

# Architecting the Cloud

Sumanth Tarigopula  
Director, India Center, Best Shore Applications  
Services

©2011 Hewlett-Packard Development Company, L.P.  
The information contained herein is subject to change without notice



# Cloud Definition

## Definition

- Cloud Computing is a model for enabling convenient, on-demand network access to shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction

## Key Characteristics

- On Demand Self Service
- Automated Self Healing Platform
- Elasticity and Scalability
- Pay Per Use
- Resiliency
- Workload Management



# Key Cloud Attributes

## Dynamic Computing Infrastructure

- Underlying software and hardware can respond dynamically to changing levels of demand
- Leverages server virtualization as a basis for running services
- Highly utilized

## Elasticity & Pay Per Use

- A user can create, launch and terminate resources as needed
- Optimize Resource Utilization
- Supports the Pay Per Use Model

## Self-Service Based User Model

- Ability to upload, build, deploy, manage and report on their business services on demand.
- Self-service provides significant business agility

## Minimally or Self-Managed Platform

- A provisioning engine for deploying services
- Mechanism for scheduling and reserving resource capacity
- Capacity for configuring, managing and reporting
- Tools for controlling access and enforcing policies

## Automation

- Reduced errors caused by manual processes
- Standardization and automation for deployment and management of IT Services



# Cloud Computing Service Models

- Software as a Service : SaaS eliminates the need to install and run the application on the customer's own computer and simplifying maintenance and support
- Platform as a Service : PaaS provides a computing platform as a service on which users can build their own applications.
- Infrastructure as a Service : IaaS delivers computer infrastructure like a virtualized environment.



# Cloud Deployment Model

## Private Cloud

- Enterprise owned or leased

## Community Cloud

- shared infrastructure for specific community

## Public Cloud

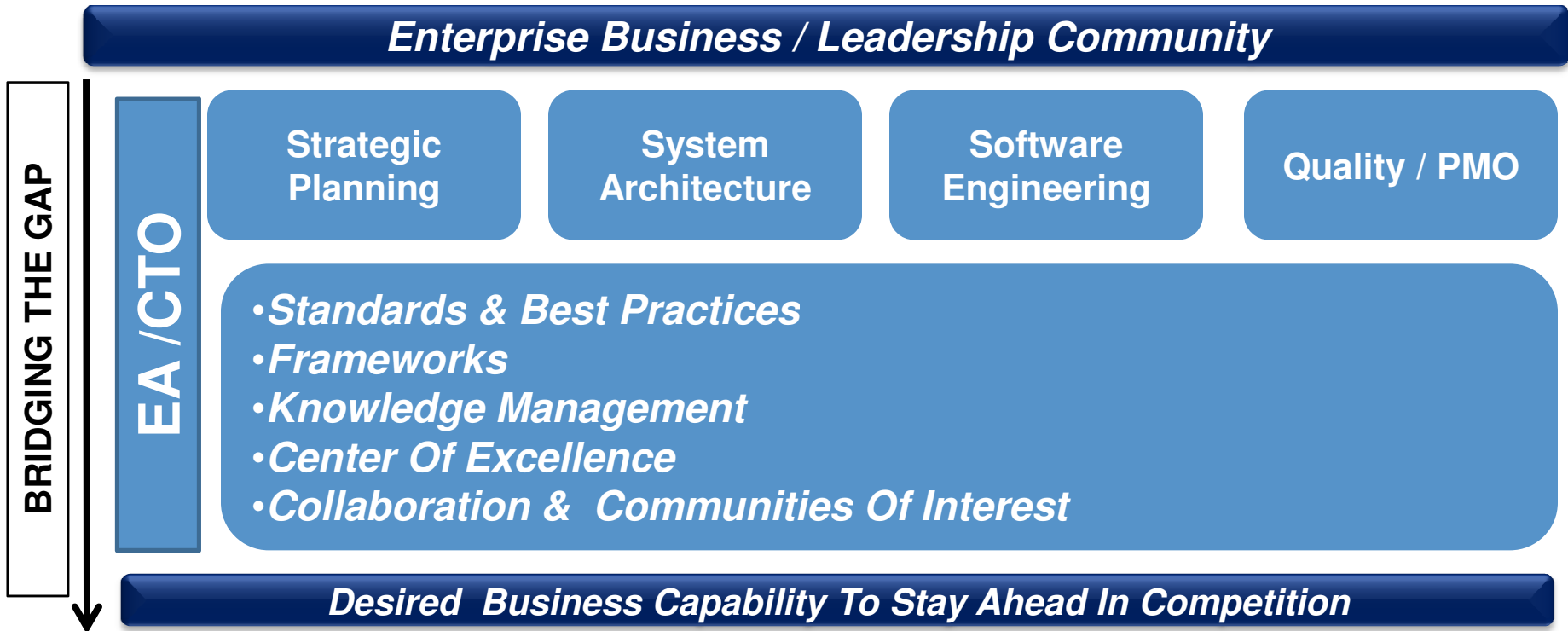
- Sold to the public, mega-scale infrastructure

