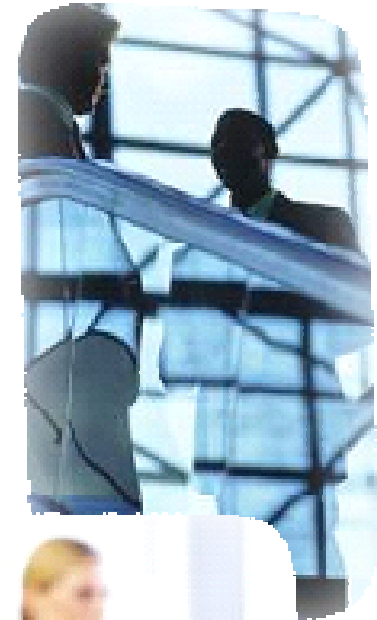# IT Security, Management and Infrastructure Extensions to Maximize SOA Value

Speaker Name Here

Agenda

- SOA impact on IT infrastructure

- Extending IT security for SOA

- Service management for SOA

- Flexible IT infrastructure for SOA

- Establishing an IT infrastructure roadmap for SOA

- Q&A
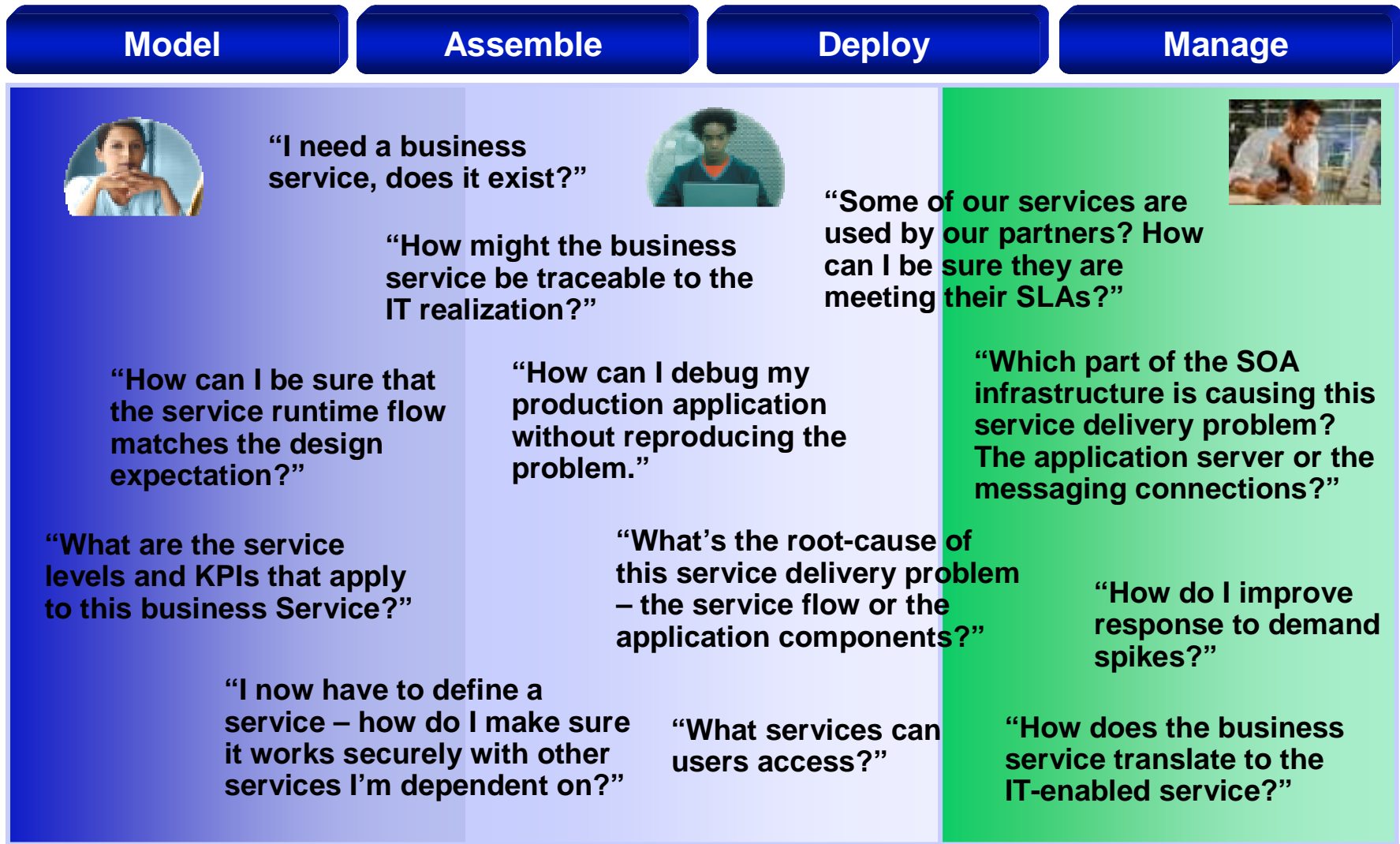
SOA impact on IT infrastructure

SOA Service Benefits

- Cross traditional silos

- Reuse applications in new dynamic ways

- Build from a combination of multiple sources

- Change and deploy rapidly

- Route to any available resource
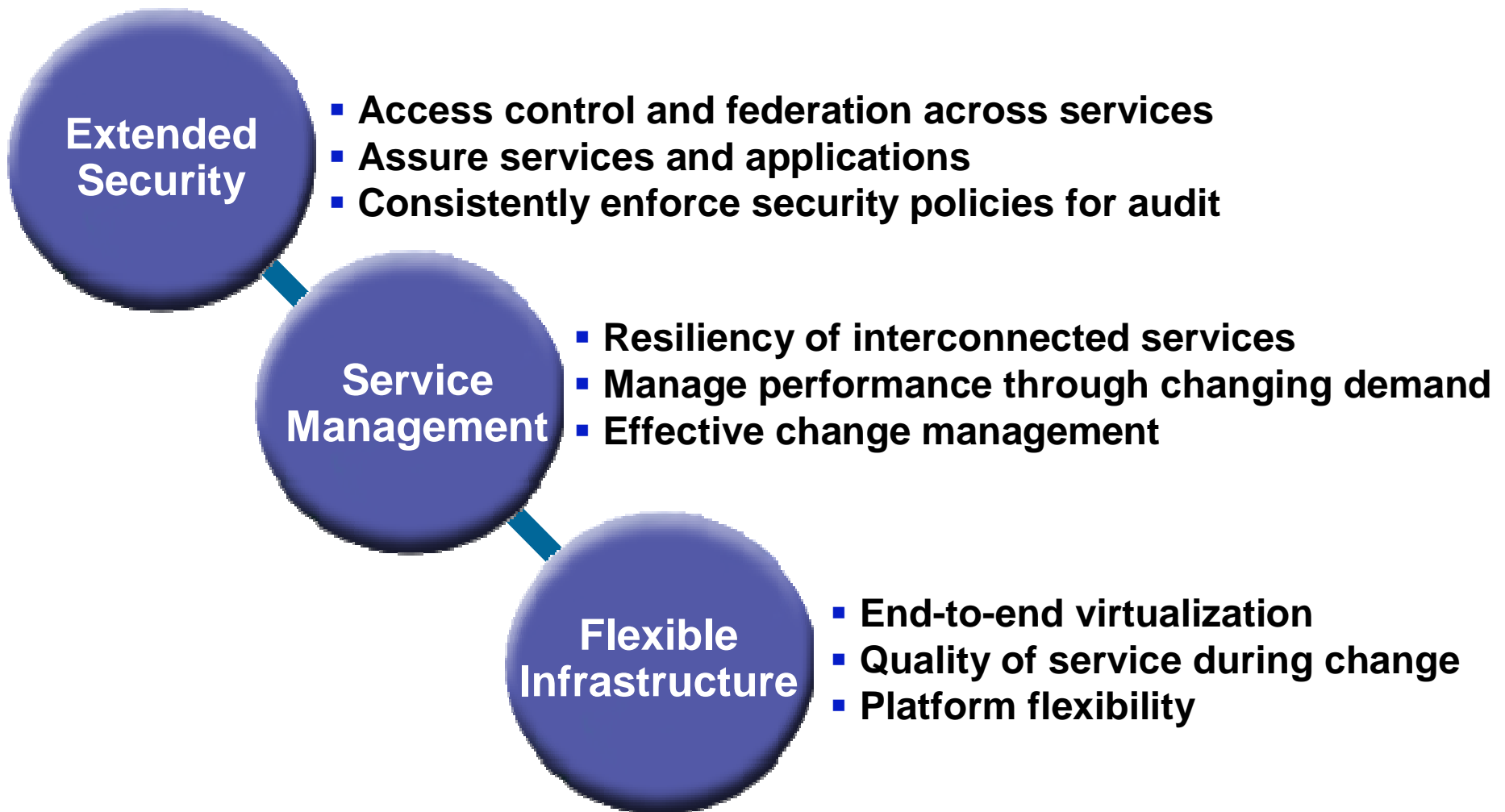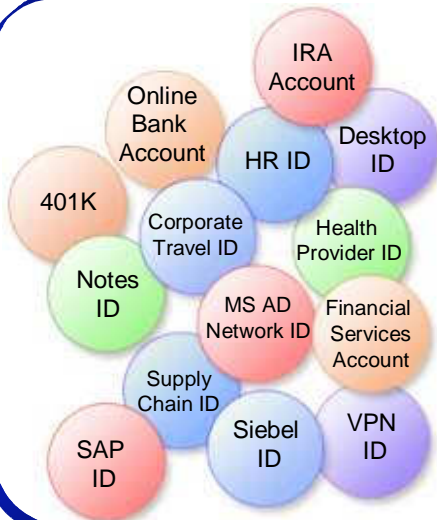
- Distribute access

