



## Securing B2B with Tivoli

**Jim Carey, Program Director**  
careyji@us.ibm.com

**Tivoli** software



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IT Service Management



## Abstract


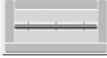


Maintaining predictable control of your B2B offerings demands that you monitor availability, performance and security of increasingly complex applications and services. Gaining visibility end-to-end, automating predicted problems, and creating an Operations environment that fosters communication and application visibility add up to solutions for Service Oriented Architectures that enable you to understand changes in application behavior before they impact your users, and to react more quickly to changes that do impact your solutions. This session is about managing your B2B services using products from the IBM Tivoli suite of solutions to provide end to end management for the whole application and lifecycle.

## Managing and Securing B2B in with SOA

- Service Oriented Architecture and Management
- Securing Services in a B2B Environment
- Managing and Delivering Services

## Defining Service Oriented Architecture

*Different Things to Different People*

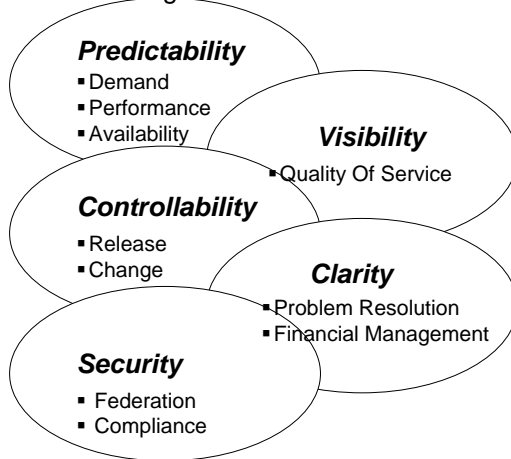
	<i>Roles</i>
<i>A model of the business</i> that is based on services as the base functional component	<b>Business</b> 
<i>An architectural style</i> which requires a service provider, requestor and a service description. It addresses characteristics such as loose coupling, reuse and simple and composite implementations.	<b>Architecture</b> 
<i>A programming model</i> complete with standards, tools, methods and technologies such as Web services	<b>Implementation</b> 
<i>A set of agreements</i> that specify quality of service and drive key business and IT metrics.	<b>Operations</b> 

## How Does SOA Impact Infrastructure and Management?

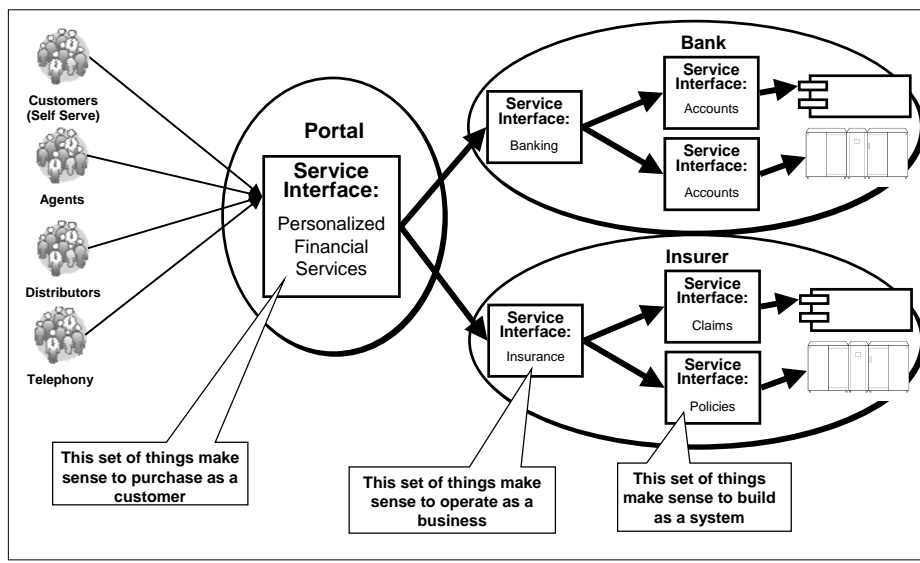
### SOA Characteristics

- Applications reused in new dynamic ways
- Services combined from multiple sources
- Rapid deployment
- Services route to any available resource
- Distributed access

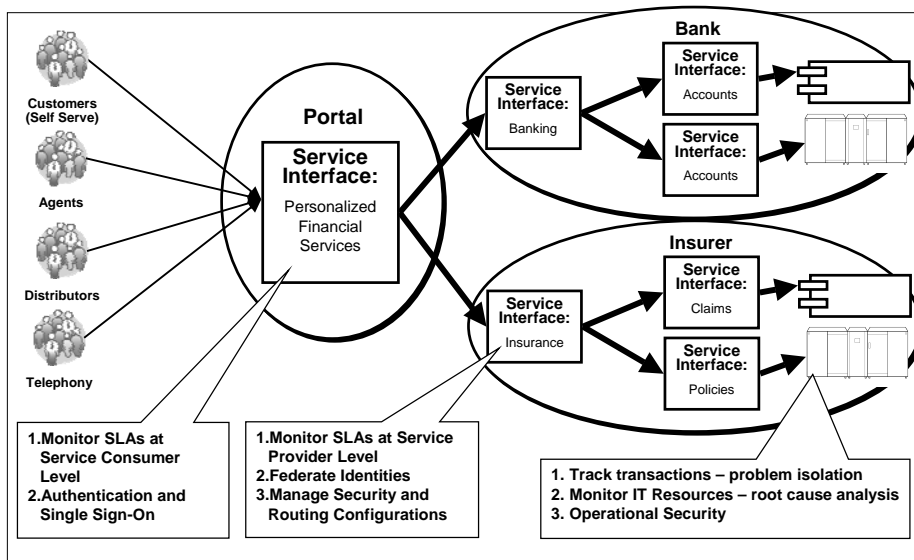
### Key Infrastructure and Management Considerations



## How Does Service Orientation Affect Systems?

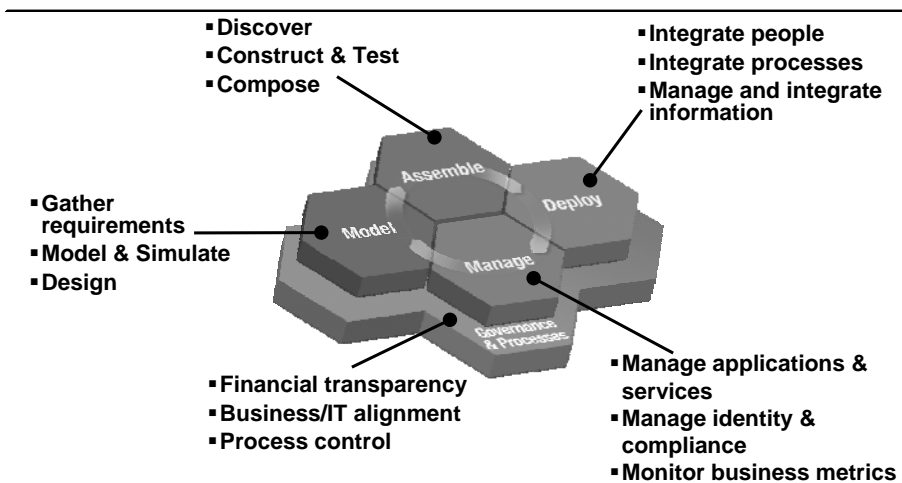


### Capabilities for Management and Security of SOA

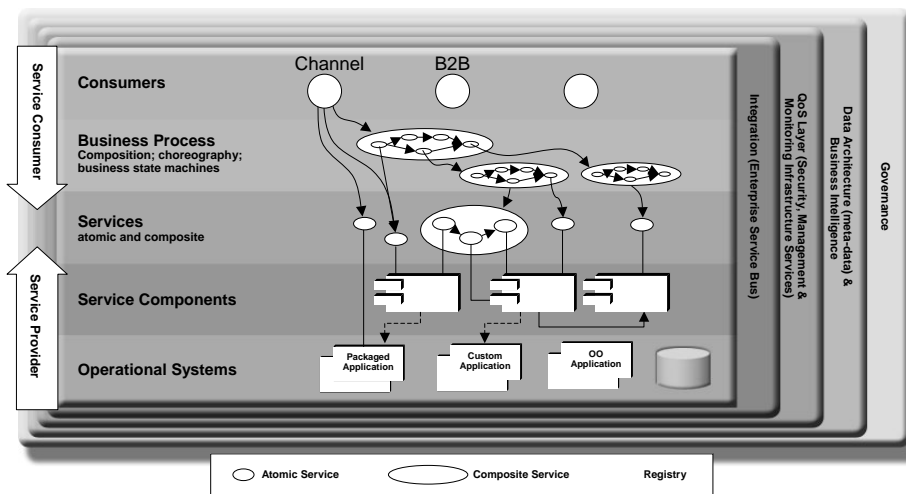


### How do you achieve flexible IT through SOA?

*The SOA Lifecycle*

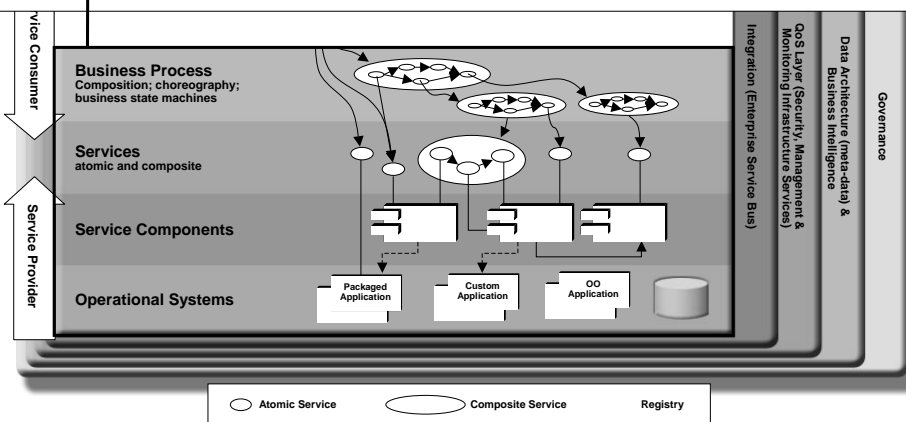


# SOA Layers Of Abstraction



# Holistic SOA Management

- **Manage Security:** Discover and secure services and manage identities across organizations



