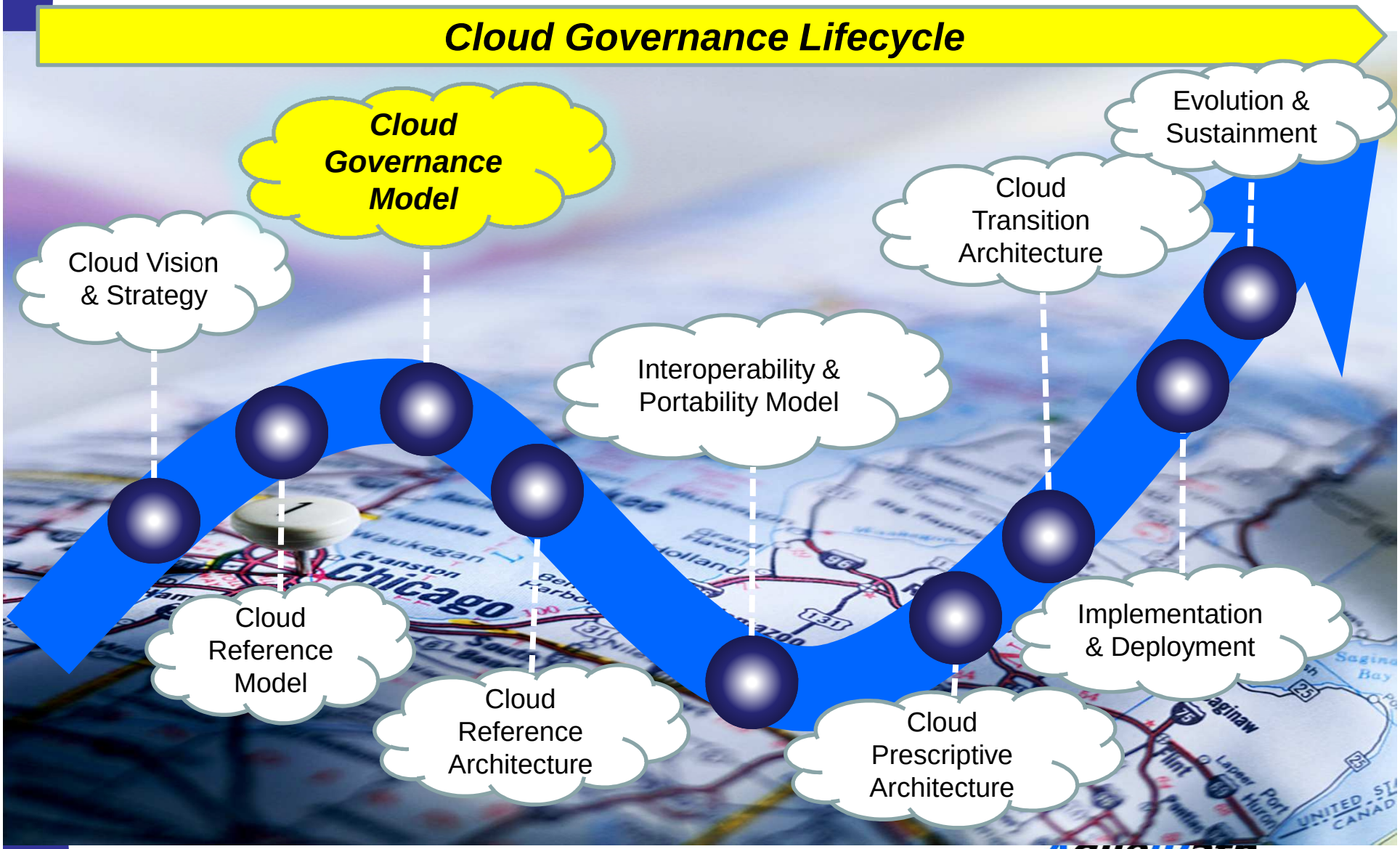
Healthcare IT funding models, budgets constraints, and ownership of the problem/opportunity remain big hurdles

SOA and Cloud Adoption Status

- SOA, XML and Web services adoption is proceeding apace, yet tremendous work remains
  - EMR, Health Information Networks (HIN), Health Information Exchanges, Quality of care all benefit from SOA-based solutions
- Cloud computing momentum is overtaking SOA, despite usual concerns about security and immaturity
  - **Both are SOA-centric initiatives!!!!!!**
- Potential for internal competition for very limited Healthcare IT budgets for these complementary initiatives

Cloud Governance must address budgeting and alignment of key Business and IT initiatives to optimize investments and drive outcome certainty for IT shareholders …

Cloud Architecture and Interoperability Roadmap



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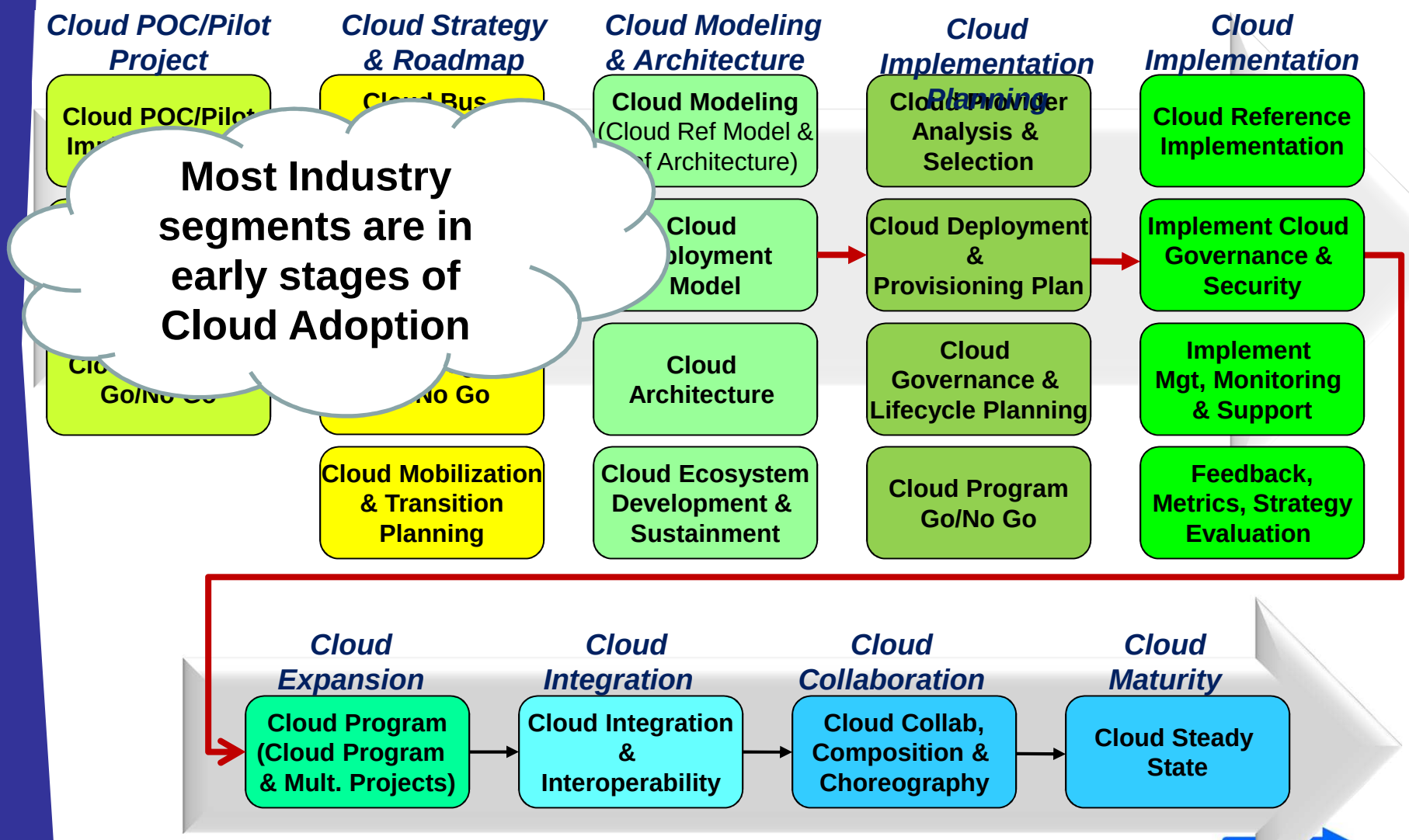
Cloud Computing Adoption Model™



Five Reasons for Cloud Governance

- Enable "***Business at CloudSpeed***" and establish a ***Cloud-Centric IT operating model*** based on the speed, agility and cost of Cloud computing
- Enable ***appropriate Cloud decision-making without friction***

- ***Integrated*** with existing Enterprise IT Governance processes, policies, boards and tools
- ***Balanced*** – appropriate coverage for key decisions, investments and risks while achieving the benefits of Clouds
- ***Proactive to anticipate and prevent Shadow Clouds*** and Unauthorized Cloud activities that expose organizational risks

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Definitions

- **Cloud Governance** refers to the decision making processes, criteria and policies involved in the planning, architecture, acquisition, deployment, operation and management of a Cloud computing capability

- The **Cloud Governance Lifecycle** describes the end-to-end requirements of Cloud Governance, from planning, architecture and deployment to bursting, switching Cloud providers, and offboarding from a Cloud

