What Is SOA?

Innovation

Service Oriented Architecture makes change Easier

- **WebSphere BPM újdonságok**

- **Kiterjesztjük az ESB –t fontos megoldásokkal**

- **SOA Governance kikényszerítés – futási időben**

- **WebSphere Application Server v7 – coming soon …**

Riba István
WebSphere termékszakértő

Géczy Viktor
WebSphere termékmenedzser

SOA Governance Enforcement at Runtime

Performance

Policies

Processes

Roles

Policies

Metrics

Checkpoints

SOA Governance Aspects

	Strategy & Ownership	Organization & Planning	SOA Project Management	Service Modeling	Service Creation & Unit Testing	Service Integration & Deployment	Service Operations & Management
Strategy	Services Ownership & Funding; SOA Business Case	Additional Roles & Responsibilities for SOA; IS/IT & Business Alignment	Project Alignment with Business & IS Goals; Validation Processes & Methodology	Enterprise Business Data Models; Enterprise Business Process Models		SOA Service Certification	Infrastructure Platform Components & Release Cycle
Tactics	Requirements of Internal/External Service Consumers; Reuse vs. Build vs. Buy Services Decisions; SOA Vendor Selection & Management	Regulatory Compliance; Requirements Gathering & Prioritization; SOA Education; Services Registry	Project Business Case; Project Planning & Estimating; SOA Development Approach	Services Portfolio Approvals; Services Selection & Prioritization; "Expose as Service" vs. "keep as Application" Decisions; Services Granularity, Visibility & Accessibility	SOA Development Tools & Training; Validation, Design Review & Code Walkthroughs; Services Architectural Options	Acceptance; Capacity Planning	SLA Definition
Operation	Business Value & Reuse Validation	Continuous Process & Organization Improvement	Project Execution & Monitoring; End-to-End Service Production Process Monitoring	Design Reviews & Deployment options; Services Design Process; Services Security Design	Services Build Process; Functional & Non-Functional Requirement Compliance Testing	Services Assembly & Orchestration Services; Deployment Options; Configuration/Build Management	SLA Compliance Monitoring; Services Registry & Version Management; Security Management

IBM SOA Governance Enforcement at Runtime

1. Analysis of Running Services

2. Dynamic Selection Based On Quality of Service

3. Dynamic Selection Based On Message Content or Version

4. Federated Identity Management & Credential Propagation

5. Security Gateway

6. Service Level Management
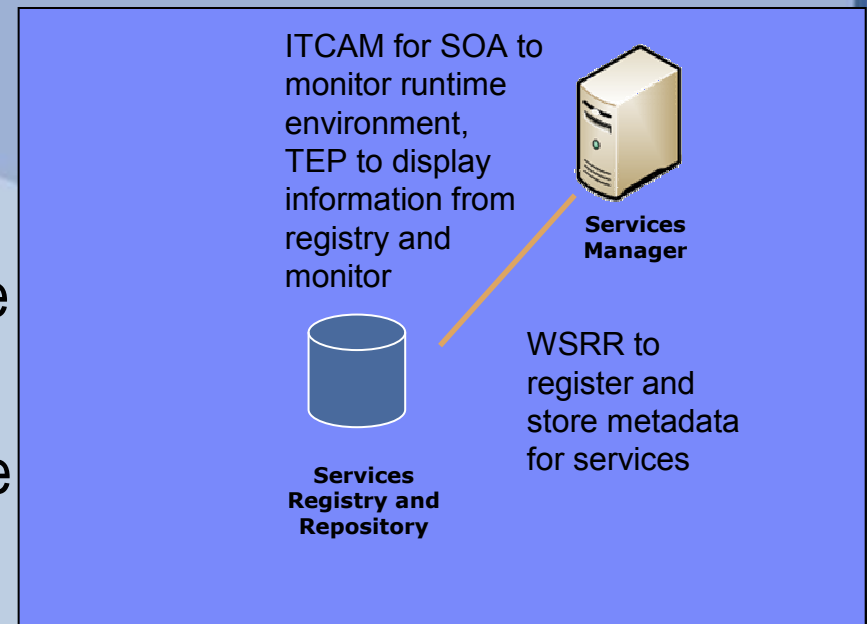
Definition & Enforcement

How Do I ...

- Understand where services are and what they do?

- Visualize which services are running and used?
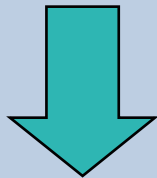
- Ensure only approved services are used?

