Business Agility: Enabled Through IT Infrastructure

Bob Hayward

March 2005

Gartner

Why Agility? So Many Forces, Choices and Constituencies to Contend With

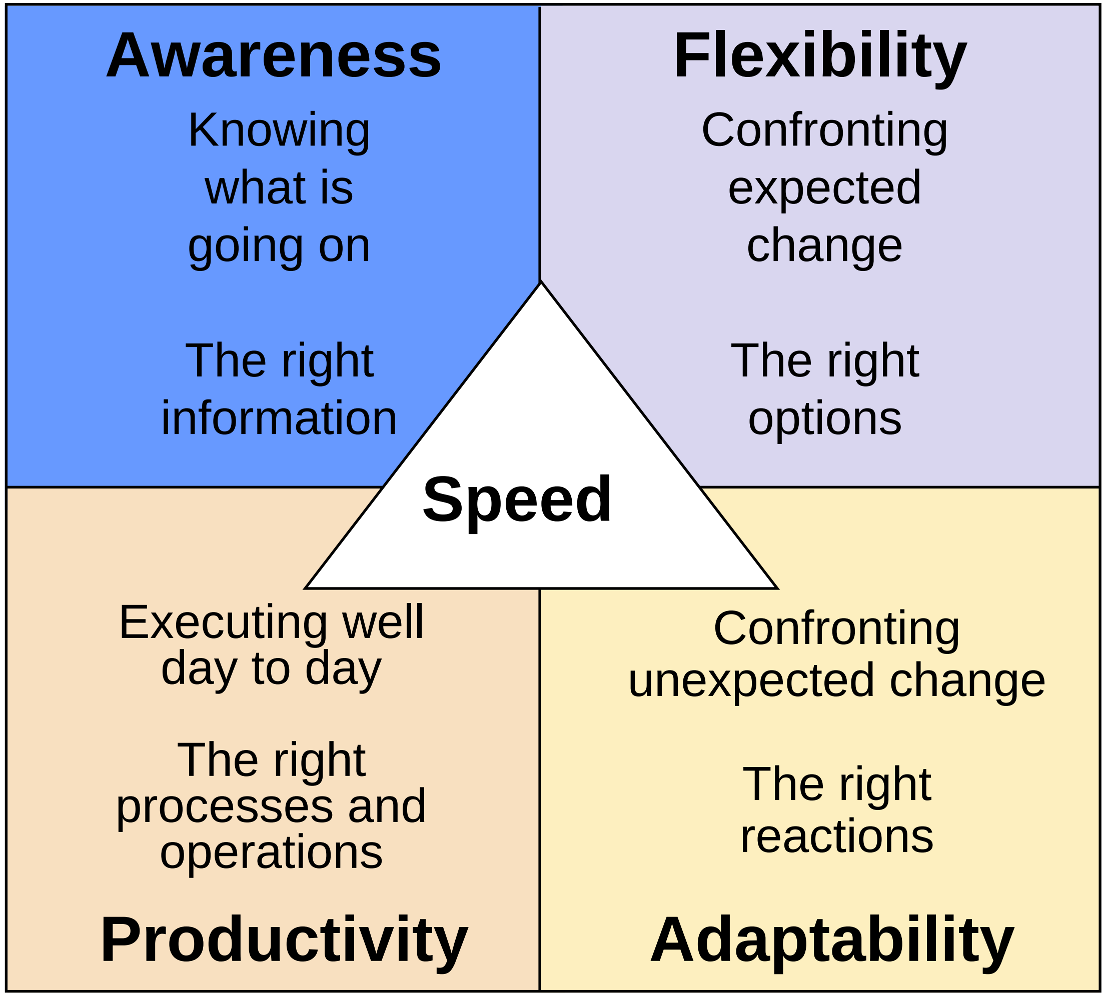
There is no singular “agile organization” design.
Each organization must design itself to be appropriately agile in response to a unique set of external and internal forces.

Economic Forces	Business Forces	Organizational Forces	IT Forces	Work Forces
Globalization	Cost Reduction	Sourcing Options	Enterprise Architecture	Distance Collaboration
Emerging Markets	Shared Processes	Funding Models	Real-Time Infrastructure	Virtual Teaming
Talent Search	Distributed Buyers	Changing Competencies	Priority Projects	Global Diversity
	Compliance	Leadership		
		Distributed Decision Making		

Agility is of increasing importance for many enterprises

Area	Requirements	Infrastructure Implications
Demand volume agility	**The ability to cost-effectively serve peaky customer demand, and scale to meet changes in demand**	**Need to make infrastructure scalable, and variable cost**
Product / Process agility	**The ability to rapidly change product offerings and processes**	**Need to create a platform that facilitates rapid development and deployment**
Structural agility	**The ability to handle organizational change, e.g. centralization, M&A**	**Need to create a flexible, scalable platform to support business model variations**

Key Trend: The Technology Underpinnings Of Agility Are Emerging



Information Flow
- Knowledge management
- Business intelligence
- E-mail/instant messaging

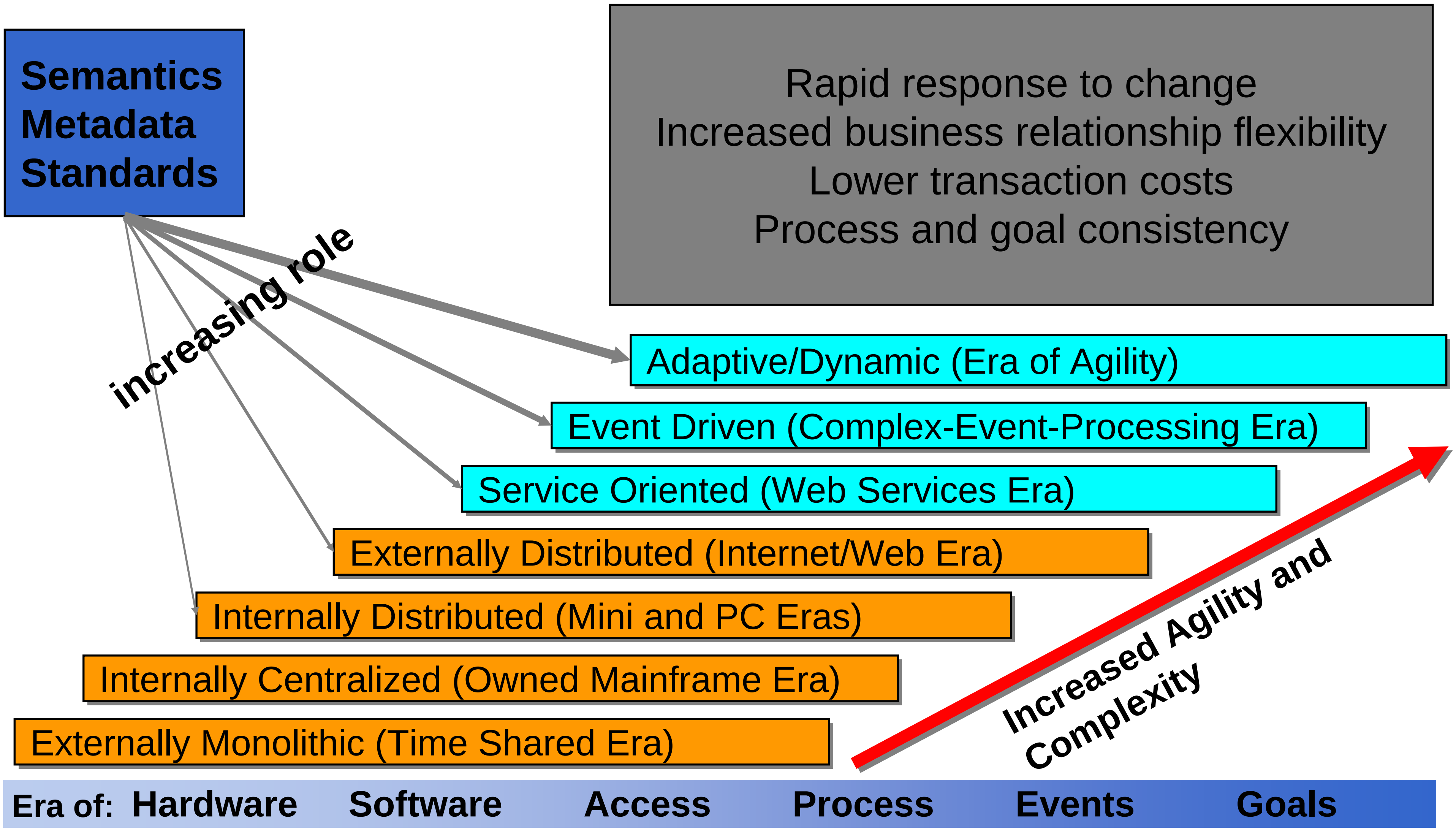
Connectivity and Access
- Networks
- Mobility
- Portals

Development & Process
- Rapid application development
- Rapid application maintenance
- Continuous evolution

Integration, Interoperability & Architecture
- Real Time Infrastructure
- Legacy extension
- Web services
- SOA→EDA→BCA

