

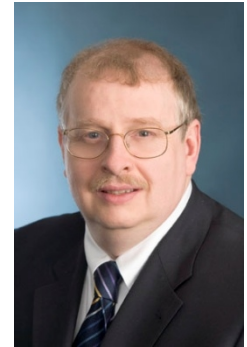
Service Oriented Cloud Computing Infrastructure

The Open Group,
Enterprise Architecture Practitioners Conference
London, UK
29 Apr 2009

Mateen Greenway, EDS Fellow

Speaker Profile – EDS Fellow Mateen Greenway

- Mateen Greenway, an **EDS Fellow** based in London, UK, is the **chief technologist** for the EMEA Government & Healthcare industry group. In this role, he is responsible for maintaining and growing a group of highly skilled enterprise architecture consultants in support of high-profile bid engagements across the government & healthcare industry. Additionally, **Greenway leads the EDS global architecture training program**. The title of EDS Fellow is awarded to the corporation's most **innovative thought leaders** in recognition of their exceptional achievements.
- Greenway has **25 years of experience in enterprise architecture**, multi-year planning, enterprise modelling, security policies, mobile computing and enterprise application implementations. He has extensive experience in enterprise architecture development, government & healthcare, financial services, manufacturing solutions, desktop and mobility solutions, and architecture training disciplines.
- Previously, Greenway served as the **chief technology officer on EDS' account for SKF**. On that account, he also led account planning activities. Recently, he has also provided enterprise architect support for various pursuits and accounts, including the UK Justice agency, Rolls-Royce Aerospace, Bank Leumi and Kanebo Cosmetics.
- From 2002 to 2004, Greenway was the **chief technology officer for the EDS Delphi account**. While there, he established the Innovation Council and led efforts to enhance the account's integrated account strategy. Prior to that, he had been the **European chief technologist** on the account since 1999. From 1995 to 1999, Greenway was the **international chief technologist for the GMAC International account**.
- Greenway was awarded the **2003 EDS Compass Award for Innovator of the Year** for work on myCOE, part of the EDS Agile Workplace Services offering.



Outline

Objective

Define the synergies between SOI and Cloud Computing to realize exponential gains across the extended enterprise

Outline

- Service Oriented Infrastructure Project Team
- SOI Defined
- Cloud Computing Defined
- SOI Model
- Cloud Computing Model
- Bringing SOI and Cloud Computing together
- Conclusion

Open Group SOI Team Update

A Service-Oriented Infrastructure forms an appropriate foundation for a service-oriented Application Architecture and can be regarded as a natural part of a service-oriented Enterprise Architecture.

Co-chairs

- E.G.Nadhan, HP
- Michael Salsburg, Unisys
- Hemesh Yadav, Wells Fargo

Accomplishments

- [Service Oriented Infrastructure Framework v 1.5](#) made public
- Contributed content to the Service Oriented Infrastructure in the SOA Source Book

Work in progress

- Next version of the Service Oriented Infrastructure Framework

| SOI Defined

Service Oriented Infrastructure

- Service Oriented Infrastructure or SOI is an architecture for describing IT infrastructure in terms of services.
- The Architecture encompasses all phases of the SOI life cycle, Design, Provisioning, Operation and Decommissioning and Management of the services.
- It is relevant to the discovery of SOA-enabled applications, and the mapping to business processes of underlying infrastructure and IT assets.
- Infrastructure Services typically use and/or provides a virtualized pool of shared resources (Servers, Network, Storage, Infrastructure software) which are deployed and managed in a highly automated way.
- An SOI provides foundational support for a Service Oriented Application Architecture or other application architecture

Service Oriented Infrastructure

- Demand Driven Infrastructure
- Service Level Framework
- Consume as you need

Feature	Description
Demand driven infrastructure	<p>Using service orientation for the infrastructure provides a way to define dependencies of higher level business services on the lower-level infrastructure services, down to the actual physical resources, such as network appliances, storage and servers.</p> <p>In this model virtualization of resources and access will be governed by policy at a service level.</p>
Service Level Framework	Service orientation provides a framework to define service level objectives and measure the delivery of those objectives
Consume as you need	Risk moves from the consumer to supplier. Supplier needs to ensure that the requisite infrastructure is in place to meet demand.