IT Infrastructure Impacts

Less Predictable Demand

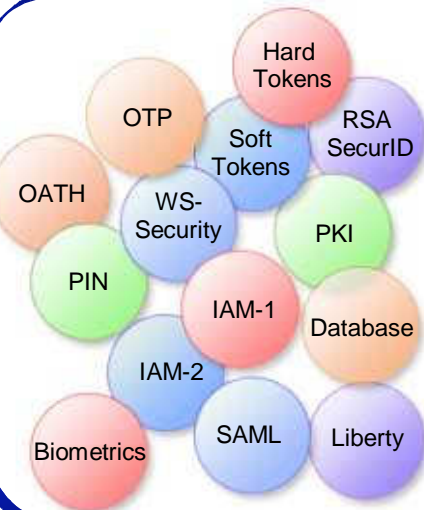Growth and Rapid Scaling

More Integration and Linkage

Increased Pace of Change

Business Need Prioritization

Virtualized Environment

Extended Security Needs

How SOA Affects the IT Lifecycle

| Model | Assemble | Deploy | Manage |

"I need a business service, does it exist?"

"How might the business service be traceable to the IT realization?"

"Some of our services are used by our partners? How can I be sure they are meeting their SLAs?"

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

"How can I debug my production application without reproducing the problem."

"Which part of the SOA infrastructure is causing this service delivery problem? The application server or the messaging connections?"

"What are the service levels and KPIs that apply to this business Service?"

"What's the root-cause of this service delivery problem – the service flow or the application components?"

"How do I improve response to demand spikes?"

"I now have to define a service – how do I make sure it works securely with other services I'm dependent on?"

"What services can users access?"

"How does the business service translate to the IT-enabled service?"

Meeting the Infrastructure for SOA challenge

Extended Security

- **Access control and federation across services**
- **Assure services and applications**
- **Consistently enforce security policies for audit**

Service Management

- **Resiliency of interconnected services**
- **Manage performance through changing demand**
- **Effective change management**

Flexible Infrastructure

- **End-to-end virtualization**
- **Quality of service during change**
- **Platform flexibility**

Identity Integration Challenges in SOA

Online Bank Account • IRA Account • 401K • HR ID • Desktop ID • Corporate Travel ID • Health Provider ID • Notes ID • MS AD Network ID • Financial Services Account • Supply Chain ID • SAP ID • Siebel ID • VPN ID

- **Each application brings its own ID**
- **Each ID does not work with other IDs**
- **Each ID adds cost and complexity**
- **Each ID adds business risk to compliance**

OTP • Hard Tokens • RSA SecurID • Soft Tokens • OATH • WS-Security • PKI • PIN • IAM-1 • Database • IAM-2 • Biometrics • SAML • Liberty

- **Each application brings its own credential**
- **Each credential does not work with other IDs**
- **Each credential needs risk assessment and management before sharing**
- **Each CRED adds business risk to compliance**

