Realizing SOA on the WebSphere DataPower Platform

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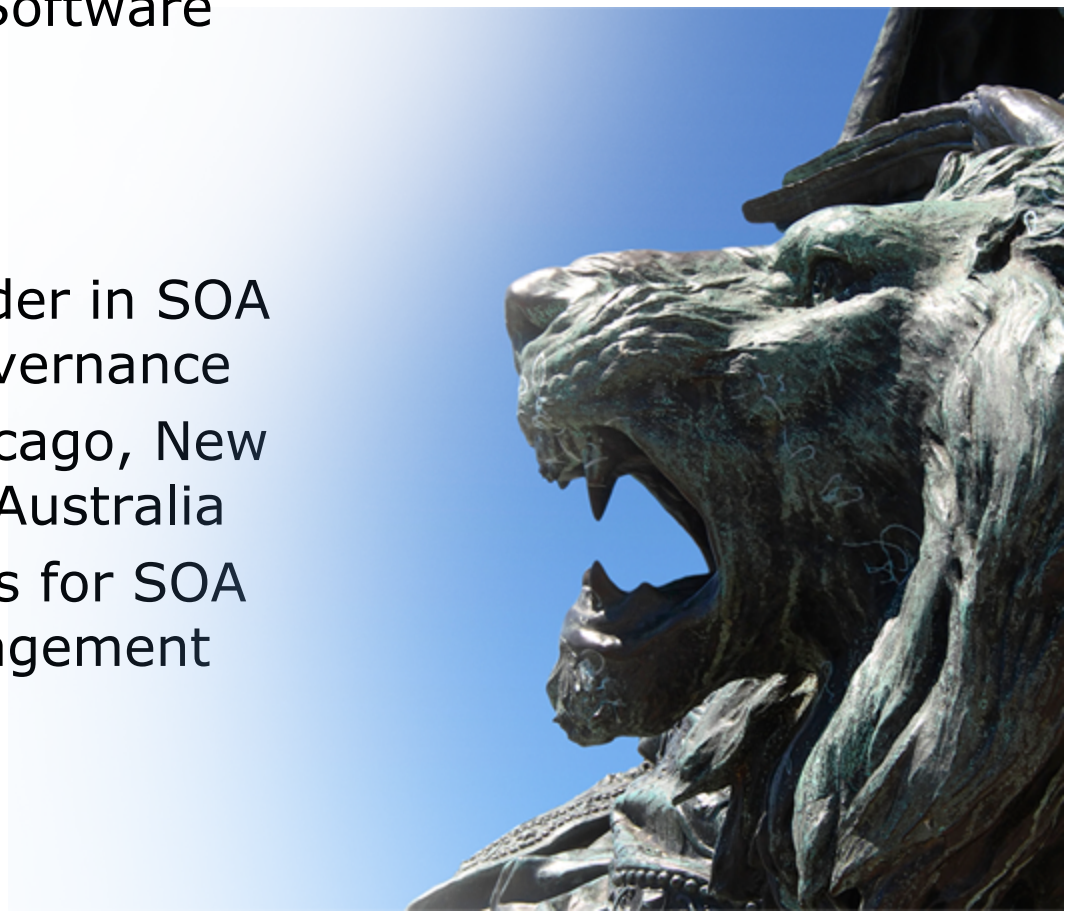
Agenda

- SOA Software
- The Problem
- Planning and building SOA services
- Utilizing core DataPower functionality for SOA
- Implementing security
- Maintaining, managing and evolving the deployment
- The Future of SOA

About Us

- Privately held Enterprise Software company
- Established 1998
- More than 300 customers
- Gartner and Forrester leader in SOA & Application Services Governance
- Offices in London, LA, Chicago, New York, Paris, South Africa, Australia
- Offering software solutions for SOA Governance and API Management
- Plan, build, run and share
- Platform agnostic



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Representative Customers

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Leader - Gartner Magic Quadrant 2013 Application Services Governance

Figure 1. Magic Quadrant for Application Services Governance

Source: Gartner (August 2013)

- Best Vision for:
  API Management
  SOA Governance
- Comprehensive and well integrated offering
- Leading market understanding

The Gartner document is available upon request. *Gartner, Inc., Magic Quadrant for Application Services Governance by Paolo Malinverno, Daryl C. Plummer, Gordon Van Huizen, August 8th 2013.

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The Problem

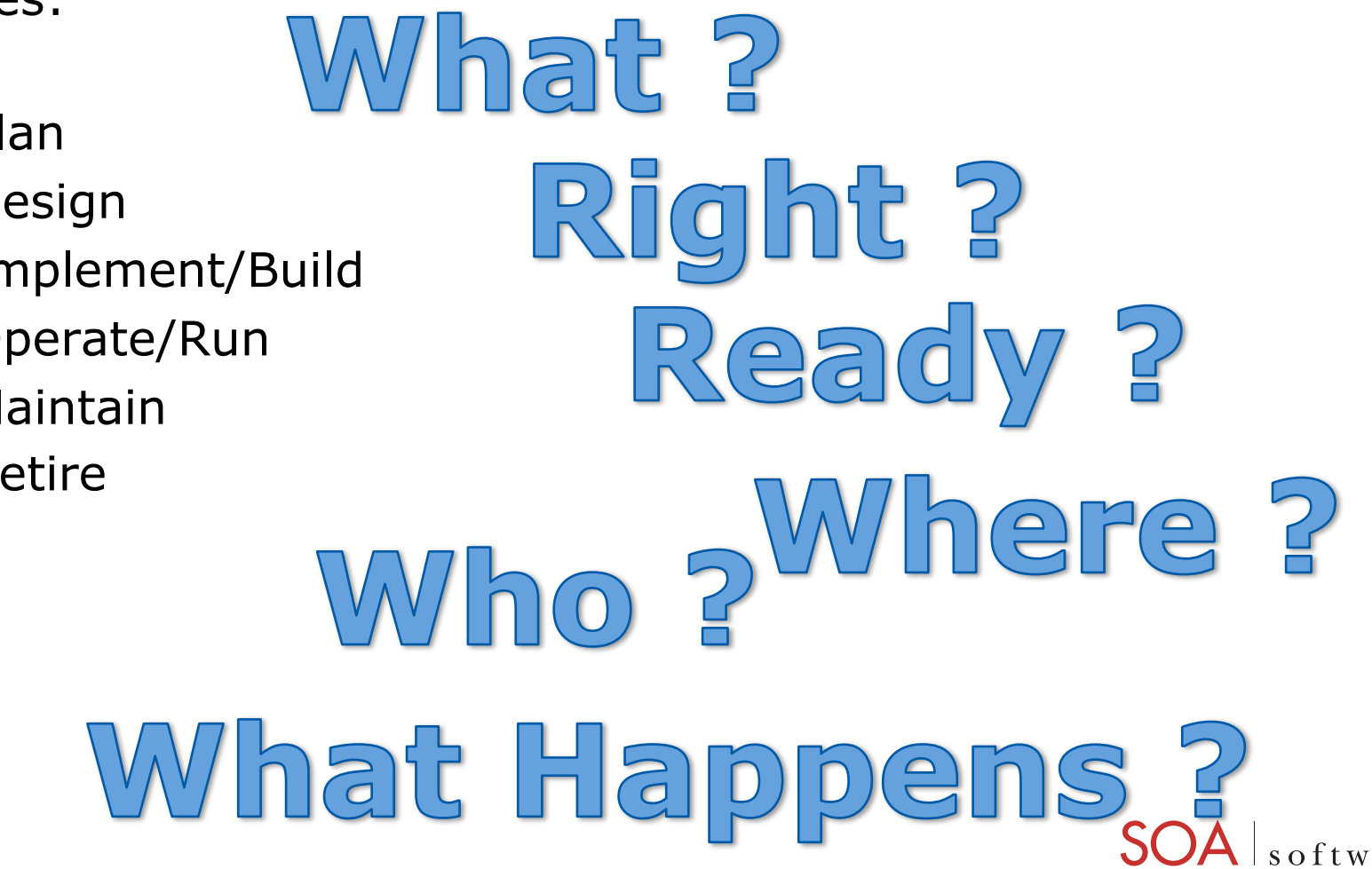
Applications architected according to service-oriented architecture (SOA) are becoming more common than ever. **Service-oriented applications increasingly include application functionality that is sourced from the cloud, private or public, according to different standards**, but following the same architectural pattern.

Gartner – Application Services Governances – August 2013

But why is that a Problem ?

