WebSphere : Connectivité et Intégration

→ Architecture de l'ESB

Concepts, Requirements, Standards

Jean-François GONGUET - Software IT Architect - Geneva

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ESB – Concepts

- SOA – BPM – ESB
  - SOA : software model in which the concept of a **SERVICE** is an **abstraction of a function** used by an application.
  - SOA addresses the business demand for applications to be responsive to business needs and to adapt to dynamic business environments.
  - BPM : end-to-end process management. Facilitates Business **innovation**.
  - Service choreography provides **flexibility** in BPM.
  - BAM gives control on business process vitality. Quickly identify problem areas and help to take **actions**.
  - ESB : vital ingredient of the SOA environment.
  - Decouples Service Requester from Service Provider (hides complexity).
  - **Mediates** between service characteristics and service expectations :
    - Mediation functional requirements : service virtualization
    - Operational characteristics : aspect oriented connectivity

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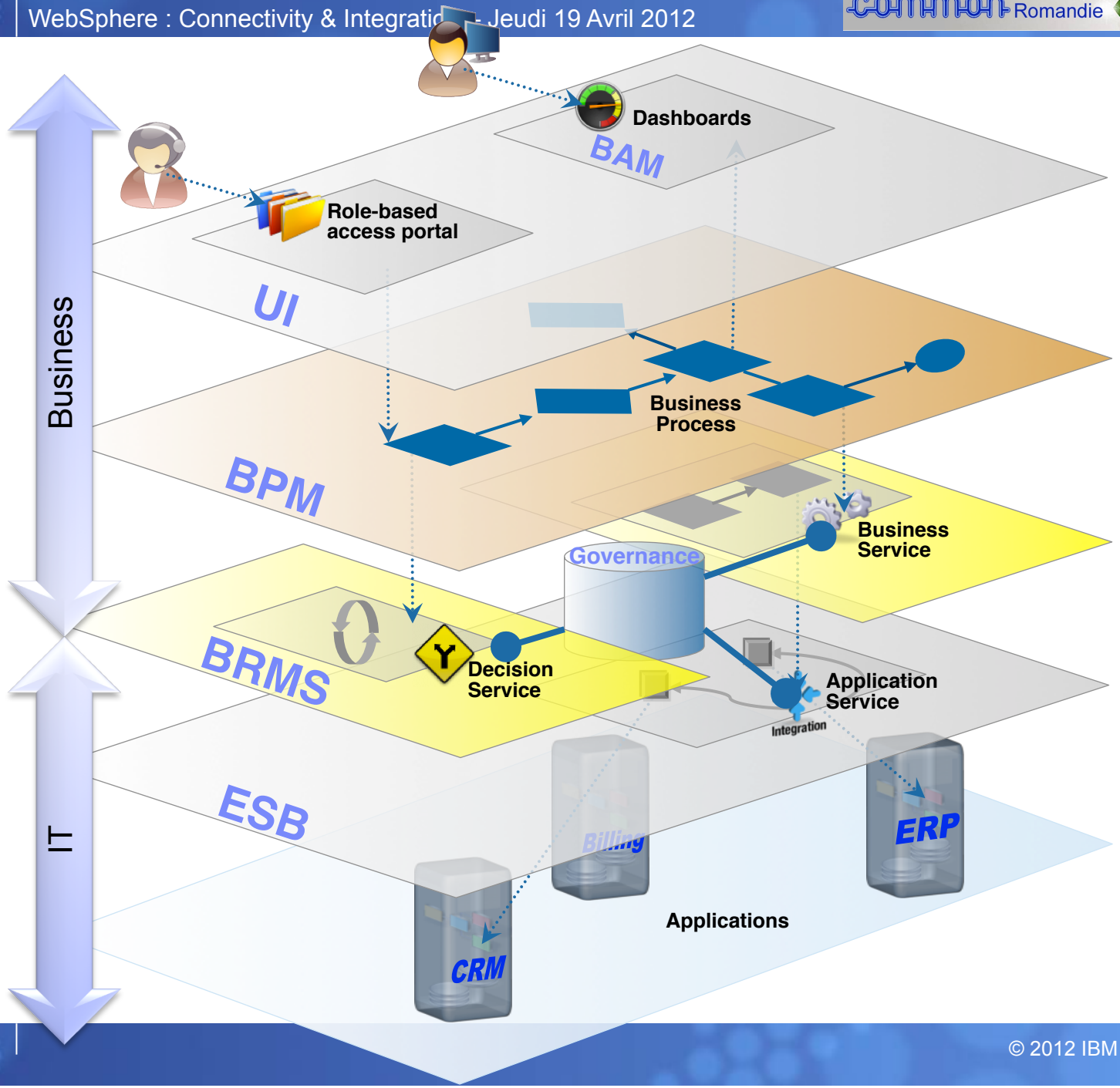
ESB – Architecture overview