Service 3 — Service 1 — Service 2 — Service 4 — Service 4

Application Integration Problem
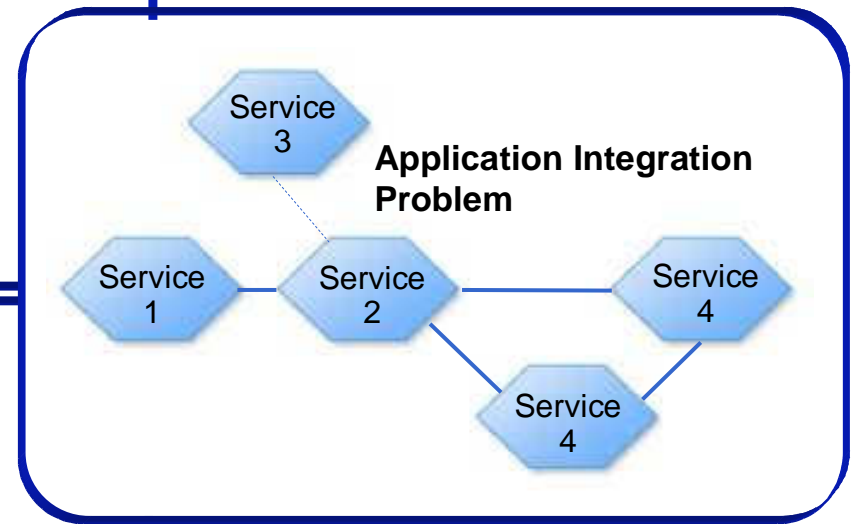
Extending Security for SOA
Identity, Assurance and Compliance

Identity and Access Control

Identity & access control across services

- End-to-end identity propagation from silos to services

- Control access levels to services with trusted identities

- Provision identities automatically to reduce costs

Assurance

Assure service security with message and user-based protection

- Unified trust management to create secure communities

- Secure XML messaging and threat protection

- Identity-driven security across heterogeneous domains & environments (applications, services, data & transactions)

Compliance

Monitor and enforce policies for audit & compliance

- Enterprise security monitoring, management and reporting

- Consistently enforce security policies for services

- Automate user account validation to enforce access policies

SOA Security Management Offerings from IBM

New and Enhanced!

IBM Professional Services

- SOA Application Security Assessment
- SOA Security Requirements
- SOA Security Architecture
- SOA Security Implementation
- Data Integrity and Privacy Services
- Infrastructure Security Services
- **ISS Managed Services**

IBM Hardware Solutions

- **WebSphere DataPower XML Security Gateway XS40**
- Storage
  - Encrypted tape drive and Psec Encryption for distance extension and protocol conversion
- System z
  - Encryption facility for z/OS
  - CryptoExpress2 secure key

IBM SOA Security Software Solutions

- Tivoli Access Manager
- Tivoli Federated Identity Manager
  - Identity propagation
  - Federated single sign-on
- **Tivoli Federated Identity Manager on zSeries**
- **Tivoli Federated Identity Manager Business Gateway**
- **Tivoli Consul Insight Suite**
  - **Compliance Dashboard**
  - **User Activity Monitoring**
- Tivoli Security Operations Manager
- **Tivoli Composite Application Manager SE for DataPower**

Service Management Challenges in SOA

SOA helps enable innovation and rapid change, but …

How do you:

- Maintain performance and availability through unpredictable demand

- Have visibility and control of services and their underlying components

- Control change and release of interconnected services

- Resolve problems within the multiple services layers

Business depends on quality service delivery

Service Management for SOA
Insight, Visibility, and Control

Service Resiliency

Ensure resiliency of interconnected services and resources

- Monitor services end to end to isolate and fix problems

- Performance management across all services

- Availability management for supporting applications

Manage Performance

Manage performance based on QoS through changing demand

- Use services dashboard to view application demand levels and related service level reporting

- Manage performance of services components - Messages

- Automate provisioning and control of services to meet SLAs

Effective Change Management

Effective change management across linked services

- Discover relationships to improve application availability

- Track and predict change to reduce costs and downtime

- Dynamic reroute of services for upgrades or changes in real time

SOA Service Management Offerings from IBM

New and Enhanced!