All APIs and services go through several stages in their life cycles:

- Plan
- Design
- Implement/Build
- Operate/Run
- Maintain
- Retire



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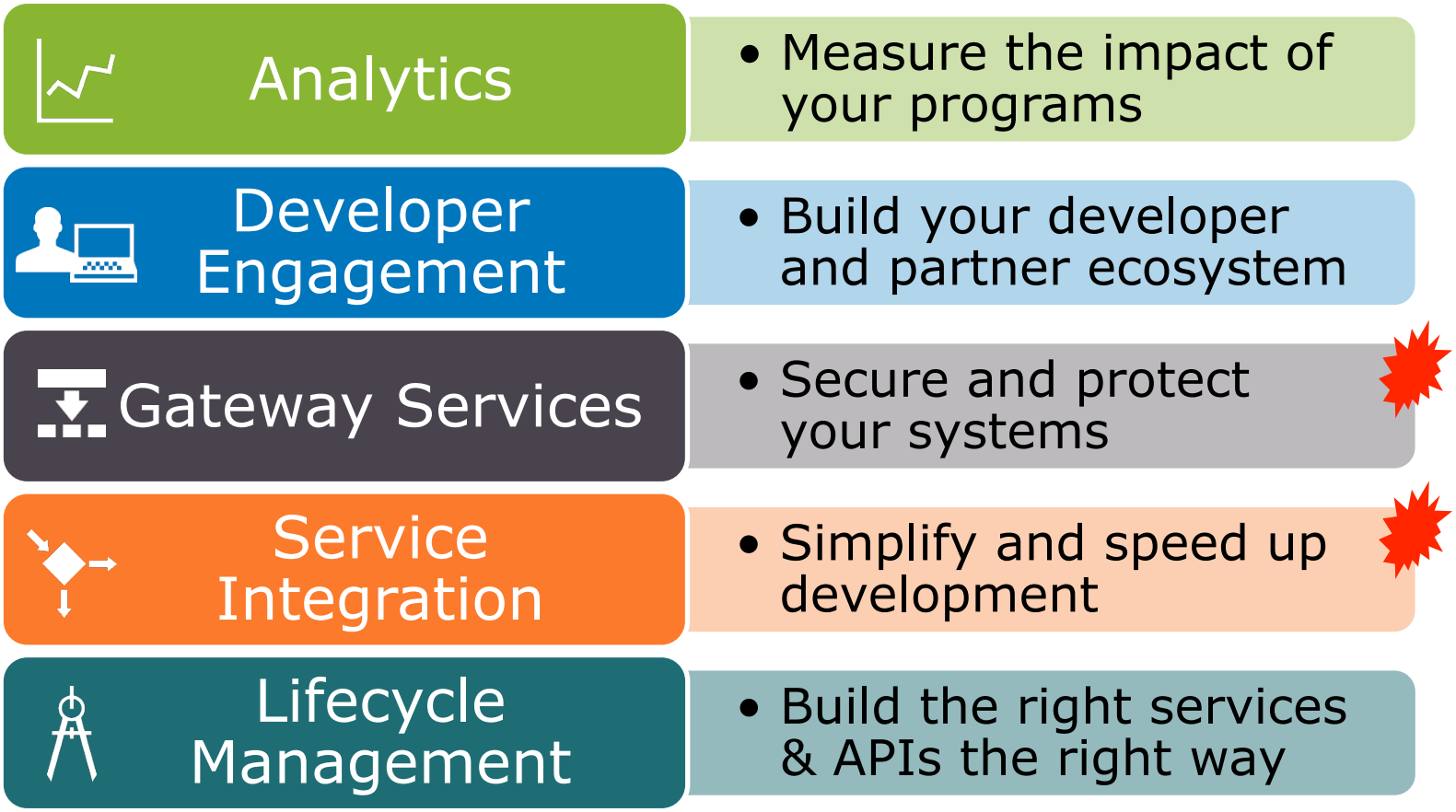
Application Services Platform



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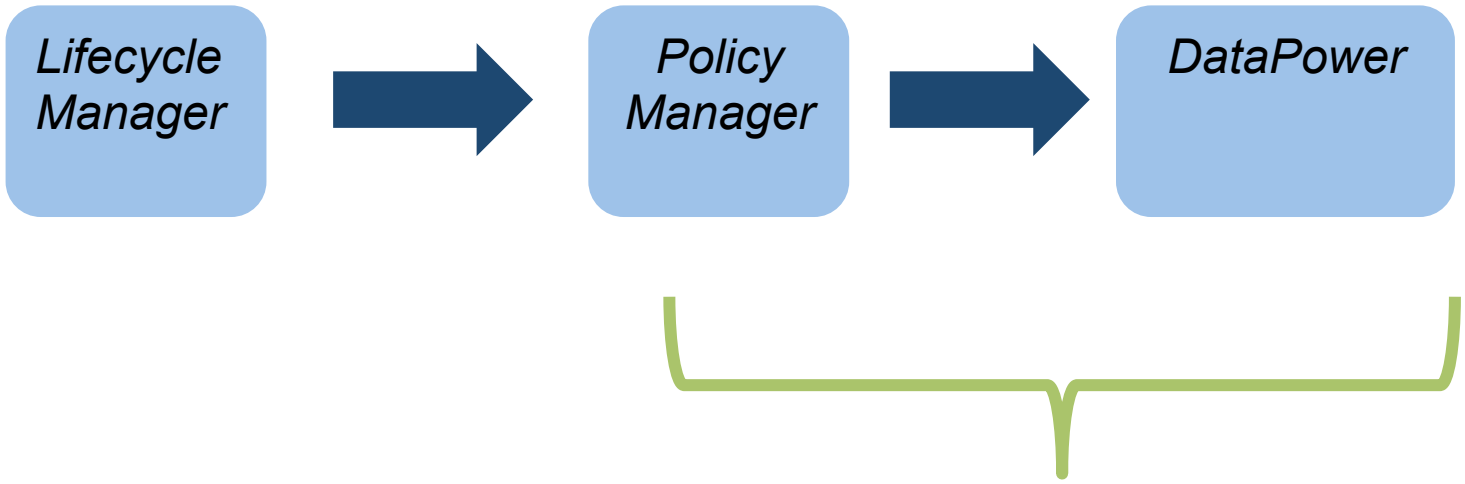
3 steps to Heaven

- Service Lifecycle Management
- Service Automation
- Service Administration and Monitoring

Key Components



Plan/Design/Build

Run/Maintain/Retire

PLANNING

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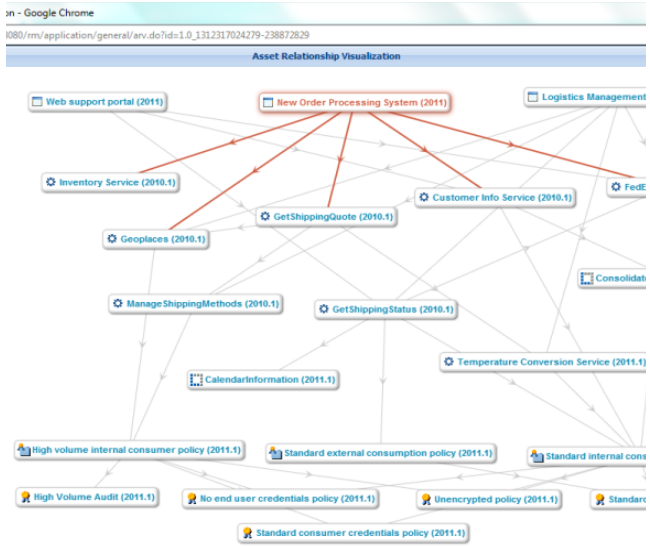
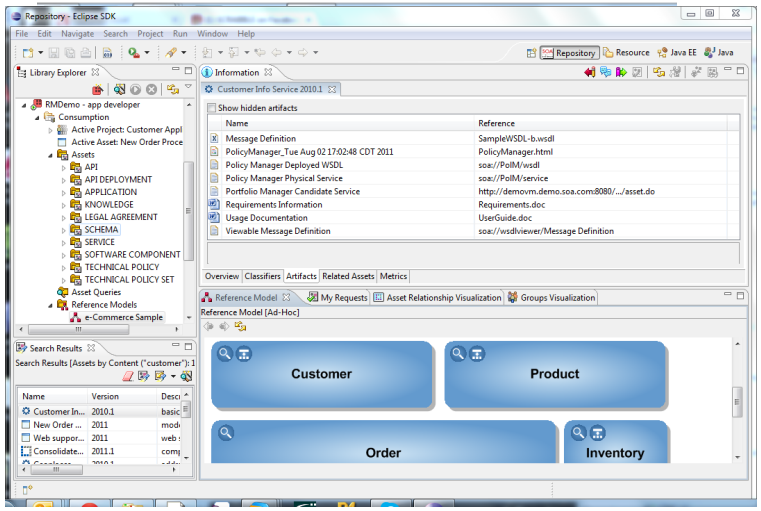
Lifecycle Manager