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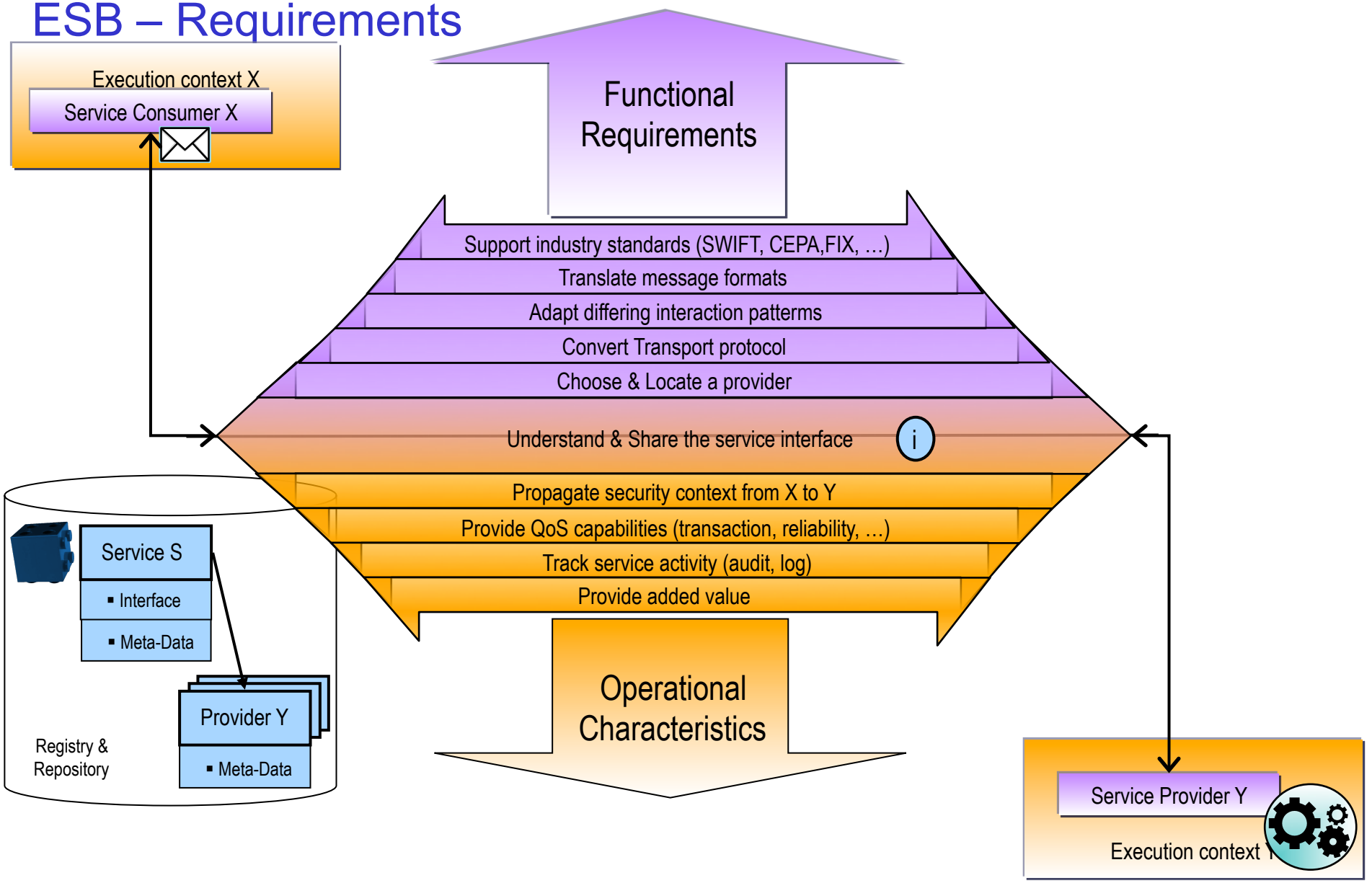
ESB – Requirements