## SOA Security

### What is "Federated Identity Management"?

- Definition

- An "identity federation" is a federation in which identity management (authentication, access control, auditing, and provisioning) is distributed between the partners based on their role within the federation
- An Identity Federation can allow users from one federation partner to *seamlessly* access resources from another partner in a secure and *trustworthy* manner

- Roles

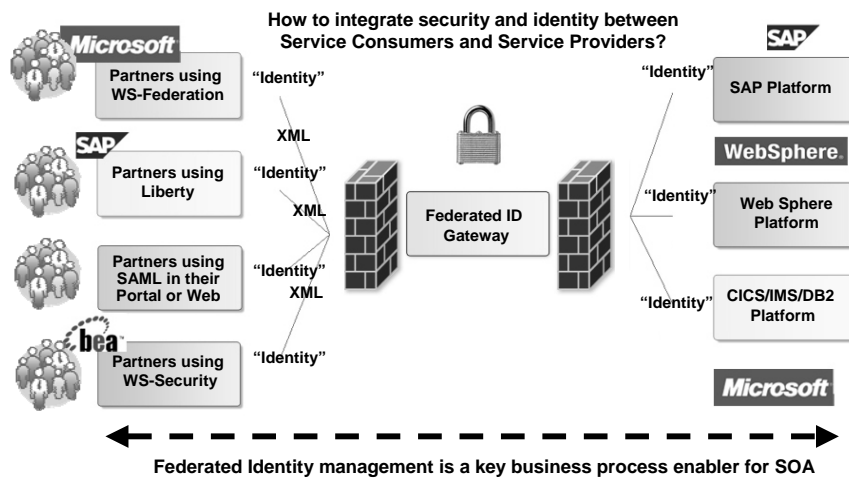
- End user
- Identity Provider (IdP)
- Service Provider (SP)

- Functions

- Single Sign-On/Sign-Off (including "global" sign-off)
- Provisioning/De-provisioning
- Account Linking/De-linking



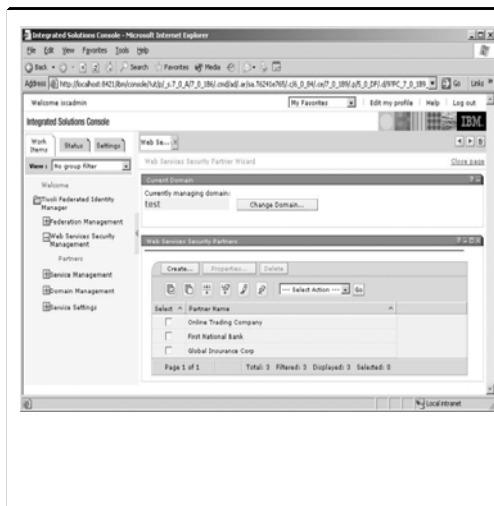
## SOA - Security Mediation - Federated Identity



## Tivoli Federated Identity Manager

*“Security as Services” - within and beyond the enterprise*

- Single Sign On for Web Services
- Supports federated security standards including Liberty Alliance, WS-Security, WS-Trust and SAML
- Integrates with z/OS Security and RACF
- Enhances native support for z/OS Web Services



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## WebSphere DataPower SOA Appliances

### WebSphere DataPower XML Security Gateway XS40

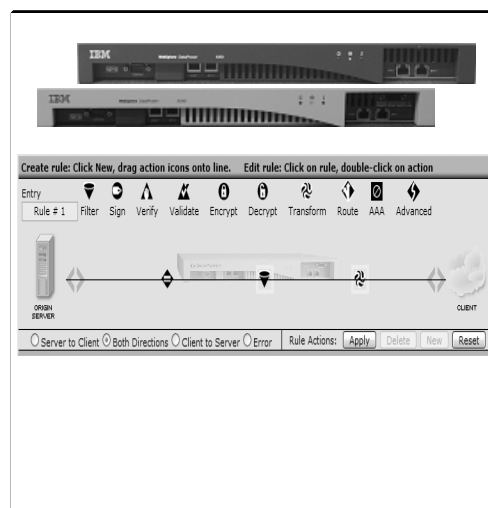
- Purpose-built appliance for Web Service Security and Policy Enforcement
- Wirespeed XML processing for performance and scale

### Tivoli Access Manager (TAM) & Tivoli Federated Identity Manager (FIM)

- Widely-deployed access control solution
- Full-featured federated identity management and Web Services security solution

### Together protect XML Web services

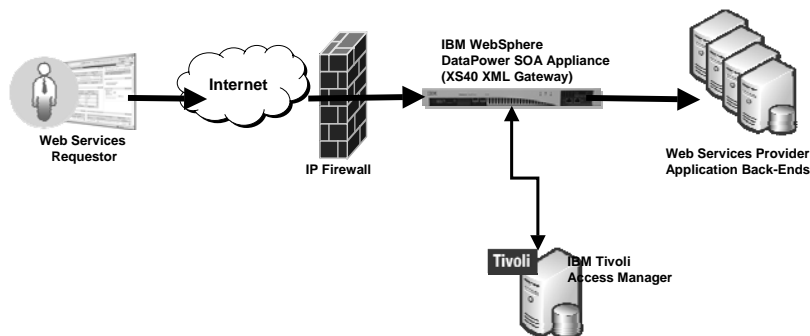
- Single I&AM solution to control access for Web & Web services
- Future-proof support for SAML, WS-Trust and other XML standards
- Complete solution for XML security & business availability



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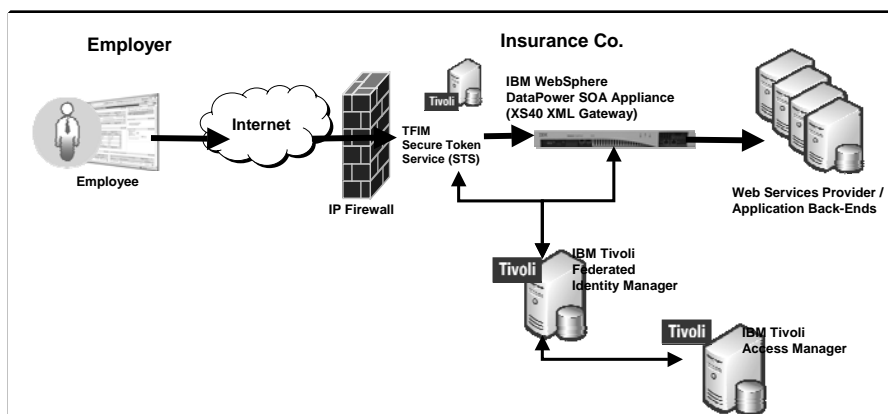
## Secure XML Web services

Use Tivoli Access Manager (TAM) for secure Web SSO and XML Web services. DataPower XS40 provides first line of XML defense and enforces access policy stored in TAM.



## Federated Identity among Partners

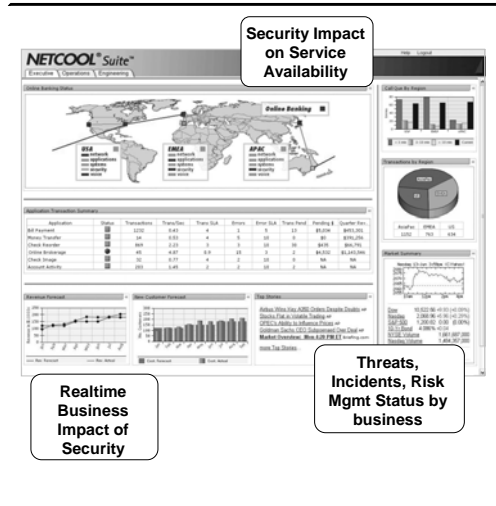
Insurance company allows Retailer's employees to check their insurance profile, stored in internal application servers, and not available previously. (This is a Web SSO + FIM case).





