

What You Make Possible



Bringing New Services to Market Faster Through Hierarchical Integration with Cisco Prime

BRKSPG-1662

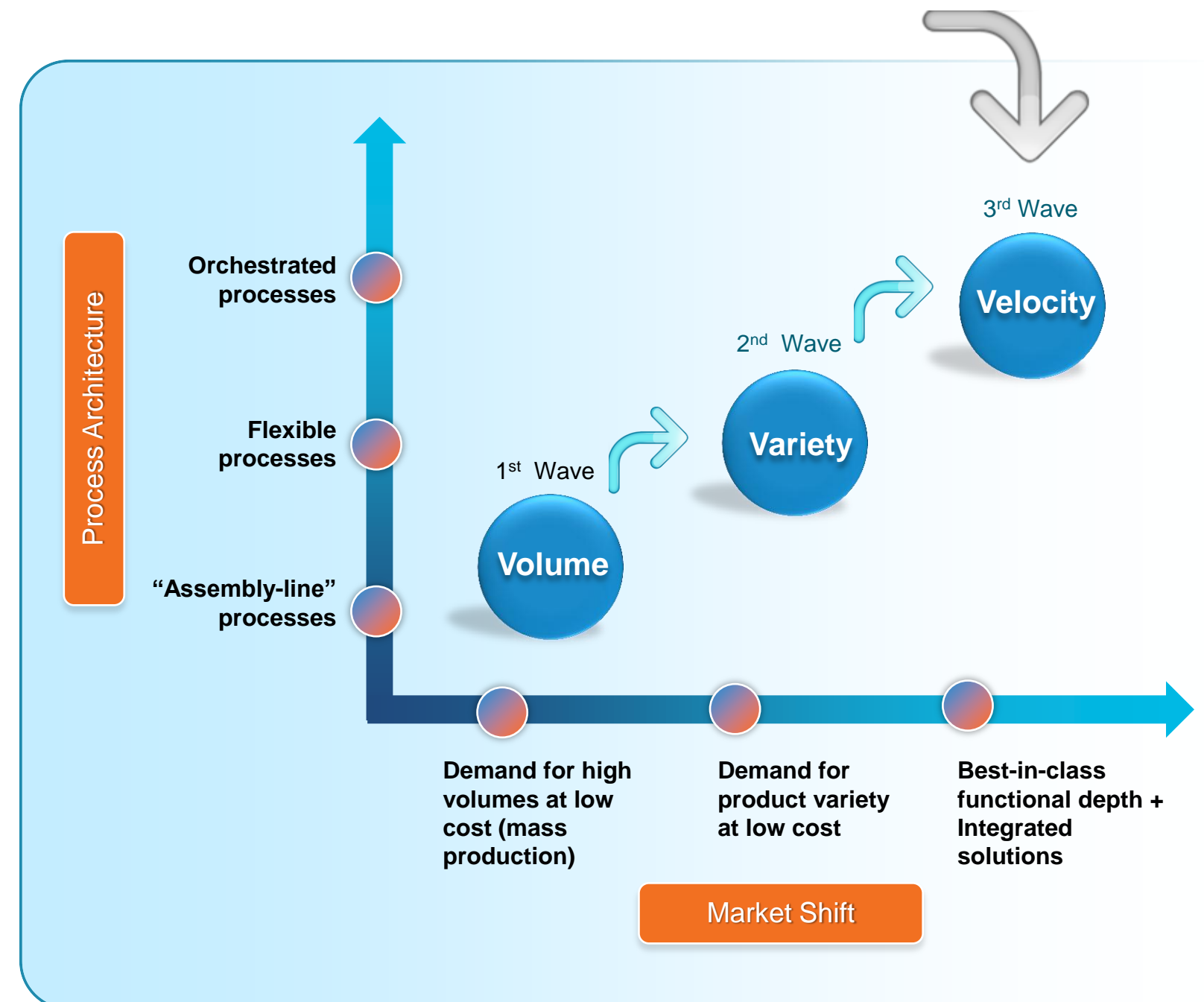
The Three Waves

Telecom Operators are facing their second transition, the **Velocity**



What's different:

- First transition was supported by the telco "boom", now the **economic climate is challenging**
- **OTT** entered in the game
- Huge legacy **complexity** in Processes, Products, Organisation



Key Strategic Questions

How Can The Service Provider...



- Introduce new IP/Cloud-based communications, collaboration and entertainment services rapidly into the market with high quality, efficiency and scalability ?



- Quickly integrate third party capabilities into service offerings to gain strategic and economic advantage ?



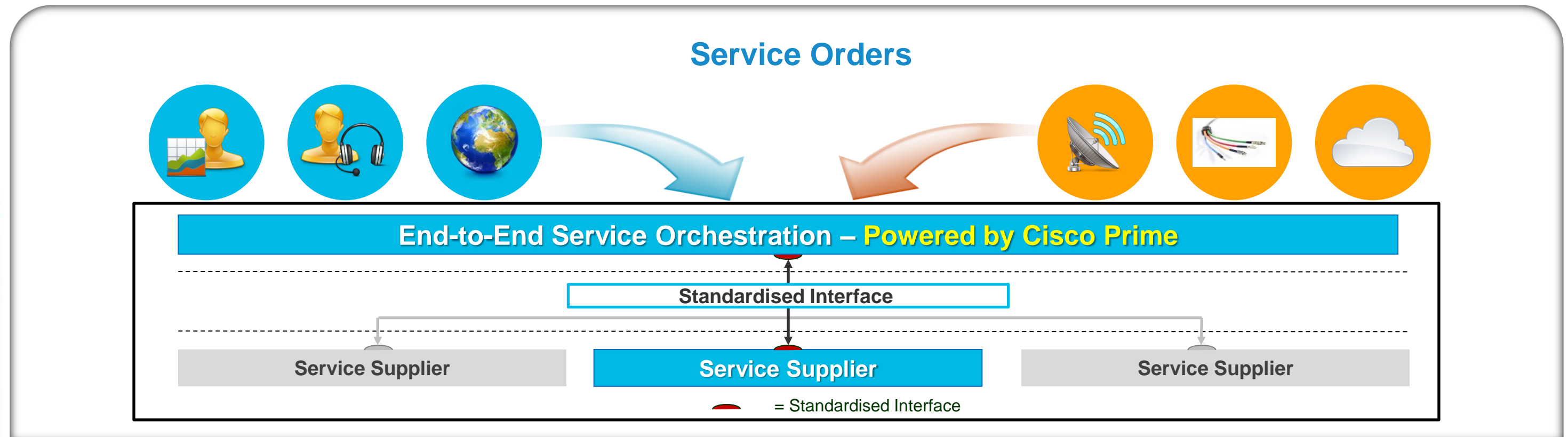
- Develop an in-house service innovation/production process that can easily and quickly adapt to changing market environments ?



Evolution toward
a modular
**Agile Business
Architecture**

Agile Operations Powered by Cisco Prime

Future Readiness At Lower Cost To Serve



Agility

- **Service Orchestration** agnostic to underlying technology or network
- **Modular and Flexible** design
- Supporting **Organic Growth** and **Transformational** change
- **Faster Time to Market**

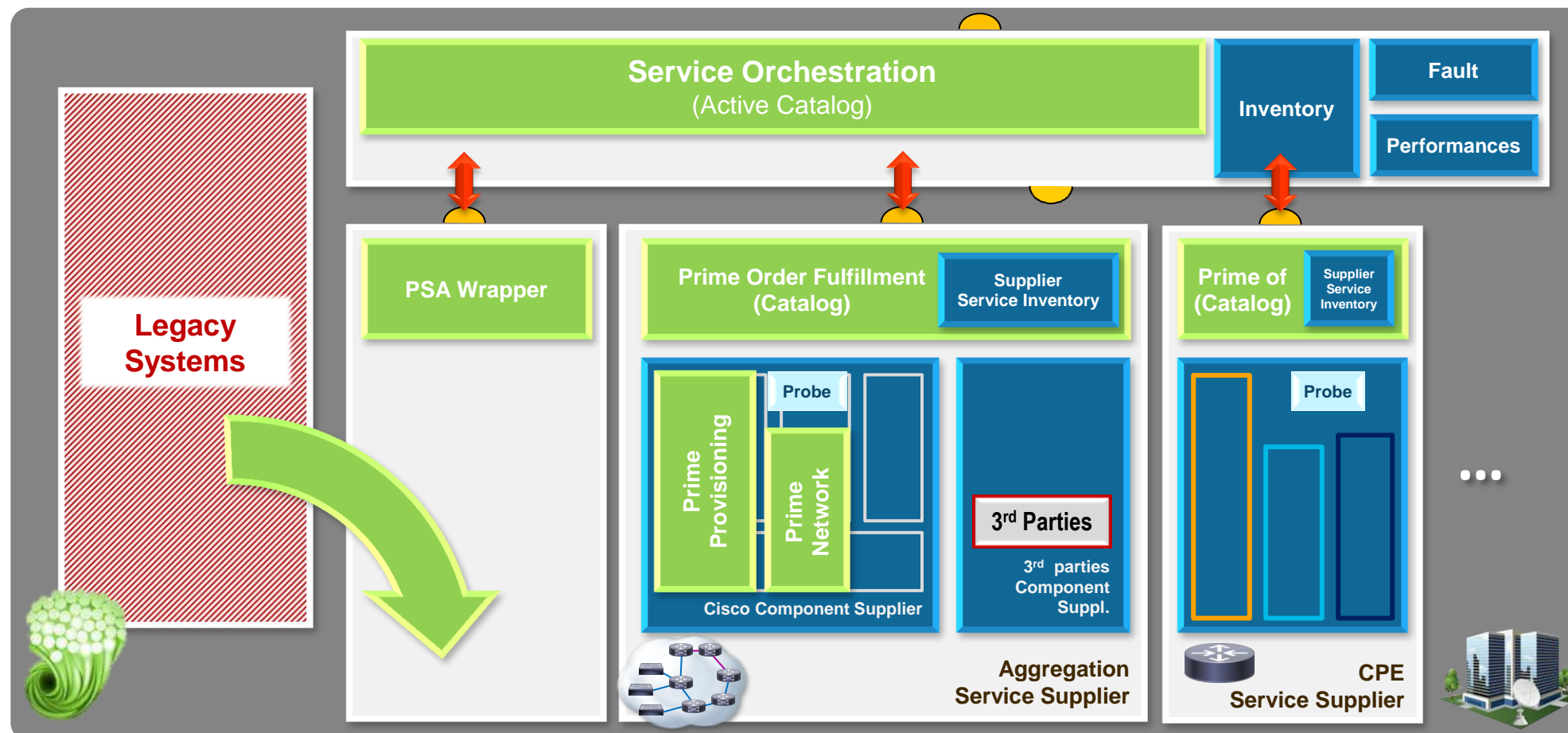
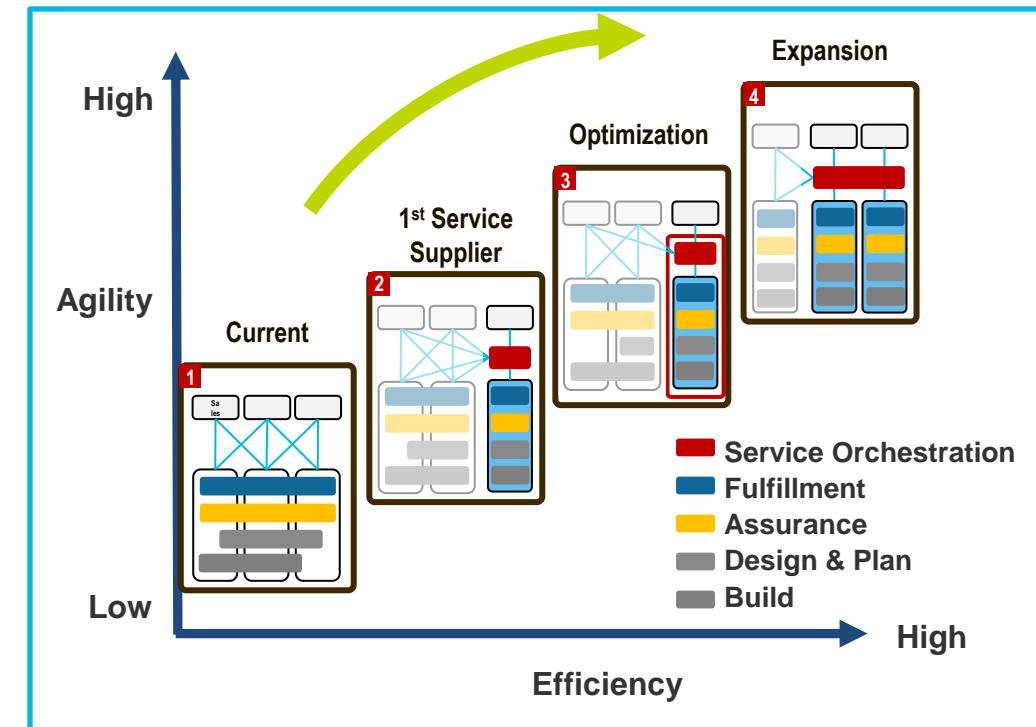
Simplification

- **Minimised component Dependencies**
- Standardised interface for **Consistent Service Assembly**
- **More Accurate Inventory Data**
- **Lower Cost to Serve**

End-to-End Service Orchestration

Inclusion of Legacy Operations

- Evolutionary approach to Legacy Systems:
 - Service Supplier wrapping to expose PSA interfaces
 - Functional migration
- Phased expansion and functional coverage



