IT Security, Management and Infrastructure Extensions to Maximize SOA Value

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Agenda

- Impact of SOA on the IT infrastructure

- Extending IT security for SOA

- Service management for SOA

- Flexible IT infrastructure for SOA

SOA Affects the entire 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?"

"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."

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

"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?"

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

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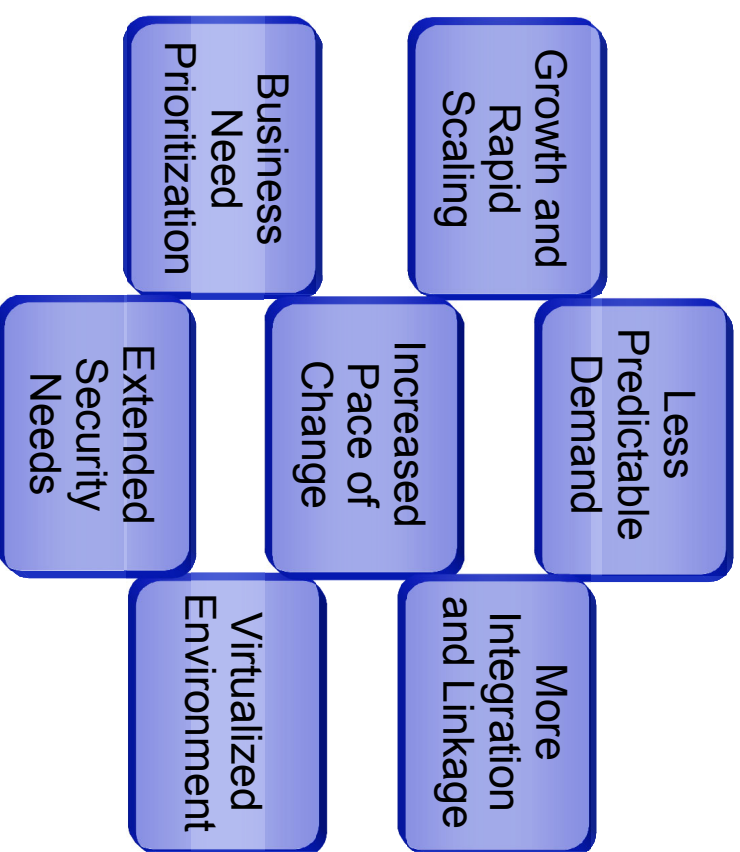
"What services can users access?"

"How do I improve response to demand spikes?"

