



IBM SOA

# The Myths and Truths About the Infrastructure and Management Needed for SOA

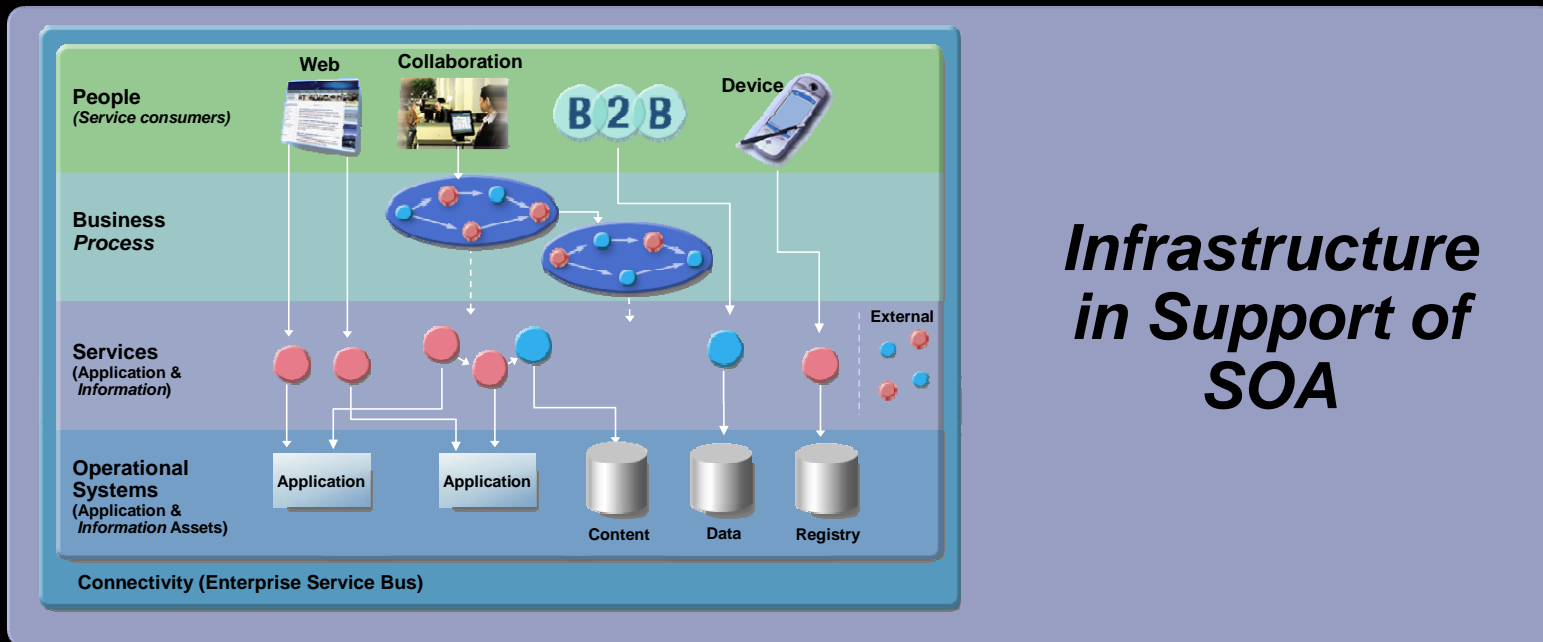
Marie Wieck  
Vice President, Middleware & SOA Services, IBM GTS  
David Kwock  
Countrywide Financial Corporation



# Infrastructure and Management for SOA

- Challenges Specific to SOA
- Key Capabilities Required
  - Service Security
  - Service Management
  - Service Virtualization
- Linking Across the Management Spectrum
- Getting Started and Moving Forward
  - Why IBM

# Evolving Infrastructure and Management to Support SOA



*Infrastructure  
in Support of  
SOA*

**As Is**

- Siloed
- Static
- Physical

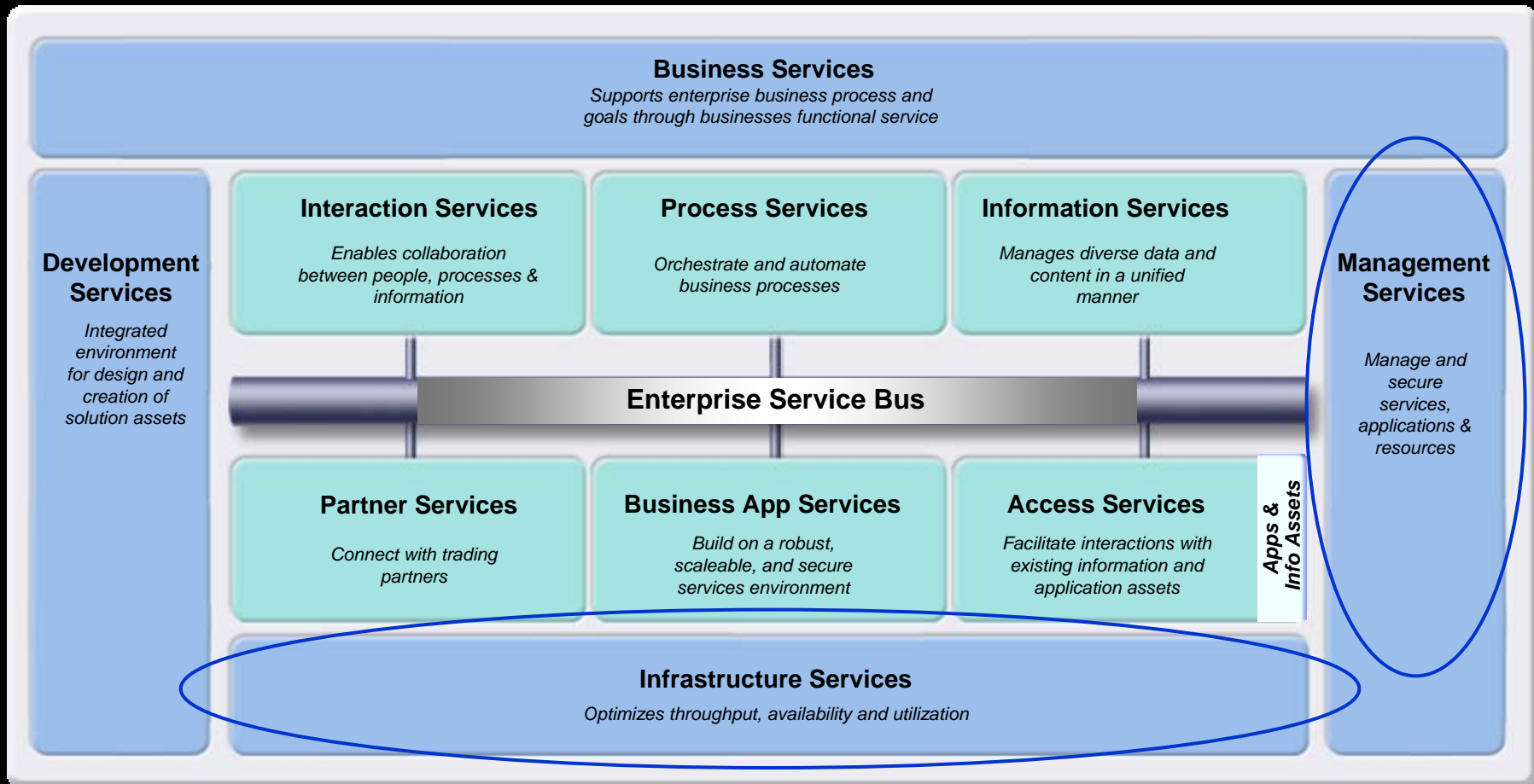


**To Be**

- Flexible
- Dynamic
- Virtualized

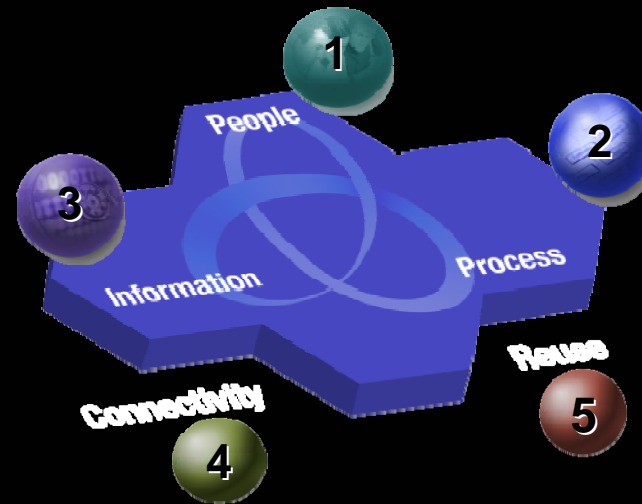
# Defining the capabilities for your SOA environment

## SOA Reference Architecture

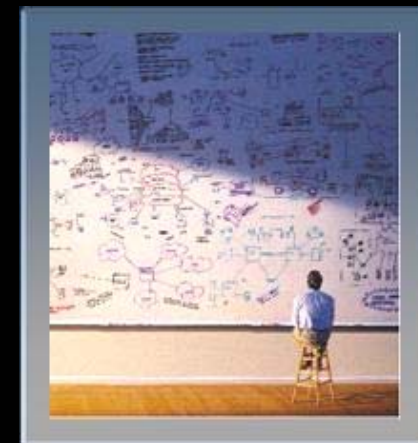


# Infrastructure and Management Questions for SOA

What infrastructure and management do I need for my SOA Entry Point project?



How will SOA impact my existing infrastructure and management capabilities?