Foundation



Agile Business Architecture Design

- Modularity
- Agility
- Velocity

Support Business Transformations

- Competitive Advantages
- OpEx reduction
- Faster Time to Market opportunity

Innovative Cisco Prime Portfolio

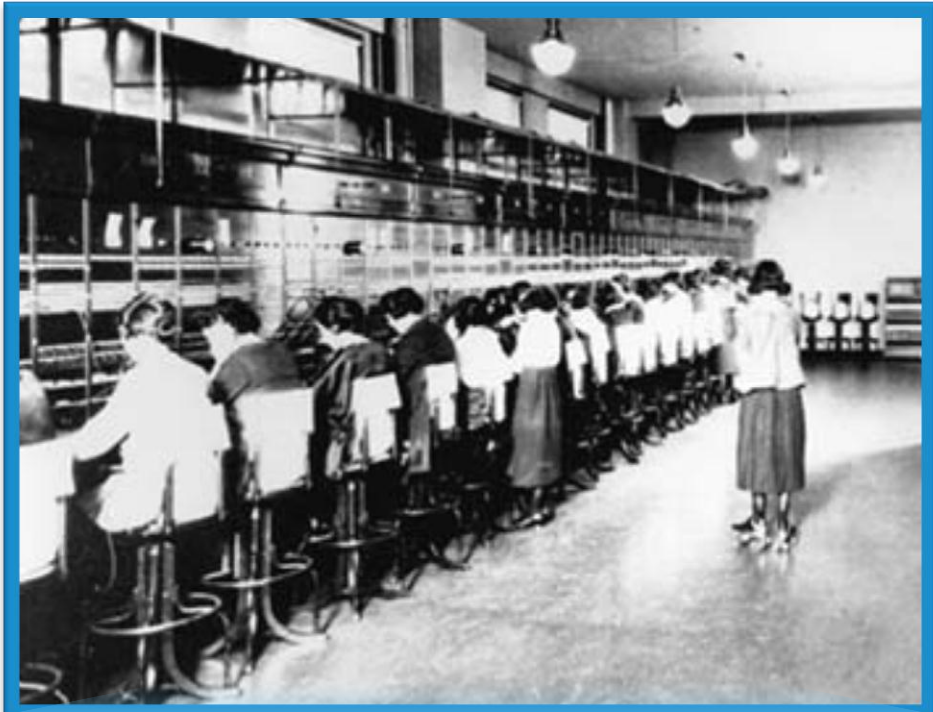
- Full control on network
- Foundation for the Agile Business Architecture
- Lifecycle management Network

Evolution of Service Providers' Scope



Network Operations...

...The Challenge of Pressure on Cost Optimisation



Same starting point as the Network...
...but the result is not as innovative



Need for ...
Agility
Velocity
Modularity

Market Summary: Operations!

Gartner®

The kind of shift happening in SPs is well captured by Gartner's 10 Critical Tech Trends For The Next Five Years

<http://www.forbes.com/sites/ericsavitz/2012/10/22/gartner-10-critical-tech-trends-for-the-next-five-years/>

- Organisational entrenchment and disruption
- Software-defined networks
- Bigger data and storage
- Hybrid cloud services
- Client and server architectures
- Internet of things
- IT appliance madness
- Operational complexity
- Virtual data centres
- IT demand

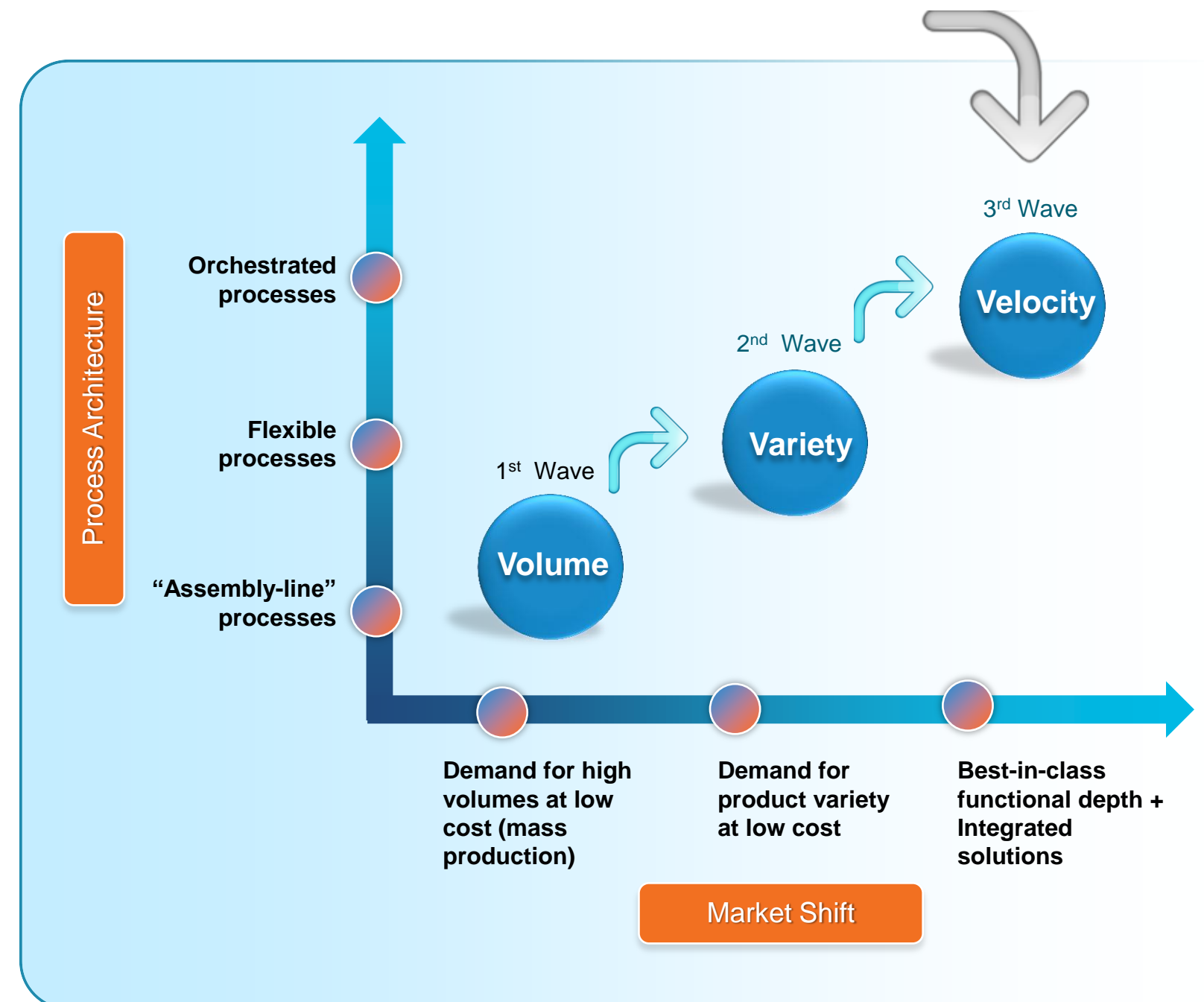
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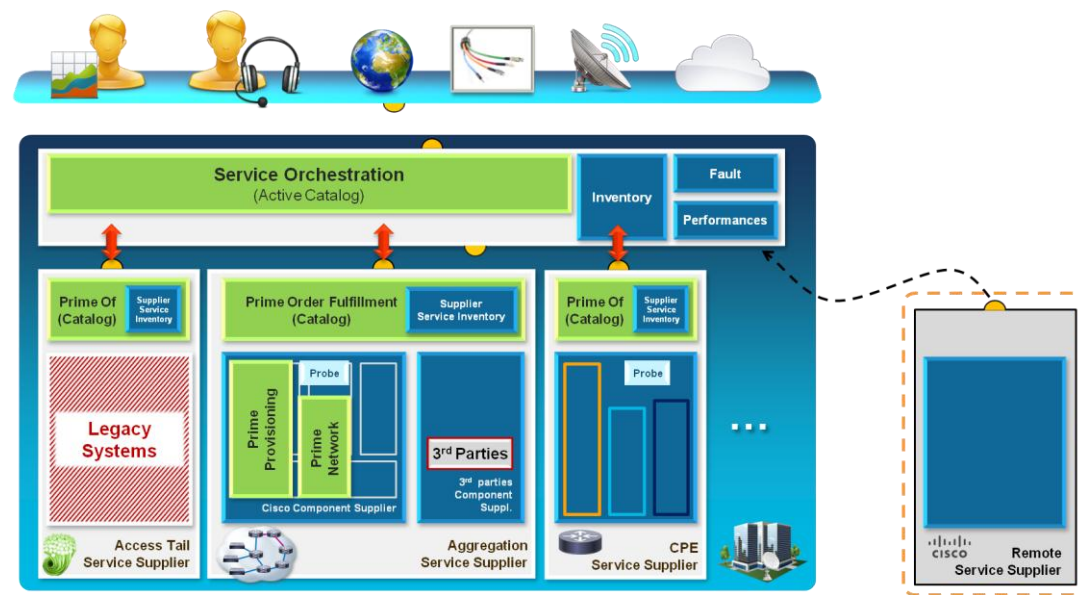
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Evolution toward
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Agile Business Architecture

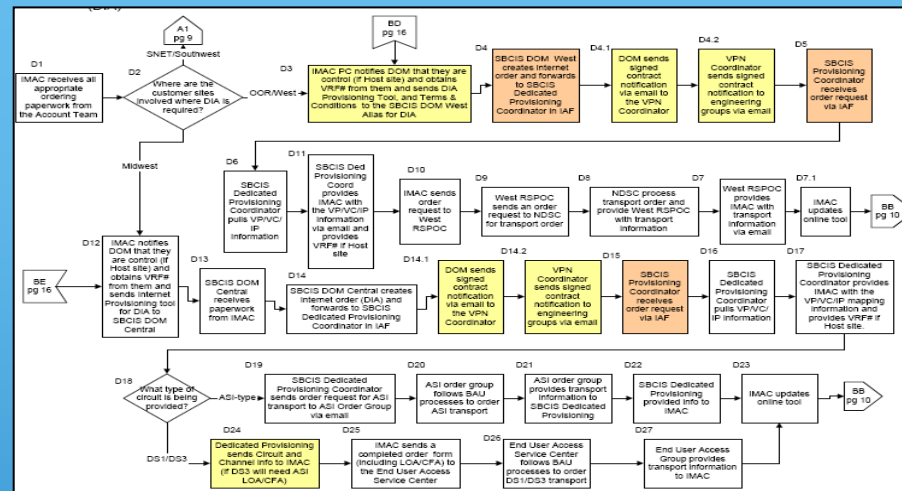
Operations: Evolution to Enhanced Agility and Simplicity



Traditional Versus Agile Service Production

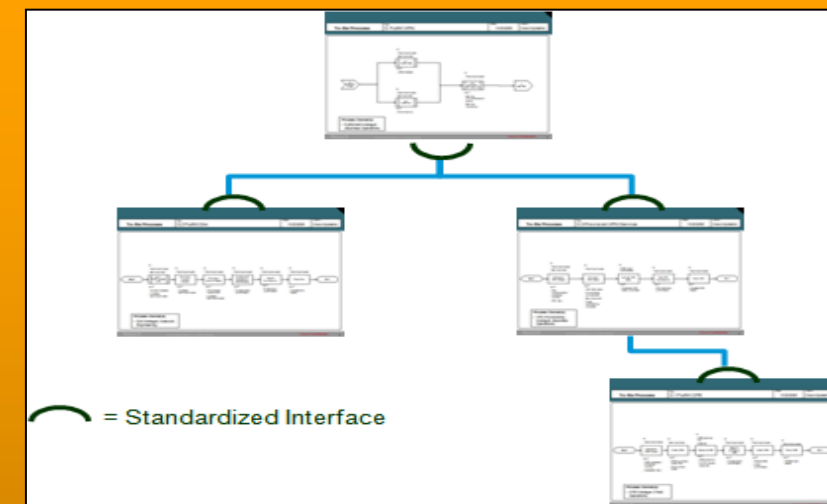
Interdependent Operational Processes Become **Modularised** Into a Logical Hierarchy that Is Easily Managed and Modified

Traditional Process Map



- “Flat”, complex process structure
- High interdependencies across activities
- Long BPR cycles to implement changes
- Difficult service and operational guarantees

Agile Operations Process Map



- Hierarchical structure
- Interdependent production processes clustered in self-contained modules
- Process modules orchestrated via standardised interfaces

