



# OPTIMIZING INFRASTRUCTURE FOR SERVICE-ORIENTED ARCHITECTURES AND WEB SERVICES

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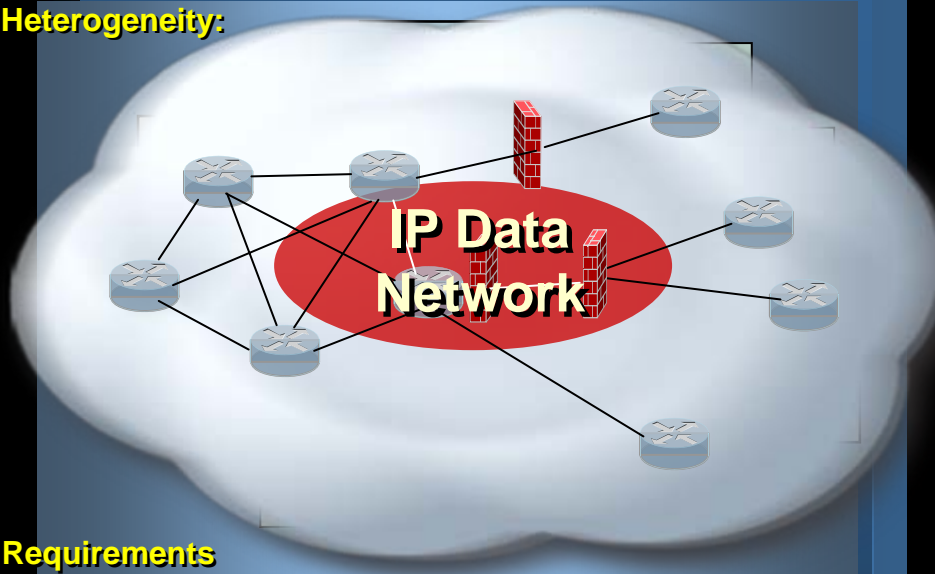
**Vice President, Worldwide Product & Technology Marketing**

**Cisco Systems**

# Déjà Vu All Over Again...

## 20 years ago: Network heterogeneity

Heterogeneity:

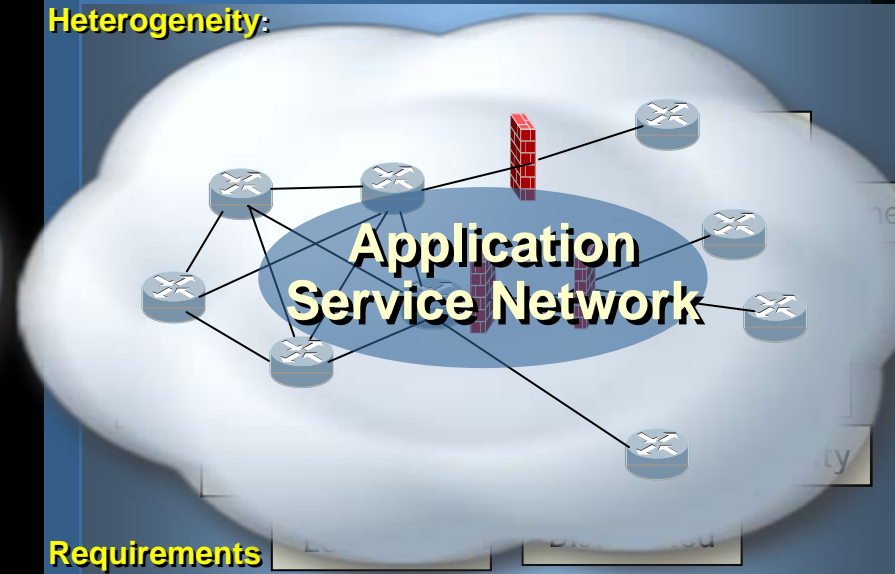


Requirements

- IP and multiprotocol routing
- No pervasive communication method transformed departmental islands across network silos into an enterprise internetwork
- Difficult to consistently implement enterprise-wide enterprise-class "-ilities" resource optimization