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

IMAGE
NOT
AVAILABLE

3

Impact of SOA on the IT infrastructure
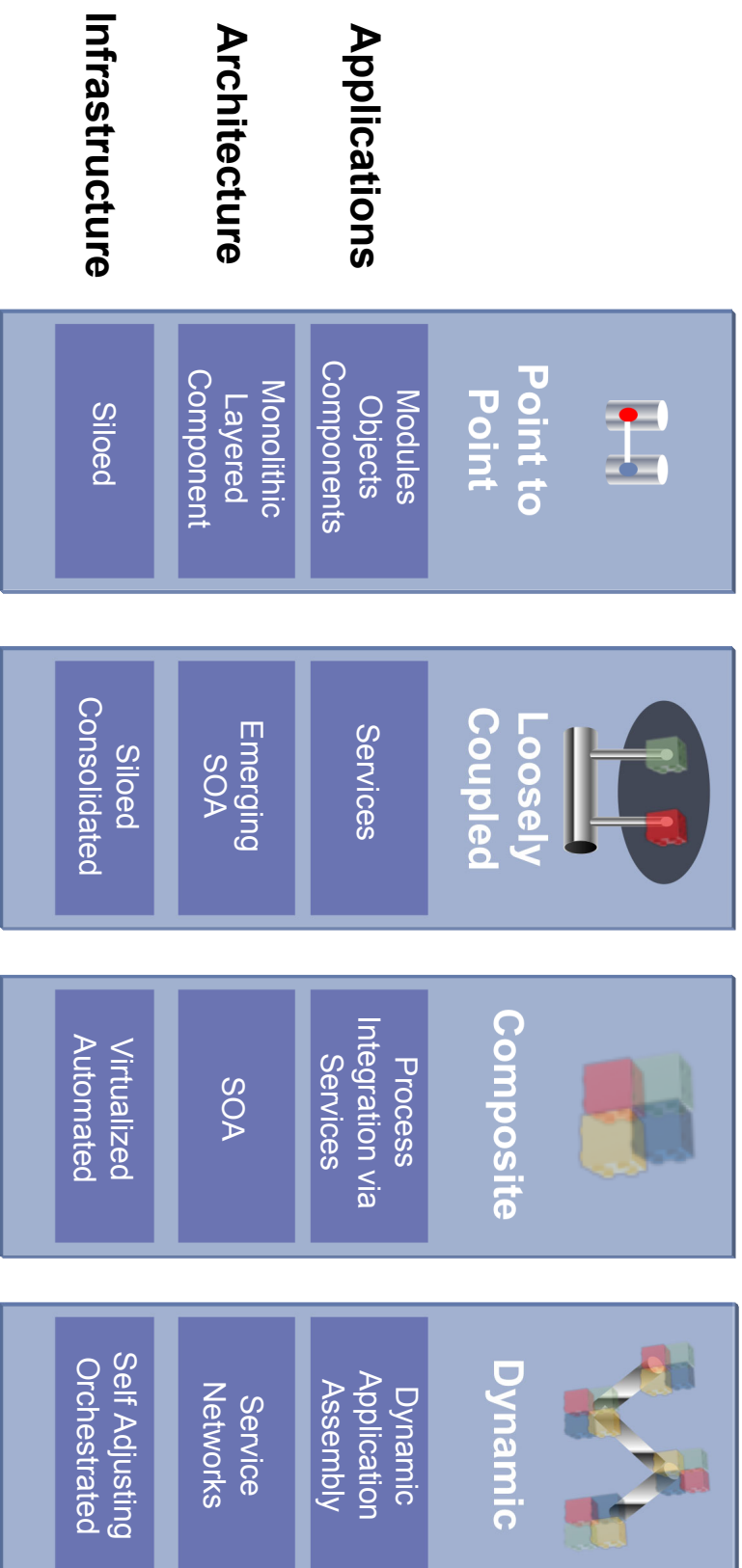
SOA Service Benefits

