



**Tivoli** Software

# IBM Service Oriented Architecture and Tivoli Solutions

October 31<sup>st</sup>, 2005

*SOA on your terms and our expertise*

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# Agenda

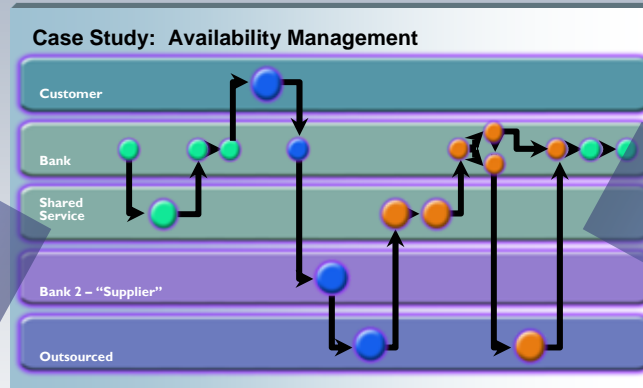
- IT Service Management and SOA Foundation
- Management Challenges in SOA
- Tivoli's SOA Solutions
- SOA References

# Business Demands Flexible IT

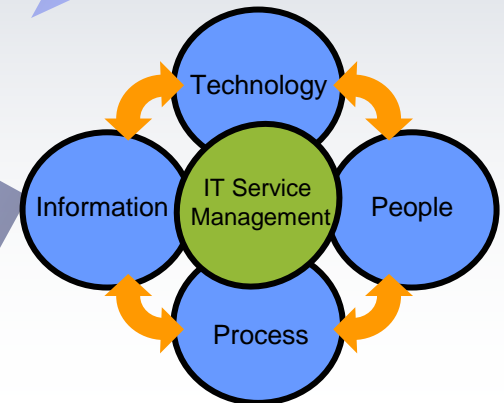
*Full Business view*



*IT process to optimize*

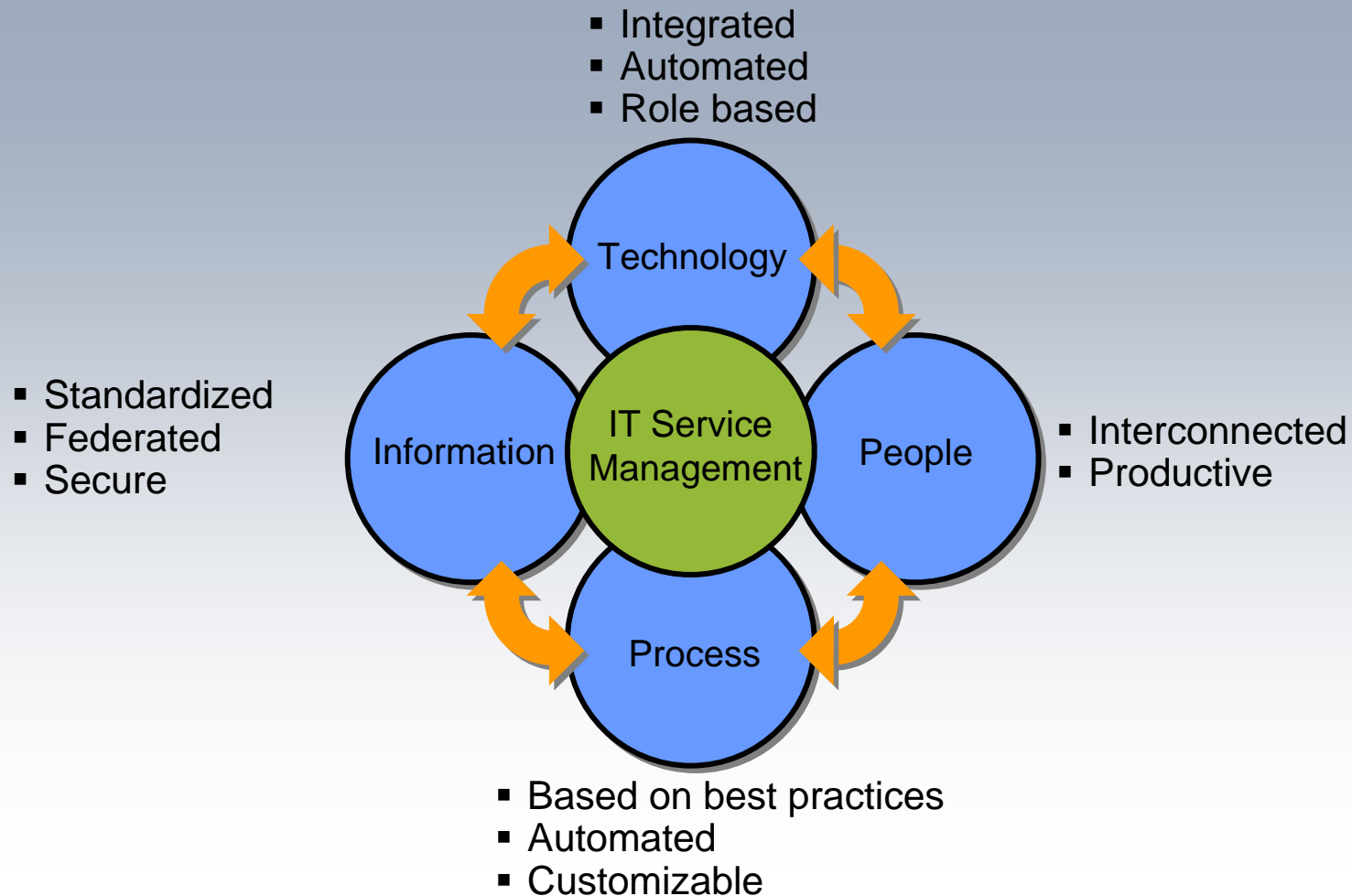


*Creating IT flexibility*



*Manage IT as a Business!*

# ITSM Provides an ITIL-Based Approach to Effectively Deliver Services to the Business



# Interconnecting People, Processes and Technology



“I need a service, does it exist?”

How can I be sure that the service flow matches the design?



“How can I debug my production application without reproducing the problem?”

What are the Service Levels that apply to this Service?

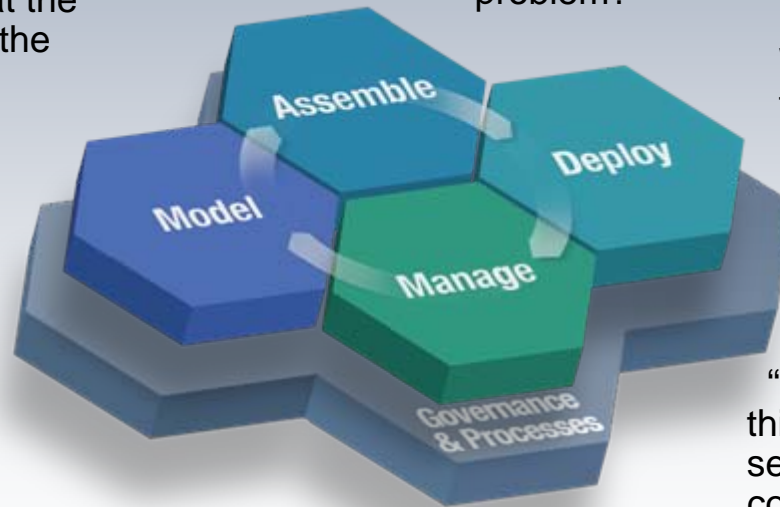


“Some of our services are used by our customers. How can I be sure we are meeting our SLAs?”



“How do I ensure my services are secured appropriately?”

“What’s the root cause of this service problem – the service flow or the application components?”



# Interconnecting People, Processes and Technology

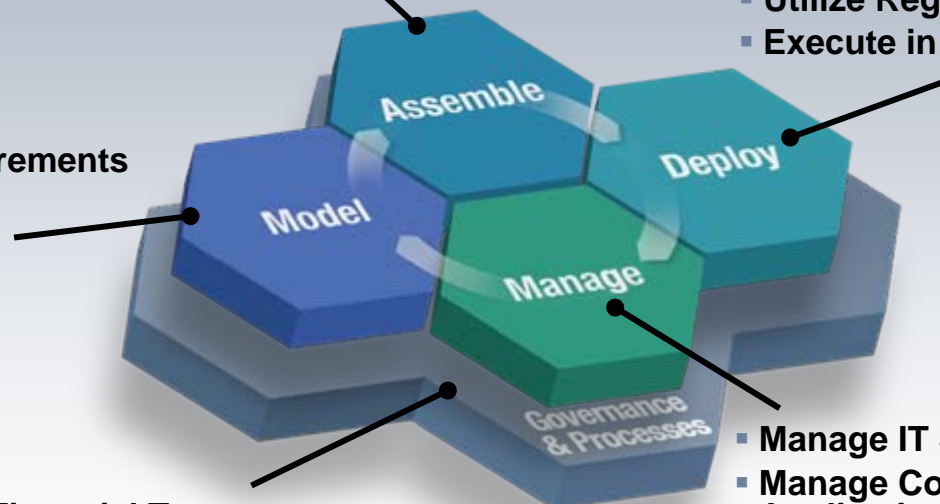


- Discover
- Construct
- Compose
- Test
- Control Assets



- Integrate People
- Integrate Processes
- Manage Information
- Utilize Registry & Metadata
- Execute in a Secure Environment

- Gather Requirements
- Model
- Simulate
- Optimize
- Design



- Manage IT Services
- Manage Composite Applications
- Manage Identity and Compliance
- Manage Storage
- Monitor Business Metrics



- Financial Transparency
- Business/IT Alignment
- Project Execution
- Process Control

# Introducing IBM SOA Foundation

*IBM SOA Foundation: Standards-based Platform for Integrating People, Processes and Technology*

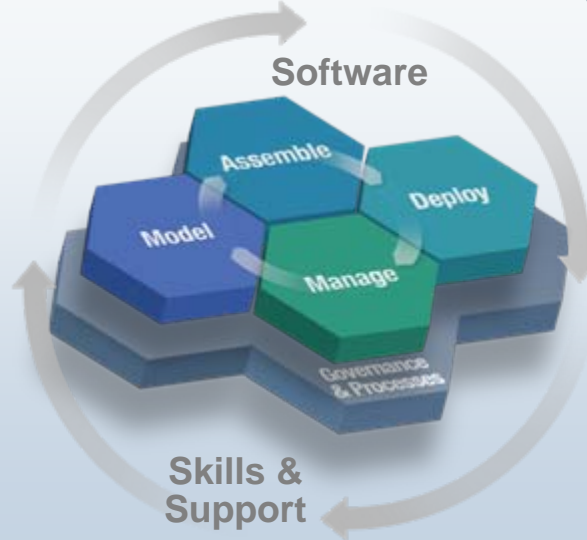
Supports complete lifecycle with a **modular** approach