Cloud Computing Defined

Cloud Computing

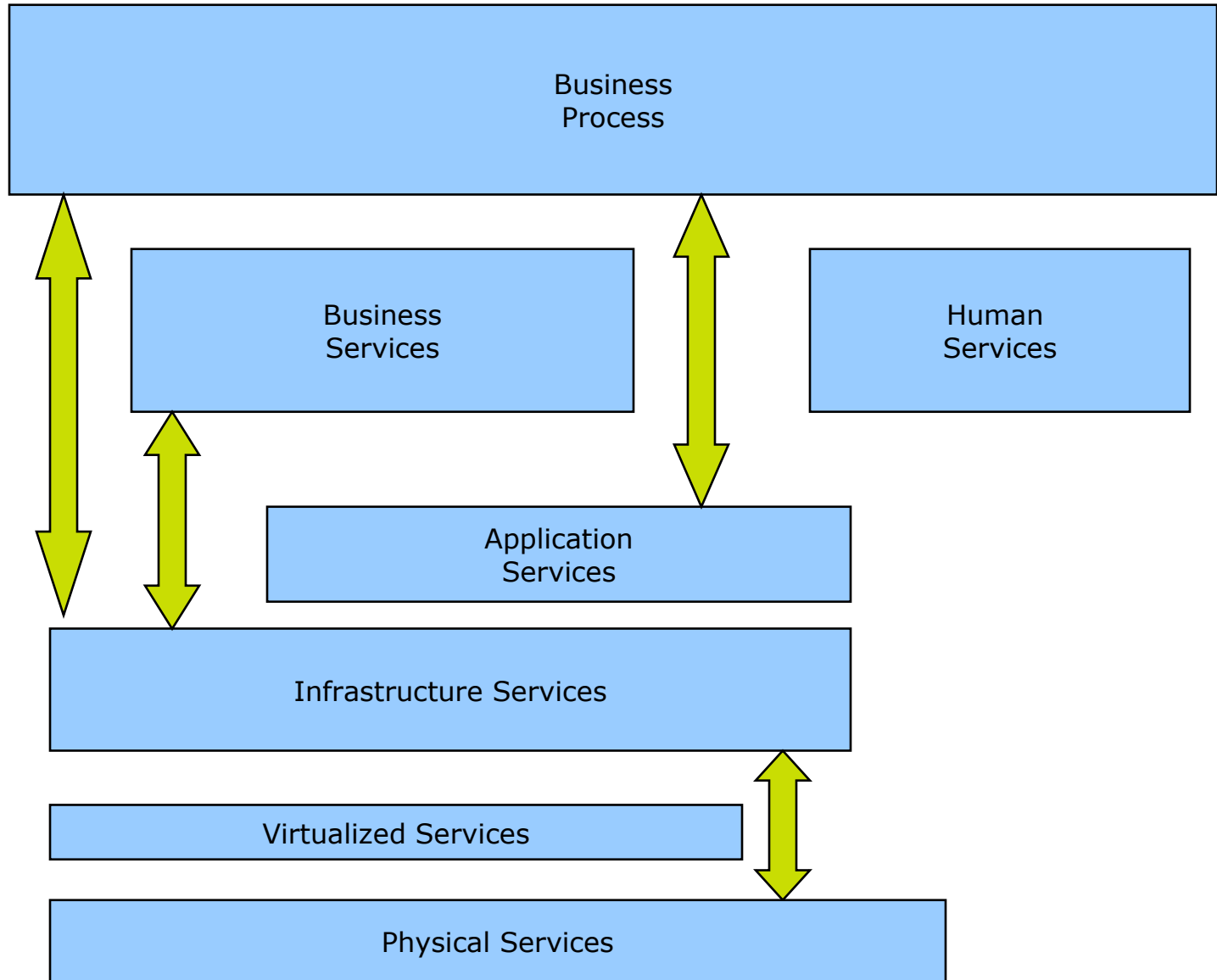
- Universal access
- Scalable Services
- New Application Service Models