Gartner

Computing Architecture: Building for Agility

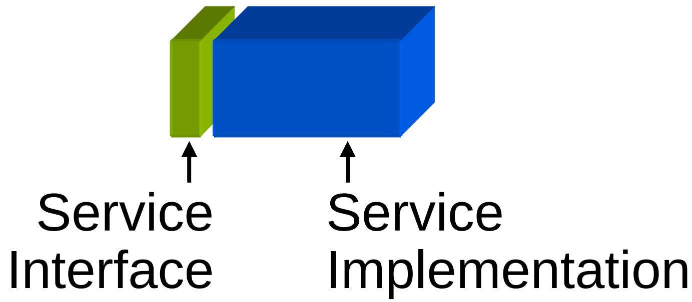


Gartner

Service-Oriented Architecture: The Architecture of Interactive Interfaces

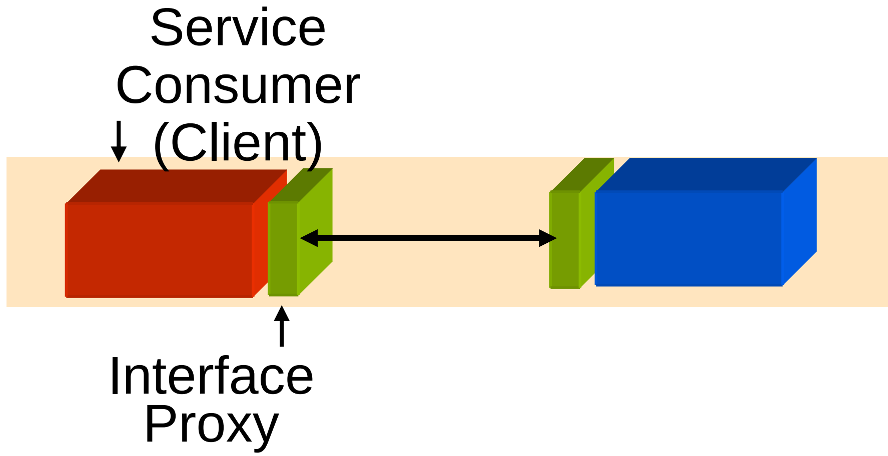
Service

Business-oriented interactive software component, designed to be invoked by name across applications or across organizations via a documented programmatic interface



Service-Oriented Architecture

Application software topology consisting of any number of services and service consumers (clients) in interactive one-on-one relationships