Solution

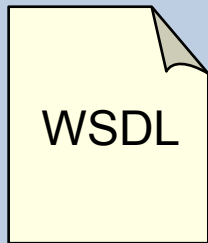- Register all available services that have passed established guidelines

- Audit running services for compliance with service registration

- Monitor and report which services are running and where

ITCAM for SOA to monitor runtime environment, TEP to display information from registry and monitor

Services Manager

WSRR to register and store metadata for services

Services Registry and Repository

Analysis of Running Services

Register service

WSDL

Services Registry and Repository

Service	Computer System	Observed	Registered
<no filter>	<no filter>	<no filter>	<no filter>
CatalogService			✔
CatalogService			✔
InventoryService	host1.austin.ibm.com	✔	✔
InventoryService	host2.austin.ibm.com	✔	✔
InventoryService	host3.austin.ibm.com	✔	✔
	host1.austin.ibm.com	✔	
InventoryService2	host2.austin.ibm.com	✔	✔
InventoryService	host3.austin.ibm.com	✔	✔

Registered but not observed (Shelfware Service)

Observed but not registered (Rogue Service)

Duplicate Service

Observed and registered

Display of Observed and Registered Services

DLA Book with **Observed Services** and their Relationships

DLA Book with **Registered Services**, their relationships, metadata and documents

TCORE

ITCAM for SOA

WSRR
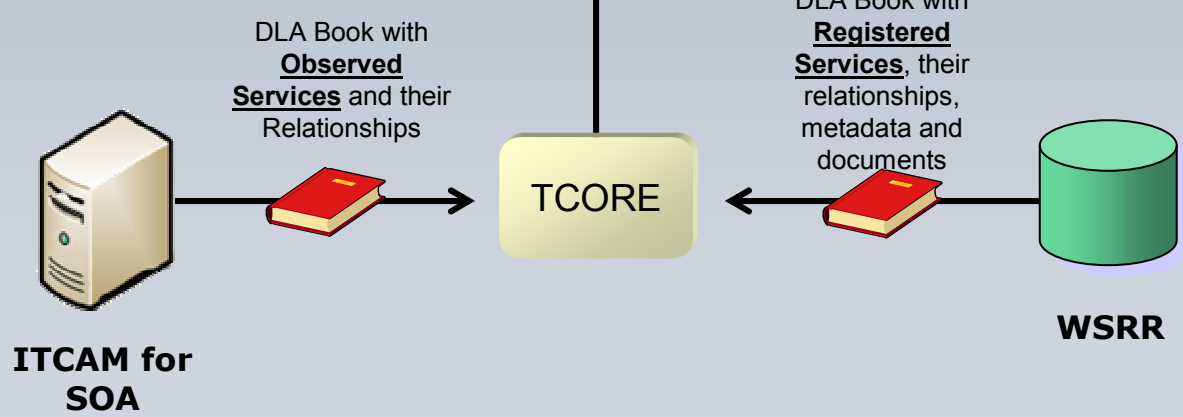
How Do I ...

