



# Service Enablers

*The Key to Faster, More Flexible Service Technologies*

## Moderator



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# **Service Enablers**

## **The Key to Faster, More Flexible Services**

Andrew White  
SON Forum Chair  
Nokia Siemens Networks  
October 7, 2010



## SON Value Proposition

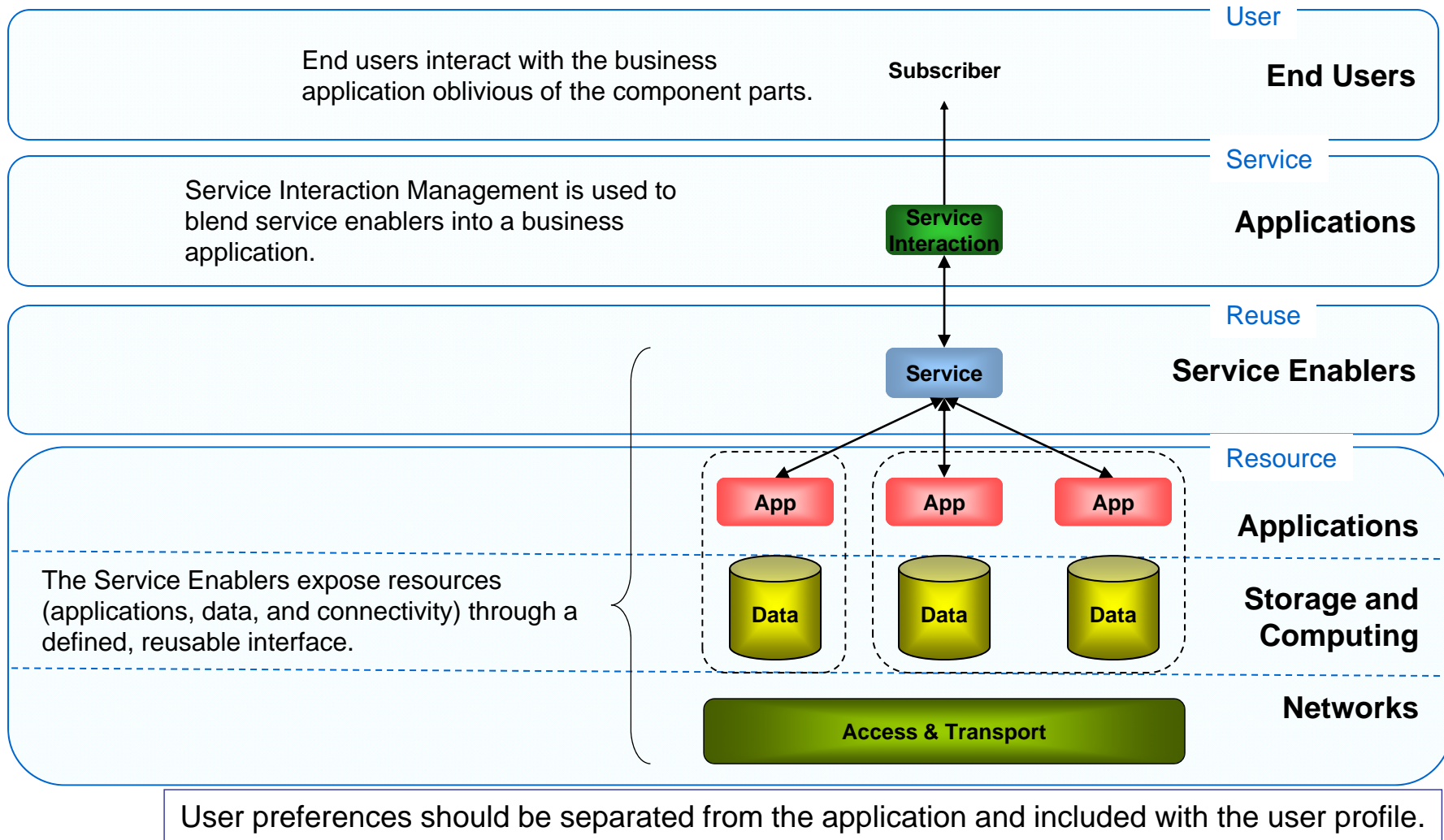
- It is about people!
  - It is not about devices.
  - People are mobile, and they use services not technologies.
  - SON is about services and services are everywhere.
- It is about Globalization!
  - Service supply chains are distributed and real time.
  - Best of breed capabilities come from many industries.
- It is about Technology!
  - Great technology melts into the background.
  - Reusable infrastructure reduces cost of new services.
  - Software and integration skills are keys to success.