Gartner

Web Services: Foundation For SOA Built On Growing Stack Of Standards

Web Services

Addressing

BPEL

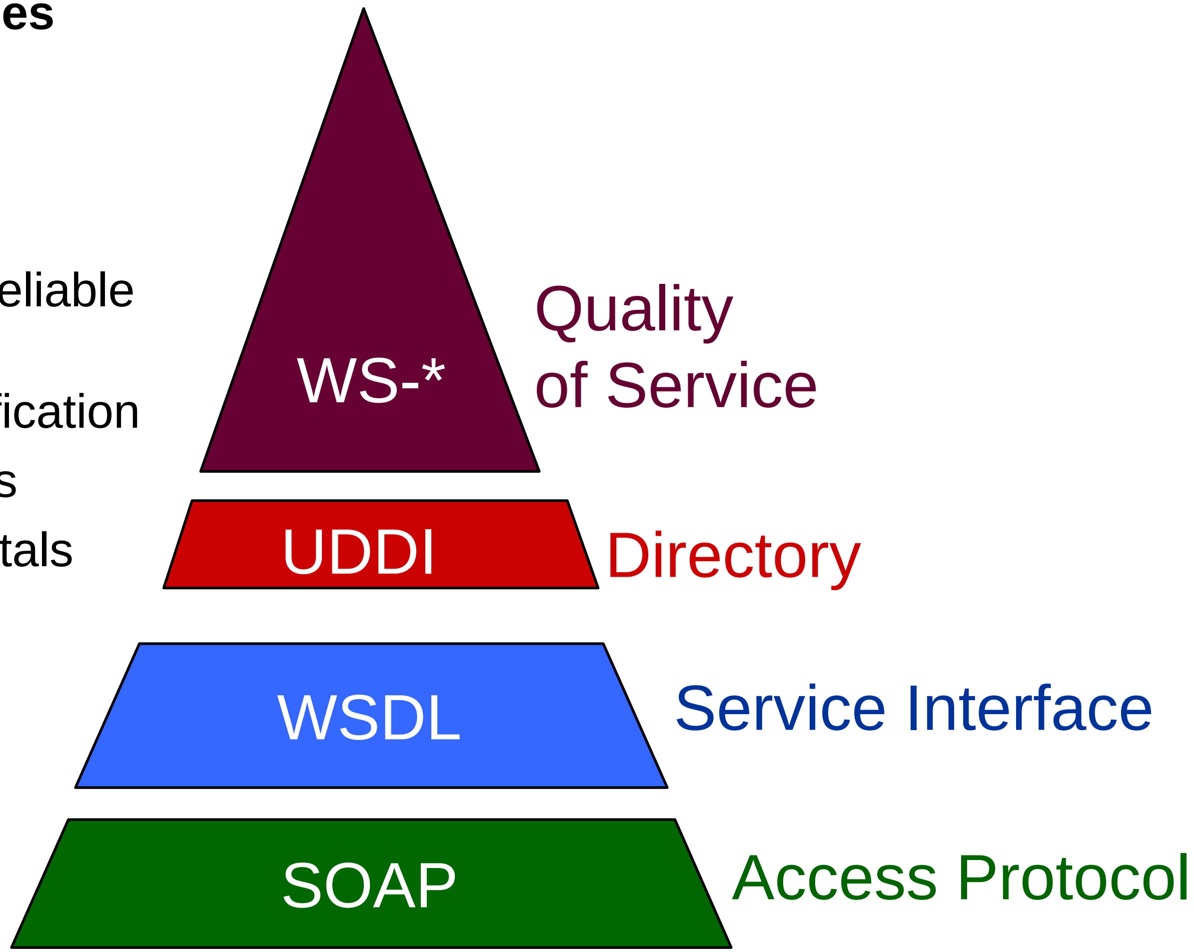
Security

Reliability/Reliable Messaging

Events/Notification

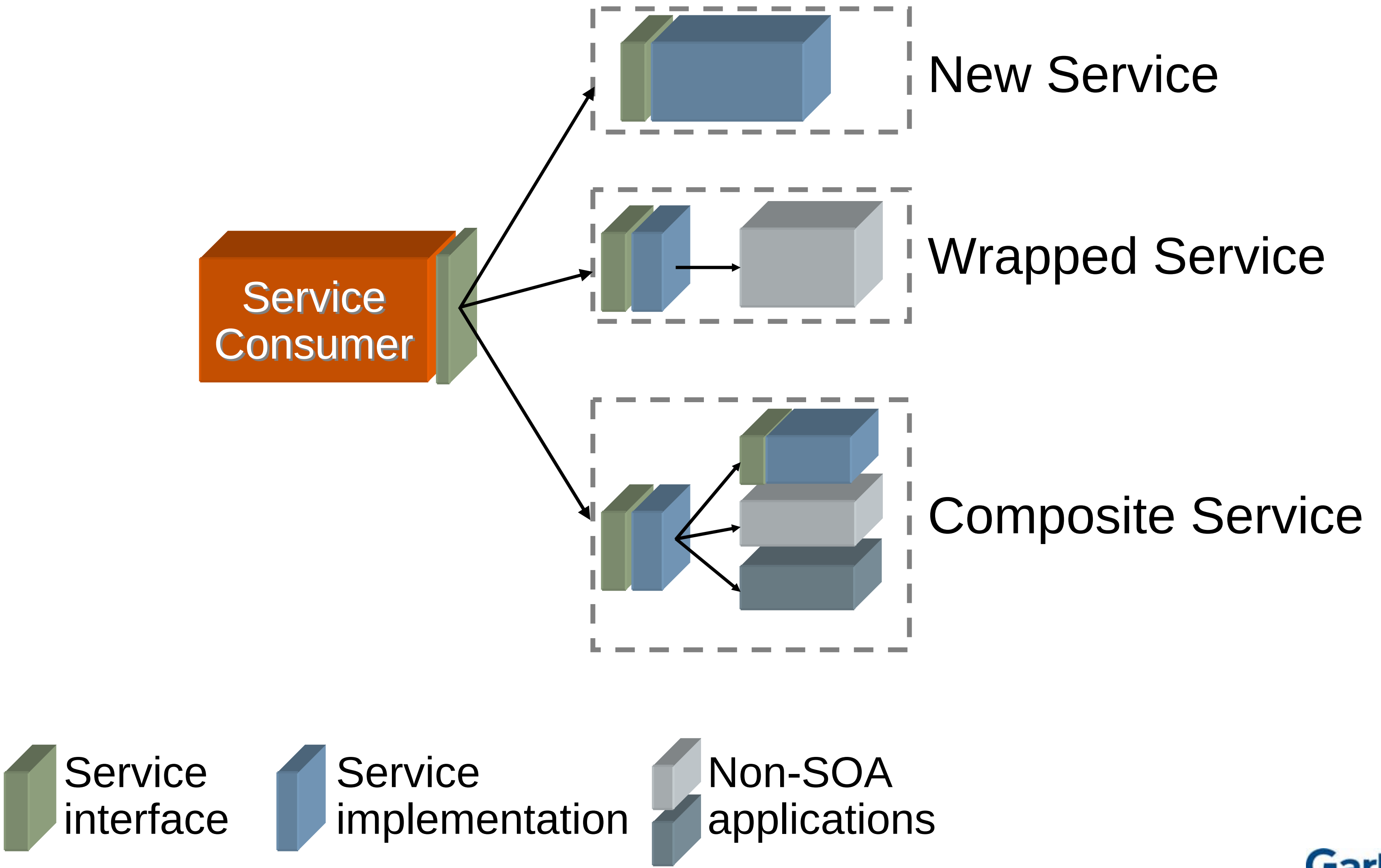
Transactions

Remote Portals



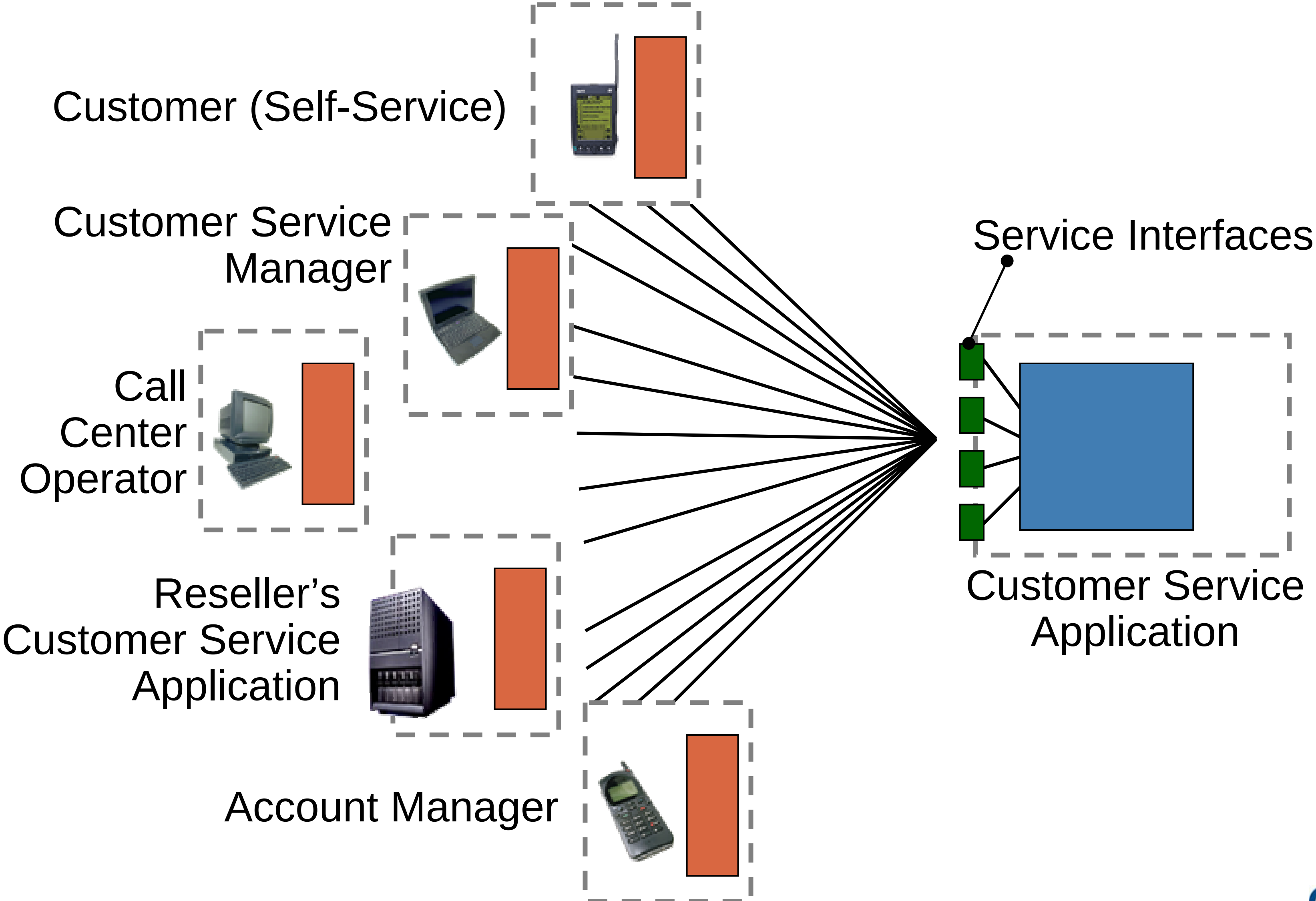
Gartner

Service Implementation: What Happens Behind the Interface



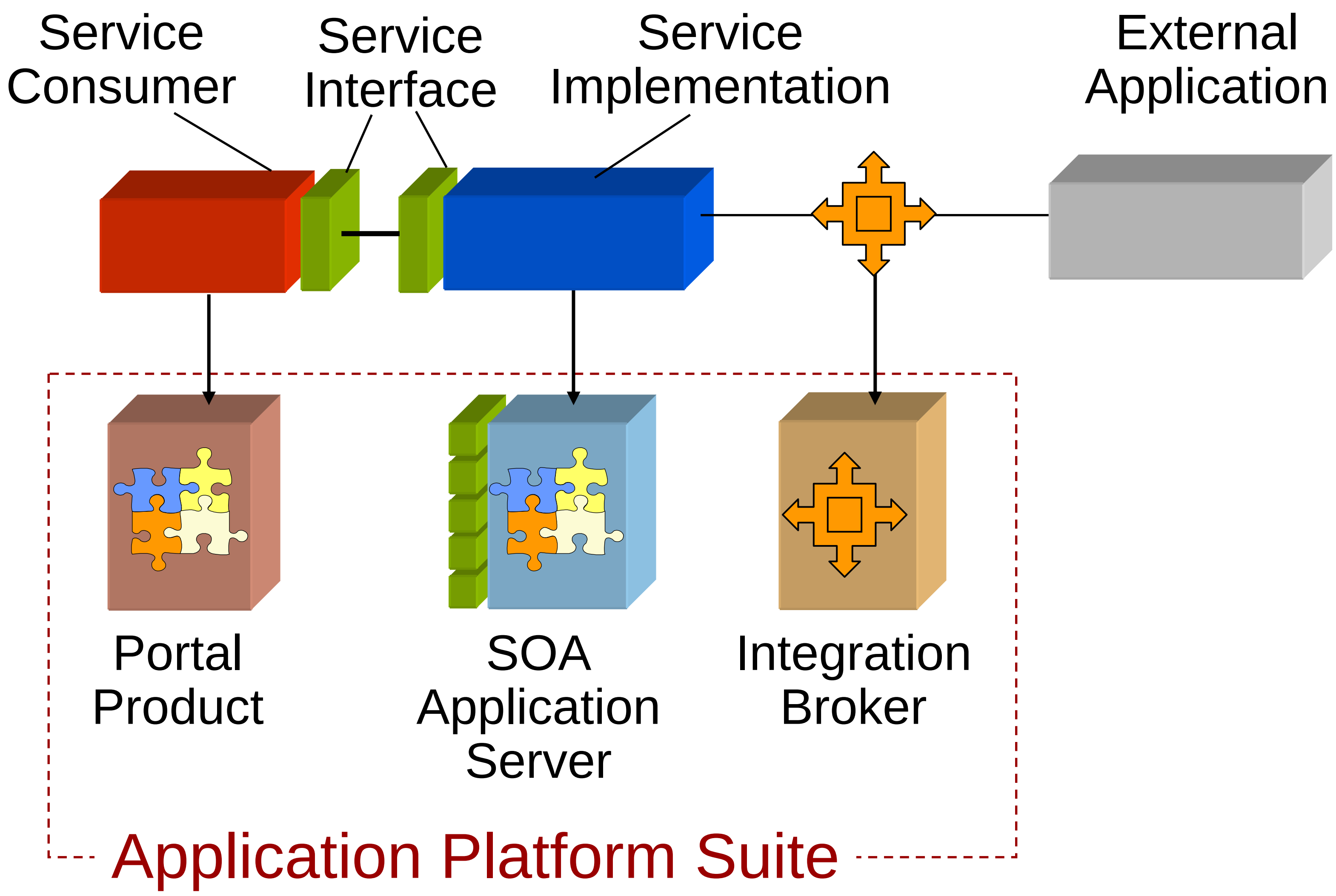
Gartner

Multichannel Applications: A Perfect Fit With Services

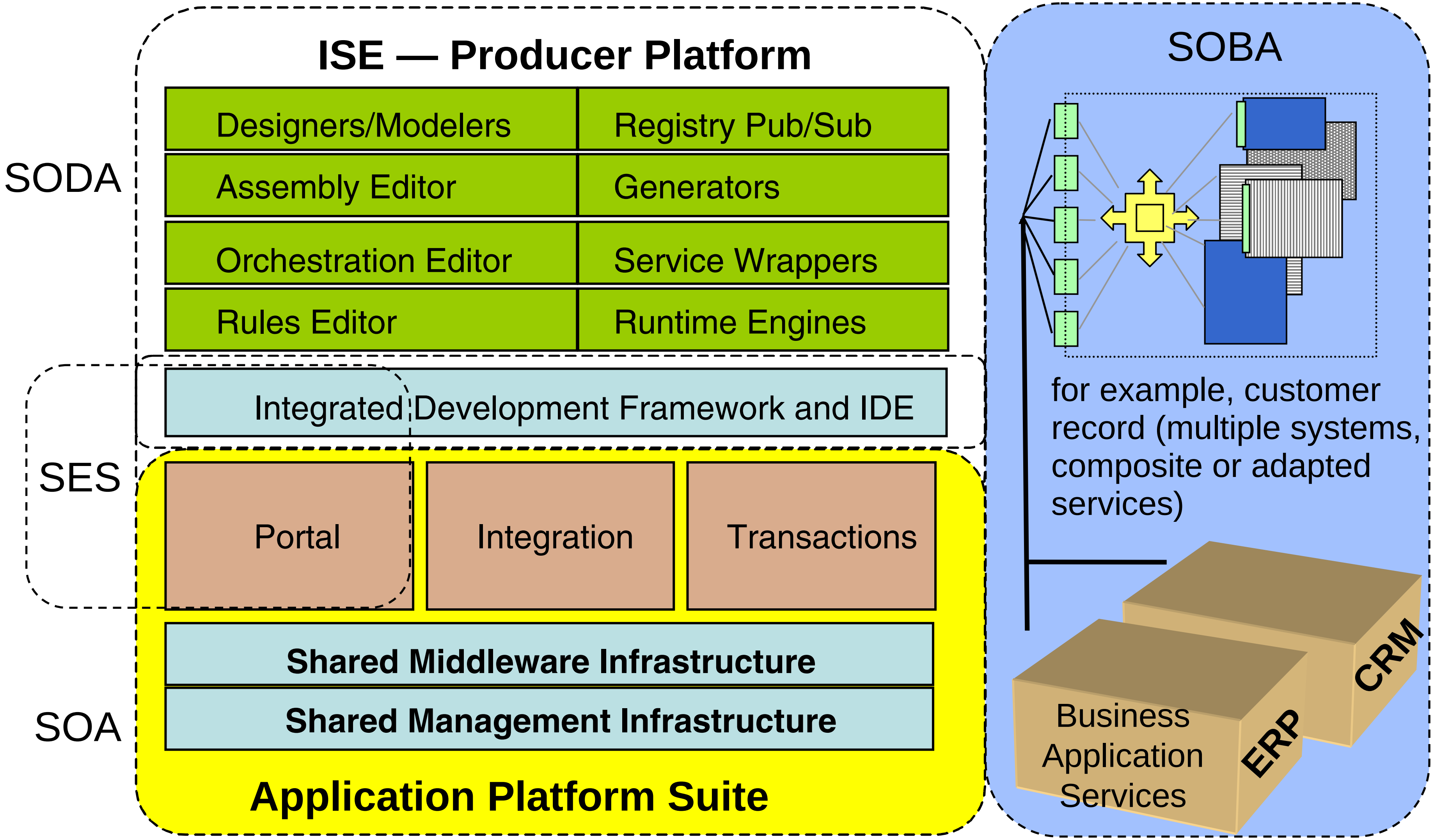


Gartner

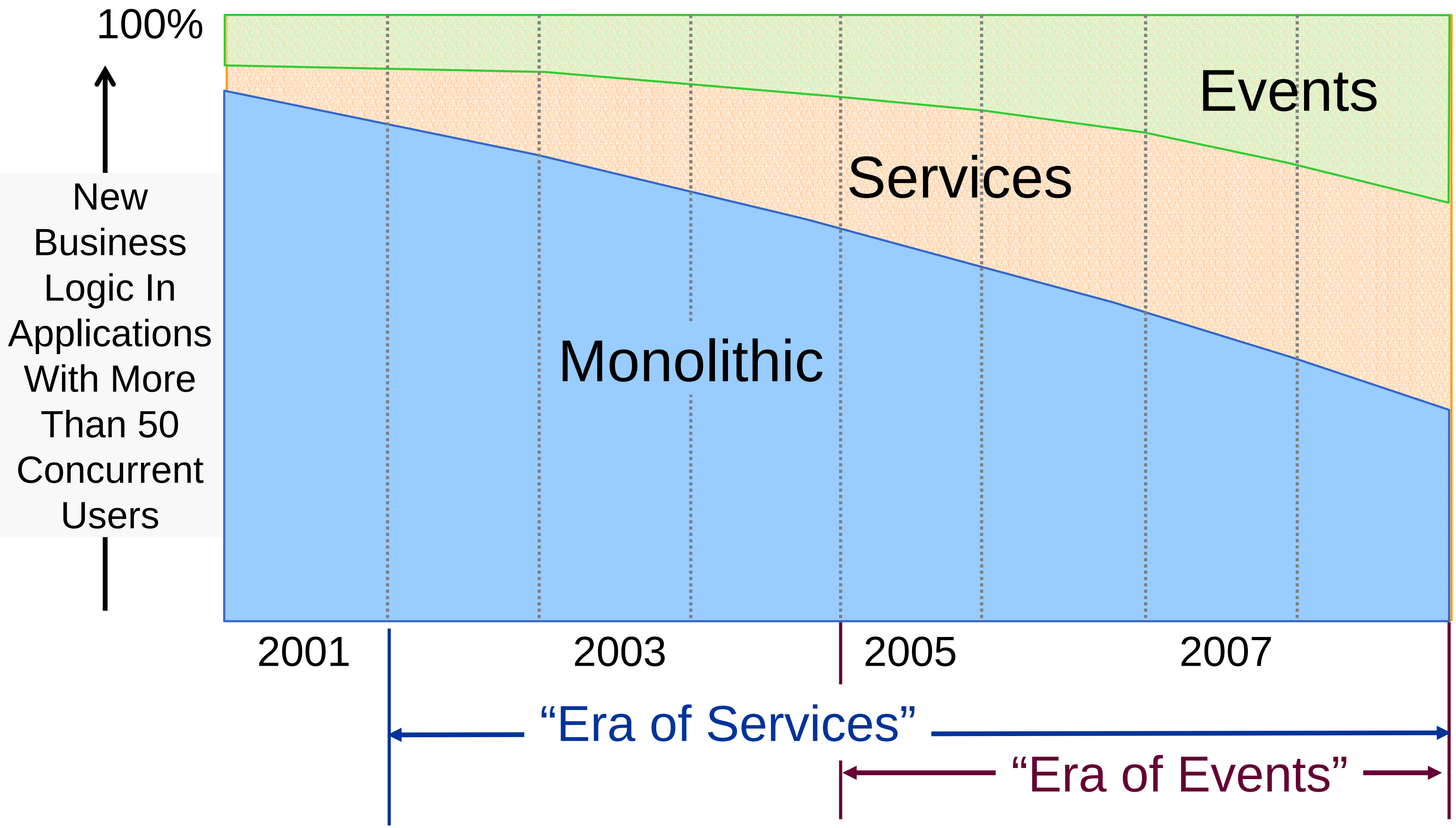