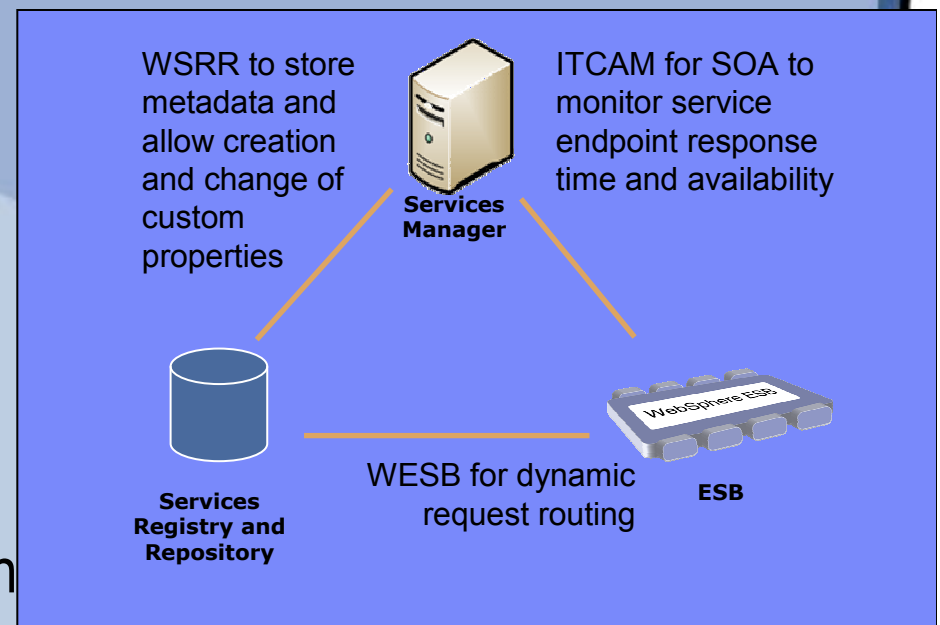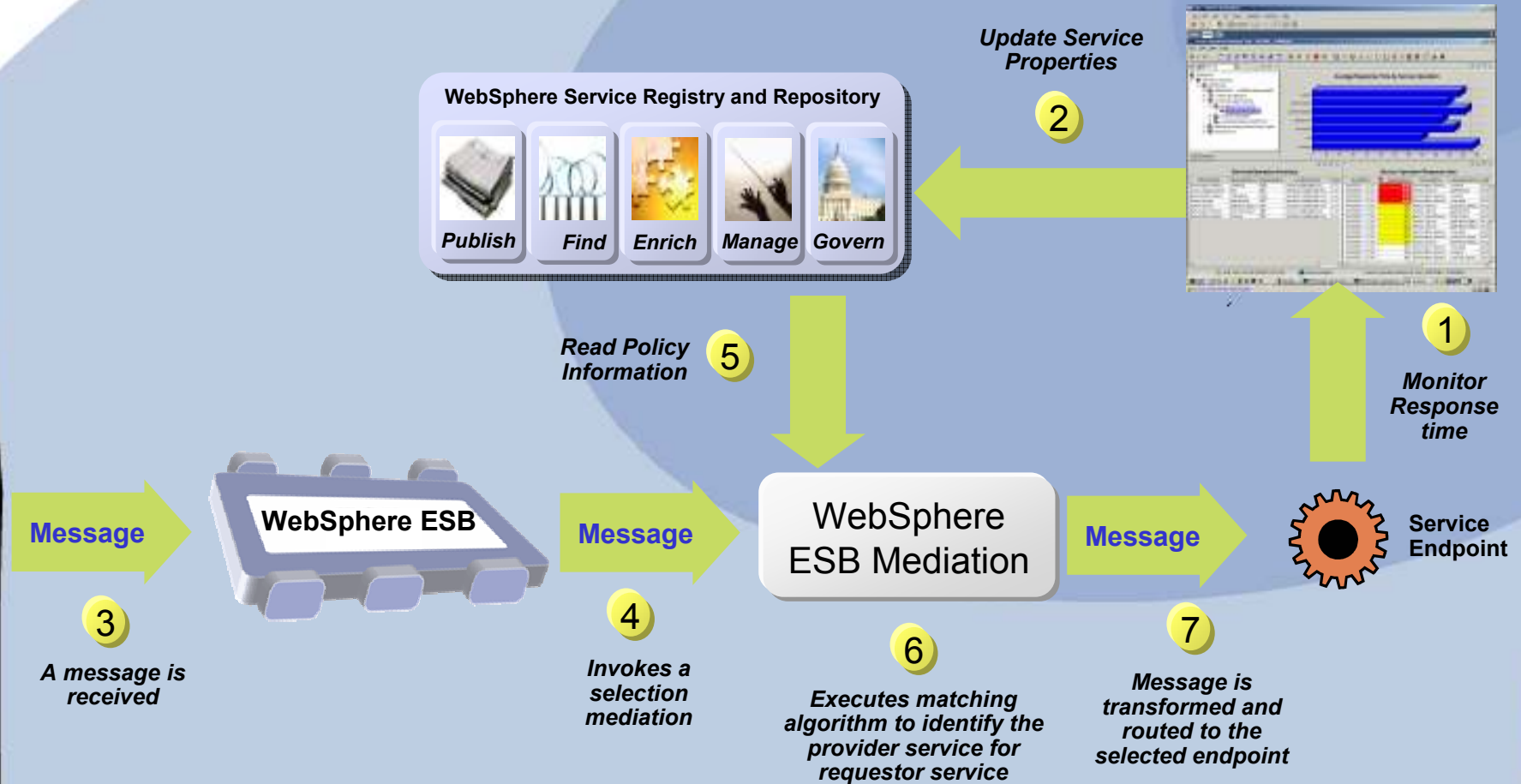**Dynamic Selection Based on Quality of Service**

- Determine which services are meeting performance/availability goals?