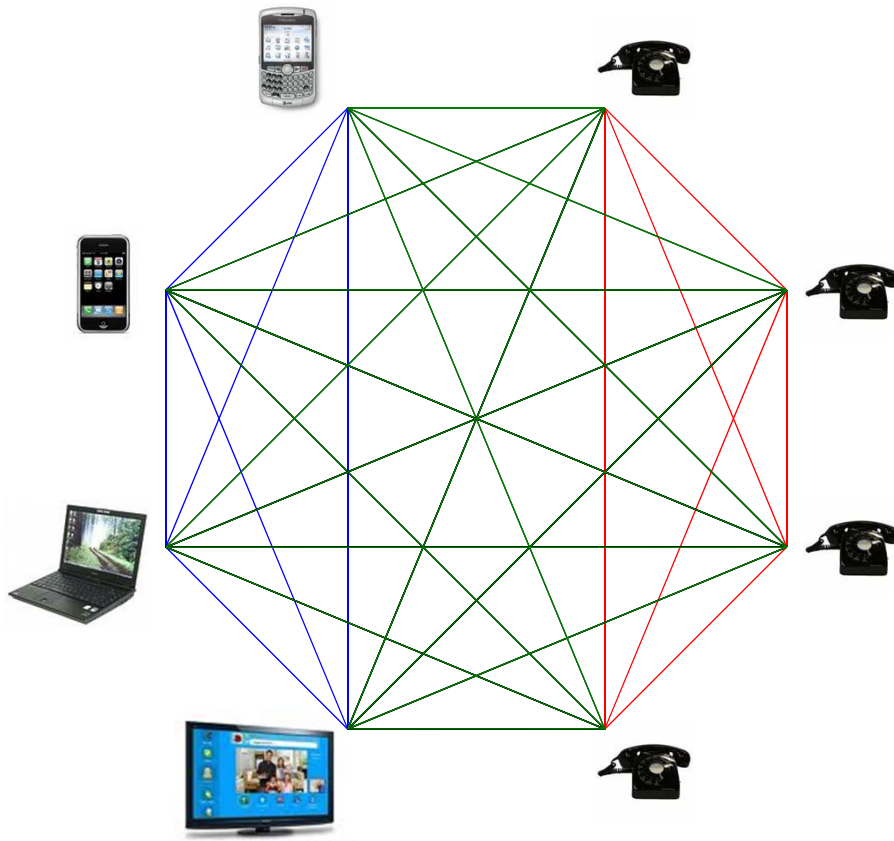
## Service Enabler

- Service Enabler: A Service Enabler (SE) is a software component that provides a function or closely related set of functions over a well-defined interface to other consuming software applications.
- SEs may support end-user services, provide operations functionality, or be used directly by other SEs. An example of functionality that an SE may provide would be an end-user location service or a fault management service.
- SEs generally utilize underlying resources to perform their tasks and have operations interfaces for their own lifecycle management.