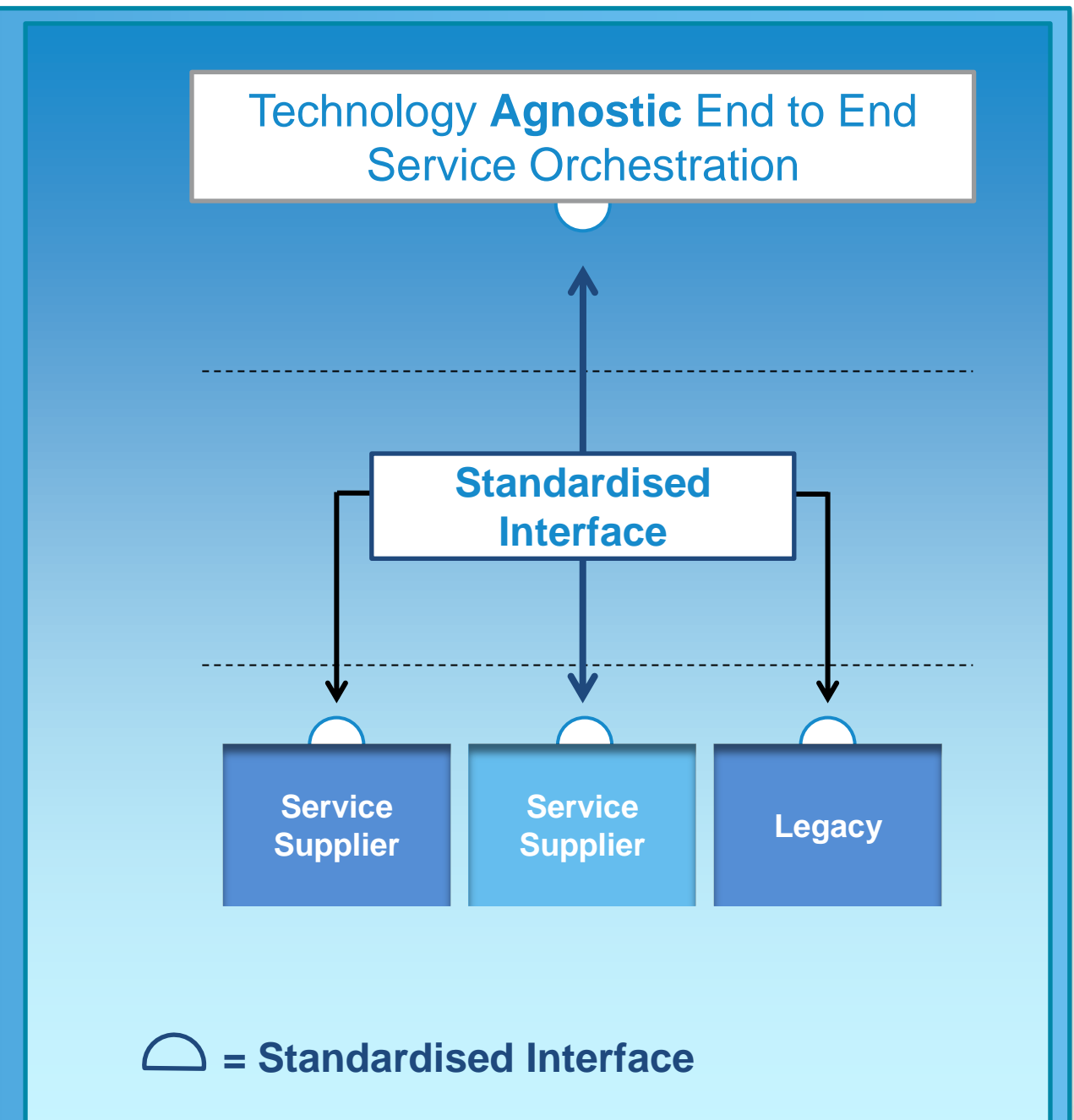
Principles of Agile Service Production

Service Complexity Reduced Through **Modularisation**, Highly Interdependent Resources, Processes Grouped Into Self-contained Service Suppliers

Characteristics

- Service Orchestration independent of underlying technology platforms, contains 'blueprint' for product portfolio assembly & assurance
- Standardised interface for consistent component assembly orchestration (Move, Add, Change, Delete, Test) – Measurement point for KPIs, SLAs
- Little/No interdependency between Service Suppliers
- Service Supplier has full control of its internal production processes, tools, data model
- Service Supplier may be in-house or external 3rd Party
- Legacy Systems can be considered as a Supplier until ABA guidelines are respected

Source: Cisco IBSG.



Agile Operations

Modularity:
Agile Business Architecture
Building Blocks

Legacy



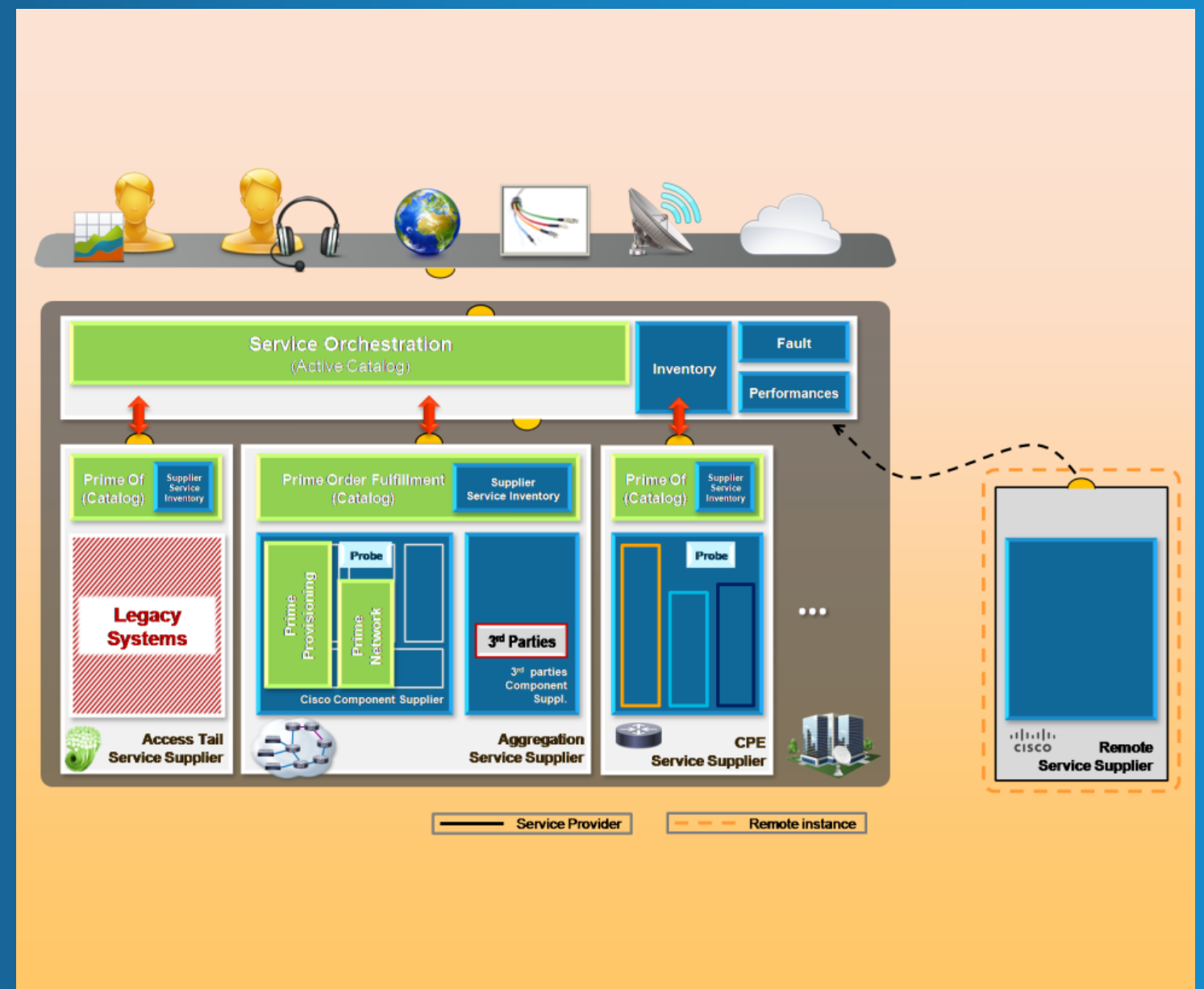
What is Agile Business Architecture

ABA is:

- an evolutionary approach to optimise Service Providers' Operations
- a modular architecture, Separating the processes in the Operations
- a set of software building blocks
- a multi-technology, multi-vendor proof design
- an industry proven design

It is not:

- “a product”
- a disruption on the existing Operations



http://www.cisco.com/web/about/ac79/docs/wp/ABA_Smart_Sourcing070809_v22.1_FINAL.pdf

Agile Business Architecture Cisco Value

Cisco Brings:

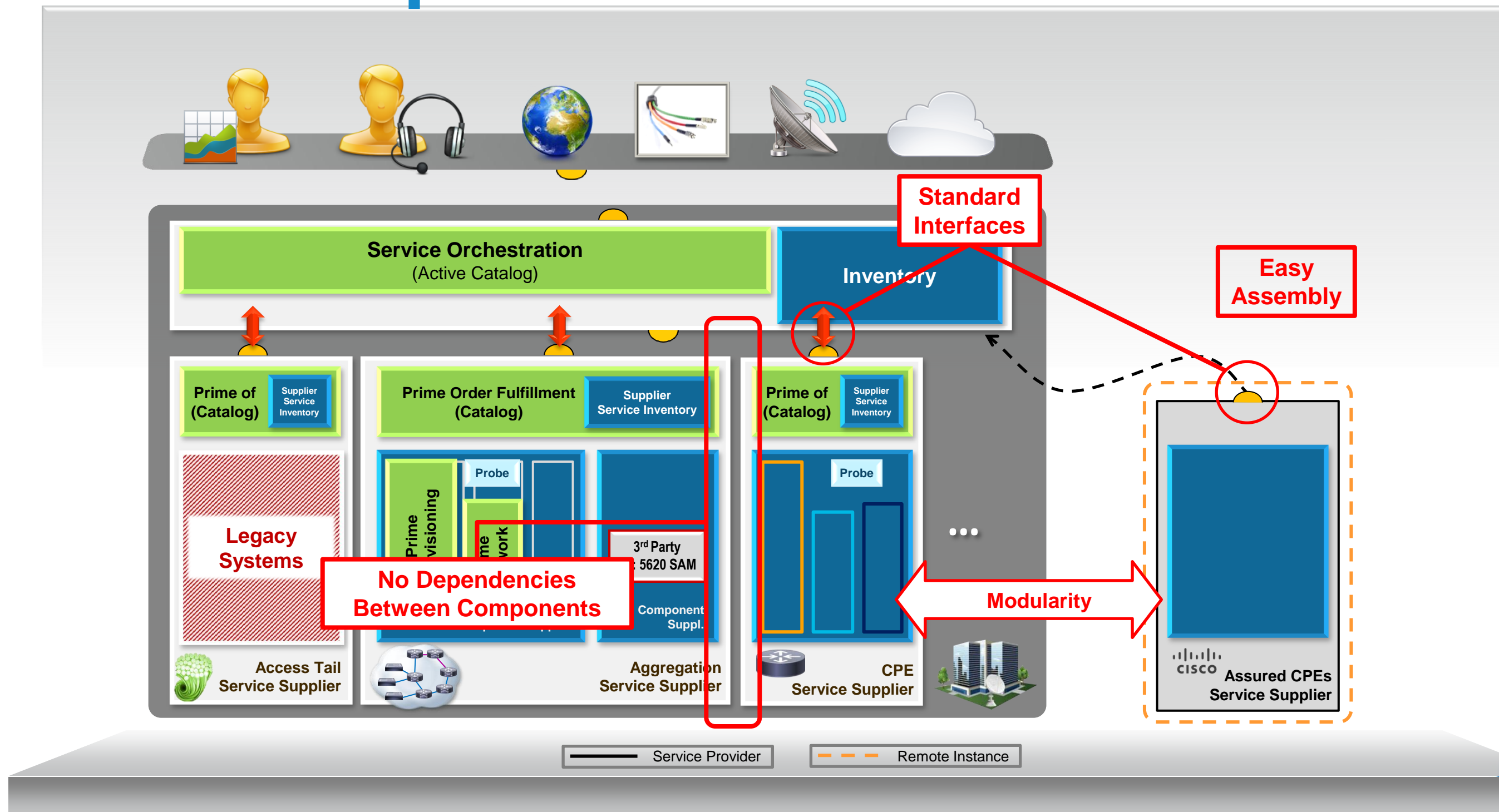
- ABA building blocks through Cisco Prime NMS portfolio
 - Active Catalog technology based on Prime Fulfillment
 - Extensive EMS/NMS/OSS coverage
 - System Integration and Delivery capability
- Engagement on Infrastructure and Operations transformation



Cisco Prime™ is a complete portfolio of EMS/NMS/OSS products

http://www.cisco.com/web/about/ac79/docs/wp/ABA_Smart_Sourcing070809_v22.1_FINAL.pdf