- Automatically select services that meet predetermined conditions?

Solution

- Monitor and report endpoint performance and availability

- Flag services not meeting specified conditions as 'unavailable'

- Route requests to 'available' service endpoints without manual intervention

WSRR to store metadata and allow creation and change of custom properties

ITCAM for SOA to monitor service endpoint response time and availability

Services Manager

Services Registry and Repository

WESB for dynamic request routing

WebSphere ESB

ESB

Dynamic Selection Based on Quality of Service

Update Service Properties

2

WebSphere Service Registry and Repository

Publish *Find* *Enrich* *Manage* *Govern*

1

Monitor Response time

Read Policy Information **5**

Message → **WebSphere ESB** → **Message** → **WebSphere ESB Mediation** → **Message** → Service Endpoint

3

A message is received

4

Invokes a selection mediation

6

Executes matching algorithm to identify the provider service for requestor service

7

Message is transformed and routed to the selected endpoint

How Do I ...

- Automatically select a service based on business rules, such as 'account limit' for a 'credit verification' service?

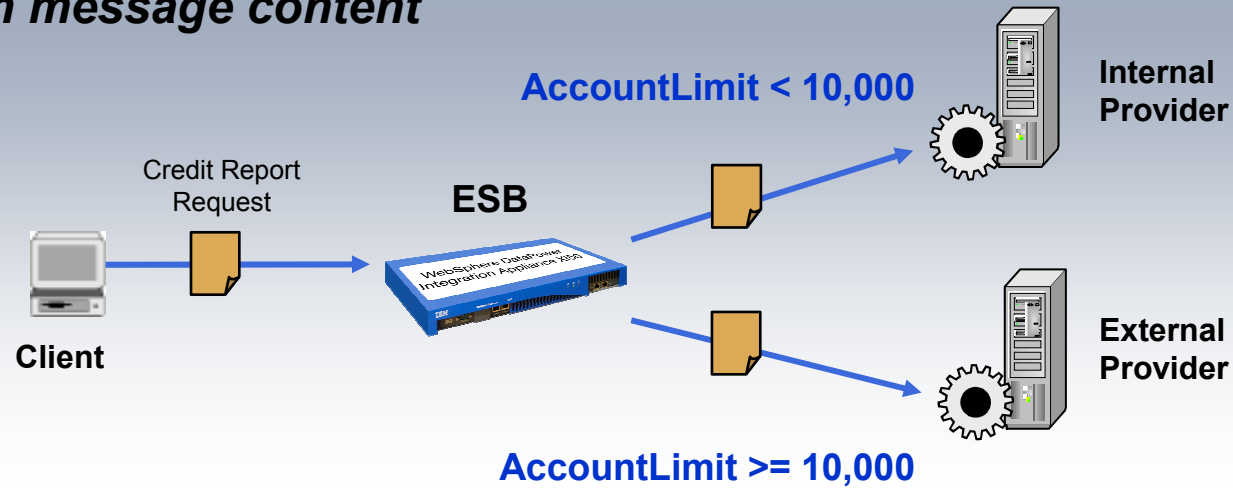- Ensure that there is no production disruption when changing service versions?