**Extends value** of your existing investments, regardless of vendor

**Scalable**; start small and grow as fast as the business requires

Extensive business and IT standards support; facilitating greater **interoperability & portability**

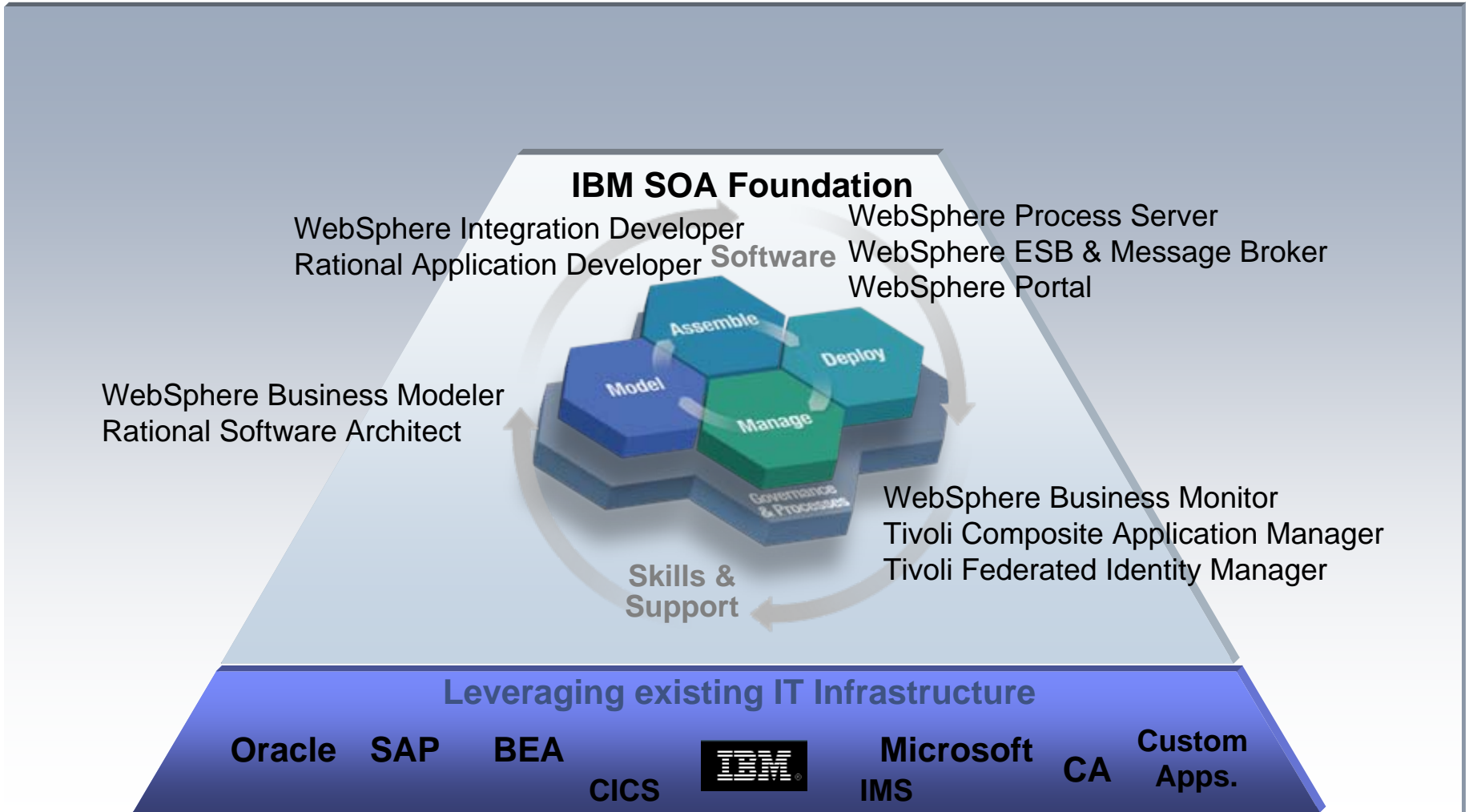
## IBM SOA Foundation



Leveraging existing IT Infrastructure

Oracle    SAP    BEA    CICS       Microsoft    CA    Custom Apps.  
IMS

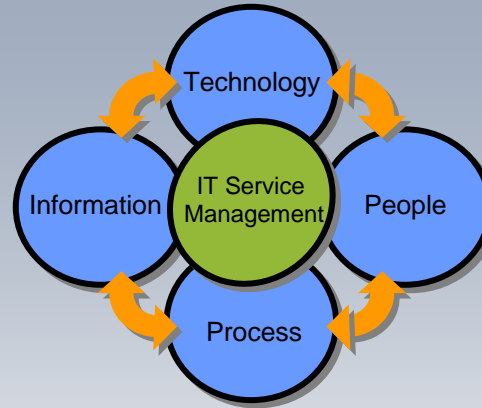
# Introducing IBM SOA Foundation





# Automating and Managing IT Processes with SOA Foundation

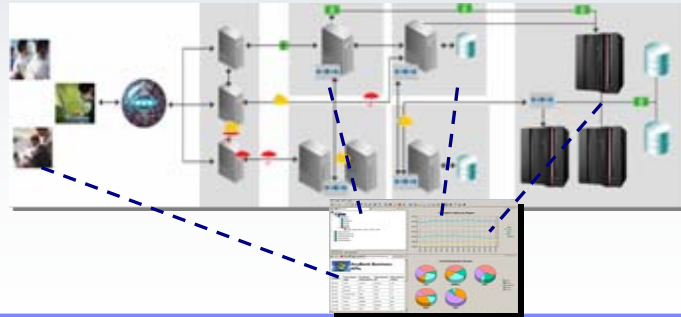
**Information  
Technology Services  
Management  
(ITSM)**



**Built On**



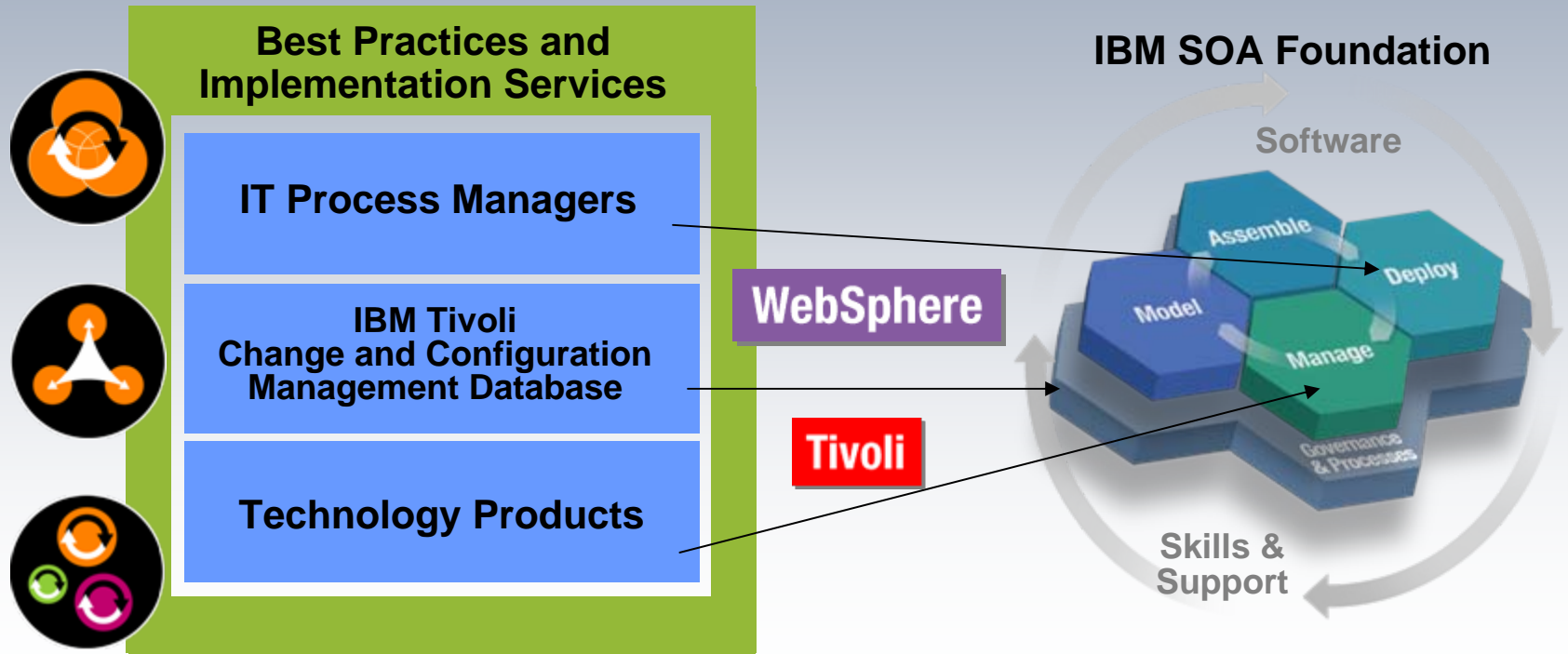
- IBM Tivoli Composite Application Management (ITCAM)
- IBM Tivoli Federated Identity Management (FIM)