# 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

### **Predictability**

- Demand
- Performance
- Availability

### **Visibility**

- Quality Of Service

### **Controllability**

- Release
- Change

### **Clarity**

- Problem Resolution
- Financial Management

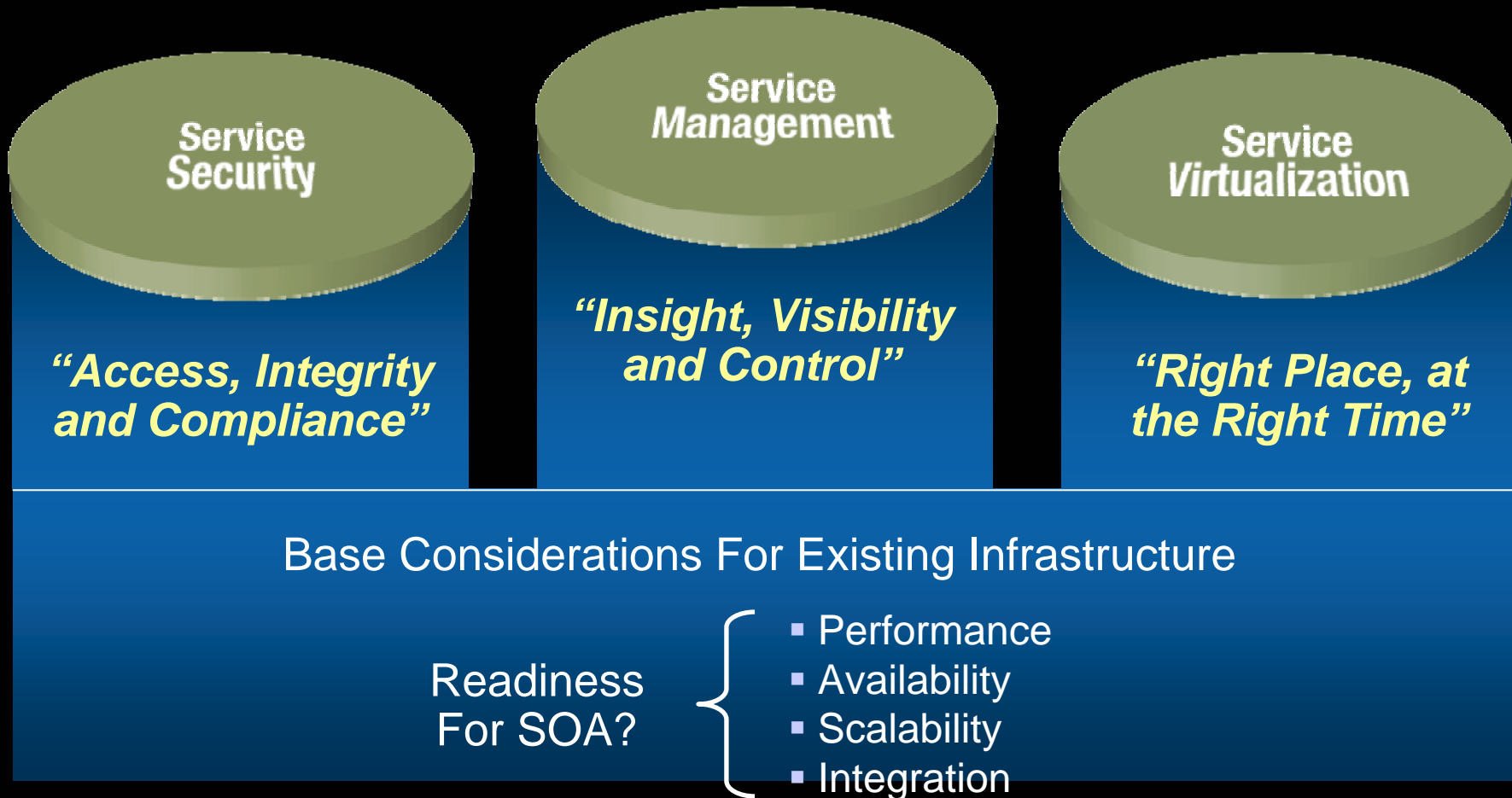
### **Security**

- Federation
- Compliance

# Infrastructure and Management for SOA

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# Infrastructure and Management Capabilities Required





# Access, Integrity and Compliance



## **Federated identity and access control across services**

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- Provision identities automatically to reduce costs
- Control access levels to services to improve security
- Improve user experience with Single sign-on

## **Secure Services and Applications**

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- Secure data, applications and transactions across heterogeneous environments
- Unified trust management to create secure communities
- Secure XML messages for packet level security

## **Consistently enforce security policy for services**

- Federate policy management to improve consistency
- Improve security with enterprise-wide events management
- Automate user account validation to enforce access policies

# ING Group N.V.



## Challenge

ING needed to reduce the time and cost of managing employee access to information while ensuring staff could quickly respond to business change.

## Solution

Launched automated identity integration services and an entitlement program to substantially improve staff productivity and reduce the cost of identity management.

## Benefits

- Projected savings of €15 million (US\$20 million) a year
- 50 percent reduction in administrators in just 18 months
- Reduce help-desk costs by 25 percent through the self-service of password resets
- Reduce the turn-on time for new users from one week to less than 24 hours
- Reduce the time and cost associated with regulatory compliance

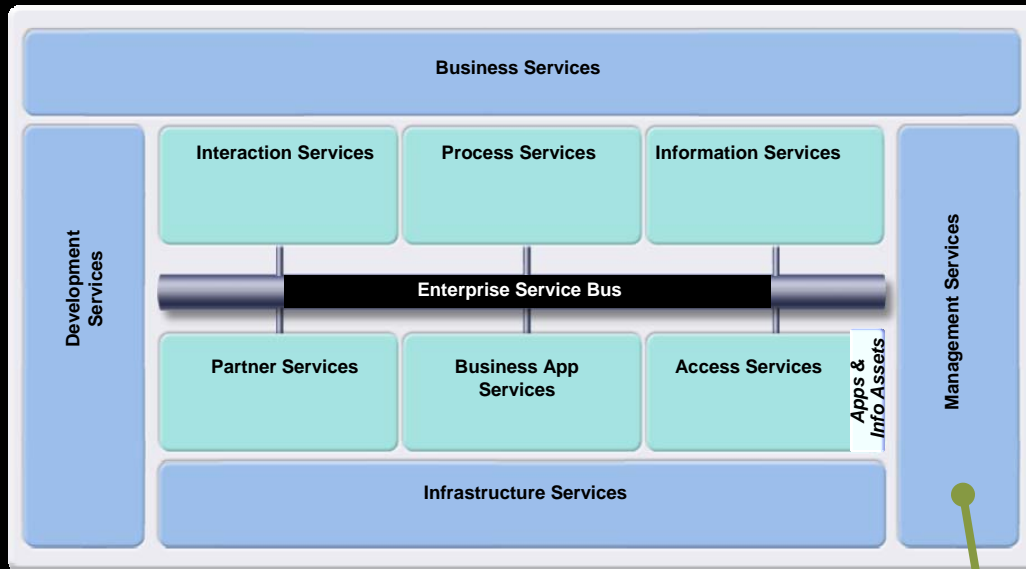
***“Using IBM Tivoli Access Manager and IBM Tivoli Identity Manager together enables us to reduce costs and simplify processes even further. Now we can manage multiple user and authorization administrations from a single point of control.”***

*–Henk Veerman,  
Information Security Architect,  
ING Entitlement Program*

- IBM Tivoli Identity Manager
- IBM Tivoli Access Manager

# Service Security Offerings from IBM

**New and Enhanced!**



## Products

- IBM Tivoli Federated Identity Manager v6.0
- IBM Tivoli Federated Identity Manager Business Gateway v6.1.1
- IBM Tivoli Security Compliance Manager v5.1
- WebSphere DataPower XS40
- IBM Tivoli Security Operations Manager v3.1

## Professional Services

**New and Enhanced!**

- SOA Application Security Assessment
- SOA Security Requirements
- SOA Security Architecture
- SOA Security Implementation



# Right Place at the Right Time



**Automatic scaling  
to support  
services demand**

- Service Placement
- Dynamic Resource Virtualization

**Intelligently  
respond to  
business priorities**

- Service Prioritization
- Service Lifecycle Management
- Service Mobility
- Workload Management

**Accelerate  
application and  
service performance**

- Consolidation / Simplification
- Resource Orchestration



# Torn sp. z o.o.

## Challenge

- Support the company's rapidly growing internet services business in a cost effective manner
- Align clients infrastructure costs with revenue
- Business and infrastructure continuity within minutes
- Reduce complexity in the IT environment to streamline operations

## Solution

A virtualization solution from IBM that allowed rapid scaling to meet demand while enabling the ability to have fine grained accountability of usage.

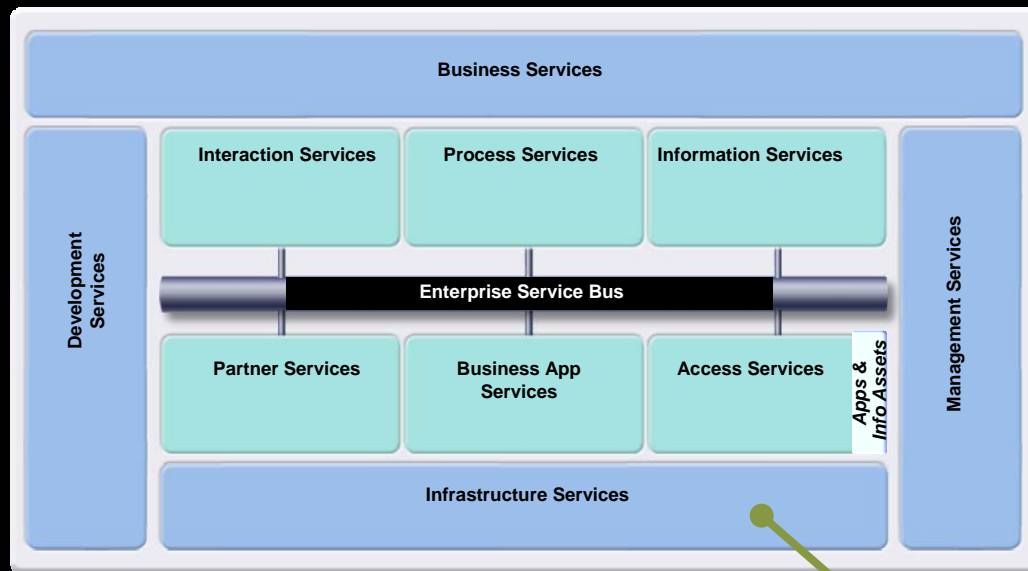
## Benefits

- "We can increase the computing power available to our clients internet services on demand, enabling them to respond precisely to transactional peaks."
- "We can now respond very quickly to new requirements, potentially setting up entirely new systems within days or hours, without sacrificing availability or security."



- IBM Dynamic Resource Virtualization
- IBM WebSphere Application Server

# Service Virtualization Offerings from IBM



**New and Enhanced!**

## Products

- IBM WebSphere XD v6.0.1
- IBM Tivoli Dynamic Workload Broker v1.1
- IBM Tivoli Usage and Accounting Manager v6.1
- IBM SAN Volume Controller v4.1
- IBM Enterprise Workload Manager v2.1

**New and Enhanced!**

## Professional Services

- Web Infrastructure Optimization and Virtualization Services
- Server Virtualization Services



# Insight, Visibility and Control



## **Automate and simplify IT processes**

- Release management for rapid service deployment
- Performance management across all services
- Availability management for supporting applications

## **Manage service and application service levels**

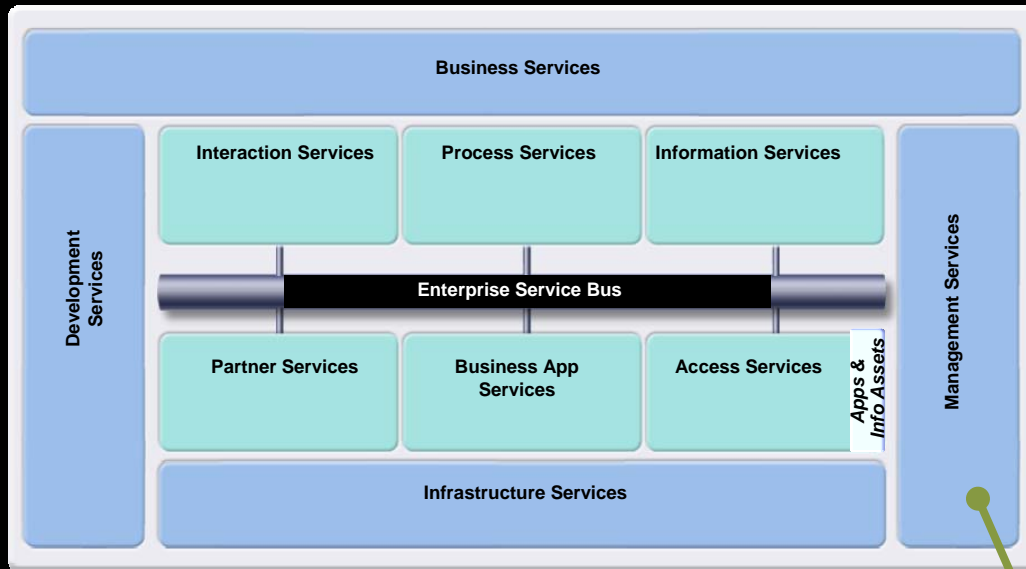
- Improve flexibility with Services dashboard for Service level reporting
- Monitor services end to end to isolate and fix problems
- Automate provisioning and control of services to meet SLAs