Feature	Description
Universal access	Cloud Computing's services are ubiquitous – they can be accessed from workstations and other devices, such as cell phones
Scalable Services	Scale up and scale out. Business Driven Resourcing, Highly scalable, with infrastructure managing the scaling, not applications. Cloud computing allows for elasticity, where capital and operational expenses for resources are only incurred when they are needed
New Application Service Models	Supports parallel and persistent services



SOI Model

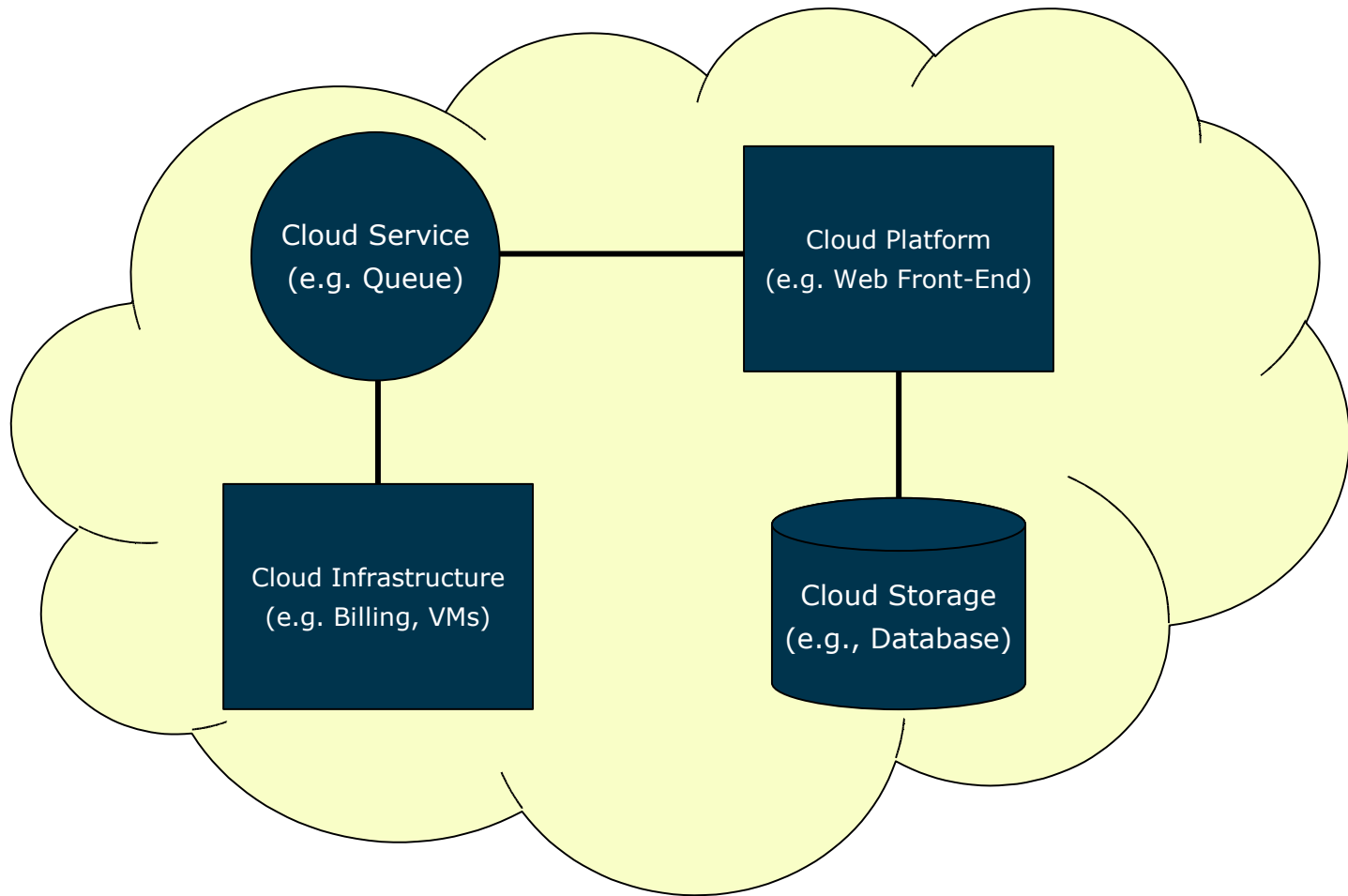
State of the SOI Model





Cloud Computing Model

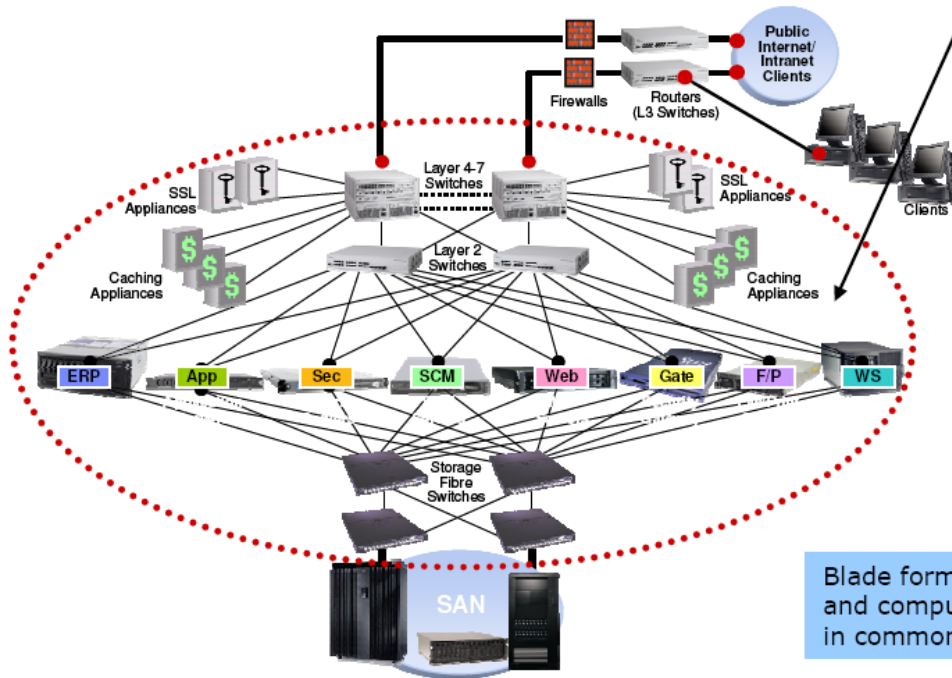
Simple Cloud Model



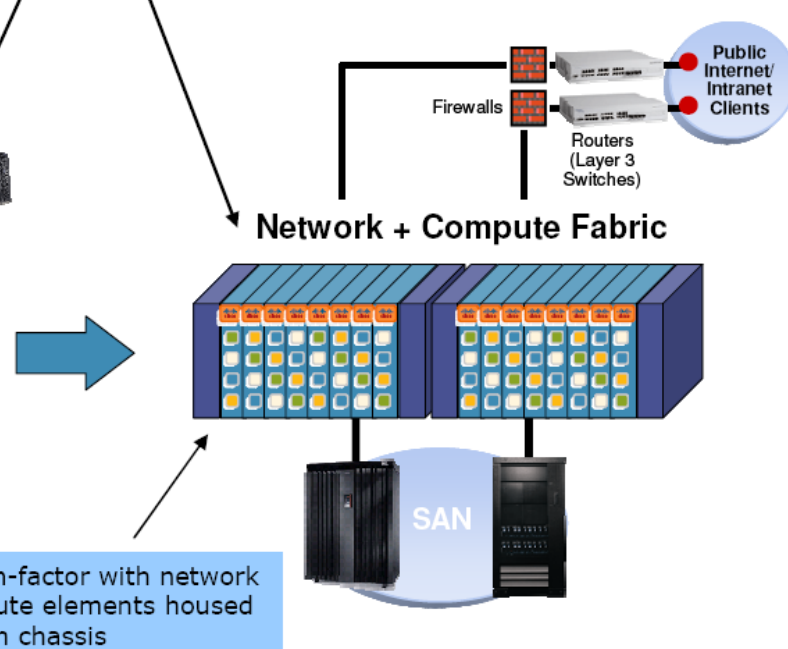
Simplified Data Centre Topology

Goal: Collapse function-specific network and compute elements into "virtual" sessions that are hosted on shared network and compute fabric