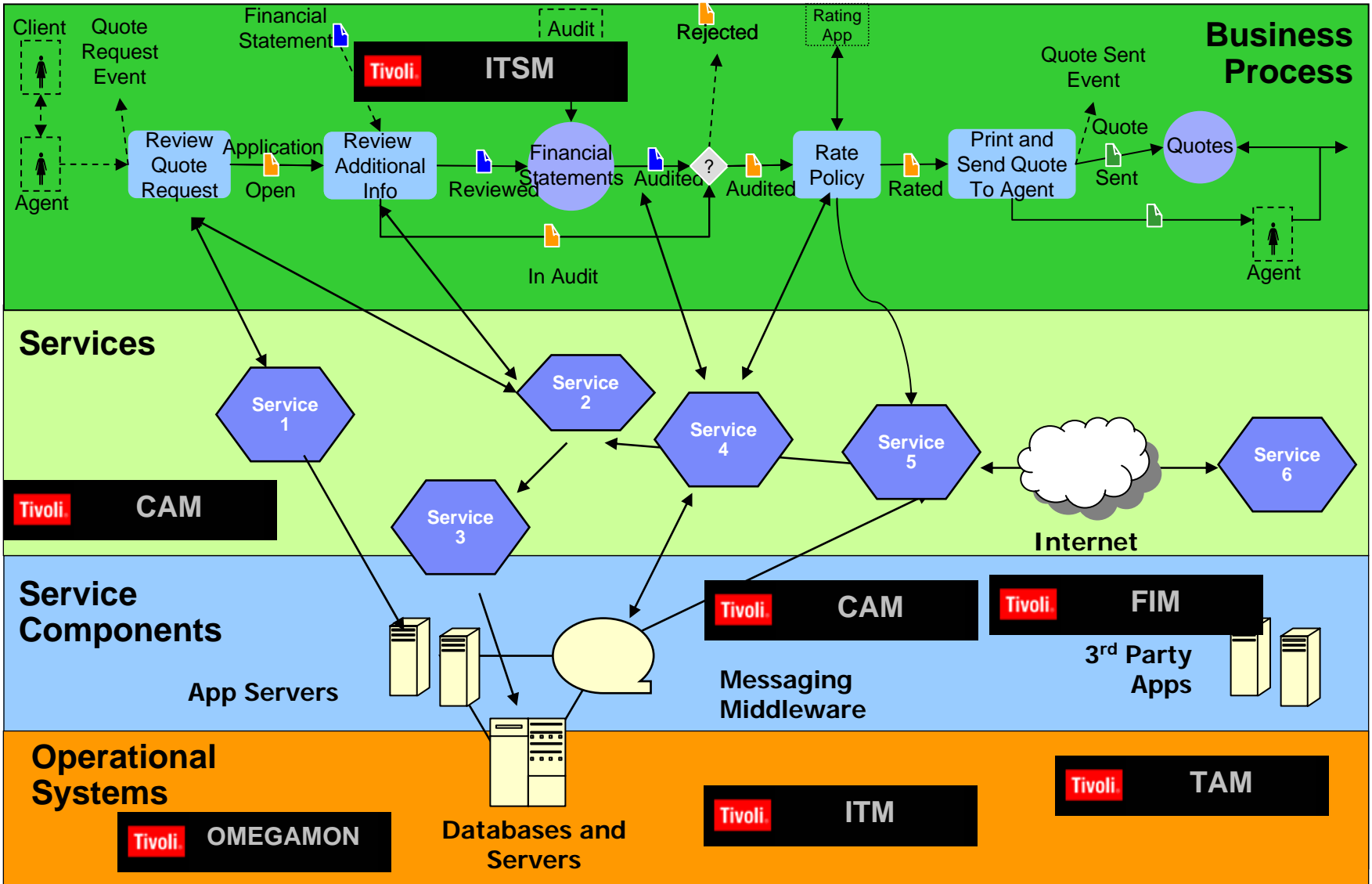


**Manage  
and  
Secure**



# ITSM Leverages SOA Foundation to Deliver Standards-based Process Integration





# SOA Foundation is more than just software



## Governance and Process

- SOA Center of Excellence
- Rational Unified Process (RUP)
- IBM Tivoli Unified Process (ITUP)
- Service Governance

Leading Practices

## Funding

- Maintain Top Leadership Commitment
- Establish an appropriate funding model
- Plan and budget for refactoring of services

## Processes

- Plan and adapt for reuse in an incremental fashion
- Model the business – Align IT
- Establish the SOA Vision & Roadmap, measure progress

## Organization

- Assess Maturity and impact of change
- Chose an overall governance approach – Central or Distributed
- Understand and staff roles for proper governance



## Best Practices

- Patterns (OPAL)
- IT Infrastructure Library (ITIL)
- Redbooks
- Engagement Experience



## Education

- Introduction to Value and Governance Model of SOA
- Web services for managers
- Technologies and Standards for SOA Project Implementation
- Design SOA Solutions and Apply Governance



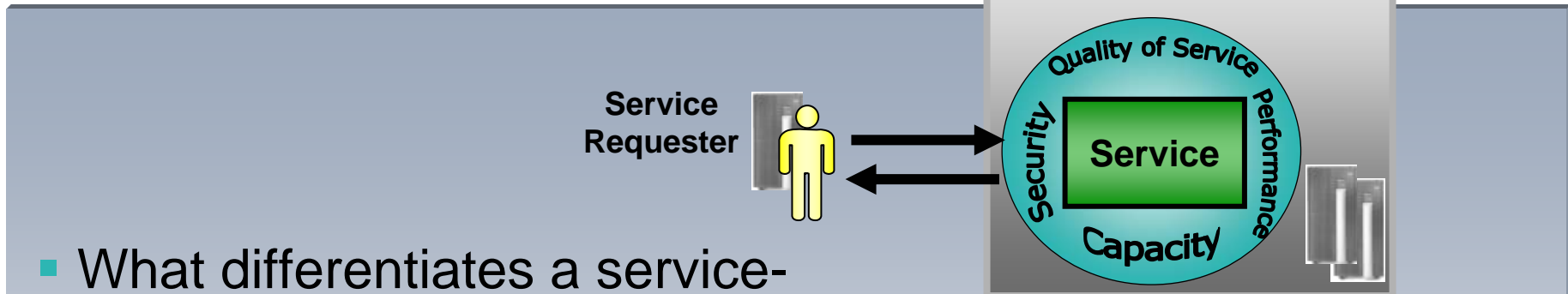
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# Management Challenges in SOA

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# Why Is SOA Different?



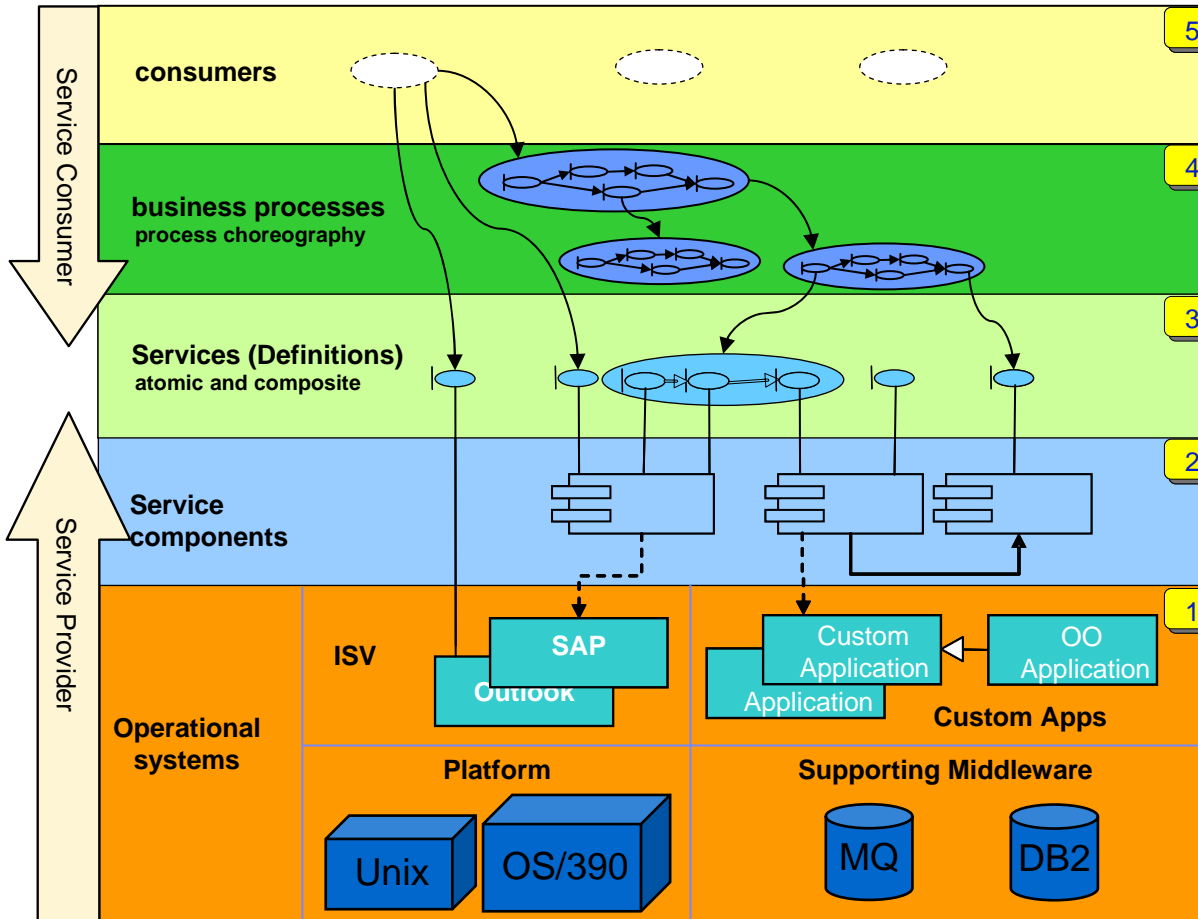
- What differentiates a service-oriented approach is the *service characteristics*.
- A service not only has a set of calls and responses, it has many other characteristics: its *performance*, *availability*, *capacity*, *quality of service* and *security*
- SOA is not only about exposing *how* you can call a service but also defining a set of characteristics for how these calls *will be serviced*

# The SOA Management Challenge:

## *Treat Services as Managed Resources*

- Recognize “service” as a higher-level of abstraction than typical system resources.
  - Demonstrate relationships services have to the business process AND to the underlying IT infrastructure
  
- Treat each Service endpoint (instance) as a manageable resource
  - It has a Service Level associated with it
  - It can be deployed and configured
  - It can be versioned and deprecated
  - It can be monitored and managed
  - It can be secured
  
- Need to manage the messages and their flow, as well as the IT infrastructure that is supporting the flow.
  - Create, deploy and manage mediations based on policy (Operations, Business, Compliance)

# Breaking Down SOA...



## Business Process Layer

- ❑ Cross Functional End-to-end Sales Order Process
- ❑ “How do you automate Sales Order process?”

## Service Layer

- ❑ SOAP, WSDL, XML, HTTP
- ❑ “How do you connect sales to customers?”

