



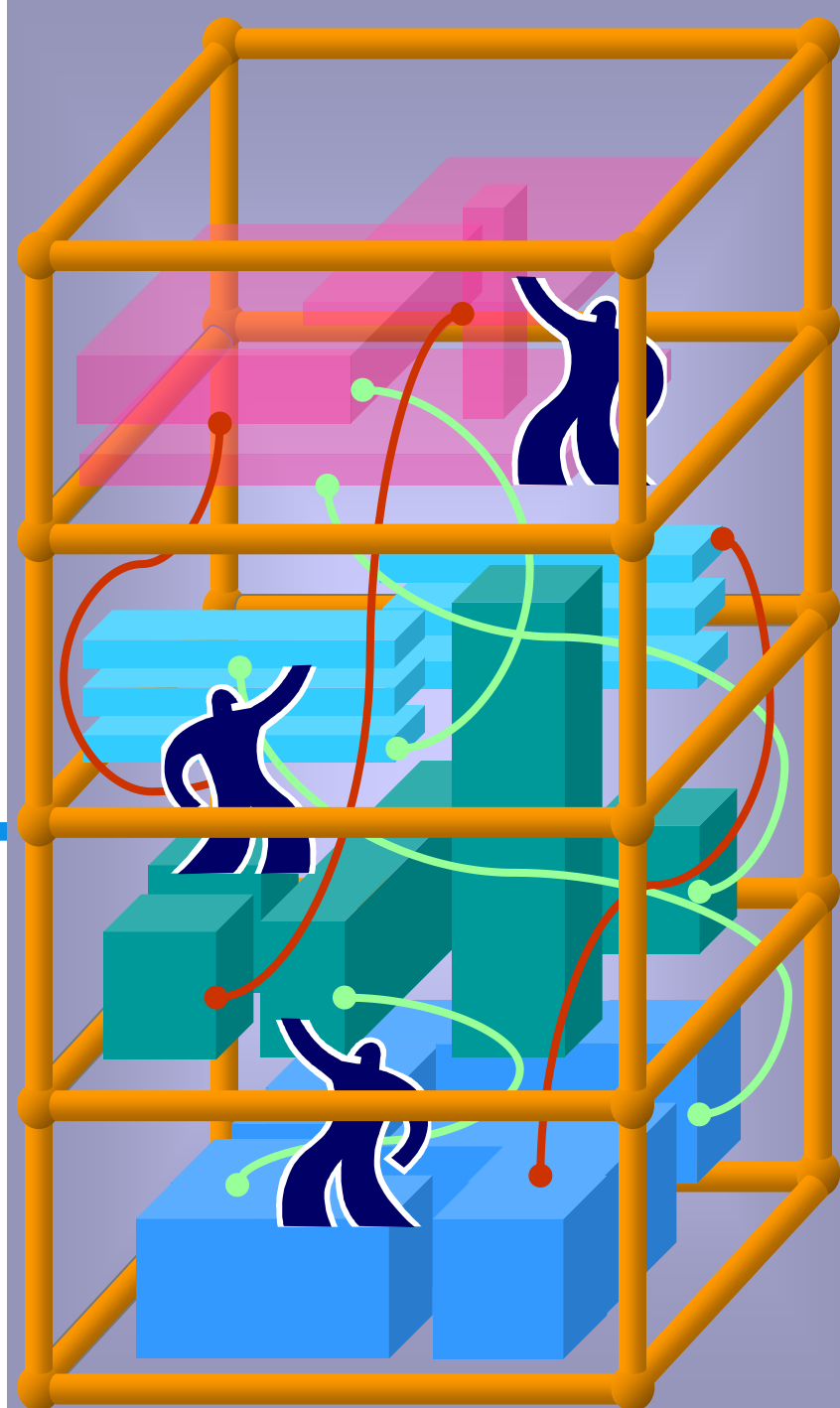
Specialists in Service Oriented
Application Modernization