Agile Operations Blueprint Modular, with Minimal Dependencies

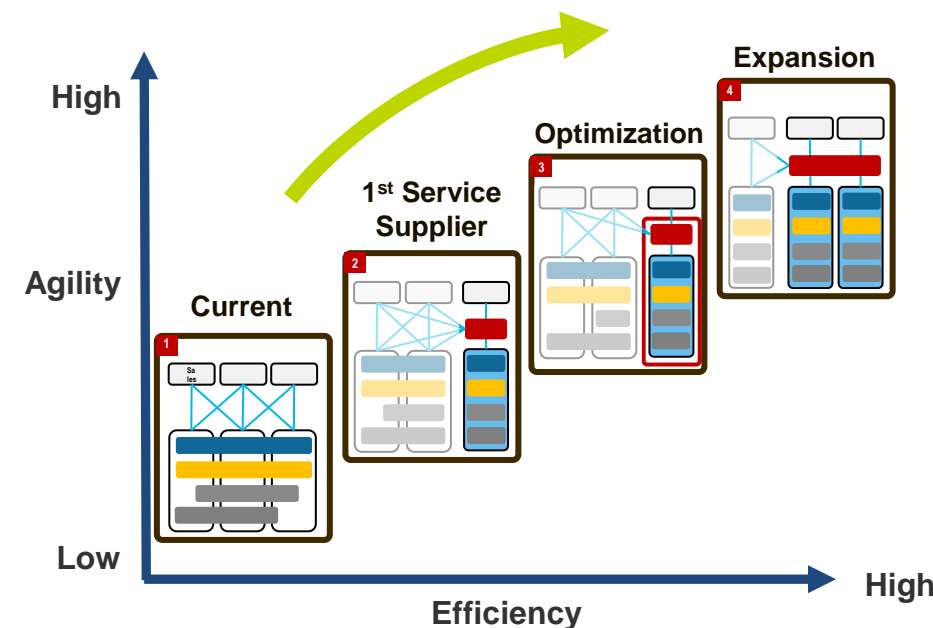
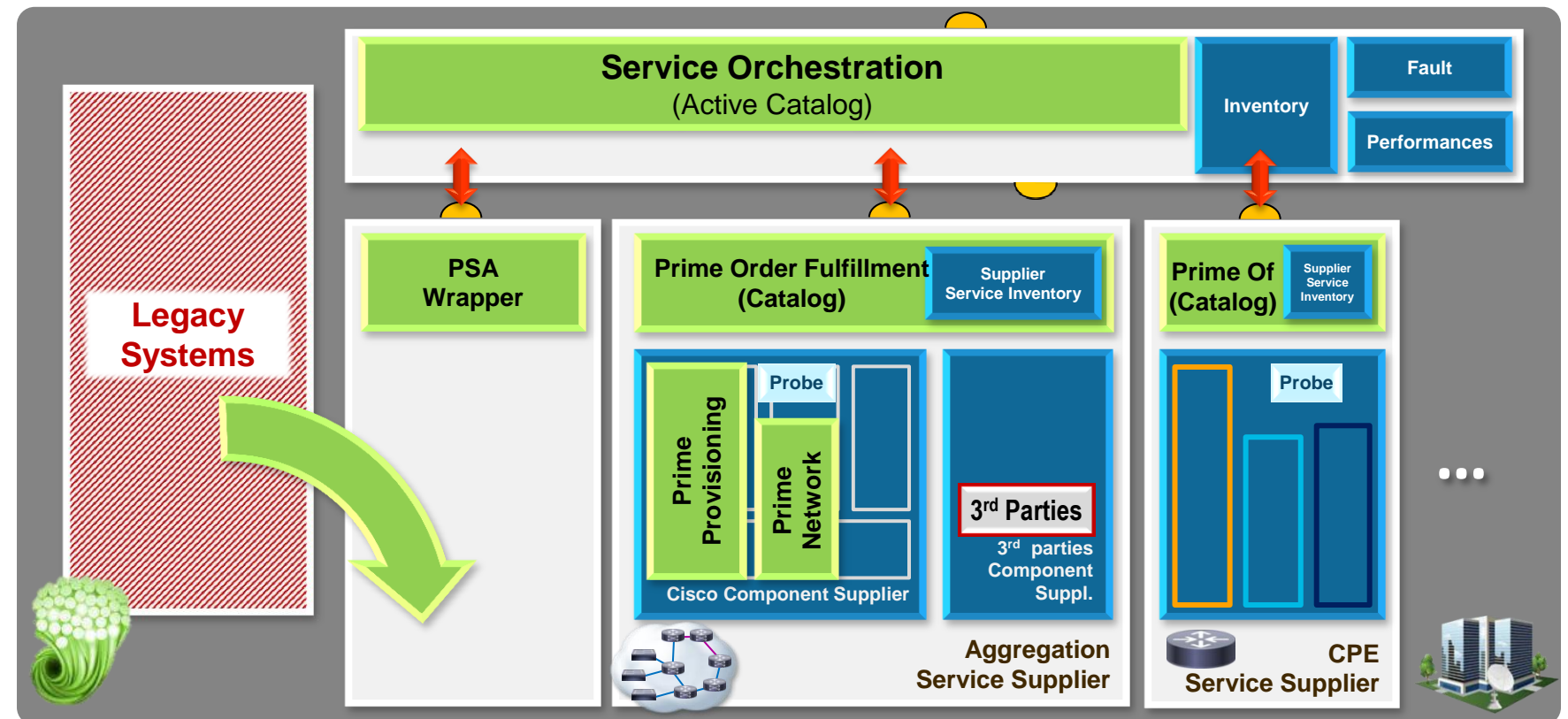


Evolution of the Legacy

Transition Of Legacy Operations

Evolutionary approach:

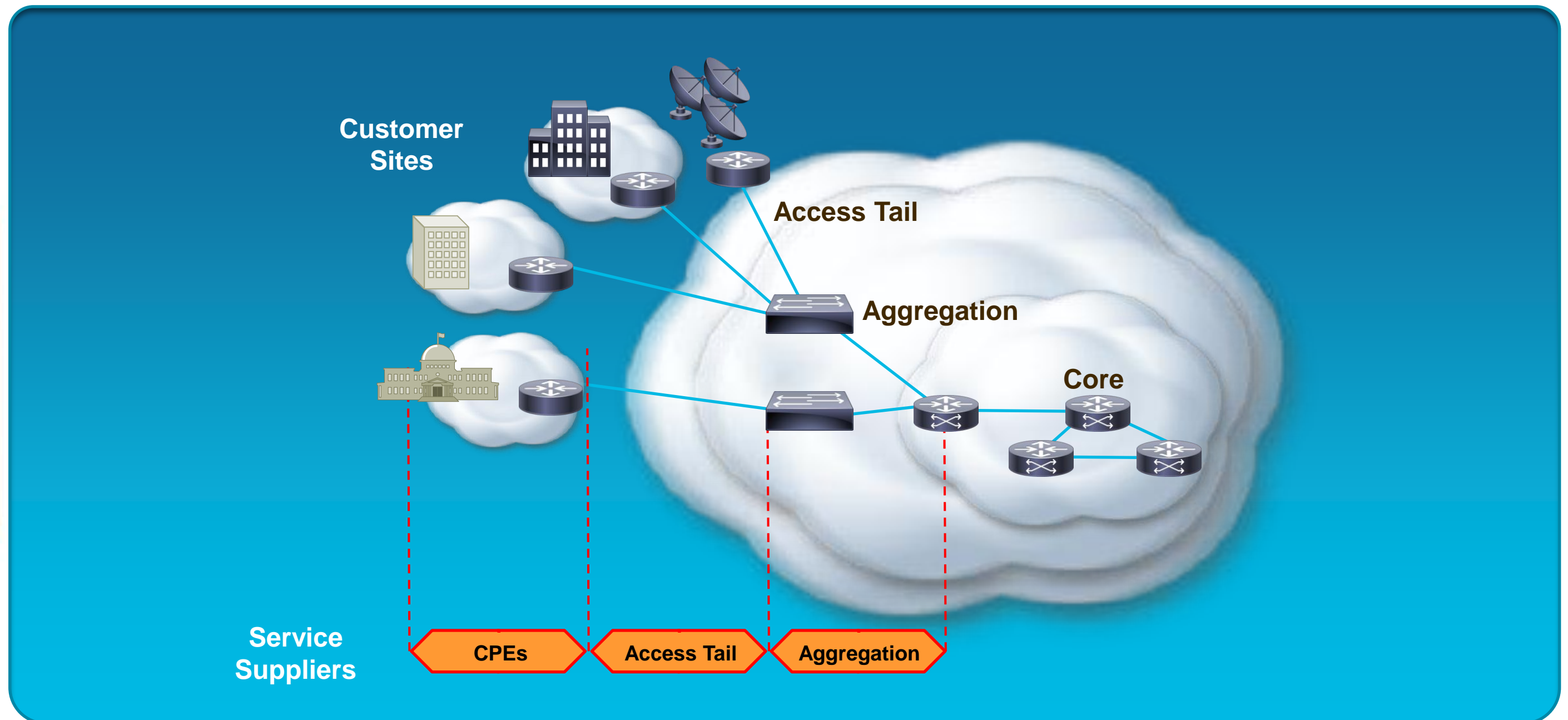
- Legacy considered as a module of ABA, feeding Service Orchestration and Catalog
 - Consider Service Supplier wrapping to expose PSA interfaces
 - Functional migration
- Phased expansion and functional coverage



- Service Orchestration
- Fulfillment
- Assurance
- Design & Plan
- Build

Agile Business Architecture

Scenario For Discussion: Business Connectivity Offers

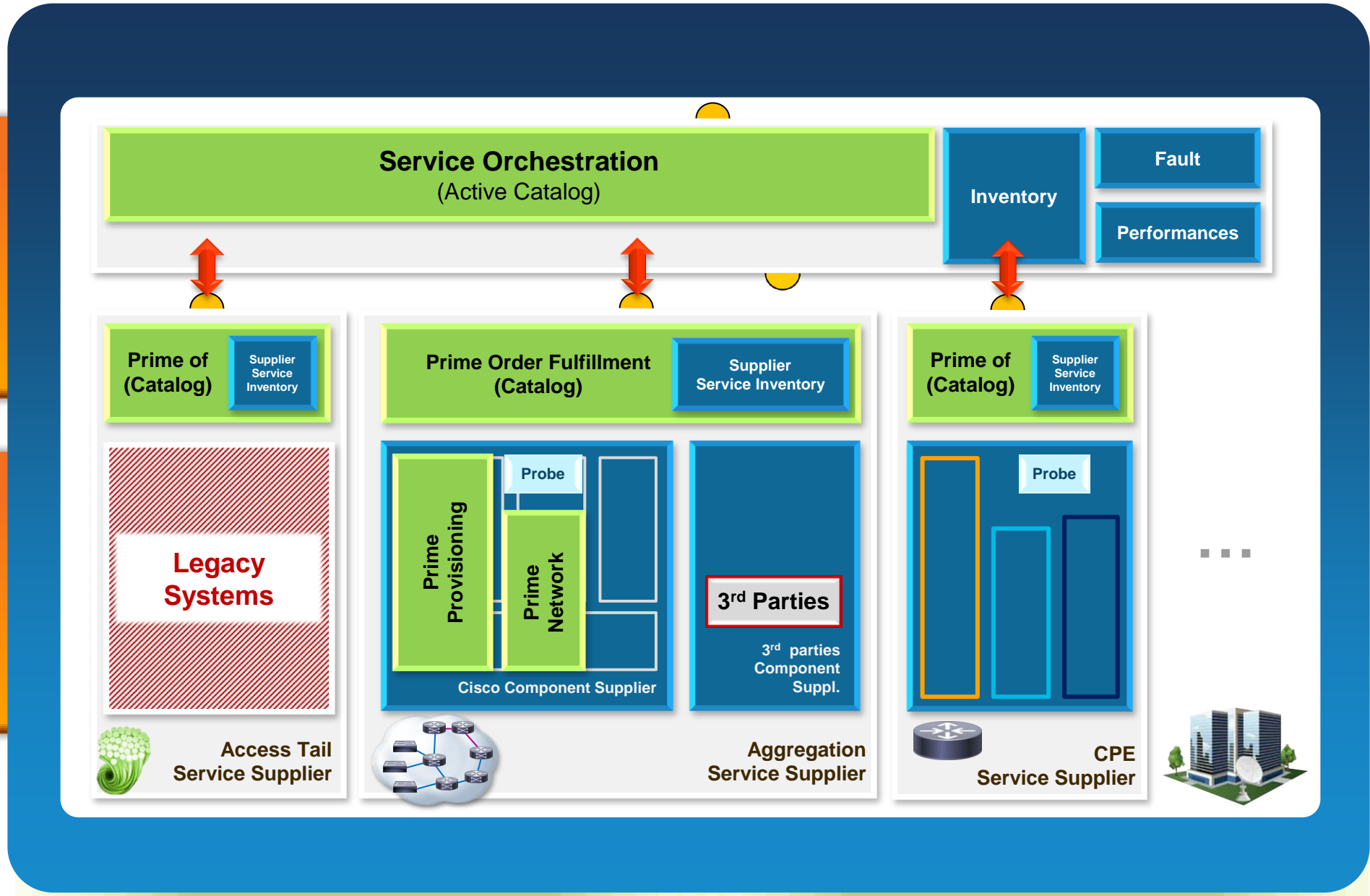


End-to-End Service Orchestration

Reference Scenario: Business Connectivity Offer

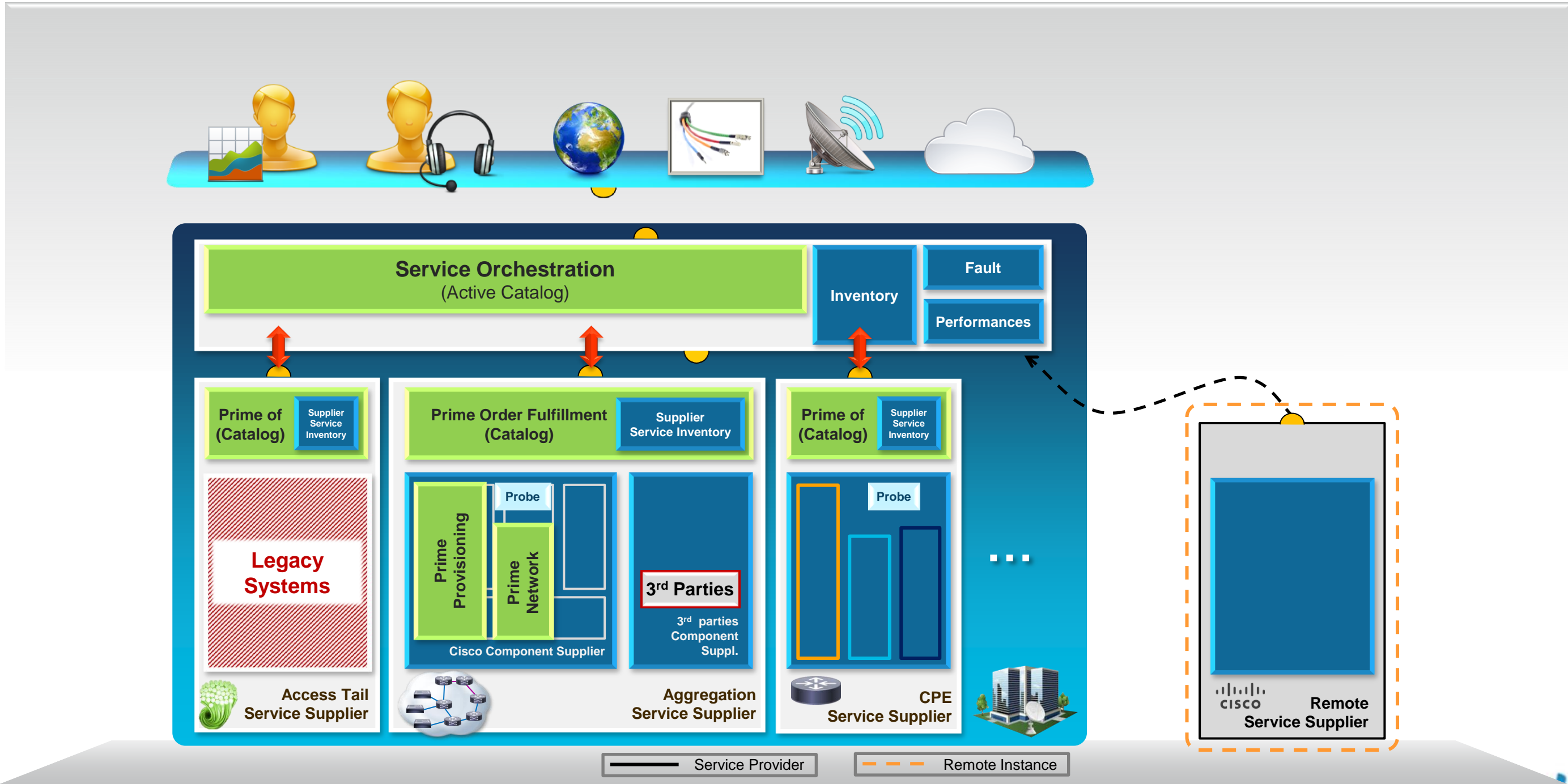
Completing the End-to-End Service Management with the Access, Aggregation and CPE delivery Suppliers