## Application Layer

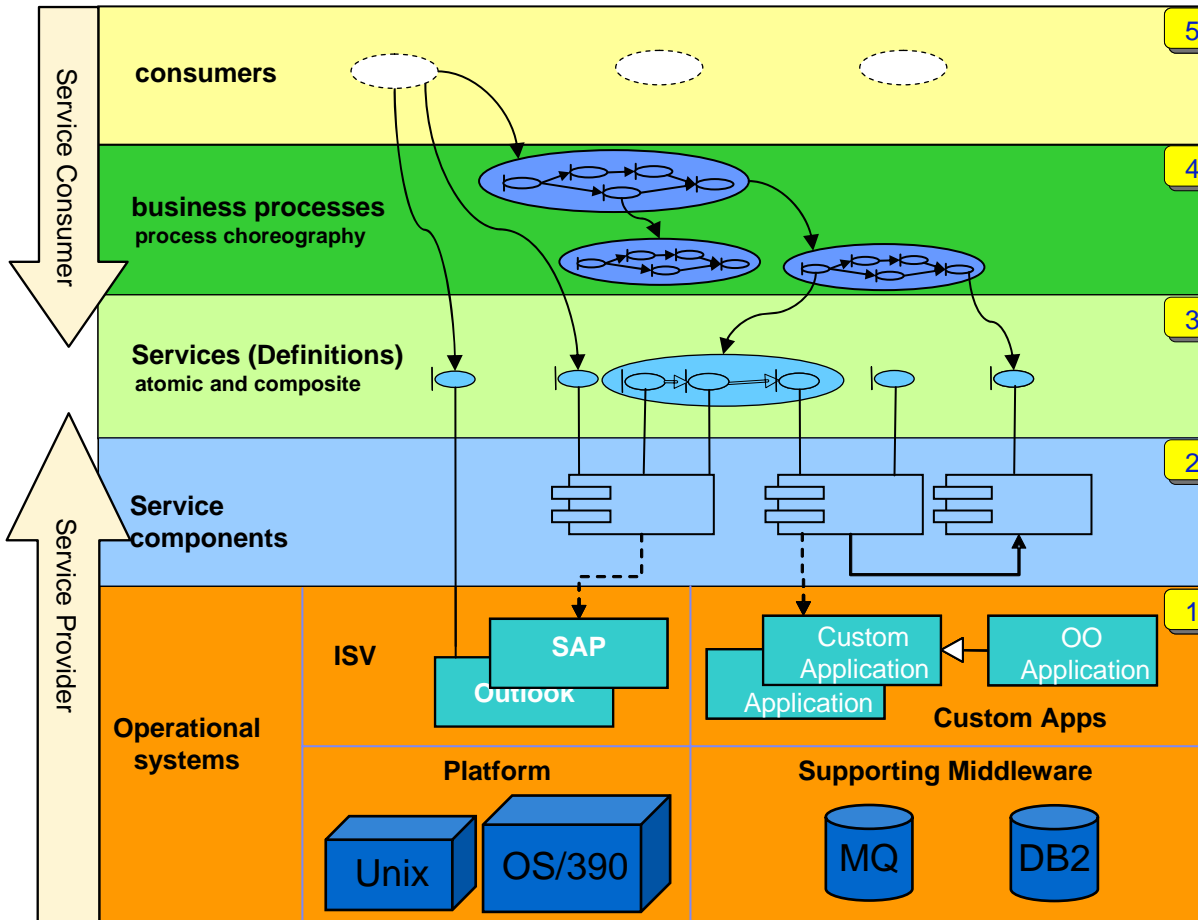
- ❑ Applications, Components, Software
- ❑ “How do you connect SAP to Oracle?”

## Technology Layer

- ❑ Hardware, Network
- ❑ “How do you connect J2EE to .NET?”



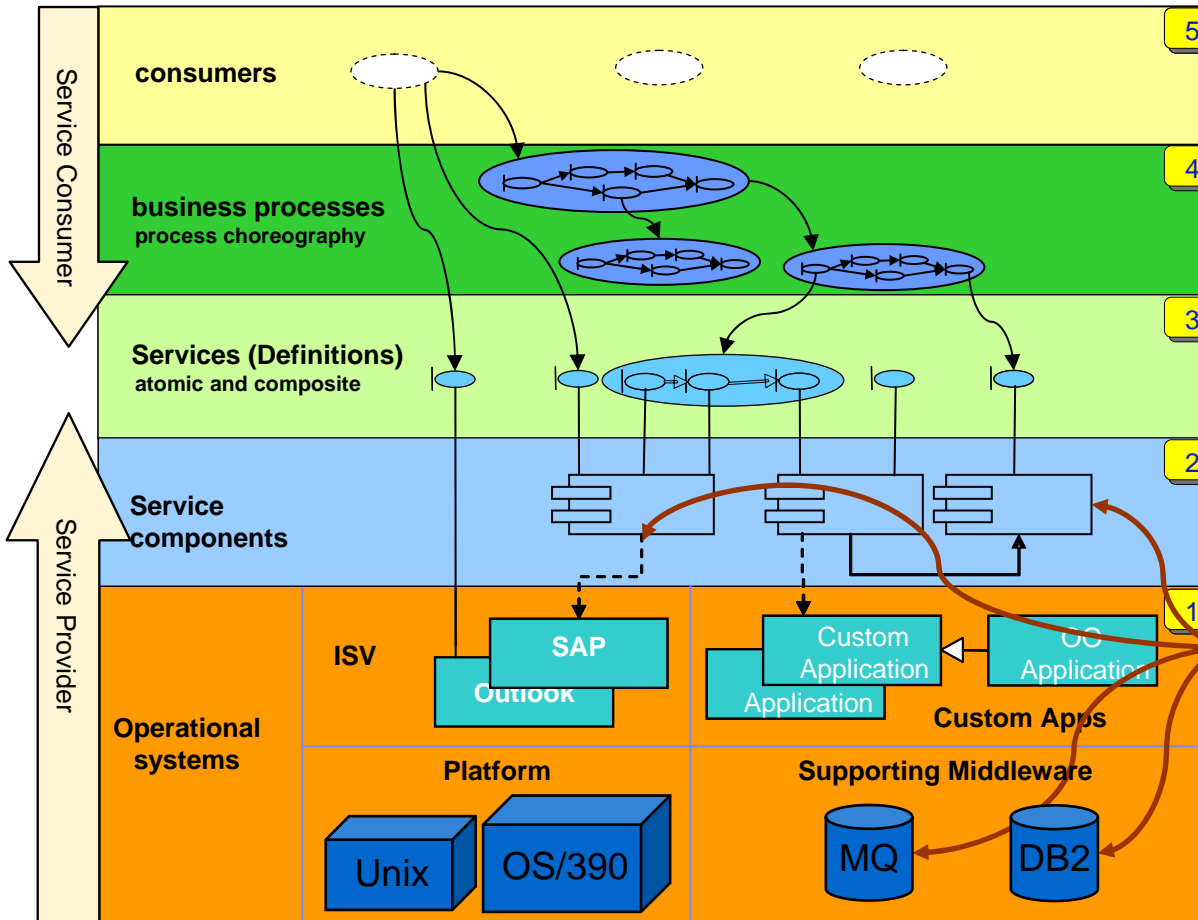
# Manage SOA Security



**Manage: SOA Security**

- Consistent authorization across the infrastructure components
- Map identities between various security sub-systems
- Compliance to security policy

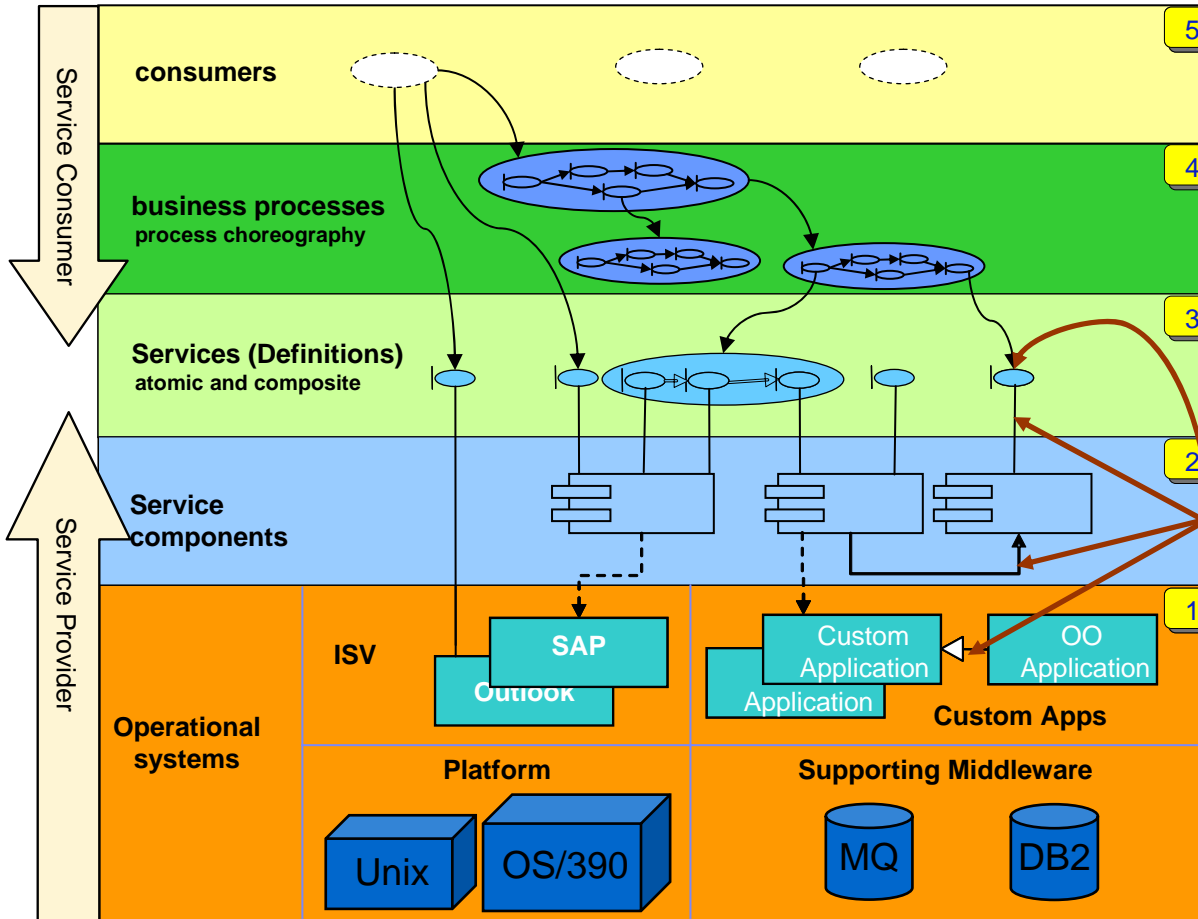
# Manage Operational Systems



## Manage: Operational Systems

- Understand the health of the infrastructure that support the services
- Correlate problems in the services to infrastructure issues such as a queue filling up or a an exhausted thread pool