## **Predict and manage change across linked services**

- Discover relationships to improve application availability
- Track and predict change to reduce costs and downtime
- Map and manage configurations to streamline operations

# Service Management Offerings from IBM

**New and Enhanced!**



## Products

- IBM Service Management family:
  - IBM Tivoli Release Process Manager v1.1.1
  - IBM Tivoli Availability Process Manager v1.1.1
  - IBM Tivoli Change and Configuration Management Database v1.1.1
  - IBM Tivoli Composite Application Manager (ITCAM) for SOA v6.1
  - IBM Tivoli Business Systems Manager v4.1
  - IBM Tivoli Monitoring Family

## Professional Services

- Management of Services for SOA
- Business of IT Dashboard
- SOA Management Planning
- Testing Center of Excellence for SOA

**New and Enhanced!**







# Countrywide Financial Corporation

Providing 100% Uptime for Enterprise Applications

December 2006



## Company Background

- **Founded in 1969, Countrywide Financial Corporation (NYSE: CFC) is a leading provider of consumer and business-to-business financial services. Headquartered in Calabasas, California, Countrywide is a member of the S&P 500, Forbes 2000, and Fortune 500.**
- **Countrywide provides mortgage banking and loan closing services through its subsidiaries, Countrywide Home Loans and LandSafe, respectively. Other businesses in the Countrywide family include Banking, Capital Markets, Insurance and Global Operations.**



# Mission and Goals

- **Management information systems**
  - These applications are among the most robust and comprehensive in the financial services industry, with the capability to provide real-time feedback on virtually any mortgage data inquiry.
- **Artificial intelligence**
  - The latest systems include automated underwriting engines, automated property valuation engines, and pricing and margin management applications. Countrywide's automated underwriting system, CLUES, handles all loan types – from conventional agency and government loans to jumbo, prime and nonprime loans.
- **Web-based transaction platforms**
  - These represent the core foundation of the Company's technology, including such internally created systems as Countrywide Wholesale Business Channel (CWBC), a mortgage broker platform, and Platinum, a front-end system for correspondent lending. Countrywide is currently developing the next generation of its web-based origination platform technology, called Nex-OS. When fully operational, Nex-OS will provide enhanced functionality, scalability and other attributes for customers and employees. The common thread running through these systems is that they are developed and built in-house. Sales professionals appreciate that their technology tools are created by people with a proprietary interest in the performance of those tools — people who typically respond faster than external vendors to requests for help or systems enhancement. The real story is that with all of its mortgage lending strengths — a prominent brand, a broad product portfolio, a mortgage centric focus and superior technology systems and support — Countrywide Can continue to attract and retain the best talent in the industry.

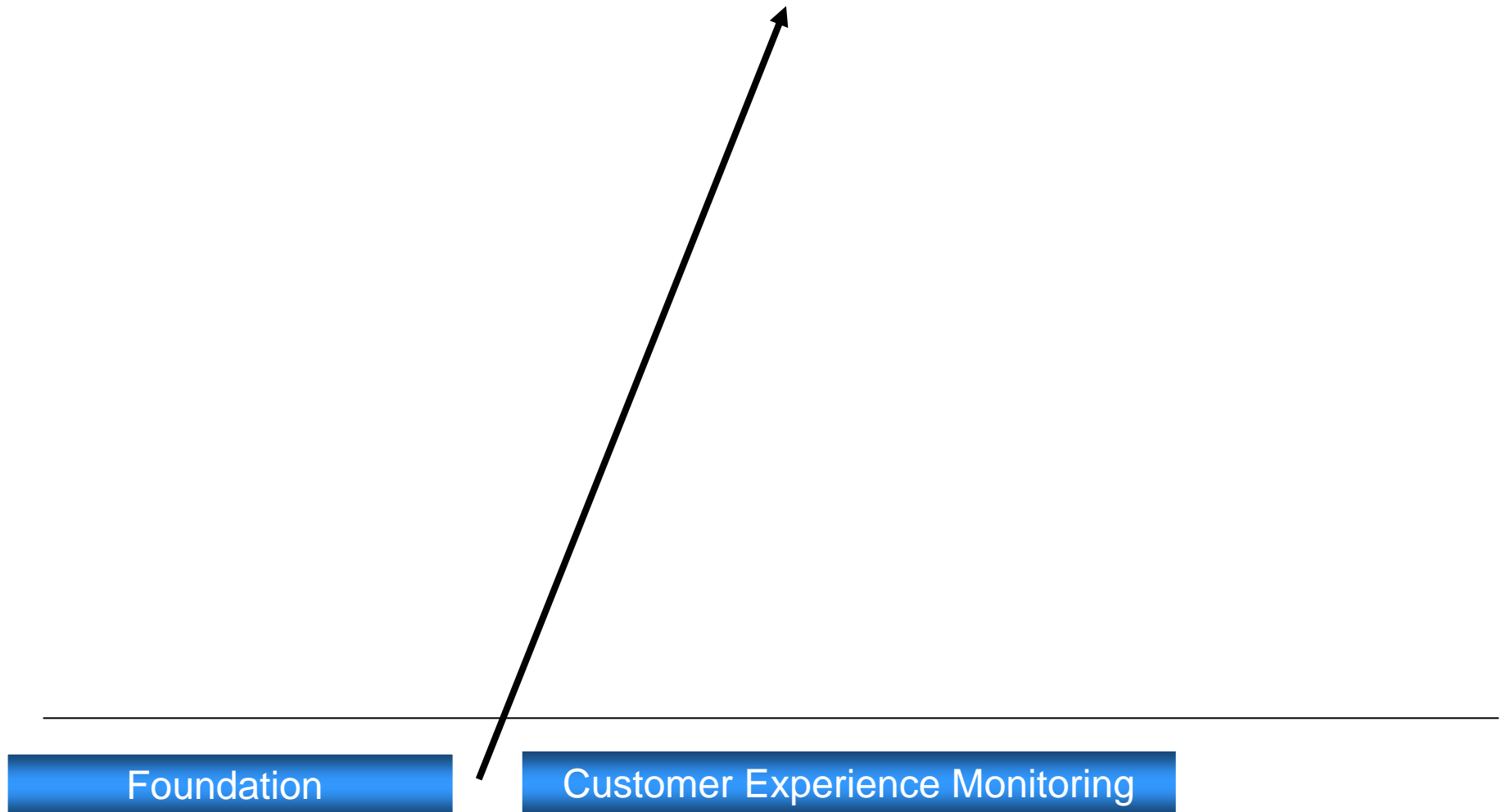


## Business Challenge

- **With an eye on cost containment and customer satisfaction, Countrywide needed to ensure 100 percent uptime of critical business services while reducing operational costs**
  - Supported an increasing number of applications with existing staff
  - Improved application availability and performance, which, in turn, reduced the number of complaints to the help desk
  - Optimized application development processes so more functionality could be developed in the same amount of time
  - Enabled faster resolution of problems through comprehensive visibility into applications and their dependencies
  - Reduced time to compile information for audits from days to minutes
  - Helped contain costs through proactive capacity planning