Legacy Topology

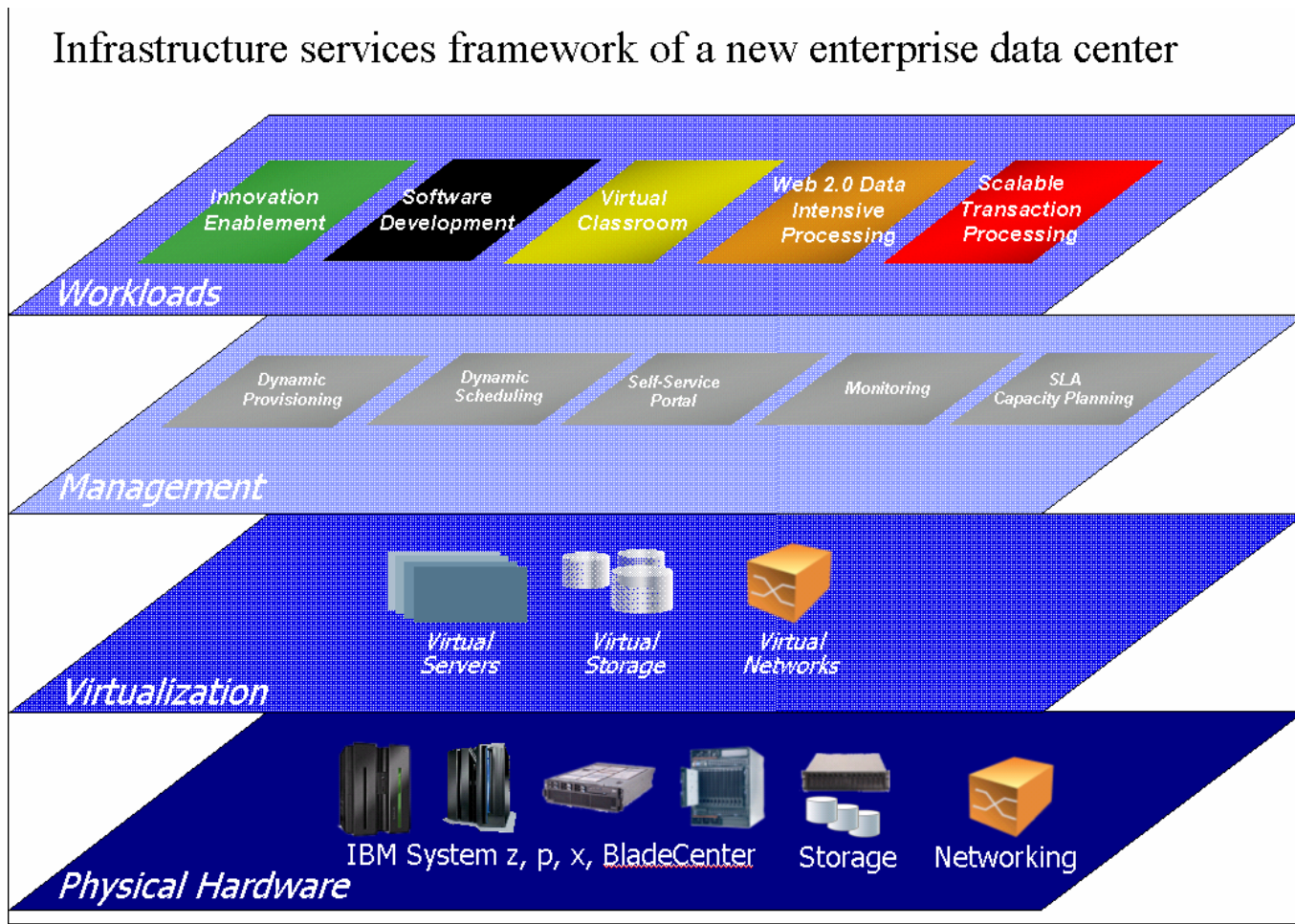


Future Topology



Services Framework at the Data Center

The SOI team works to develop a coherent perspective while factoring in various forward thinking perspectives from member companies