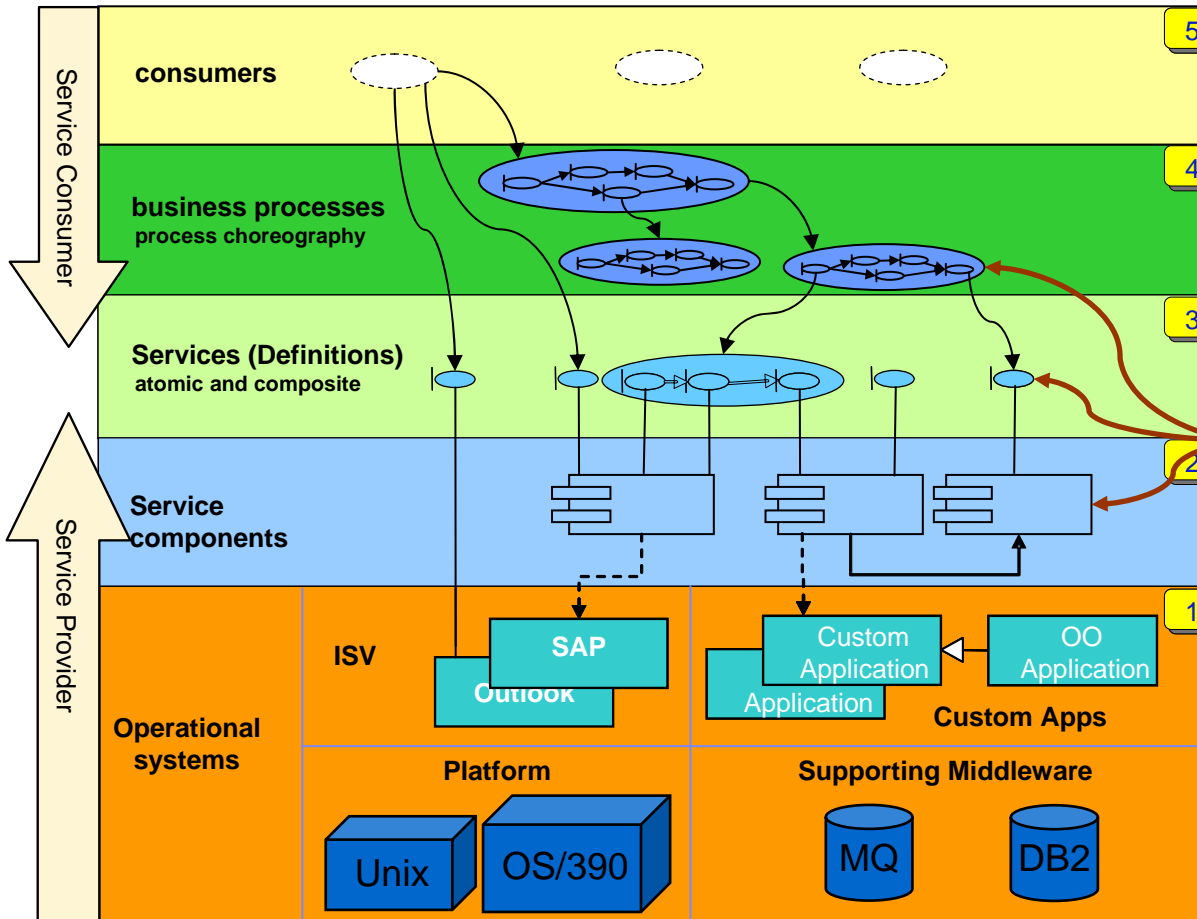
# Manage Transactions



## Manage: Transaction Performance

- Understand the performance of a service and the decomposition of transactions into times for individual requests
- Provide the relationship between service requests and the implementation artifacts such as J2EE beans and JDBC requests

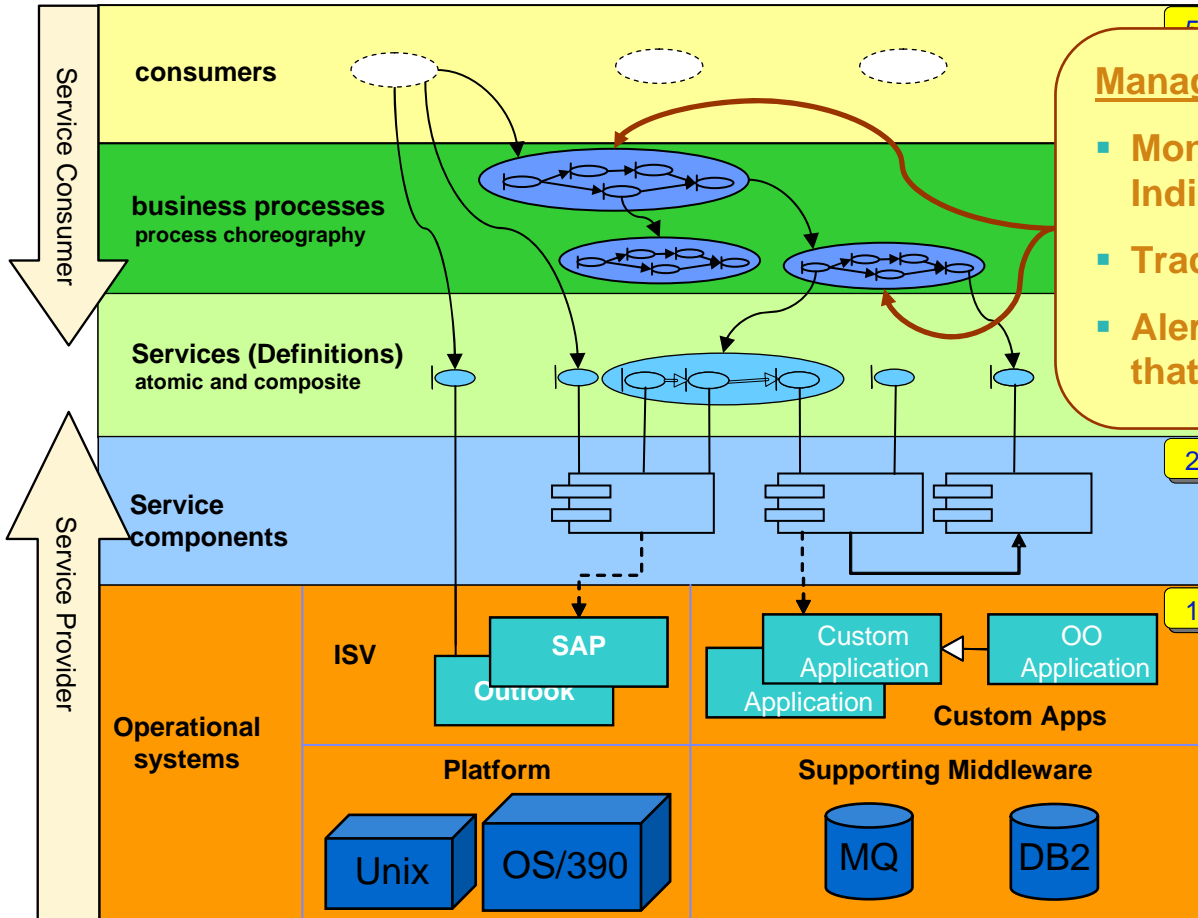
# Manage the Service Layer



## Manage Services

- Understand how services relate to each other and to the IT infrastructure and business process layers
- Control the message flow in the service environment through management mediations like log, filter, and route
- Centralize services management policy
- Apply consistent policy to services brokers and service endpoints
- Set business-related IT goals

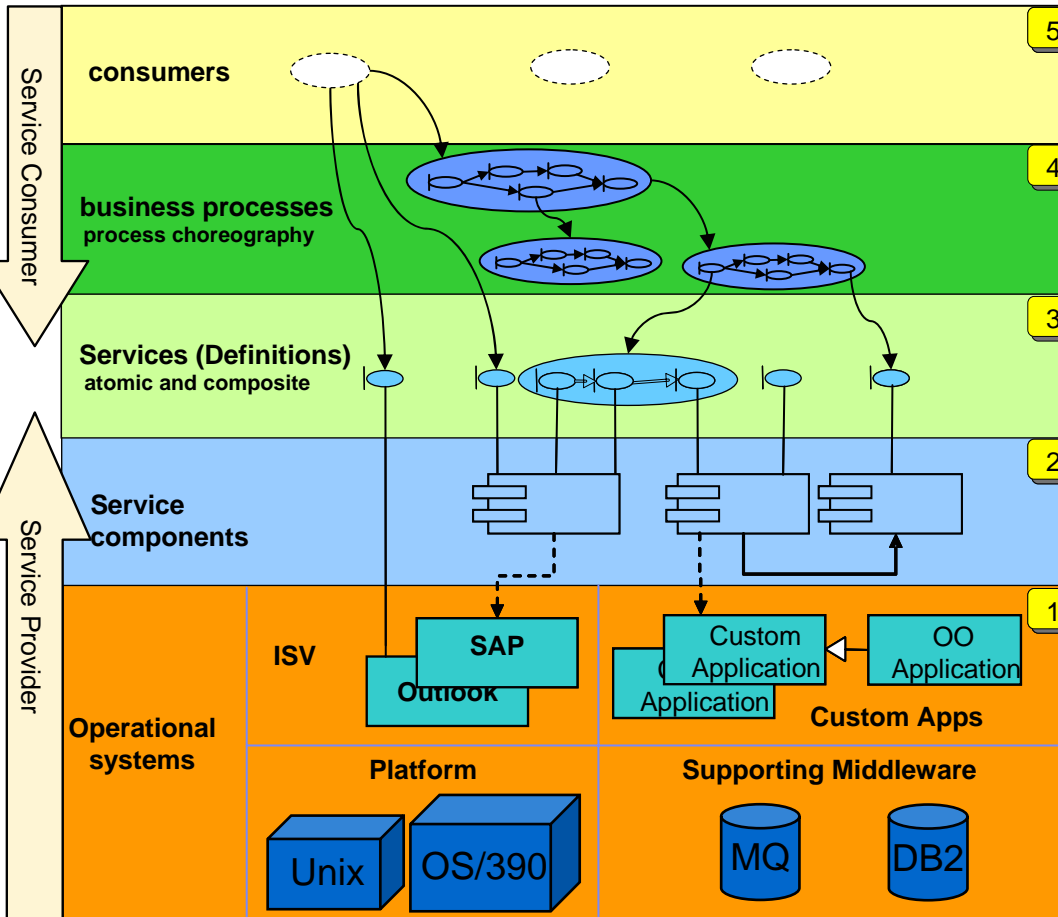
# Manage the Business Process



## Manage: Business Process

- Monitor business Key Performance Indicators (KPIs) against targets
- Track process flow
- Alerts for important external events that require action

# Tivoli Puts the Service into SOA



## Manage Business Process

- ❑ WebSphere Business Monitor

## Manage Service Layer

- ❑ Tivoli CAM for SOA

## Manage SOA Security

- ❑ Tivoli Federated Identity Manager
- ❑ Tivoli Access Manager

## Manage Application Performance

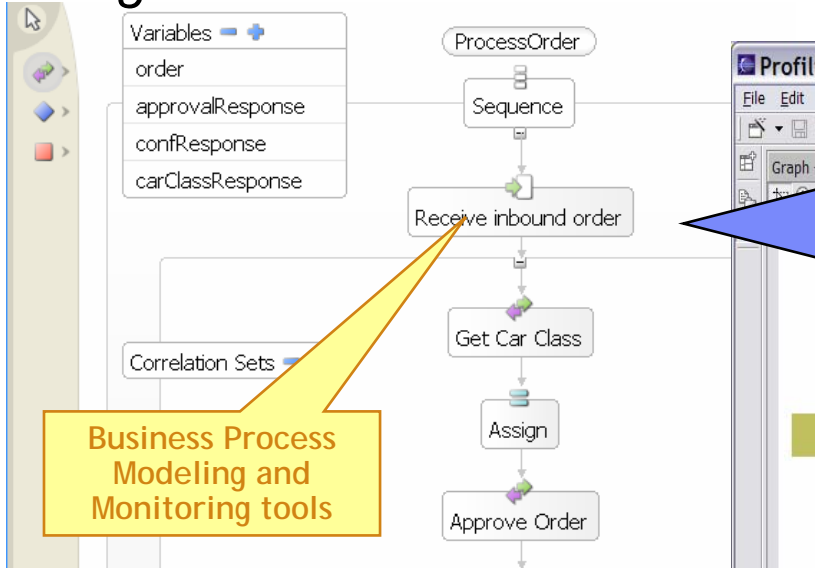
- ❑ Tivoli CAM for WebSphere
- ❑ Tivoli CAM for Response Time Tracking

