

Implementing Software Building Blocks to Create an Inter-enterprise B2B Service Management Environment : the FORM Perspective.



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Presentation Outline



- Current Telecommunication Context
- B2B Environment Requirements
- FORM: Aims & Goals
- FORM: The Open Development Framework
- Service Accounting Systems Evolution
- FORM: Federated Accounting Instantiation
- BB Implementation & Contract Definition
- Conclusion & Findings

Telecommunication Context



- Impact of liberalisation: “one service - one provider solution” is obsolete .
- Diversification of Service Providers
 - e.g. many ISPs, but also ITSPs, ASPs etc.
- Diversification of Services Provided
 - e.g. NTL offers T.V., Phone & Internet
- This evolution creates a new Business-to-Business (B2B) environment

B2B Environment Requirements



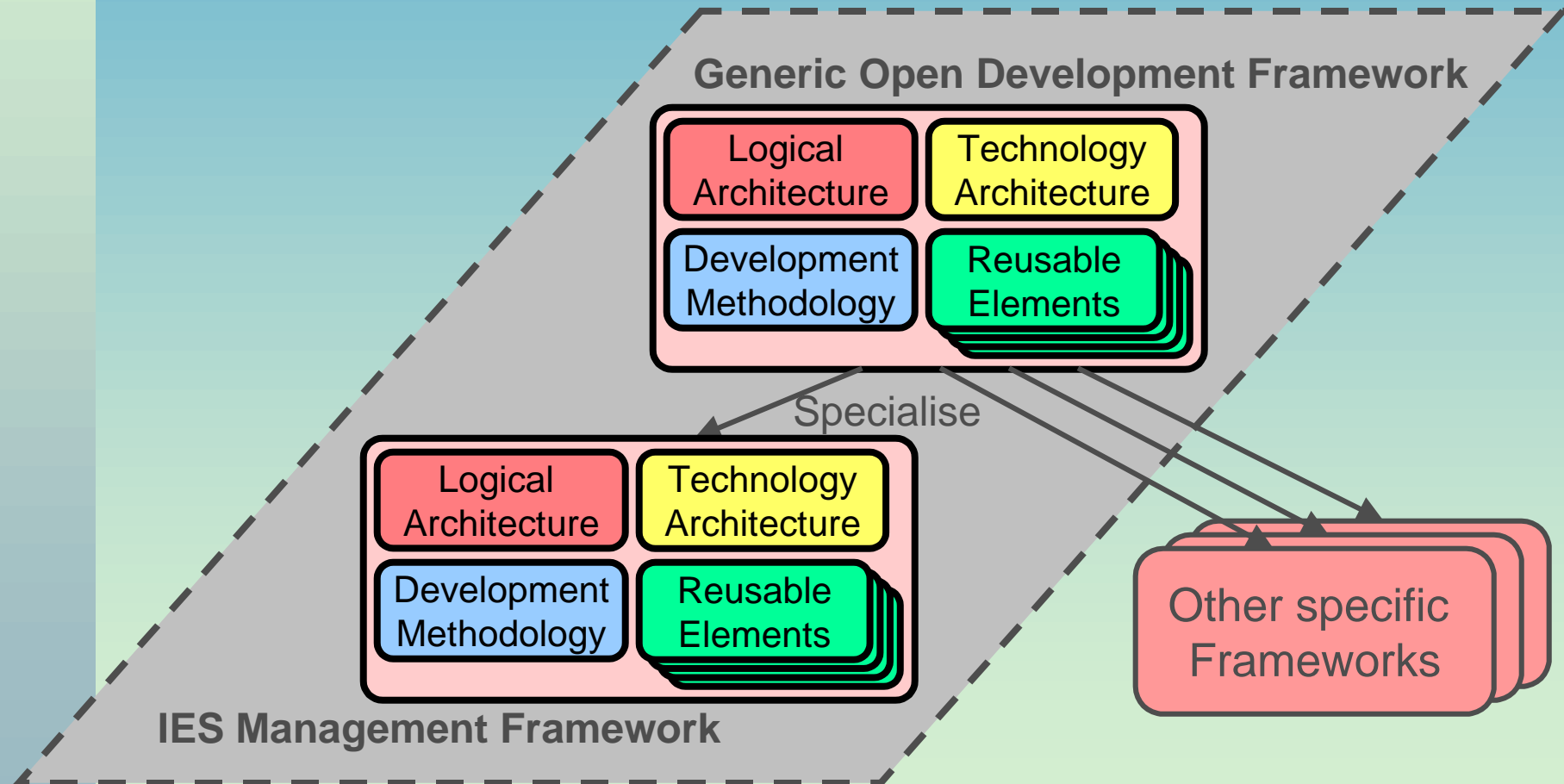
- Cost of Managing IP-Services “in-house”.
 - SMEs do not have the resources to capture every service they require.
- Need for Outsourcing
 - Similar to the manner in which organisations outsource their phone line management.
- Organisations want a “**one-stop**” Shopping model, as they cannot indigenously provide their own IP Service Solutions.
 - Emergence of B2B Service Broker Model.