## Today: Application heterogeneity

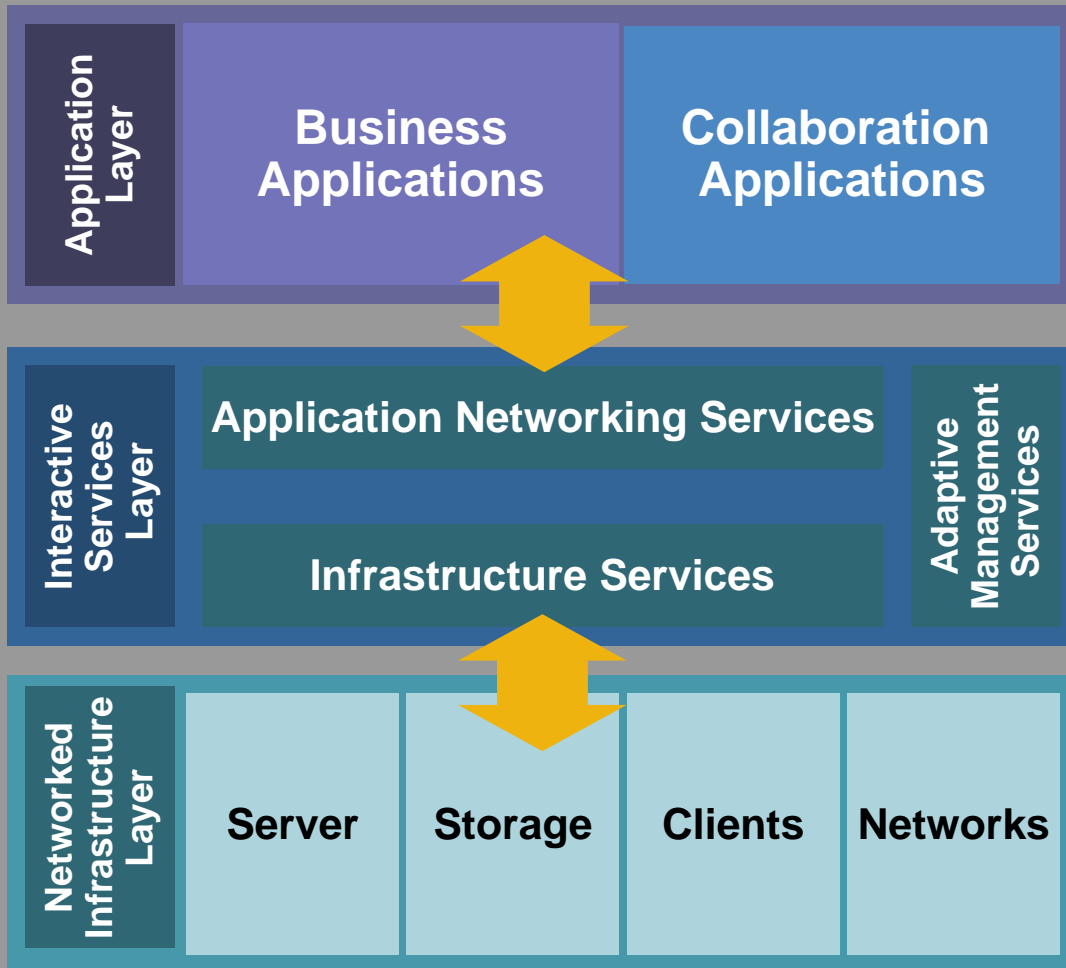
Heterogeneity:



Requirements

- XML/Web services and multi-protocol routing will transform application silos into an enterprise internetwork
- Difficult to consistently implement enterprise-class "-ilities" business process optimization