Enabling SOA and Cloud through consistent semantics

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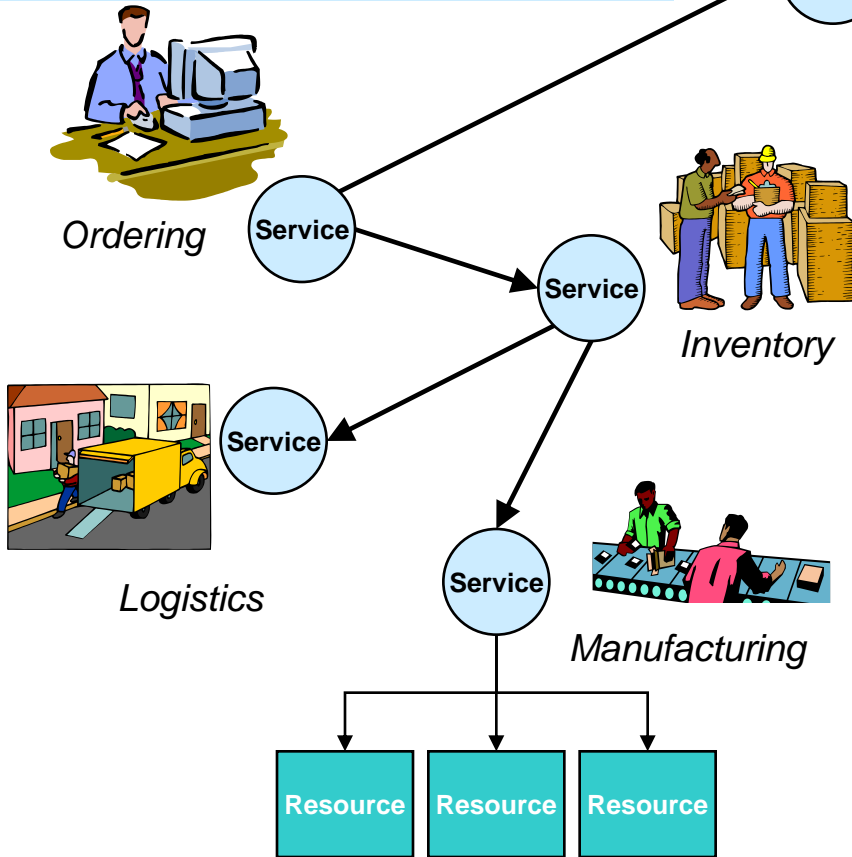
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- **Concepts**
- **Cloud and SOA**
 - Vision
 - State
- **The problem we face**
- **What to do now**
- **Conclusions**

- **Semantics – The study of meaning. Relationship between words, phrases symbols, signs and what they signify.**
- **Consistent – coherent, logically harmonious, marked by agreement**
- **Related Items:**
 - **Ontology – Structural framework for organizing information. Can be used to model a domain and support reasoning**
 - **Vocabulary – Set of words within a language that are understood**
- **Sematic Web – Web 3.0 – Sematic Technologies**
 - **RDF – Resource Descriptor Framework**
 - **OWL – Web Ontology Language**
 - **SPARQL - *SPARQL Protocol and RDF Query Language***

Enabling a virtual federation of participants to collaborate in an end-to-end business process