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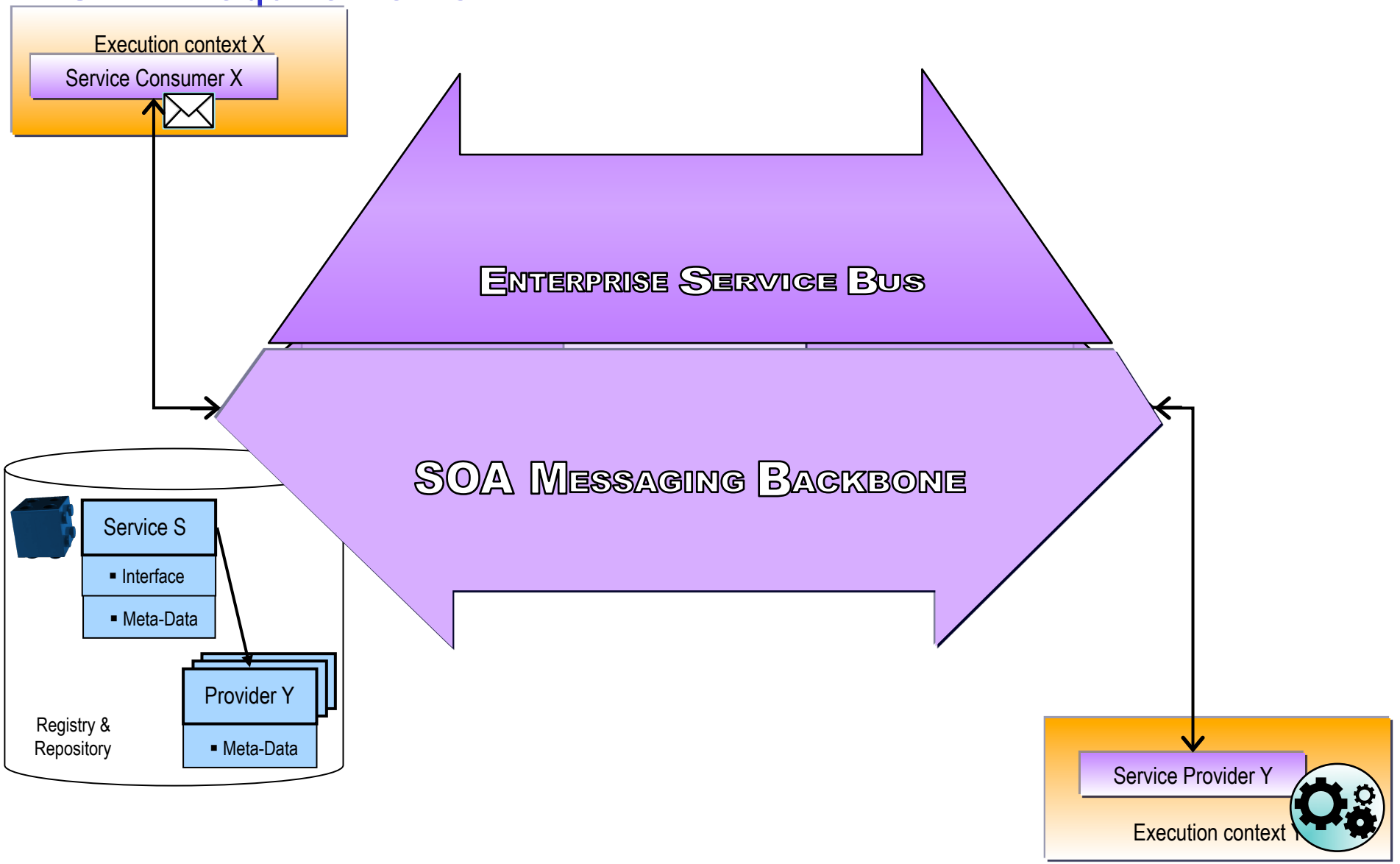
ESB – Requirements