- Cross traditional silos

- Dynamically reuse applications in new ways

- Build from a combination of multiple sources

- Deploy, change and redeploy rapidly

- Route to any available resource
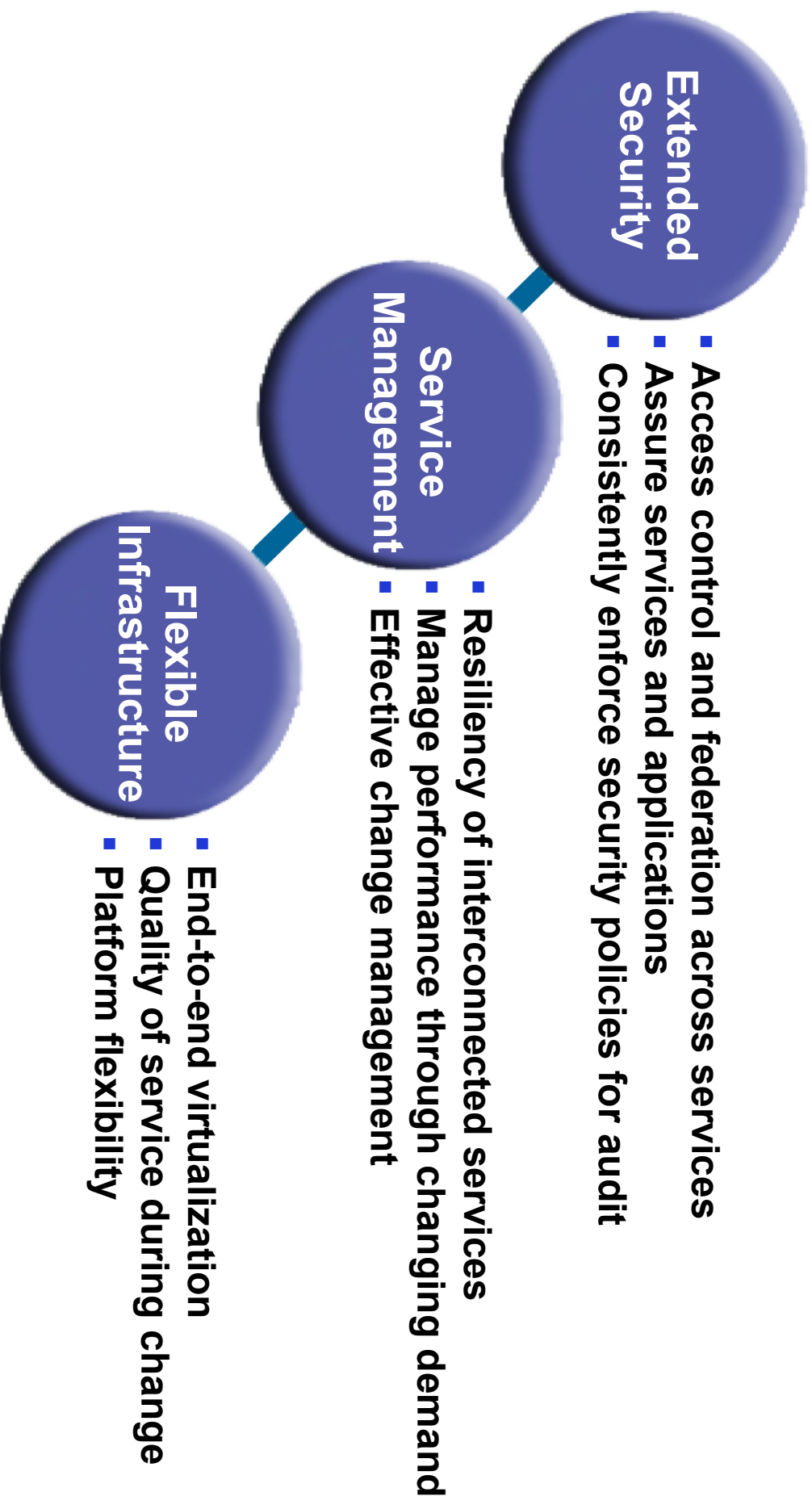
- Distribute access

IT Infrastructure Impacts

Growth and Rapid Scaling

Business Need Prioritization

Less Predictable Demand

Increased Pace of Change

Extended Security Needs

More Integration and Linkage

Virtualized Environment

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

Service Integration Maturity Model

Infrastructure

Architecture

Applications

Point to Point

| Modules Objects Components |
| Monolithic Layered Component |
| Siloed |

Loosely Coupled

| Services |
| Emerging SOA |
| Siloed Consolidated |

Composite

| Process Integration via Services |
| SOA |
| Virtualized Automated |

Dynamic

| Dynamic Application Assembly |
| Service Networks |
| Self Adjusting Orchestrated |