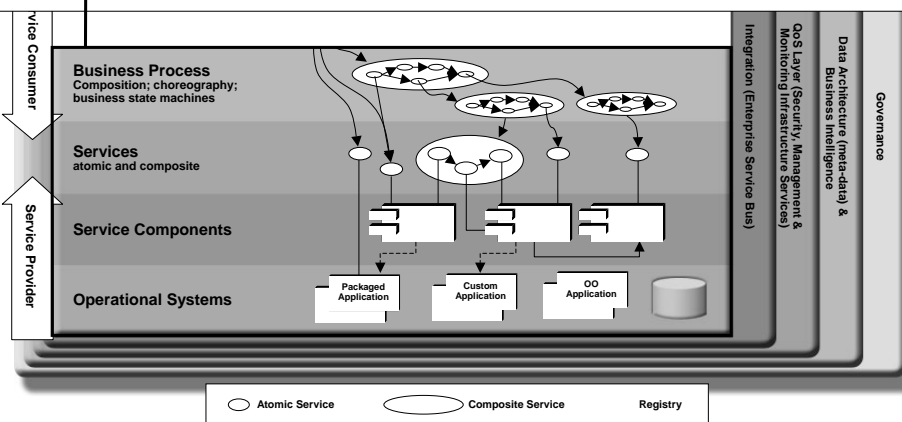
## Tivoli Security Operations Manager

- Security event consolidation, correlation and analysis
- Advanced correlation techniques for finding business relevant threats and risks
- Broad device support – security, network, host, applications
- Incident management and investigation
- Automations to “close the loop”
- Compliance focused reporting



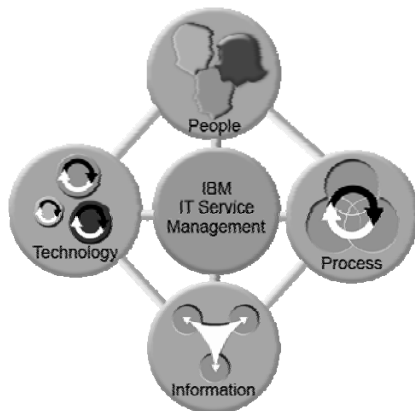
## Holistic SOA Management

- **Manage Change:** Discover application dependencies and Track Change



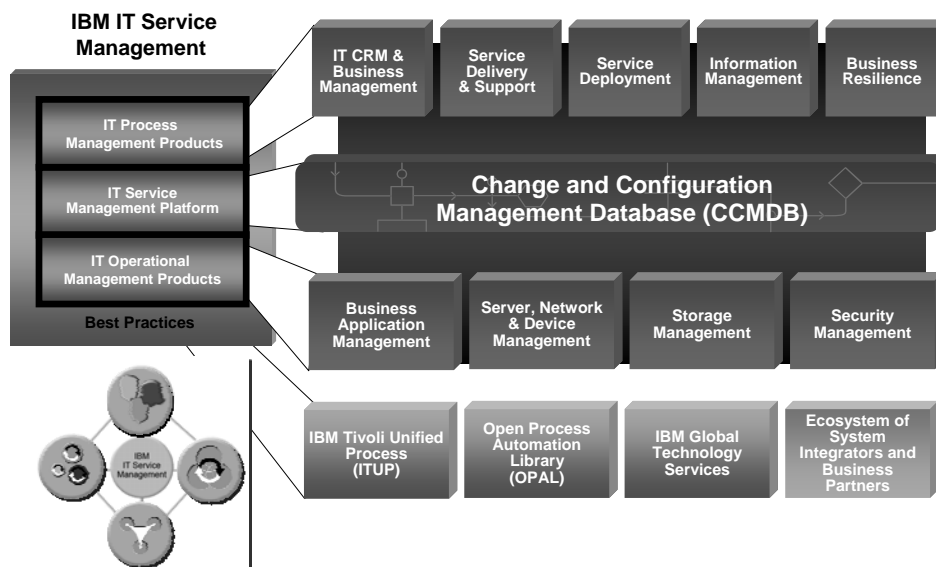
## IBM IT Service Management

An innovative vision for the optimal intersection of People, Process, Information and Technology



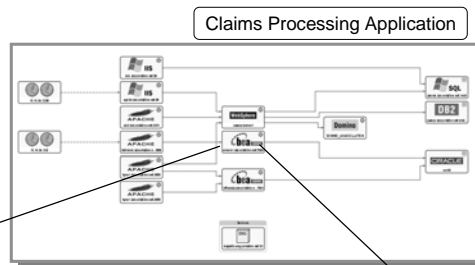
- Optimize the sharing of information across people, processes and technology
- Establish decision-making policies to collaborate across organizations
- Automate and integrate IT processes aligned to business
- Leverage IBM's modular approach to achieve your business goals

## A Comprehensive Approach to IT Service Management



## Discover Cross-tier Transactional Dependencies and Applications

- **See the Big Picture**
  - Over 200 sensors for component discovery
  - Deepest cross-tier, run-time detail
  - Only fully automated application discovery
- **Rapid time to value**
  - Fast, low cost implementation
  - Agent-free auto-discovery



Details

Components: [casar server]

General | Named End Points | Environment | Modules | Resources | Containers | Process Definition | Application Descriptors | Runtime | Config Files | Dependencies | Admin Info

XIBC 315

Name	Description	Implementation Class Name	IA ClassName Template Matcher
Cloudscape XIBC Provider	Cloudscape XIBC Provider	com.ibm.db2.jdbc.DB2ConnectorPoolDataSource	False
Cloudscape XIBC Provider 5.0 (34)	Cloudscape XIBC-compliant Provider	com.ibm.db2.jdbc.DB2DataSource	False
DB2 XIBC Provider (casar/hodoc/casar/server/server1/resources/impl/XIBCProvider_7	DB2 XIBC-compliant Provider	COM.ibm.db2.jdbc.DB2ConnectorPoolDataSource	False

## Change and Configuration Management Database 1.1

*Integrating management data and processes to automate Service Management*

A CCMDB should do more than just store data, it should:

- Integrate and share data across a complex enterprise
- Maintain data currency and accuracy to support IT teams
- Automate process workflows to enforce business critical policies
- Integrate processes to operational management products for efficiency

▪ **Automated Discovery:** Application and device discovery for unified view of configuration items

▪ **Audit and Control:** Manage the change process and provide record of change

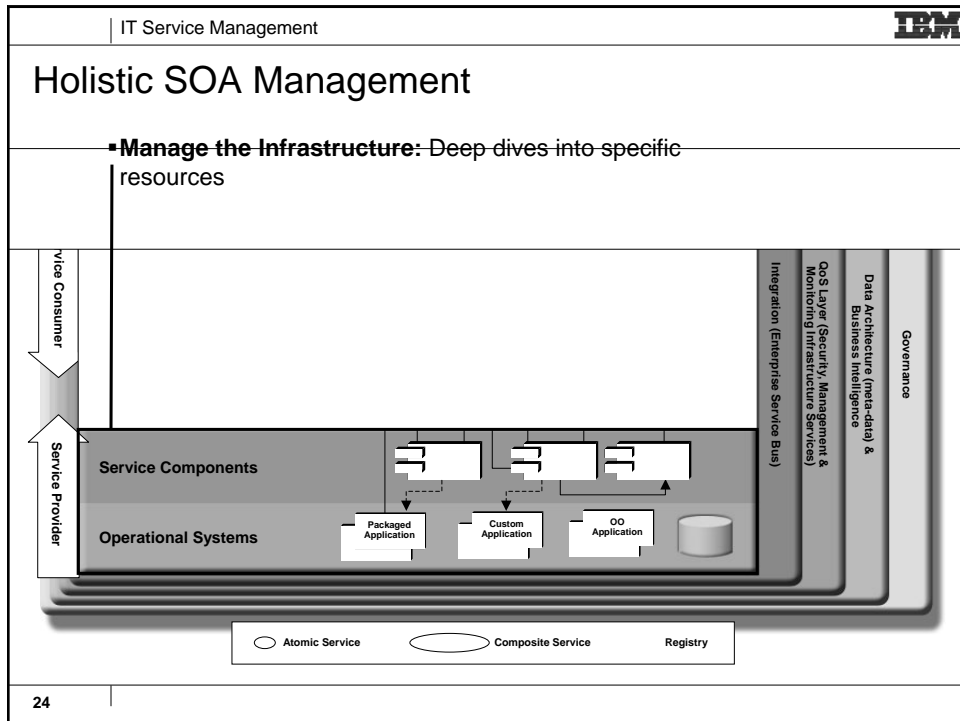
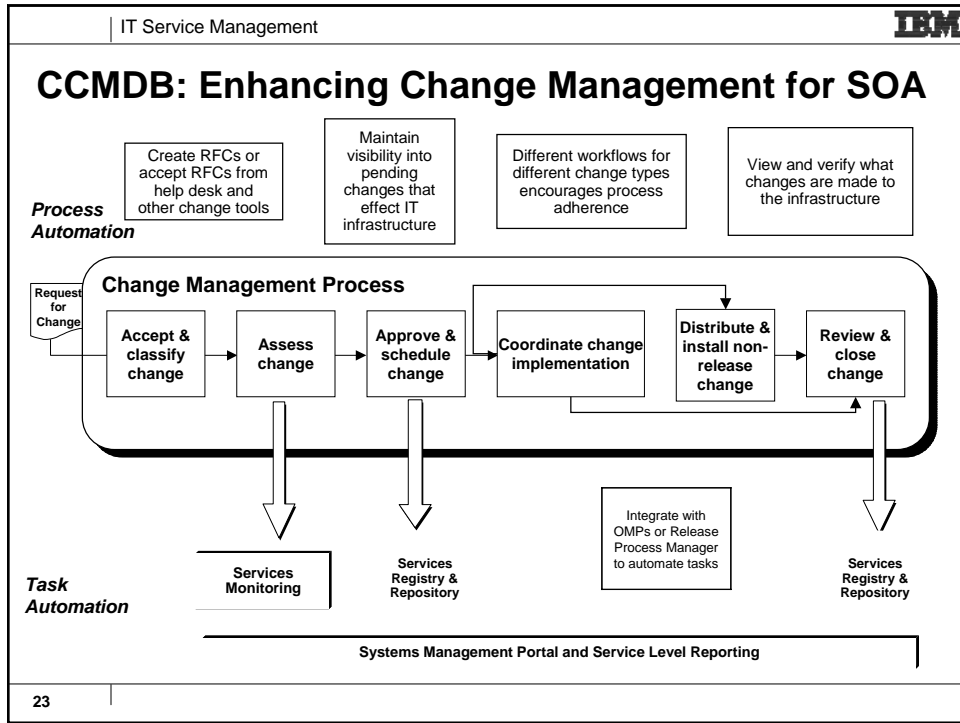
Portal-based user interface with a common look and feel for all ITSM Solutions

"My Tasks" shows process tasks awaiting user action

Navigation area showing available supporting tasks

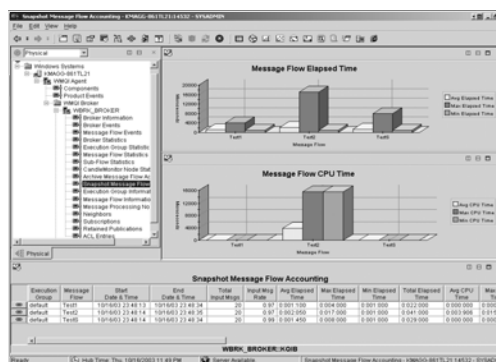
Process tasks routed based on process definition and roles assigned

The screenshot shows a web portal interface for ITSM. On the left is a navigation menu with categories like 'Incident Management', 'Change Management', 'Problem Management', and 'Configuration Management'. The main area displays a table of tasks with columns for 'Task ID', 'Task Name', 'Status', and 'Target Date'. A 'My Tasks' section highlights tasks awaiting user action. At the bottom, there's a 'Process tasks' section showing tasks routed based on process definition and roles assigned.