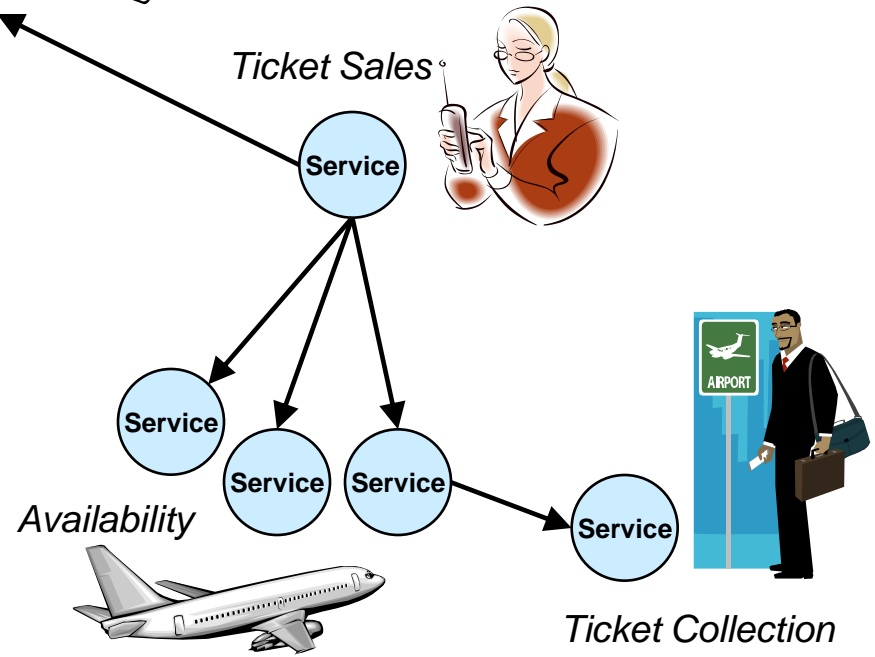


Enabling flexible use of resources
Including existing applications

Payment



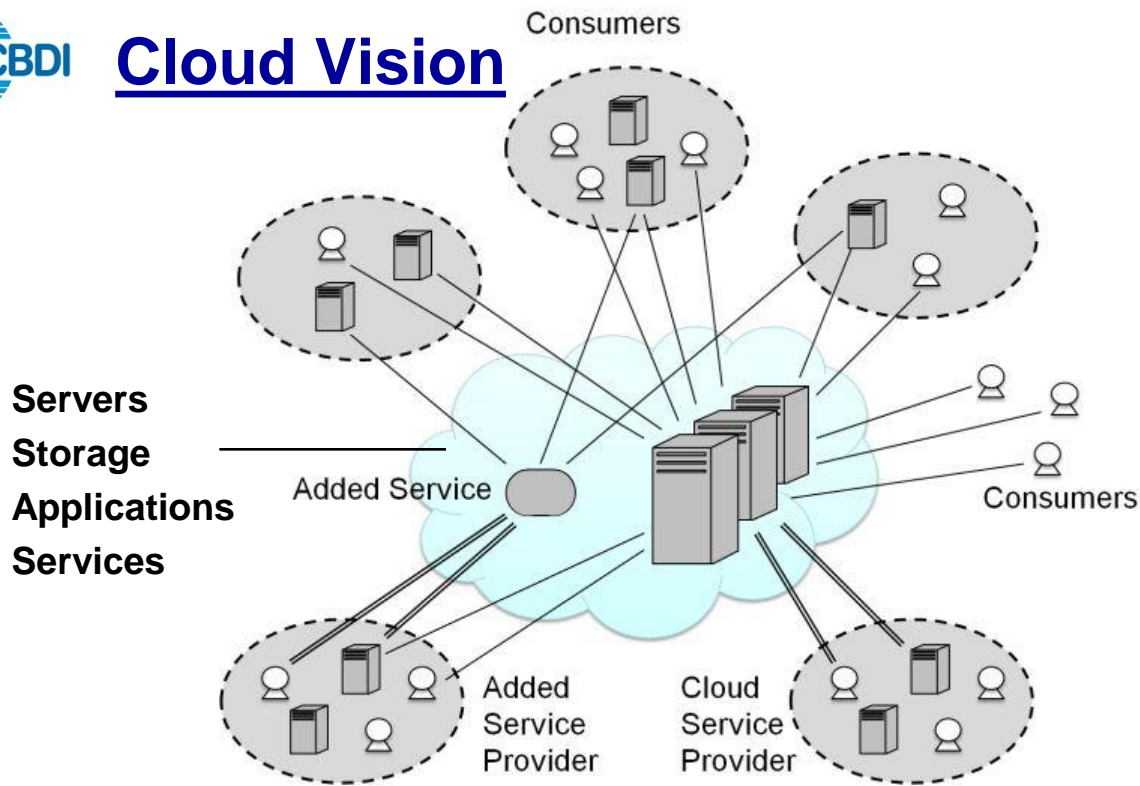
Enabling reuse of Services
in different solutions