- Industry-leading SDLC governance platform
- Deep integration with IDEs, SCMs and other development tools
- Flexible development compliance policy modeling options including:
  - Phase-based content mandates
  - Automated compliance policy enforcement Auditable role-based review
- Rich impact analysis visualization across both internal and external consumers





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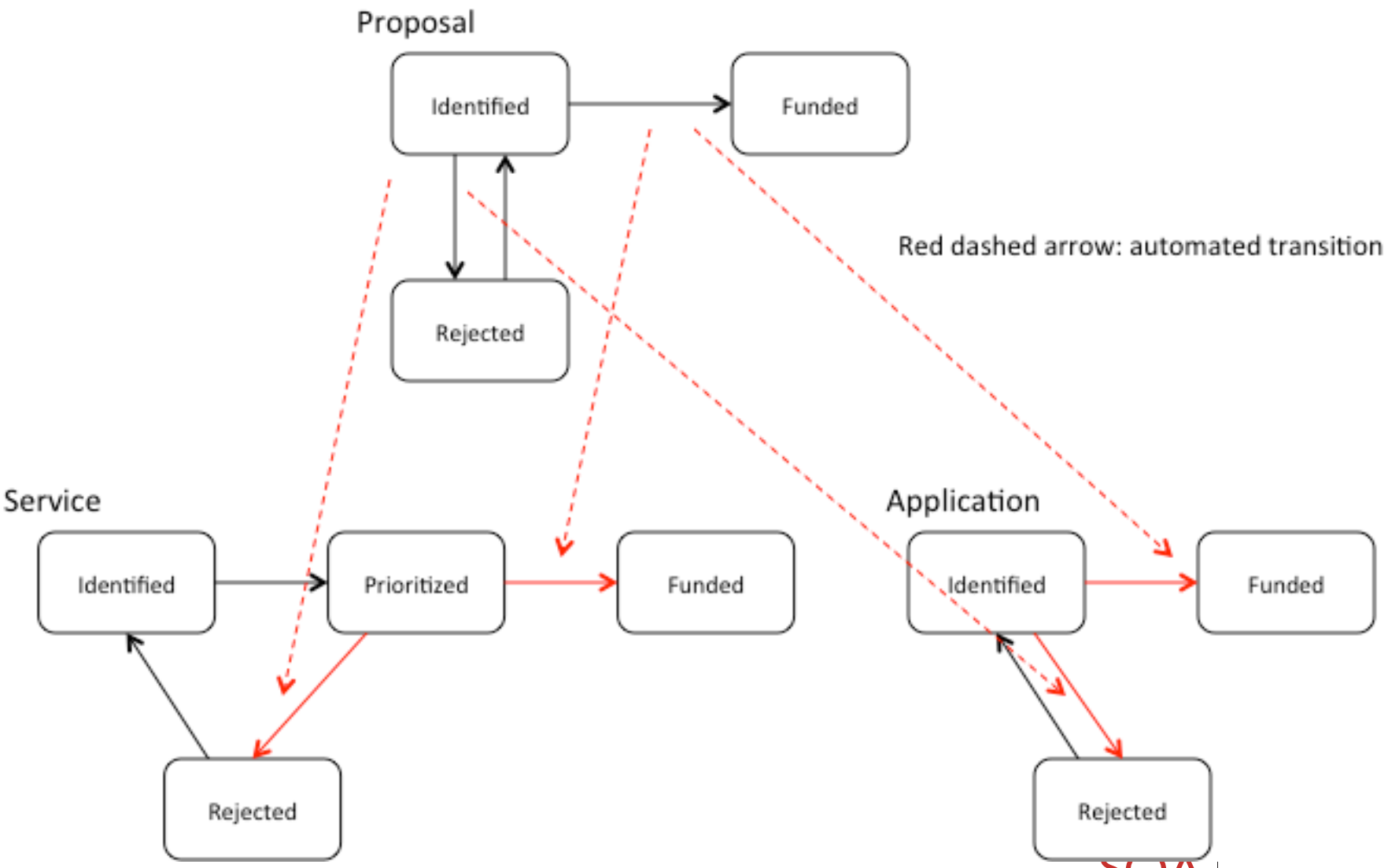
Default Process



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Lifecycle Management

- Lifecycle Manager creates a model of the SOA
  - Services
  - Schemas
- Policy Manager moves on to
  - Organisations
  - Containers
  - Services, Virtual Services
  - Policies

- Role based visibility
- Role based workflow
- Portfolio planning through to build and test

- Repository based

Lifecycle Manager delivers …

- Define and design DataPower services in a collaborative environment
- Understand enterprise IT relationships
- Design standard, reusable DataPower policies

UTILIZING

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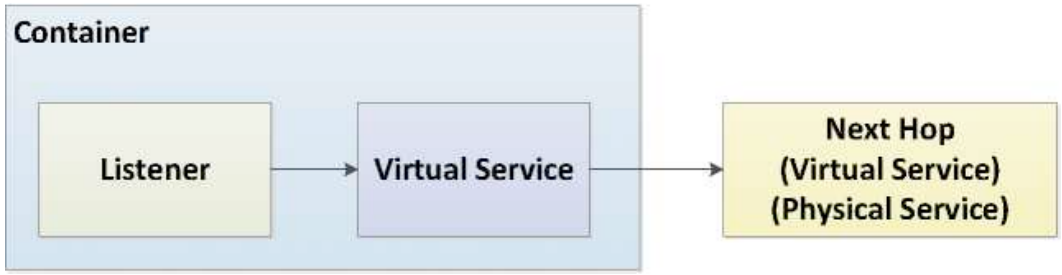
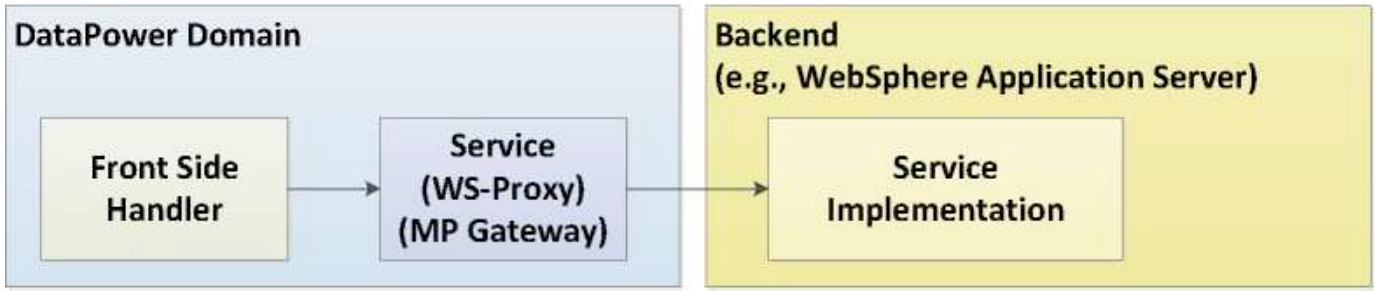
Creating and Deploying Services