# Implementing Intelligence in the Enterprise: Cisco Service-Oriented Network Architecture



## Application Integration Gap

### Need:

- Application integration secure
- IT resources
- Common shared services

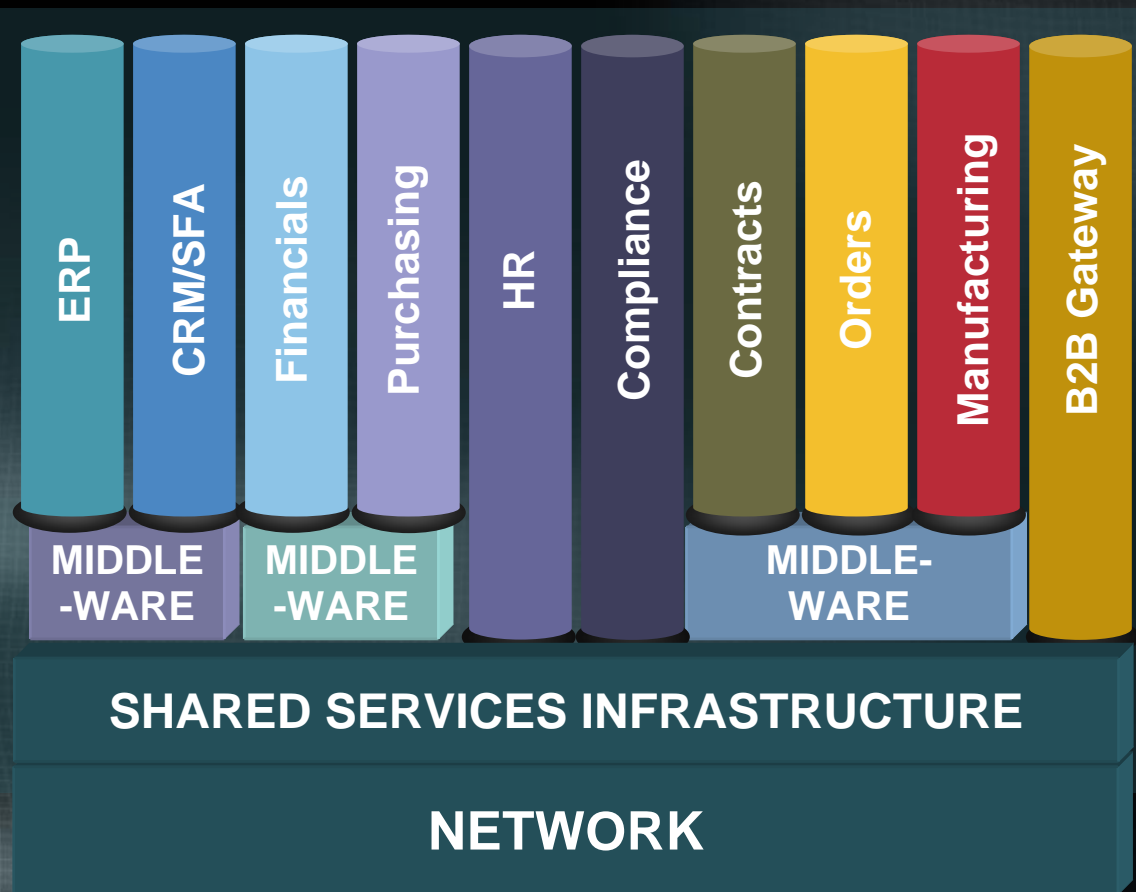
### Application optimization solution:

- Virtualize infrastructure
- Self-Defending Networks
- Application services
- Integrated manageability
- Application-fluent network

# The Expanding Role of the Network

## *Building on the Only Non-Siloed IT Component*

The logical place to begin to build an extended shared services infrastructure.



- Extensions for common, shared application and resource **services** and **protocols**
- Extend Cisco's industry leadership in protocol design, integration, and optimization
- Extend the network's legacy as a virtualization enabler

# The Network: Uniquely Suited to New Shared Services

**The network  
is ubiquitous**



- Pervasive location
- Inherently distributed / federated
- Ultimate policy enforcement point