## Hybrid Cloud

- composition of two or more clouds



# Technology Office / EA in Traditional IT



# Strategic Planning



# Strategic Planning For Cloud - I

- Understand the Real Value Proposition of Cloud out side of marketing hype and vendor bias
- Mobilize IT and business teams with common understanding and strong alignment
- Understand and get an independent view of various Cloud providers and their offerings
- Assessment of AS-IS IT Architecture and suitability of Cloud Adoption





# Strategic Planning For Cloud - II

- Integrate Cloud Service Models into your Enterprise Architecture Road Map
  - **Integrate IaaS into your infrastructure strategy**
  - **Integrate PaaS into your application platform strategy**
  - **Integrate SaaS into your application strategy and road map**
- Integrate Cloud Deployment Models into the Data Center Strategy
  - **Private Cloud, Public Cloud and Hybrid Delivery**

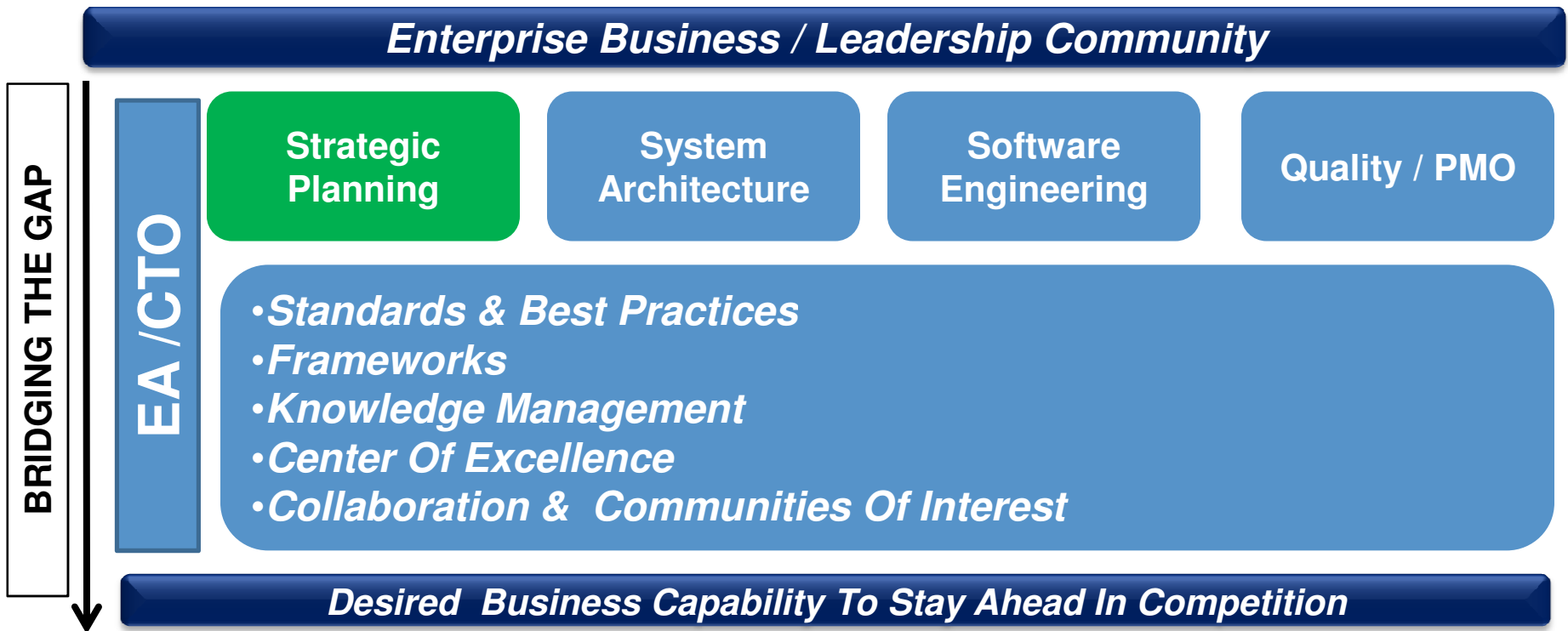


# Strategic Planning Typical Output

- Short listing and Preferred Vendor List among the major categories
- Private Cloud Appliance Providers
- Public Cloud IaaS Providers
- SaaS Offerings and Alignment to Business
- Cloud Enablement Platforms (PaaS)
- Cloud Monitoring / Automation Tools
- ROI plays an important role, but more a CFO/CIO terrain



# Technology Office / EA in Traditional IT



# System Architecture



# System Architecture For Cloud - I

- Various Vendors have already provided their Cloud Reference Architectures, the same can be analyzed and tailored to the enterprise needs
- The AS-IS Architecture blue print within the data center and the To Be HYBRID model can be established and best of the existing assets can be re used while providing a migration path to Cloud
- Non Functional Requirements hold a important aspect of Cloud adoption, they need to identified and defined for the Cloud Architecture