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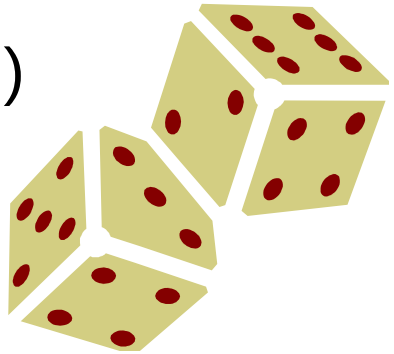
Risks of Poor/No Cloud Governance

- Cloud Security Risks
- Cloud Proliferation and Sprawl (vs. VM Sprawl)
- Cloud Integration (post proliferation)
- Cloud Portability & Interoperability
- Cloud Vendor Lock-In
- Cloud Applications Governance – designing and migrating applications to appropriate Cloud pattern(s)
- Lack of Incentives for Consumers to Onboard/Consume Cloud resources
- Shadow IT and Hidden Clouds



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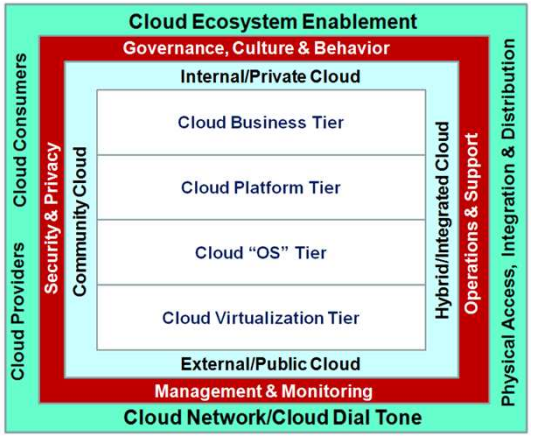
A Cloud Computing Reference Model (CC-RM) Overview

- CC-RM framework for discovering **repeatable Cloud Patterns** that address mission needs based on Cloud-enabled resources
- A robust framework for **Cloud Modeling and Architecture** efforts
- **Four supporting sub-Models**
  - Cloud Enablement Model
  - Cloud Deployment Model
  - Cloud Governance and Operations Model
  - Cloud Ecosystem Model
- ***Applied in Federal Government, DoD and Commercial Clients***



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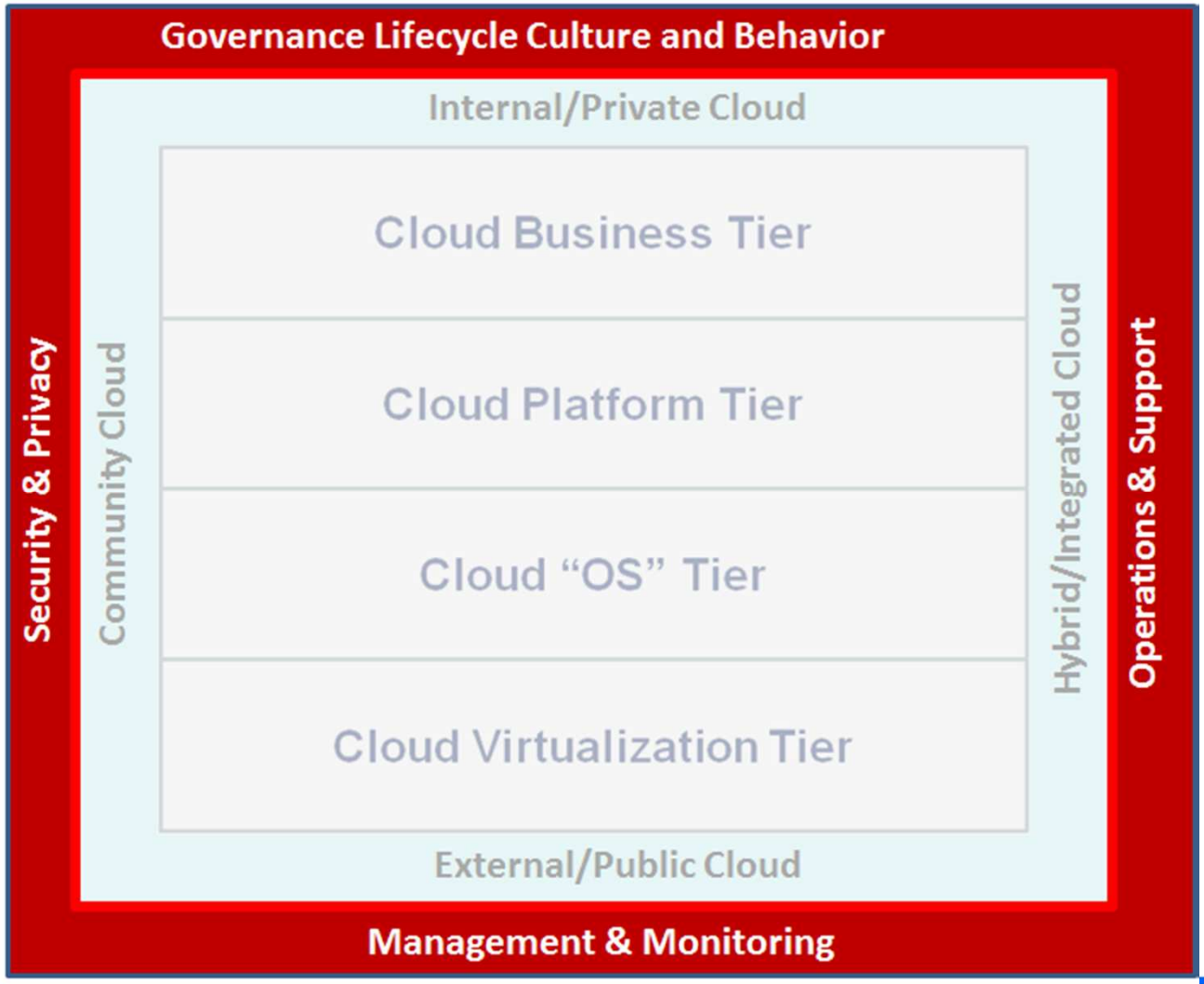
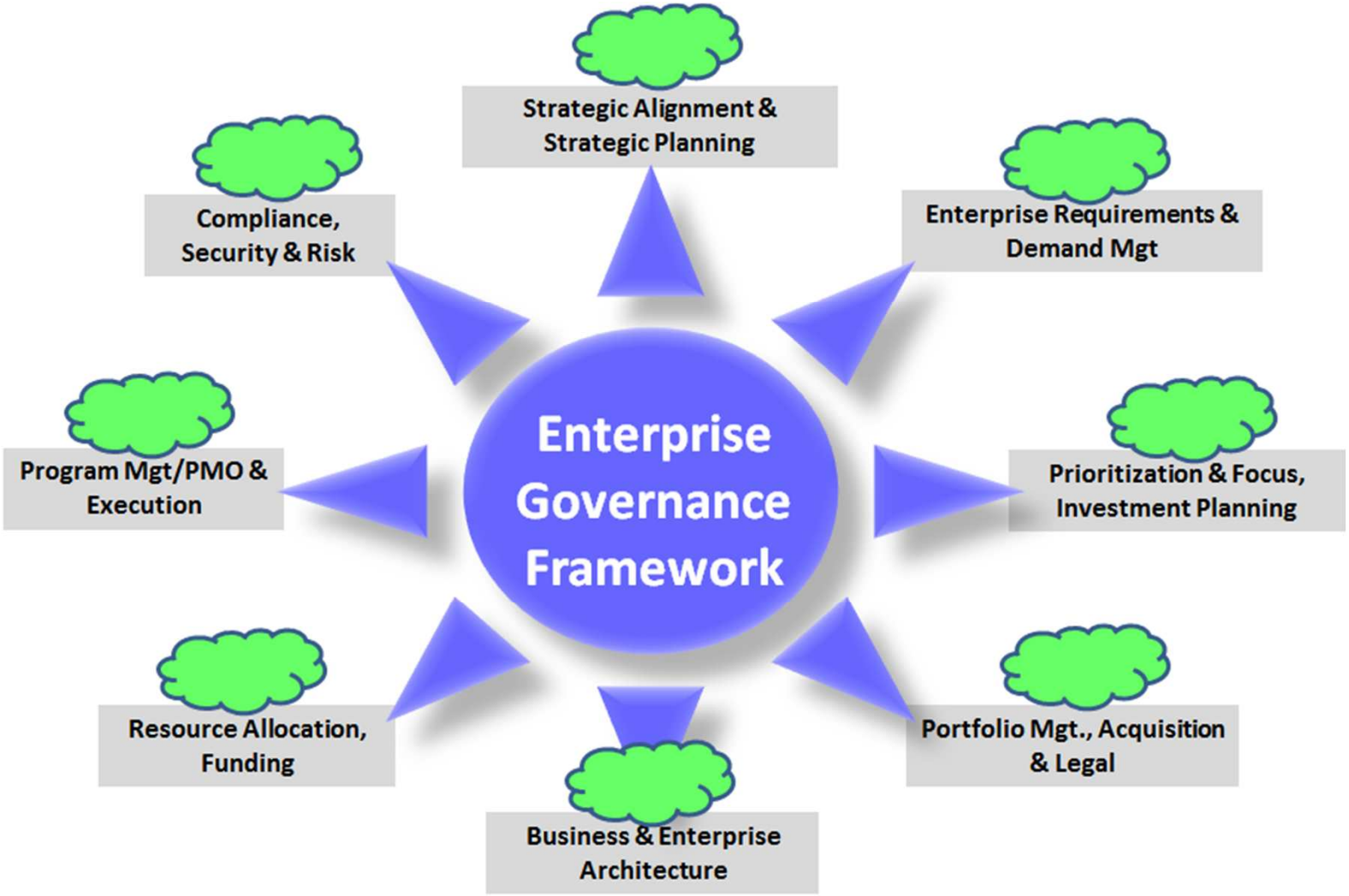
Cloud Governance Lifecycle & Operations Model