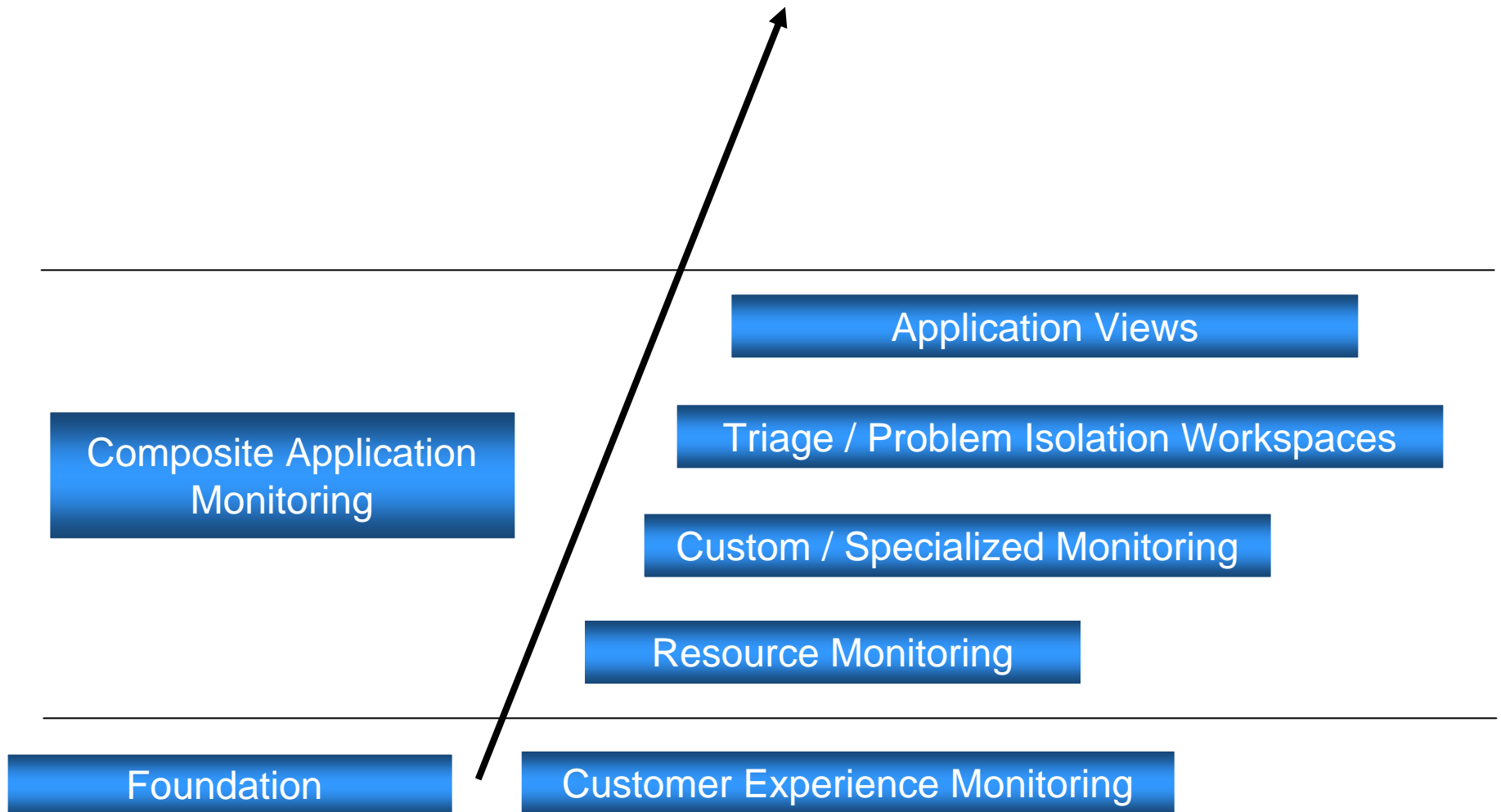


# Application Management Objectives



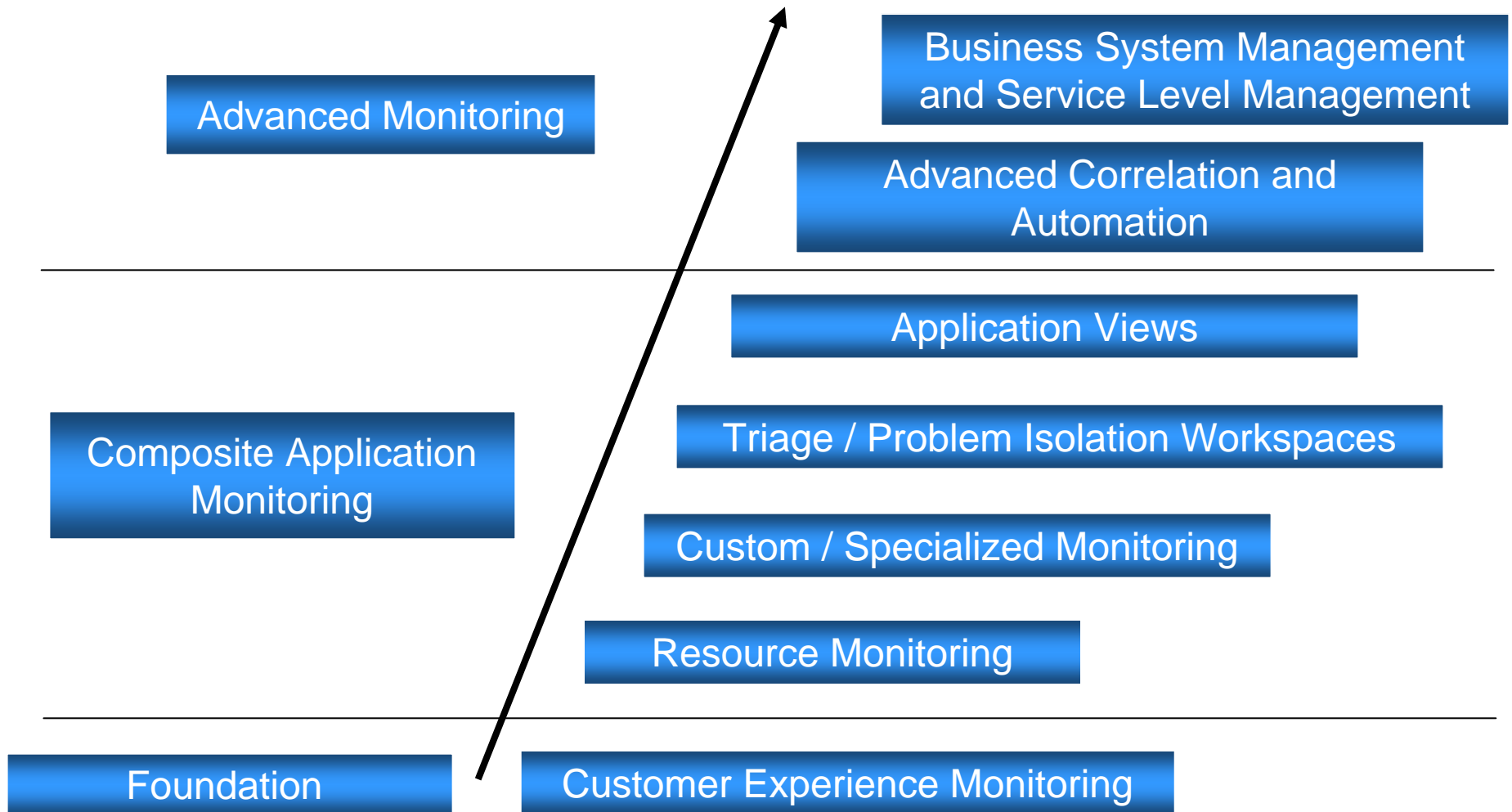


# Application Management Objectives





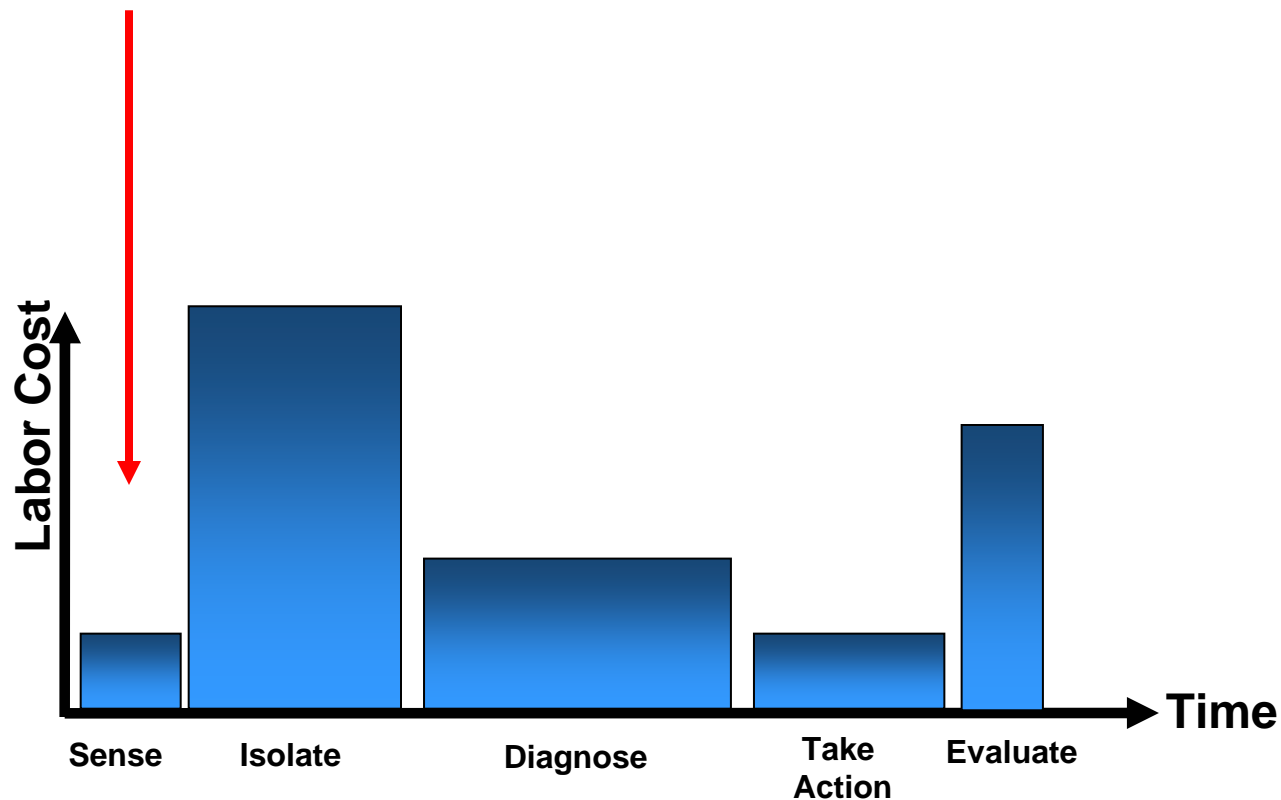
# Application Management Objectives





# Process for Application Management Analysis

Sense - problems based on how they impact the customer

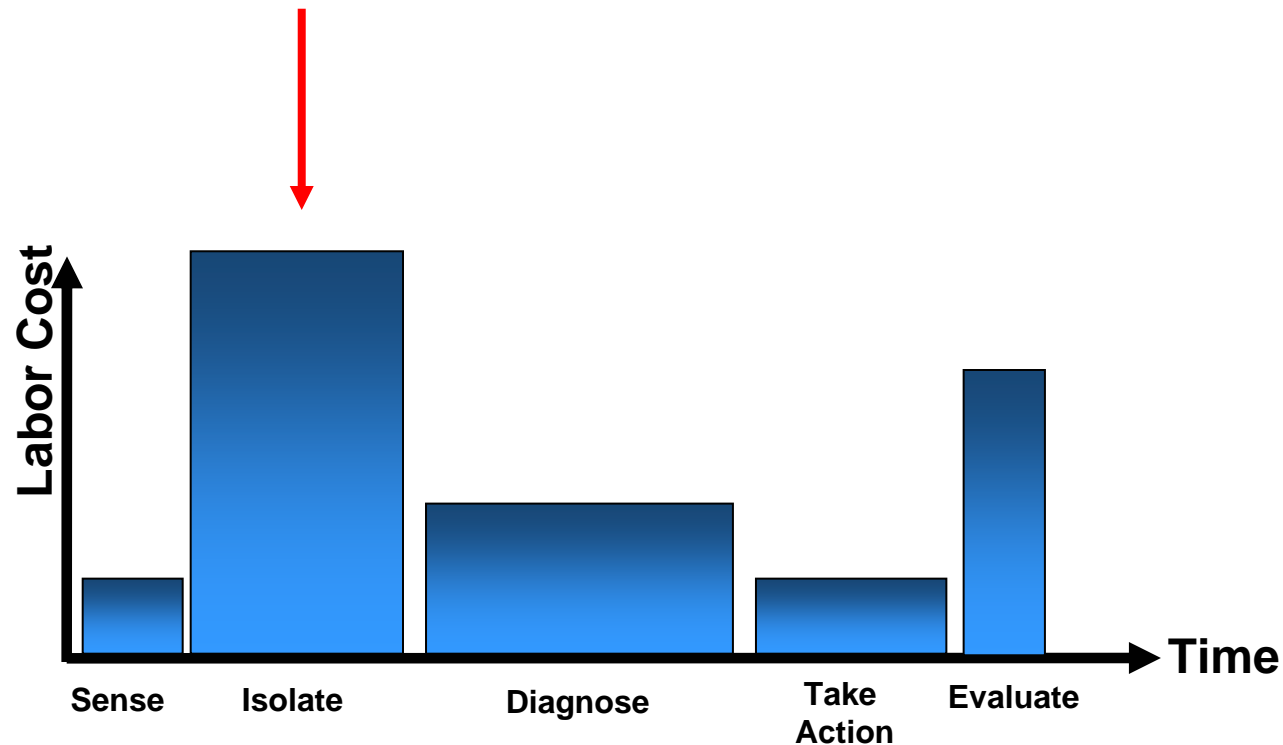






# Process for Application Management Analysis

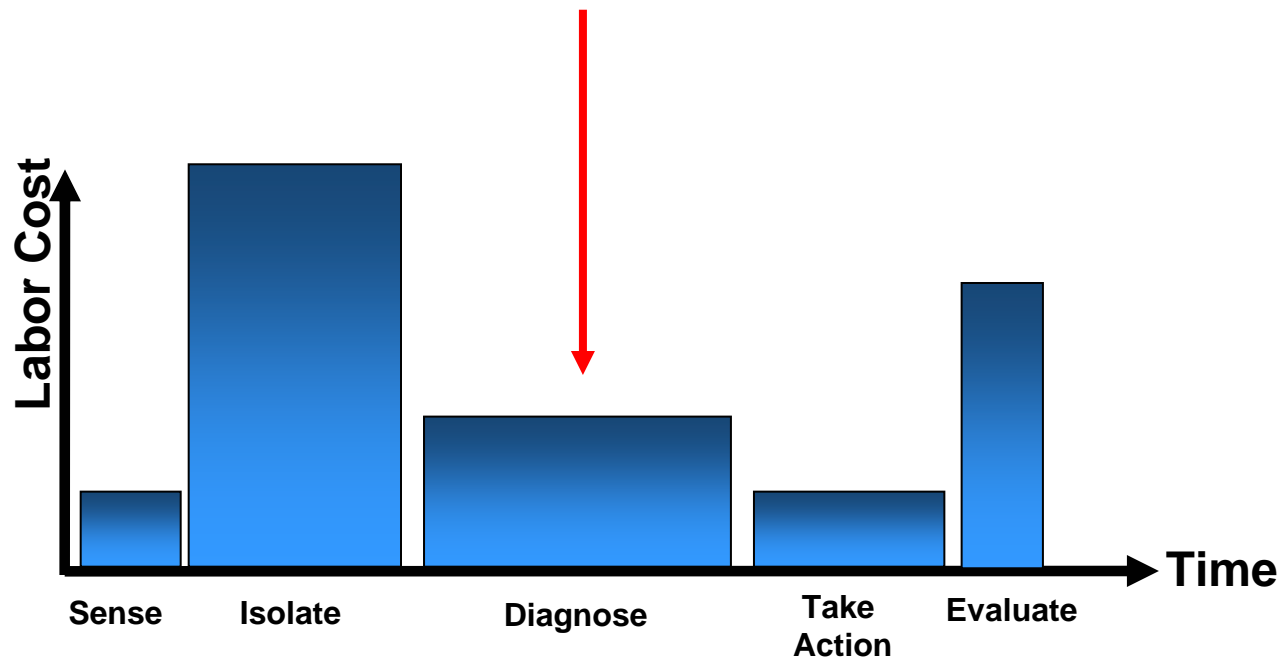
Isolate – problems using proven problem solving methodologies