# Non Functional Requirements (NFR) - Cloud

- Major Cloud Fears Expressed In Various Surveys
  - 70% have security top of mind
  - 79% concerned about vendor lock-in
  - 75% demand high SLA guarantees for performance and availability
  - 63% prefer integration of cloud IT services and on-premises services
- As evident the Non Functional needs holds the major concern and where the EA needs highest level of concentration
  - Security
  - Scalability
  - Availability



# Cloud NFR - Security

- EA should concentrate on
  - Common standards for Authentication, Authorization of applications inside a hybrid and cloud delivery context
  - Isolation of organization data especially in a public cloud scenario about network and data isolation
  - Security, Data Privacy standards and check on the audits for compliance
  - Ensuring SOX compliance of the Cloud applications with appropriate controls
- Few of the public Cloud Vendors have provision for federated security and support identify providers. These options should be part of the Cloud Security requirements that is built as part of the Enterprise wide blue print



# Cloud NFR - Scalability

- Whole value proposition of the Cloud is built around dynamic scaling
- However this does not mean that the enterprise should leave all the Scalability to the options provided by the Public Cloud provider or the private Cloud Appliance
- EA should evaluate
  - Various design patterns for the applications to support the scalability needs of the application
  - Rules on which an application can perform a Cloud Burst to utilize the extended Cloud infrastructure should be defined by EA – both predictable bursting and un-predictable bursting
  - Classifications for the applications with respect to their Load patterns so that appropriate Scaling options can be chosen
  - On/Off Load : In this pattern load typically only occurs at certain periods, telecom billing cycles or year end processing