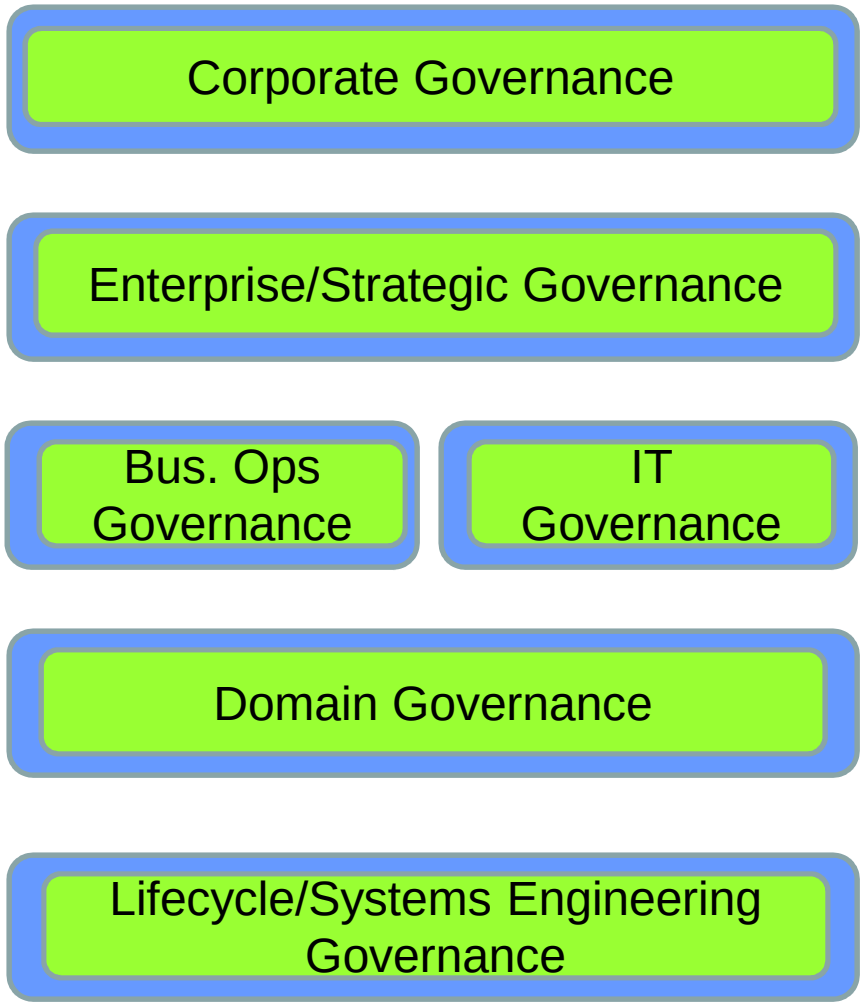


Cloud in an Enterprise Governance Framework Context



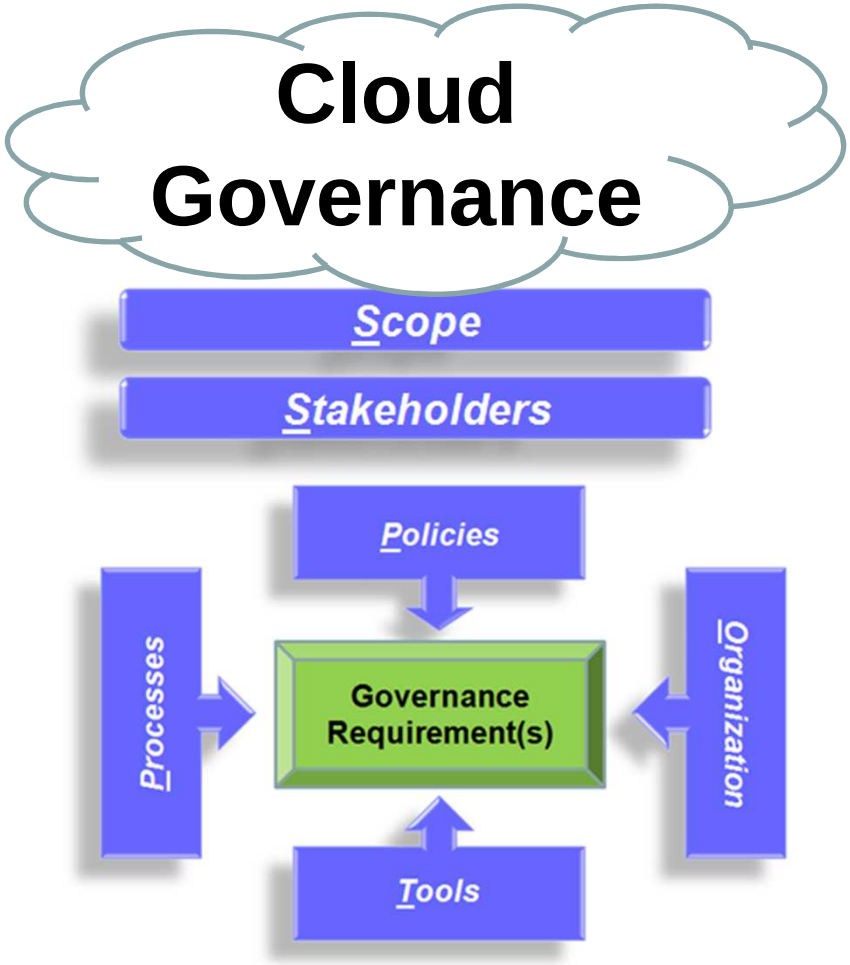
Challenge: Inserting Cloud Governance into Existing Enterprise Governance Models

- **Cloud Governance**
- **SOA Governance**
- **New compliance requirements**
- **Revised Investment Planning process**



Cloud Governance SPOT Framework

- **S**cope & **S**takeholders
- **P**olicies & **P**rocesses
- **O**rganizations
- **T**ools and Enabling Technologies



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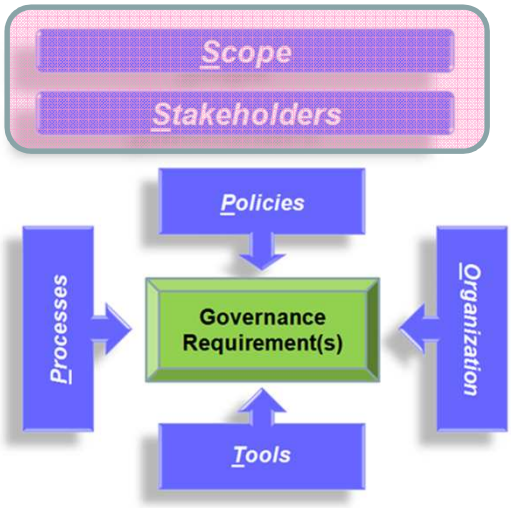
Scope & Stakeholders

- **Scope**: Is the Cloud enterprise, business unit, a project-level requirement?
- **Stakeholders**: Who "owns" your Cloud? Who is accountable for the decisions, the architecture, the deployment, the operations?
- **Stakeholders**: Business, IT, joint? How are they represented in the requirements, onboarding, access/consumption, management?



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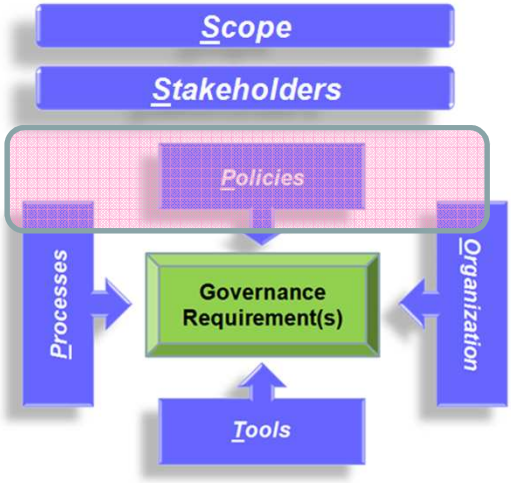
Cloud Policies (Decision Criteria)

- Strategic guidance (formal strategy and roadmap)
- Enterprise Architecture & Technology policies
- Acquisition, Contracts & Legal, Vendor Management
- Security and Privacy, Compliance
- Cloud Operational Policies: Access, Consumption, Bursting, Management, Monitoring



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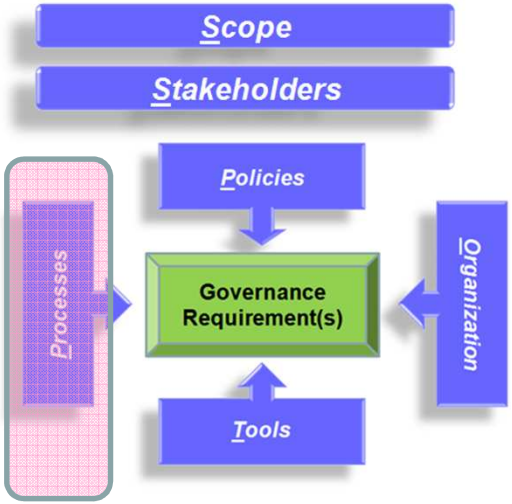
Cloud Governance Processes

- Map to Cloud Governance Lifecycle Model
- Strategy & Planning Governance
- Architecture, Technical and EA Processes
- Deployment and Onboarding Processes
- Access, Resource Management, Provisioning, Operational processes
- Runtime Processes: SLA management, fault alerts, monitoring, alarms, etc.