Application Platform Suite: The End-to-End Platform for SOA



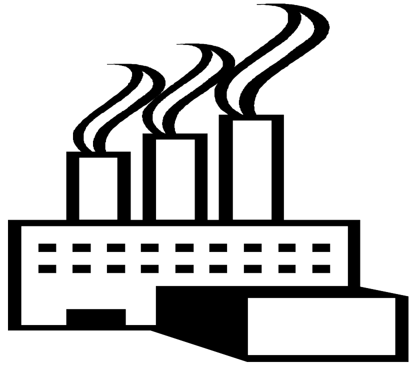
SOA: SODA, SOBA, ISE, APS



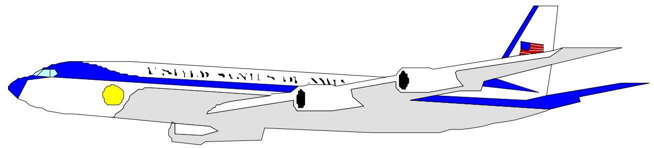
The 'Era of Events' Will Follow the 'Era of Services'



Event-Driven Business Processes Differ From Internally Driven Business Processes



Conventional: Build-to-stock
Event-driven: Build-to-order

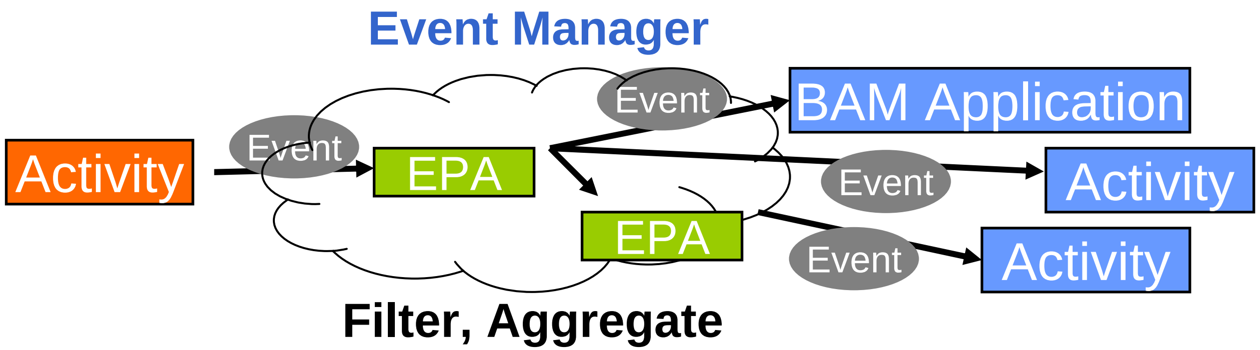


Conventional: Static pricing
Event-driven: Yield management through dynamic pricing

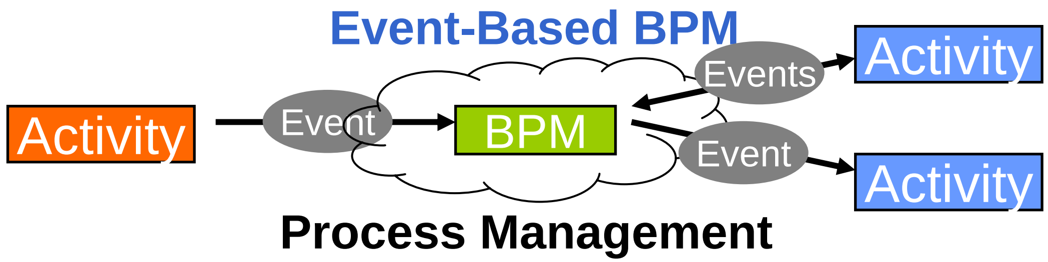
Conventional: Periodic reports and ad hoc inquiry
Event-driven: Supply chain monitoring