# Service Enabler Packaging



# Not All Connections are Equal



Value of a heterogeneous network is the sum of:

1. Value of IP Endpoints
2. Value of Legacy Endpoints
3. Value of the Gateway between the two

- **Metcalf's Law**
- $\frac{1}{2} * n * (n - 1) =$  relative network value
- where
- $n =$  number of endpoints
  
- **Consider a heterogeneous network**
- $x =$  number of IP endpoints
- $y =$  number of legacy endpoints
- $n = x + y =$  total endpoints
  
- **Combined Network Value**
- $\frac{1}{2} * (x + y) * (x + y - 1)$
- $\frac{1}{2} * (x^2 + xy - x + xy + y^2 - y)$
- $\frac{1}{2} * (x^2 - x + 2xy + y^2 - y)$
- $\frac{1}{2} (x^2 - x) + \frac{1}{2} (2xy) + \frac{1}{2} (y^2 - y)$
  
- $\frac{1}{2} * x * (x - 1) + xy + \frac{1}{2} * y * (y - 1)$



## Value of Architecture

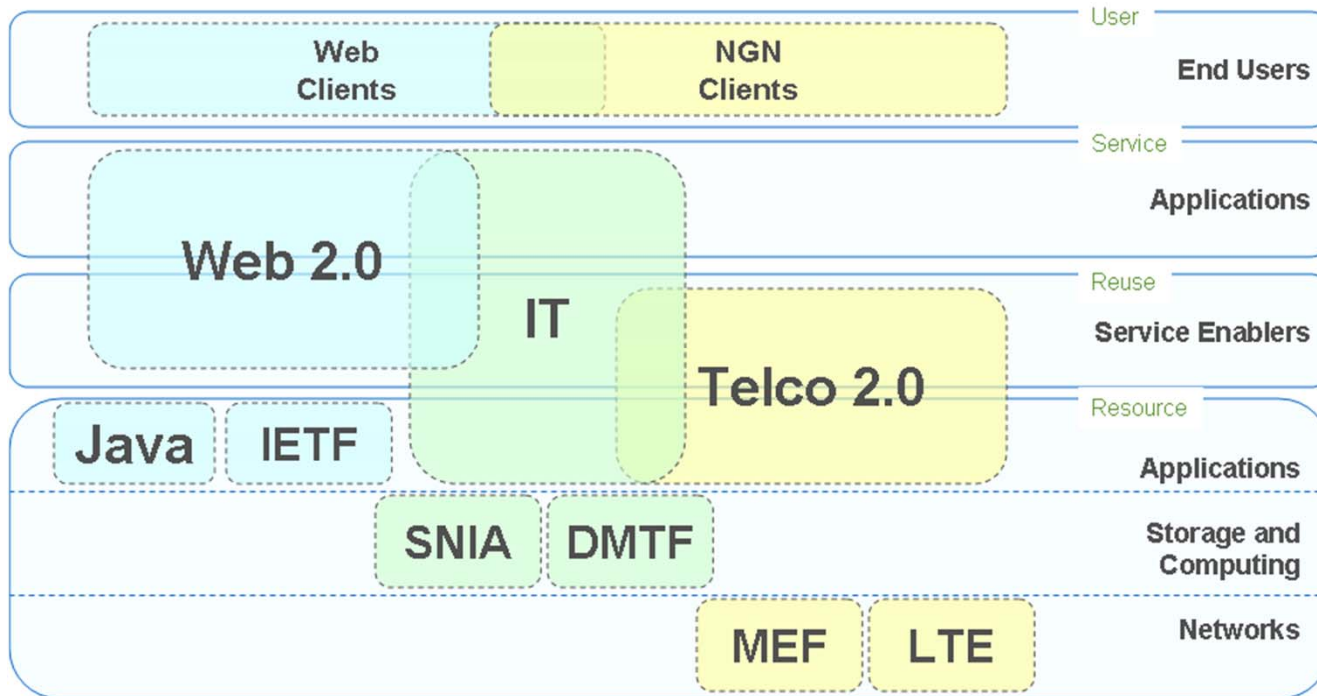
- Traditional networks increase in value by power law with the number of connections. (Metcalf's Law)
  - $\frac{1}{2} * n * (n - 1)$ ,  $n$  = connections
- Service inventories generate factorial permutations with the number of service enablers. (White's Law)
  - $n! / (r! (n - r)!)$ ,  $n$  = enabler inventory,  $r$  = enablers per service

Service Inventory	1 Service Enabler	25 Service Enablers	50 Service Enablers
Silos	1	25	50
Combined in threes*	1	2,300	19,600

\* Order not important (only one order makes sense). Repetition not allowed.