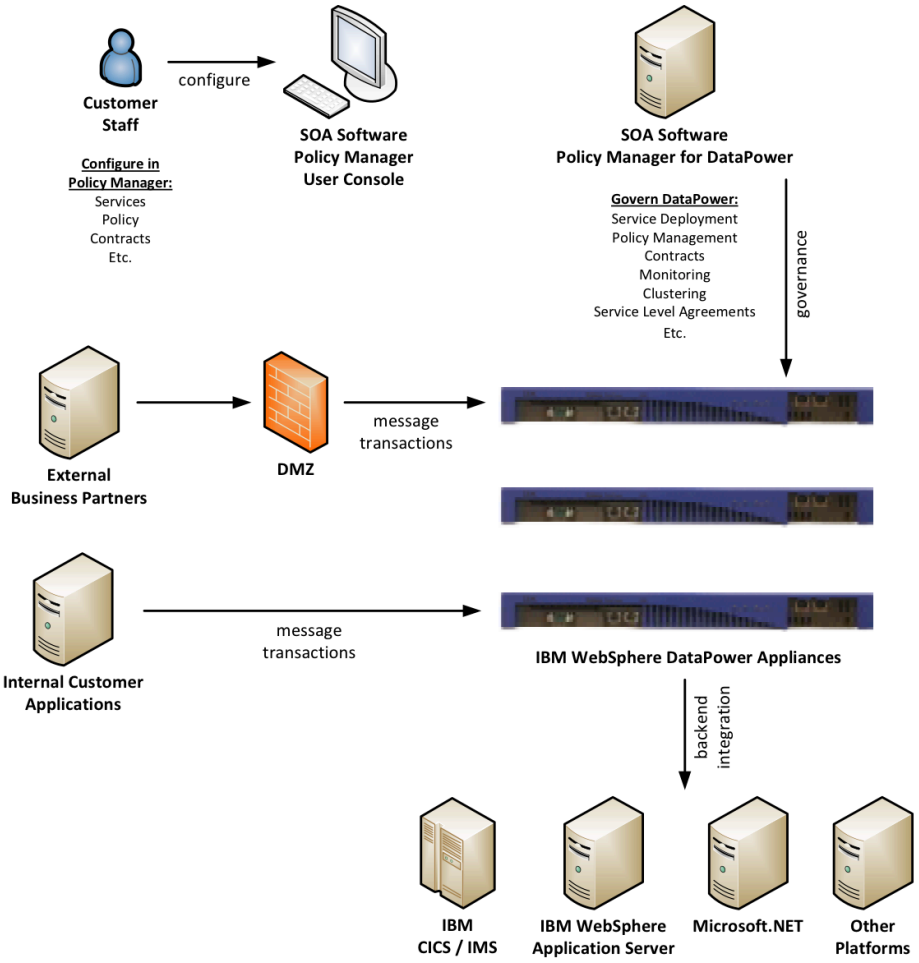
Policy Manager Service Model



DataPower Service Model



Target Architecture



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Service Deployment

- Service types - Via WS-Proxy
  - SOAP 1.1
  - SOAP 1.2
  - Define virtual service in Policy Manager

- Service types - Via MPG
  - REST
  - HTTP & HTTPS Transports
  - Define binding
  - Define operations

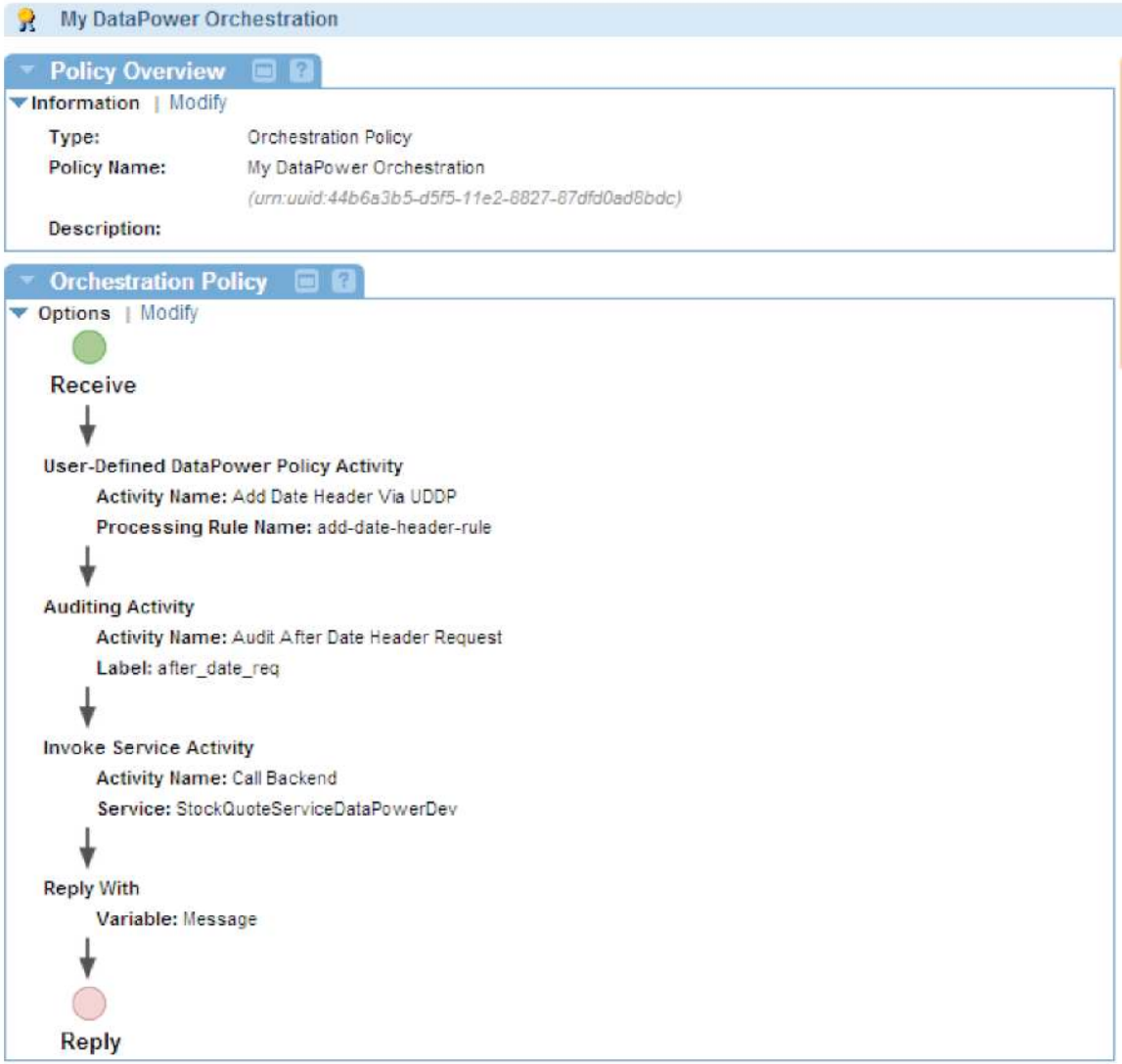
Securing DataPower Services

- Wide range of security schemes configurable from Policy Manager
  - WS-Security Policy
  - HTTP Security Policy
  - Contract authorization
  - Define security domains

- Example – Add Username Token for a SOAP Service
  - Define a *Transport Binding Policy*
  - Define a *Supporting Token Policy* choosing Username Token
  - Define an *Authentication Policy* – choose the security domain
  - Attach policies and deploy

  - Add contracts to authorize consumers

Orchestration



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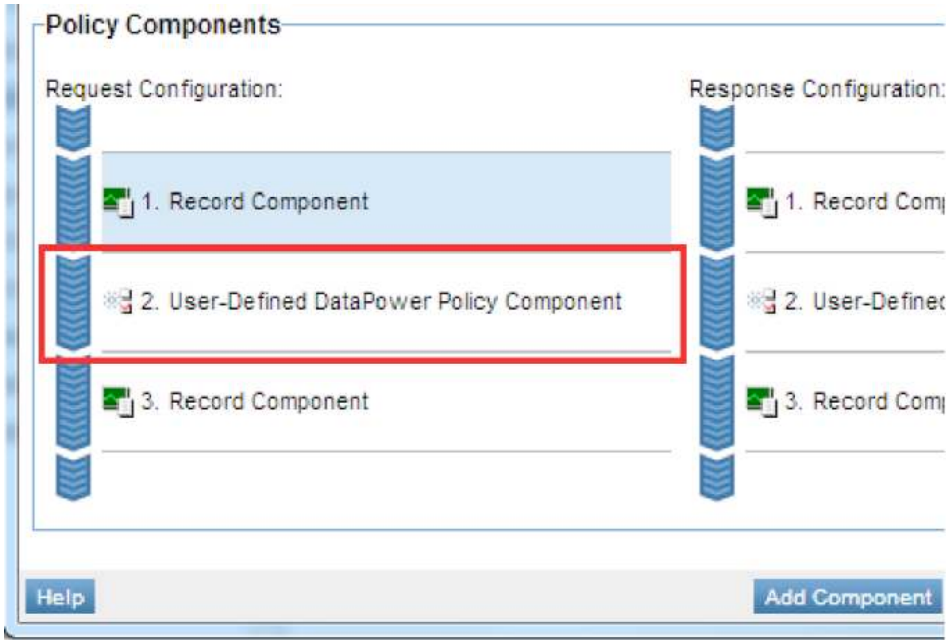
Customising DataPower Services

- User Defined Policies
- Include DataPower rules, detect malicious patterns



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MAINTAINING, MANAGING …

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Monitoring DataPower Services - Alerts

- DataPower pushes logs to Policy Manager
- Two categories inside Policy Manager:
  - *container alerts*
  - *service alerts*
- Policy Manager stores alerts permanently for historical purposes or to aid in troubleshooting.
- Aggregate alerts across an entire DataPower infrastructure to make it easy for administrators to monitor a large DataPower estate.