Different Service Supplier are flexible: can leverage existing building blocks and have different levels of complexity



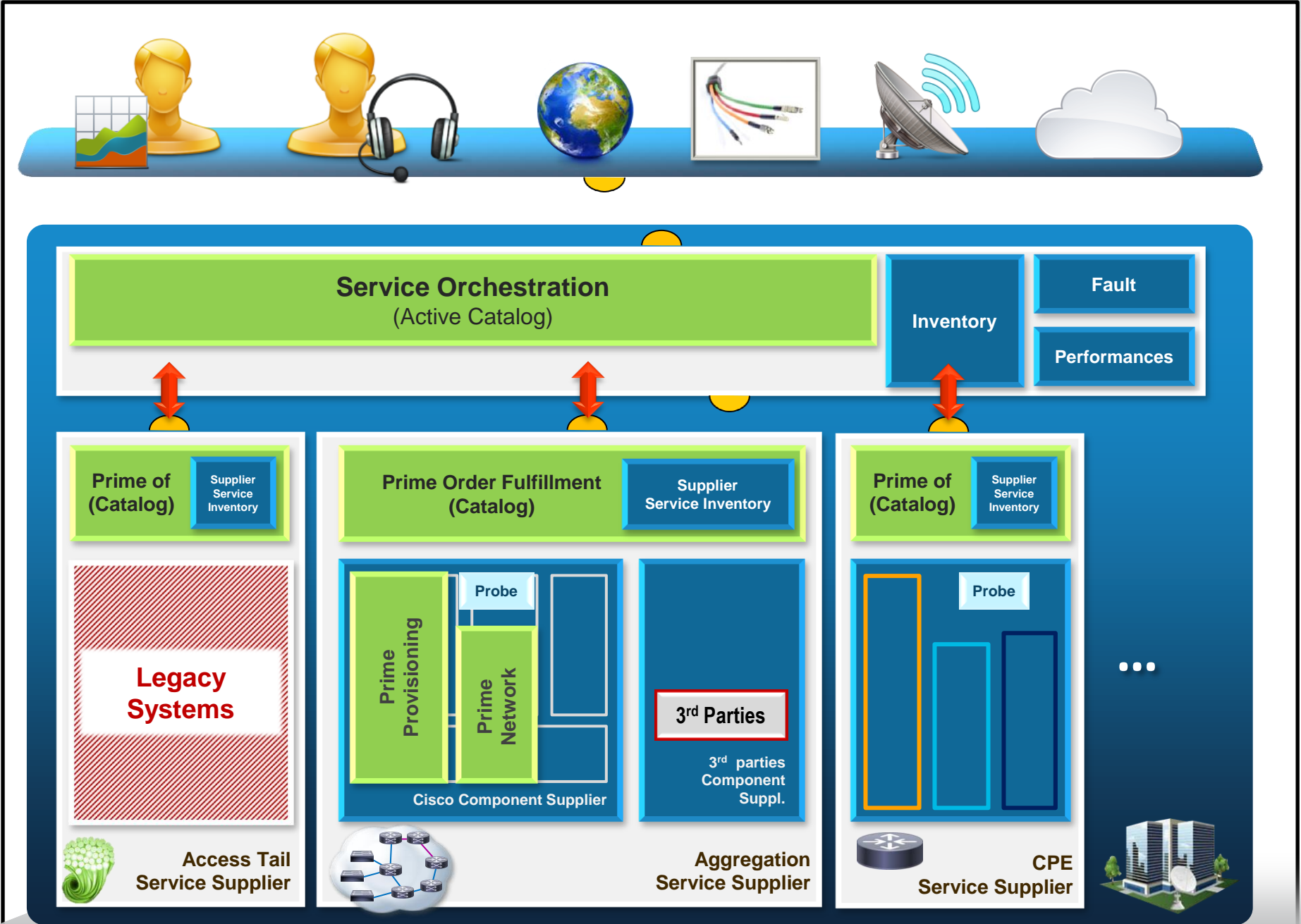
End-to-End Service Orchestration

Outsourcing And Wholesales



End-to-End Service Orchestration

Powered By Cisco Prime



Cisco has products and can perform turnkey system integration

Agile Operations Use Cases

Fulfillment

Test & Diagnostic

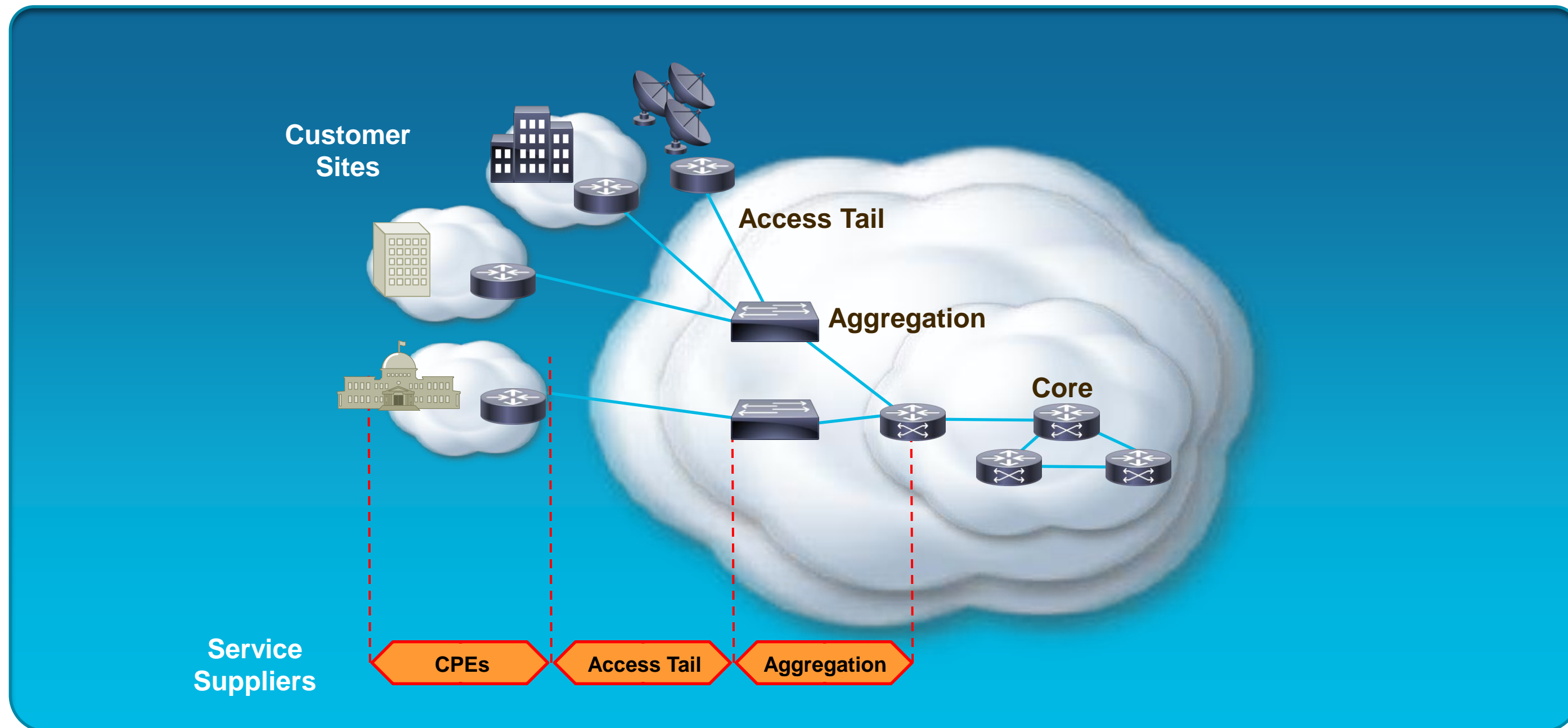
Assurance

Architecture Extension



Agile Business Architecture

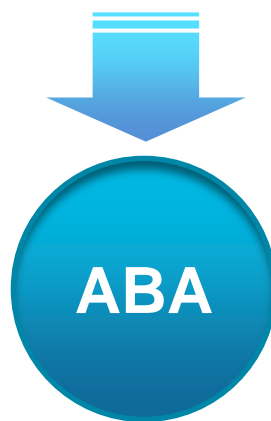
Business Connectivity Offers



Agile Business Architecture

Order of Business Services

Select a service
Order form catalog



Decompose service in components

Verify availability

Order for access tail

Configure Aggregation

Configure and ship CPE

Solutions for Any Business. Any Size

Solutions for Any Business. Any Size. No matter your search, find Verizon services tailored to your business needs

Small Business

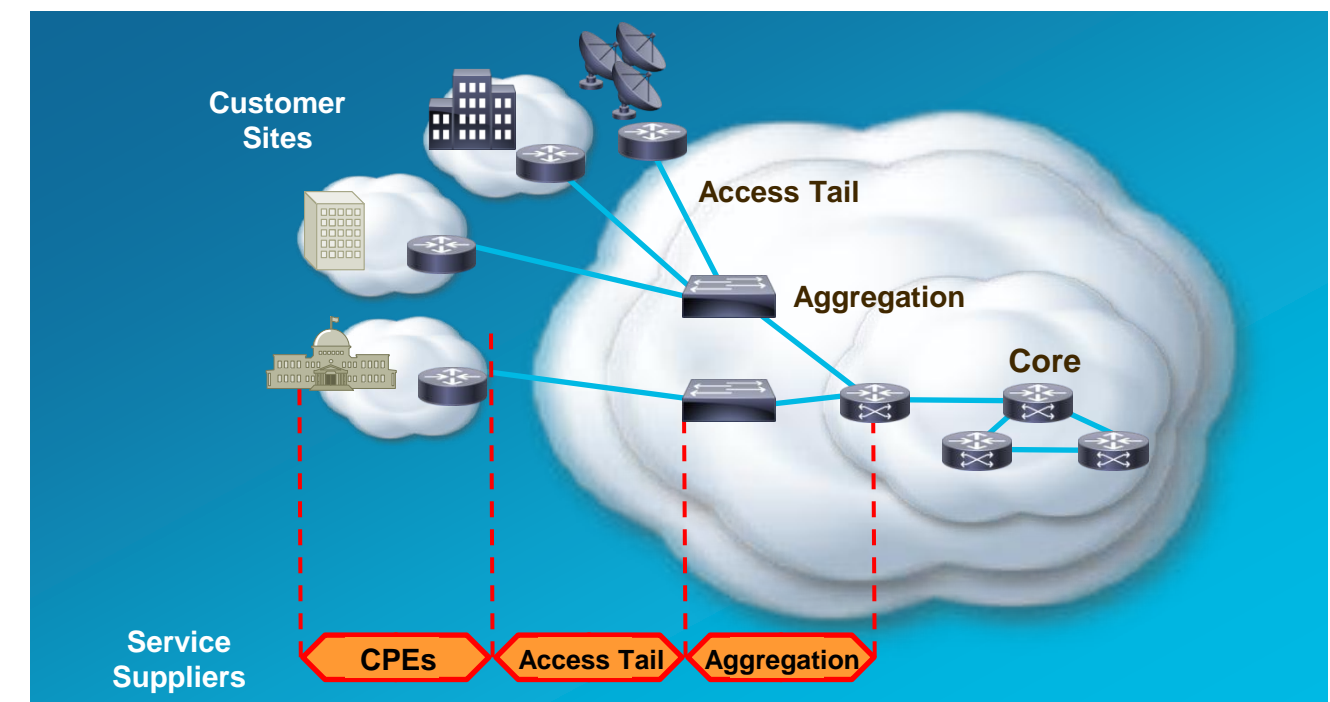
Complete solutions to start or grow your business with less than 20 employees