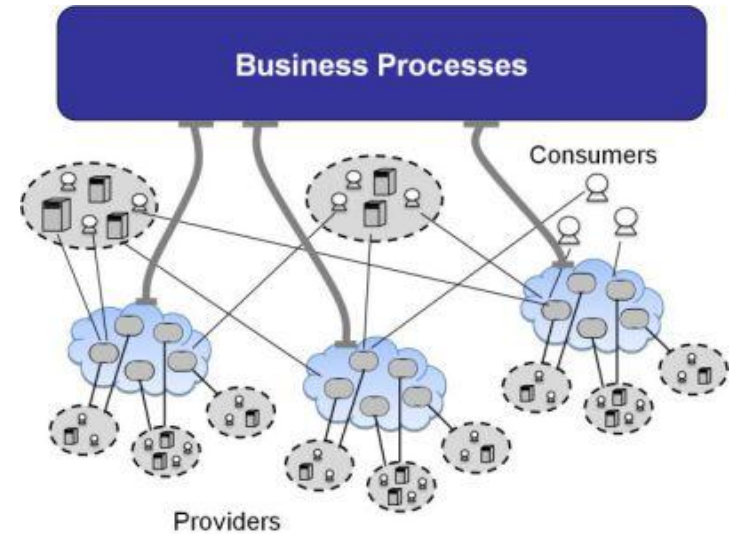
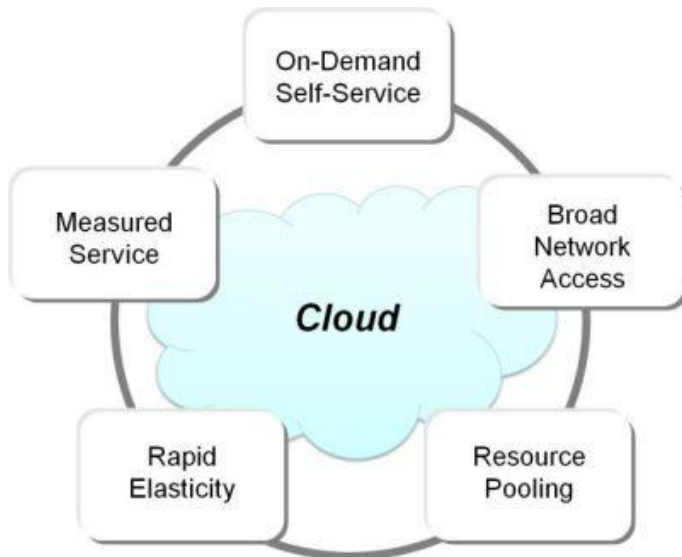
Enabling aggregation from multiple providers
or flexible choice of provider

Driver	Benefit
Agility (loose coupling)	The ability to plug and play with pre-existing or new services allowing us to rapidly modify existing capabilities and rapidly provision new capabilities. This agility exploits potential business opportunities or allows for rapid compliance or leverages cost reduction opportunities.
Re-use	Re-use introduces economies of scale into the consumption of software significantly reducing costs for each incremental use. Re-use also implies the re-use of some legacy capability in support of some new capability offering.
Supplier Flexibility	The ability to switch suppliers of a given capability which supports agility.
Resource Virtualization	Allows consumer to focus on the service itself and separates out the underlying implementation and infrastructure details. The consumer need only focus on the service contract(s).