Business Events Are Implemented Four Ways

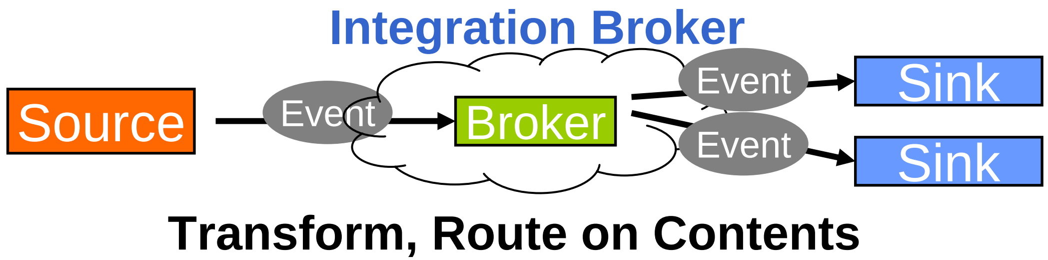
Complex-Event Processing



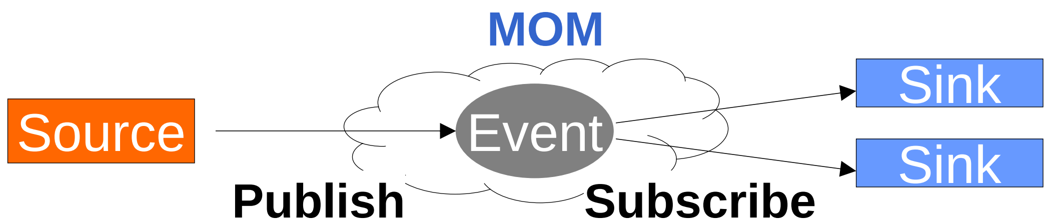
Event-Enabled Processes



Mediated Events

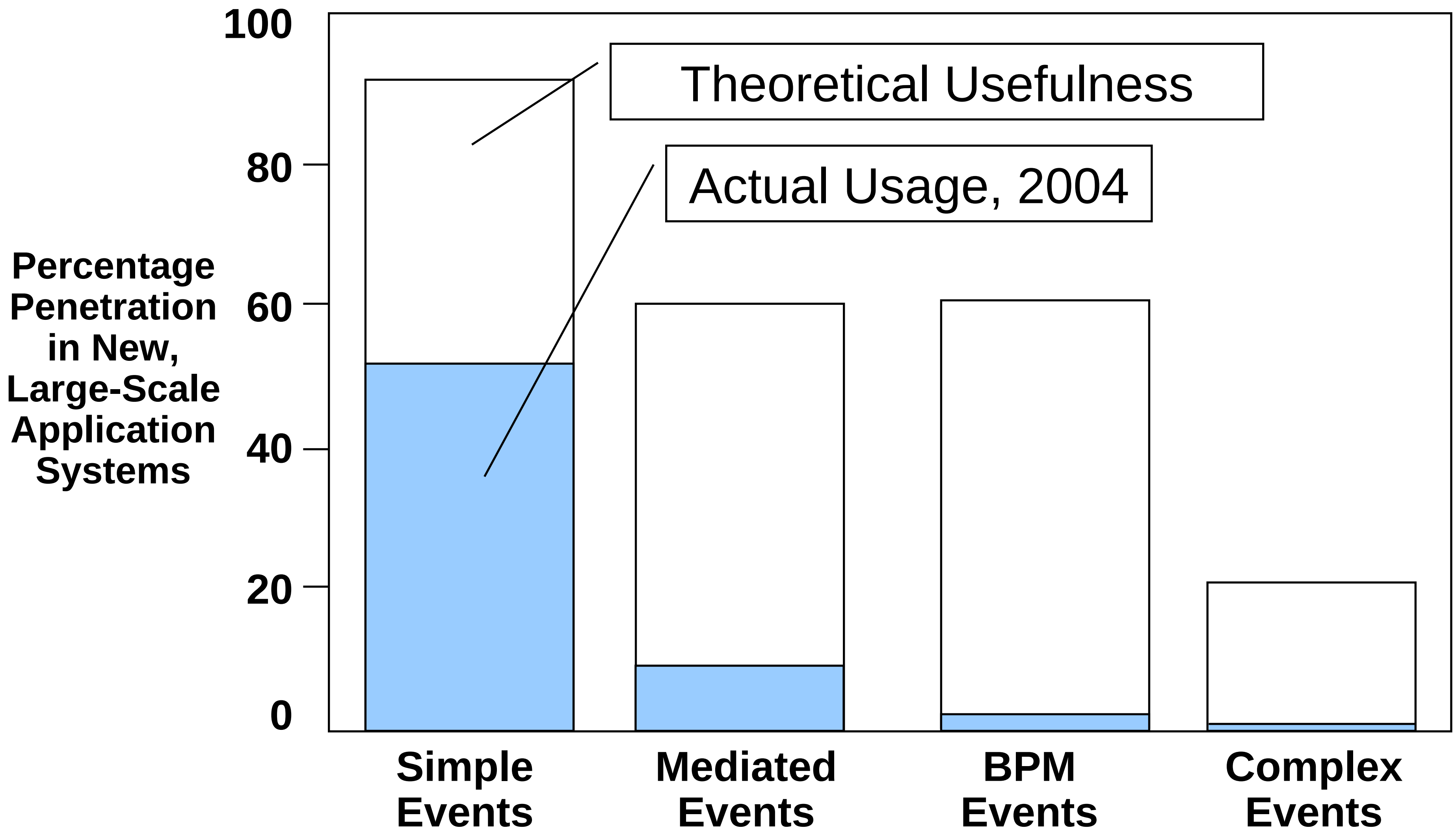


Simple Events



Gartner

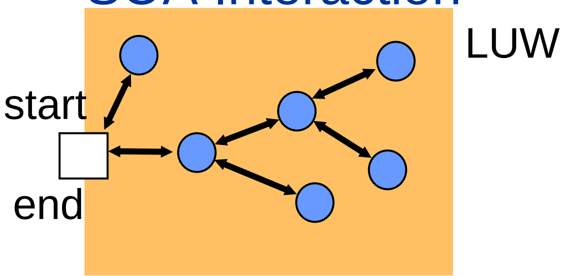
Adoption of Event-Driven Architecture



Gartner

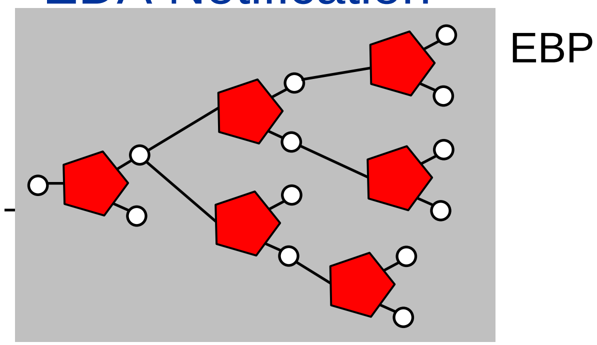
Services and Events Will Form Business Component Architecture

SOA Interaction



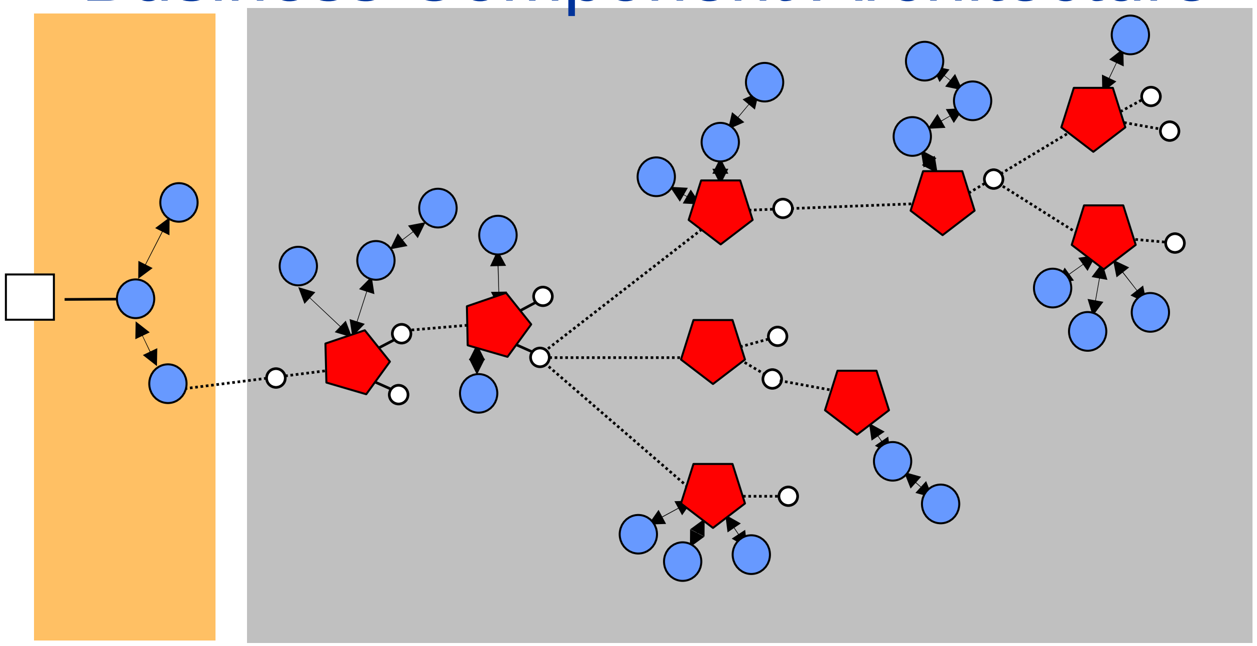
- Coupled
- Conversational
- Subordinate
- Closed-ended

EDA Notification



- Decoupled
- Notification/subscription
- Autonomous
- Open-ended

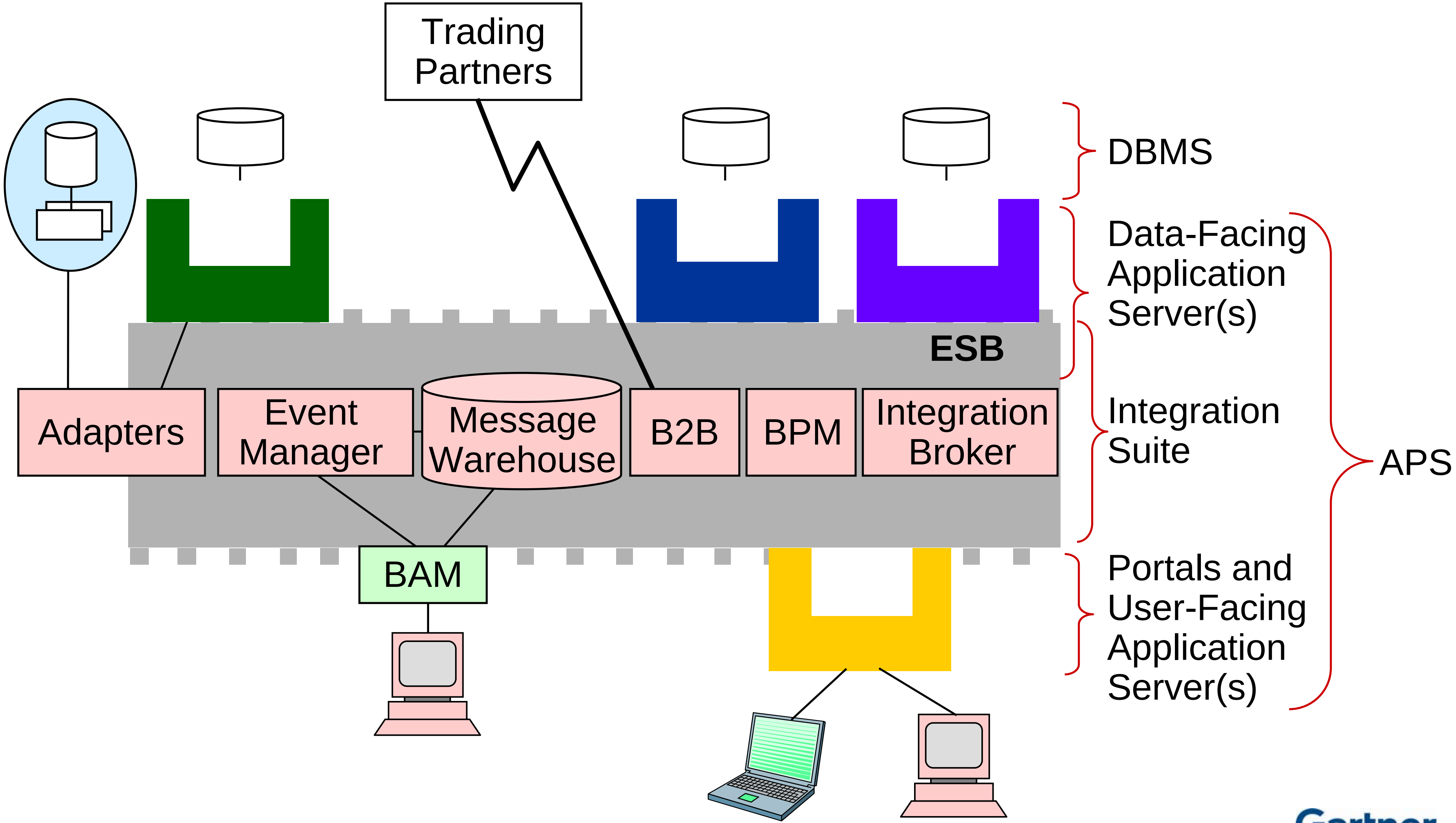
Service-Oriented and Event-Driven Business Component Architecture