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

Application Integration Problem

Service 1
Service 2
Service 3
Service 4
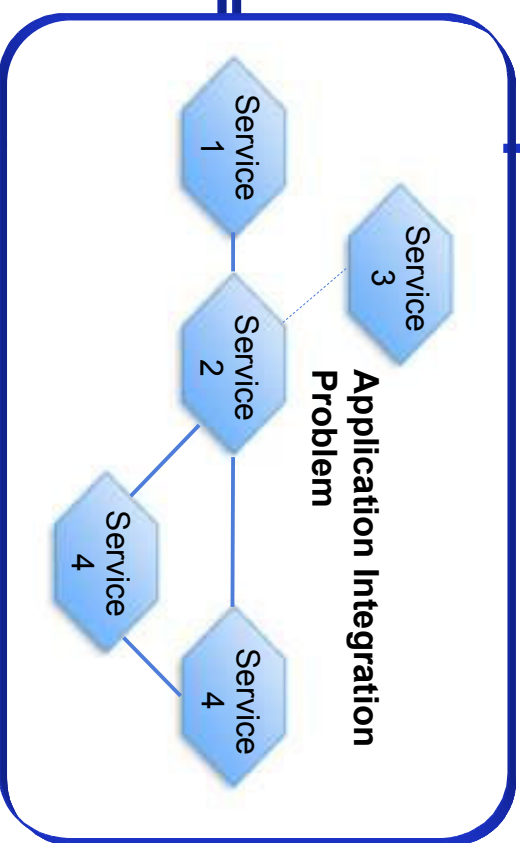Service 4
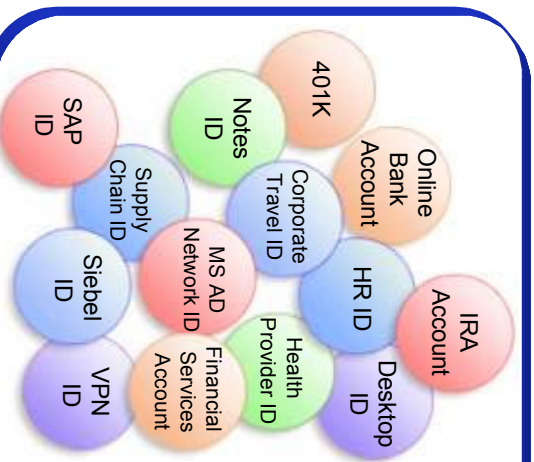
- Each application brings its own ID
- Each ID does not work with other IDs
- Each ID adds cost and complexity
- Each ID adds business risk to compliance

401K
Online Bank Account
Notes ID
Corporate Travel ID
SAP ID
Supply Chain ID
MS AD Network ID
HR ID
IRA Account
Siebel ID
Financial Services Account
Health Provider ID
Desktop ID
VPN ID
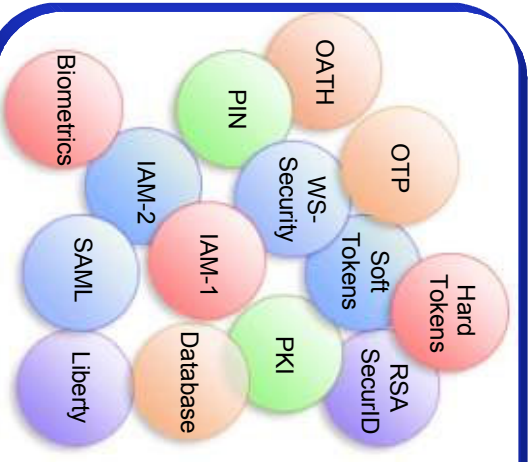
- Each application brings its own credential
- Each credential does not work with other IDs
- Each credential needs risk assessment and management before sharing
- Each CRED adds business risk to compliance