Solution

- Route to services based on information in the message

- Resolve endpoints when changing service versions

WSRR to store service metadata

DataPower to parse message content and route requests accordingly

Services Registry and Repository

WebSphere DataPower Integration Appliance X50

ESB

DataPower to automatically resolve endpoints for changing versions of services registered in WSRR
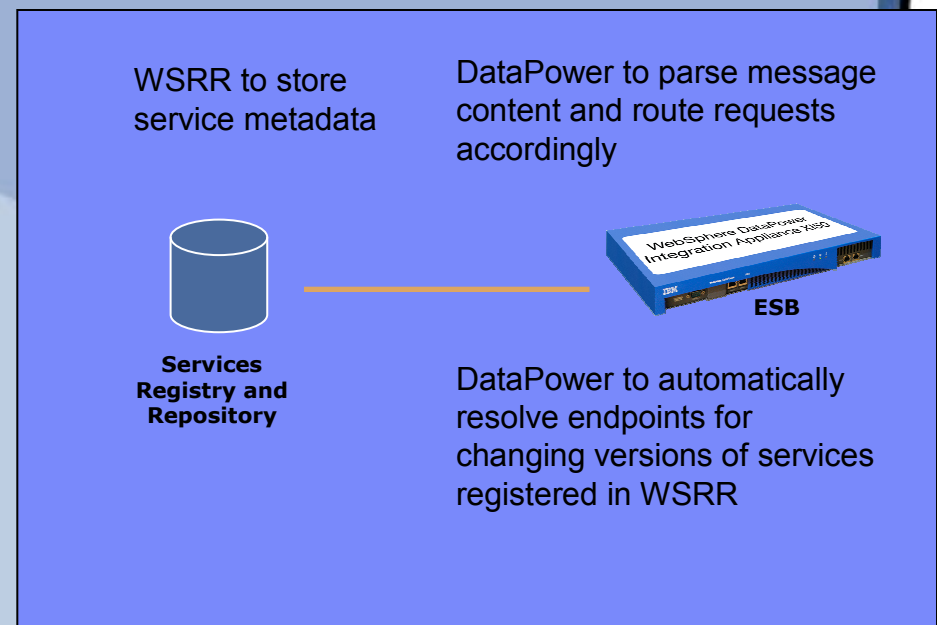
Dynamic Selection Based on Message Content or Version

based on message content

Credit Report Request

Client

ESB

AccountLimit < 10,000

Internal Provider

AccountLimit >= 10,000

External Provider

based on subscription

Registry

Version Information

Client

ESB

Service Version 1.1

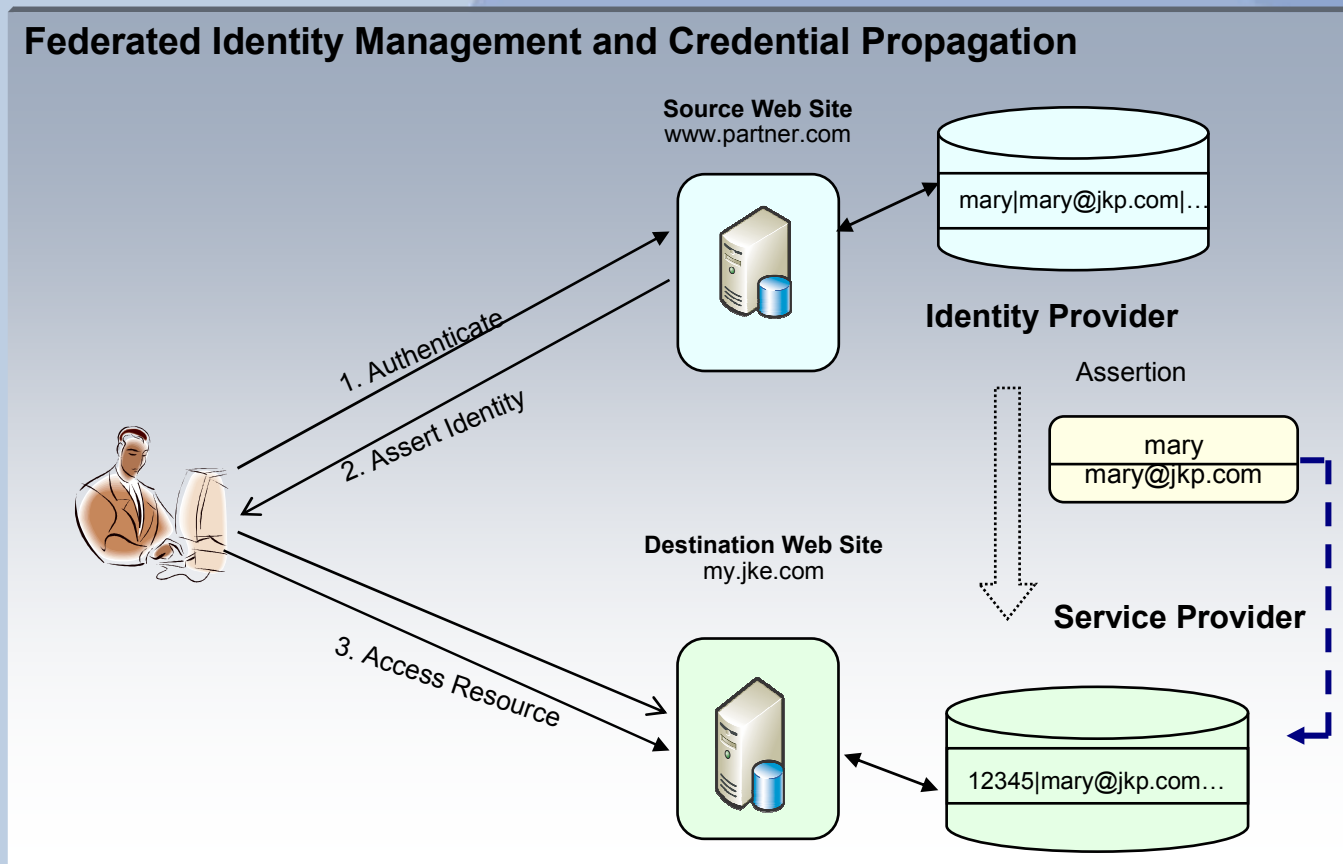Service Version 2.0
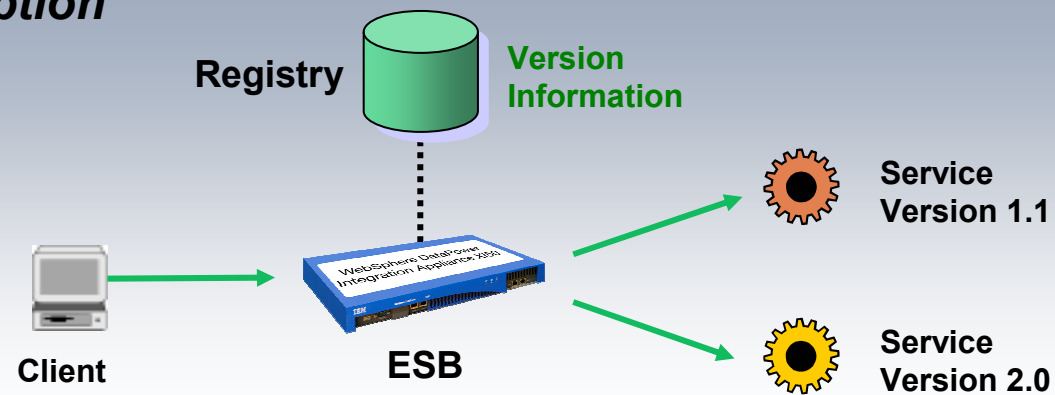
How Do I ...