LUW – Logical Unit of Work
EBP – Enterprise Business Process

Gartner

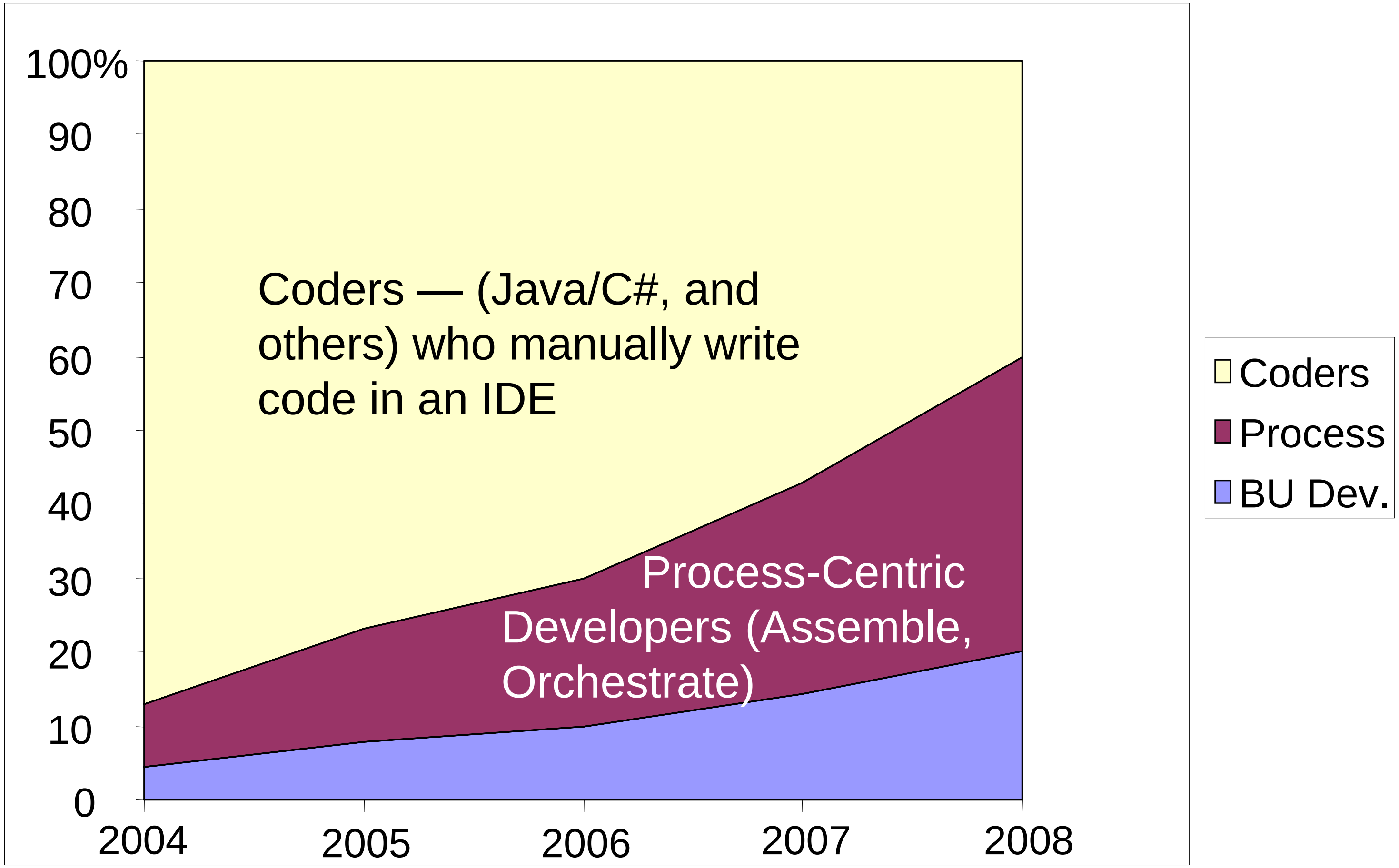
The Next Generation of Integration Suites Will Use an ESB for Communication



Gartner

Developer Percentages: Raising the Level of Abstraction

Percent of total developers through 2008



Gartner

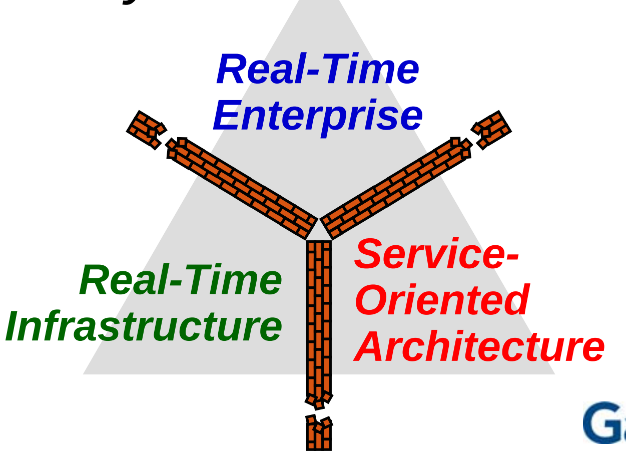
IT Infrastructure Matters!

Fact: *A survey of nearly 1,000 CIOs shows that developing and managing a flexible and efficient infrastructure are their top technology priorities*

Fact: *More than 70% of IT budgets are spent on infrastructure*

Fact: *IT reacts slowly to business requirements, has unpredictable reliability, with expenses that don't correlate to business priorities*

Fact: *Average utilization rates for Intel servers globally are only between 15-20% pa*



What Is Real-Time Infrastructure (RTI)?

Today's Reality

- IT reacts slowly to business requirements, has unpredictable reliability, with large expenses that don't correlate to business
- IT is cost center
- IT organization owns IT strategy

Tomorrow's Vision

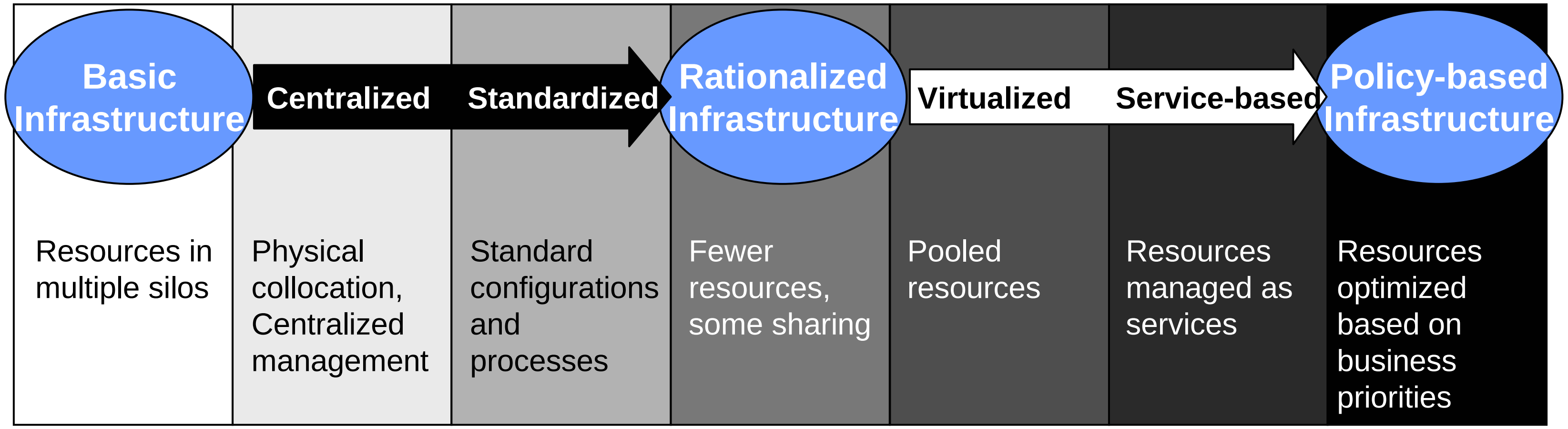
- IT detects/reacts in real time to business, reliably, with costs correlated to business priorities
- IT is profit center, providing value-based IT services that drive business
- IT strategy is tied to business strategy

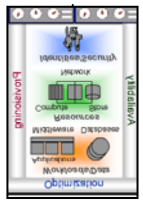
Business Requirements → IT is a "black box" that **self-manages** and responds **dynamically** to **changing business policies** → **Services**

A **Real-Time Infrastructure** is:

- Shared across customers, business units, applications
- Dynamically driven by business policies, service-level requirements
- Automatically configured and optimized
- Lower cost, agile, high-quality IT services