IBM Professional Services

- *Business of IT Executive Workshop*
- **Business of IT Dashboard**
- Management of Services for SOA
- SOA Management Planning
- **Test Center of Excellence for SOA**
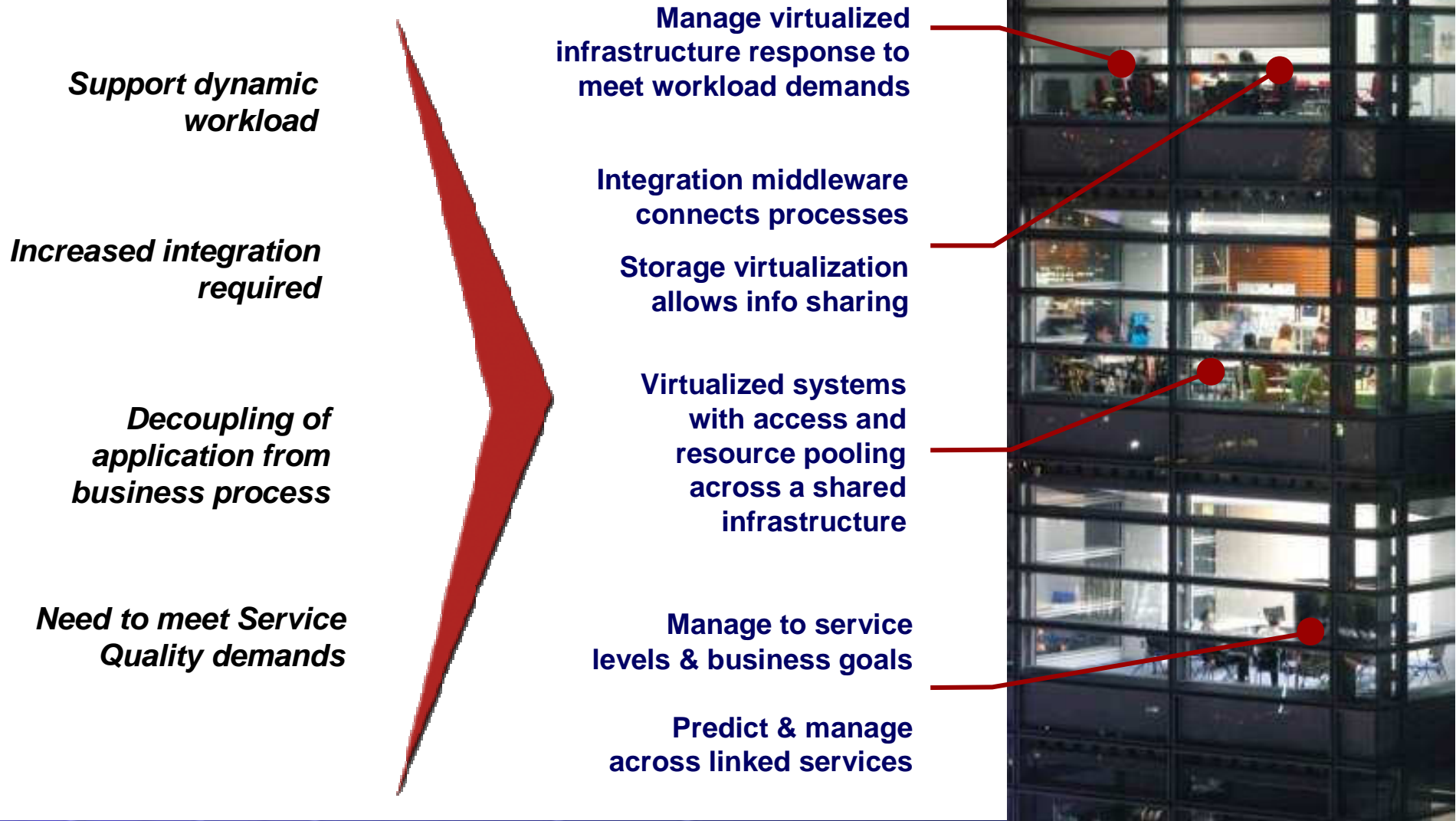- Service Management Strategy/Planning
- Service Management Implementation

Development Efficiency with IBM Rational Software

- Process and Portfolio Management
- Quality and Testing
  - *IBM Rational Tester for SOA Quality*

Operational Management with IBM Tivoli Software

- **IBM Tivoli Composite Application Management (ITCAM) Family**
  - **ITCAM for Response Time**
  - **ITCAM for Web Resources**
  - **ITCAM for SOA enhancements**
    - **Views by service requestor for charge back and SLA reporting**
    - **Support for monitoring service flows through WebSphere Message Broker**
- Monitoring
  - *zSeries (OMEGAMON) to PDA Monitoring*
  - Tivoli Business Services Manager
- Change and Release Management
  - CCMDB
  - IBM Tivoli Release Manager
  - IBM Tivoli Process Manager