IST FORM Project Aims & Goals



- FORM: is an EU-IST Project started April 2000 and will end in April 2002.
- FORM aims to develop an Open Development Framework(ODF) for “*Engineering a Component-oriented Software Systems for the Integrated Management of Business-to-Business Services over IP*”.
- The Framework is the result of more than 6 years of collaboration between different European telecom players: Ericsson, TeleDenmark, Alcatel, etc... and different European Institutes of higher education UCL, WIT, TCD, etc...

FORM ODF Scope



FORM ODF IESP Instantiation



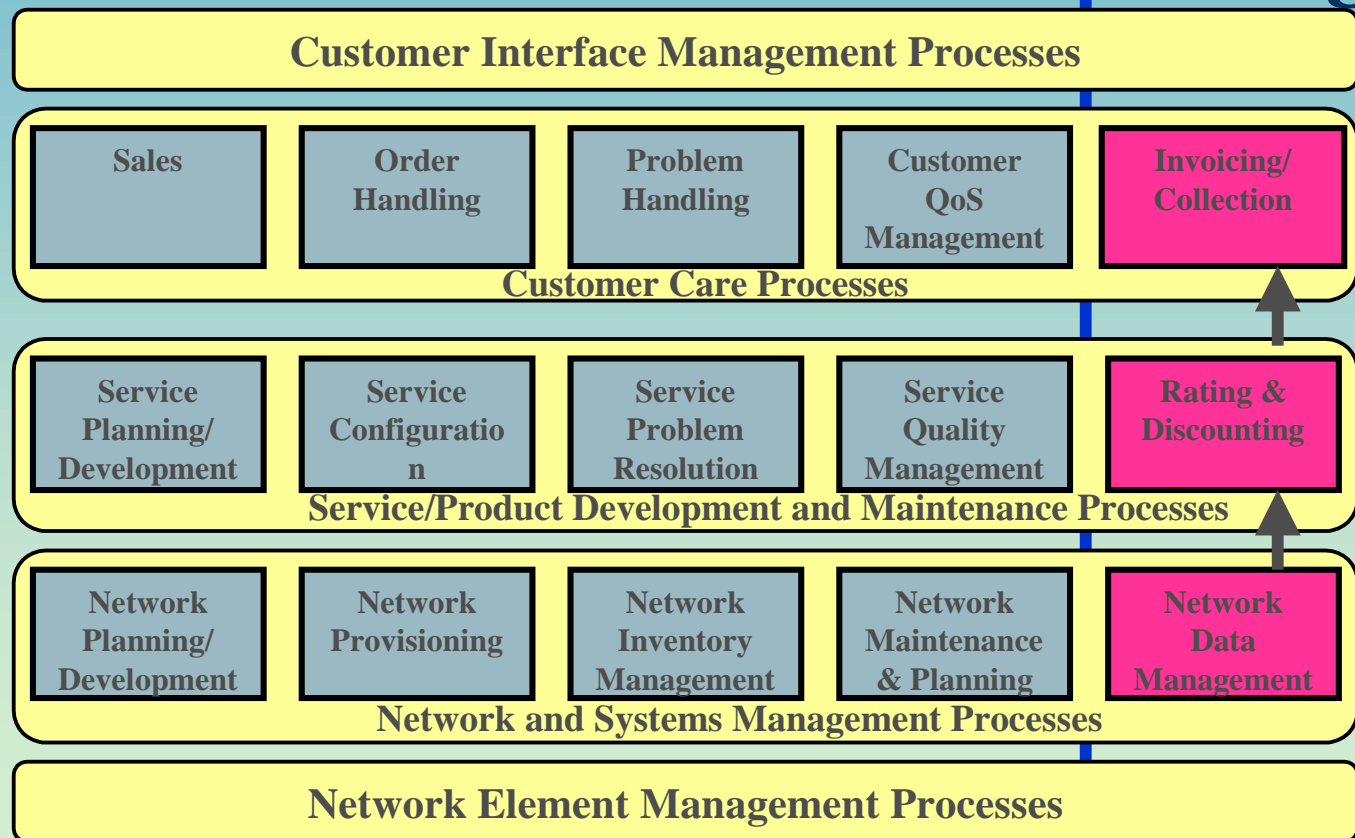
- IESP - Inter-Enterprise Service Provider
 - B2B Service **Broker**
 - “**One-Stop Shop**” for businesses to outsource the management of their IP services.
 - Project work is covering four specific domains: SLA Negotiation, VPN provisionning, Assurance and **Accounting**.
- ODF Instantiation:
 - Logical Architecture: TMF TOM & NGOSS, TINA...
 - Development Methodology: Rational Unified Process {UML}
 - Technology Architecture: J2EE, XML, CORBA, etc...
 - ReUsable Elements: Building Blocks (TMF GB909, TMF NGOSS)