## Manage Operational Systems

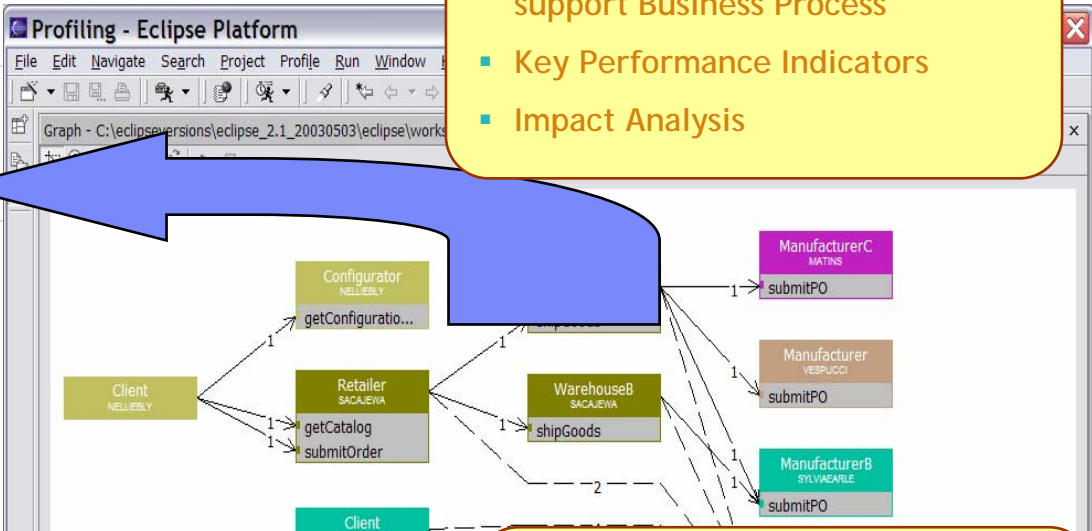
- ❑ OMEGAMON Product Family
- ❑ Tivoli Monitoring

# Manage: Service Relationships

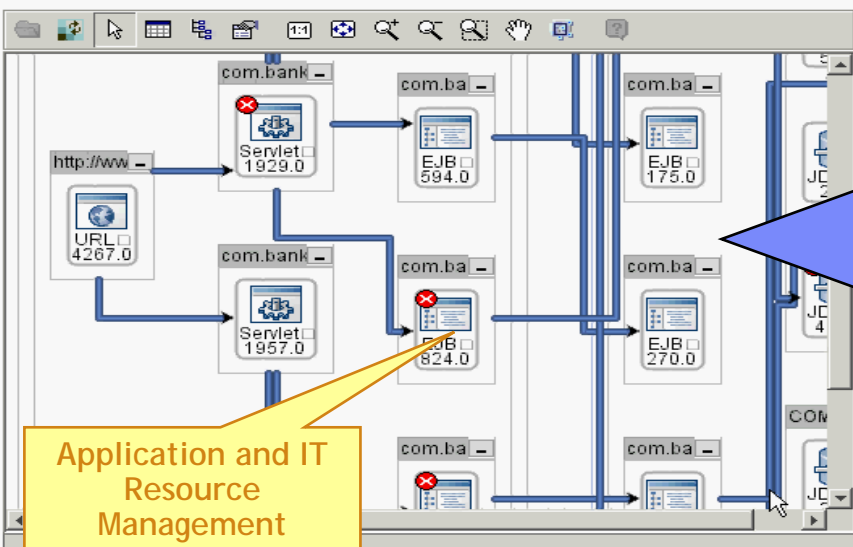
## Linking Business Process and IT Views



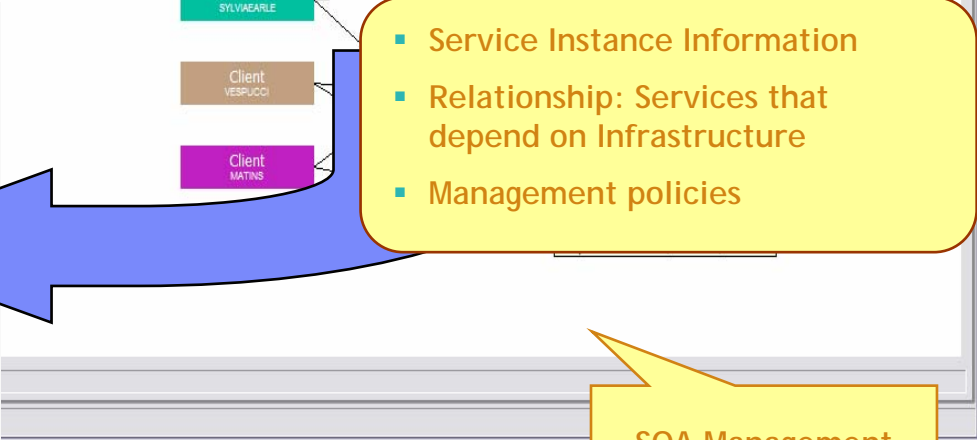
**Business Process Modeling and Monitoring tools**



- Relationship: Services that support Business Process
- Key Performance Indicators
- Impact Analysis



**Application and IT Resource Management**



- Service Instance Information
- Relationship: Services that depend on Infrastructure
- Management policies

**SOA Management Tools**



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# Tivoli SOA Solutions

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# Manage – Performance and Availability

Monitoring service & application performance across your SOA

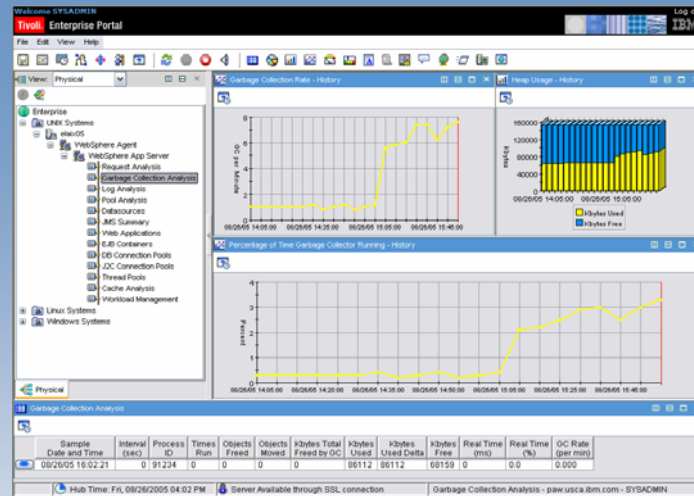


## Enhanced! IBM Tivoli Composite Application Manager for WebSphere

- Reduced support cost in determining the cause of SOA application downtime / slow down
- Ensure SOA Application performance and availability by automating IT for your business processes

## New! IBM Tivoli Composite Application Manager for SOA

- Service problem identification and resolution enables identification of Web service bottlenecks and failures
- Service management provides built-in and extensible alerts, mediations, situations and workflows.
- Service flow diagnostics allows deep understanding of service flows and relationships



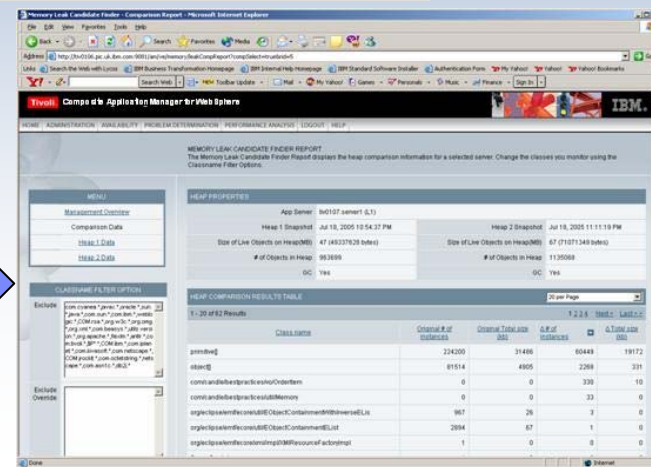
IT Operations

## IBM Tivoli Business Systems Manager

- Prioritize IT operation activities according to business value
- Communicate business service status in real-time
- Enable impact assessment of planned changes



Application Subject Matter Expert



# Manage – Security and Compliance

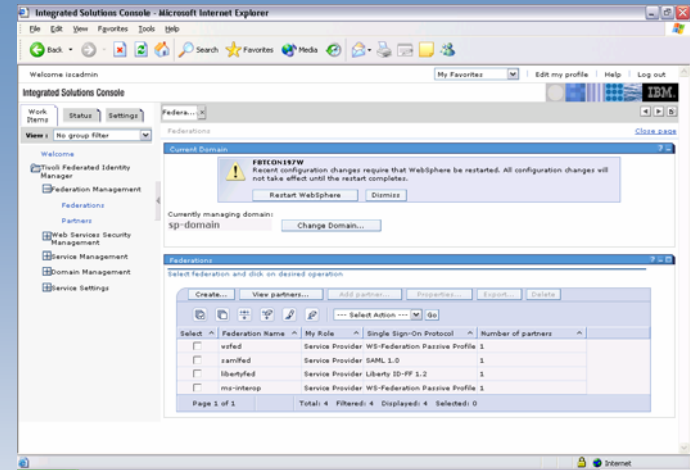
*Secures your Web Services*



## Tivoli Federated Identity Manager

*Improved web service security within and beyond the enterprise*

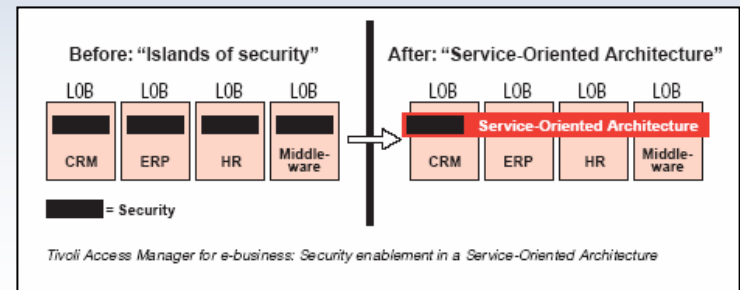
- Seamless, secure and auditable access to web services
- Supports integration of customer and partner services
- Reduces integration costs with extensive support of security standards, including Liberty, WS\* and SAML
- Simplifies administration with single sign on to multiple services