Cloud Vision



Source:
opengroup.org



Core Cloud Drivers/Benefits

Driver	Benefit
Financial	CAPEx becomes OPEx Minimized/Shared start-up costs Pay as you go
Agility	Time to market - faster to provision infrastructure Faster to assemble solutions Ability to react Ability to innovate Ability to right-size
Value	High QoS relative to cost

● SOA

- Semantics (about SOA) well understood and standardized (Open Group)
- Some 'religion' around implementations
- Some community semantic standardization (NIEM, Acorn)
- Recognition that it is a worthwhile architectural style – relative to those capabilities needing to be services
- True SOA vision NOT achieved
 - Discovery occurs at design time not runtime
 - Alternatives selected at design time not runtime
 - Inconsistent semantics of the services themselves limit SOA

○ Cloud

- SOA conversation benefits Cloud
- Concerns about security / privacy
- Standardization around IaaS
- Some standardization around PaaS
- Free for all around SaaS
- Cloud semantics still being worked
- Trailblazers – blazing proprietary trails right now
- Semantics about the Cloud based services themselves not yet being standardized
- Some early entries may become the de-facto semantic standard
- Remains to be seen if the vision is realized

What is wrong with where we are at?

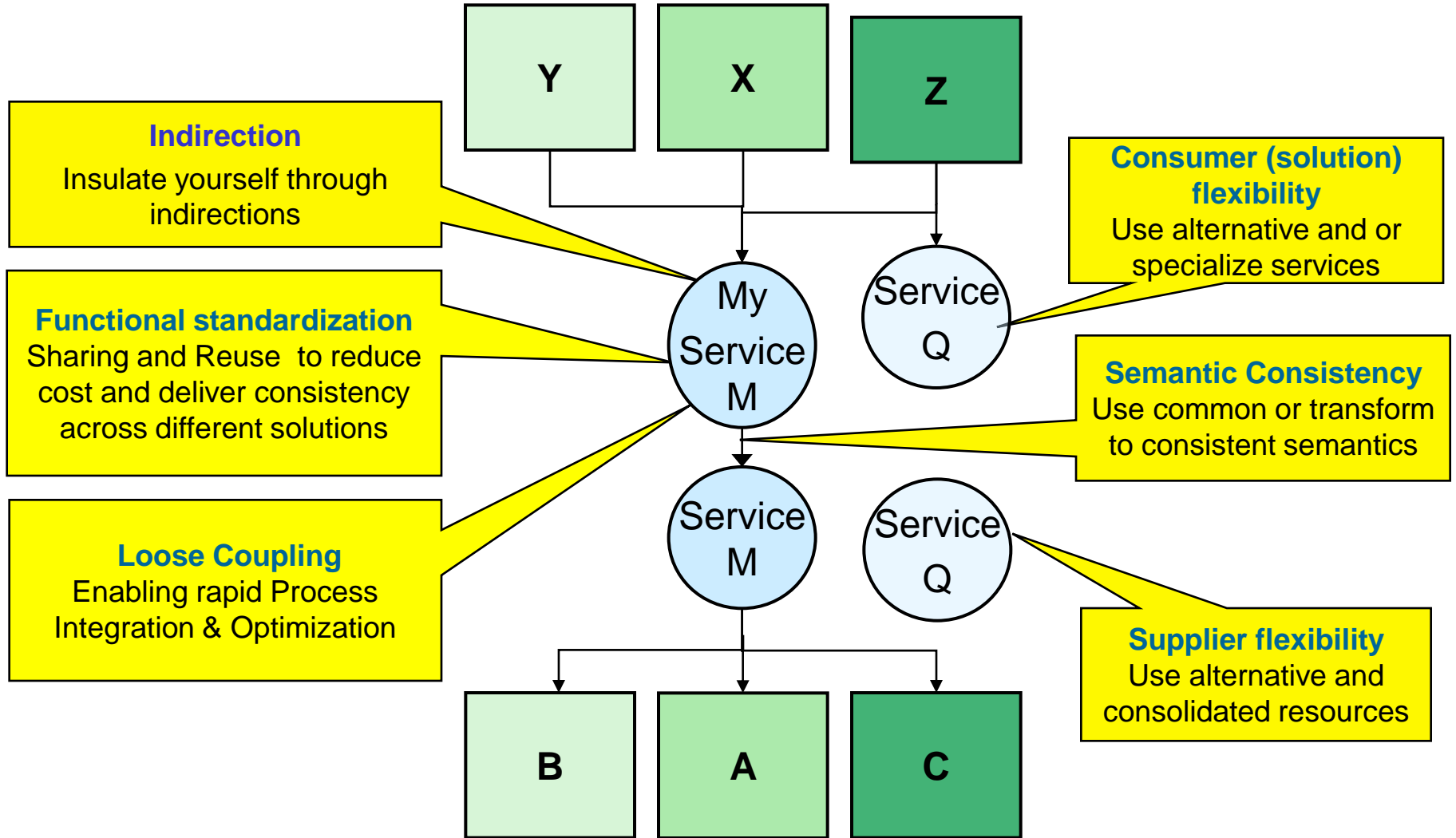
- Focus of the semantic conversation mostly still on SOA and Cloud itself not the Infrastructure, Platform or Services that it offers.
- Cloud semantics are all over the map e.g E2C?, beanstalk?, AMI?
- In the absence of common semantics proprietary APIs abound
- The level of abstraction is still too low - utilities