Real Time Infrastructure: The seventh stage of IT Infrastructure maturity

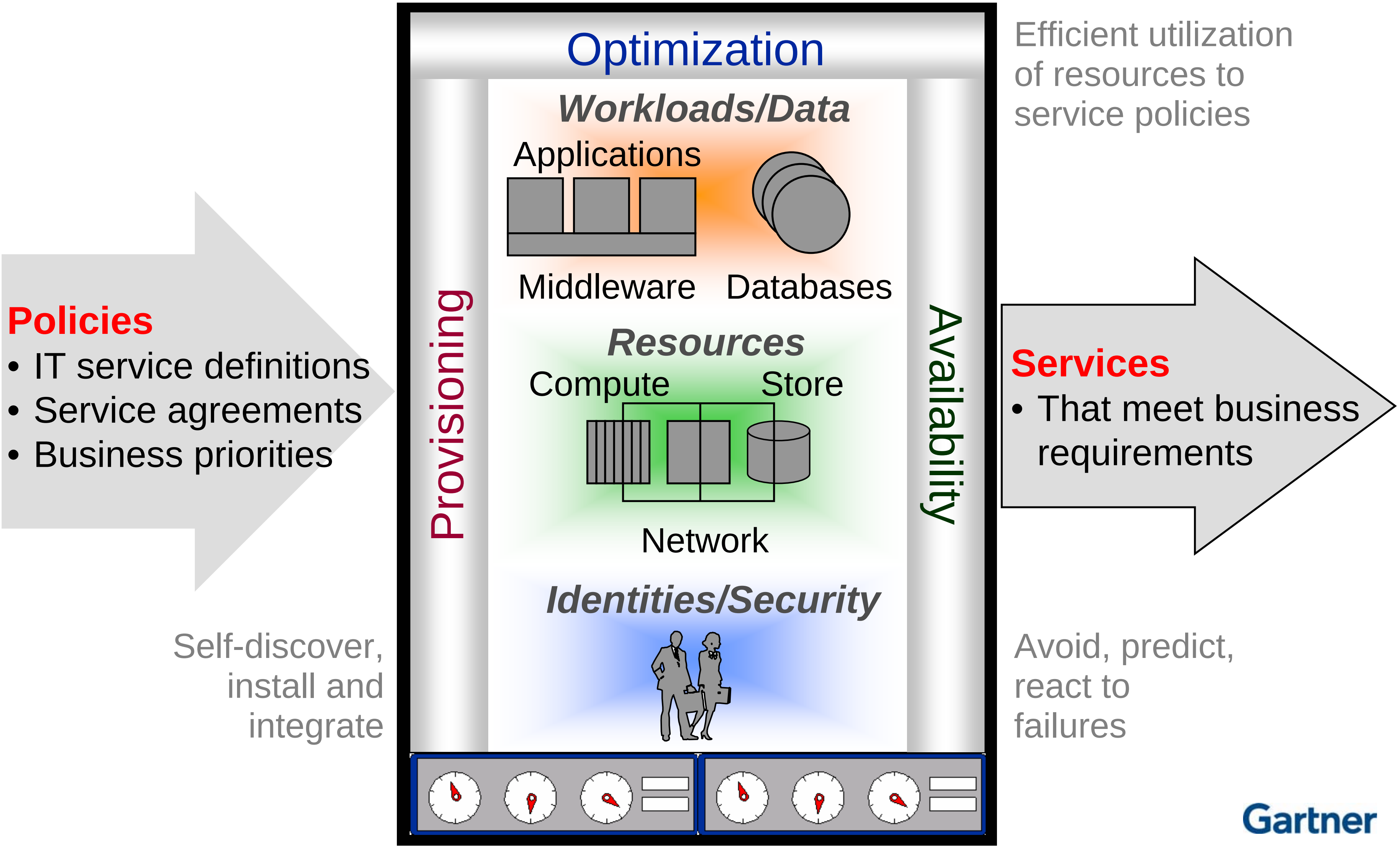




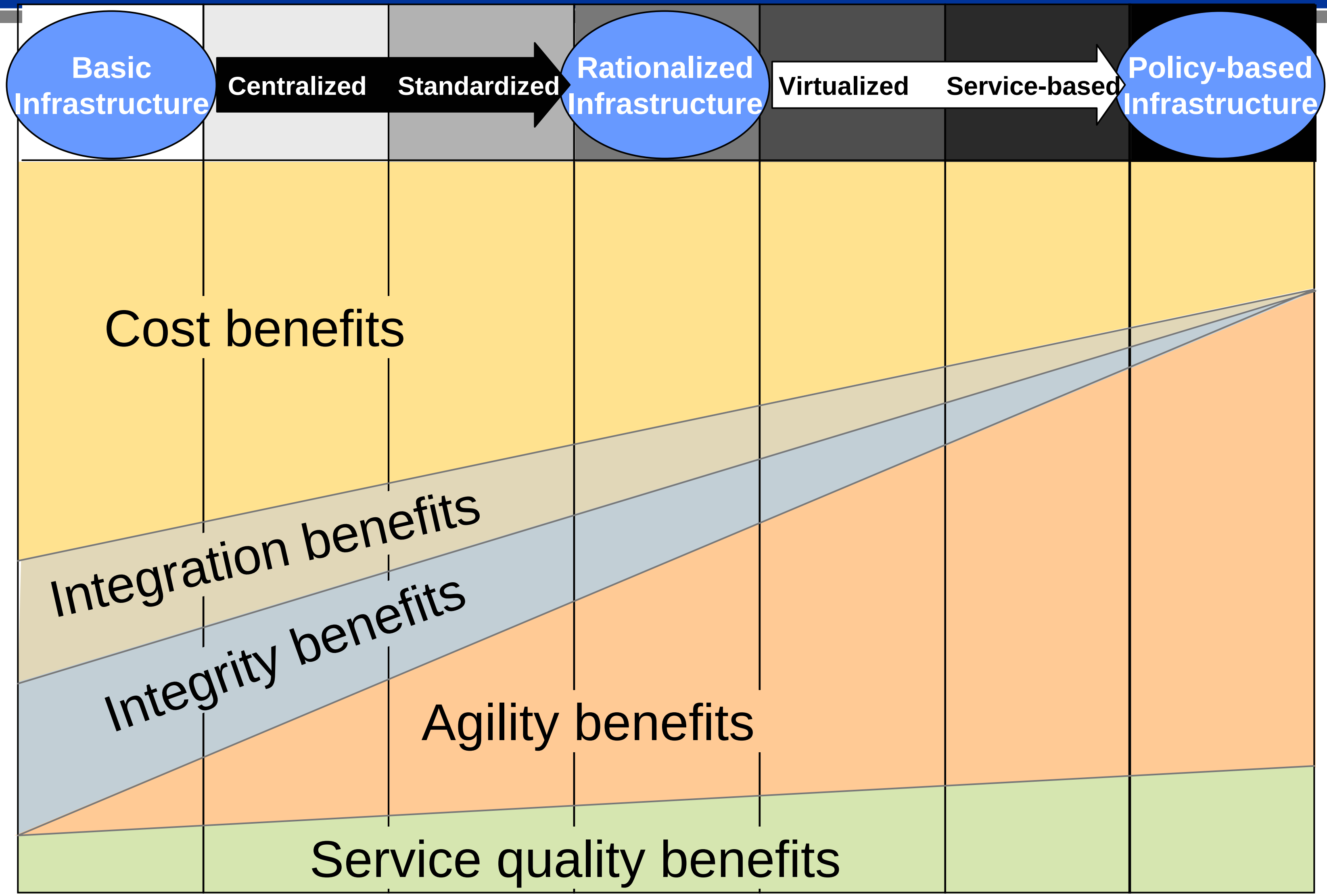
RTI

Gartner

Real-Time Infrastructure: Efficient, Flexible



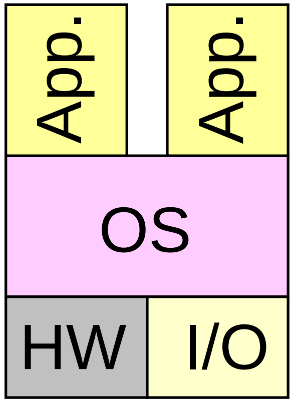
Different benefits are harvested along the RTI journey



The RTI Operating System: The Need to 'Virtualize'

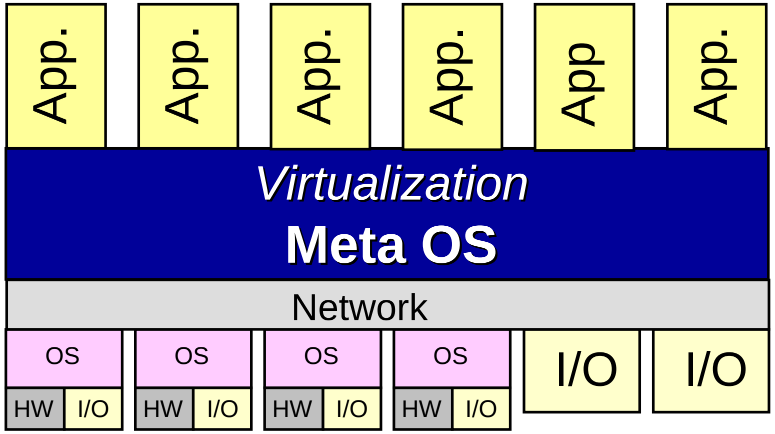
IT virtualization is the pooling of IT resources in a way that masks the physical nature and boundaries of those resources from resource users.