Accounting Problem Domain



■ Traditional Accounting Processes

Billing



TMF Telecom Operation Map

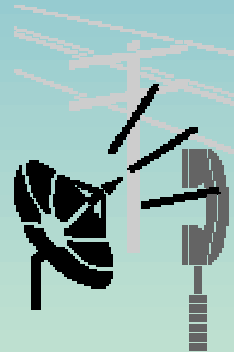
Accounting Systems Evolution



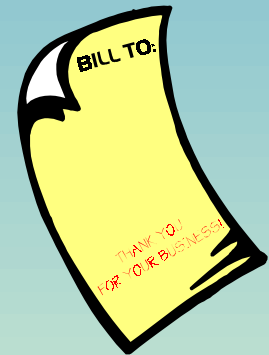
The old model ...



One Service



One Provider



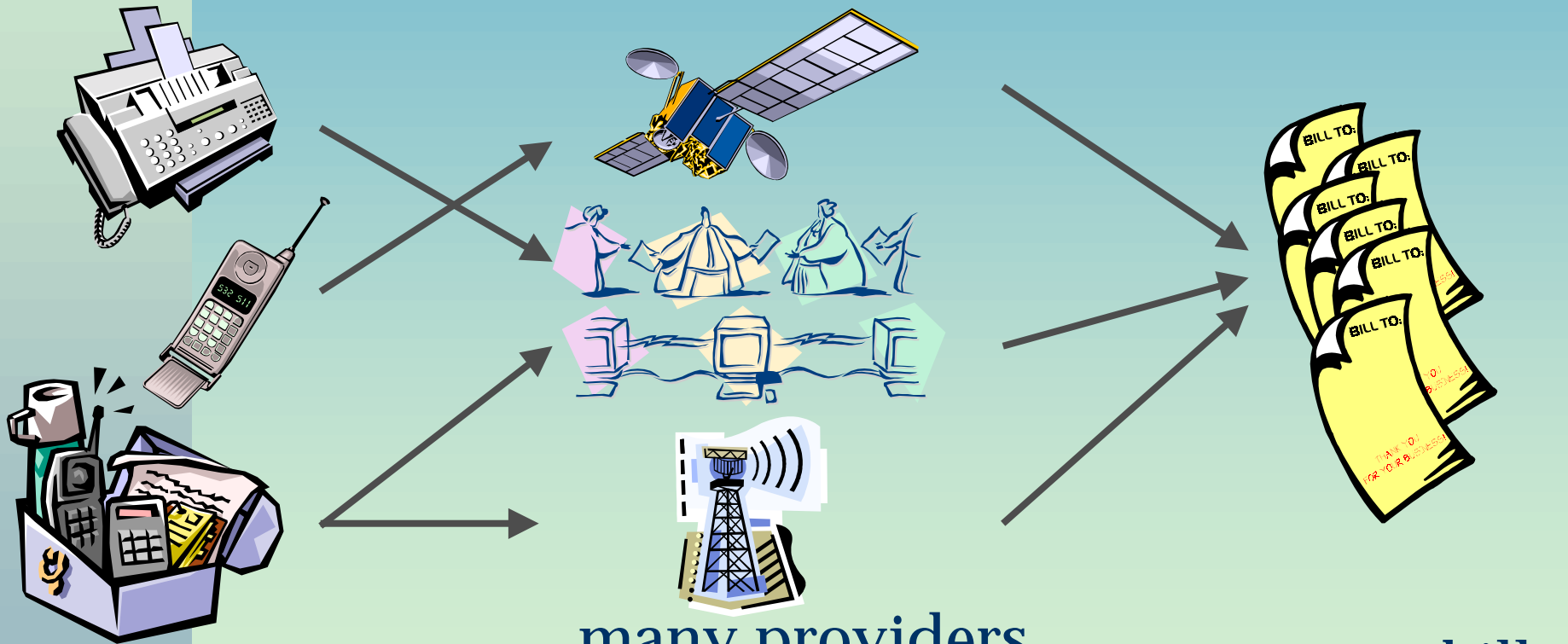
One Bill

... then came deregulation and
a new generation of “internet” services ...