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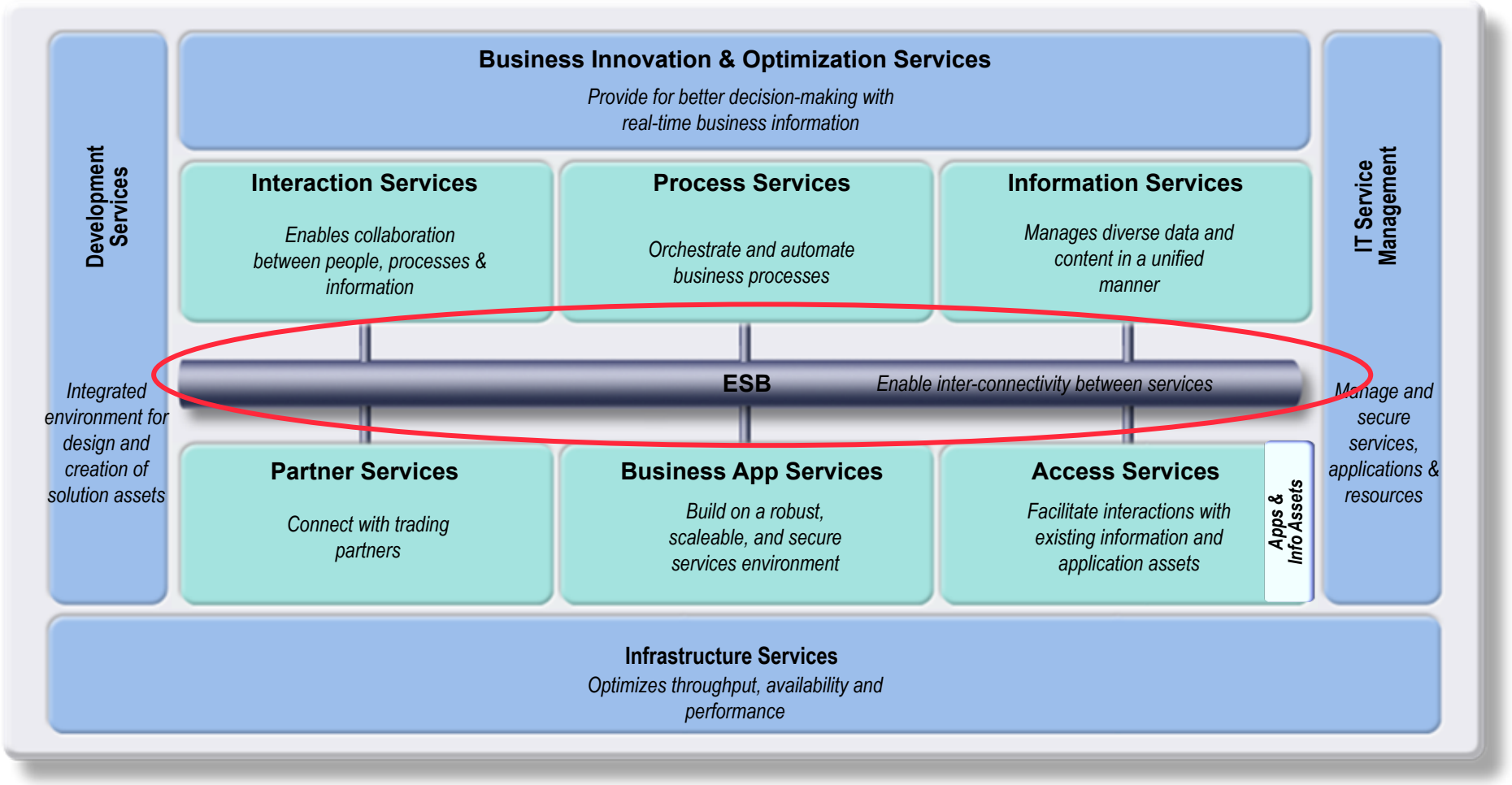
ESB – Requirements

IBM SOA Reference Architecture



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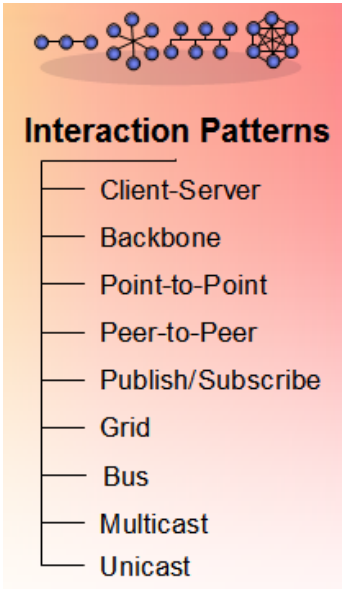
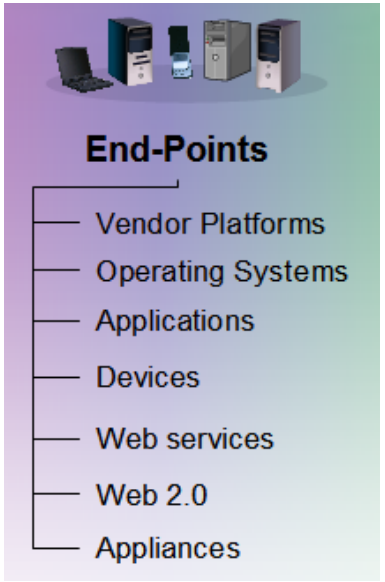
ESB – Requirements