Value of a dynamic infrastructure for SOA implementations

Support dynamic workload

Increased integration required

Decoupling of application from business process

Need to meet Service Quality demands

Manage virtualized infrastructure response to meet workload demands

Integration middleware connects processes

Storage virtualization allows info sharing

Virtualized systems with access and resource pooling across a shared infrastructure

Manage to service levels & business goals

Predict & manage across linked services

Key Flexible Infrastructure Characteristics for SOA

Virtualization

"Optimize workloads across shared resources"

- Service workload virtualization
- Pooled resources moving beyond physical constraints
- Proactive management and control of virtual infrastructure for SOA

Quality of Service

"Fast and predictable execution of work"

- Responsiveness to service performance demands
- High service availability
- Dynamically adjust infrastructure

Platform Flexibility

"The right infrastructure for the job"

- Easily configure infrastructure for specific service workload needs
- Platform choice with common management
- Overcome datacenter limitations to SOA growth

End-to-end Virtualization

Resource Virtualization

- Consolidate resources into a single virtual pool
- Improved asset utilization
- Dynamically allocate processing capabilities

Workload Virtualization

- Use server resources more effectively
- Quickly adapt to changing workload and business requirements
- Drive up utilization, achieve SLA
- Automate selected admin functions to reduce complexity

Information Virtualization

- Relieve load on backend data store
- Improve transaction throughput & response time
- Achieve near-linear scalability
- Reduce or eliminate need for constant tuning
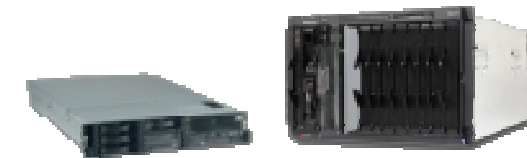
Flexible deployment options

System z™

z/OS

z/VM

**Capacity on Demand
Extreme Virtualization**

**System
Storage™**
**San Volume
Controller**

IBM TotalStorage
SAN Volume Controller

System i™

i5OS

System p™

AIX L

Advanced POWER Virtualization
NEW - Live Partition Mobility

**System x™ and
BladeCenter®**

vmware

Microsoft
Virtual Server

Xen

**Specialized
Appliances &
Engines**
• WebSphere DataPower
SOA Appliances
• zIIP, zAAP and IFL
engines for System z

WebSphere software

Meeting the Infrastructure for SOA challenge

Extended Security

- Access control and federation across services
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Service Management

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As SOA Evolves, so must the Infrastructure……..