Monitoring DataPower Services - Metrics

- DataPower pushes runtime for each service running in a domain.
- Policy Manager for DataPower stores them for manipulation.
- Metrics include
  - average response time,
  - maximum message size,
  - total faults (or errors) over a specific period of time.

- Three major uses:
  - *Real Time Charts* show current metrics for a running DataPower service
  - *Historical Charts* to see past performance.
  - *Service Level Policy* that uses metrics to look for specific patterns.

Monitoring DataPower - Auditing

- DataPower pushes message auditing details of selected services
- Stored as *Usage Logs* for view within Policy Manager.
- *Auditing Policies* within Policy Manager control which services should be audited, and to what extent.

Policy Manager delivers …

- Model runtime aspects of services
- Configure through a few high level concepts
- Standardise and reuse policies and choices
- Collect monitoring data and metrics
- Monitor service level agreements and alert staff
- Business scaleable, efficient, low error

FUTURE OF SOA

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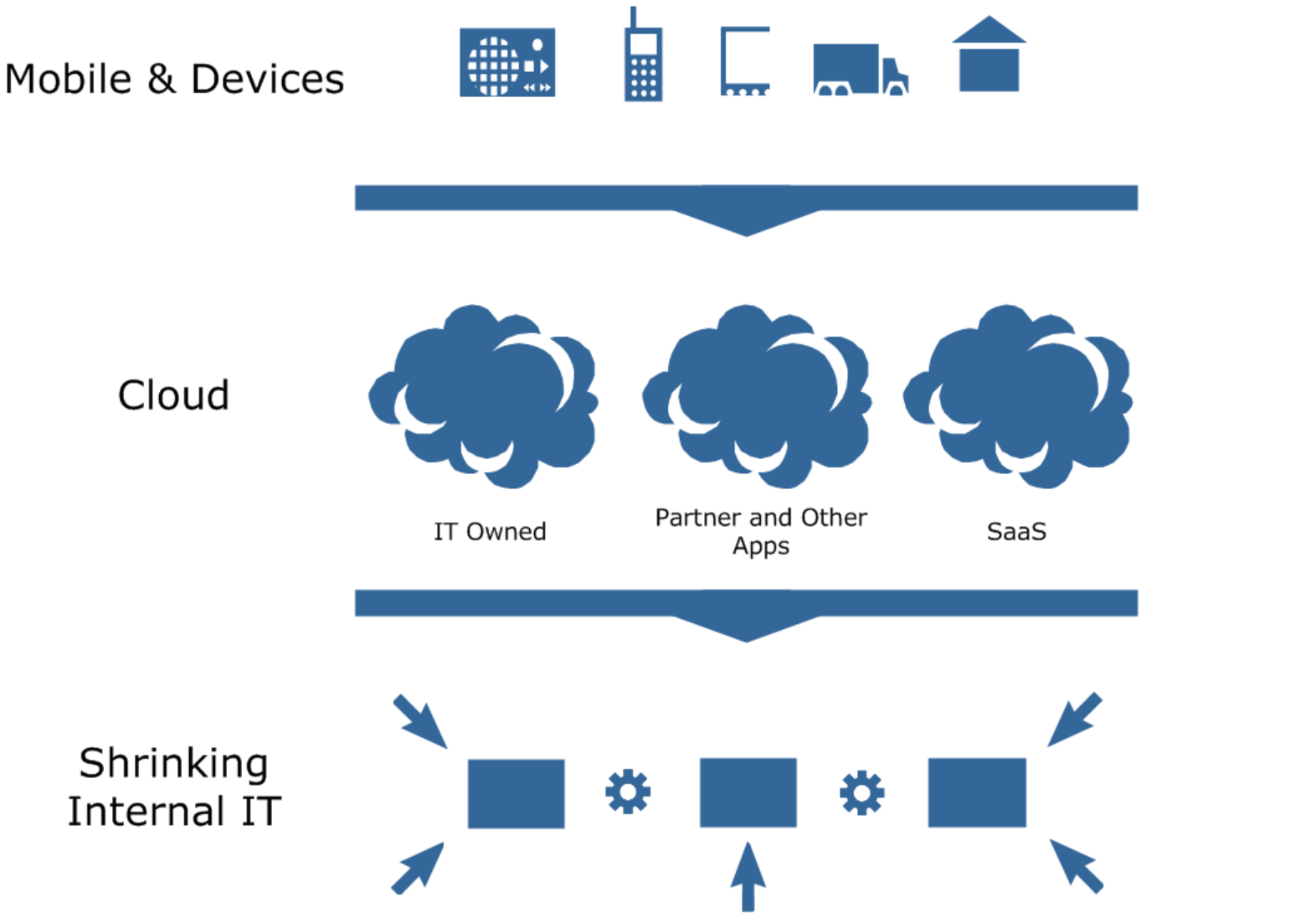
Future World 1 - The Net Effect



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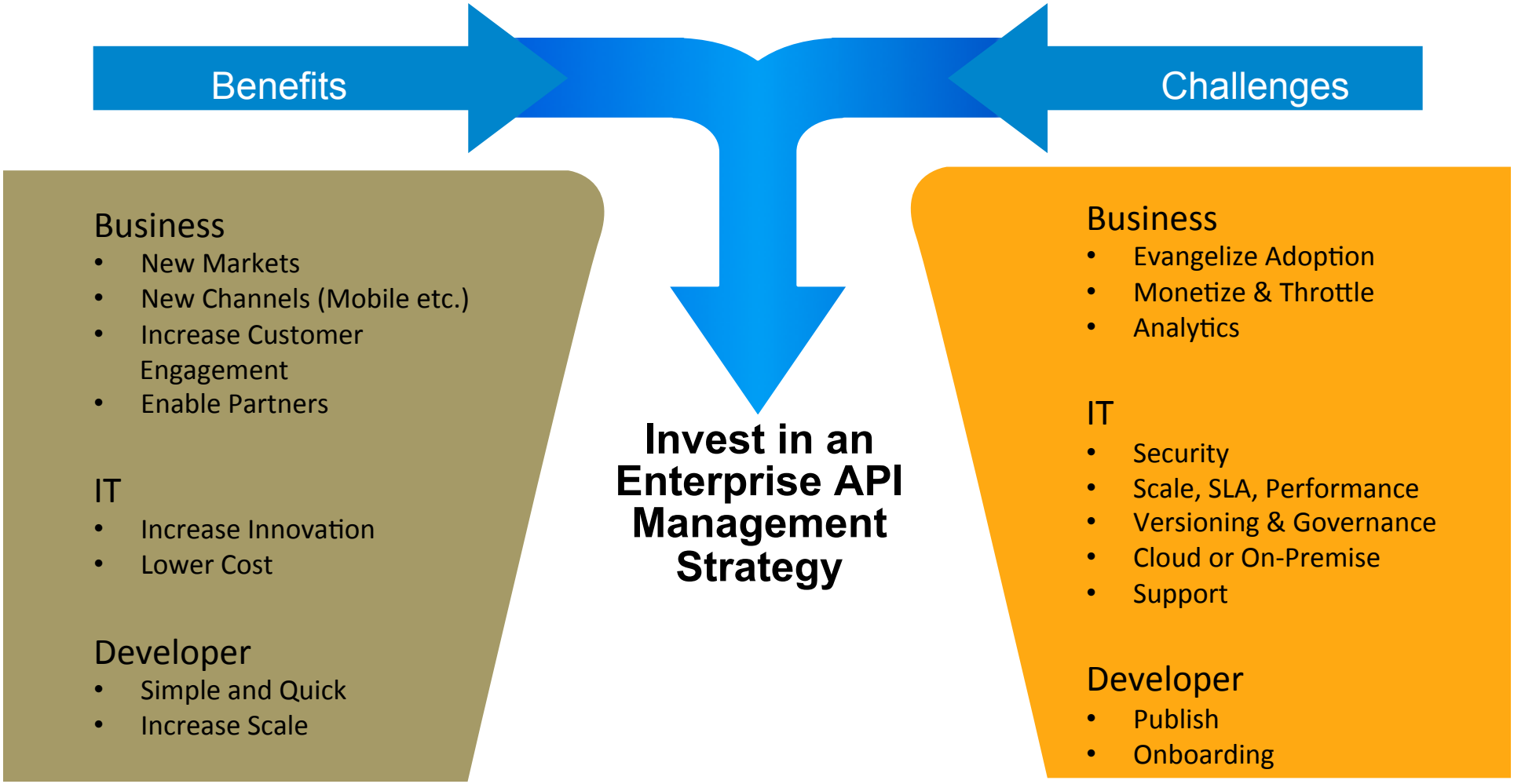
The API Dilemma