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

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

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

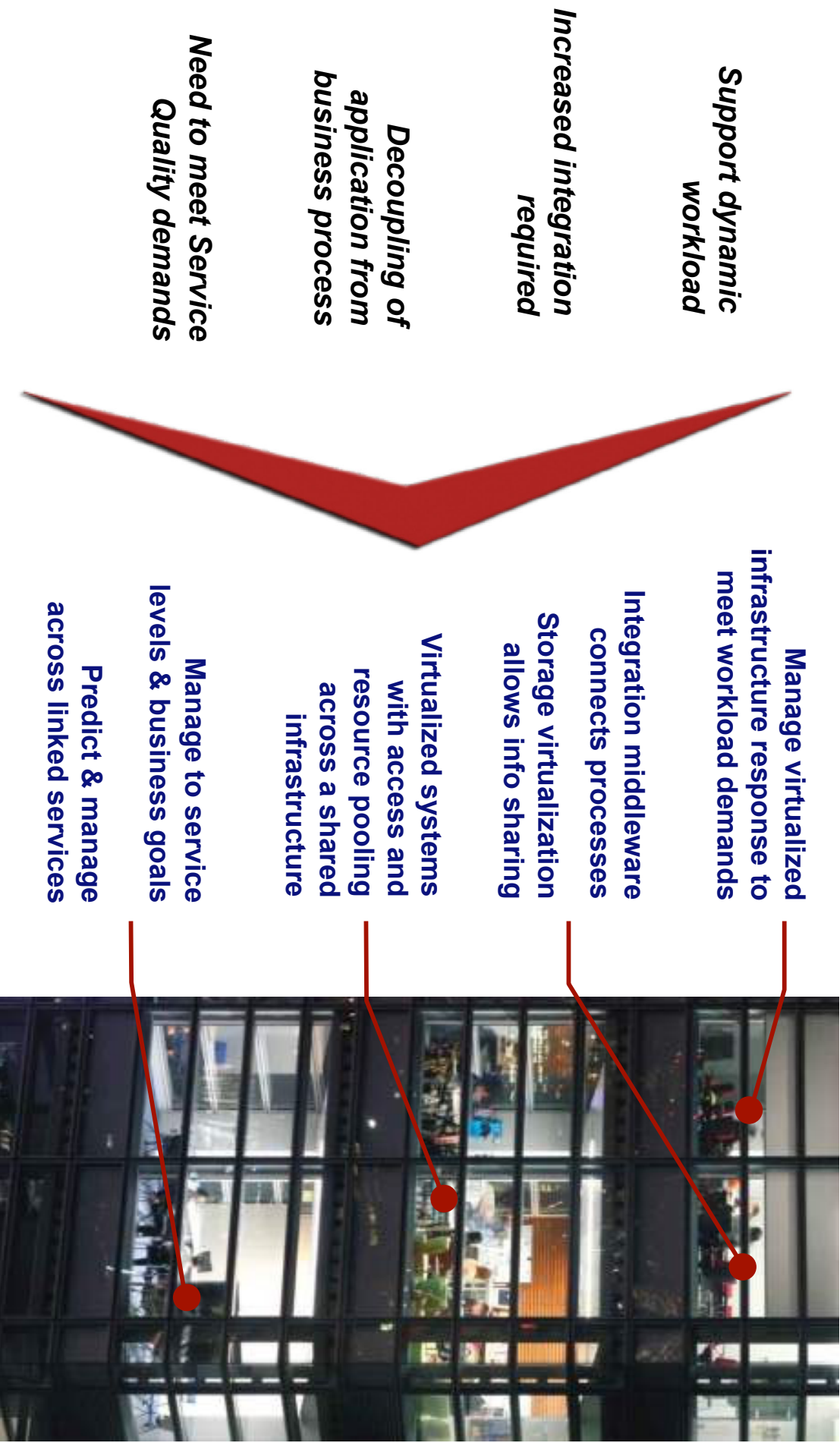**Manage performance based on QoS through changing demand**

- 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

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

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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
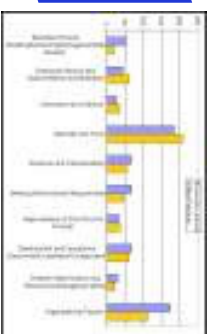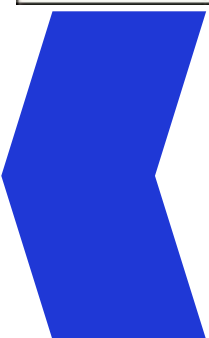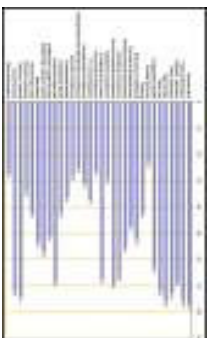
Architecting the right SOA infrastructure is a core activity of SOA deployments