- Provide single sign-on mapping identities between different authentication and authorization systems?

- Allow customers, partners, agencies and suppliers access to services and information that is only specific to them?

Solution

- Map identities between different authentication and authorization systems providing single-sign on

- Propagate credentials so access is granted only to authorized services and applications

TFIM used as the Identity Provider (Agency)

Web Service App

Federated Identity Manager

TFIM used as the Service Provider (Sponsor)

Federated Identity Manager

Federated Identity Management & Credential Propagation

Federated Identity Management and Credential Propagation

Source Web Site
www.partner.com

mary|mary@jkp.com|…

Identity Provider

1. Authenticate

2. Assert Identity

Assertion

mary
mary@jkp.com

Service Provider

Destination Web Site
my.jke.com

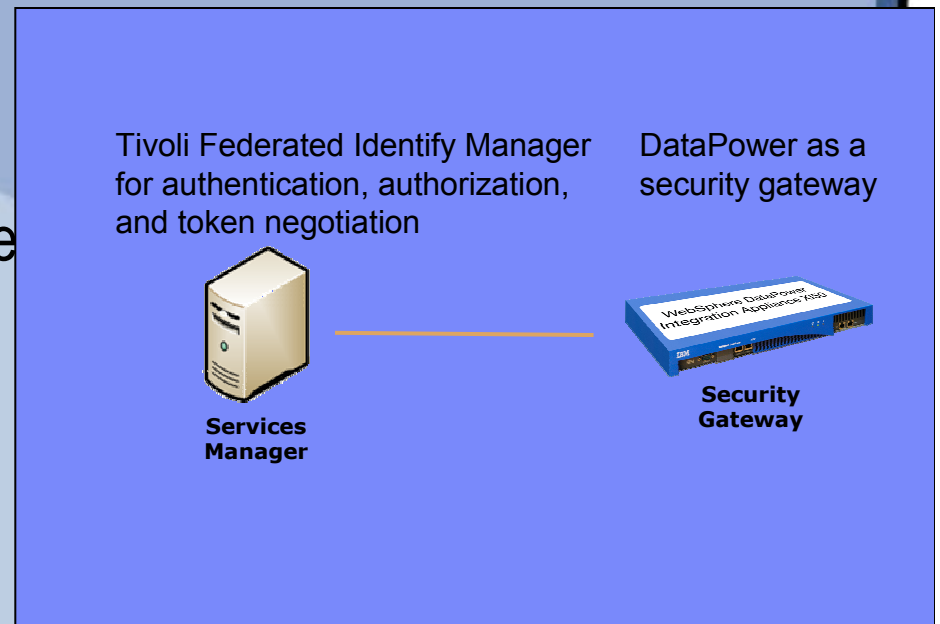3. Access Resource

12345|mary@jkp.com…

How Do I ...