Accounting Systems Evolution



The current model ...



many services
{VoIP, video conference,
mobile, online education...}

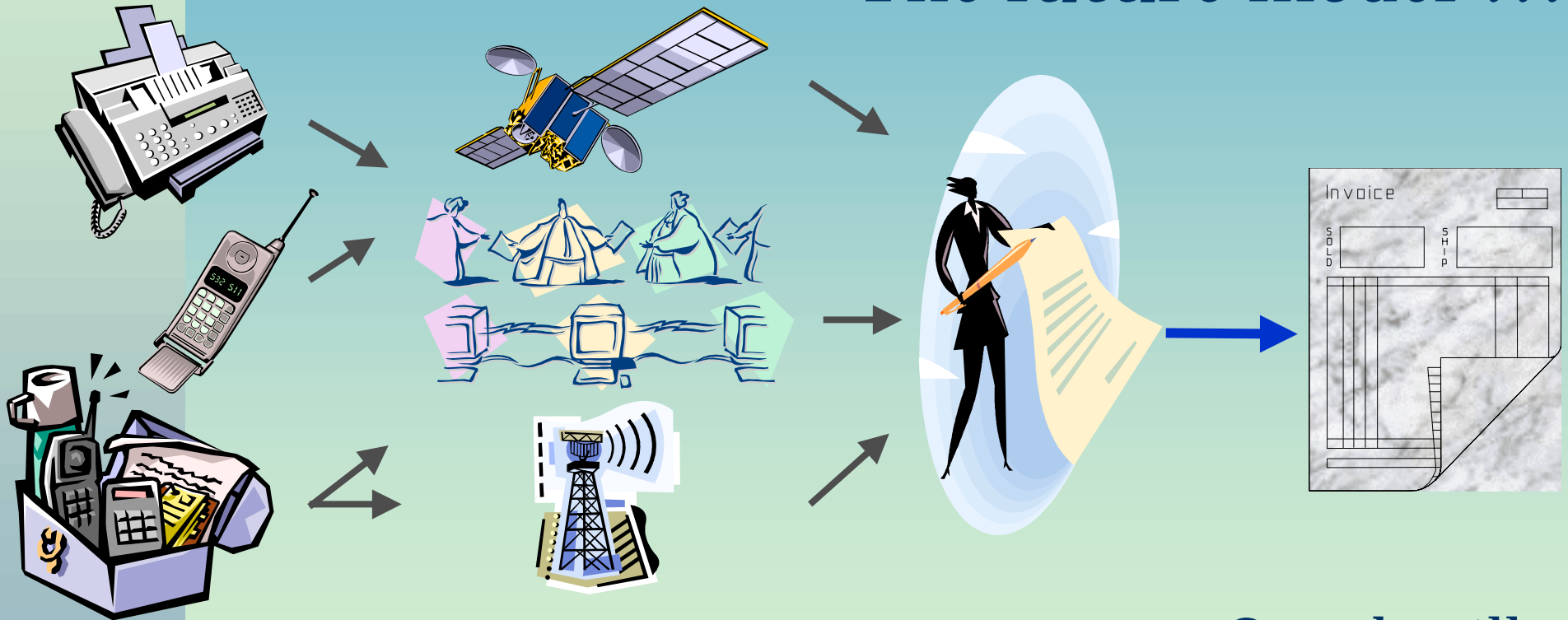
many providers
{*each with their own
accounting systems*}

many bills

Accounting Systems Evolution



The future model ...