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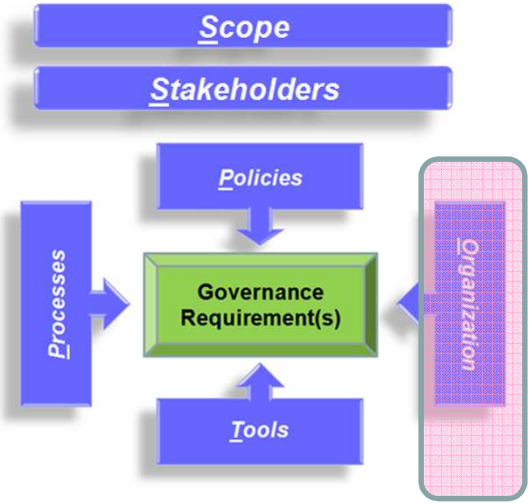
Governance Organizations

- Consumer Stakeholder Board (Cloud Steering Group?)
  - Obtain input for requirements, Cloud services, pricing, accounting and chargeback models
- IT Executive Team?
  - Cross-functional IT construct to ensure IT governance and oversight of Cloud (end-to-enc
- Cloud Operations Team
  - Day to day operations, management, resource management, provisioning, etc.
- Cloud Working Group?
  - Initial start-up activities, R&D/POC
  - Begins the Cloud adoption process prior to formalization of strategy



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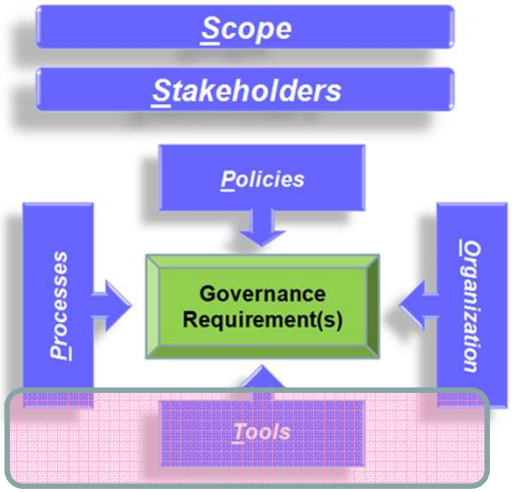
Tools of Cloud Governance

- Cloud Portal and Self-Service Access
- Cloud Service Catalog
- Cloud Billing and Accounting modules
- Cloud Lifecycle Management Tooling
- Cloud Services Portfolio and Contracts Management Tools
- Cloud Management & Monitoring Tools
- Application Design and Development for Cloud
- QA and Testing for Clouds and Cloud-centric Applications



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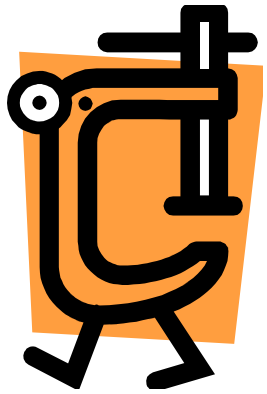
New Tools of Cloud Governance



- Cloud Lifecycle Management Tooling
- Cloud Services Portfolio and Contracts Management Tools
- Cloud Management & Monitoring Tools
- Integrated Cloud & SOA Management Tools
- Application Design and Development for Cloud
- QA and Testing for Clouds and Cloud-centric Applications

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Cloud Governance Decomposition

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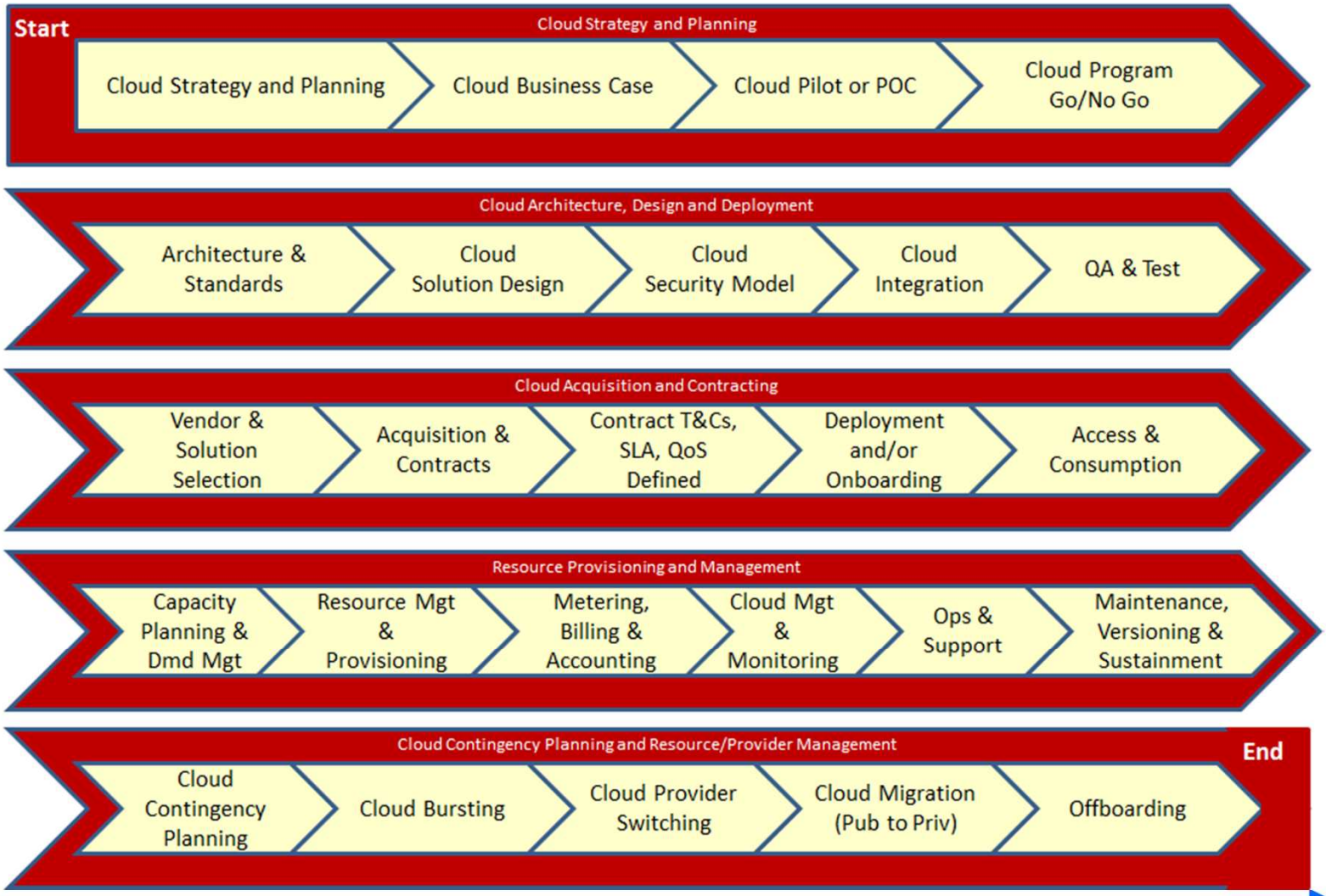
Cloud Governance Lifecycle Overview