Medium Business

Solutions to build enhance or outsource your multi site technology needs

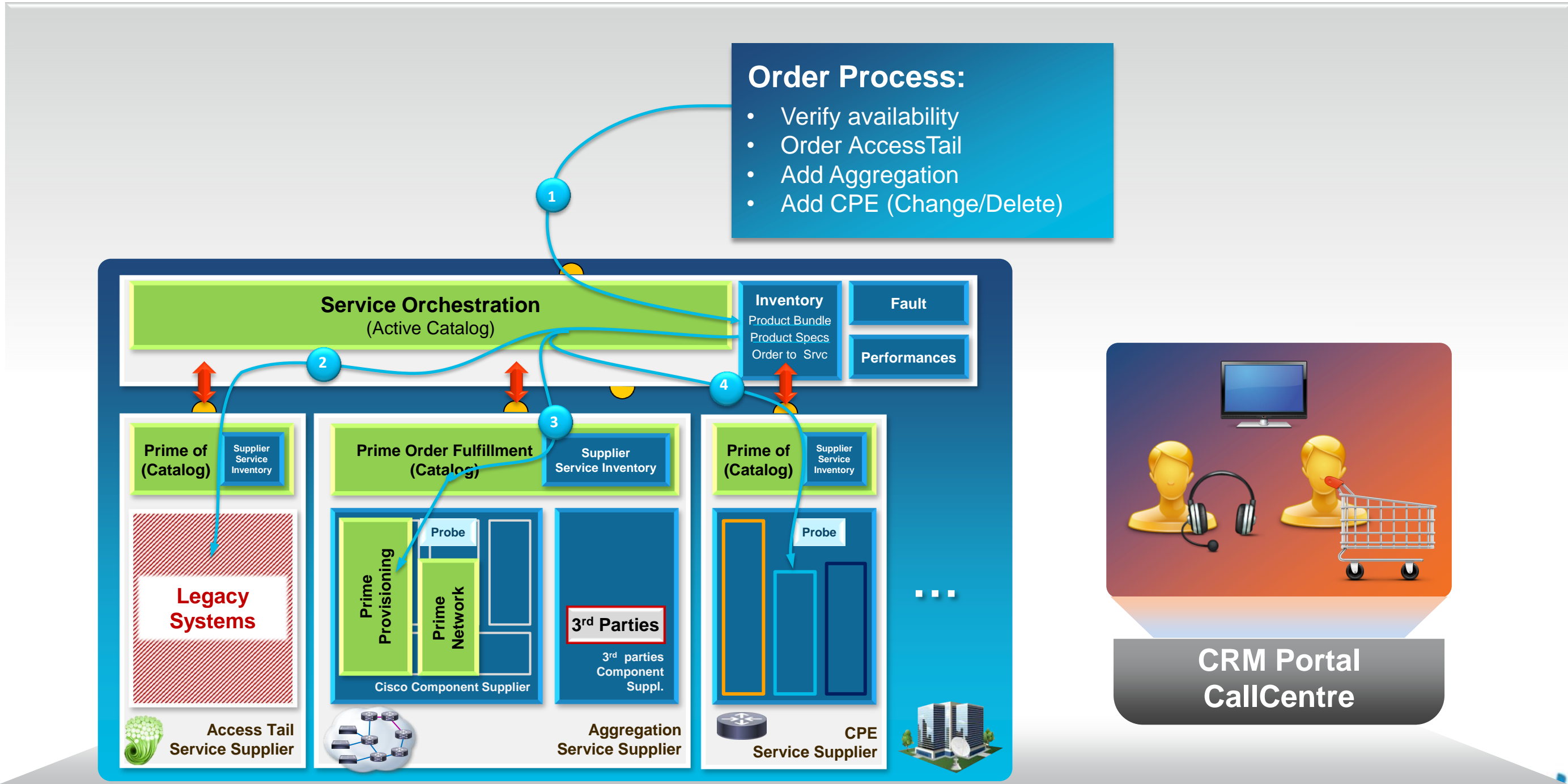
Enterprise

Global and national enterprises governments and wholesalers



End-to-End Service Orchestration

Order of Business Services

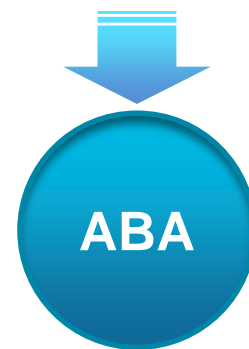


Agile Business Architecture

Diagnostic of Business Services

Service is degraded

- Request a check
 - Via web
 - Through a call centre



Identify service components and Service Suppliers

- Trigger test capabilities on each Supplier
 - Access tail (eg line crc, ...)
 - Aggregation (eg port config, ...)
 - CPE (eg wan performances, ...)
- Create a targeted Trouble Ticket to the SMEs in the correct Service Supplier

Solutions For Any Business. Any Size

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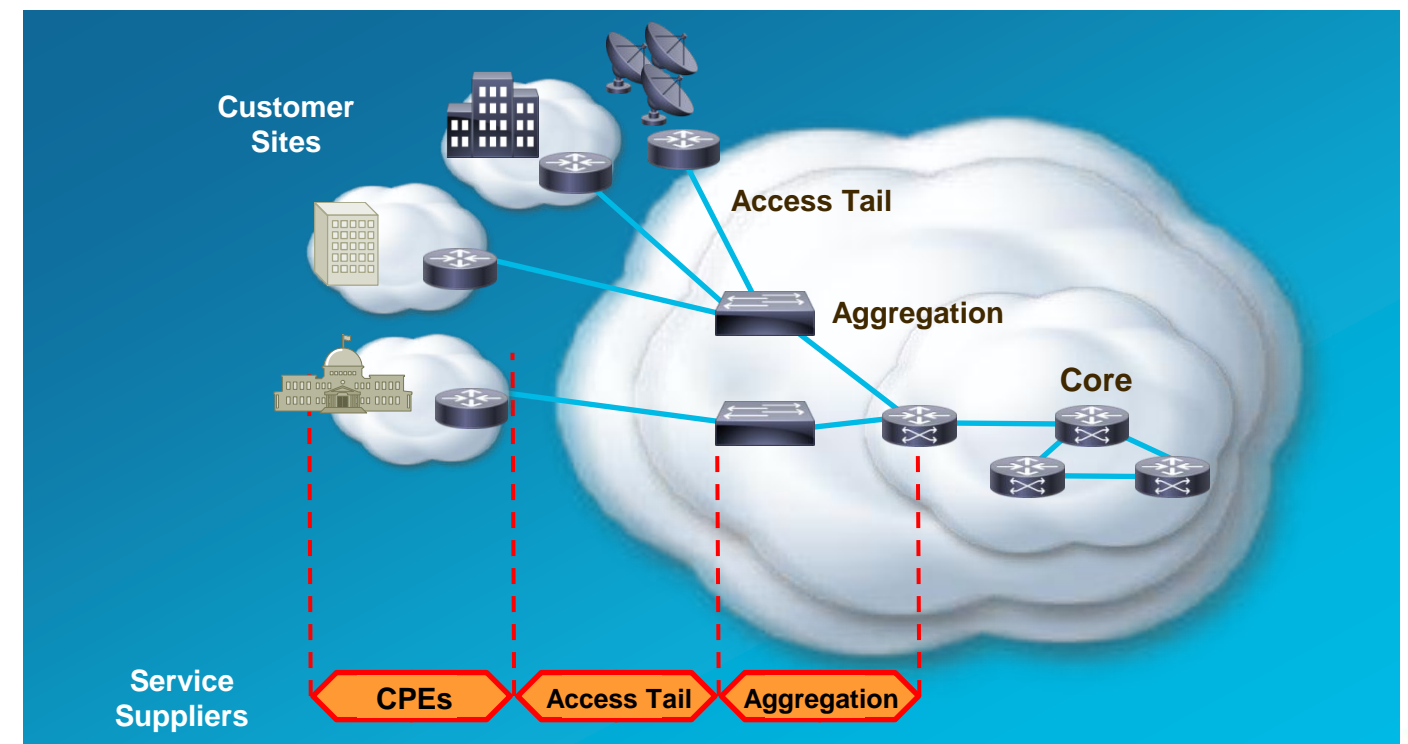
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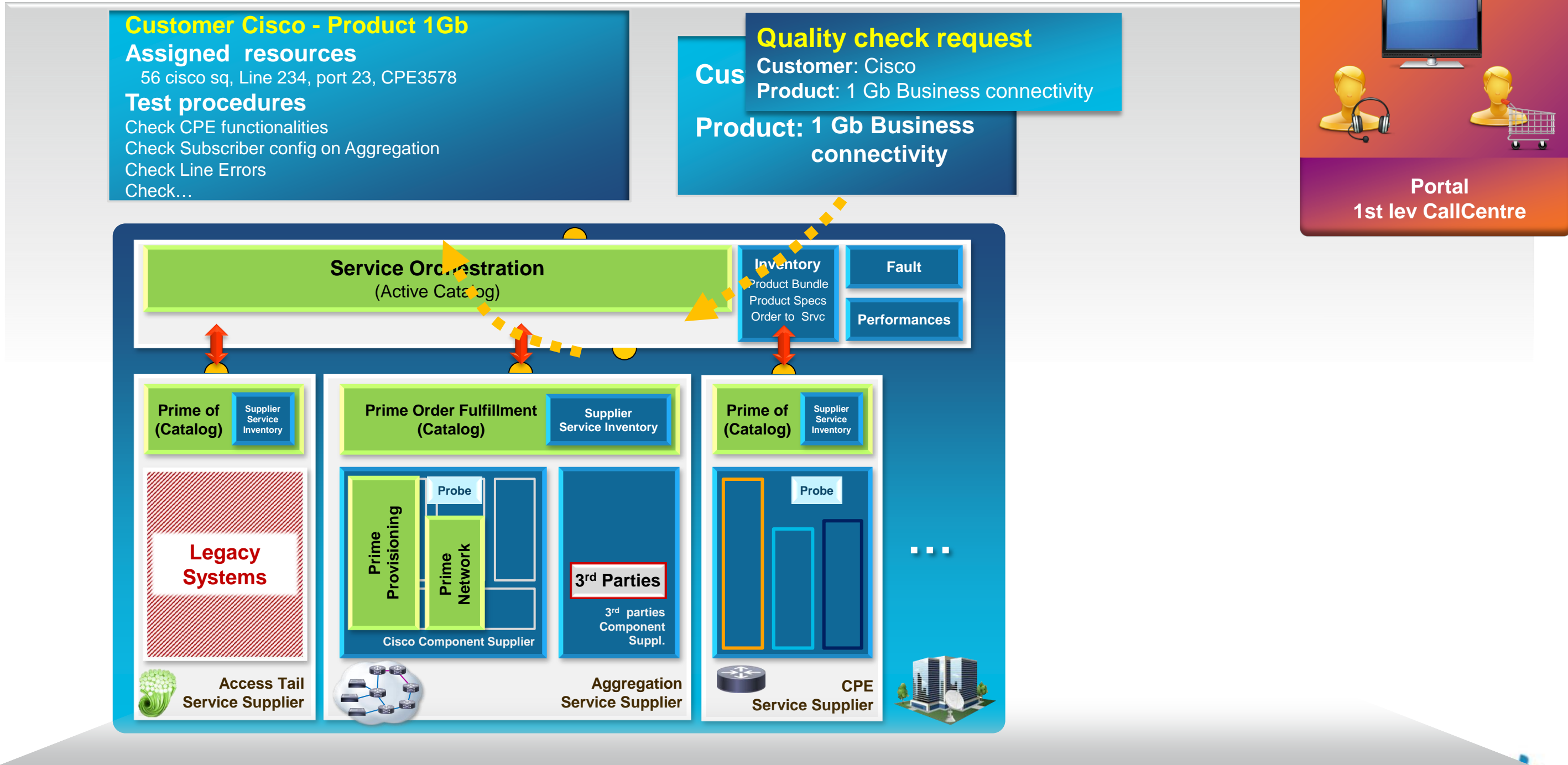
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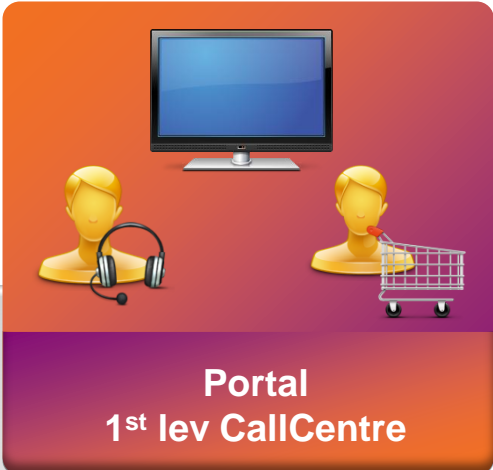
End-to-End Service Orchestration