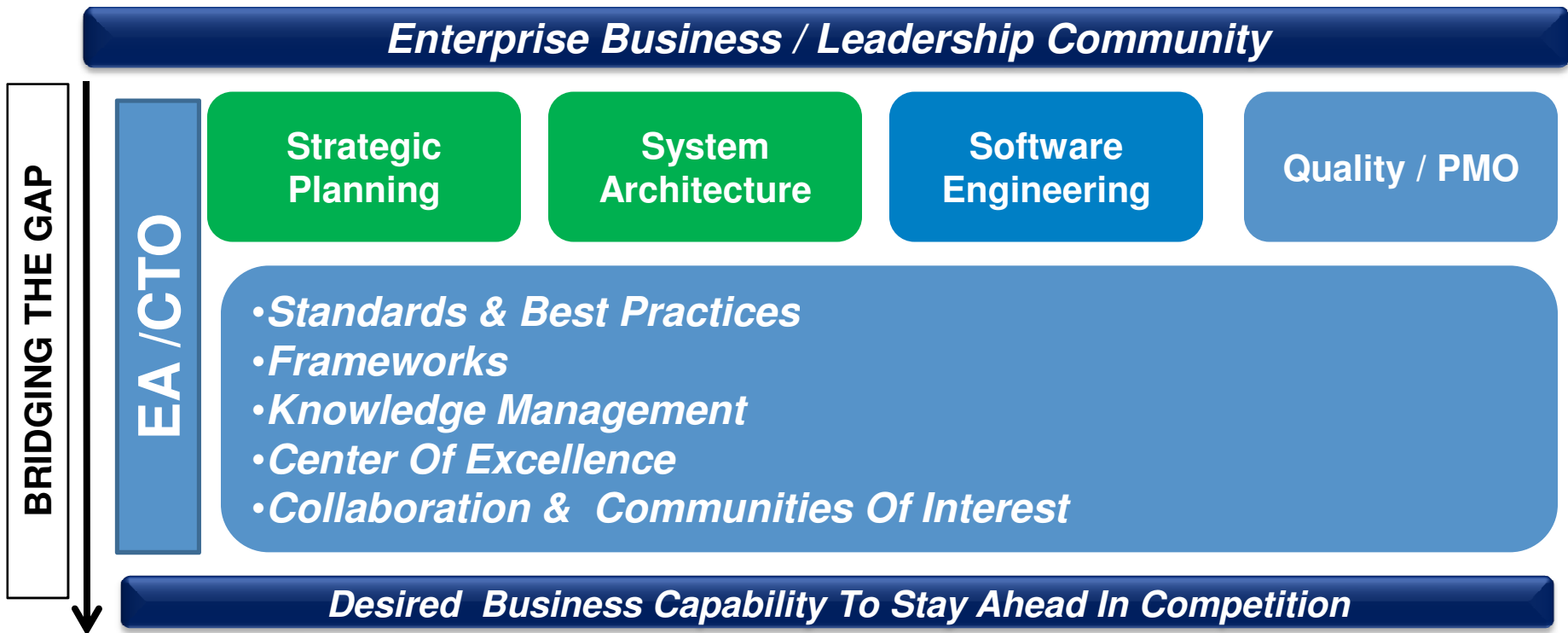


# Cloud NFR - Availability

- Bottom line Cloud Can Still fail under extra ordinary situations
- EA should define the Availability criteria to the applications as part of NFR strategy:
  - Avoiding Single Point of Failure across tenants and applications
  - Utilizing the out of the box features provided by vendors
  - Creating a custom backup strategy
  - Utilize the data center as alternative backup location
  - Keep transactions small and recoverable