- Early consideration of infrastructure 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 standardization at a broader enterprise level, with its own adoption path/maturity model
- Paradigm shift visible in IT organizations from being resource providers to becoming service providers, with an infrastructure becoming service-based itself
- Virtualization and provisioning capabilities enable a service-oriented infrastructure
- The right balance between flexibility and complexity is an important architectural consideration
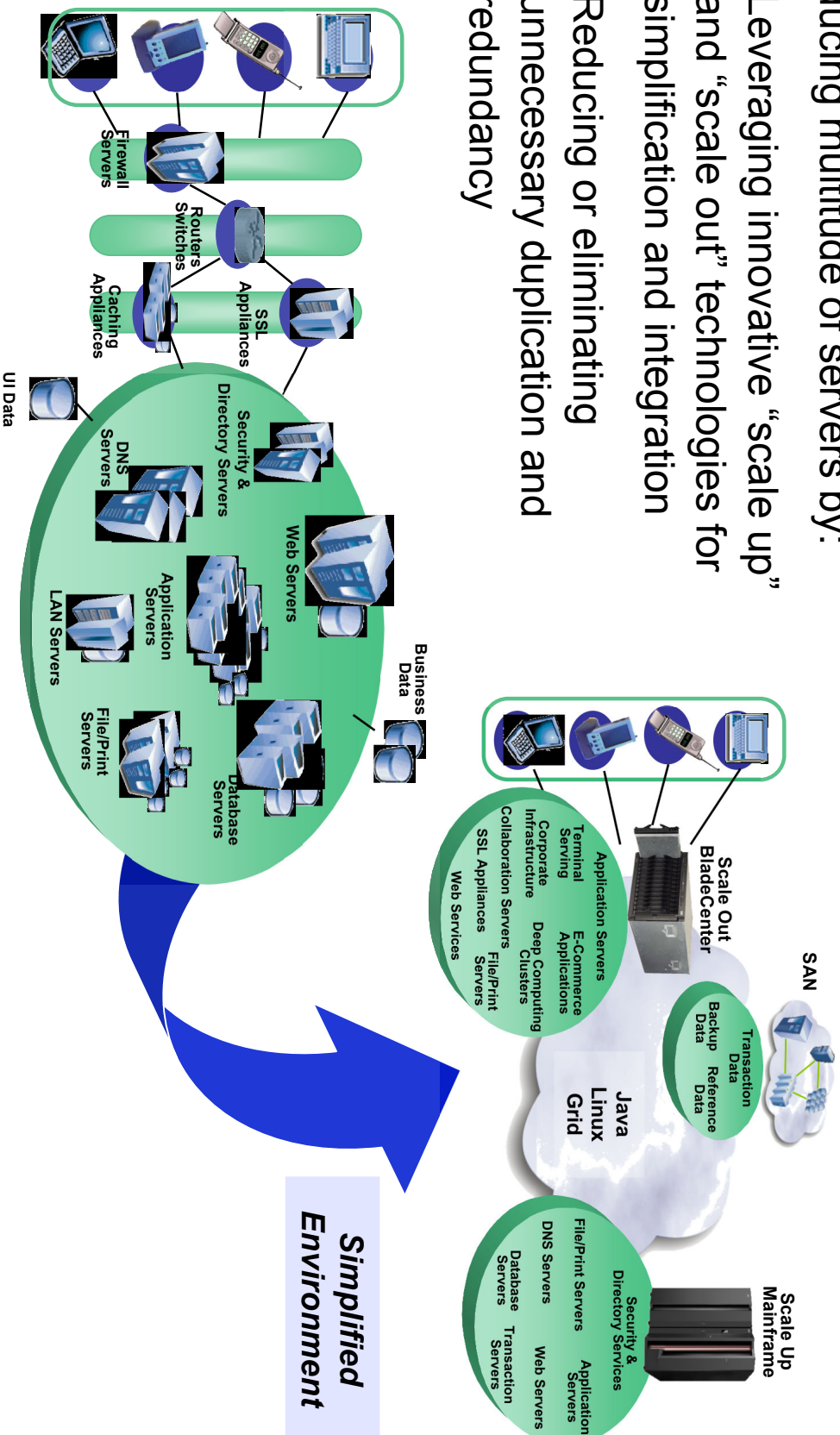
Standardisation