# Best of Breed Components



**Best of Breed**  
Each domain brings a unique capability to the SON.

Companies need to reassess their needs against this new superset of capabilities.

**Web 2.0**  
Web Services  
Broad Range of Applications

**IT**  
Business Support Systems  
Business Process Management

**Telco 2.0**  
Native User Mobility  
Multimedia Control

**Common**  
Identity Management  
Data Model

**Identity Management**  
IdM ties services to users and facilitates cross domain service blending.

**Common Data Model**  
The Data Model normalizes frequently used data to improve service enabler reusability.

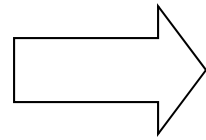
Service Oriented Networking abstracts resources (applications, hardware, and networks) into defined and reusable service enablers to facilitate cross-domain blending.

# ATIS Service Oriented Activities

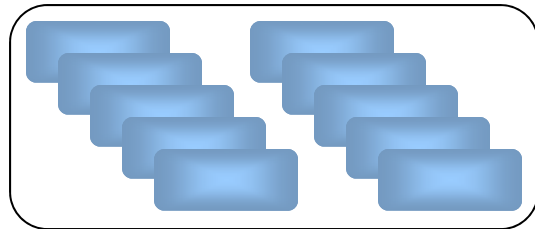
- Landscape Team for Cloud Computing
  - High level assessment including requirements and use cases
- Policy Management Assessment and Recommendations
  - Published and available on the ATIS Website
  - ATIS Packet Technologies and Systems Committee (PTSC) IdM Work including published Framework, Use Cases, and Requirements
  - ATIS-1000035.2009 Pre-Published
- ATIS IPTV Interoperability Forum (IIF) IPTV Standards and Technical Reports
  - Linear TV, QoS, Terminal Equipment, and Advertising
- ATIS SON Forum work
  - ATIS-0200001, Service Enabler Characterization TR, August 2010 Published
- Network Optimization addressed in an ATIS Focus Group
  - Completed Scope and Assessment
- ATIS XML Harmonization
  - Standard format for XML namespace

# Service Creation in the Cloud

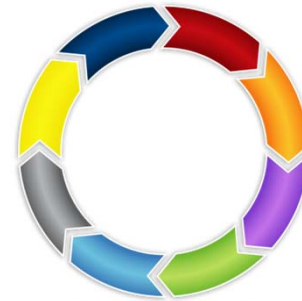
Service Enabler Characterization provides key non-functional data to populate Service Catalog