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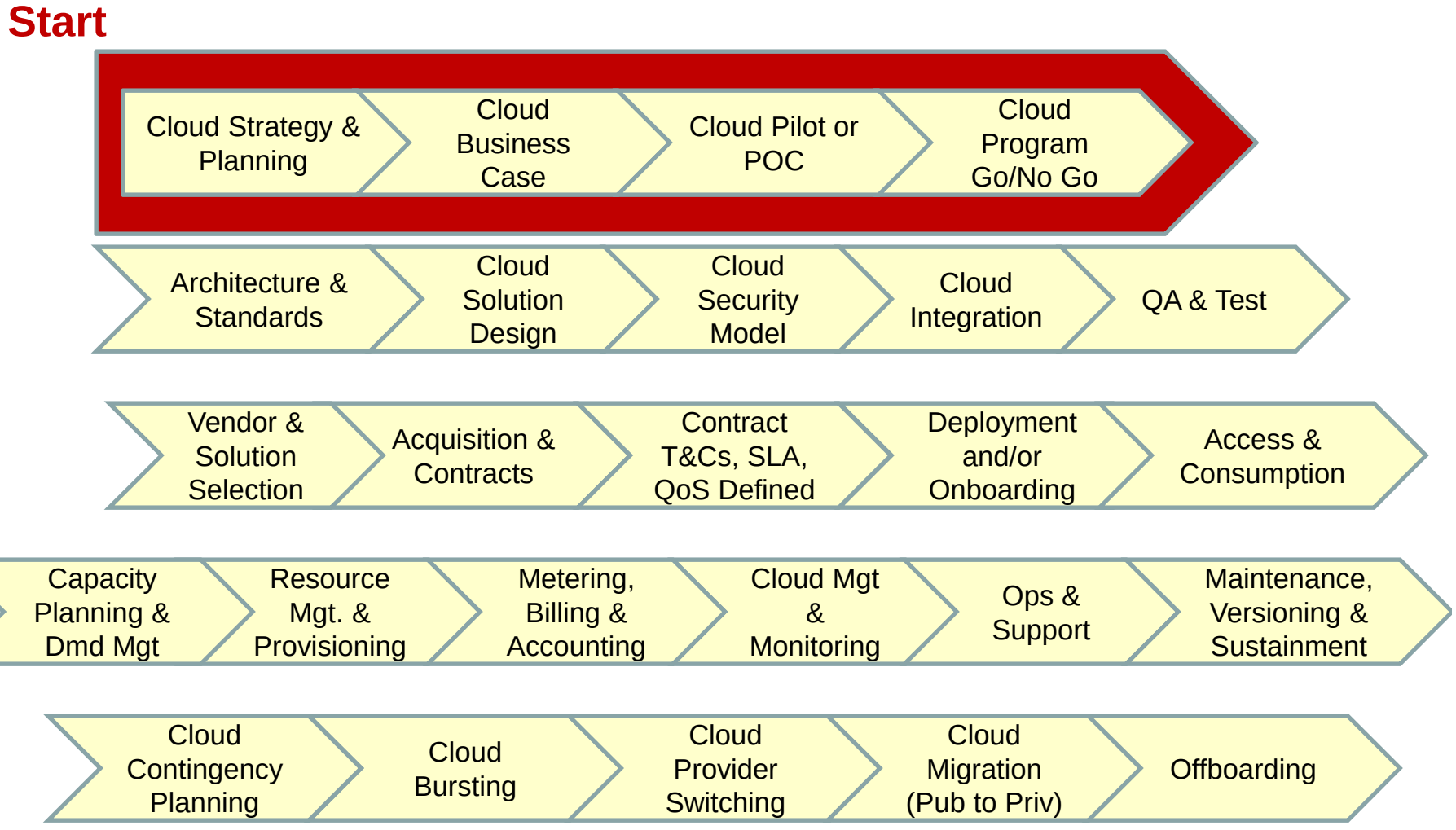
Cloud Strategy and Planning



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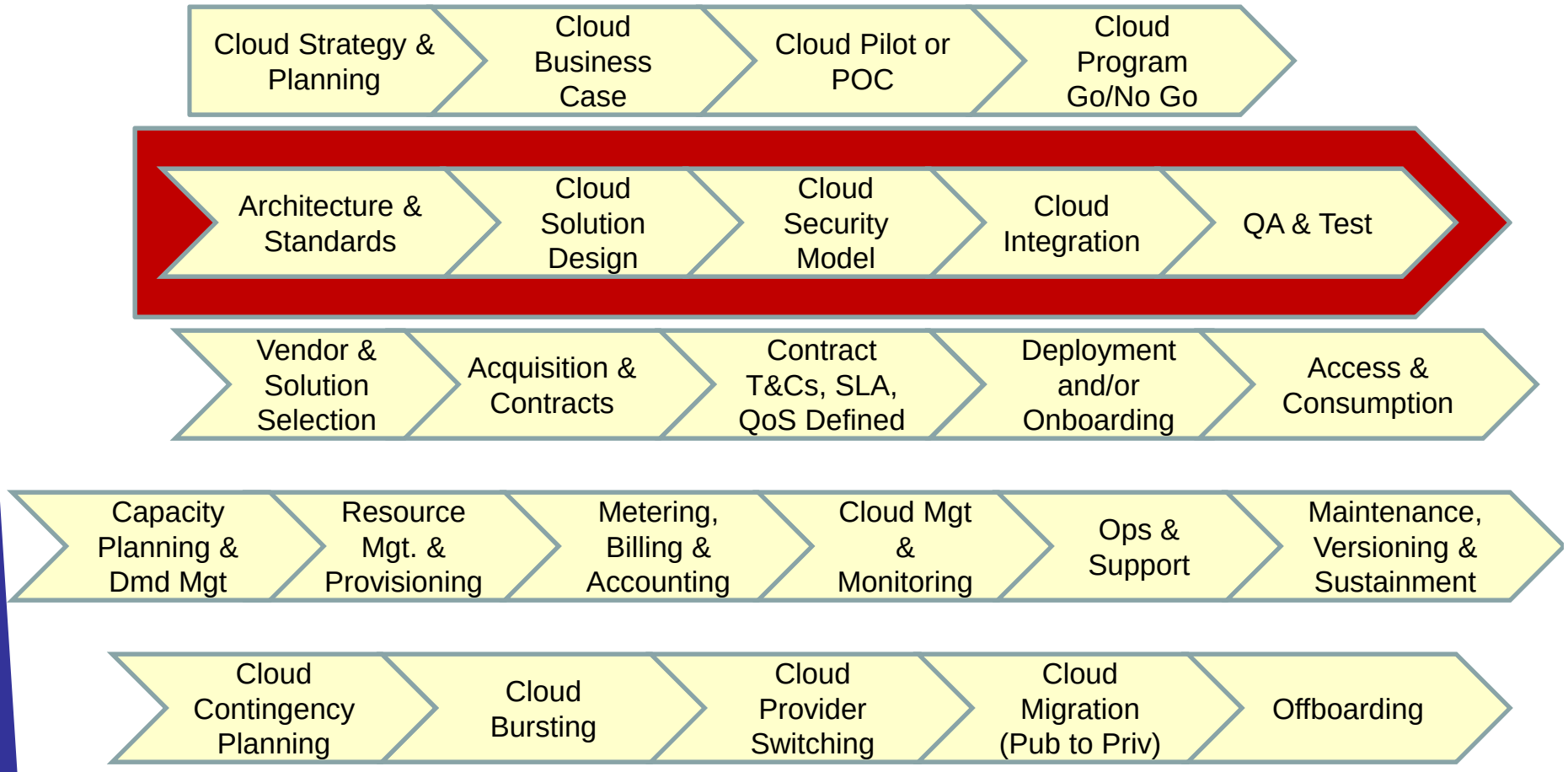
Cloud Architecture, Solution Design, Integration, Security & Test

Start



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Cloud Vendor Management, Acquisition, Contracts & SLAs

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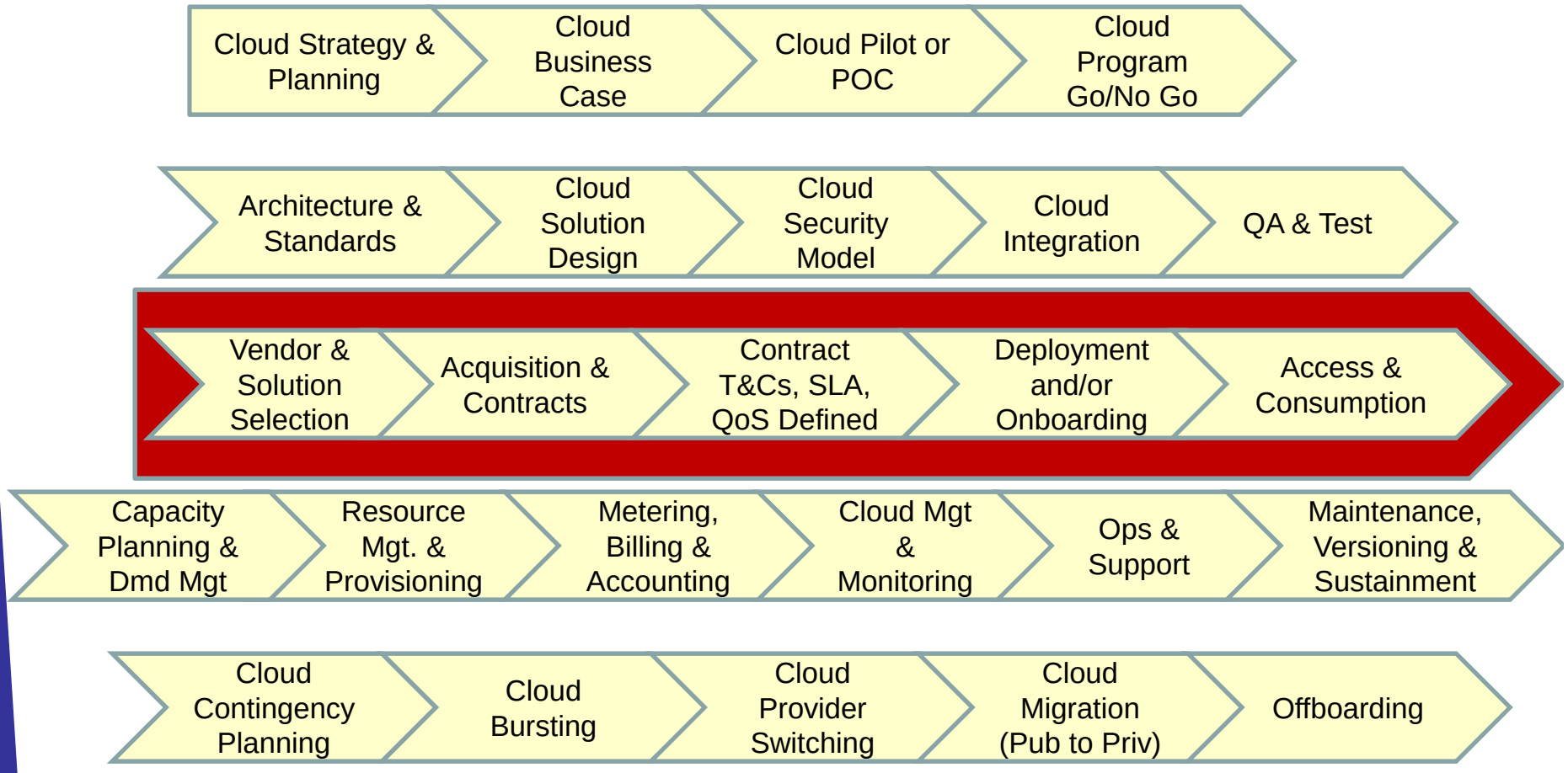