Standardisation of operating environments

■ Fewer well-defined platforms

 – Server, Storage, Network

 – Operating systems

 – Middleware & applications

■ Reducing number of operating systems and middleware instances per application

 – Get away from 1 server per application

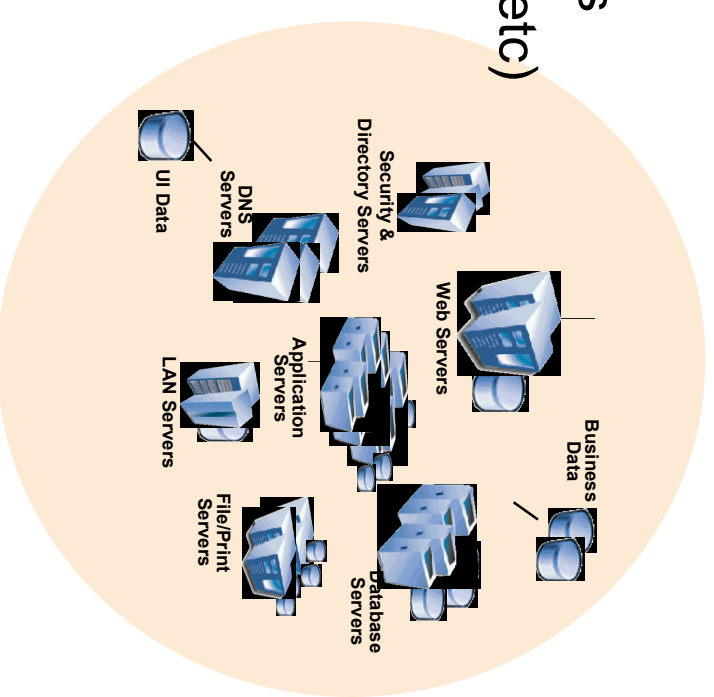■ Adopting open industry standards where possible
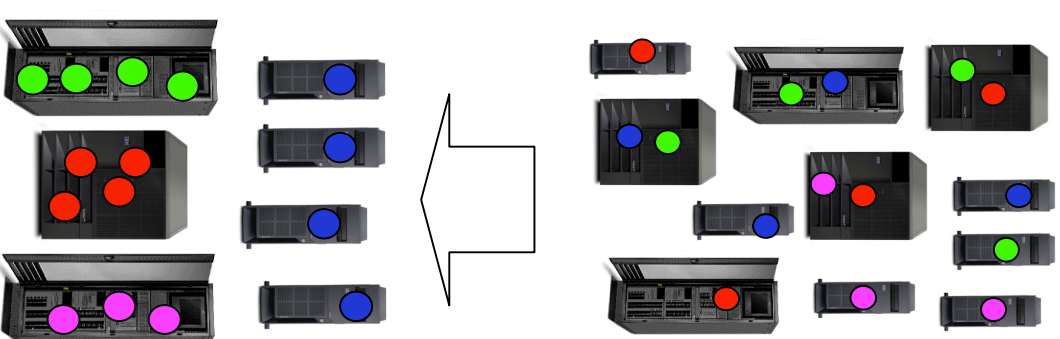
Simplification

Reducing multitude of servers by:

- Leveraging innovative "scale up" and "scale out" technologies for simplification and integration

- Reducing or eliminating unnecessary duplication and redundancy

Firewall Servers

Routers Switches

Caching Appliances

SSL Appliances

UI Data

Security & Directory Servers

DNS Servers

Web Servers

Application Servers

LAN Servers

File/Print Servers

Database Servers

Business Data

Application Servers

Terminal Serving

E-Commerce Applications

Corporate Infrastructure

Deep Computing Clusters

Collaboration Servers

SSL Appliances

File/Print Servers

Web Services

Scale Out BladeCenter

SAN

Transaction Data

Backup Data

Reference Data

Java Linux Grid

Security & Directory Services

File/Print Servers

Application Servers

DNS Servers

Web Servers

Database Servers

Transaction Servers

Scale Up Mainframe

*Simplified Environment*

Automation

Single point of control to manage the IT environment

- Workload Management of individual servers

- Automated Processes to simplify administration

  – Backup and recovery

  – Provisioning and integration of new servers

  – Allocation of resources (storage, compute etc)

- Efficient coordinated management

  – Both systems and services

UI Data

DNS
Servers

Security &
Directory Servers

Web Servers

LAN Servers

Application
Servers

Business
Data

File/Print
Servers

Database
Servers

Resource optimisation

- Improve single server utilisation by adopting virtualized, dynamically partitioned systems