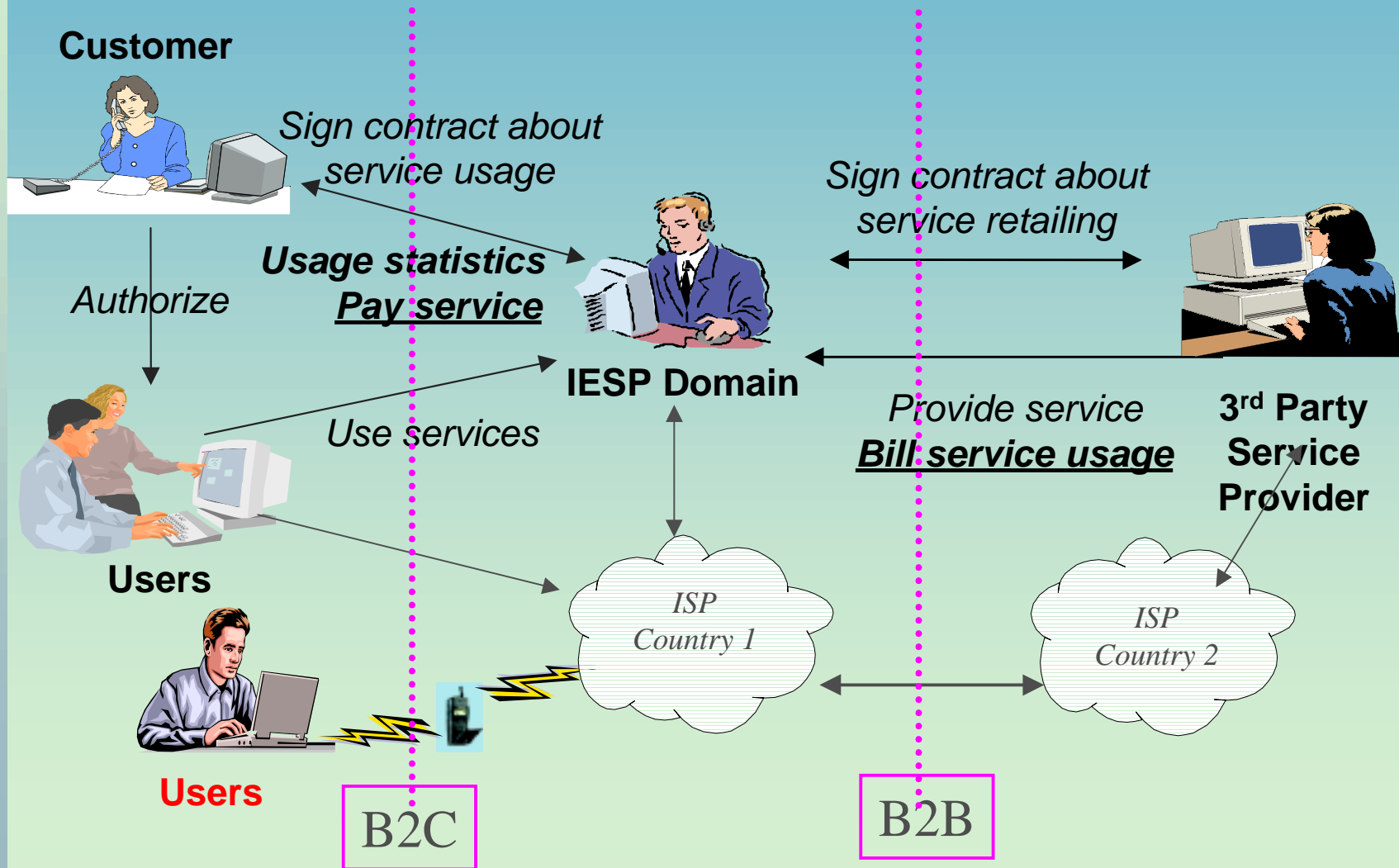
Still many services
{some we don't know
about yet...}

Still many providers

A Service Broker
or
IESP

One detailed-
customisable
bill

Accounting Business Context

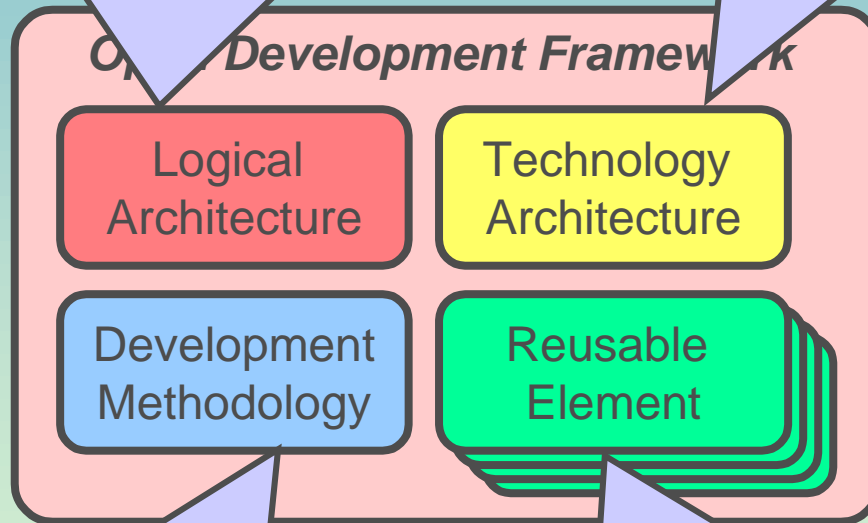


FORM ODF Accounting Instantiation



Purpose: Defines Accounting Business Processes, terminology, defines information model.
Standards: IPDR, TOM, IRTF AAA, TINA, etc...