Diagnostic of Business Services

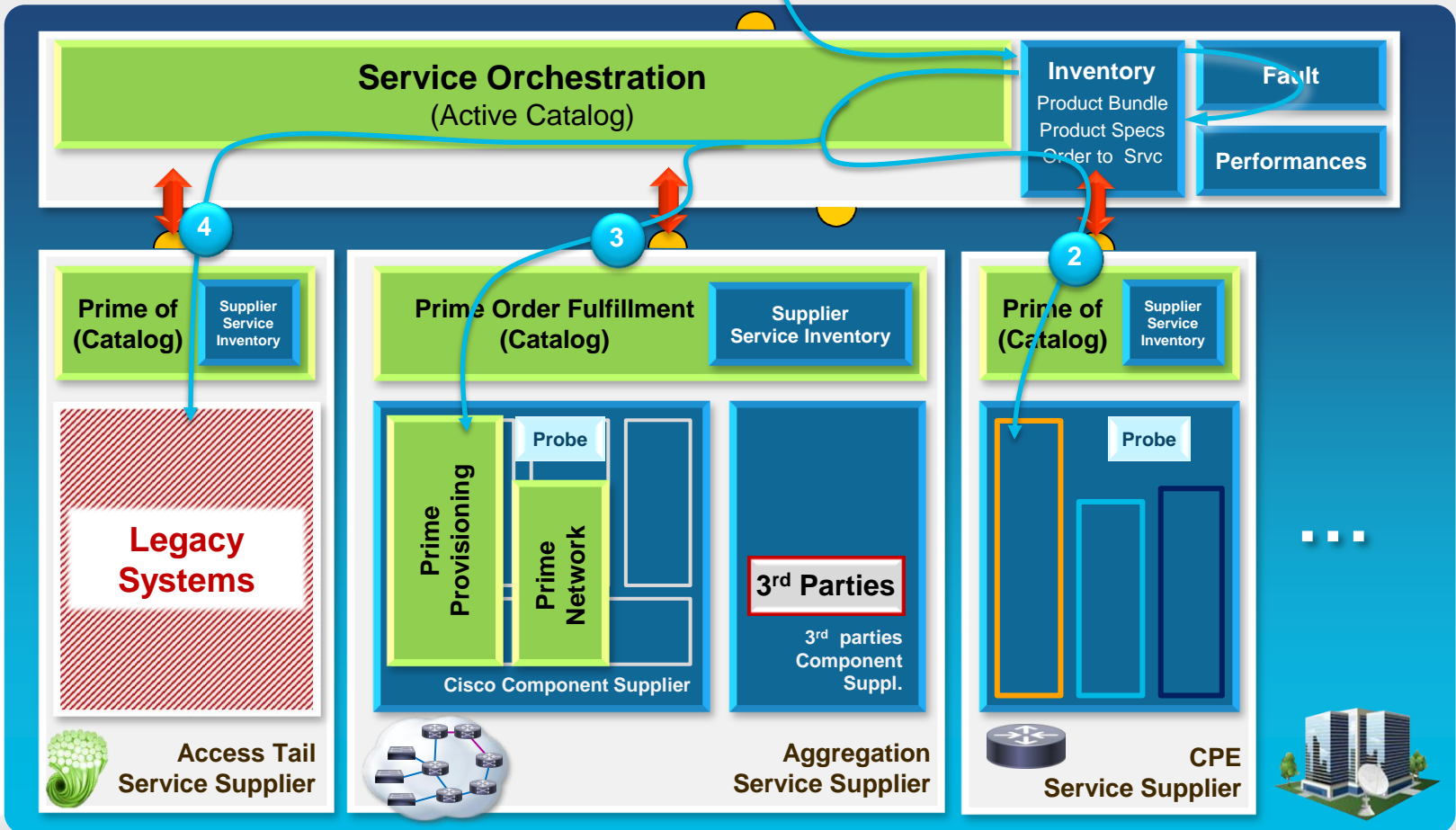


End-to-End Service Orchestration

Diagnostic of Business Services



Quality check request
 Customer: Cisco
 Product: 1 Gb Business connectivity



Customer Cisco

Assigned resources
 56 cisco sq, Line 234, port 23, CPE3578

Test procedures:

- Check CPE functionalities
- Check Subscriber config
- Check Line Errors

Notify results

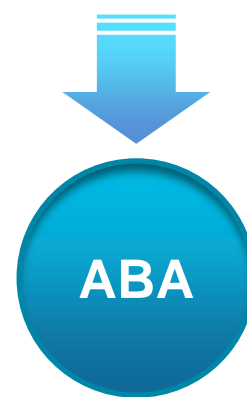


Agile Business Architecture

Assurance

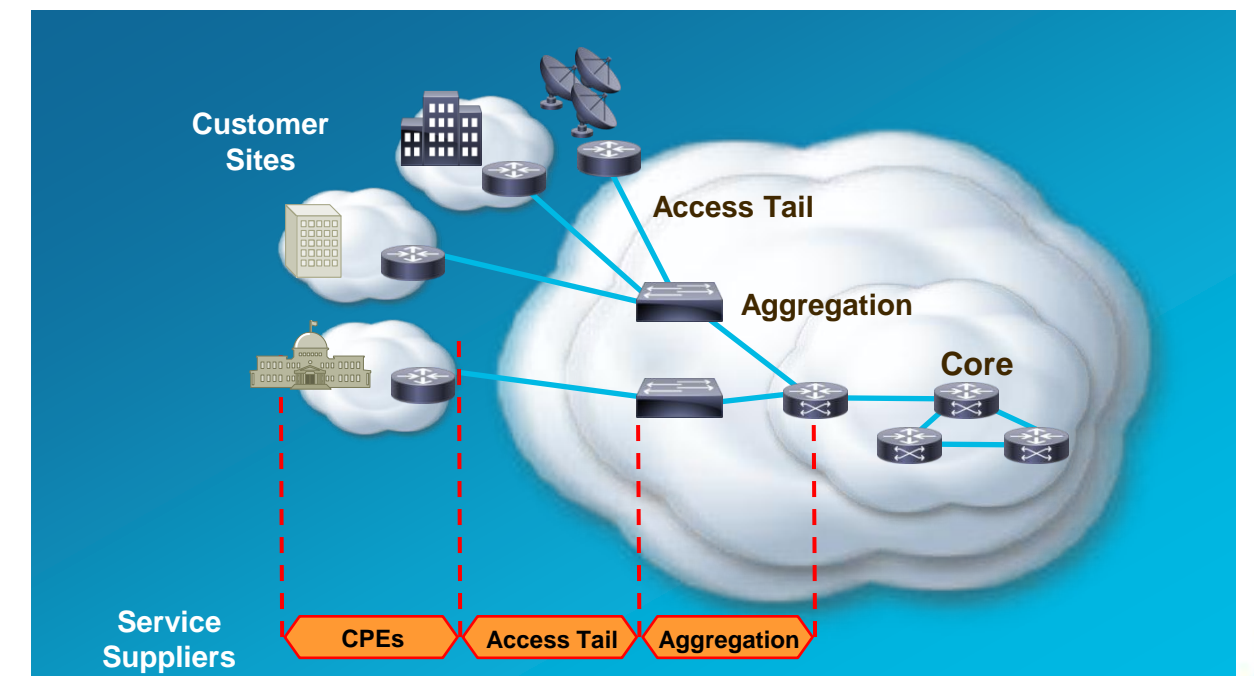
Fault and Performances

- User experience
 - Service monitoring
 - Hardware Monitoring



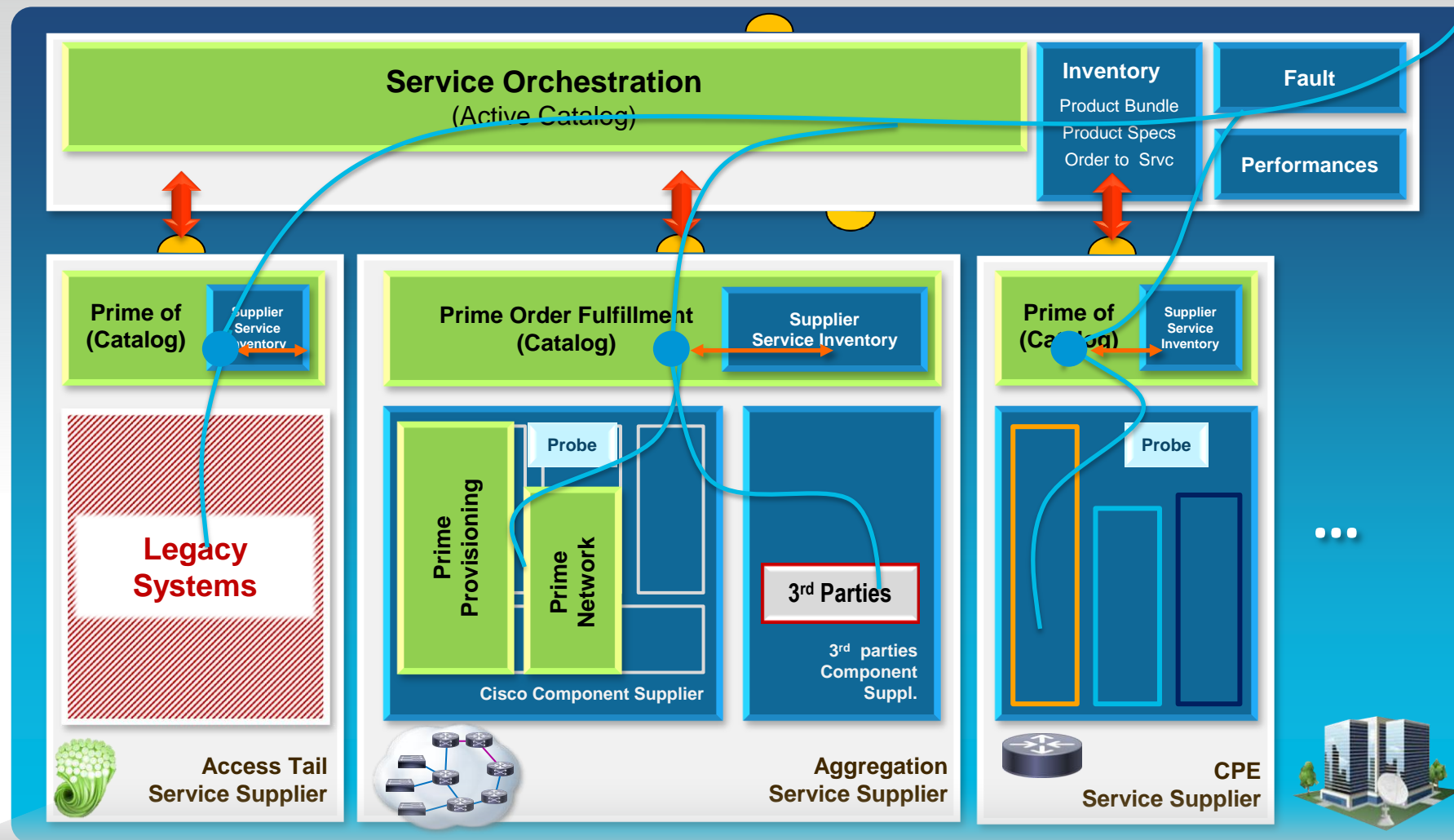
Identify service components relevant to Services and End User experience

- Monitor at Service Supplier level
- Forward just events relevant at the Service Orchestration level
- Take actions at the appropriate level



End-to-End Service Orchestration

Assurance



Events and Data

- Events relevant to services will be forwarded northbound
- Events local to the Suppliers will be maintained and presented locally

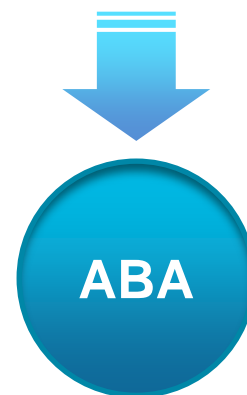
Data Normalisation, Deduplication and relevance marking is the responsibility of the Service Supplier who owns the Probe Operation and Configuration