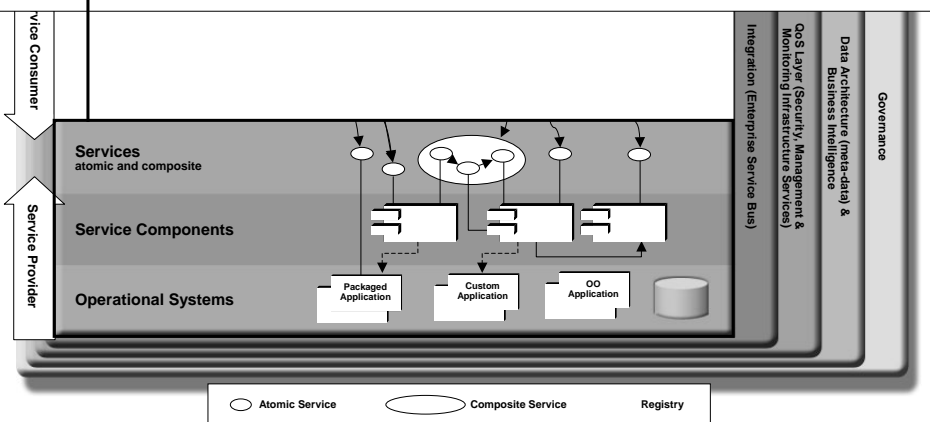
## Manage: Supporting Middleware *Comprehensive Deep-dive Monitoring*

- Identify and quickly correct applications that are down or performing slowly
- Need to provide comprehensive in-flight transaction display that includes the name of the hung class/method
- Introspect messaging and brokering sub systems for real-time metrics and historical data analysis
- Improve the performance and availability of applications by reducing problem identification and resolution time



## Holistic SOA Management

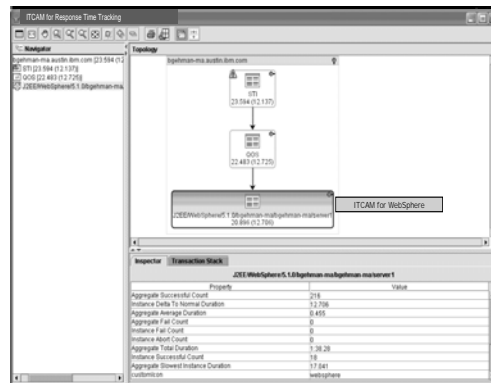
- **Manage Transaction Performance:** Measure transaction response times to discover bottlenecks, isolate infrastructure



## Manage: Transaction Performance

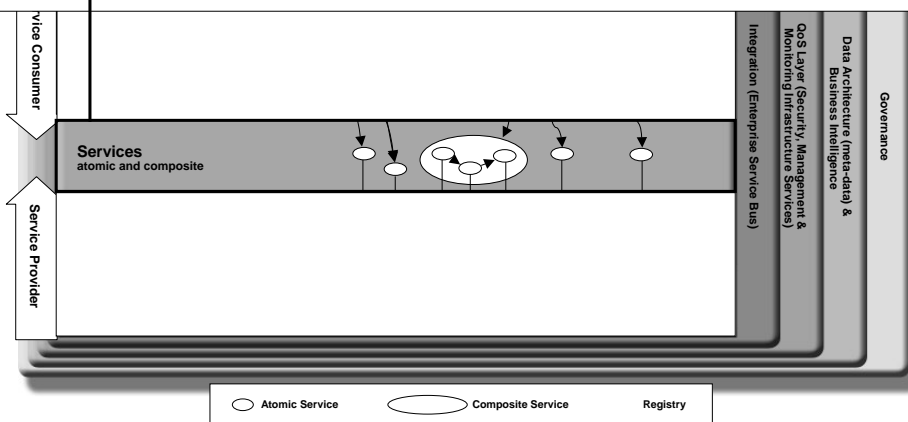
*Provide Key Response Time Metrics Across Platforms*

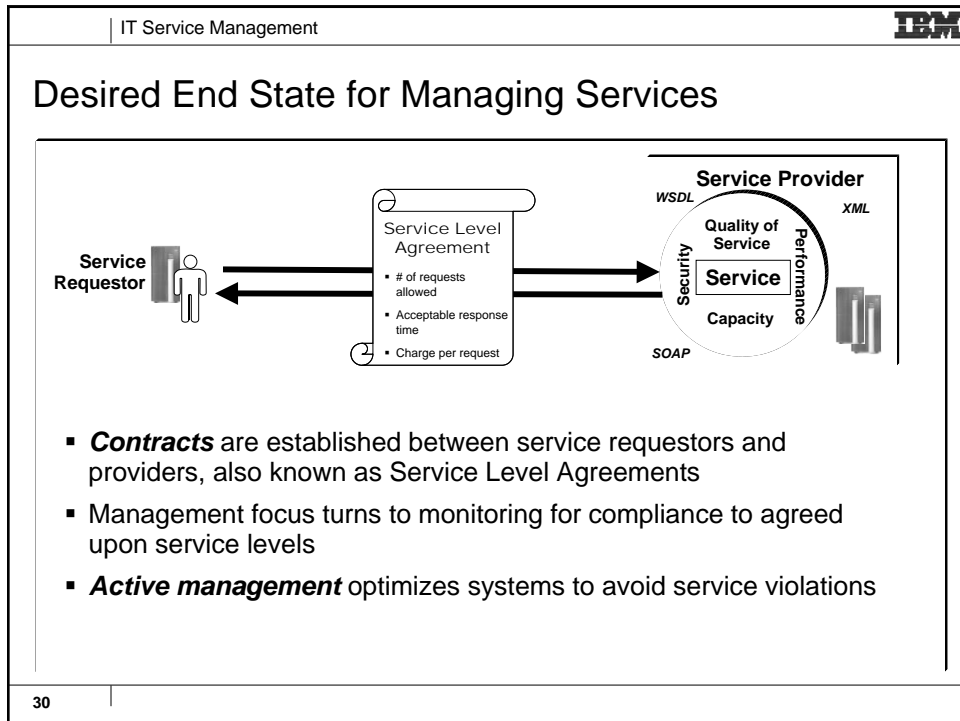
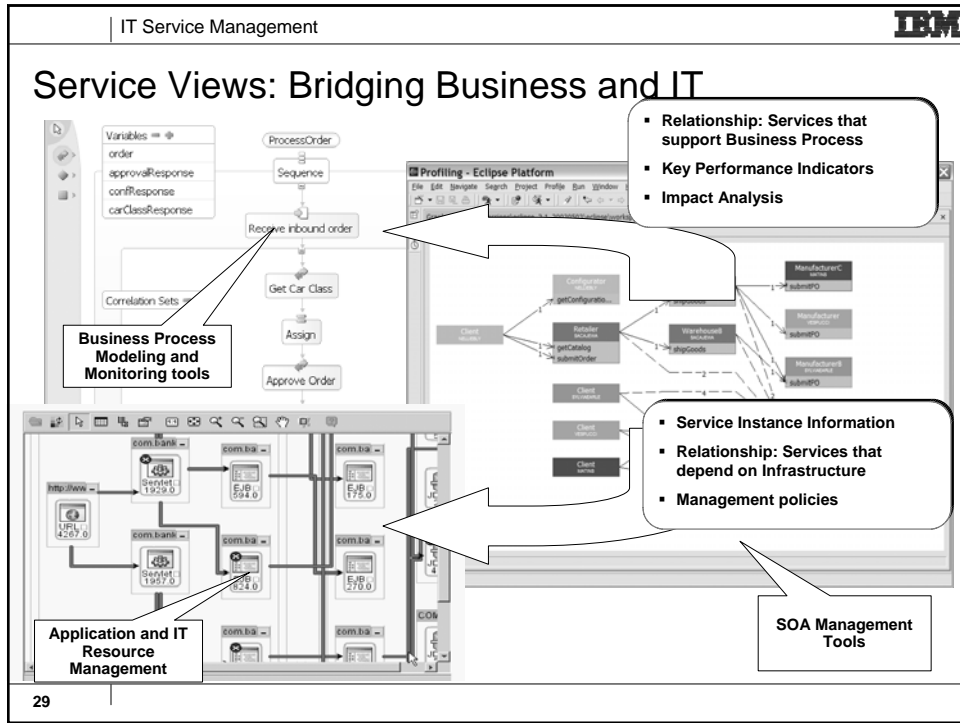
- Customers find it very difficult to identify and isolate performance bottlenecks in composite applications that span technology and platform boundaries
- Need to provide performance instrumentation that is lightweight and can be dynamically configured to identify problems before customers call
- ARM-based instrumentation is the industry standard that can be leveraged to isolate the problem