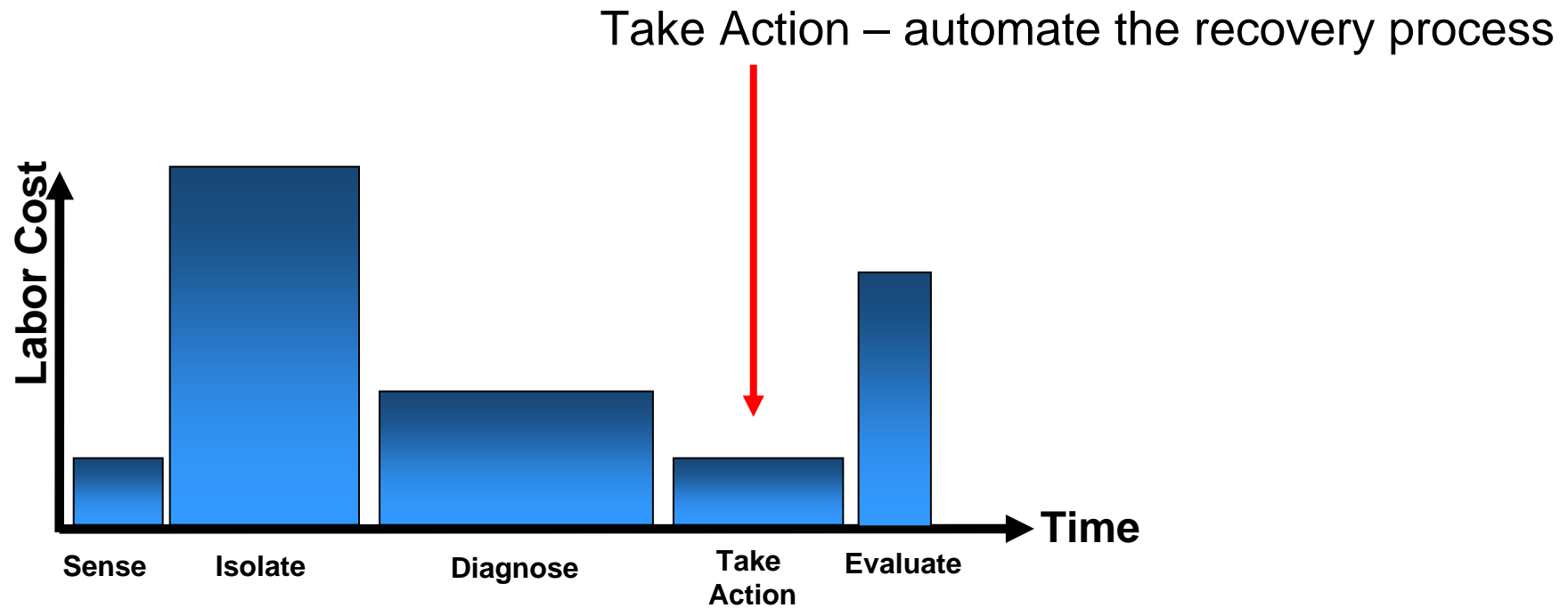
# Process for Application Management Analysis

Diagnose – problems using deep dive diagnostic tools



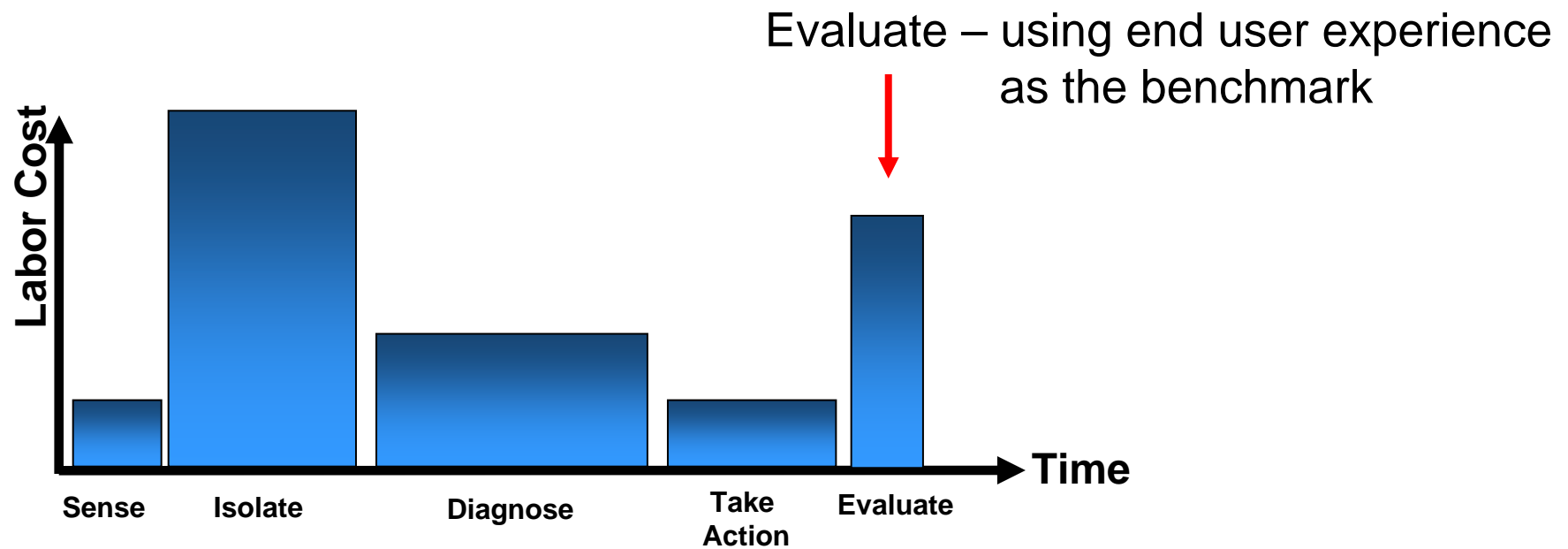


# Process for Application Management Analysis





# Process for Application Management Analysis





# Process for Application Management Analysis

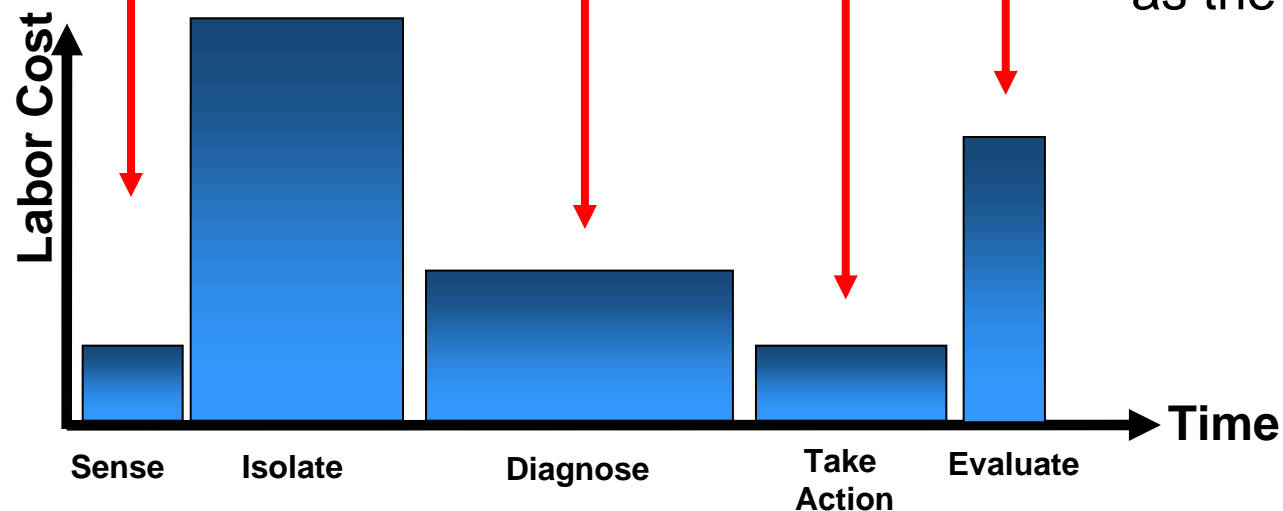
Sense - problems based on how they impact the customer

Isolate – problems using proven problem solving methodologies

Diagnose – problems using deep dive diagnostic tools

Take Action – automate the recovery process

Evaluate – using end user experience as the benchmark





# Application Management Views for Process

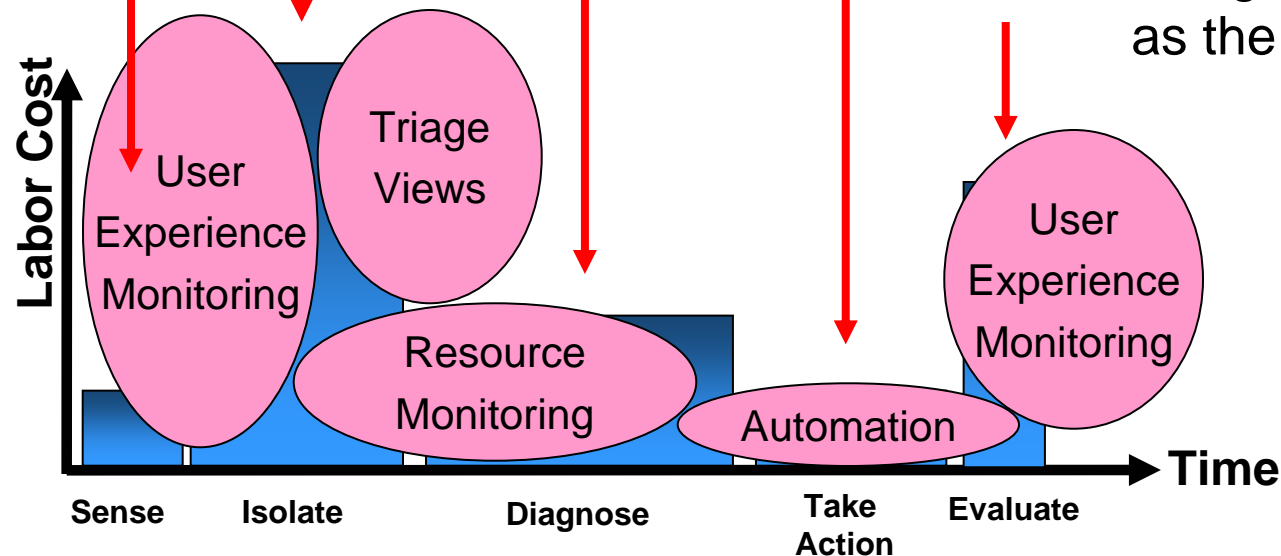
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# Application Management Solution