**The network  
drives  
standardization**



- Acts as “Switzerland”
- Drives standards adoption

**The network  
provides scale**



- Easily expand performance and capacity
- Transparent to endpoints

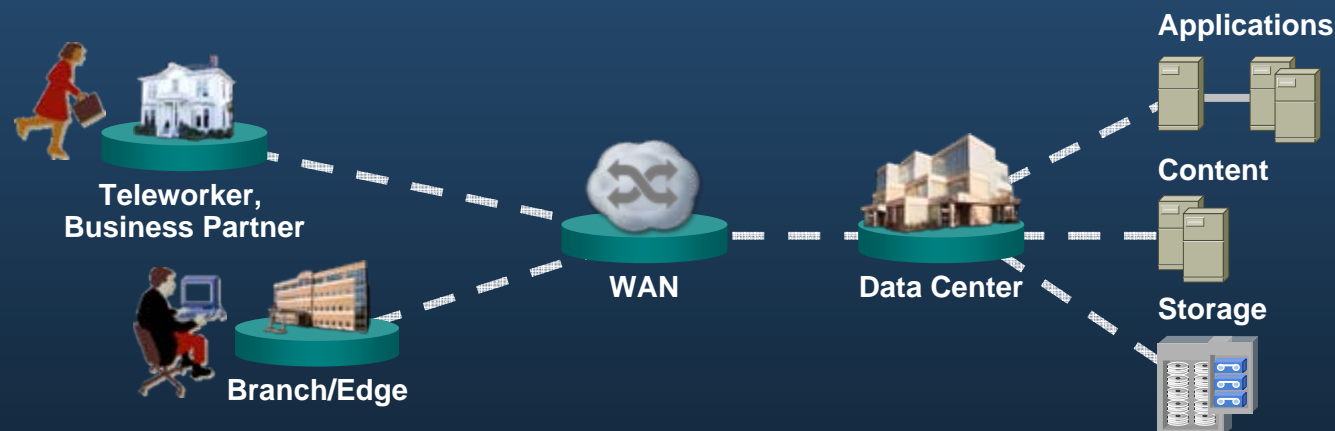
# Application Challenges Across the Entire IT Infrastructure

## Remote and End-Point Issues

- Wide variety of endpoints
- Applications not written for WAN
- Inefficient use of bandwidth

## Data Center and Central Issues

- Servers process too many common functions
- Silos compete for infrastructure resources
- Applications inflexible to modification