## Holistic SOA Management

- **Services Management:** Discover, monitor, secure and manage services to meet SLAs

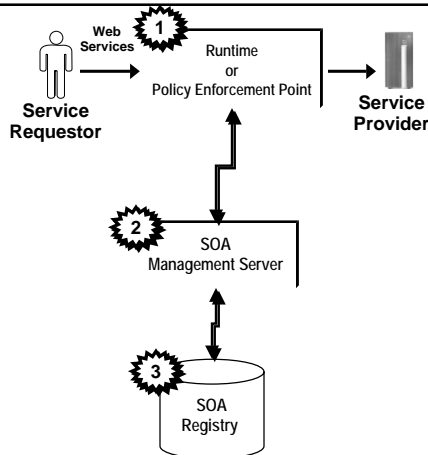




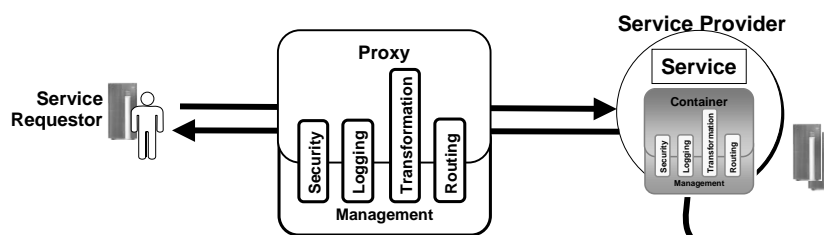
## What Are Key Elements for SOA Management?

There are 3 key components in web services management:

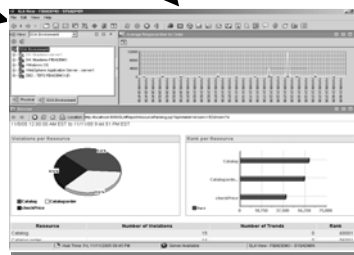
1. The runtime environment – this is where messages are routed, transformed, filtered and logged
2. The management server – aggregates the data from all of the endpoints and runtimes and sends configuration changes based on policy
3. The registry – stores meta data about services and policies



## IBM's Approach for Managing Services



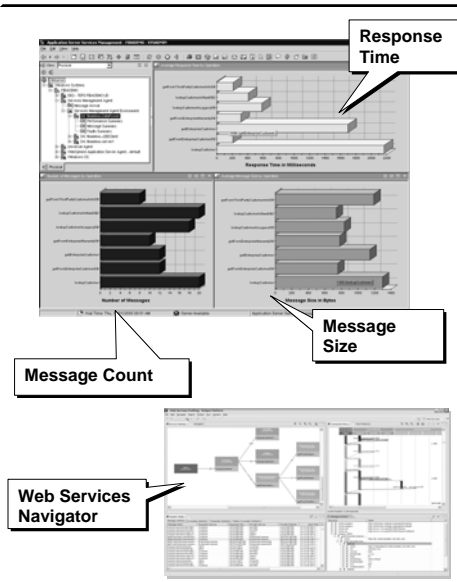
- Leverage existing runtime environments for web services management
- Intermediary performs "Mediations" on the SOAP/XML traffic in real time
  - To enforce Service Level agreements
  - Apply security policy
  - Respond to changes in IT environment



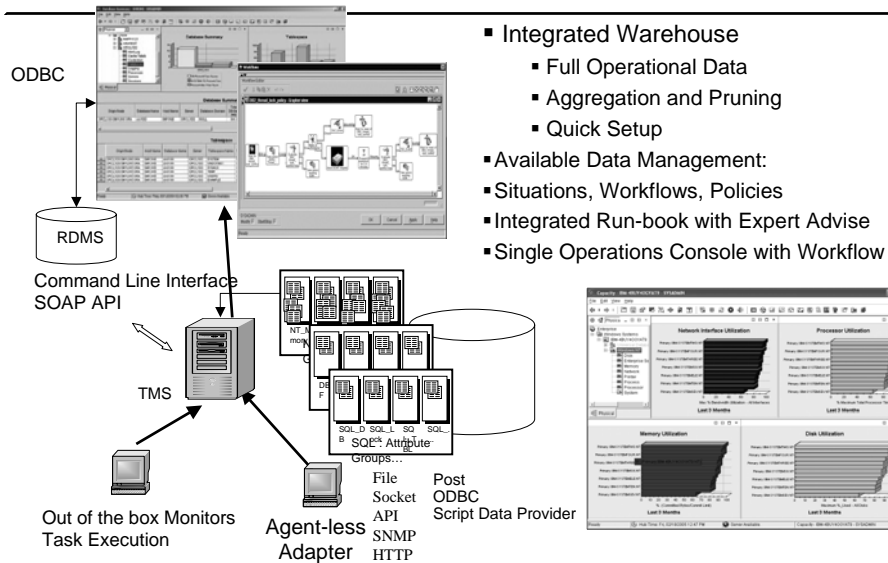


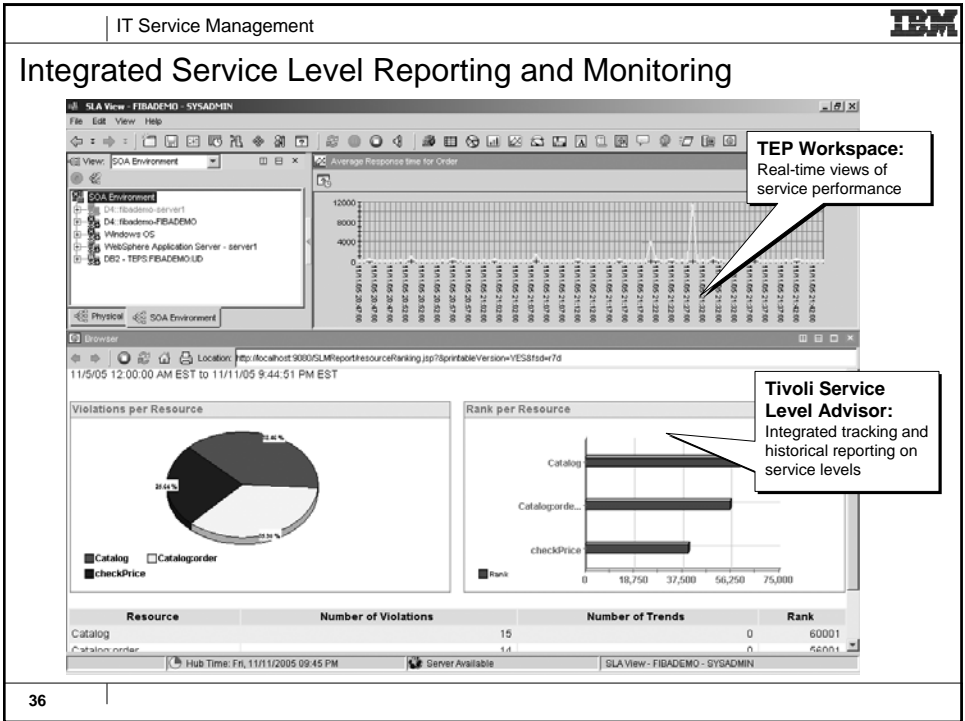
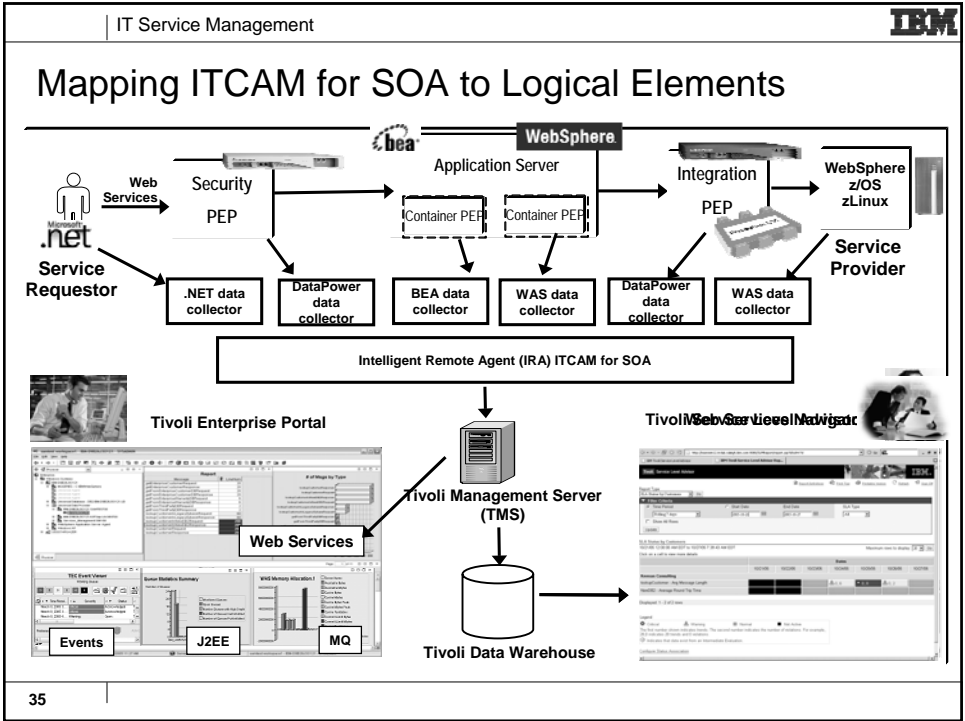
## ITCAM for SOA v6.1