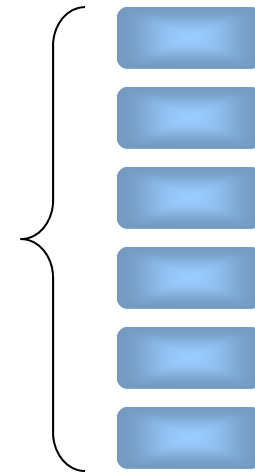
Service Catalog



Core Competency



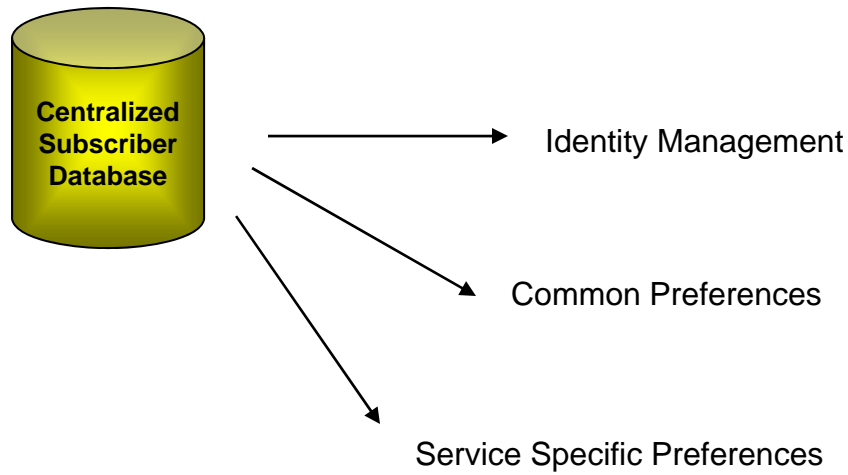
Service Interaction Management



Partner Enablers

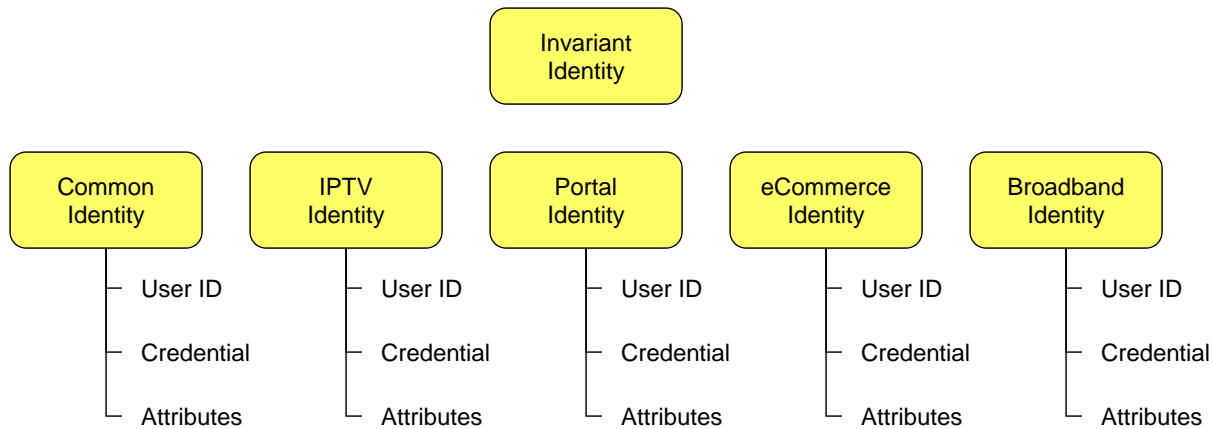
Service catalog and service interaction managers speed time to market and improve service enabler reuse