# Technology Office / EA in Traditional IT

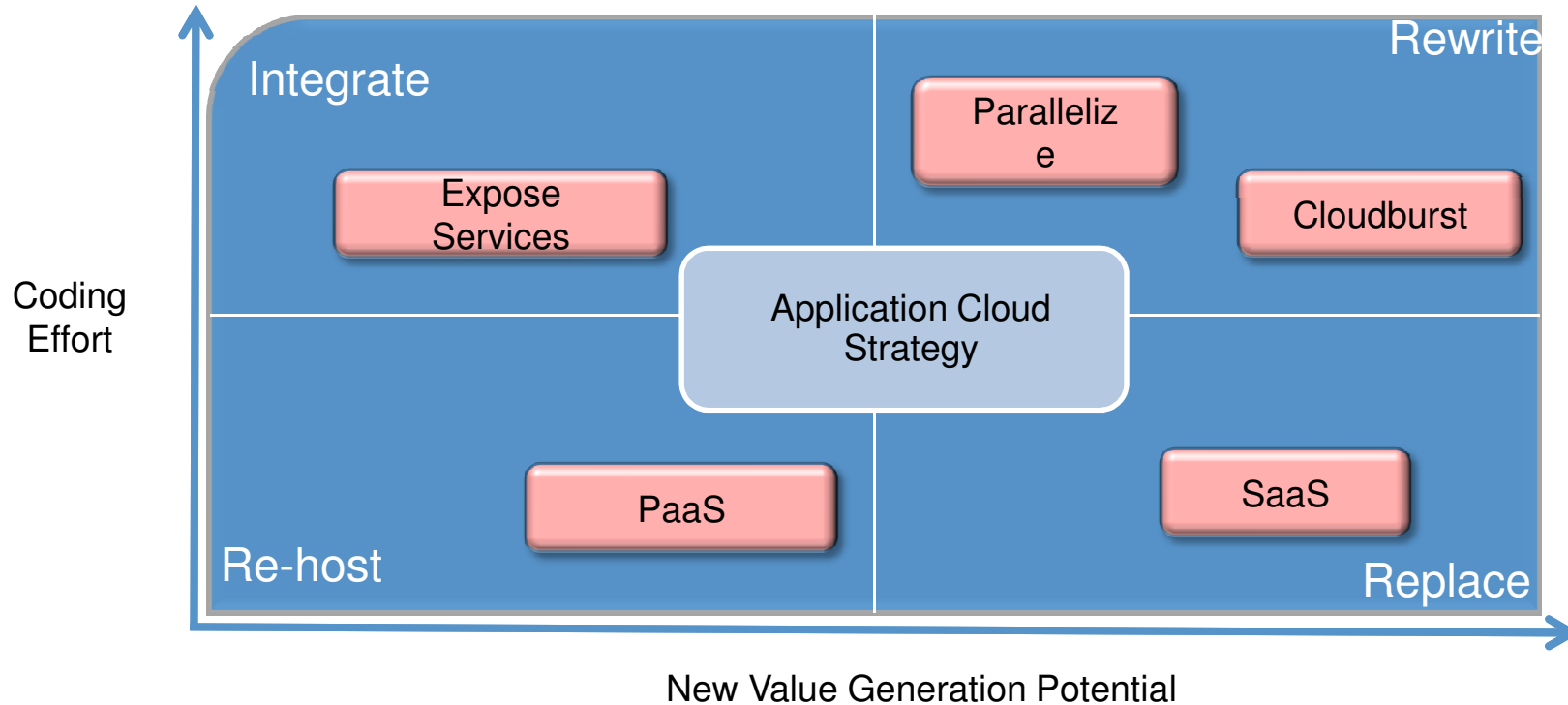


# Software Engineering

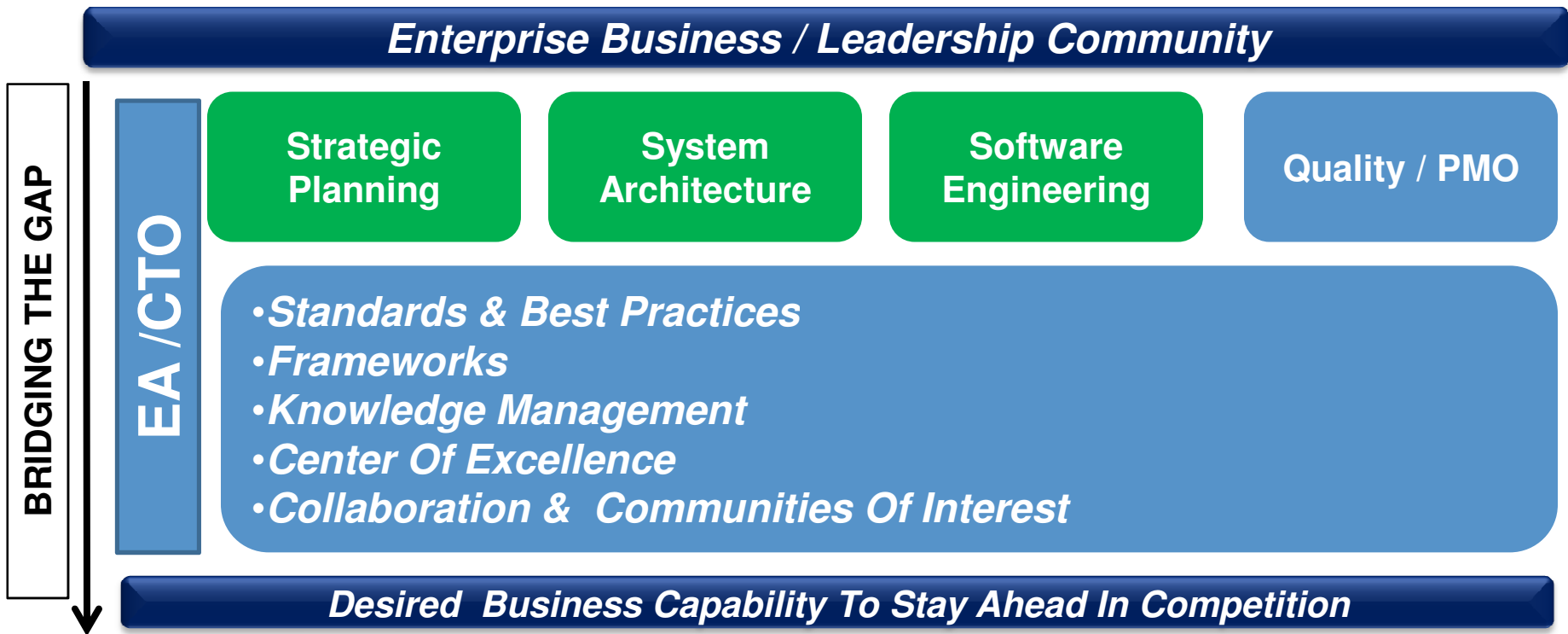


# PaaS , SaaS & Coding Efort

- There are huge benefits in decrease in raw coding efforts if appropriately chosen.



# Technology Office / EA in Traditional IT



# Quality PMO



# PMO / Quality

- Objectives

- Provide project metrics and analysis, clear communications and reporting to projects and management about project progress and commitments
- Develop measures to assess the quality of project deliverables
- Engage projects to manage deployments to multiple geographic locations and/or multiple business customers
- Leverage industry best practices to ensure standard execution, communication, and management visibility for decision-making

**– This activity fairly remains the same in Cloud versus traditional IT**



# Summary





# Summary

- Taking the Enterprises Towards the Cloud for satisfying the much needed business capabilities is a challenging task for Today's CTO/EA
- There is lot of hype going around and there is also a Fear, Uncertainty and doubt
- This journey is nothing different from what a EA/Technology Office would go through in a traditional IT World
- Except that the components, patterns and players are different, the Role of the Technology Office is Redefined for the Cloud



*THANK YOU*