- **Service problem identification and resolution**
  - Service views and cross-workspace linkages enable drill-down from services to application components and IT resources to identify the source of bottleneck or failure
- **Service Management Automation**
  - Built-in and extensible alerts, situations, workflows and managed mediation primitives for WebSphere ESB enable powerful automation scenarios
- **Heterogeneous SOA Platform Support**
  - SOA Platform support covers IBM WebSphere Application Server, WebSphere ESB, WebSphere Process Server, WebSphere Community Edition, WebSphere DataPower SOA Appliances, Microsoft .NET, JBOSS, CICS and BEA WebLogic
- **Integrated Console**
  - Service views, graphical topology, alerts and automation included within Tivoli Enterprise Portal, the integration point for the Tivoli Automation portfolio including ITCAM, OMEGAMON, ITM and TBSM
- **Life-cycle Management**
  - Web Services Navigator provides deep understanding of service flows and relationships
  - WebSphere Service Registry and Repository integration supports SOA Governance

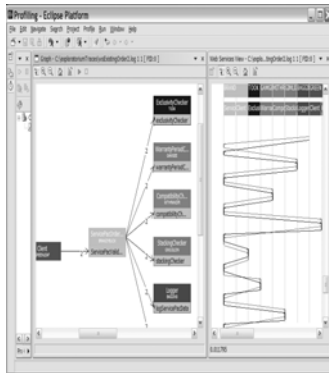


## TEP – More than Visualization Across the Ops World

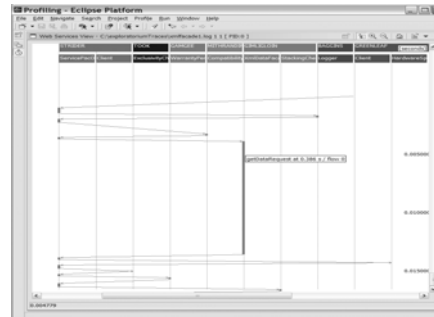




## Using the Web Services Navigator for: Debugging

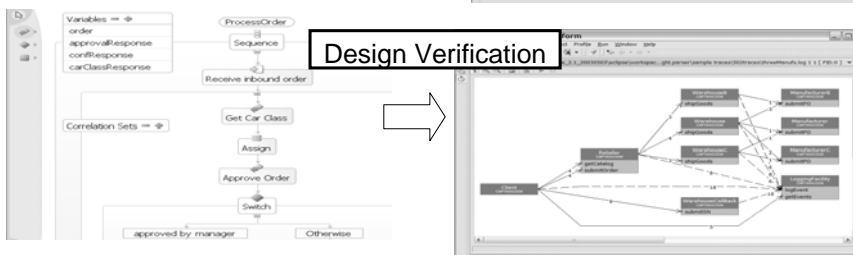
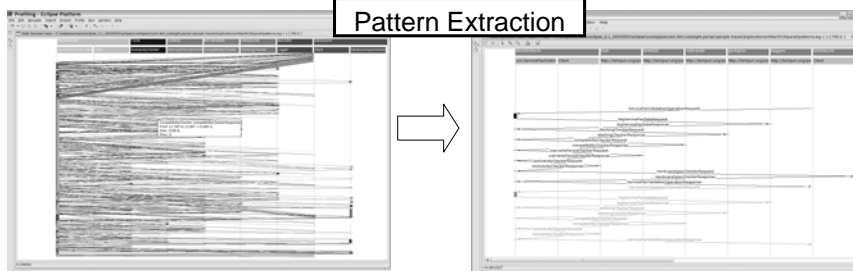


**Problems in Application:**  
Client node sends two identical messages for every transaction.



- Find Bottlenecks:
- Find slow business logic
- Find slow network

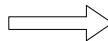
## Using the Web Services Navigator for: Understanding



## ITCAM for SOA 6.1

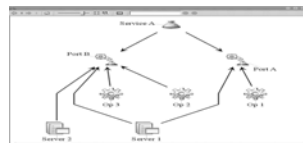
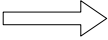
### Support for ITSM

- Discovery Library Adapters add discovered Service information to CMDB
- Additional DLAs provided for BPEL and WSRR



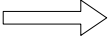
### Integration with the new WebSphere Service Registry and Repository

- Reconciliation of services registered in WSRR with those monitored in target systems by ITCAM for SOA
- New TEP Topology views show relationships between service operations and BPEL business processes for impact analysis
- Forwards status information to WSRR to allow selection of services based on performance and other metrics



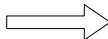
### Integration with WebSphere Enterprise Service Bus SCA runtime

- Provides SCA-based mediation primitives for enhancing management functions (monitoring, logging, routing and transformation)
- Enable/disable at runtime without re-configuration or re-deployment

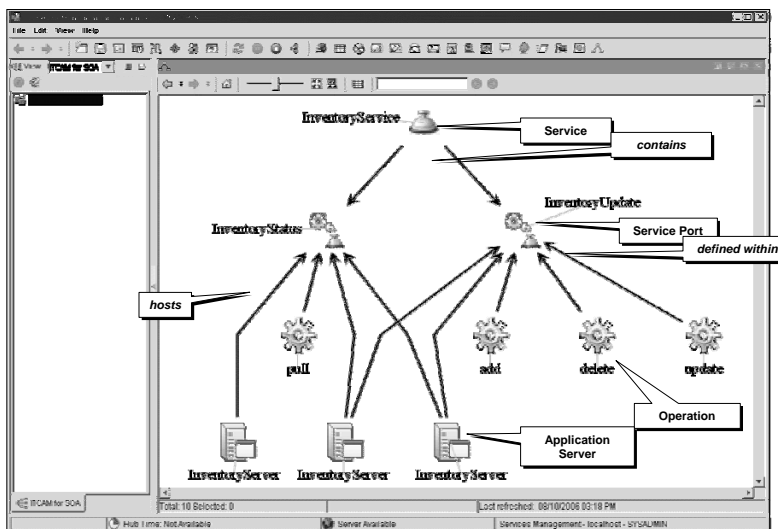


### New Platform support

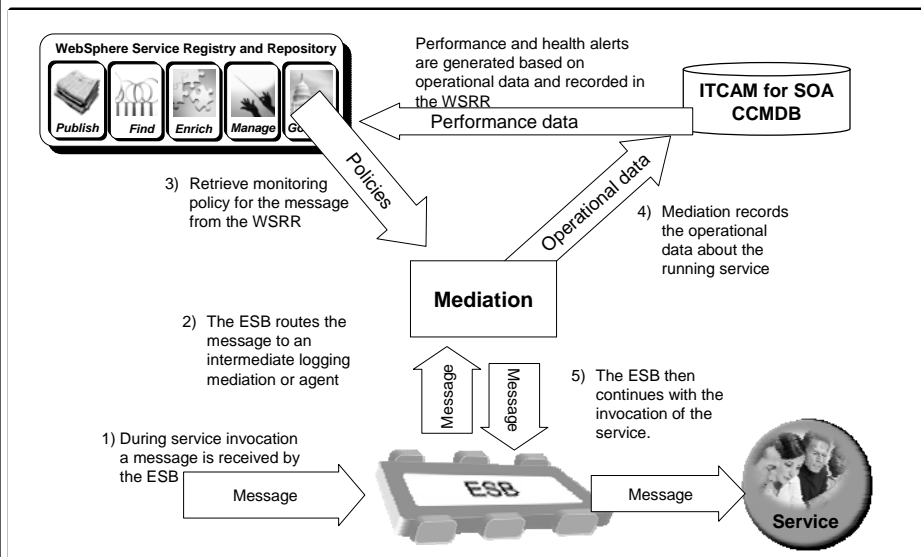
- CICS TS 3.1, DataPower SOA Appliances, WebSphere ESB, WebSphere CE, JBOSS Application Server, SAP NetWeaver
- Launch in context to DataPower console plus appliance SNMP metrics



## Service Details topology view

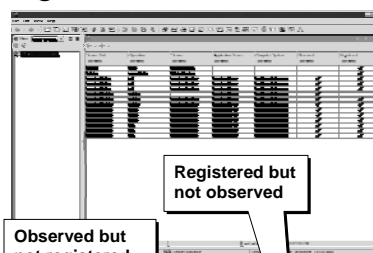


## How it works: Operational Monitoring Interactions



## Compare observed with WSRR-registered services

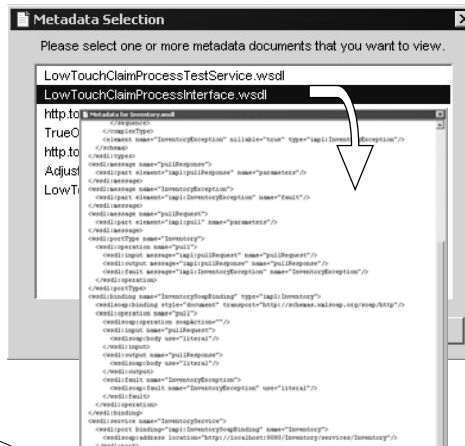
- CAM for SOA compares services it observes with those registered in WSRR
- Services observed but not registered
  - Why? Services not registered might be implemented again!
- Services registered but not observed
  - Why not? Common services not being utilized might imply poor decision making
- Services registered and observed
  - Good – helps understand common services