Service Integration Maturity Model

	Point to Point	Loosely Coupled	Composite	Dynamic
Applications	Modules Objects Components	Services	Process Integration via Services	Dynamic Application Assembly
Architecture	Monolithic Layered Component	Emerging SOA	SOA	Service Networks
Infrastructure	Siloed	Siloed Consolidated	Virtualized Automated	Self Adjusting Orchestrated
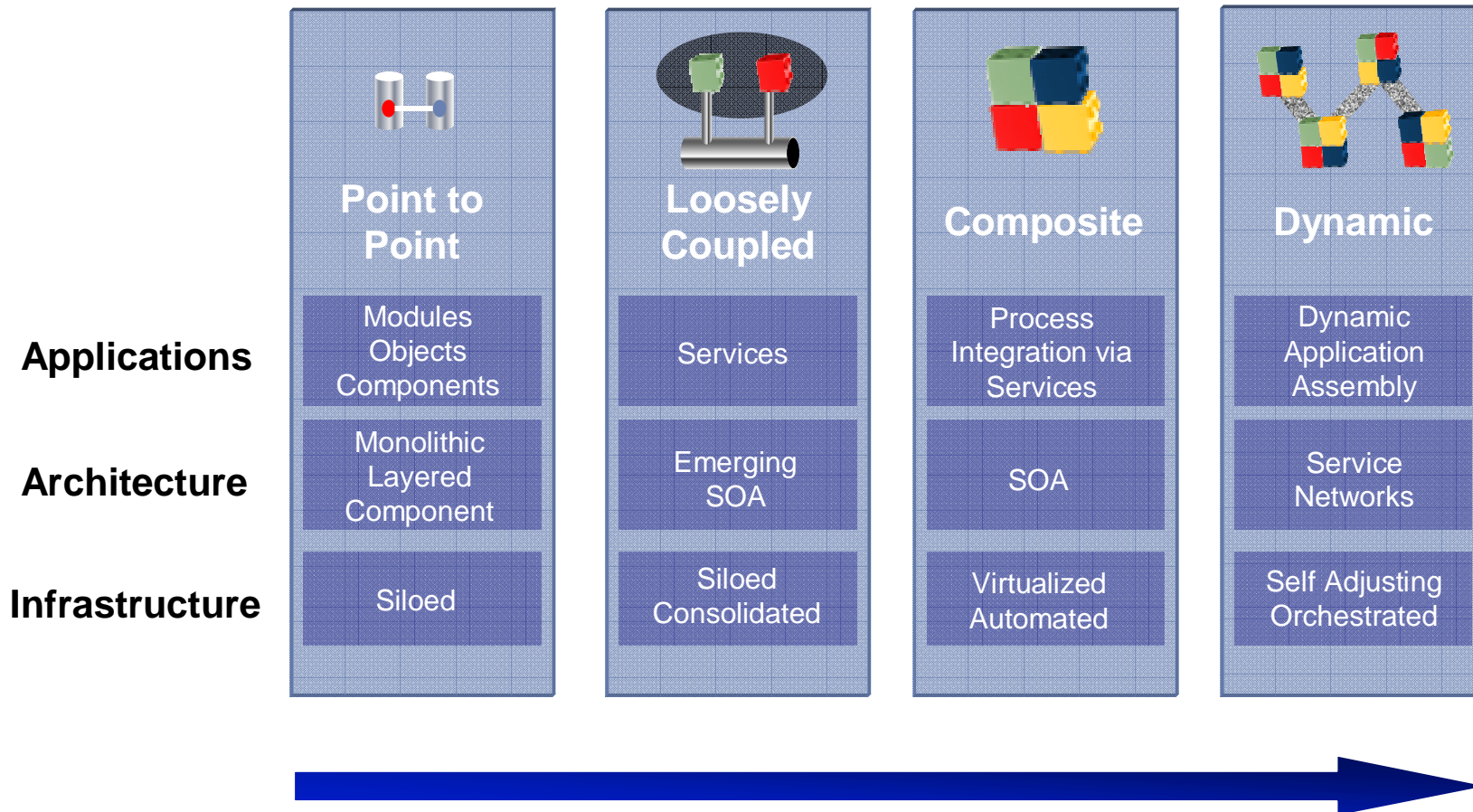
Evolving Client's Infrastructure requires End-to-end Approach along with Implementation of Key Technologies

Strategy and Planning → **Architecture and Design** → **Implementation And Test**

- *Identify opportunities to apply SOA innovations to meet business and IT objectives?*

- *Understand how SOA infrastructure management and service management will support the SOA environment?*

- *Determine IT readiness to incorporate SOA technologies into the environment?*

How do you :

- *Create an architectural framework and the infrastructure designs to support SOA?*

- *Accelerate and refine the SOA architecture and design process and transition plan?*

- *Develop SOA infrastructure solution plan including business case, detailed designs, operational model ?*

- *Integrate siloed applications and value net through an extensible infrastructure foundation*

- *Optimize, scale and automate your SOA foundation?*

- *Integrate with your existing middleware infrastructure?*

- *Ensure your new SOA services respond under normal and peak conditions?*

GTS provides new and enhanced services to help clients transition their IT Infrastructure in support of SOA

Strategy and Planning

Infrastructure strategy and planning workshop for SOA

New!

Infrastructure readiness for SOA

Enhanced!

Architecture and Design

Infrastructure architecture and design for SOA

IT Operating Environment Reference Architecture

Enhanced!

Testing and Implementation

• **Portal infrastructure**
• **Web application server**
• **Server & Storage Virtualization Services**
• **Web infrastructure optimization & virtualization**

New!

Connectivity and reuse

Enhanced!

✓ **Testing center of excellence**

New!