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Cloud Operations, Management & Support

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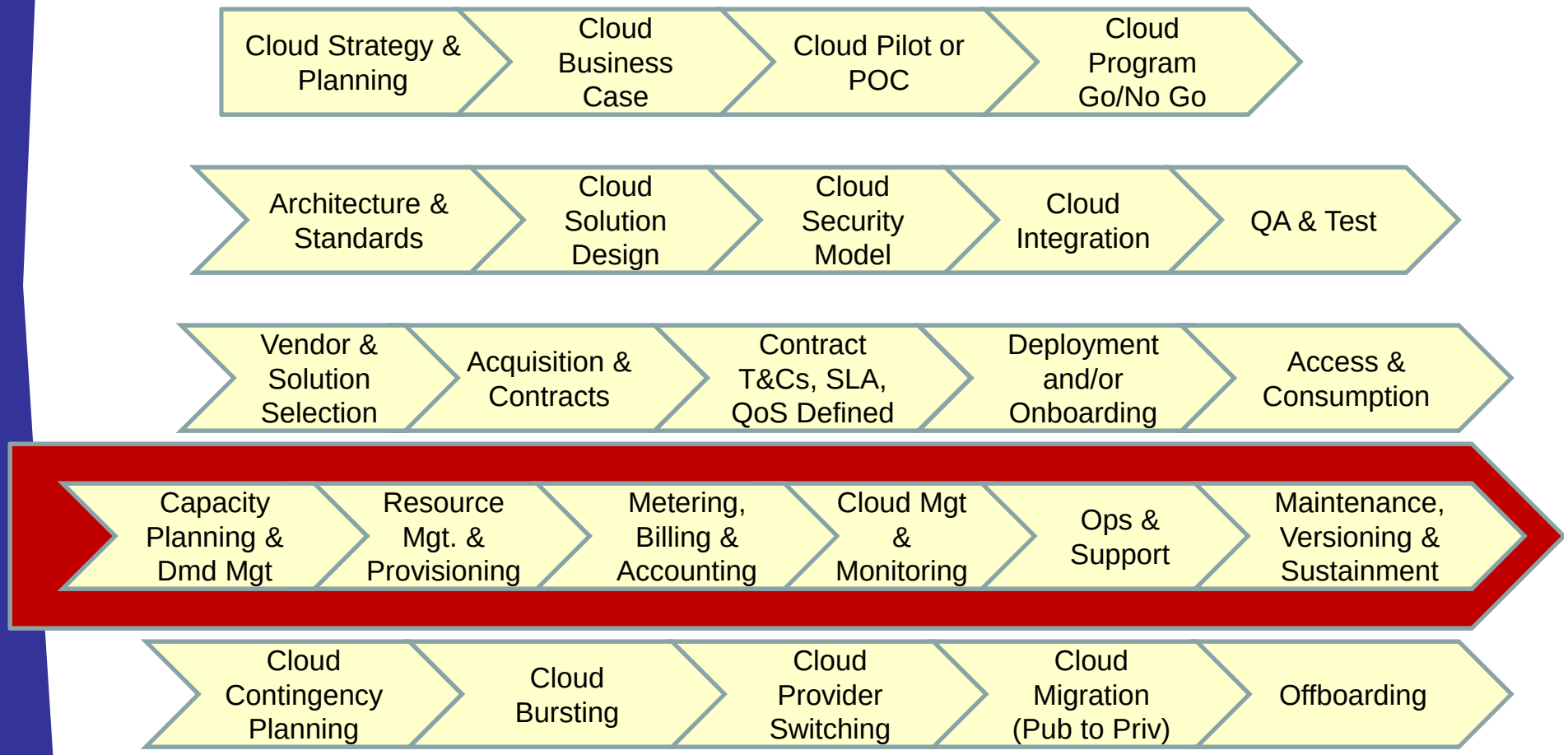

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Cloud Contingency, Migration Planning & Provider

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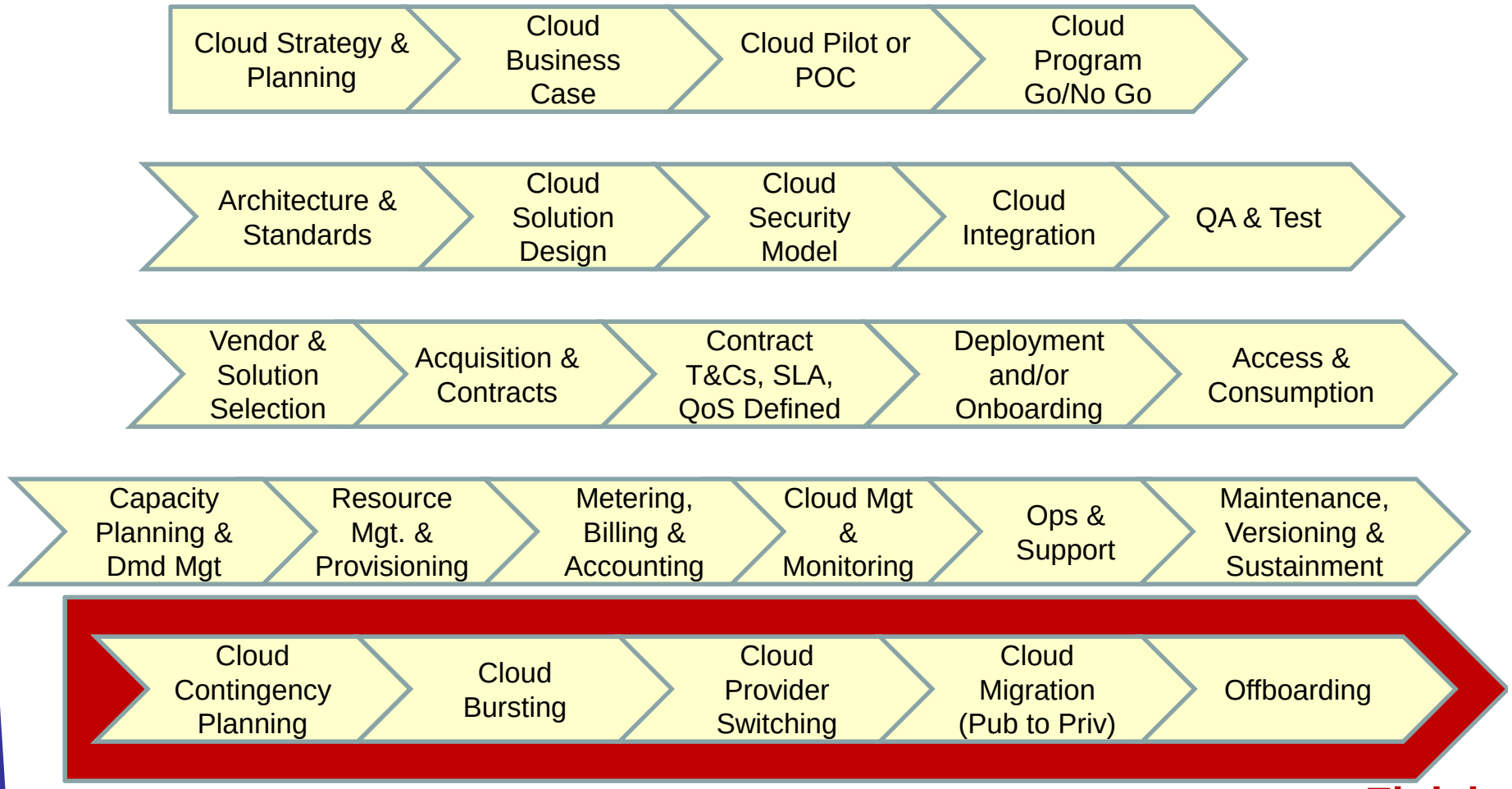