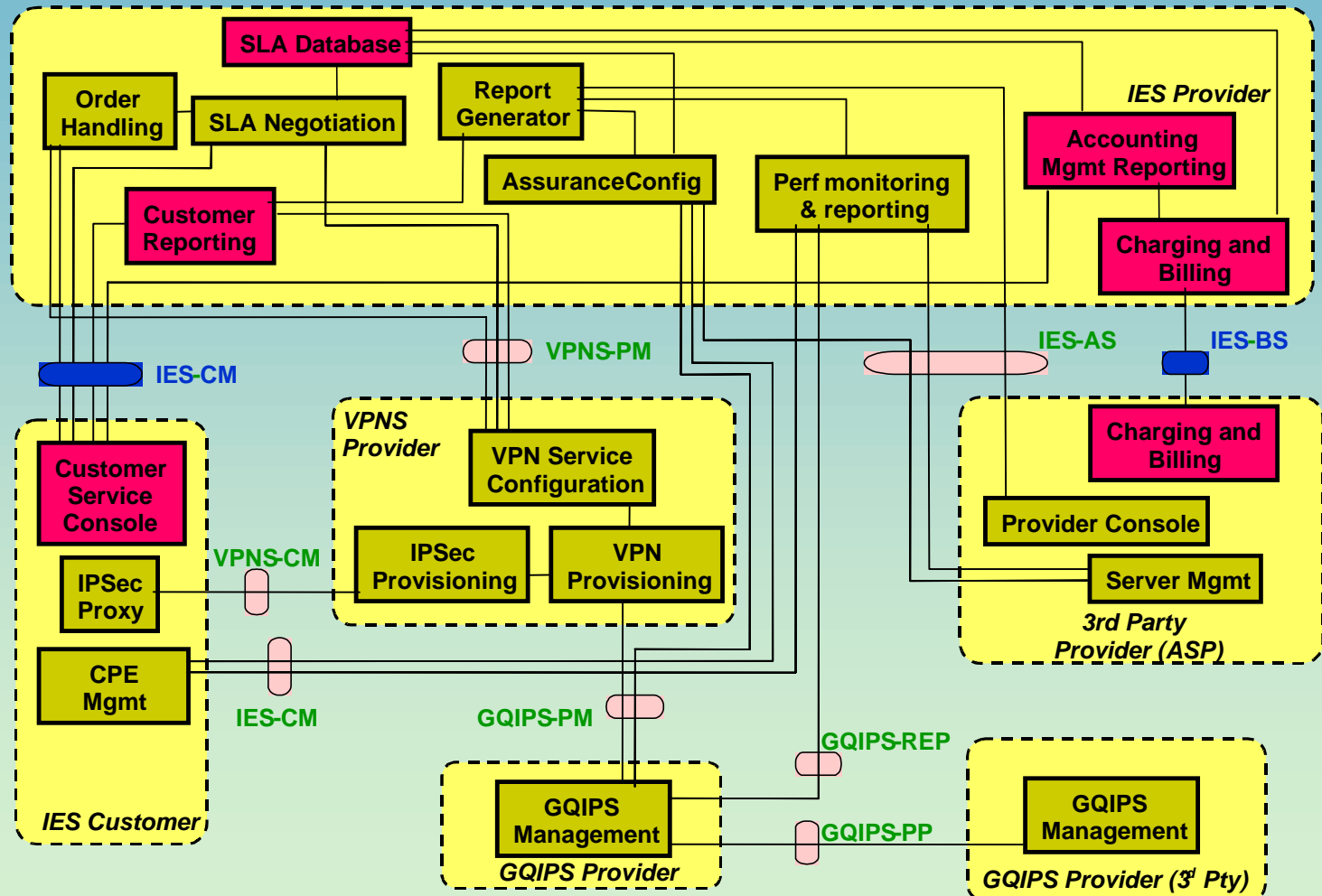
Purpose: Defines Technology Standards: XML, J2EE, CORBA, etc...