## Resource Monitoring

Distributed Servers  
ITM for AIX  
ITM for .Net

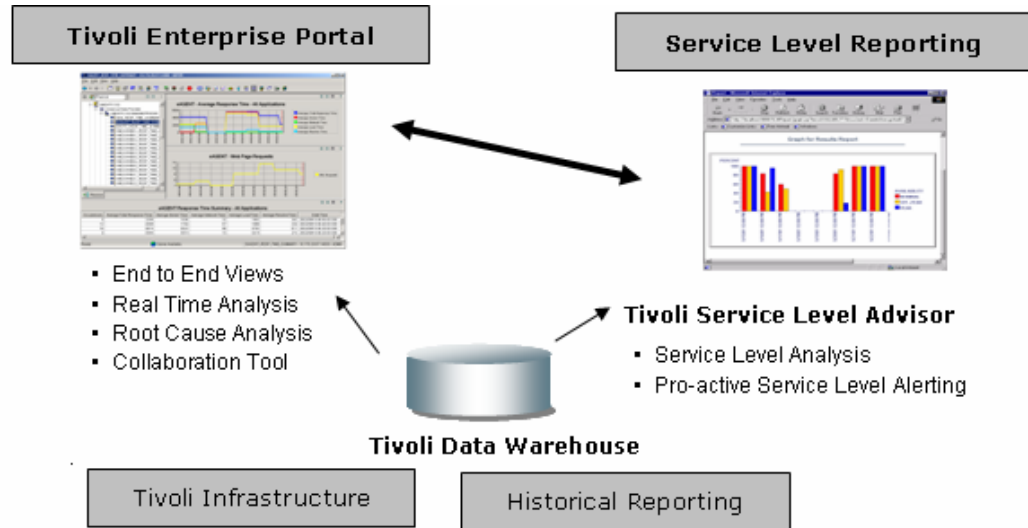
- Visualize real-time monitoring data
- Track & trend availability and performance

Middleware, MQ, SOA (Web Services) – Omegamon XE for Messages

- Ability to monitor web services and integration into web management portal
- Provides mediation services to control application start/stop



# Application Management Solution



## Application Response Time

Response Time  
Transaction Tracking  
IT CAM for RTT

- Actual User Experience
- Identifies transaction paths
- Tracks end-to-end transaction performance
- Active monitoring via transaction scripts

## Resource Monitoring

Distributed Servers  
ITM for AIX  
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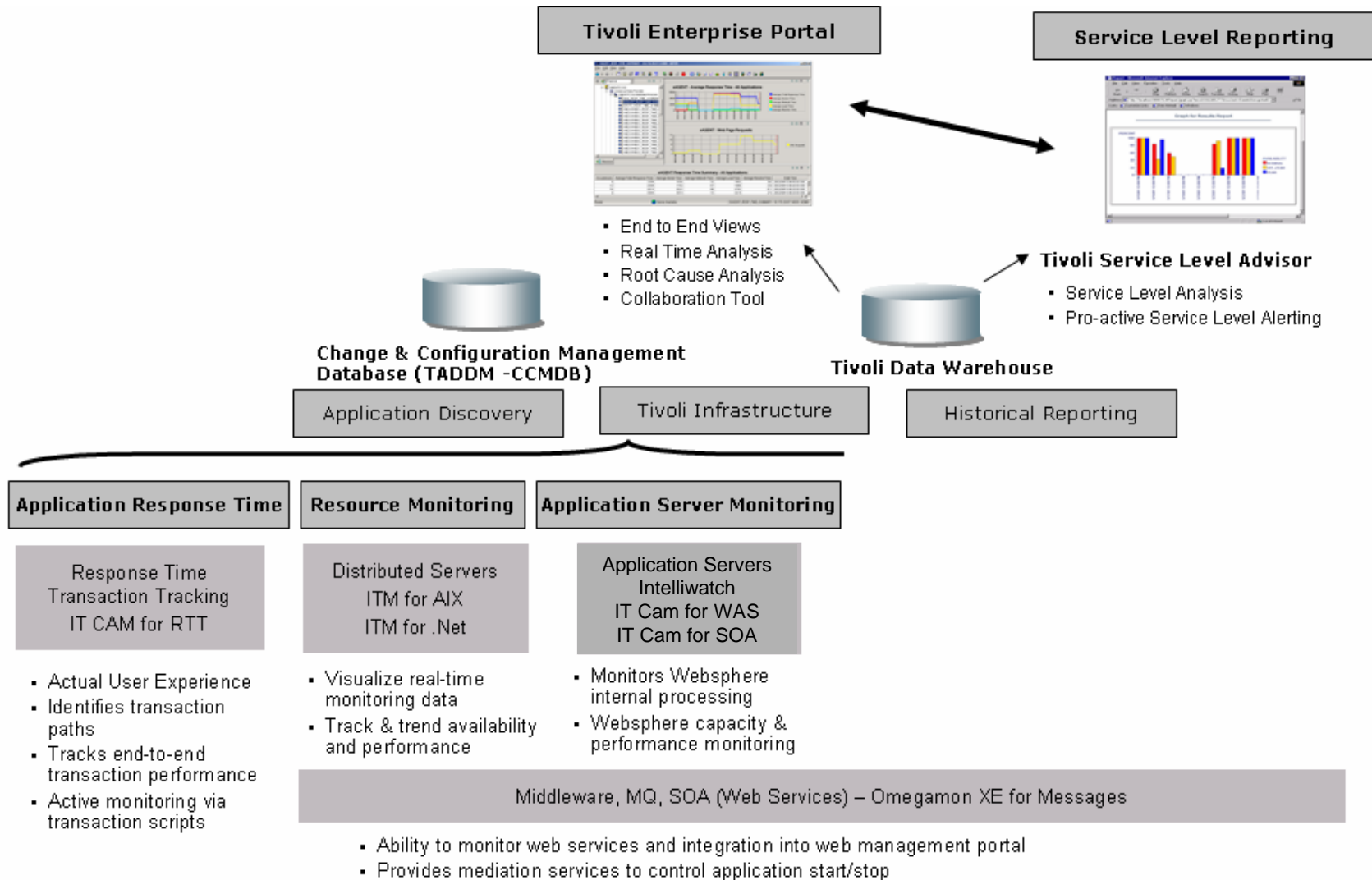
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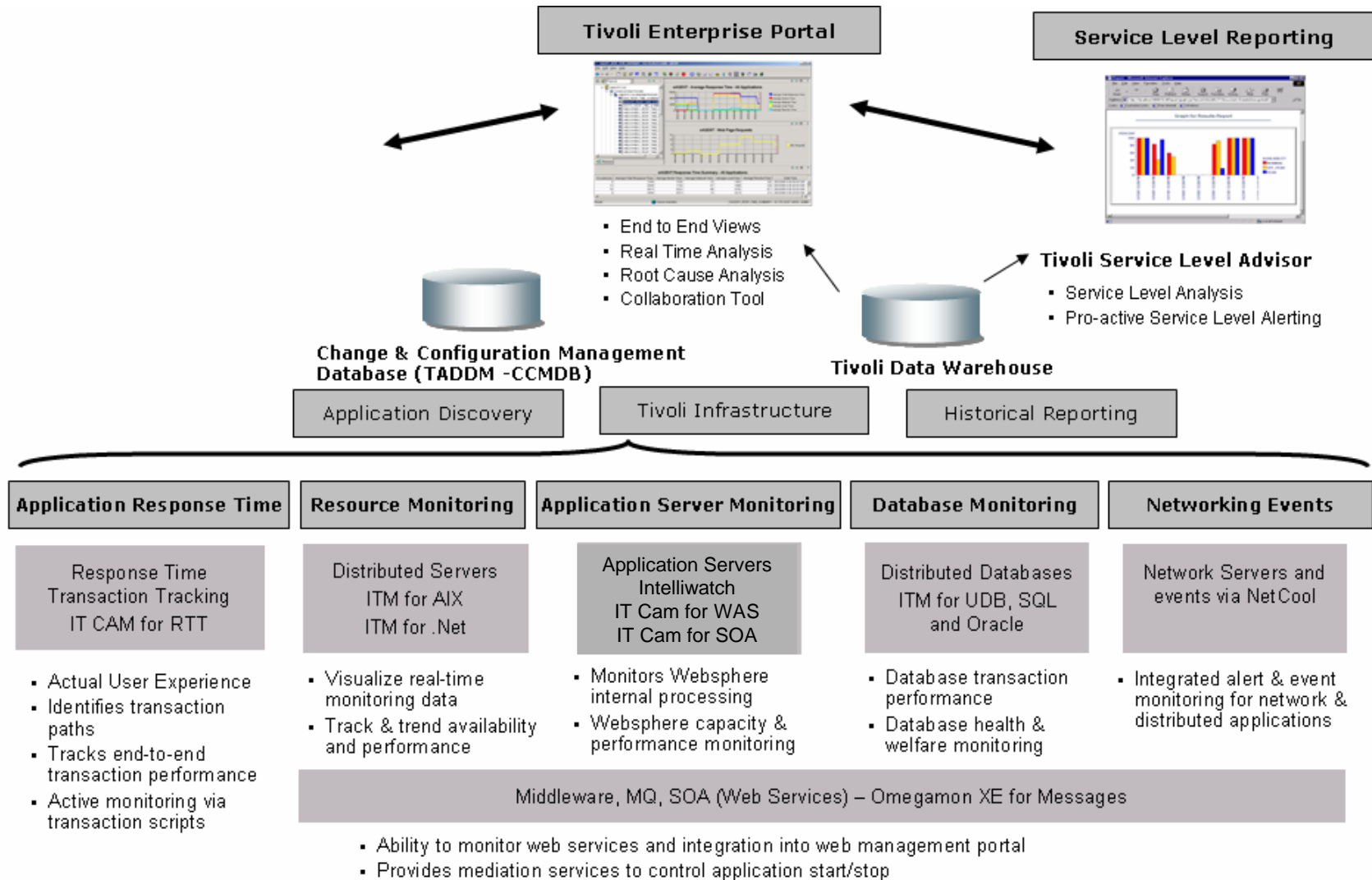