Service Port <no filter>	Operation <no filter>	Service <no filter>	Application Server <no filter>	Computer System <no filter>	Observed <no filter>	Registered <no filter>
Catalog	order	CatalogService				
Catalog	cancelOrder	CatalogService				
InventoryStatus	pull	InventoryService	InventoryServer	host1.austin.ibm.com	✓	✓
InventoryStatus	pull	InventoryService	InventoryServer	host2.austin.ibm.com	✓	✓
InventoryStatus	pull	InventoryService	InventoryServer	host3.austin.ibm.com	✓	✓
InventoryUpdate	update	InventoryService	InventoryServer	host1.austin.ibm.com	✓	✓
InventoryUpdate	update	InventoryService	InventoryServer	host2.austin.ibm.com	✓	✓
InventoryUpdate	update	InventoryService	InventoryServer	host3.austin.ibm.com	✓	✓
InventoryUpdate	delete	InventoryService	InventoryServer	host1.austin.ibm.com	✓	✓
InventoryUpdate	delete	InventoryService	InventoryServer	host2.austin.ibm.com	✓	✓
InventoryUpdate	delete	InventoryService	InventoryServer	host3.austin.ibm.com	✓	✓
InventoryUpdate	add	InventoryService	InventoryServer	host1.austin.ibm.com	✓	✓
InventoryUpdate	add	InventoryService	InventoryServer	host2.austin.ibm.com	✓	✓
InventoryUpdate	add	InventoryService	InventoryServer	host3.austin.ibm.com	✓	✓

## View service meta-data in WSRR

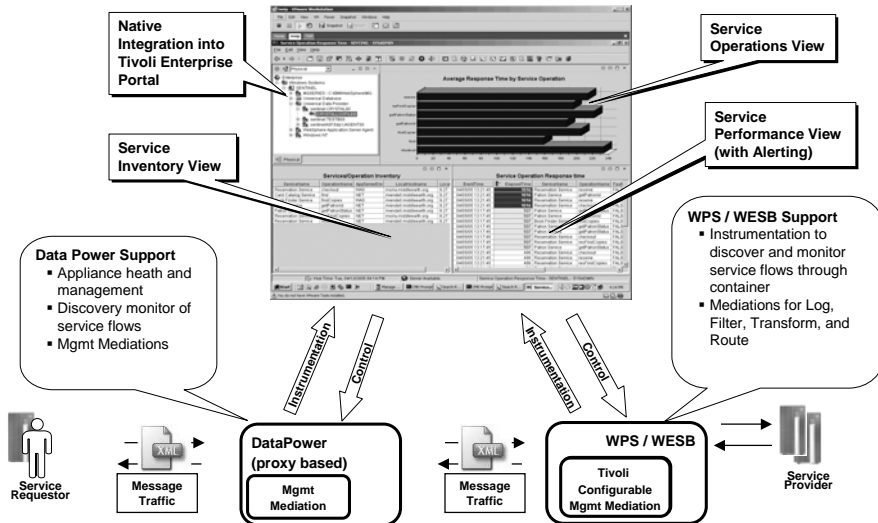
- CAM for SOA enables operators and SMEs to view WSRR service meta-data from TEP
  - No need to change UIs
  - Adjust LowT...
- Faster problem diagnosis
  - Access to deployment meta-data



The host name in the wsdl does not match where the service is actually deployed

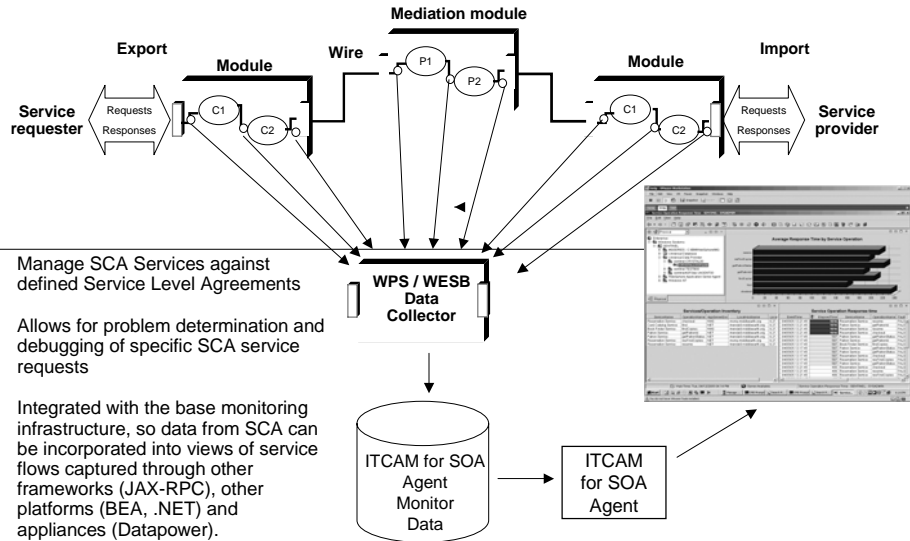
```
<wsdl:service name="InventoryService">
  <wsdl:port binding="impl:InventorySoapBinding" name="Inventory">
    <wsdl:soap:address location="http://localhost:9080/Inventory/services/Inventory"/>
  </wsdl:port>
</wsdl:service>
```

## Leverage AIM infrastructure for Service Management



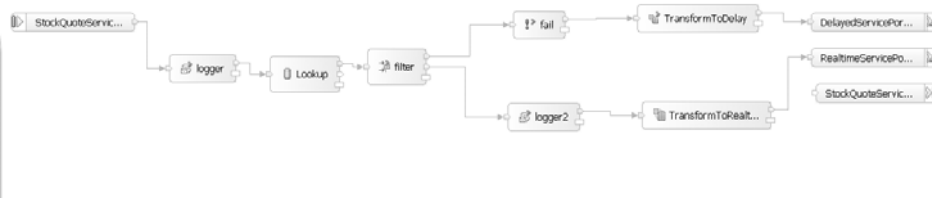
## ITCAM for SOA support for WPS

WPS / WESB Runtime



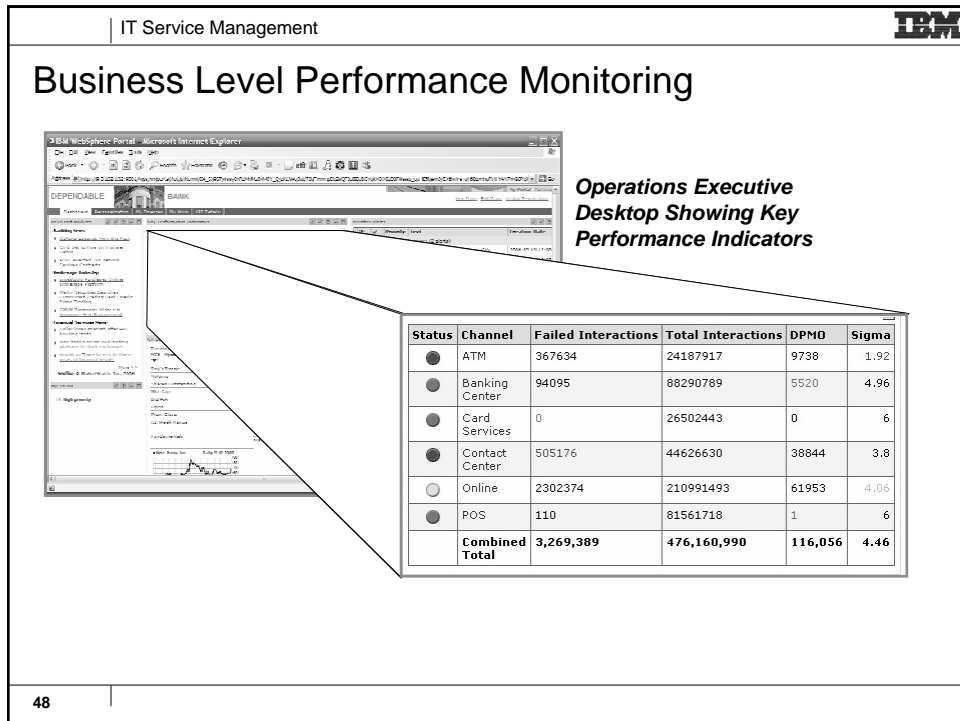
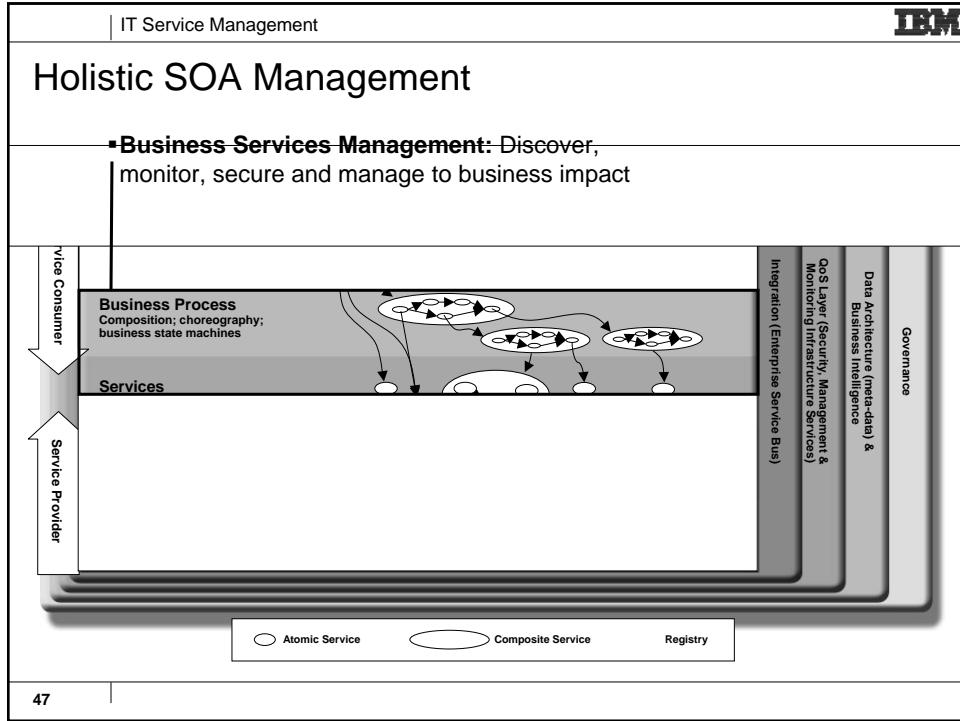
- Manage SCA Services against defined Service Level Agreements
- Allows for problem determination and debugging of specific SCA service requests
- Integrated with the base monitoring infrastructure, so data from SCA can be incorporated into views of service flows captured through other frameworks (JAX-RPC), other platforms (BEA, .NET) and appliances (Datapower).