SOA Deployment Best Practices & Lessons Learned

Methodical, cross-IBM, global approach to capture, analyze, feedback SOA deployment experiences

- SOA Deployment Lessons Learned / Best Practices Conference executed through IBM Academy of Technology
- Applied standardized Case Study Template
  - incl. client situation, project, architectural work products, intellectual capital, lessons learned, best practices)
- Structured into 10 domain categories
  - BPM, ESB, Information, Methods, Solutions, NFRs, PoCs, Development, Testing, Organization
- 200+ submissions resulted in ~100 completed case studies, with 750 lessons learned/650 best practices
  - analyzed and fed back to product and services organizations
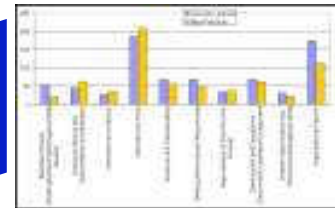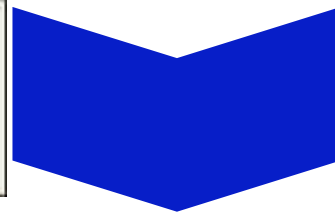
Architecting the right SOA Infrastructure is a core activity of SOA deployments

- <u>Early consideration of infrastructure</u> requirements is essential, to avoid an out-of-synch situation between functional and non-functional requirements
- SOA infrastructure may be project specific in early stages, often real benefits to be gained from <u>standardization at a broader enterprise level</u>, with its own adoption path/maturity model
- Paradigm shift visible in IT organizations from being resource providers to becoming service providers, with an <u>infrastructure becoming service-based</u> itself
- <u>Virtualization and provisioning</u> capabilities enable a service-oriented infrastructure
- The right <u>balance between flexibility and complexity</u> is an important architectural consideration

Why IBM?

Demonstrated Leadership

Unique Blend of SOA Expertise and Infrastructure and Management Software, Hardware and Professional Services Offerings in Support of SOA

Contributors to over **50 SOA-based** standards committees

600 employees are subject matter thought leaders in IT strategy and architecture

Practical application of expertise: **IBM's own IT** transformation and cost optimization project

55,000 employees trained as IT infrastructure experts in 164 countries

Over 4500 SOA engagements and assessments

40 years of virtualization experience (IBM invented it)

2,500 storage virtualization clients

Over 33,000 Mainframe, UNIX®, and System i companies exploit systems-level virtualization

IBM System x clients deploy over **1,000 virtual servers** a day

IBM can virtualize over **80%** of a client's infrastructure

We're Ready with Unmatched Capabilities
For Scaling to Production Volumes, Reliability & Availability

Wimbledon had peak 1 million hits/min, 30K simultaneous access to scoreboard

The IBM ODW handles high volumes of traffic, averaging 30 million requests a day, while maintaining sub-second transaction response times for many applications

Schwab.com handles 16.5 million transactions per day

Wimbledon

Tony Awards

Australian Open

IBM On Demand Workplace

eBay

Office Depot

Schwab

Nissan

Bank of Montreal

AAA Carolinas

Shell

Pear's Gourmet

Tennis Australia had 4.2 million unique fans view over 145 million pages on its site during the 14-day tournament

eBay.com is running on WebSphere and handles 1+ billion page views/day

Implementing the Infrastructure

Vast internal and external engagement experience
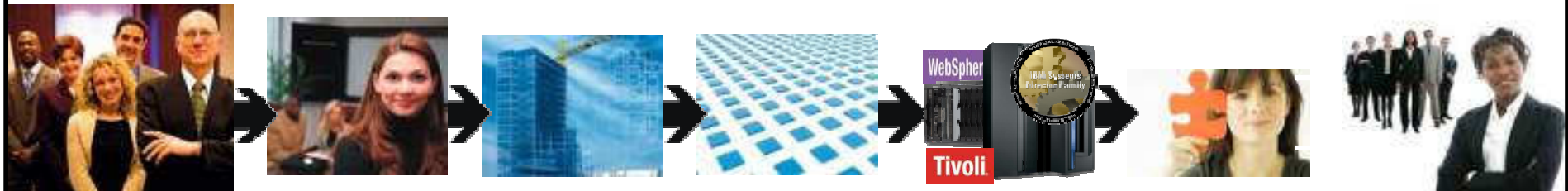
| IBM Intellectual Capital | Best Practices IT Principles | Architecture & Standards | Patterns | Innovative Products | Integrated Solutions | Clients |

Point of View – "The full picture"

How to best apply technology and methods to improve your IT cost, flexibility, and service level.

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