These facts combined with the compelling case of low entry costs and rapid time to market for Cloud based solutions could cause massive coupling to vendor specific offerings.

That is **agility will be compromised...unless we**

What to do now? – Leverage SOA principles

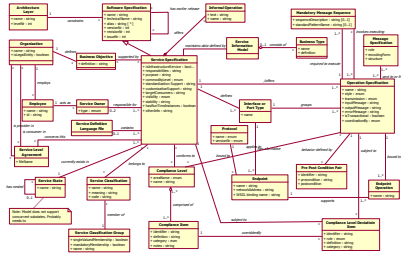
Consumers



Functional Capabilities/Resources

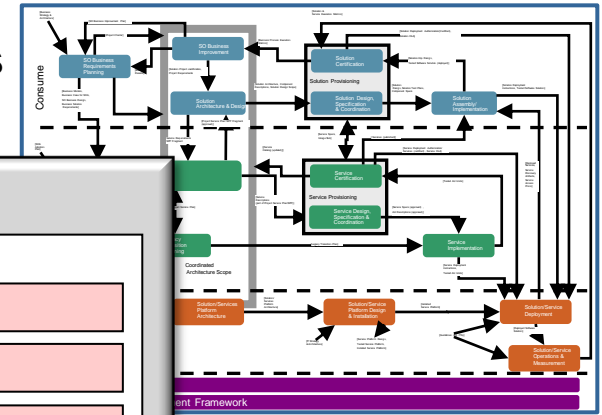
- **Semantic technologies potentially allow the full vision of SOA and Cloud to be realized**
- **Web 3.0 – is not just about the web. More importantly the underlying technologies are about knowledge representation.**
- **Semantics must be addressed for:**
 - The platform concepts – SOA and Cloud Ontology
 - The business concepts Data, Behaviors
 - The supporting capabilities
- **Participate in ontological standardization**
- **Push vendors to show ontological standards compliance**
- **Insulate yourself from proprietary semantics**
- **In return for the efforts of semantic standardization participating organizations will achieve the true SOA and Cloud vision of agility:**
 - Efficiently (time and money) adapt to change
 - Efficiently provision new functionality
 - Automate capability discovery and binding (controlled)
 - Discover new opportunities for efficiency
 - Communicate and Integrate effectively