## Mediation Flow to Add Management Functions



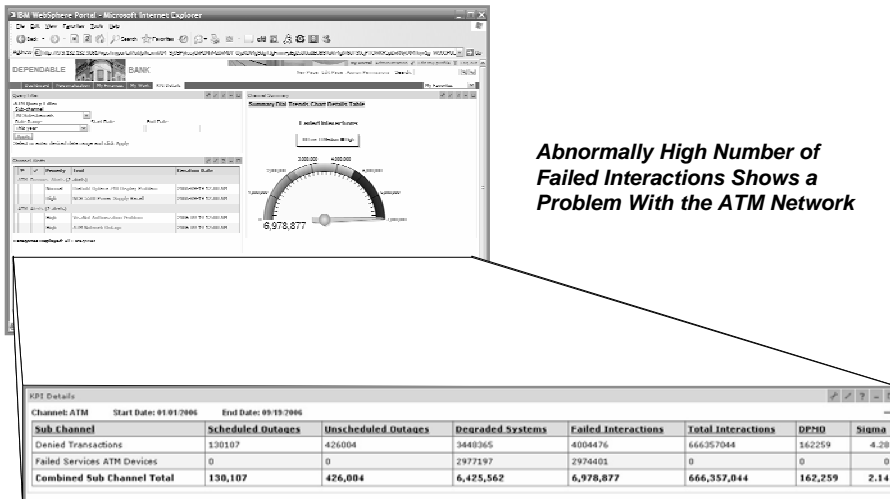
An example:

- A logger primitive to log all the traffic to the web services
- A filter primitive to route requests based on service level (standard, premium)
- A fail primitive to refuse all "standard" users
- A logger primitive to log all request from "premium" uses





## Providing Actionable Information

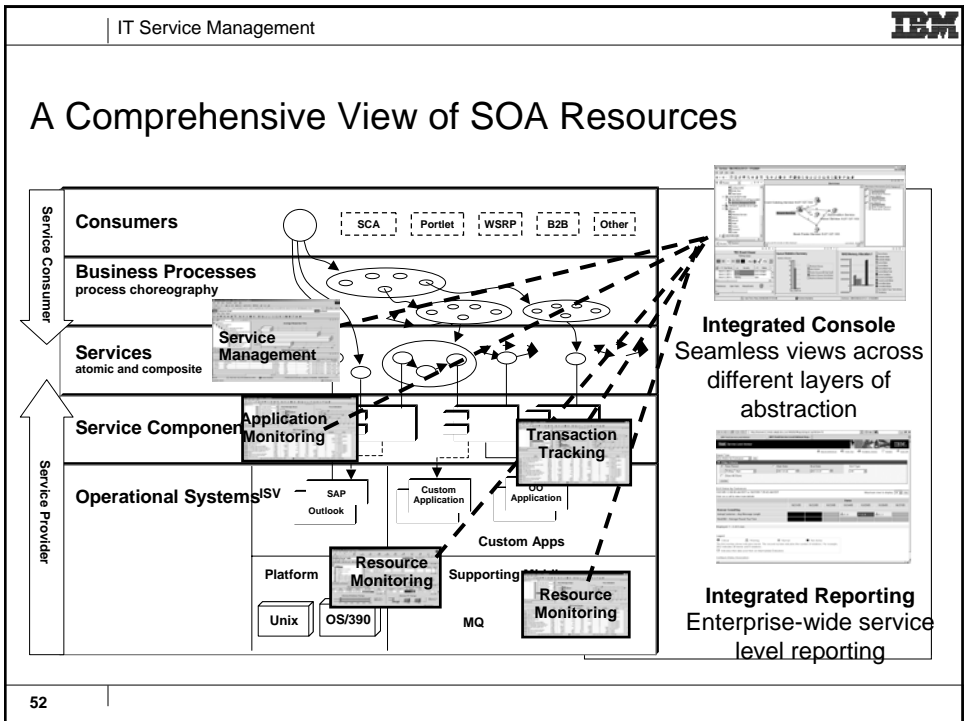
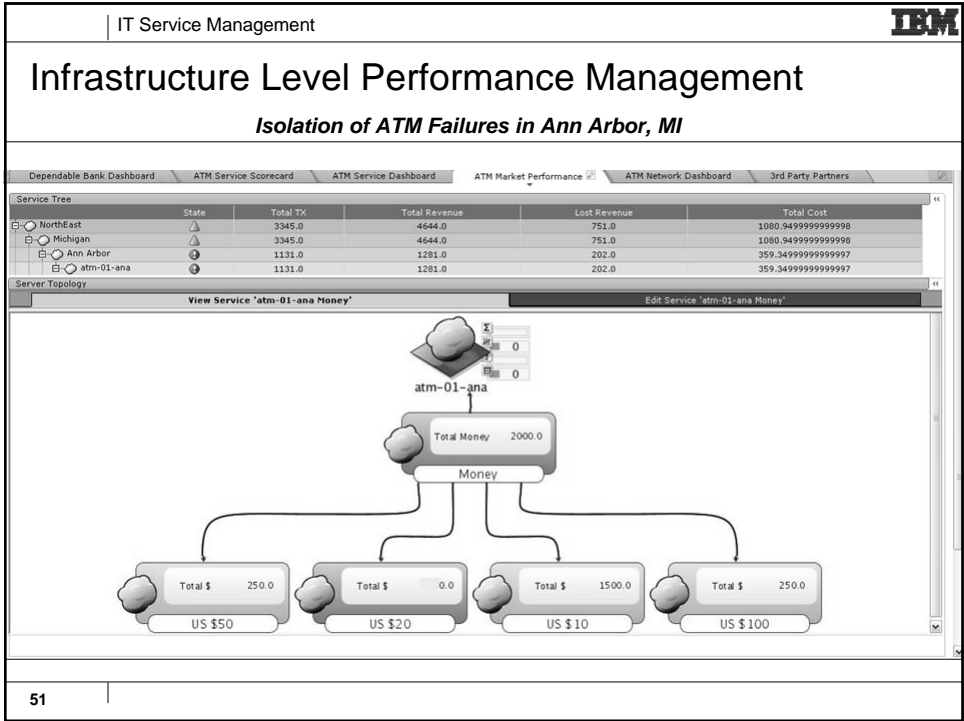


## Infrastructure Level Performance Management

The Dashboard Supports Drill Down Capability to Show ATM Failures in Ann Arbor, MI

Dependable Bank Dashboard | ATM Service Scorecard | ATM Service Dashboard | ATM Market Performance | ATM Network Dashboard | 3rd Party Partners

Service Tree	State	Total TX	Total Revenue	Lost Revenue	Total Cost
NorthEast	▲	3345.0	4644.0	751.0	1080.5499999999998
Michigan	▲	3345.0	4644.0	751.0	1080.5499999999998
Ann Arbor	●	1131.0	1281.0	202.0	359.34999999999997
atm-01-ana	●	1131.0	1281.0	202.0	359.34999999999997
Transactions	●	1131.0	1281.0	202.0	359.34999999999997
AMEX BAL	●	23.0	46.0	10.0	0.04999999999999999
AMEX WD	●	82.0	205.0	25.0	28.7
Depend. BAL	●	156.0	0.0	0.0	54.599999999999994
Depend. Dep.	●	25.0	0.0	0.0	8.75
Depend. WD	●	421.0	0.0	0.0	147.35
Interlink BAL	●	45.0	90.0	28.0	11.25
Interlink WD	●	320.0	800.0	120.0	80.0
Visa BAL	●	15.0	30.0	4.0	5.25
Visa WD	●	44.0	110.0	15.0	15.399999999999999
Money					
Consumables					
Network					
Security					
Server					
Detroit	●	2214.0	3363.0	549.0	721.5999999999999
atm-01-det-mi	●	2214.0	3363.0	549.0	721.5999999999999
New York	●	0.0	0.0	0.0	0.0
Manhattan	●	0.0	0.0	0.0	0.0
SouthEast	●	1038.0	723.0	50.0	138.9
Georgia	●	1038.0	723.0	50.0	138.9
Atlanta	●	1038.0	723.0	50.0	138.9
atm-01-atl-ga	▲	1038.0	723.0	50.0	138.9



## Summary

- SOA is a comprehensive approach linking Business and Operations realities with reusable components
- SOA requires a consolidated approach to Service Life cycle and a comprehensive view of overall Operations
- Netcool plus IBM together provide an integrated view along both dimensions of integration:
  - From Business Service Perspective to Operational Resources
  - From Service Development through Deployment and Operations

# Questions?