An **operating system** is a virtualization layer between applications and hardware



An **operating system** performs scheduling, loading, initiating and supervising applications; processor, memory, I/O allocation; error handling

A **meta operating system** is a virtualization layer between applications and distributed IT resources

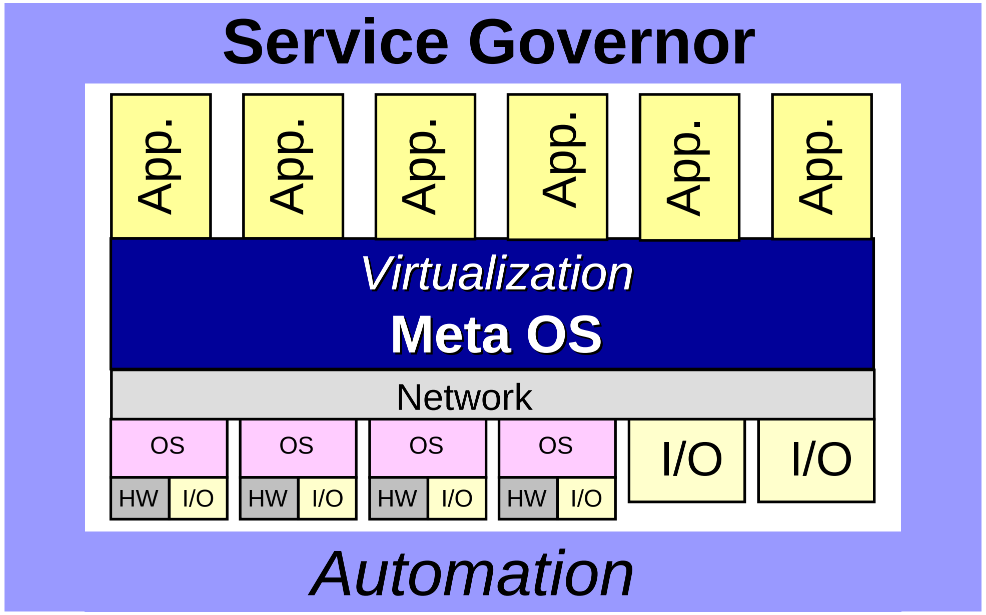


A **meta operating system** utilizes distributed IT resources to perform scheduling, loading, initiating and supervising applications; error handling

Infrastructure Automation: Service-Oriented, Policy-Based, Self-Management

A **service governor** automates a real-time infrastructure in three specific ways:

Automated administration and event reaction are **policy-based**



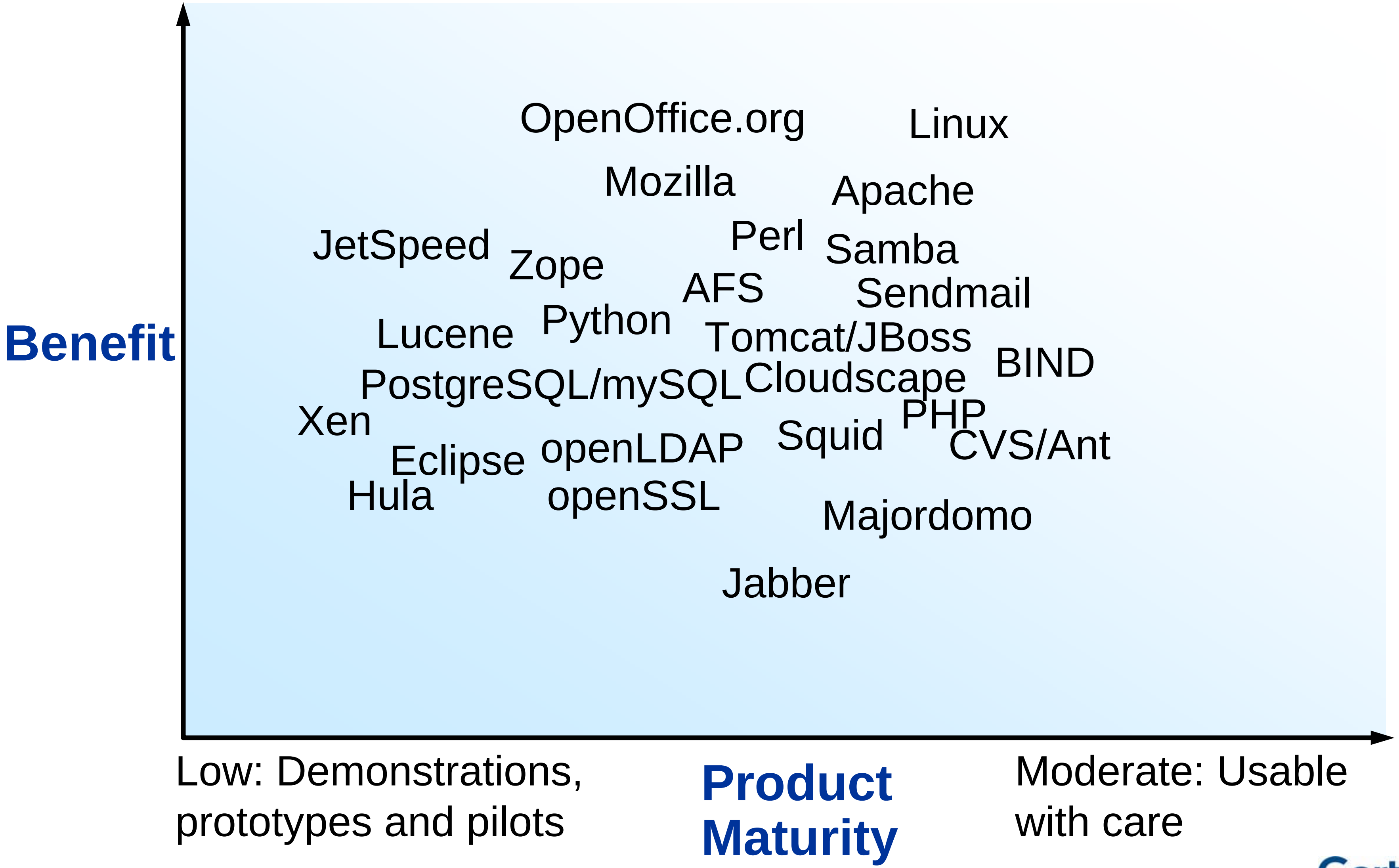
Policies are **service-oriented,** and resources are managed as end-to-end services

Automation requires **active management** capability across all elements of the infrastructure — requiring instrumentation, controls, knowledge capture

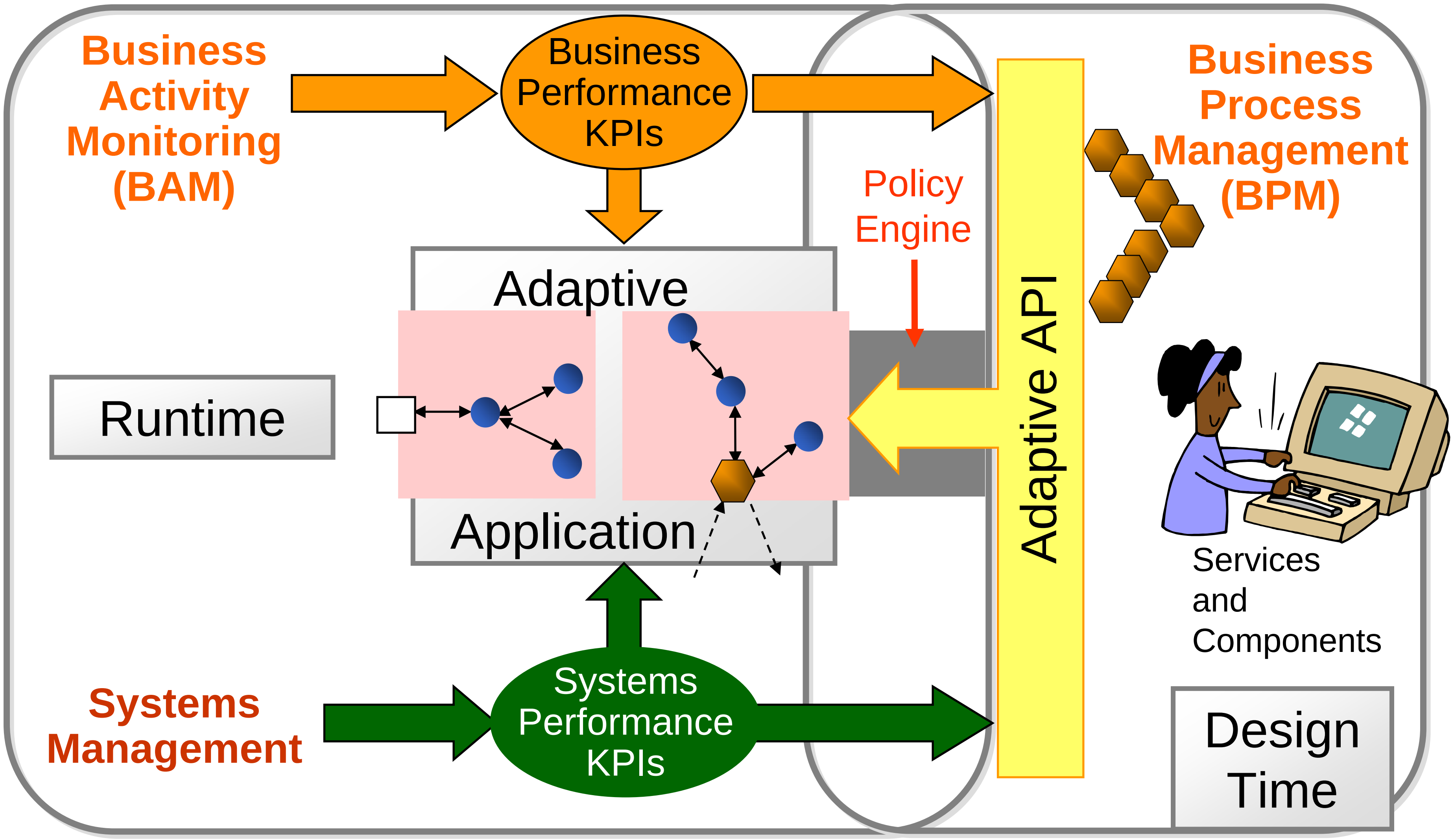
Popular Open-Source Myths

- Open-source software is free.
- It is just a passing fad. It’s against human nature to work for nothing.
- Nobody controls development. Anybody can change the software, which eventually becomes unstable and insecure.
- No one supports open-source software.
- When the lead developer leaves, the project dies.
- Open-source projects eventually splinter, similar to Unix.

Open-Source Project Radar Screen



SOA + EDA + Systems Management Herald Adaptive Applications = Business Agility



Gartner

Business Agility: Enabled Through IT Infrastructure

Bob Hayward

March 2005

Gartner