# IdM and Common Namespace



Major Functions

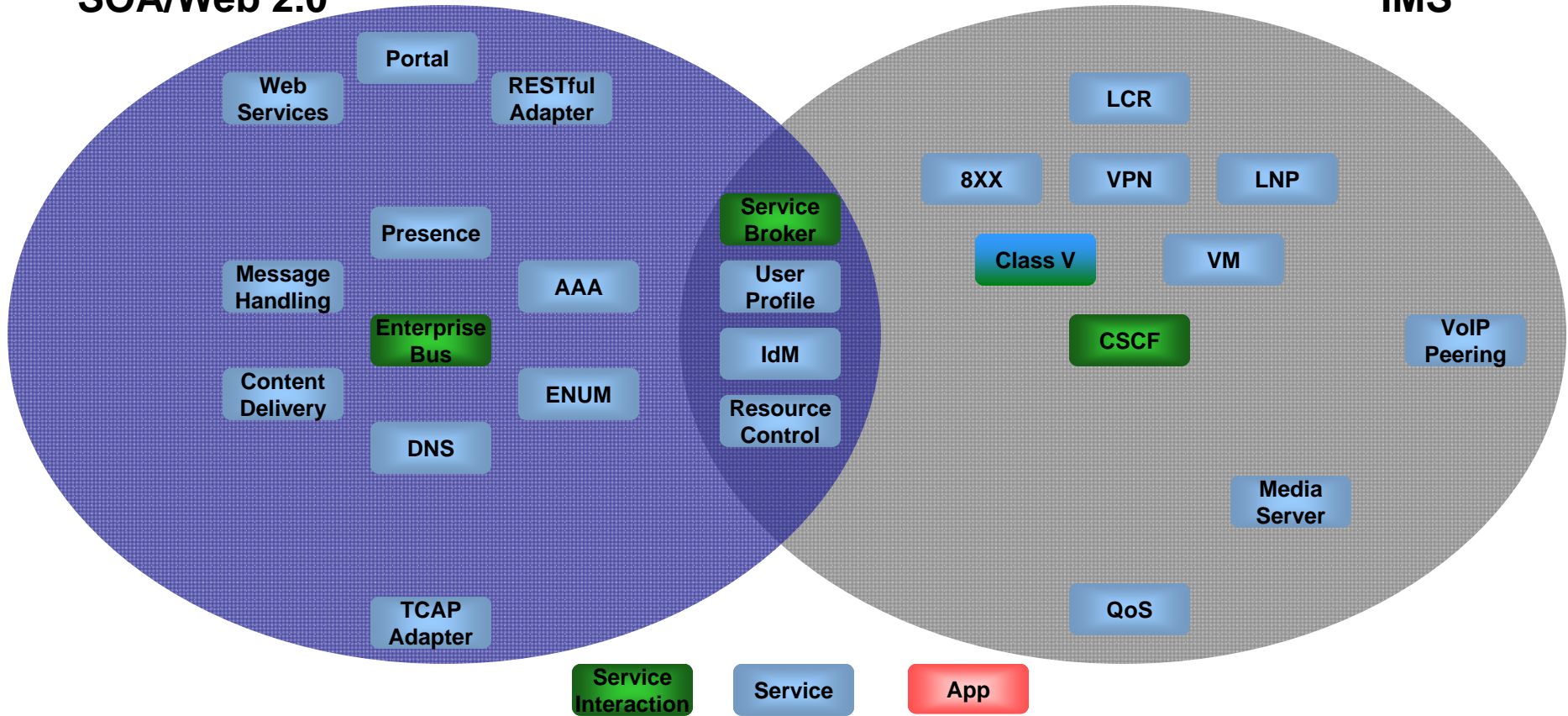
Schema Representation



# Services Inventory

SOA/Web 2.0

IMS



Multiple SDOs deliver functional definitions that add to the service inventory.



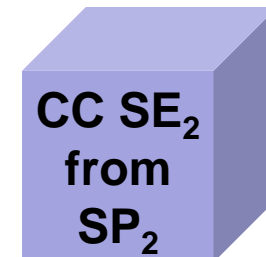
## Benefits

- Suppliers align with SON architectural framework to reach a larger market.
- Service Providers find software components will fit within their framework with less customization.
- Development of a core competency of Service Enablers, and partnering for non-core capabilities, provides service providers with capital efficiency through re-use.
- The result is a broader marketplace of compatible technologies and fewer barriers to innovation.



# Service Enabler Characterization

Gary Munson  
SON Forum Vice Chair  
AT&T  
October 7, 2010



**Motivation:**

Suppose you are a 3<sup>rd</sup> Party Service Provider creating, e.g., a sophisticated call control application, and you want to use somebody else's call control building blocks.

**What do you want to know so that you are sure a particular SE will meet your needs?**



## Motivation

More generally,

- a) What do you as the 3<sup>rd</sup> Party App creator/provider want to know about a SE?
- b) What might the provider of a SE require you to know?