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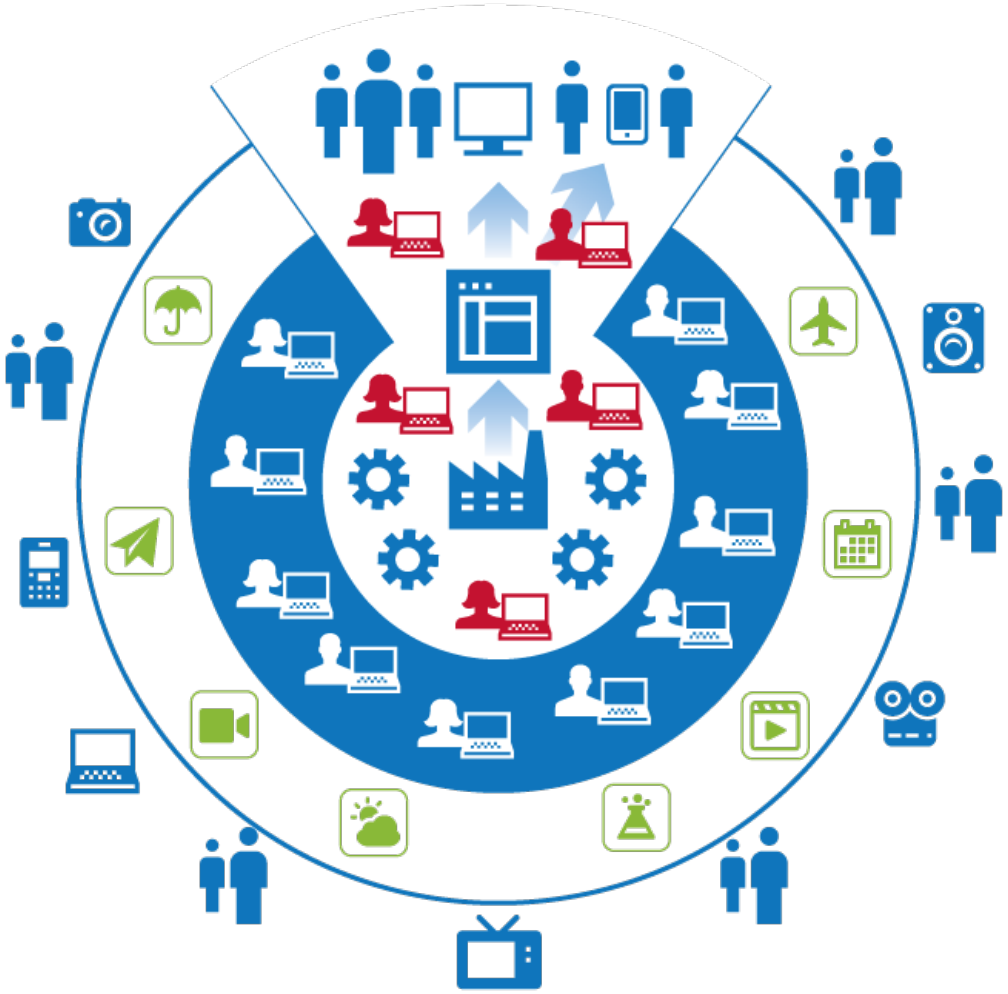
A More Digestible Perspective



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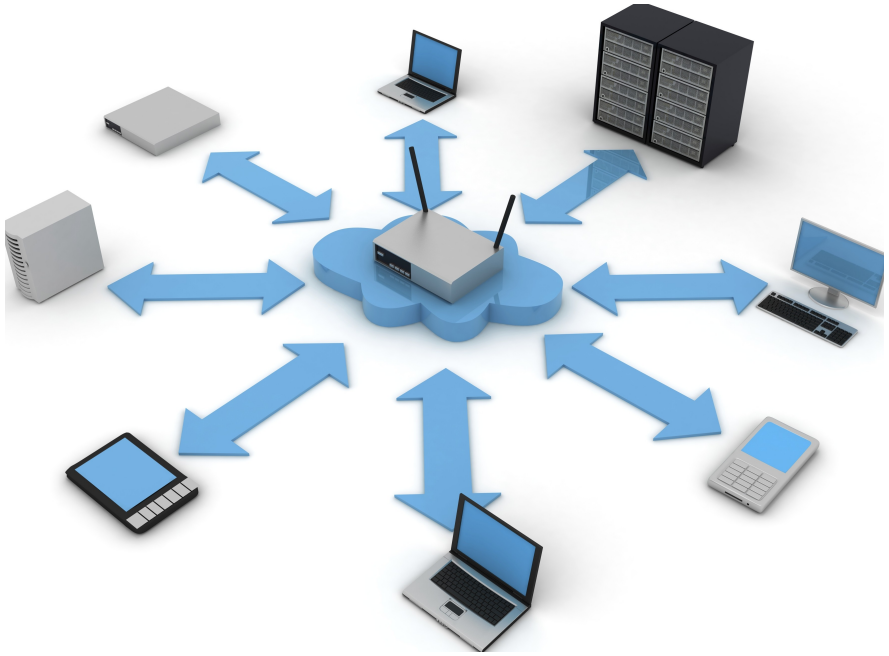
IT Drivers

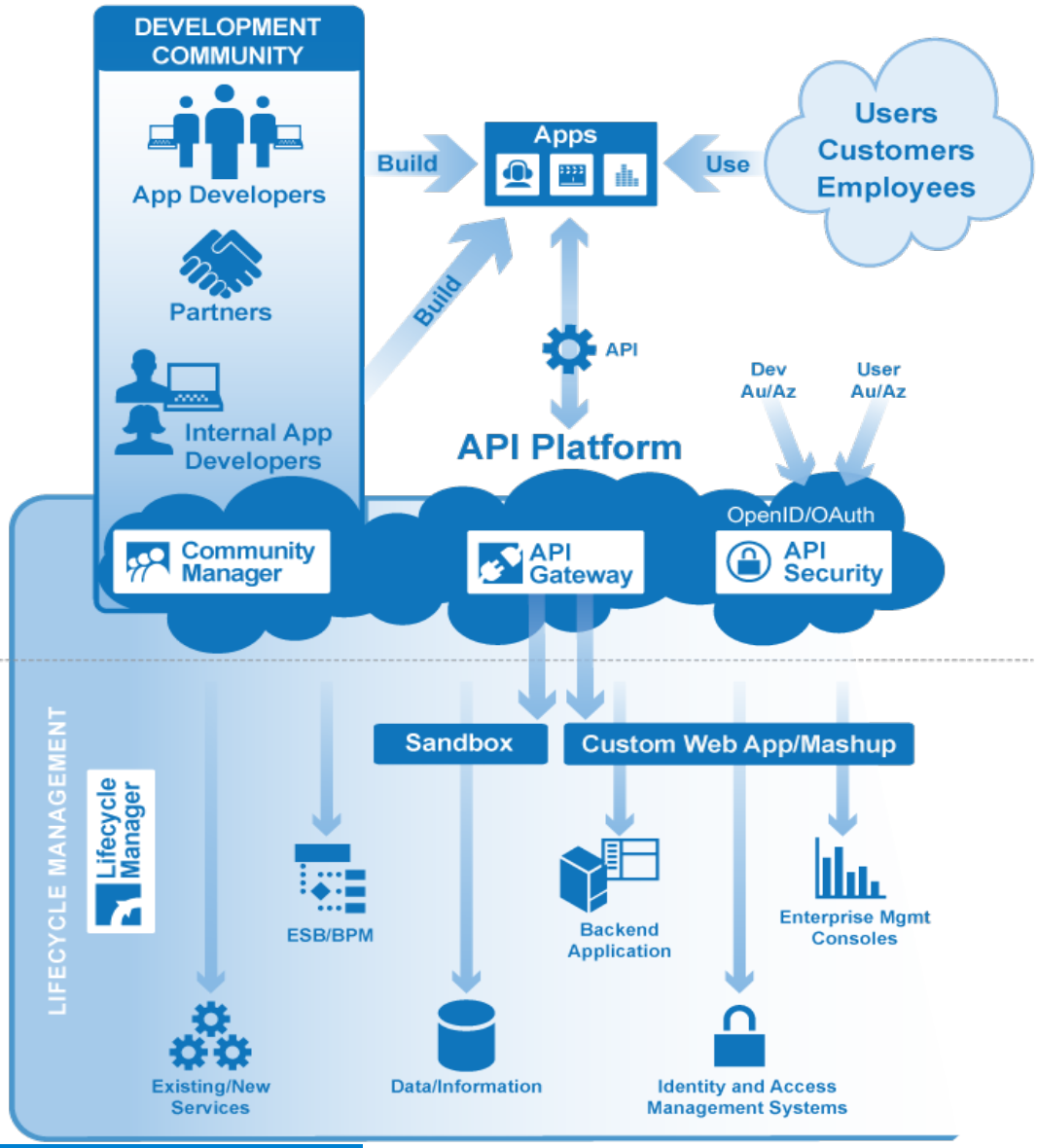
- Productivity
- Security
- Sustainability