- Network latency
- Low control

- Congested networks
- Bandwidth limits

- Congested servers
- Complex infrastructure

# Enabling Business Agility and Responsiveness

## Network Services

- **Mobility**
- **Identity**
- **Location**
- **Presence**
- **Security**

## Remote Radiologist



**Intelligent network services  
increase the business value  
of the application**

# Case Study: Cisco IT AON Deployment

- **Use Cases:** Provide a single control point for partner transactions

- **Functional Benefits:**

- Security
- Logging
- Content-based routing
- Validation and optimization

- **Business Benefits:**

- \$1.2M in annual OpEx savings
- Retired > 100,000 lines of code



# The Intelligent Network

## *Foundation for IT Evolution*

**SOA offers a new application paradigm based on protocols**

**The IP network is a service-rich environment expressly designed to enhance protocols**

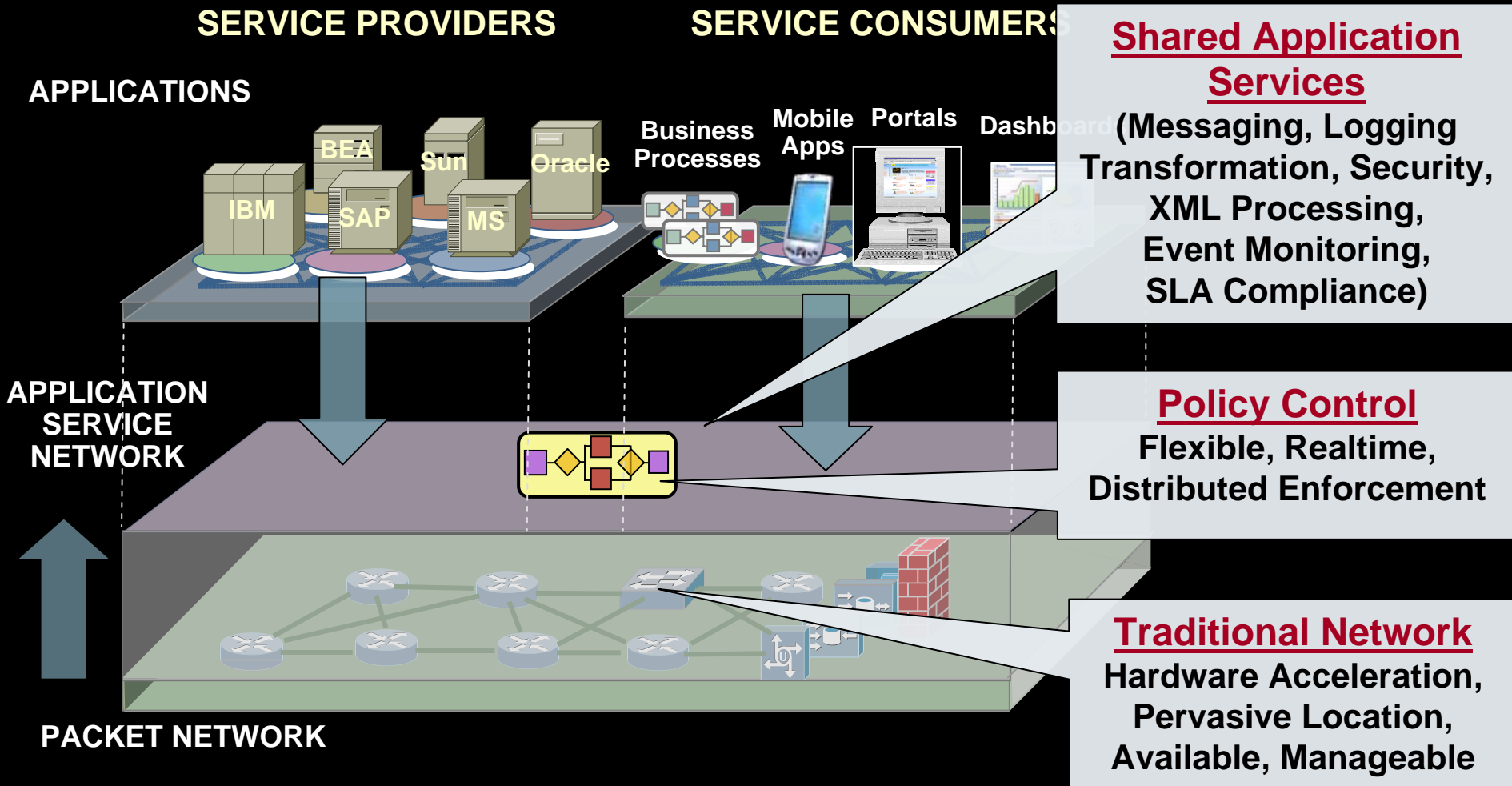
**The network is a natural IT catalyst, driving increased business value**



# CISCO SYSTEMS



# The Network for Service-Oriented Infrastructure *Complementing SOA and SOI*



# Service Orientation is a Ubiquitous Concept

## APPLICATIONS

### TODAY

Disconnected applications.  
Tightly bound business logic.

### FUTURE

Modular. Loosely bound logic.

## SERVICES

Fragmented.  
Layer/device-specific.

Shared. Consistent.

## STORAGE

Islands. Physical limitations.

Consolidated. Virtual.