→ Service Enabler Characteristics

- a) Wouldn't it be nice if all SE providers provided you the information in a common way?



## Service Enabler Characteristics

- a. SE unique name
- b. SE short name
- c. Keywords
- d. Lifecycle information
- e. Chargeability
- f. Interface unique name
- g. Interface short name
- h. URI of the Interface
- i. Description of the functionality
- j. SE performance measurements
- k. Additional SE characteristic
- l. Planned availability
- m. Capacity
- n. Response time
- o. Failure/failover/degradation behavior
- p. Security policy
- q. User profile dependencies
- r. Consuming entity dependencies
- s. Intermediate systems dependencies
- t. Test environment
- u. Eligibility dependencies
- v. SE Creator
- w. SE Provider contact info
- x. Terms & Conditions



## Further granularity, example

### Capacity [per Interface]

- number of stateful sessions per second, Poisson arrivals; numeric
- number of simultaneous open stateful sessions ; numeric
- number of stateless transactions per second, Poisson arrivals; numeric
- more capacity model information; url



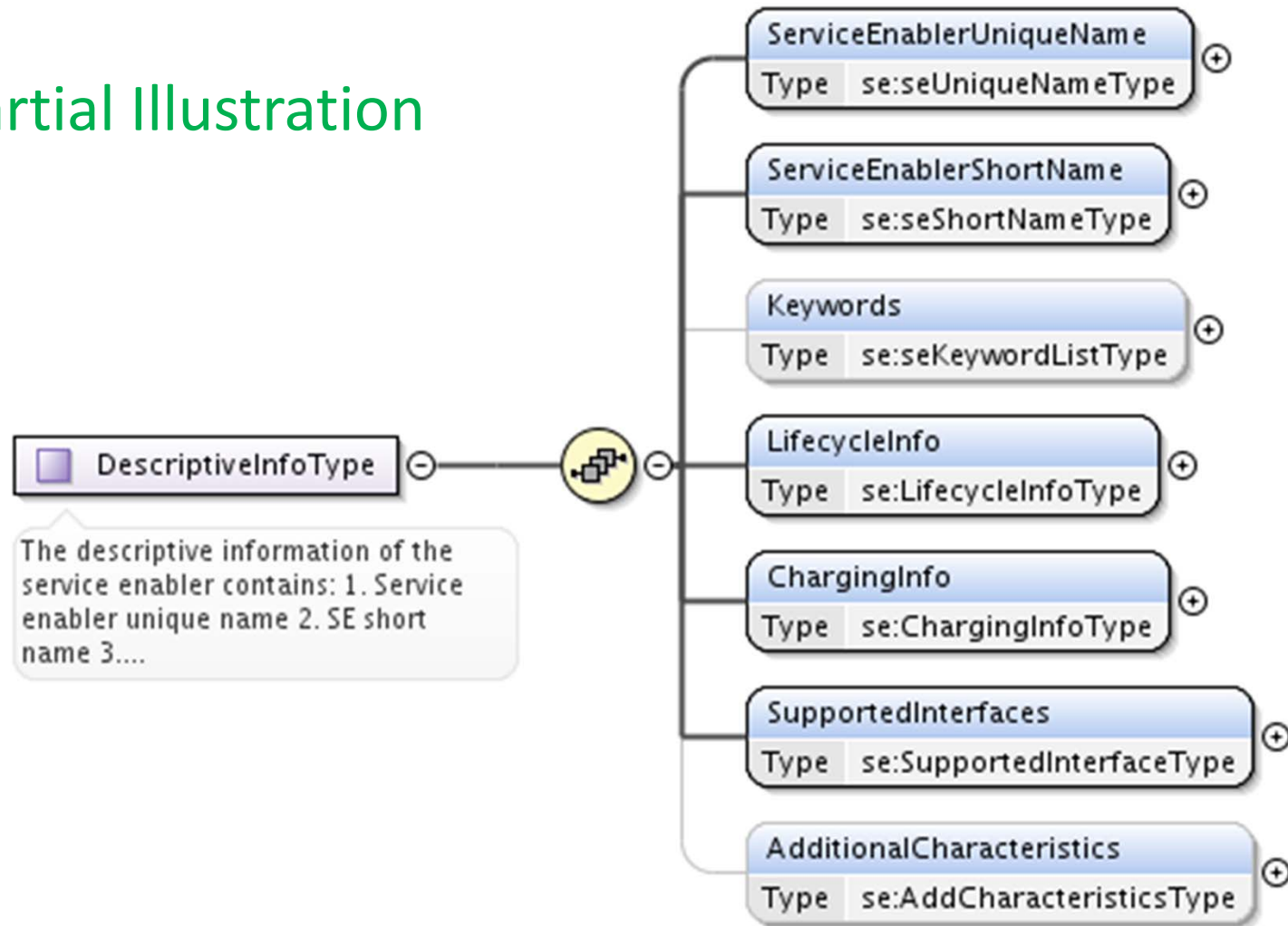
## Further granularity, example

### Lifecycle information [per SE]

- SE current version name; string
- field ready or beta; {field, beta}
- earliest version to which this version is backward compatible; string
- immediately prior version name; string
- next version name; string
- next version backward compatible with current version; yes/no
- testing history information; url
- in commercial service since; date
- anticipated support end date; date
- more information on lifecycle; url
- certifying entity name; string
- information on the certifying entity's certification; url

# SE Characteristics Organized into Groups

## Partial Illustration





## SE Characterization XML Document

- Included as part of the ATIS Technical Report
  - separate, companion file
- Provides a standard format for capturing the SE information
- Can be used by any/all SE providers
- The provider of a particular SE would fill out and publish the SE Characterization XML document with the details for that SE