# Application Management Solution



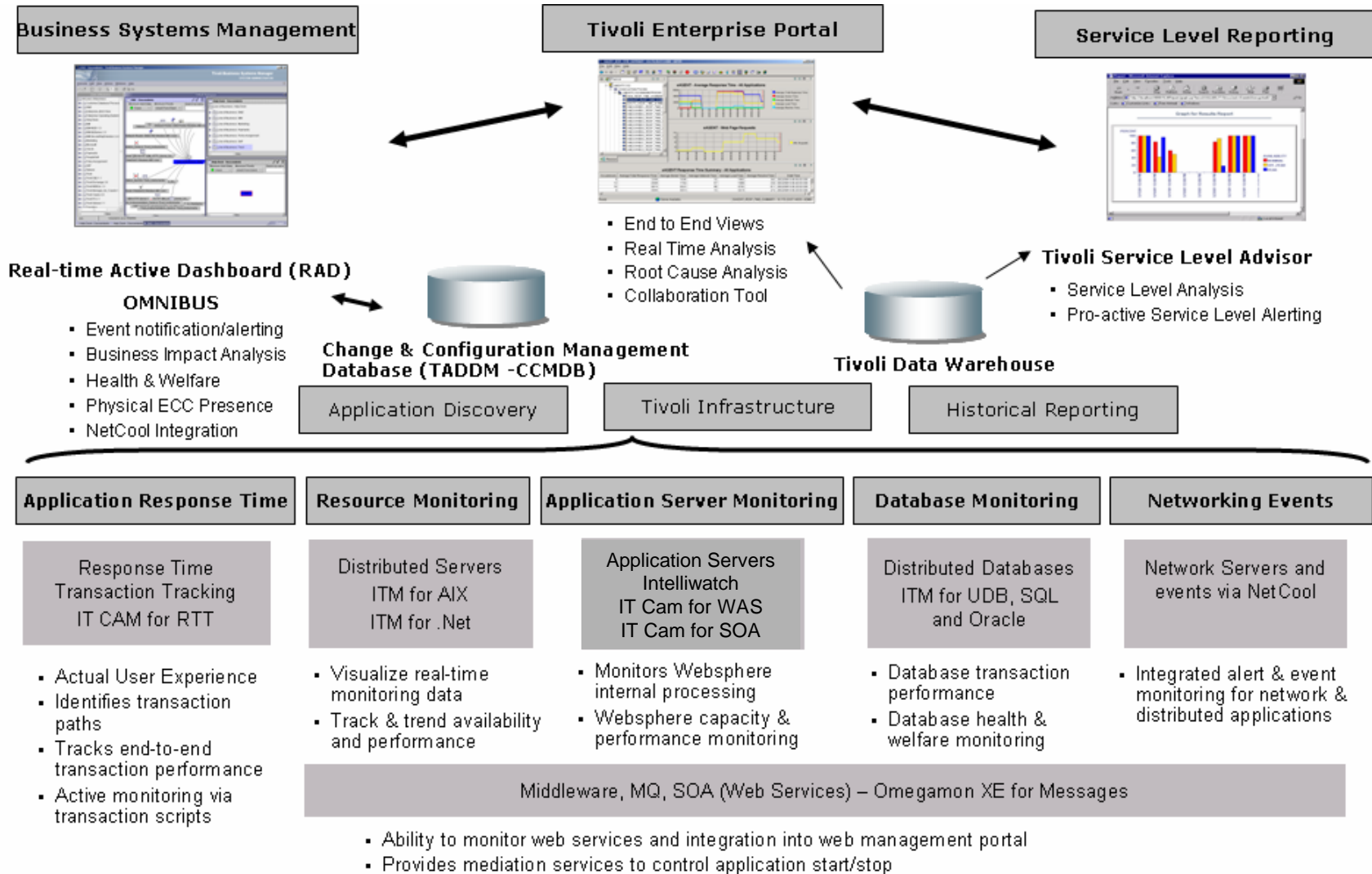


# Application Management Solution





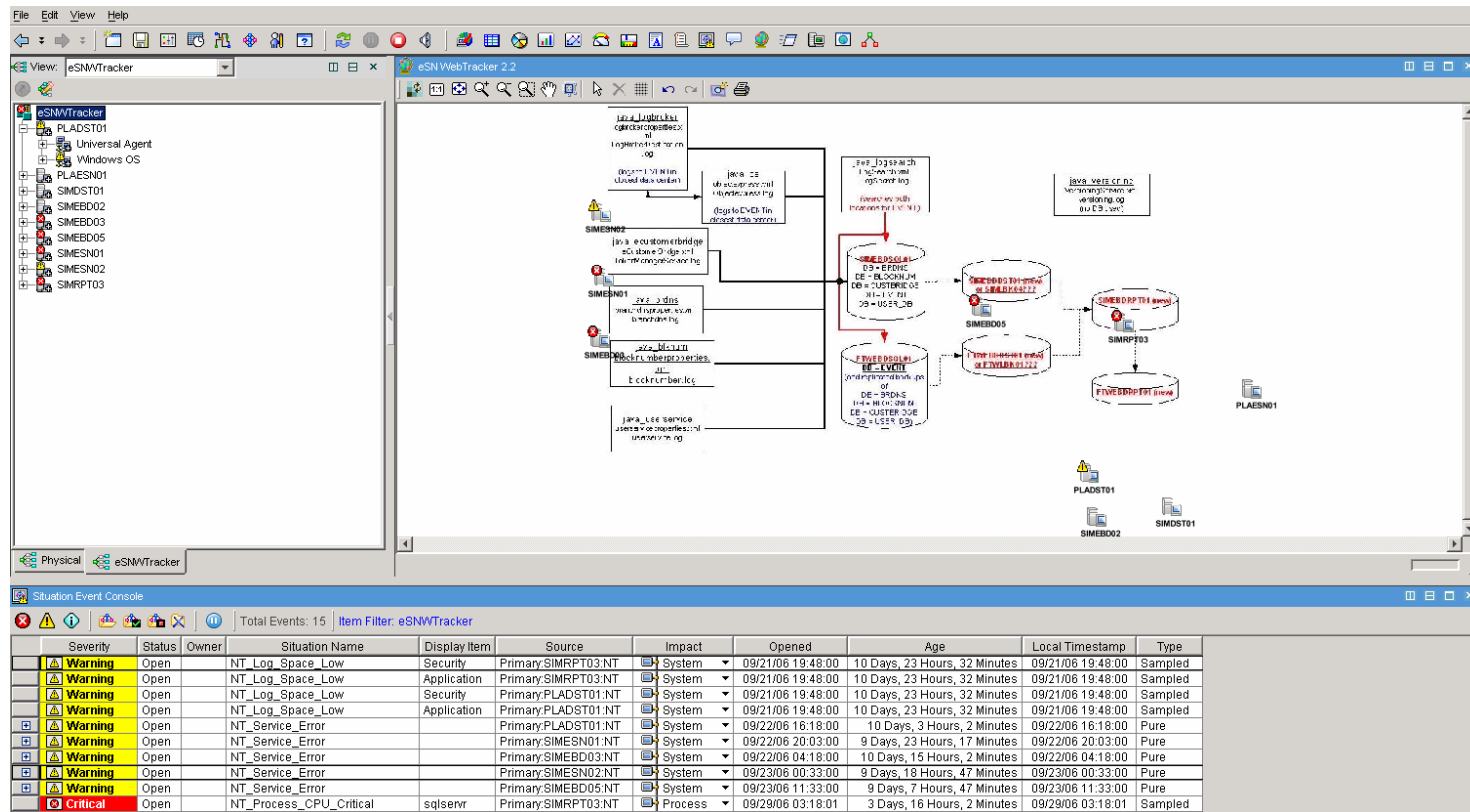
# Application Management Solution





# Benefits – Example 1: eServices Application

- Capacity Planning
- Availability Management
- Performance Metrics





## Benefits – Example 2: FMSI Application

- Detailed application infrastructure information from the application/transaction perspective instead of from the resource perspective
- True understanding of the service being provided from the end user perspective
- True understanding of changes that occur in the application environment

### Transaction Profile - Application View

10/02/06 (18:59:55) - 10/02/06 (19:05:07)  
Last 05 mins 12 secs  
Last 1,724 Transactions

Average Roundtrip Transaction Response Time: 1.348 Secs

Transaction Selection

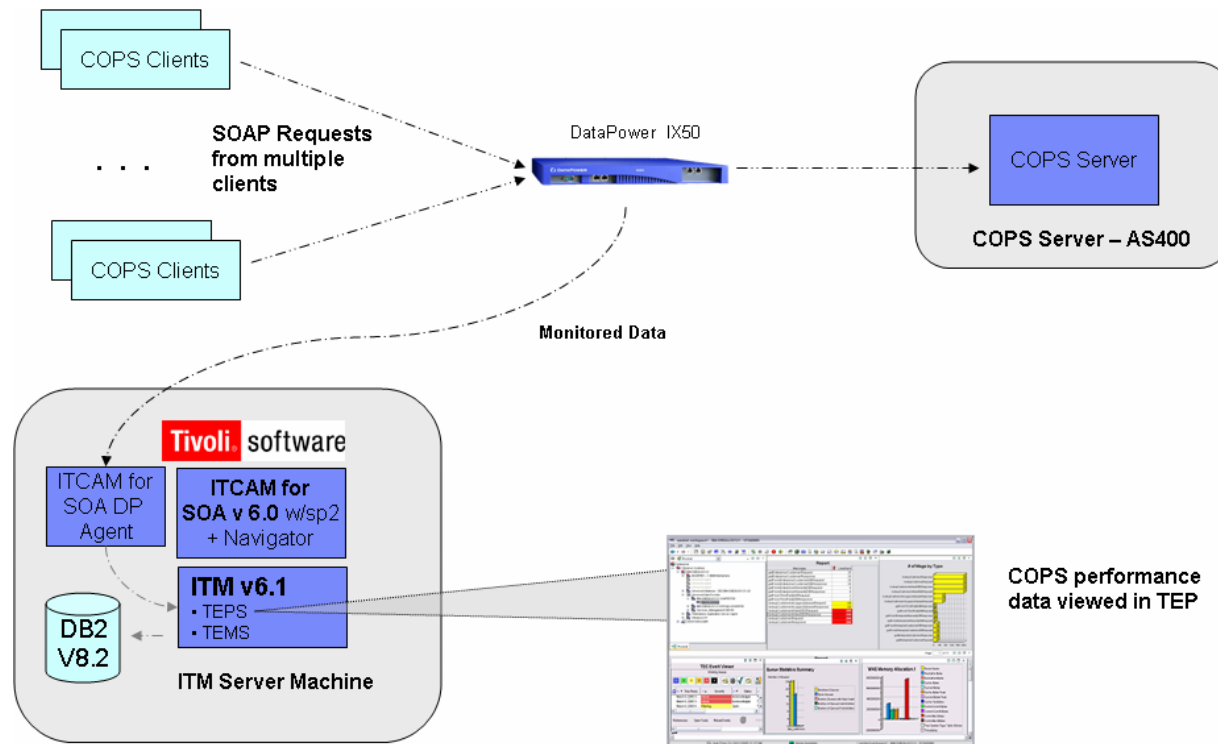
View Selection





## Benefits – Example 3: Data Shield Application

- **Web Service response time and performance metrics**
- **Integrated application views across composite applications**
- **Usage statistics**
- **Automation of software provisioning**





## Summary

- ***IT Service Management solutions should enable Countrywide to tightly align IT with business requirements using ITIL best practices. This will be critical in helping us improve the performance and availability of vital business applications as well as help us achieve our operational cost objectives.***

# Infrastructure and Management for SOA

- Challenges Specific to SOA
- Key Capabilities Required
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# The Management Spectrum

## Management Disciplines

- Asset Management
- Availability Management
- Change Management
- Configuration Management
- Operations Management
- **Performance Management**
- Capacity Planning
- Problem Management
- Security Management
- Business Continuity