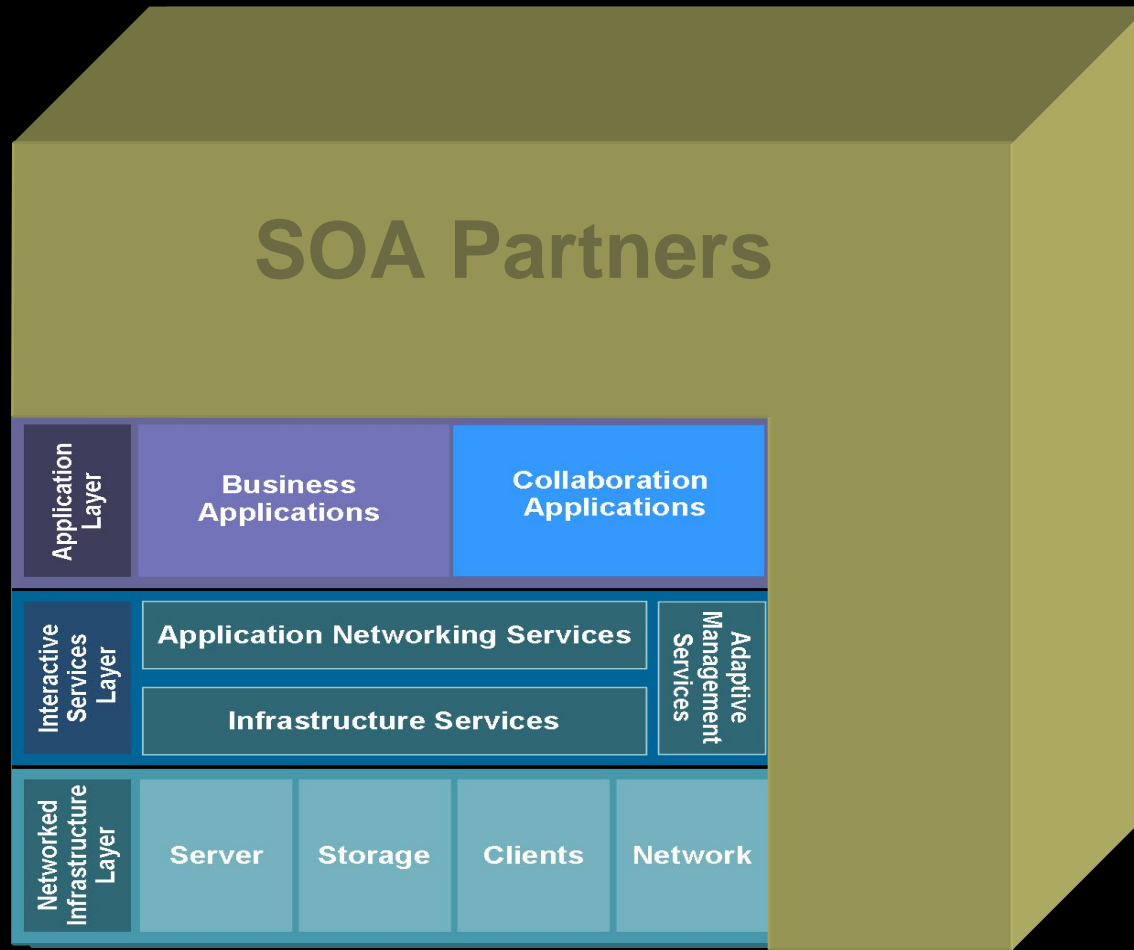
## NETWORK

Connectivity.

Intelligent.

- Common, shared application and infrastructure services ...
- Based on protocols and formats ...
- Utilizing policy-based management

# Service-Oriented Infrastructure and a Service-Oriented Architecture



# Two Adoption Paths of SOA

## Architected: “SOA from Above”



- Well architected / Controlled
- Middleware-like Adoption

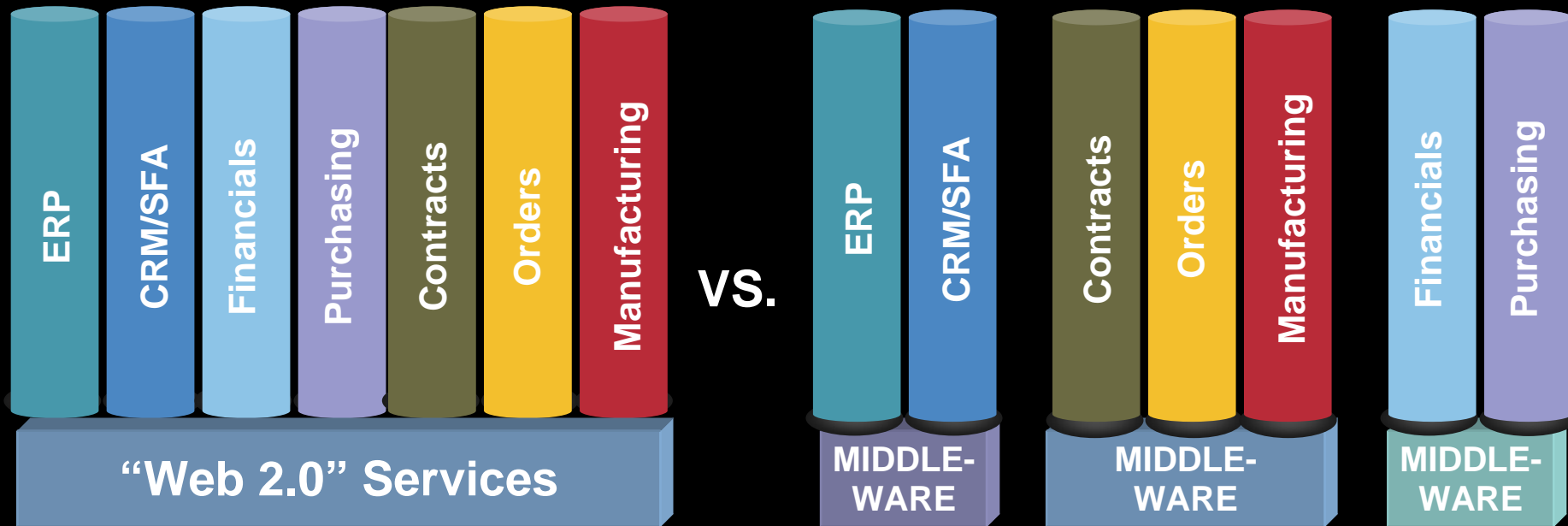
## Organic: “SOA from Below”