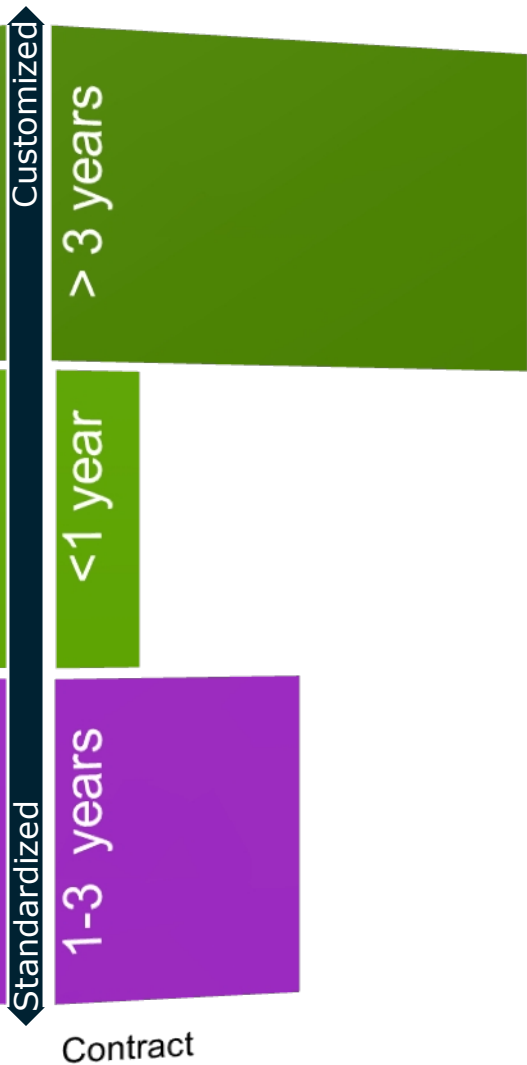
Cloud is part of an overall evolution of the way Infrastructure services will be provisioned and consumed

Cloud Computing
 Computing paradigm in which tasks are assigned to a combination of connections, software and services accessed over a network

AIS for the Enterprise
 Infrastructure services providing managed adaptive infrastructure for the application landscape of an enterprise, capable to adapt to changing business needs (+/- 20% per year)

Flexible Computing Services
 Compute infrastructure services to cover peak performance requirements or timely limited compute resources for computational tasks, for test & dev. Environments or timely limited IT projects.
Platform for SaaS solutions for ISV (computation & simulation)

Utility Sourcing Services
 Standardized & modularized service offering providing customers managed infrastructure- and basis application services as a utility, billed on a monthly basis upon usage, providing max. flexibility to scale services up and down according to business needs.
Delivery model for selected services in ITO contract
White label hosting via channel IT Services to complement customers own service offering
Platform for SaaS solutions for ISV



Segmentation of compute models to drive down costs

Classic (Legacy)

- Transaction based, moderate input/output, requires application specific and often dedicated infrastructure components, standard DR, typically < 24 processors

Enterprise

- Transactional intensive, high input/output, requires vertically scalable SMP, high-availability infrastructure components, zero downtime, journaling, and typically has 24 - 100+ processors

Cloud

- Highly scalable and elastic services that can be easily consumed via Internet technologies through a commodity compute model