- Can be used to help partially automate the search process for a suitable SE



# SE Characterization XML Excerpt

```
<?xml version="1.0" encoding="UTF-8"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.atis.org/schemas/0200001/se/1"
  xmlns:se="http://www.atis.org/schemas/0200001/se/1" elementFormDefault="qualified" xml:lang="en"
  version="0">

  <!-- basic type definitions -->

  <simpleType name="seShortNameType">
    <annotation>
      <documentation>
        Service Enabler short name by which it may be familiarly known
      </documentation>
    </annotation>
    <restriction base="string">
      <maxLength value="255"/>
    </restriction>
  </simpleType>

  <simpleType name="seKeywordListType">
    <list itemType="string"/>
  </simpleType>

  <simpleType name="seUniqueNameType">
    <annotation>
      <documentation>
        Service Enabler unique name or ID
      </documentation>
    </annotation>
    <restriction base="anyURI"/>
  </simpleType>
  </simpleType>
  etc. ...
```



## Additional Observations

- Agnostic to the type of interfaces a SE use (e.g., SOAP or REST or SIP or whatever)
- This is Version 1.0; certainly can be evolved
- Did not address how/where the SE Characterization XML documents that SE providers fill out get published for public consumption



# Service Enabler Characterization Technical Report

- This document is available from the ATIS Document Store
  - <http://www.atis.org/docstore/default.aspx>
  - Service Enabler Characterization Technical Report, ATIS-0200001, August 2010



## Further Information

- For more information
  - <http://www.atis.org/SON/index.asp>
- Andrew White, SON Forum Chair
  - [Andrew.white@nsm.com](mailto:Andrew.white@nsm.com)
- Gary Munson, SON Forum Vice Chair
  - [gmunson@att.com](mailto:gmunson@att.com)
- Next SON Forum Face-to-Face Meeting
  - October 18-19, 2010
  - ATIS Headquarters, Washington, DC



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*Tuesday, November 16 – 1:00 - 2:00 pm EST*

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