- How do I authenticate, authorize, and audit requests for information from service consumers?

- Prevent security threats from external access?

Solution

- Enforce security policies at runtime

- Inspect requests for denial-of-service attacks

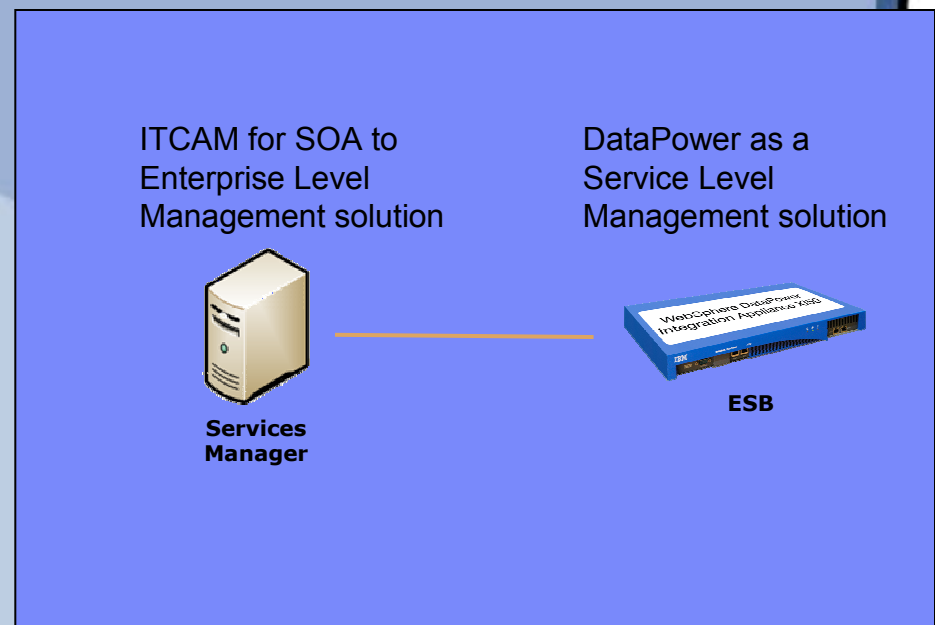- Ensure response integrity and confidentiality

Tivoli Federated Identify Manager for authentication, authorization, and token negotiation

DataPower as a security gateway

WebSphere DataPower Integration Appliance X50

Services Manager

Security Gateway

How Do I ...

- Determine if requests are overwhelming services and causing poor performance?

- Create a 'governor' that enforces the volume limits for services?

Solution

- Monitor service throughput

- Enforce throughput thresholds and prevent requests from overwhelming services

ITCAM for SOA to Enterprise Level Management solution

DataPower as a Service Level Management solution

Services Manager

WebSphere DataPower Integration Appliance XI50

ESB

Service Level Management

Service Level Management

Services Manager

ITCAM for SOA Enterprise Level Management solution

Service Provider

Unbounded Request

Traffic

Regulated Traffic

WebSphere DataPower Integration Appliance XI50

CreditReport Requests

ESB
• Notify
• Shape
• Throttle

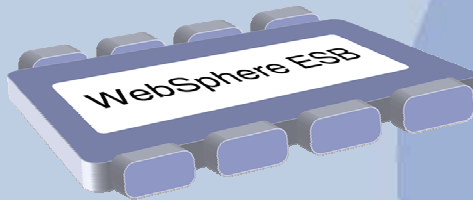DataPower as a Service Level Management solution

CreditReport Provider

Extending the ESB

ESB offerings from IBM WebSphere

WebSphere ESB

Built on WebSphere Application Server for an integrated SOA platform

ESB offerings from IBM WebSphere

WebSphere Message Broker

Built for universal connectivity and transformation in heterogeneous IT environments
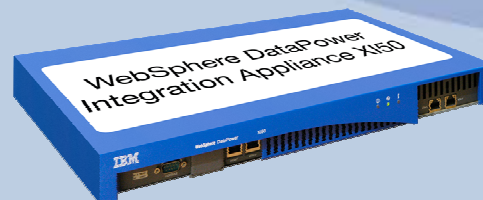
WebSphere DataPower Integration Appliance

Purpose-built hardware ESB for simplified deployment and hardened security

The IBM ESB portfolio

The Integrated ESB:
WebSphere ESB: **Built on WAS ND -- and in WPS-- for** simplicity **and** manageability.