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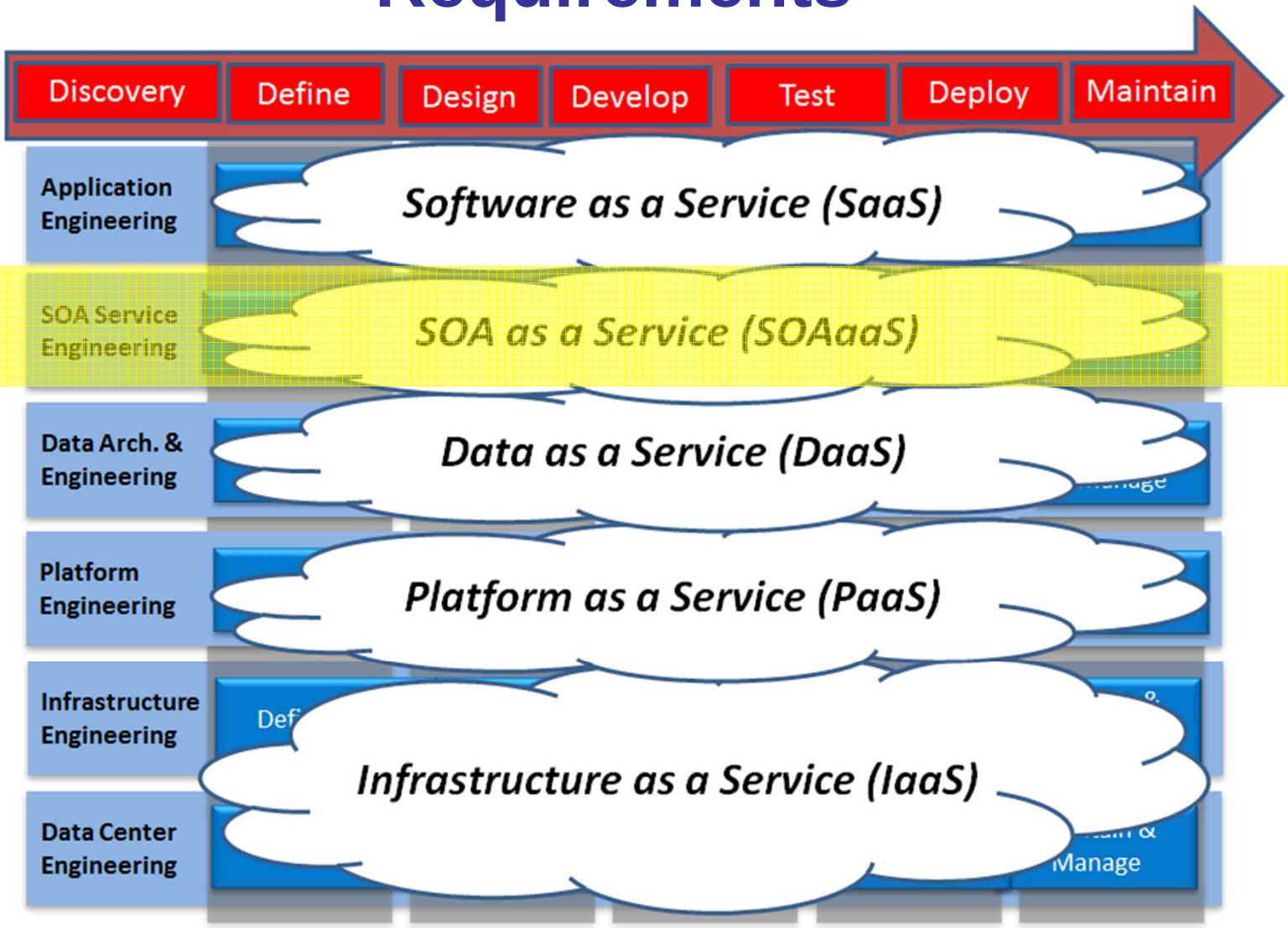
Cloud Governance Includes Many Diverse Requirements



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Private Cloud Governance

- Internal Service Provider dynamics, e.g. creating service catalogs, behaving as a “true” Service Provider vs. serving “captive” IT consumers
- Defining SLAs, QoS terms and Service contracts for Internal IT/Business consumers
- Establishing incentive models to come to the Cloud
- Implementing charge backs, fee for service models, other cost recovery models
- Provisioning resources to internal project teams
- Migrating legacy capabilities to the Cloud

The transition from a captive IT shop to an internal Cloud Service Provider is not an easy transition.

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Public Cloud Governance Requirements

- Security, Security and Security
- Contract terms, SLA and QoS definition
- Access to and consumption of a variety of Cloud resources per Contract
- Business assurance, continuity of operations, failover
- Support, Reliability and Trust
- Portability, Cloud APIs, Interoperability, Integration with other internal IT capabilities and resources

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Hybrid Cloud Governance

- Integrating Cloud resources from multiple Cloud providers (Internal, external, et al)
- API Compatibility, Cloud Platform Compatibility, Portability & Interoperability
- Contract T&Cs, SLA and QoS management
- Security, Security and Security
- Bursting criteria, Switching, Portability, Interoperability and Integration
- Management, monitoring and business assurance across entire hybrid Cloud environment

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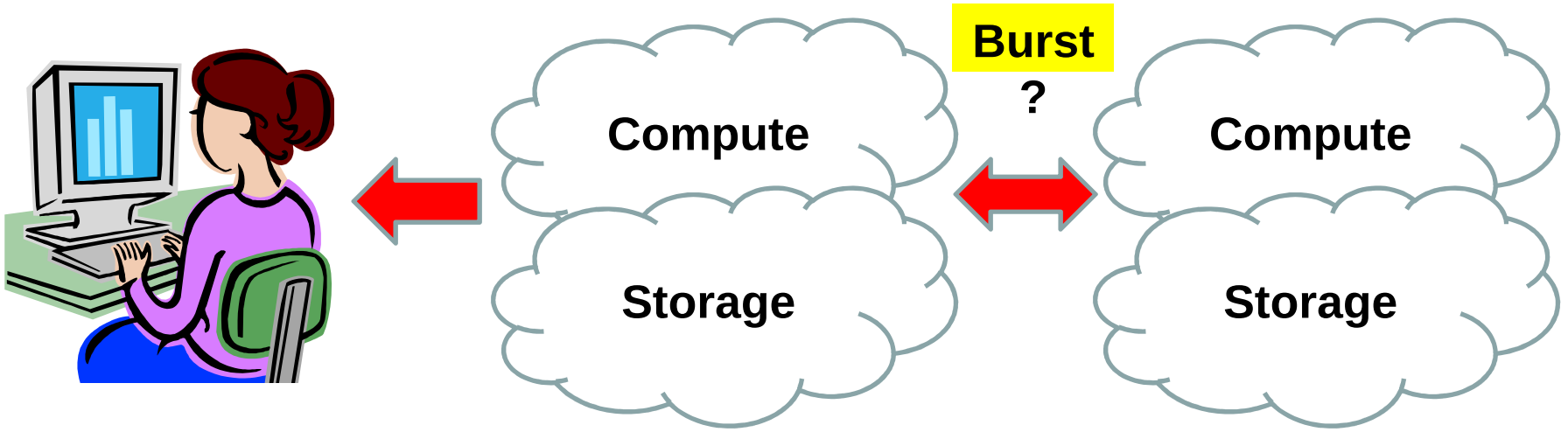
Hybrid Cloud - IaaS

Internal Cloud Consumer

Internal IT Organization

External Cloud Provider



Internal IT Infrastructure Acquisition, Provisioning and Configuration Management Process

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IT Disintermediation? Business Bypasses IT

Internal Cloud Consumer

IT Organization

External Cloud Service Provider

Compute

Storage

Software (aaS)

Platform (aaS)

Compute

Storage

IT Disintermediation

Business Consumers bypass IT governance, infrastructure provisioning and acquisition processes

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Avoiding Disintermediation: The IT Organization of the Future

- IT must behave as a broker and integrator of IT resources and capabilities
  - External, Internal and Outsourced services
- IT must transition into a true business relationship manager
- IT must be **unafraid** of external service provider comparisons, and must benchmark against them
- IT must become a true trusted advisor to the business and proactively manage a portfolio of Cloud Service Provider relationships