- Mediation **functional requirements**
  - Interface
    - Handles service interface differences
    - Translates message formats
    - Supports industry standards
  - Interaction pattern and communication protocol
    - Handles service interaction differences
    - Converts transport protocols
    - Adapts differing interaction patterns
  - Identity
    - Hides service identity and location
    - Determines appropiate service from candidate providers
    - Routes messages between requester & provider





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ESB – Requirements

- **Operational characteristics** (NFRs)
  - ESB provides **expected** operational aspects defined in the interaction such as :
    - Security
    - Management
    - Logging
    - Auditing

    that are required in an enriched business environment.
  - ESB can also provide added value to interactions without changing the provider and requester themselves :
    - Security re-enforcement
    - SLA : retry failed interaction
    - …

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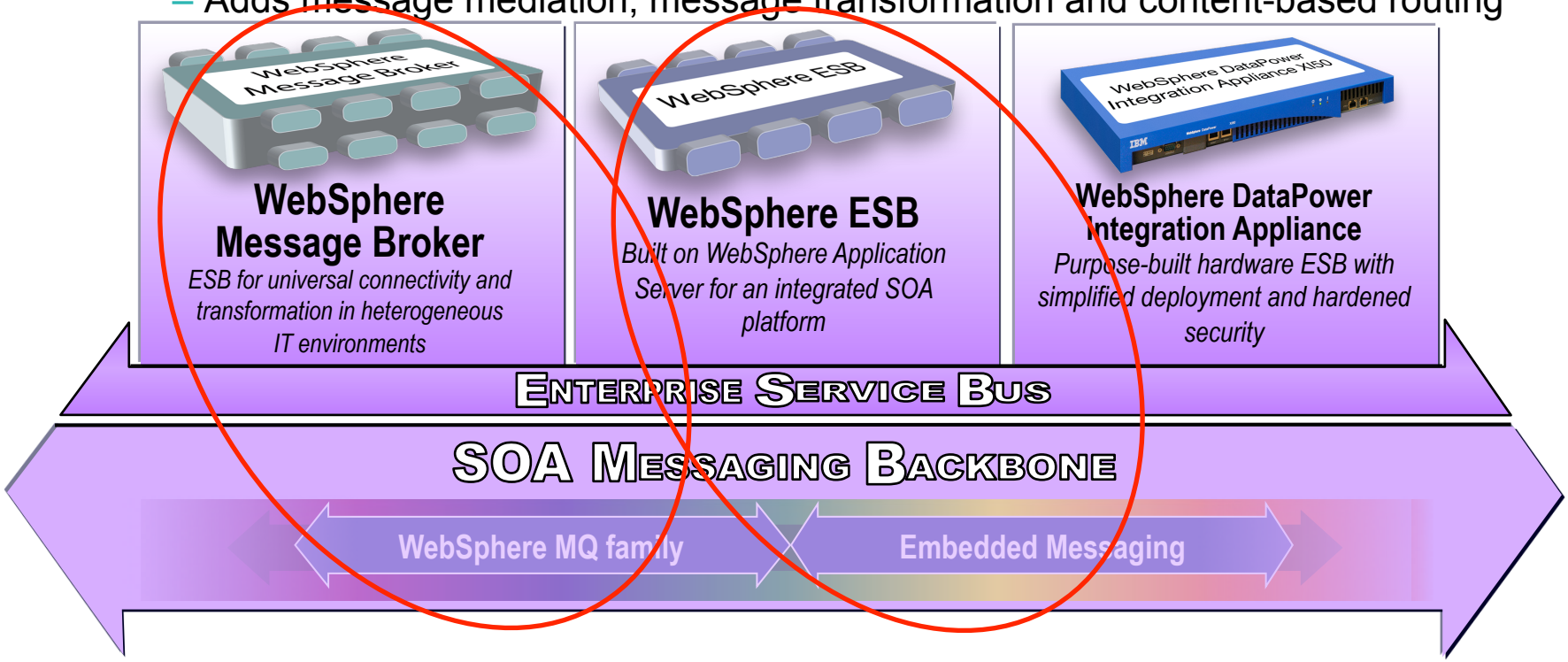
ESB – IBM solutions

- ESB layer builds upon Messaging Backbone
  - Adds “awareness” of what messages contain backbone
  - Adds message mediation, message transformation and content-based routing



- Messaging Backbone provides underlying transport layer for Enterprise Service Bus and BPM
  - Provides transport services for ESB family and extends its reach

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