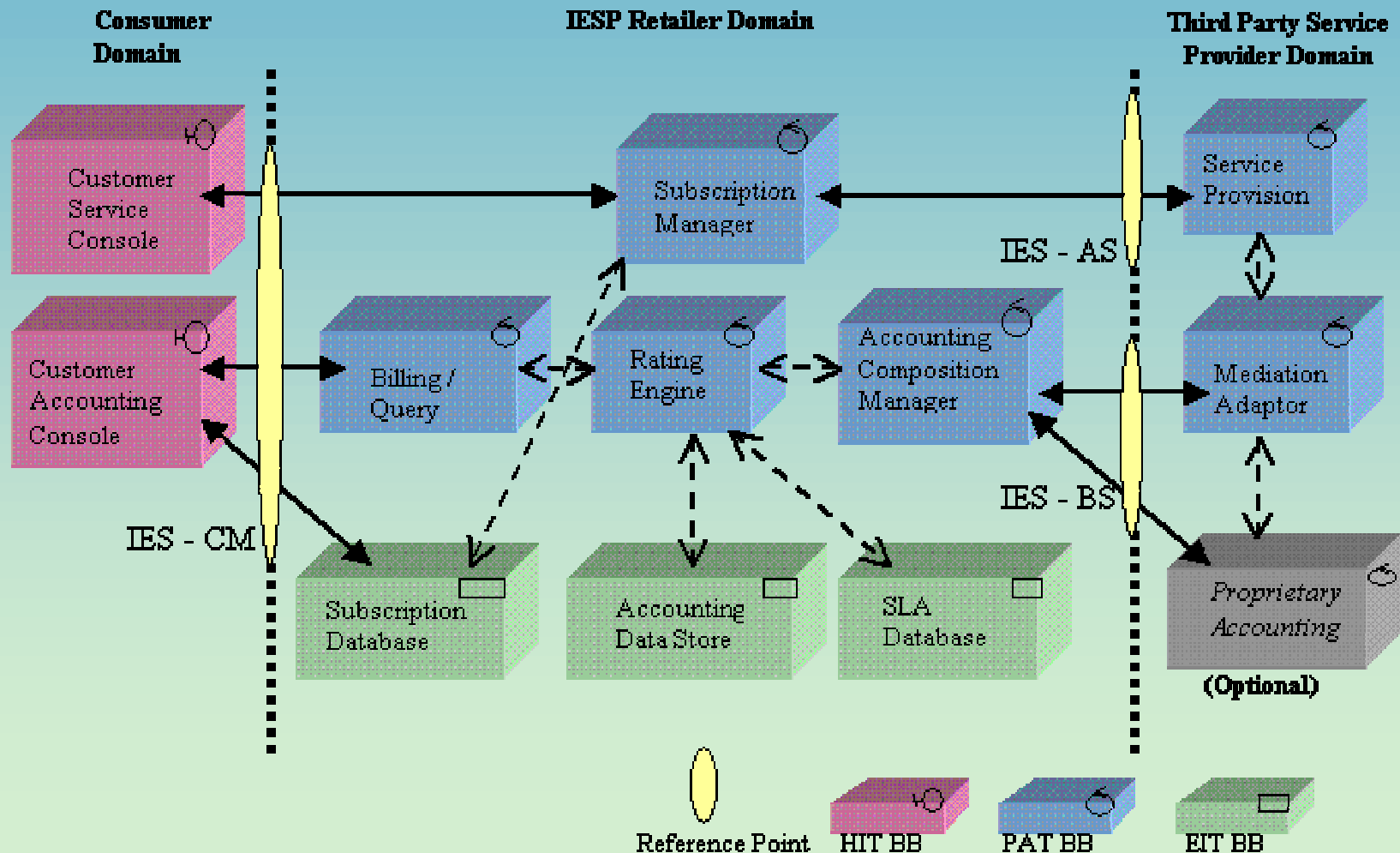
Purpose: Define BB Development & Integration Methodology
Standards: UML, RUP, DMTF CIM

Purpose: Defines the unit of re-use
Standards: TMF GB909, TMF NGOSS
Result: A catalog of Contracts*
A catalog of BBs or group of BBs