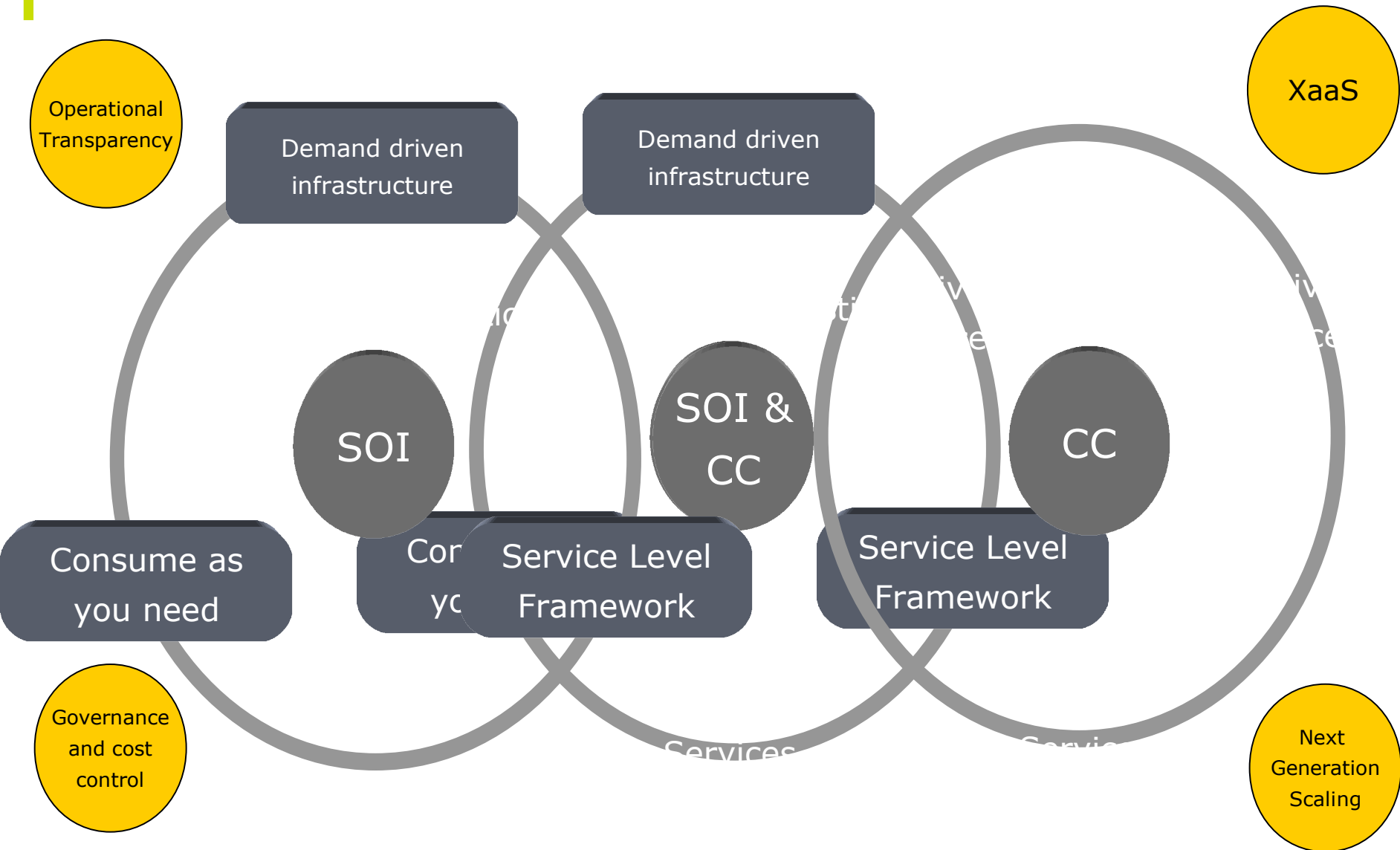
Commodity

- Virtualized compute model using commodity based compute and storage components.

SOI Model

One size does not fit all !!!

Service Oriented Cloud Computing Infrastructure



The new world

- XaaS
- Next-generation Scaling
- Operational Transparency
- Governance and cost control

Synergies	Description
XaaS	Software as a service requires an understanding of the service objectives and the accounting of service use and quality. The underlying reference model for SOI provides the service-oriented framework from which objectives, use and quality can be determined.
Next-generation scaling	Scalable services .. Tax returns filing example ..
Operational Transparency	Cloud computing guarantees certain levels of service to the cloud's customers. When that service degrades, it is necessary to understand the relationship of infrastructure activity to these services so that the situation can be remediated. SOI provides a framework to determine these relationships.
Governance and cost control	Pay for use models .. Rules based Governance

Conclusions

- The SOI model enables the provision of infrastructure services that enable the seamless execution of business processes through applications in an integrated fashion within a data center.
- Cloud Computing enables the extension of this concept across data centers while leveraging the compute resources to better accommodate the flexible demand in a consumption based model.
- At a high level, the SOI model does not change with the advent of Cloud Computing. However, the model can be executed in a more efficient manner realizing significant financial benefits by leveraging the compute resources made available across the extended enterprise by the Cloud Computing paradigm.