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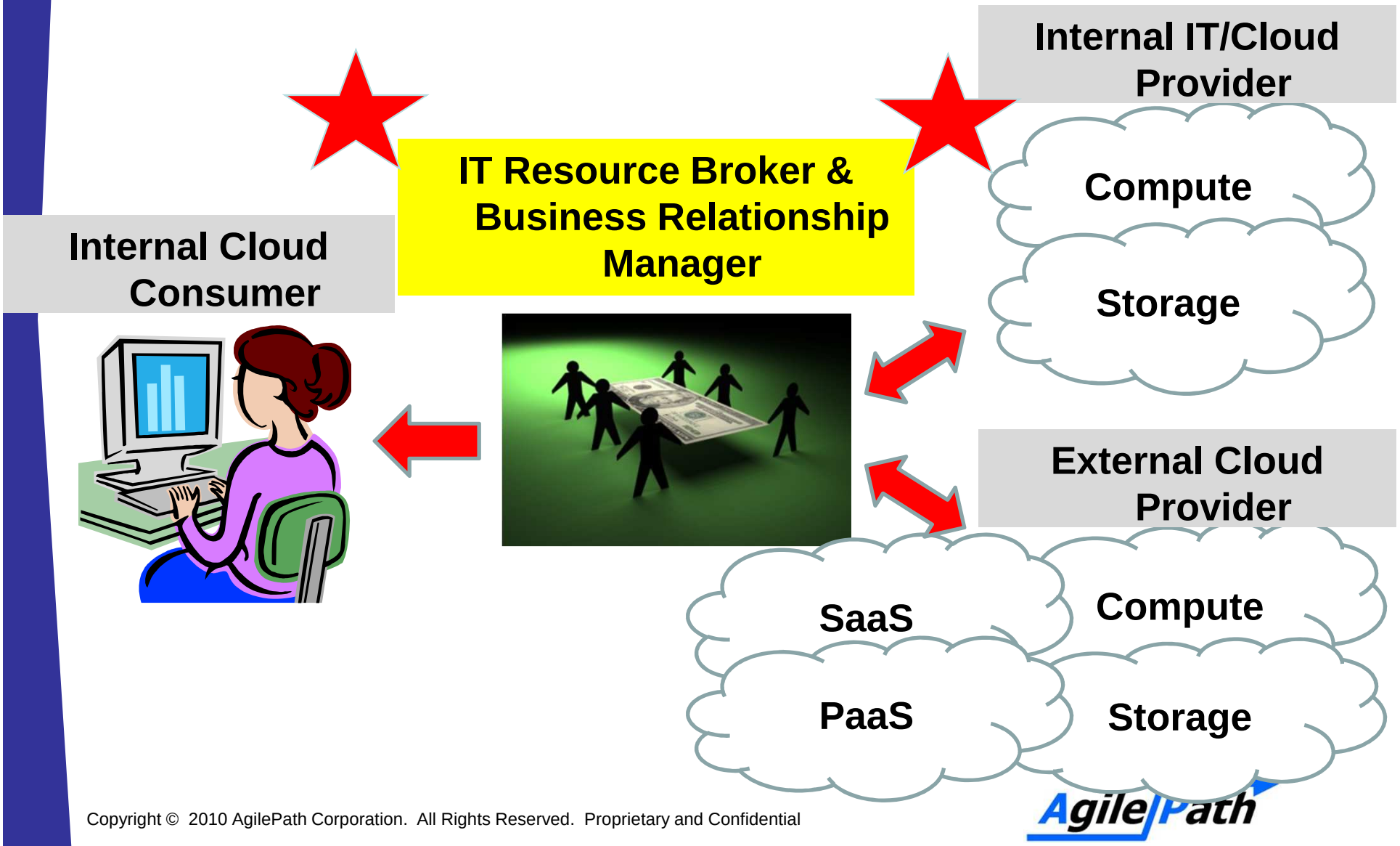
New Role of IT Leadership: IT Resource Broker



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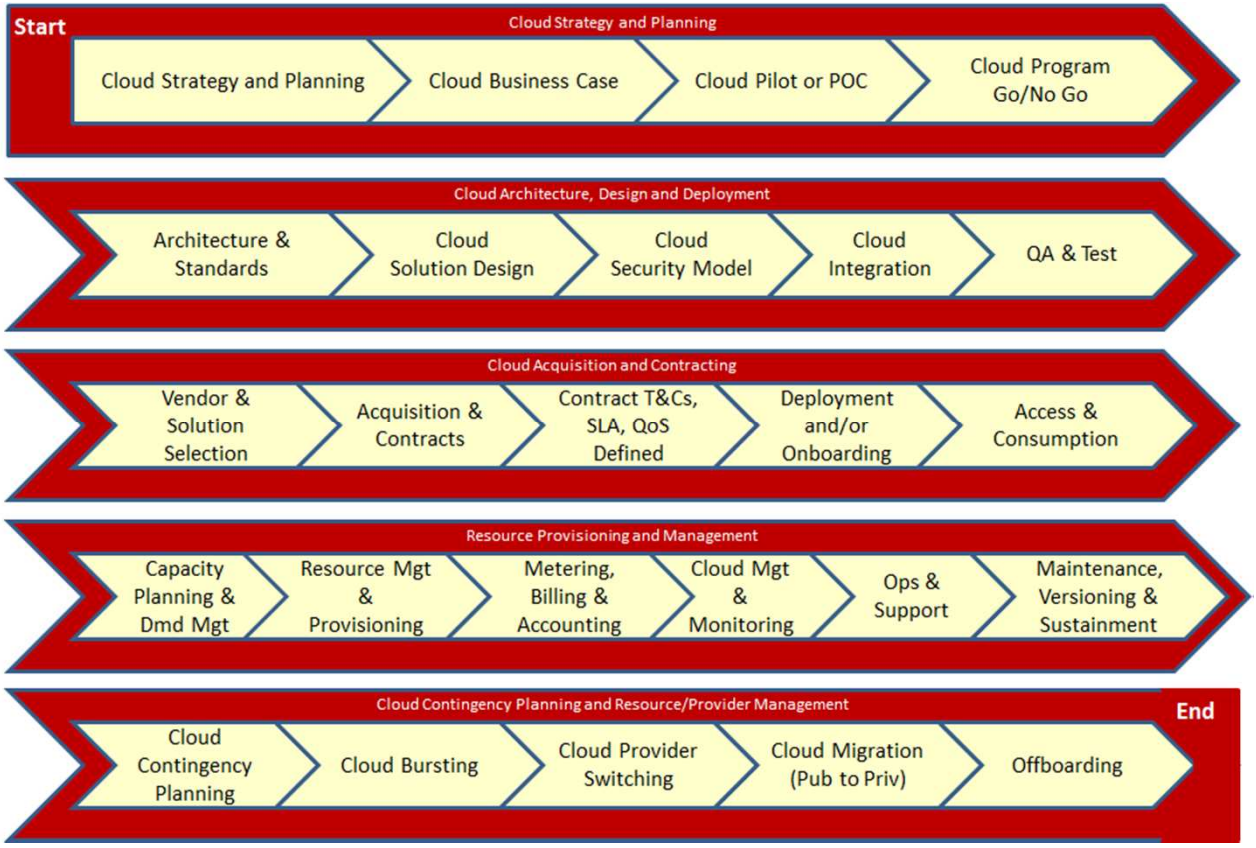
Future IT & Cloud Governance Lifecycle Requirements: A New Role for IT?



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Avoiding Disintermediation of IT

- How can IT become/remain relevant in the Age of Cloud?
- How can IT become/remain relevant b adding value to the business ?
- The Resource/Relationship Broker concept is an emerging role in "Enterprise Services Computing"
- Combining Business Relationship Management, Portfolio Mgt, Contacts/Acquisition and Resource Mgt into a new IT Strategic Competency

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Cloud-Centric IT Leadership Principles

- **Cloud-Centric Leaders will redefine the role of the IT organization** based on a model of integrated resource management, Cloud-centric governance lifecycle principles, and the relationship management/resource broker model
- **Cloud-Centric IT will redefine its role as a unified broker of IT resources, services and capabilities, regardless of the source**
- **Cloud-Centric IT invites comparisons with 3rd party service providers** to benchmark internal IT capabilities, processes, rates and customer satisfaction
- **Cloud-Centric Leaders will establish internal benchmarks for Cloud services** to compare with those of internal and third party public Cloud service providers
- **Cloud-Centric Leadership Organizations will achieve superior optimization of IT spending**, from internal providers, external/3rd party providers, and trusted managed services and solution partners
- **Cloud-Centric IT will offer highly differentiated business and IT services to internal and external consumers**, essentially creating new revenue opportunities and new pathways to innovation
- **Cloud-Centric IT Leaders will spur innovation** within the enterprise by seeking better, unique and differentiated IT service models, product and services for internal and external customers

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Things to Do Tomorrow

- ***Establish clear, measurable business and IT goals*** for Cloud computing (Cloud Strategy)
- ***Align and design your Cloud Governance Model to achieve business goals***, e.g. "Business at CloudSpeed", cost reductions, efficiencies, agility
- ***Integrate Cloud Governance with IT governance and SOLA Governance*** processes, policies, organizations and tools (PP/OT)
- ***Balance your Cloud governance model*** to achieve speed and capability enablement, without friction and politics

Govern Clouds early and often. Cloud Governance will ensure realization of business, IT and operational objectives. Risks of poor Cloud Governance are dire.

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THANK YOU

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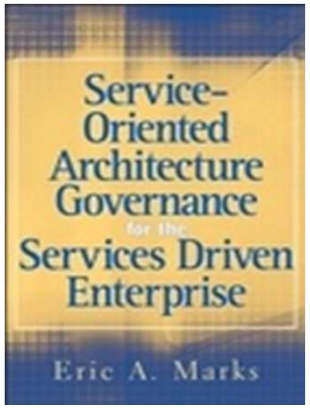

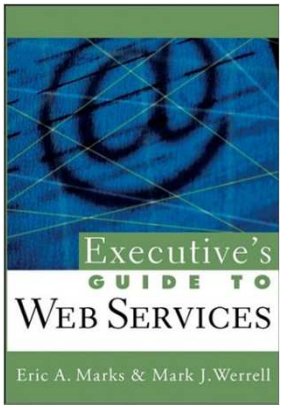

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