Good fences make good neighbors

Robert Frost – Mending Walls 1914

Future World 2



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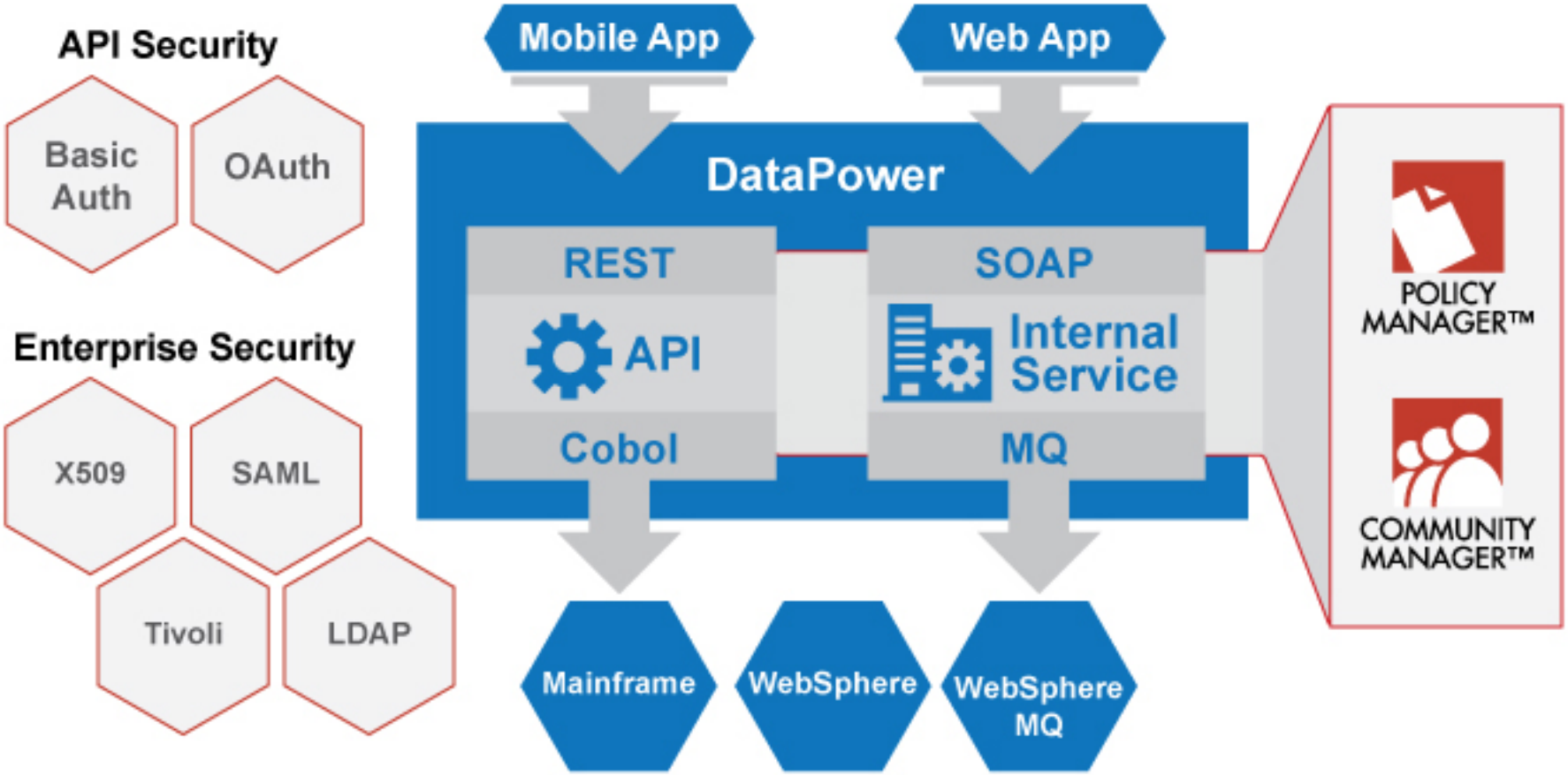
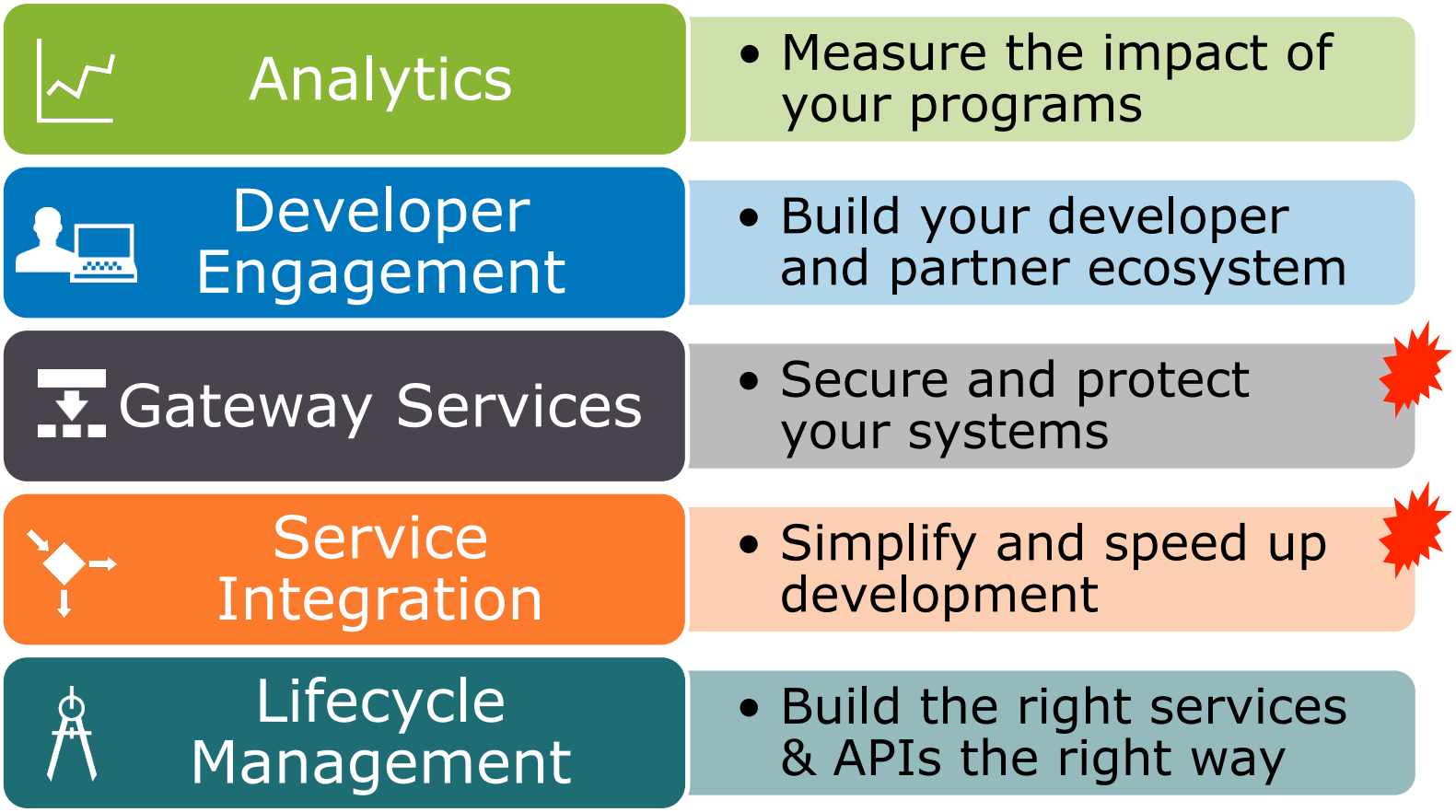
Future World 3