## Enhanced! Tivoli Access Manager for eBusiness

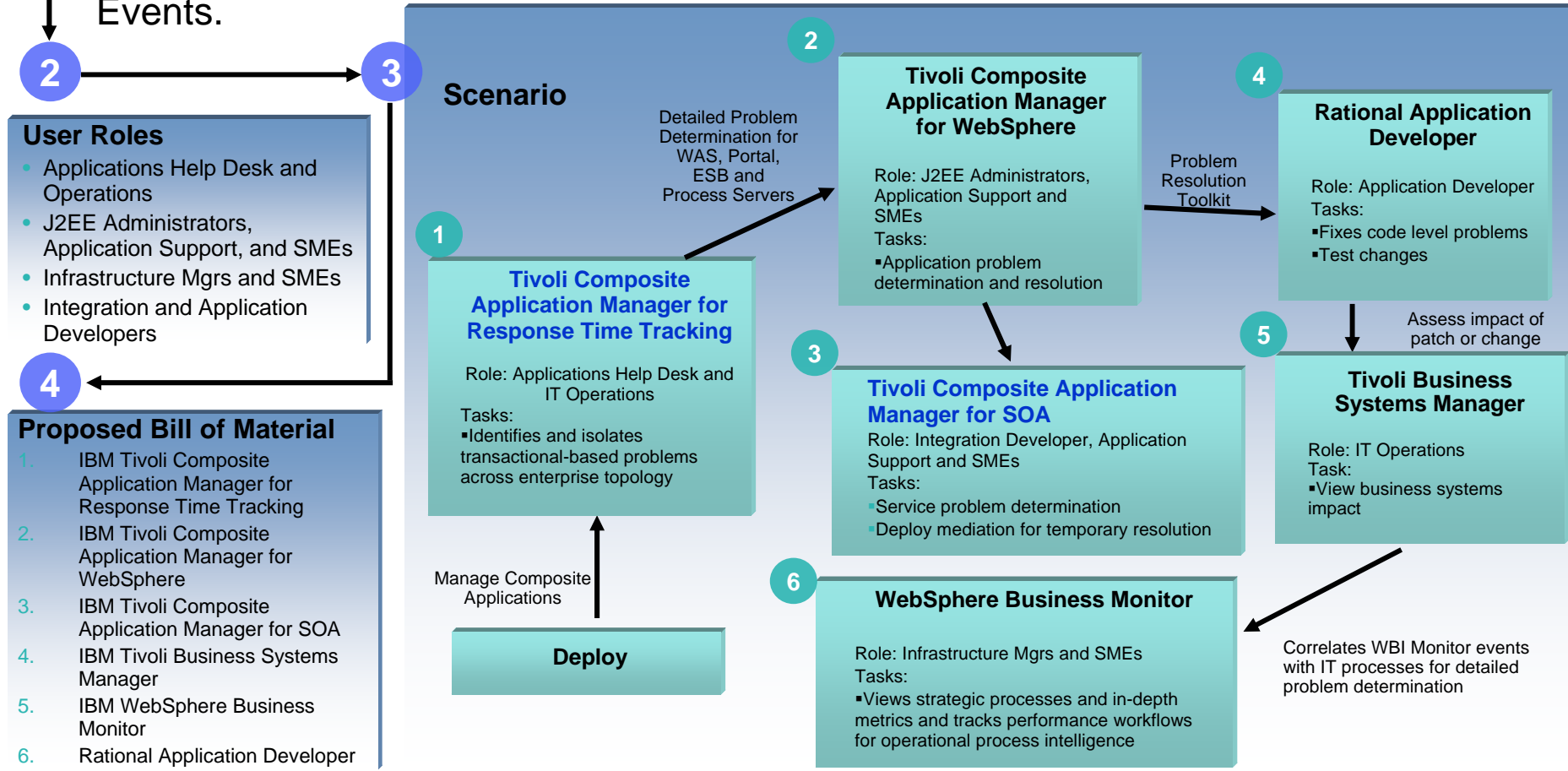
*Application level security management*

- Provides dynamic, real-time enforcement of access policies
- Provides quick start methods for defining security policies
- Centralizes compliance reporting



# Core Use Case: Manage

1 Application Help Desk and IT Operations ensure the availability of composite applications as they move from the development stage into a production environment. Business Monitors track business metrics and provide a basis for correlation with IT Events.

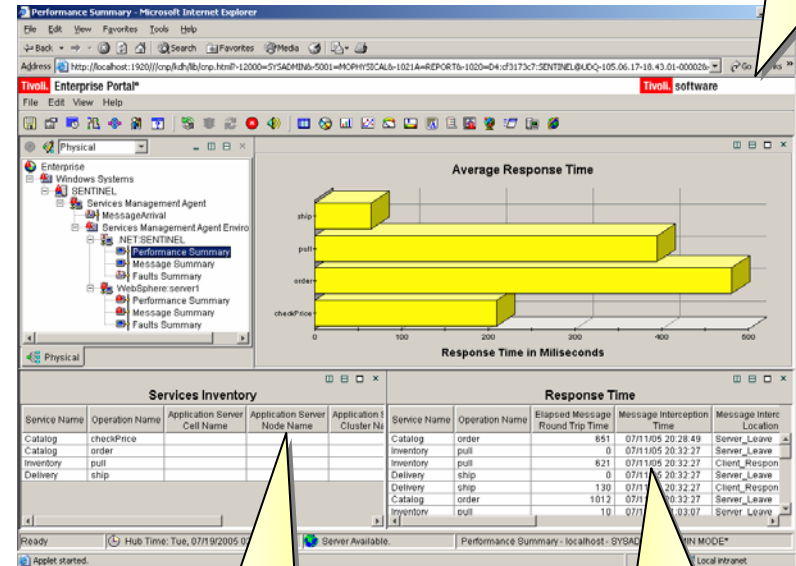


# Tivoli Composite Application Manager for Service Oriented Architecture (SOA)



- Service problem identification and resolution
- Service Management Automation
- Heterogeneous SOA Platform Support
- Integrated Console
- Life-cycle Management

**Service Operations View**



**Service Inventory View**

**Service Performance View**

**Visit Tivoli SOA Management at**

<http://www-306.ibm.com/software/tivoli/features/soa/index.html>

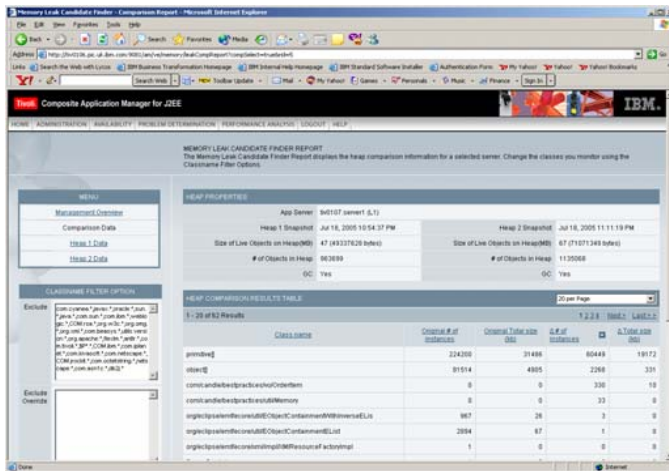
# Tivoli Composite Application Manager for WebSphere


 New

- Reduce support cost in determining the cause of application downtime / slow down
- Ensure availability by automating your business processes
- Improve Organizational Productivity

## Highlights

- Integration with Tivoli Enterprise Portal (TEP)
- Pre-configured workspaces
- Rational integration to provide production application trace data to developers
- Role-based GUI's for multiple IT personae
- New metrics and reporting for WebSphere Portal Server
- Automatic deployment of UDB DB2 and WebSphere infrastructure components



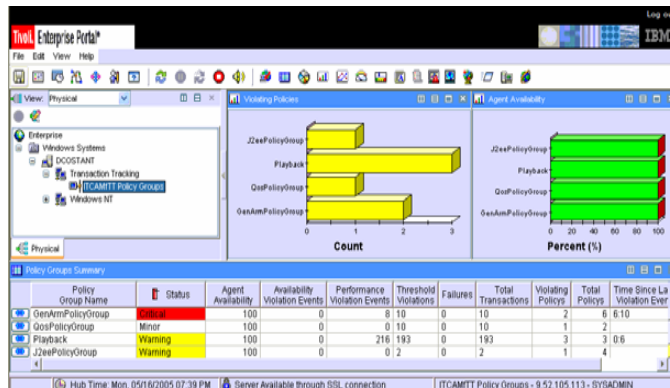
# Tivoli Composite Application Manager for Response Time Tracking


 New

- Understand customers response time experience
- See transaction paths to speed problem isolation
- Improve time to value via automated learning
- Prove service levels delivered to the end user

## Highlights

- Client Application Tracker (CAT)
- CICS and IMS transaction tracking
- “Rich Context” Events based on Root Cause Analysis
- Extensive TEP workspaces
- Rational Performance Analyst (IPOT/IPRT) integration
- Role-based security
- Continuous/High Availability with WebSphere cluster support



New

# Tivoli Identity Manager

- Automate the sub-processes of User Validation, User Provisioning and User Self Service
- Reduce labor costs by using Web self-service and password resets
- Improve employee efficiency by reducing turn-on time and automating routine tasks
- Automate business processes related to changes in user identities with lifecycle management

## What's New!

- Accelerate security audit process with fourteen new standard reports related to compliance
- Improved policy enforcement support
- Features "policy simulation," with powerful "what if" scenarios that take the guesswork out of changing security policies
- Provides compliance intelligence and remediation, which routes complex compliance issues through workflow and provides intelligence and recommended actions

# Tivoli Federated Identity Manager V 6.0

New

- Decrease security integration costs
- Prevent fraudulent, unauthorized use of Services
- Automates user provisioning for SOA transactions
- Unified customer view across SOA
- Simplifies security integration for cross-domain federated web services

## What's New!

- Security Token Service provides centralized security services for SOA for J2EE and .NET platforms
- Policy Server provides centralized management of SOA security policies
- Identity Integration
- Audit and Compliance
- Support for WS-Security, WS-Trust, WS-Provisioning, SAML and Liberty Alliance in a single package



# Tivoli Access Manager for e-Business

- Unified security for composite applications
- Common auditing and reporting services
- Fine-grained authorization service
- Support for 90+ web applications
- Single sign on for web applications

New

## What's New!

- OATH support
- Common Auditing and Reporting Service
- Embedded support for WebSphere
- Deep integration with WebSphere Portal

# Tivoli Business Service Manager

New

- Provide business impact of IT problem within a component of a Service
- Ability to communicate problems with services to business and IT executives
- Effectively plan investments and changes.