FORM Reference Architecture



Federated Accounting Functionality Component Architecture

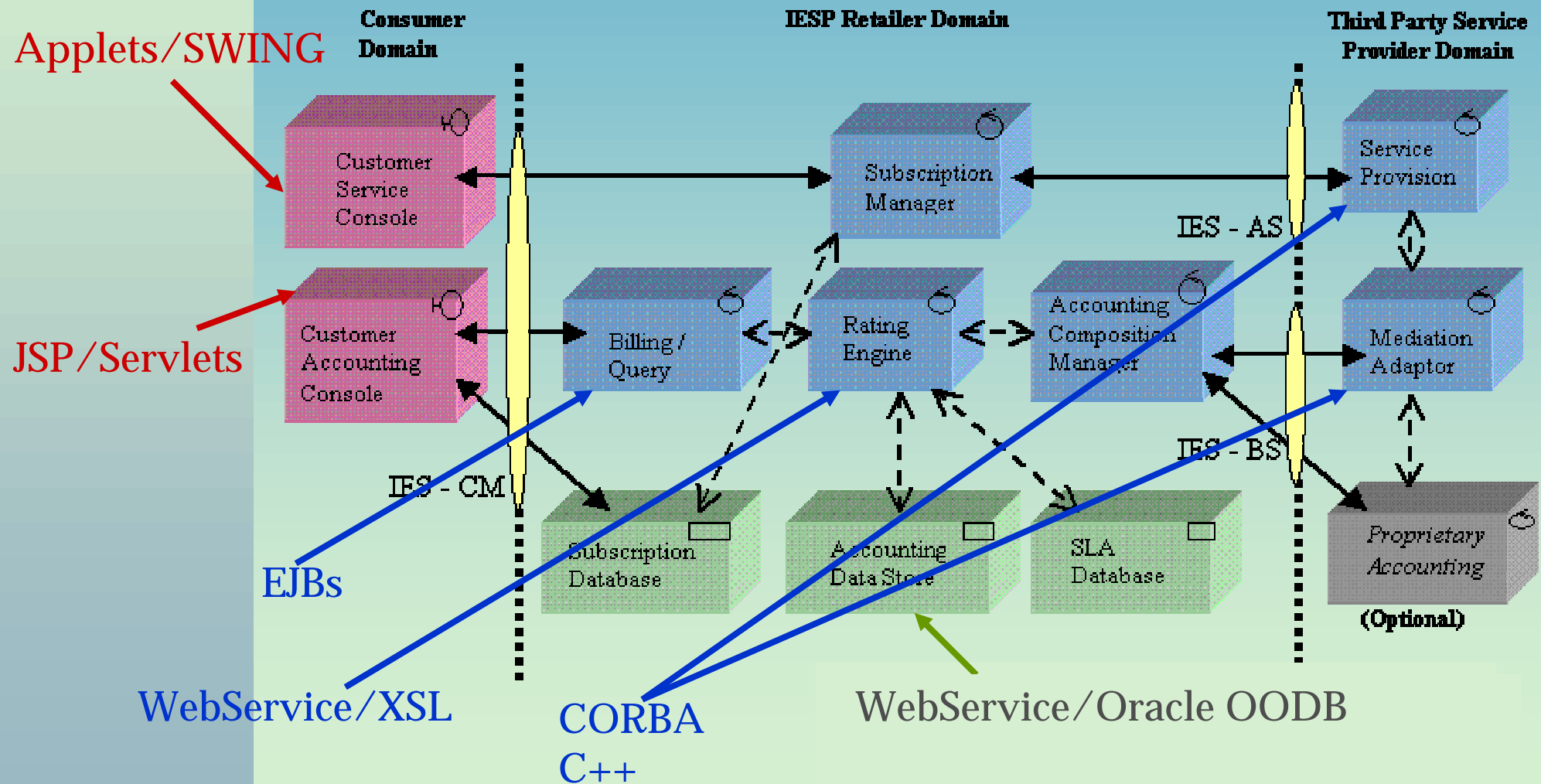


BB Implementation & Contract Definition



- Following the FORM BB Design and Implementation methodology, reusable software “Building Blocks” have been identified.
- These BB are now represented by means of a **CONTRACT**, containing:
 - UML Design Models. e.g. Interaction Diagrams
 - A boundary information model (DMTF CIM look-a-like)
 - A technology neutral specification which indicates the BB functionalities
 - A technology specific interface definition: e.g. CORBA IDL
- Contracts are grouped in a catalog that can be used for system design
- As a Research Project FORM allows a large portion of resources to be allocated to technology experimentation
 - J2EE, XML & XSLT, SOAP have been successfully utilised for BB implementations.

Technology Mappings



Conclusion & Findings



- **B2B and B2C Challenge:**
 - Consistency of information is important in B2B and B2C environments.
- **Integration and Technology Challenges:**
 - Usefulness of Building Block Contracts
 - Shared and distributed XML schemas: Feasibility of maintaining consistency.
- **Accounting Management Solution for E-Business Enterprise Model**
 - Suited to next generation services (e.g., Voice, FAX and Multimedia)
 - Greater Support for revenue generation (differential tariffs)
 - Standard-based Architecture for Distributed Multi-Domain Accounting
 - Support for sharing and settlement at service provider level
(More Inclusive and Expressive Accounting Information Model)
 - Customer service (QoS, SLA) online access to Charges and Statistics

Questions



TSSG: www.tssg.org
FORM: www.ist-form.org