- Developer-led / Uncontrolled
- Internet-like Adoption

**Both Adoption Paths are Happening Simultaneously**

# Enterprise Example: Business Application Integration



- **“Lightweight”** platform development model (SPLJ)
- **Guidelines** and best practices vs central control
- Easily **re-mixable**, flexible services

- **“Heavyweight”** platform development model
- Requires **centralized** architecture and controls
- **Limited cross-platform** integration

# Re-Factoring of Software Applications

## *The Service Oriented Architecture Paradigm*

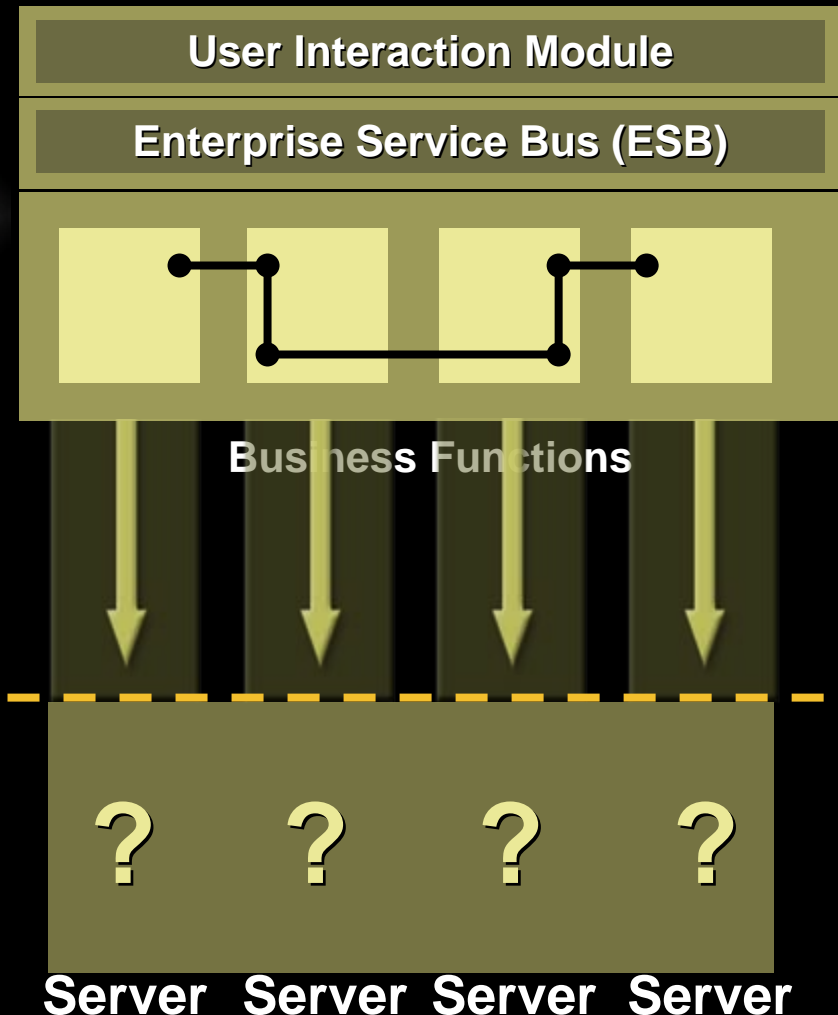
### Application

- Composite application platform links business service modules dynamically
- Now – how to allocate infrastructure resources to this virtual process?



Server

### INFRASTRUCTURE



# Virtualization of Applications and the IT Infrastructure

- An IT resource virtualization framework
- Application-oriented, policy-based management (service-oriented infrastructure)