## What's New!

- Integration with CCDMDB Discovery Library which discovers resources and maps relationships for automatic creation and maintenance of Business Service Views
- Executive Dashboard and associated API's that enable communication to business and IT executives
- Ability to import BPEL models and associate and monitor IT resources and their impact to the tasks and steps of Critical Business Processes.

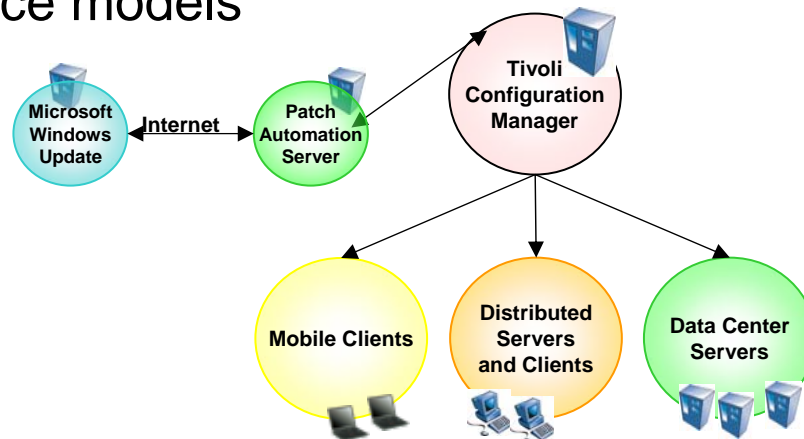
# Tivoli Configuration Manager

- Lower cost and reduce manual errors by automating distribution of software & patch releases,
- Improve security, quality and productivity of IT personnel responsible for release management process
- Increase compliance to business policies using automated activity plans and reference models



## What's New!

- Automated patch acquisition, packaging, distribution, installation, verification and inventory update
- Nokia 9300 support
- IBM Managed Security Services for security intelligence for addressing vulnerabilities is available from IBM Global Services



# Tivoli Provisioning Manager and Tivoli Intelligent Orchestrator

- Rapidly and automatically configure and provision services
- Reallocate resources to meet changing demand for services
- Detect changes to infrastructure and remediate prior to service disruption
- Orchestrate the movement of resources to workload and workload to resources.



New

## What's New!

- Enhanced Auto discovery and management of configuration changes
- Usability enhancements including a new task oriented GUI for simplified change execution
- Automated patch management for fast and reliable server updates
- Image and script management for better control and automation
- Improved storage provisioning

## Tivoli Monitoring (ITM)

- Efficiently & effectively link IT operations services to processes, data, skills and tools
- Optimize availability and performance of your IT infrastructure, end-to-end
- Leverage your staff and break down those barriers across IT silos

New

### What's New!

- ITM 6.1 delivers advanced portal interface with customizable workspaces and process automation
- ITM for Virtual Servers manages your Citrix and VMware servers (Coming Soon: MS Virtual Server)
- Coming Soon: ITM for Cluster Managers provides insight into the availability and performance of MSCS and HACMP clusters

# Tivoli NetView

- Identify root cause of network failure impacting a Service
- Quick and easy implementation
- Management of network resources

New

## What's New!

- New protocol support
- Enhanced device discovery
- SMB offering
- Premium offering, including layer 2 topology

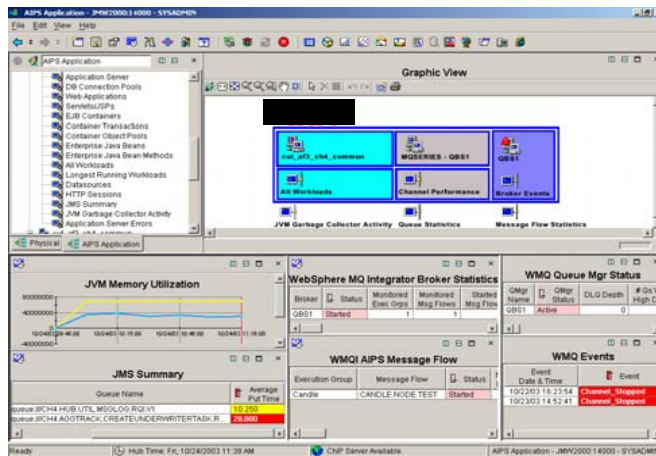
# Tivoli OMEGAMON XE for WebSphere Business Integration V1.1

- Ensure the reliability and Availability of WebSphere MQ, Message Broker and InterChange Server
- Proactively Prevent Problems
- Simplified Management with Single Tool

New

## Highlights

- One product to manage WebSphere MQ, Message Broker and InterChange Server environments
- Expert Advice - based on industry best practices
- Supports newest releases of WebSphere MQ and InterChange Server





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## SOA References

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# Manage Business Processes and IT Systems



## *What do you need to do?*

- Manage services IT delivers to the business
- Manage Composite Applications, including those that leverage web services
- Manage Identity and Compliance across federated domains

## *Lifecycle value*

- Proactively recognize and prevent problems
- Service monitoring, transaction response time measurement and in-context deep dives, connecting IT ops with application development
- Improve management of identity and access, including transactions w/third parties. Manage compliance against security policies.

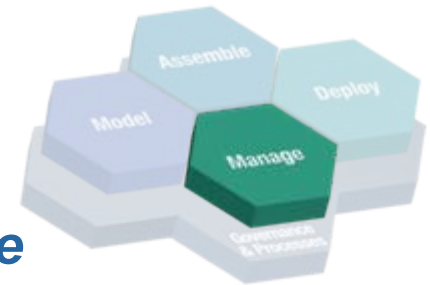
# Manage Business Processes and IT Systems

- Telefonica turns to SOA to drastically shorten the time required to deliver services to customers
- Management of service delivery operations helps meet regulatory service level agreements
- SOA is expected...help increase internet customers from 300,000 to one million by 2006



## What do you need to do?

- Monitor key performance indicators in real-time
- Isolate, diagnose, and fix problems
- Control of running services and versioning
- Establish and maintain service availability and response times



## Lifecycle value

- Proactively recognize and prevent problems
- Track key performance indicators and feedback into Model for continuous improvement
- Optimize and automate IT service performance

# Governance & Processes Provide Guidance & Oversight

- “[SOA] enables better decision making earlier in Underwriting and Operations & Claims.”
- *“The SOA Center of Excellence helps transition to SOA while mitigating risks....”*



## What do you need to do?

- Apply oversight of SOA funding, ownership, lifecycle management, and operations management
- Create a center of excellence within the business to implement governance policies
- Follow the proven international governance standards of Control Objectives for Information and related Technology (COBIT)



## Lifecycle value

- Professional investors are willing to pay premiums of 18–26% for stock in firms with high governance
  - Three surveys on corporate governance,” McKinseyQuarterly*
- ....firms with above-average IT governance ... had more than 20 percent higher profits...
  - Peter Weill & Jeanne W. Ross, Harvard Business School Press, 2004*

# National Australia Group UK (NAG UK)



*“With IBM Tivoli software, we can simplify and streamline identity management processes while creating a robust SOA that vastly improves our efficiency and helps us easily adjust to evolving business needs.”*

— Stephen Swann

Manager, Access Control and Integration,  
European Business Systems,  
National Australia Group UK

## Business Challenge

Facing increasing competition and regulatory requirements, NAG UK needed to more quickly adapt to market changes while ensuring the security and privacy of customer and financial data

## Business Benefits

- Anticipated savings of over £6 million (US\$11 million) annually through improved process efficiencies
- Reduced time and cost for regulatory compliance
- Greater customer satisfaction through fast and secure access to financial data
- Improved staff productivity and customer service through single sign-on access to information and services

## Solution

- IBM Tivoli Access Manager for e-business, IBM Tivoli Identity Manager, IBM Tivoli Directory Server, IBM Tivoli Directory Integrator
- IBM WebSphere Application Server, IBM WebSphere MQ
- IBM Global Services

# Avis Futures - Driving innovation and reducing costs



*“Using IBM solutions, we’ve built a flexible service-oriented infrastructure that enables Avis to develop creative solutions to widen our competitive advantage... The automation provided by IBM solutions makes it much easier and more cost-effective to administer access and maintain control over our services.”*

— David Harris, Chief Information Officer, Avis Futures

## **Business Challenge**

Expand brand leadership by strengthening customer service and accelerating delivery of new services

## **Business Benefits**

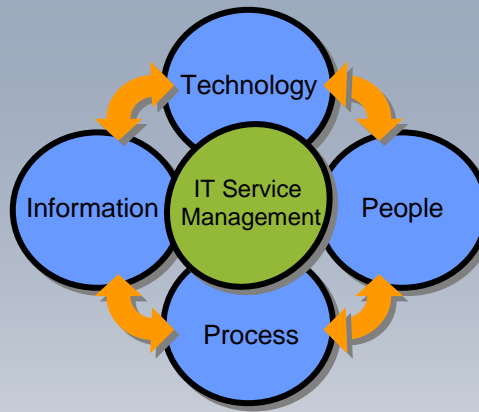
- Enables business to reduce the time and cost of delivering new services
- Helps business respond faster to customer requirements and competitive challenges
- Strengthens security to reduce risk
- Provides customers with a unified user experience

## **Solution**

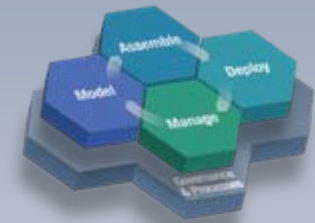
A service-oriented infrastructure based on IBM WebSphere MQ, IBM WebSphere Business Integration Message Broker, IBM IMS-MQ Bridge, IBM IMS-MQ Adapter, IBM IMS, IBM Tivoli Access Manager for e-business, IBM Tivoli Access Manager for Operating Systems, IBM Tivoli Access Manager for Business Integration, IBM Tivoli Identity Manager

IBM Tivoli leading-edge solutions to deliver high-performing applications based on a framework of best practices.

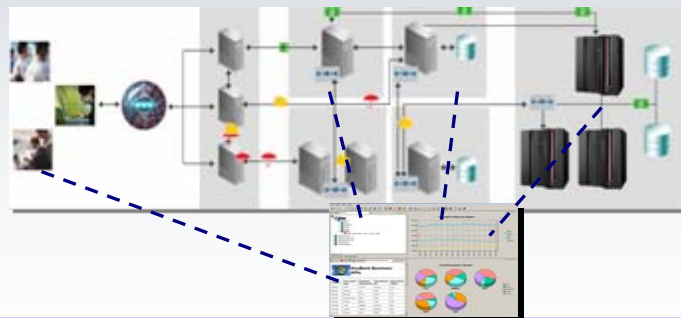
**Information Technology Services Management (ITSM)**



**Built On**



- IBM Tivoli Composite Application Management (ITCAM)
- IBM Tivoli Federated Identity Management (FIM)



**Manage and Secure**



▪ See [www.ibm.com/soa](http://www.ibm.com/soa) for the complete IBM SOA Manage & Secure Story through November 9th.