What to do now? – Develop knowledge not just code

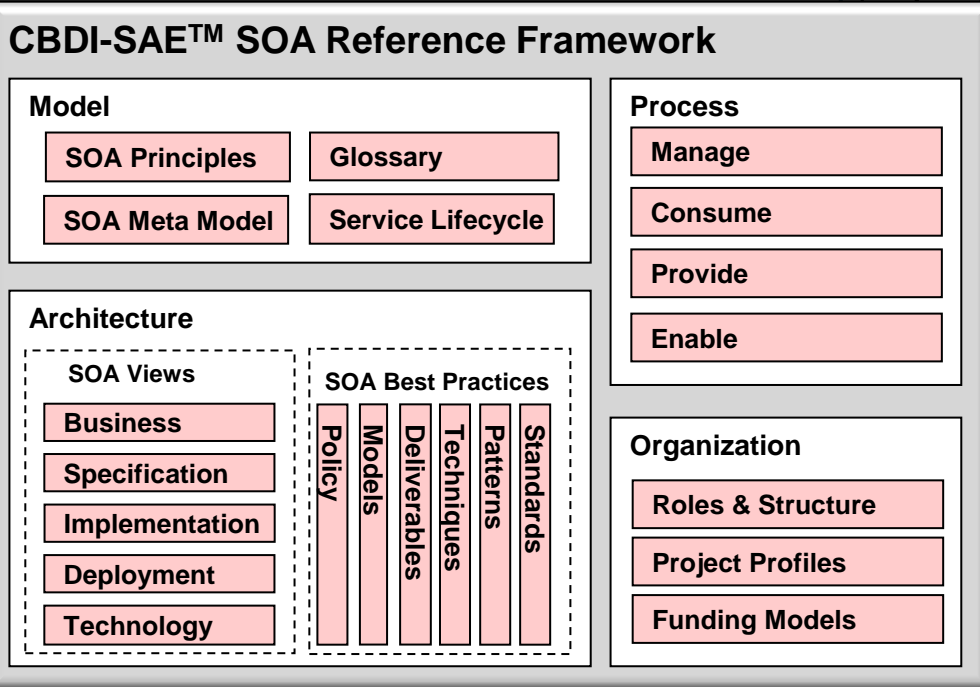
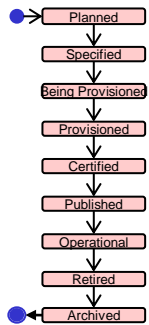


SAE Meta Model

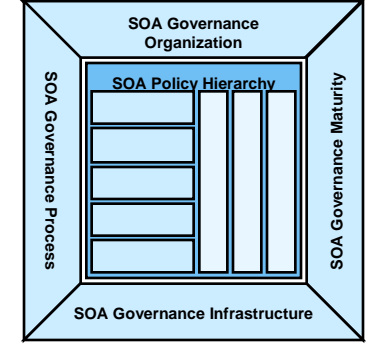
SO Process



Service Life Cycle

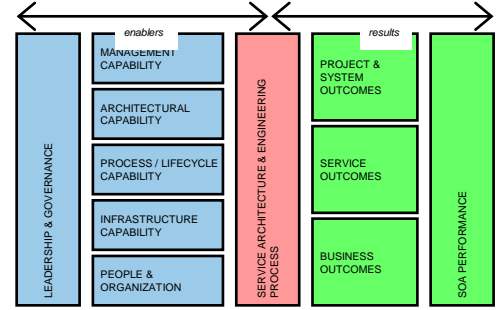


SOA Governance



View	Sample Artifacts
SO Business Plan	SO Business Model
Specification	Service Specification Architecture Service Specification
Implementation	Service Implementation Architecture Automation List Specification Service Implementation
Deployment	Service Deployment Architecture Service Platform Design Specification
Infrastructure	Logical Network Services Physical Network