## BUSINESS

*Business Processes*

*Services*

*Applications*

*Infrastructure*

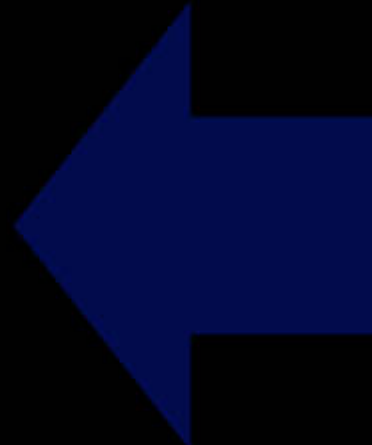
IT

# End to End Performance Management

DEPENDABLE

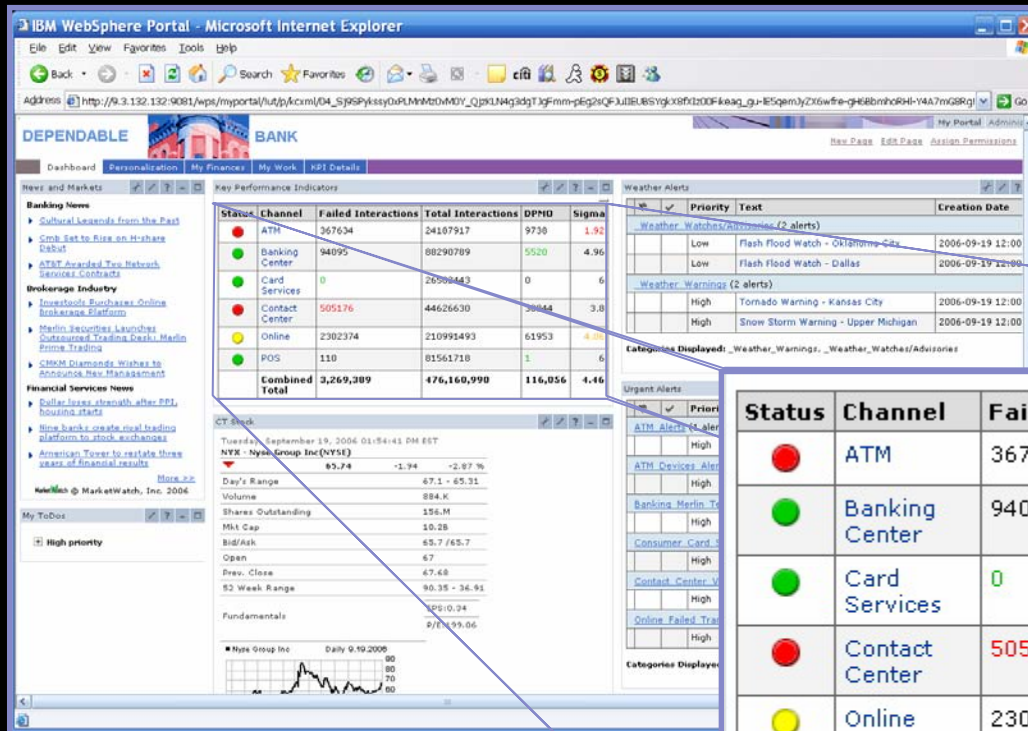


BANK



- Value Statement
  - Increased banking customer satisfaction
  - Ability to deploy bank resources where they will have the most positive impact
  - Ability to link business performance to IT performance across management spectrum

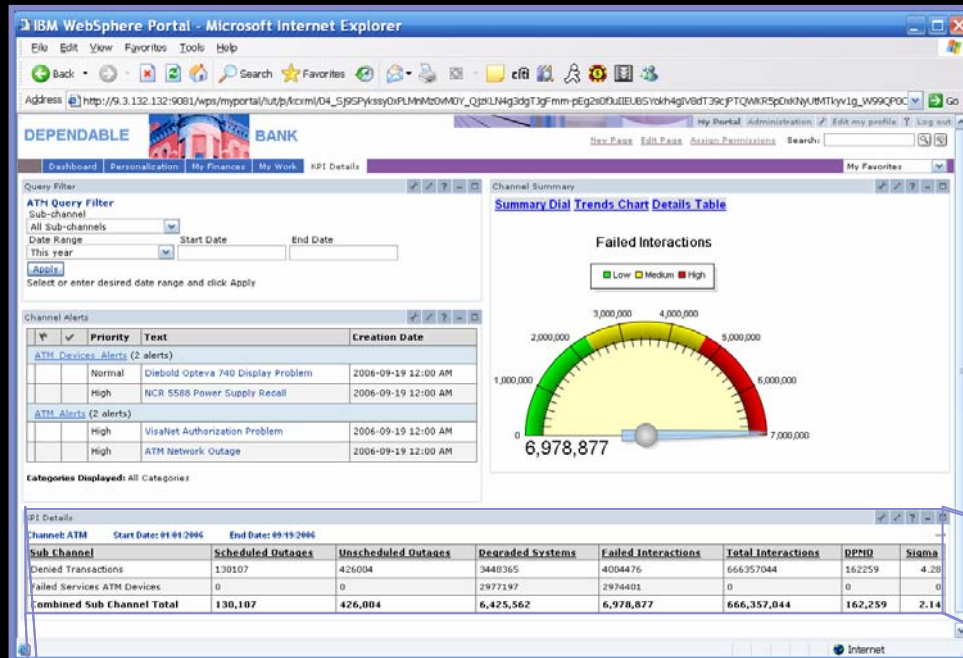
# Business Level Performance Monitoring



*Operations Executive Desktop Showing Key Performance Indicators*

Status	Channel	Failed Interactions	Total Interactions	DPMO	Sigma
●	ATM	367634	24187917	9738	1.92
●	Banking Center	94095	88290789	5520	4.96
●	Card Services	0	26502443	0	6
●	Contact Center	505176	44626630	38844	3.8
●	Online	2302374	210991493	61953	4.06
●	POS	110	81561718	1	6
	<b>Combined Total</b>	<b>3,269,389</b>	<b>476,160,990</b>	<b>116,056</b>	<b>4.46</b>

# Providing Actionable Information



*Abnormally High Number of Failed Interactions Shows a Problem With the ATM Network*

KPI Details

Channel: ATM    Start Date: 01/01/2006    End Date: 09/19/2006

Sub Channel	Scheduled Outages	Unscheduled Outages	Degraded Systems	Failed Interactions	Total Interactions	DPMQ	Sigma
Denied Transactions	130107	426004	3448365	4004476	666357044	162259	4.28
Failed Services ATM Devices	0	0	2977197	2974401	0	0	0
<b>Combined Sub Channel Total</b>	<b>130,107</b>	<b>426,004</b>	<b>6,425,562</b>	<b>6,978,877</b>	<b>666,357,044</b>	<b>162,259</b>	<b>2.14</b>

# Infrastructure Level Performance Management

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

NETCOOL® Suite™ logged in as: Netcool Administrator | Dependable Bank | Logout

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	1080.9499999999998
Michigan	⚠	3345.0	4644.0	751.0	1080.9499999999998
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	8.049999999999999
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

# Infrastructure Level Performance Management

## Isolation of ATM Failures in Ann Arbor, MI

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Service Tree	State	Total TX	Total Revenue	Lost Revenue	Total Cost
NorthEast	▲	3345.0	4644.0	751.0	1080.9499999999998
Michigan	▲	3345.0	4644.0	751.0	1080.9499999999998
Ann Arbor	●	1131.0	1281.0	202.0	359.34999999999997
atm-01-ana	●	1131.0	1281.0	202.0	359.34999999999997

Server Topology

View Service 'atm-01-ana Money' Edit Service 'atm-01-ana Money'

```

graph TD
    Root[atm-01-ana  
Total Money 2000.0] --> US50[US $50  
Total $ 250.0]
    Root --> US20[US $20  
Total $ 0.0]
    Root --> US10[US $10  
Total $ 1500.0]
    Root --> US100[US $100  
Total $ 250.0]
    
```

The screenshot displays a web browser window titled "IBM WebSphere Portal - Microsoft Internet Explorer" showing a dashboard for a "DEPENDABLE BANK". The dashboard is titled "Dependable ATM Service Machine Dashboard" and is divided into three main sections:

- Machine Status:** This section contains several widgets, each represented by a cloud icon on a green base with a small table. The widgets are labeled: "Ann Arbor", "atm-01-ann", "Network", "Security", "Server", and "Consumables".
- Machine KPI:** This section contains several widgets, each represented by a cloud icon on a green base with a small table. The widgets are labeled: "Transactions", "Depend. WD", "Depend. BAL", "Depend. Dep", "AMEX WD", "AMEX BAL", "Interlink WD", "Interlink BAL", "Visa WD", and "Visa BAL".
- Money Status:** This section contains several widgets, each represented by a cloud icon on a red or green base with a small table. The widgets are labeled: "Total Money 5300.0 Money", "Total \$ 0.0 US \$100", "Total \$ 0.0 US \$50", "Total \$ 4200.0 US \$20", and "Total \$ 1100.0 US \$10".

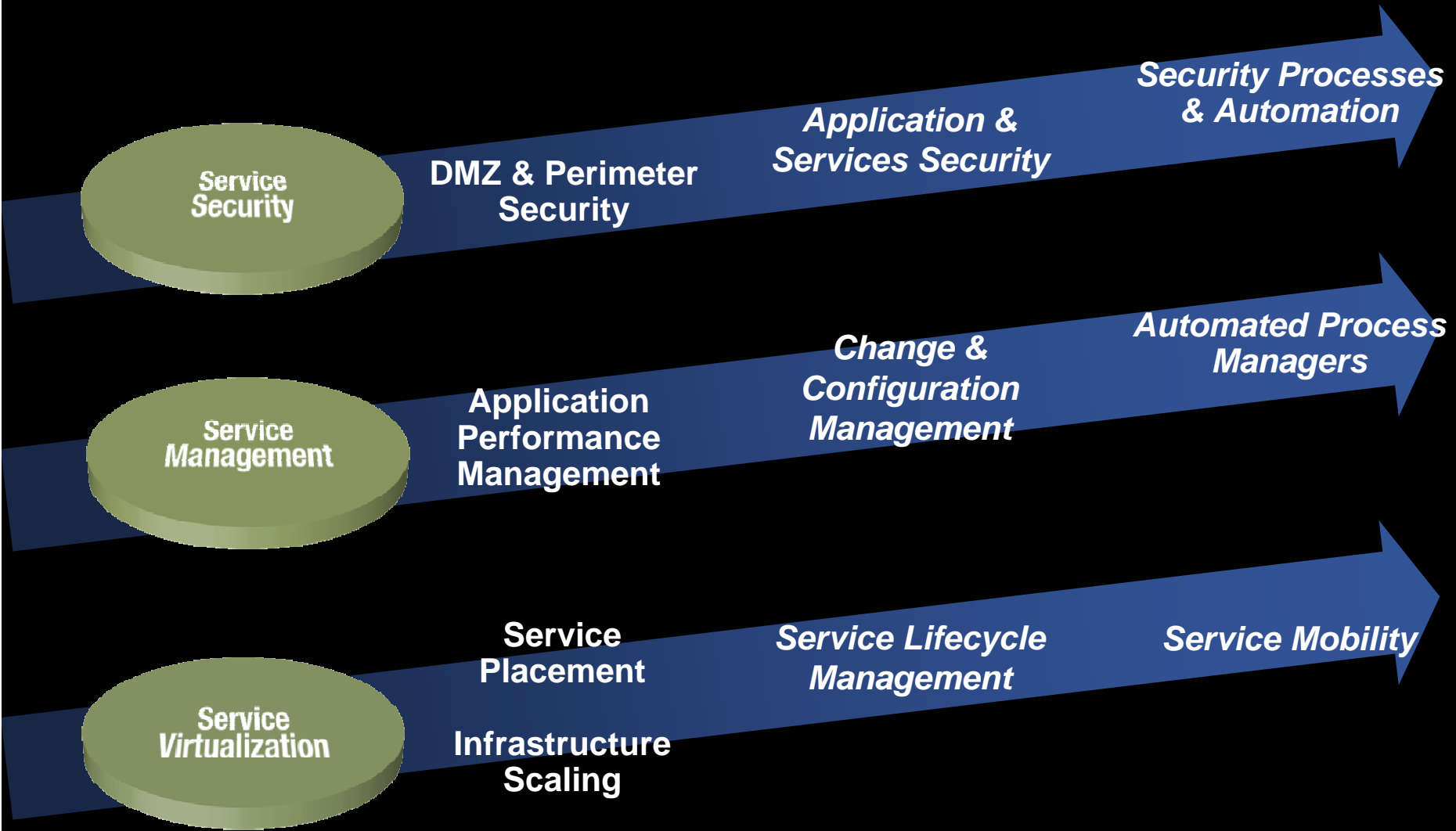
On the right side of the dashboard, there is a photograph of a physical ATM machine. The browser window shows navigation tabs for "Dashboard" and "KPI Details", and a status bar at the bottom with "Done" and "Internet" indicators.

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# Getting Started and Moving Forward





IBM SOA

Thank you!

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