Application Services Platform



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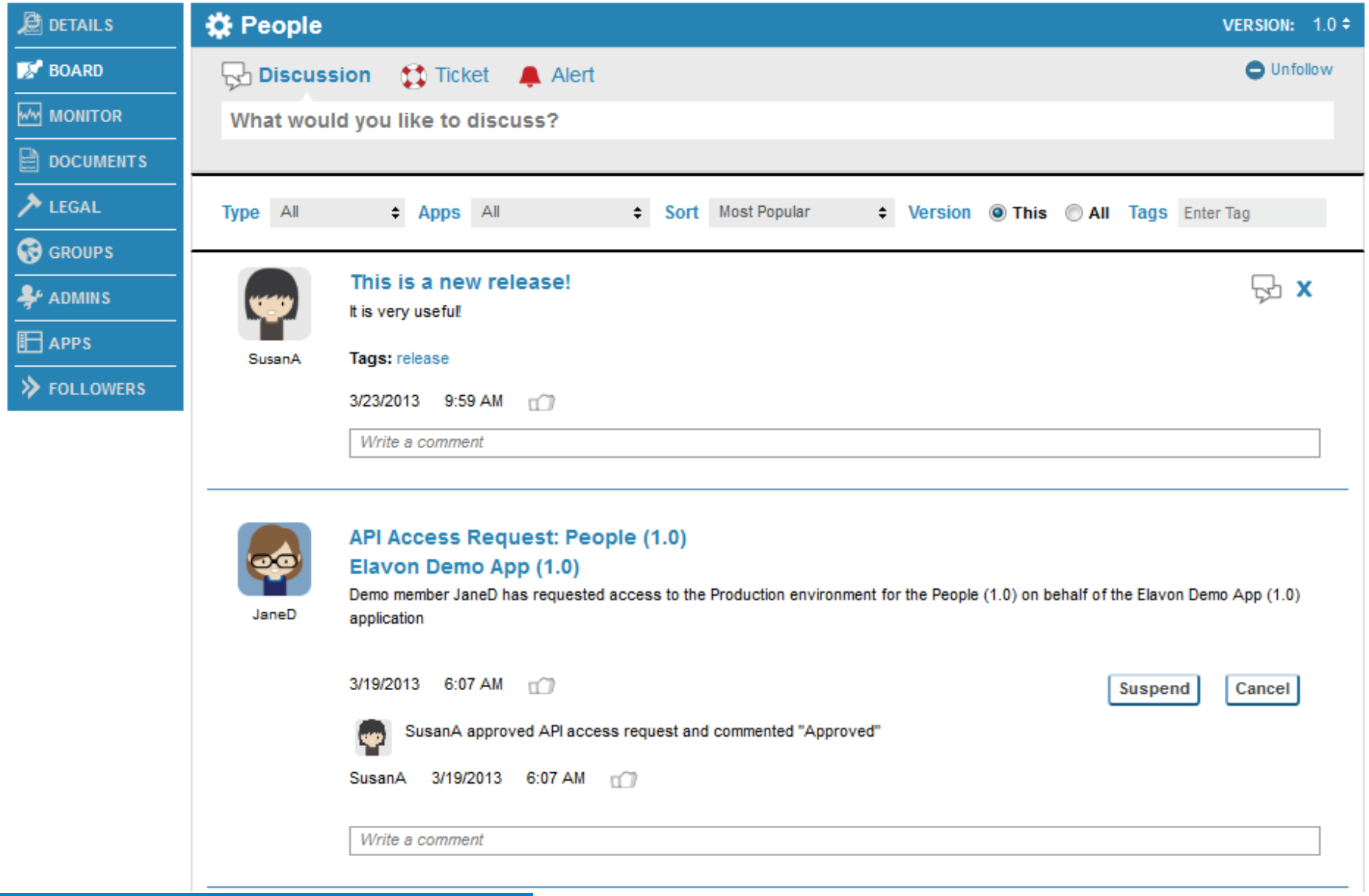
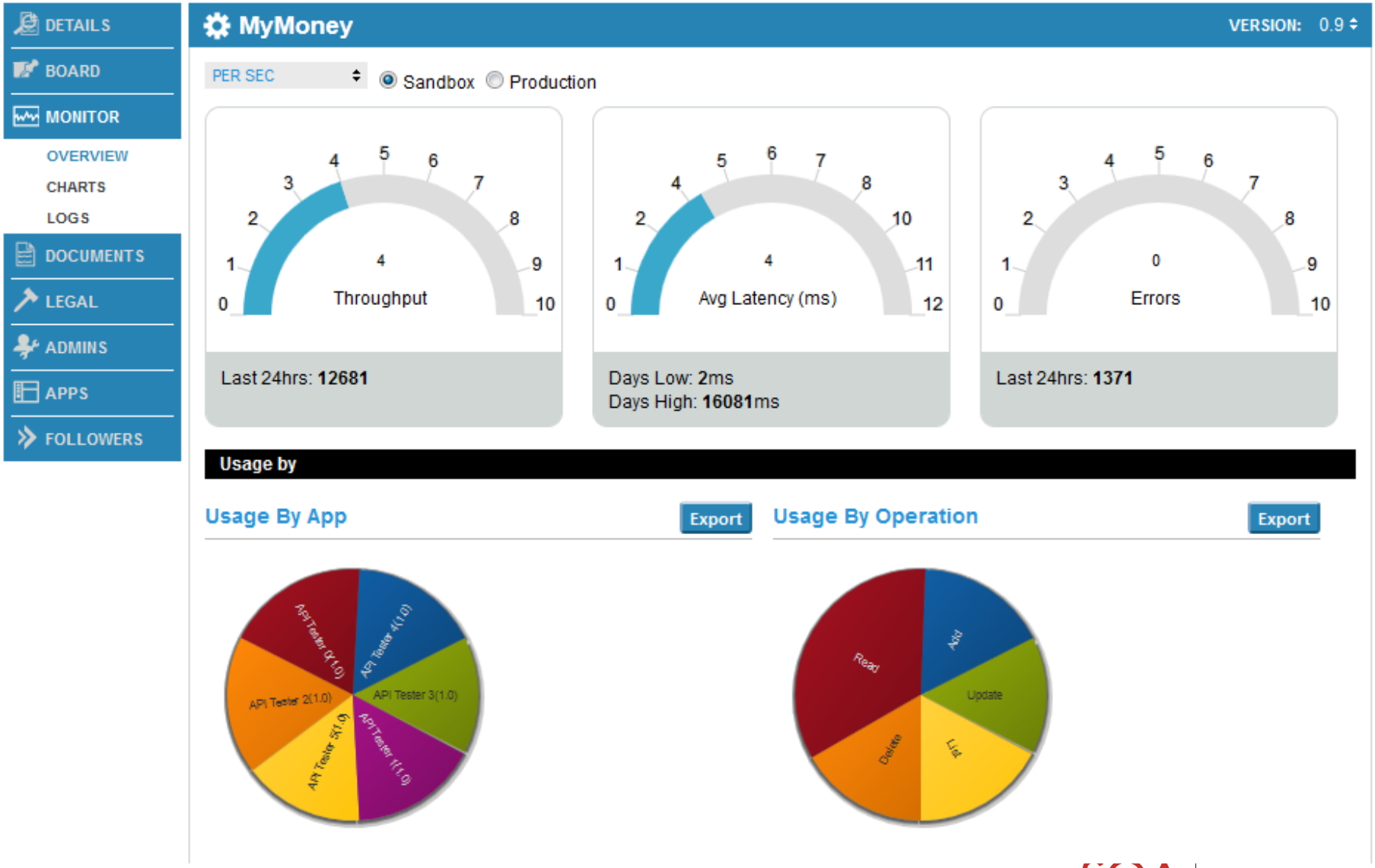
Developer Engagement



Analytics



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Summary

- SOA Software provides
  - Lifecycle Management
  - Service Automation
  - Administration and Monitoring

- Good management and operational processes make SOA & API
  - Scaleable
  - Cost effective

- Changes in IT Paradigms means that the SOA payoff is coming

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