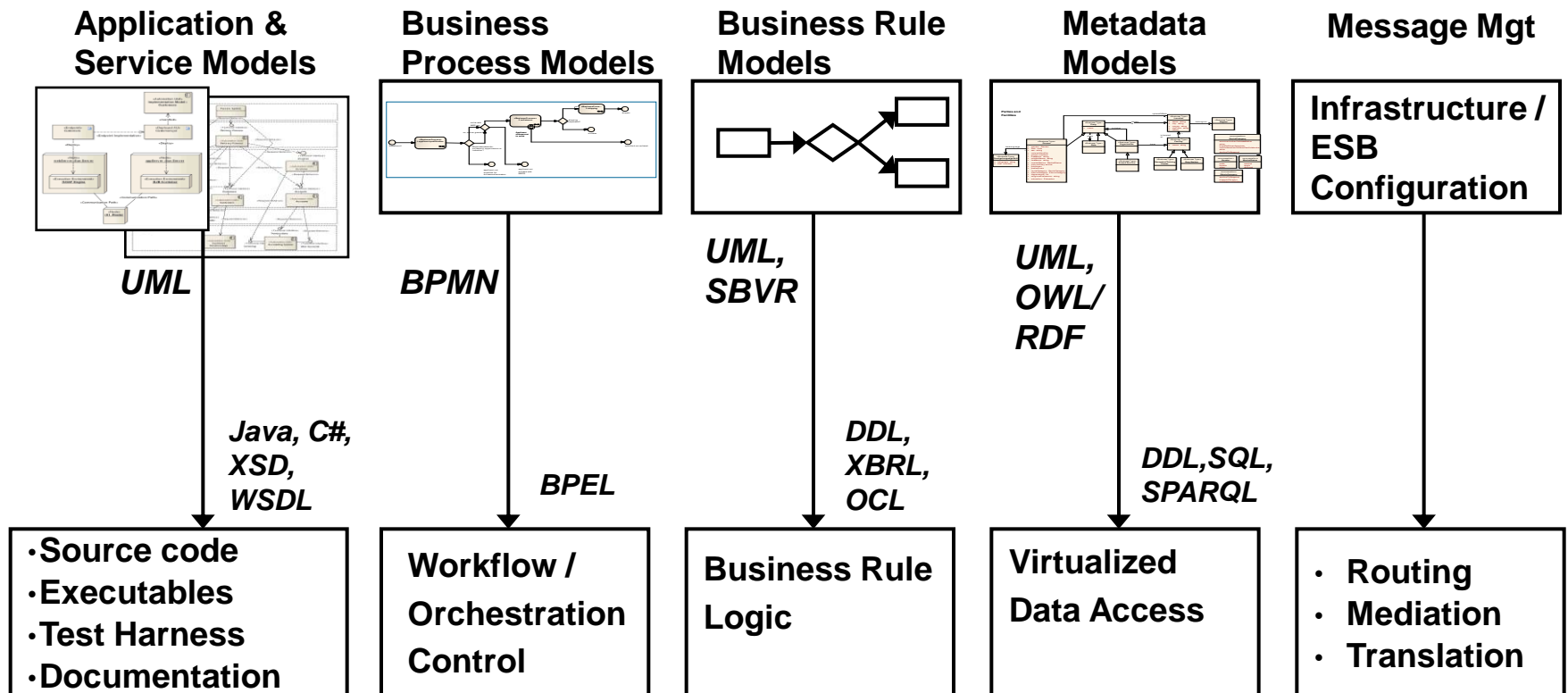
SO Reference Architecture



SOA Maturity & Excellence

What to do now? – Develop knowledge not just code

Software delivery approach where specification models and other abstract artifacts are created to describe the structure and behavior of a system or module. Models are either executed directly or transformed into implementation code or environment control.



- **Web 3.0**
 - Computer readable consistent semantics
 - Allows the true vision of SOA deployed on Cloud
- **Semantics must be addressed to support Web 3.0**
 - Needed anyway to support proper SOA/Cloud integration
- **You can use existing capabilities to capture the knowledge to position your self for the coming semantic revolution:**
 - Leverage semantic standards e.g. NIEM and others
 - Leverage current skills
 - UML + profiles can be converted to RDF/OWL/SPARQL

Bottom line

Promised agility will only be achieved through consistent semantics, appropriate encapsulation (SOA) rapid provisioning and deployment (Cloud) and automated support (MDD and reasoning).



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Thank you.