The Advanced ESB:
WebSphere Message Broker: **Built on WebSphere MQ for** performance, range **and** reach.

Process Server

Integrated ESB

Application Server

Advanced ESB

SOA Appliance

SOA Appliances:
WebSphere DataPower **The SOA appliance for** security, acceleration, **and** ESB optimization.

WebSphere Services Registry & Repository
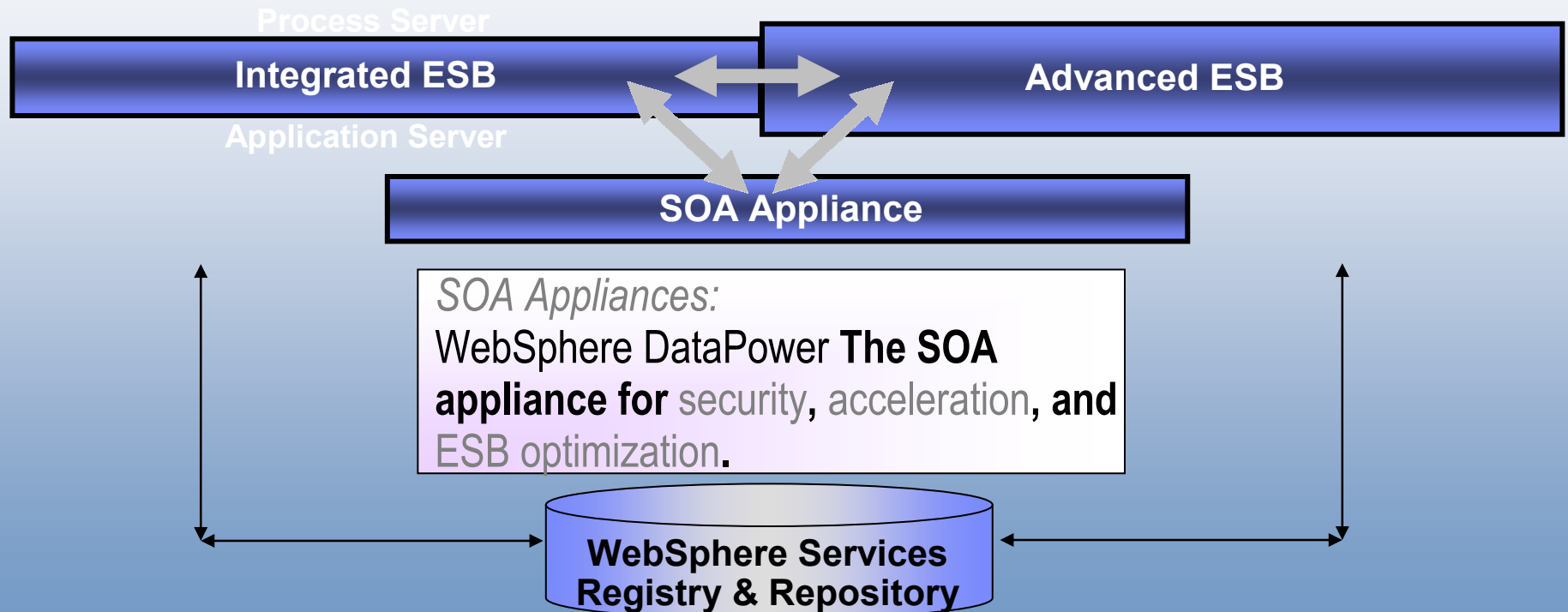
A portfolio to help you optimize your ESB topology.

Extending the ESB...

IBM
Enterprise Service Bus

| Integrates Everything | Secure Global Coordinated Transactions | Rich, Flexible Qualities of Service |

Extendable with:

SOA Optimization

Service Registry

Comprehensive Service Orchestration

Service Monitoring

Universal Transformation

Business Monitoring / reporting

WebSphere Datapower

WebSphere Services Registry & Repository

WebSphere Process Server

IBM Tivoli Composite Application Monitor

WebSphere Transformation Extender

WebSphere Business Monitor