- Improve multiple server utilisation through orchestrated provisioning

  – With capacity and service level management across applications

  – With managed business policies for automated changes

  – With coordination across applications to dynamically tailor the IT infrastructure to meet changing business needs
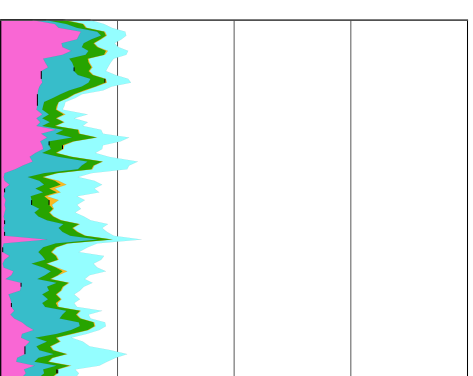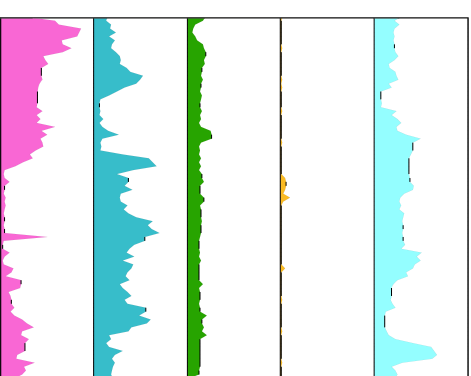
Virtualisation

By introducing virtual resources:

■ Improve flexibility of server and storage landscape

– Assign optimal resources to tasks based on business requirements

– Mask the real resources

– Combine and/or split real resources as needed

– Provide specialised hardware assistance

■ Dynamically alter the resources, to provide the right resources to meet changing business needs

■ Hide complexity and ease management, supporting automation and simplification goals

■ Provide additional virtual servers "on demand"

– Avoid procurement delays
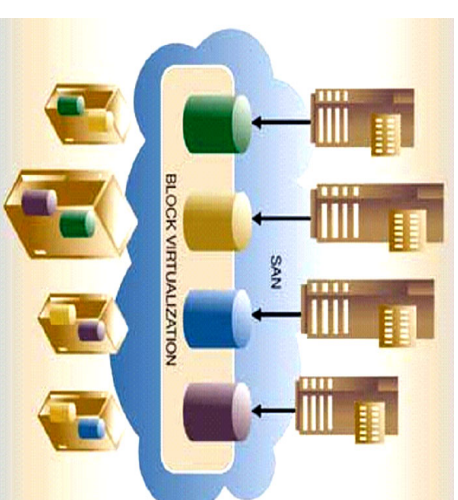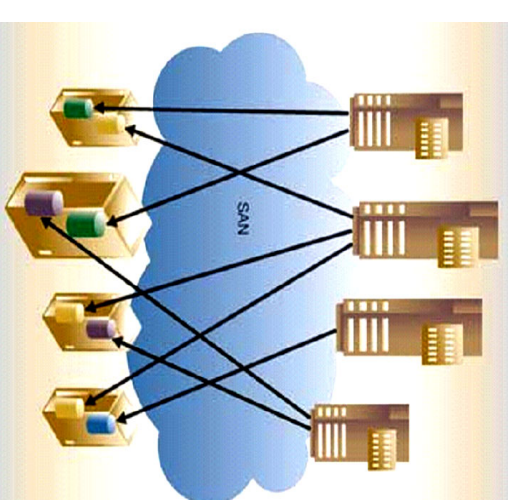
Act Now: Understand the IT Infrastructure considersations for SOA

■ **Make the most of your time today**

■ **Learn how other organisations here today have incorporated their IT Infrastucture into their SOA project**

■ **Leverage the expertise and tools available to you from IBM and its Business Partners**

■ **Enjoy the day, ask questions and give us your feedback**

■ **Key items available to you and your teams, via our website - www.ibm.com/itsolutions/uk/idc :**

  – Infrastructure Considerations for SOA White Paper
  – Order the "Secrets of SOA" book
  – The challenge of securing SOA White Paper

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Questions?

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