Agile Business Architecture - Evolution

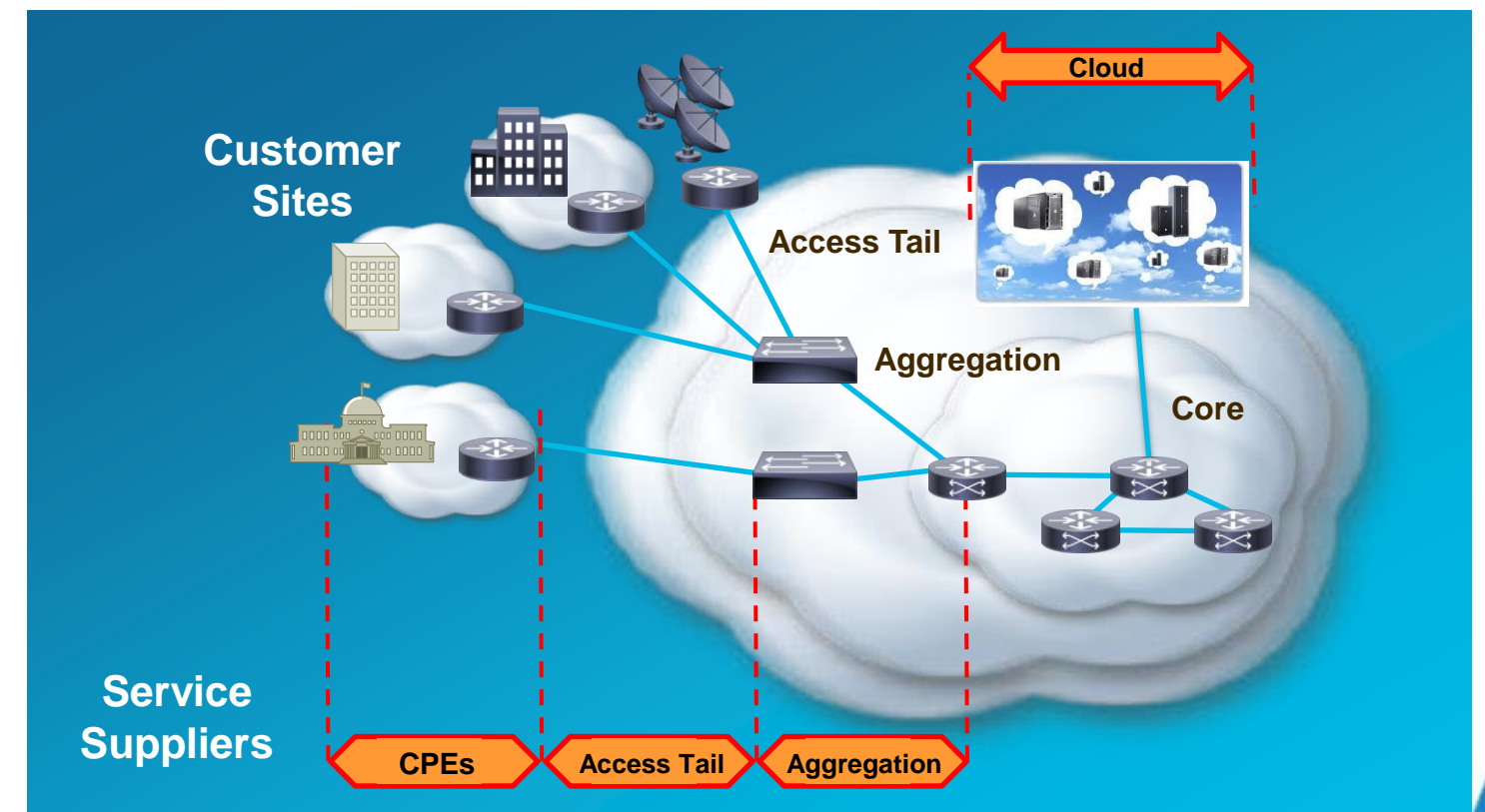
Introduction of a New Module

Architecture needs to be extended

- Add Cloud Services
 - New domain
 - Acquisition

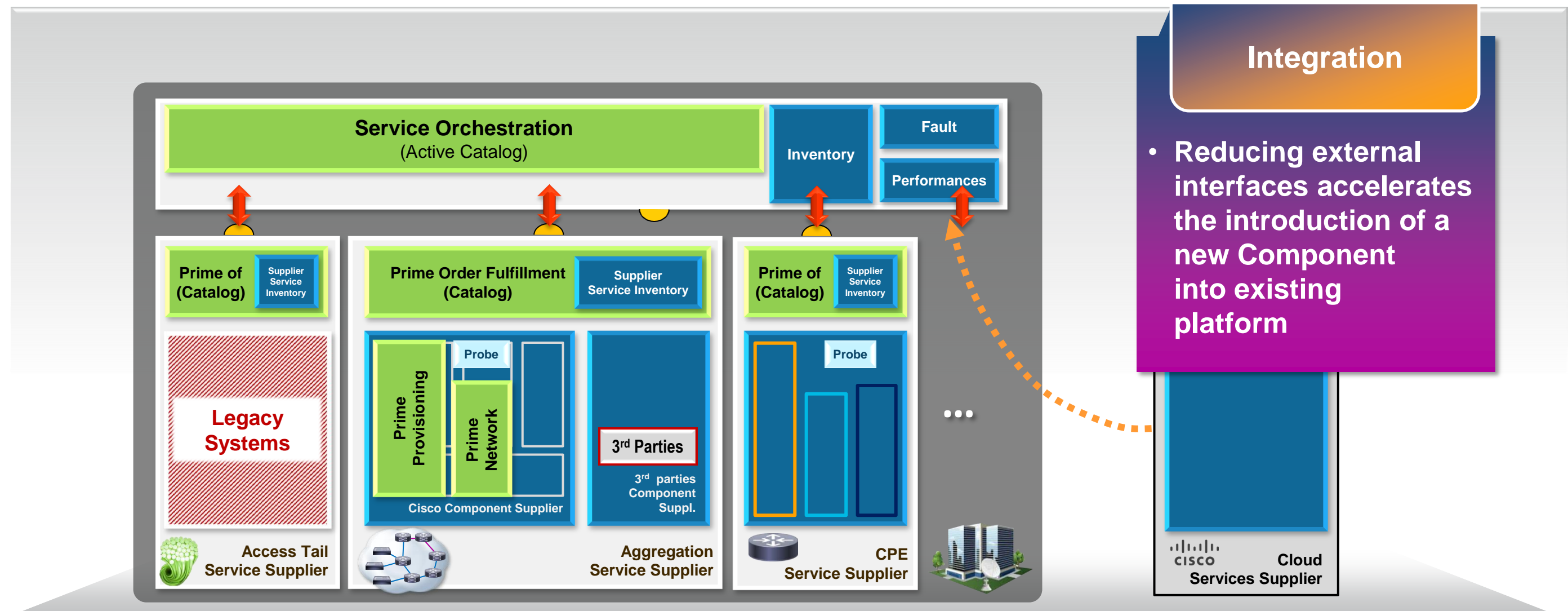


- Map the new domain to a Service Supplier
- Identify service components and publish them in the Active Catalog
- Virtual computing (eg VMs, storage...)
- AaaS (eg Hosted Comms, ...)
- Connect the new supplier to the Service Orchestration



Agile Business Architecture - Evolution

Introduction of a New Module



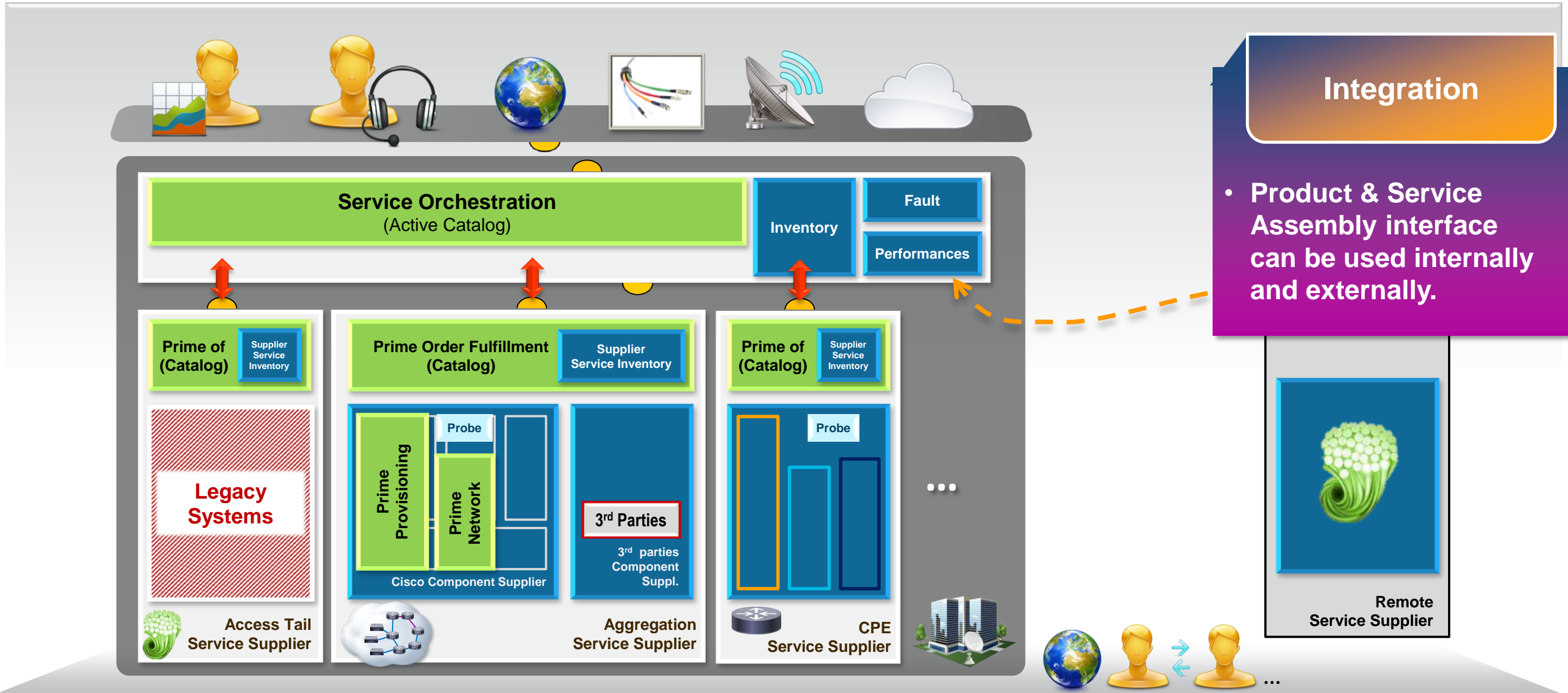
Integration

- Reducing external interfaces accelerates the introduction of a new Component into existing platform

- Easy integration thanks to separation of Service Suppliers
- Capabilities published through Active Catalog

End-to-End Service Orchestration

Product For Third Parties



Integration

- Product & Service Assembly interface can be used internally and externally.

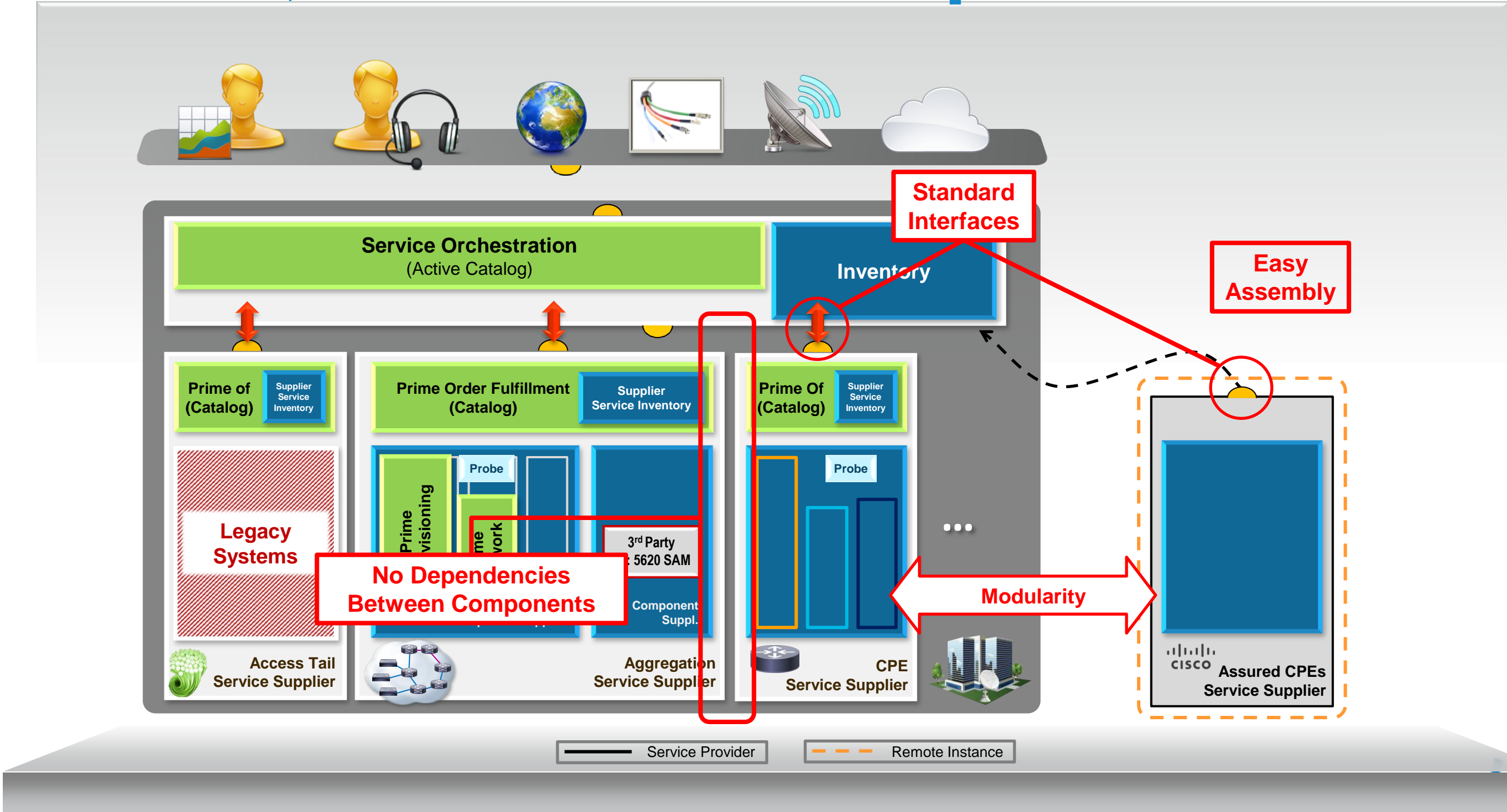
New Business Models

- Wholesales reselling
- B2B enablement

Service Provider



Summarising: Agile Operations Blueprint Modular, With Minimal Dependencies



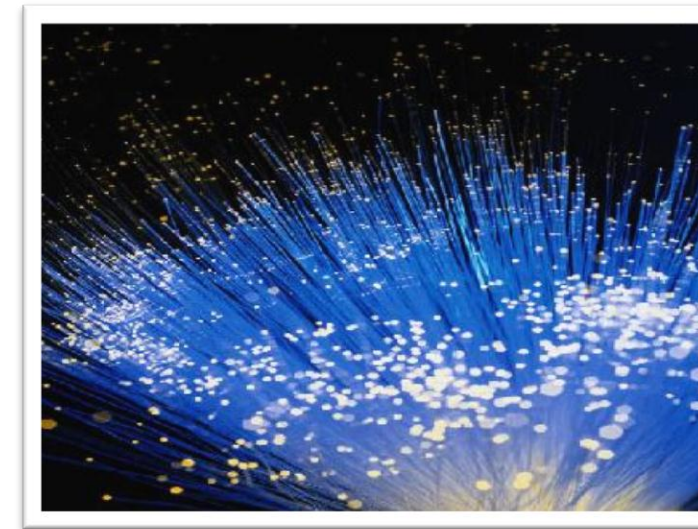
Case Studies

Agile Business Architecture
Real World Examples



Equal Access

Case Study: Service Catalogue



Case Study: Fibre Broadband Network

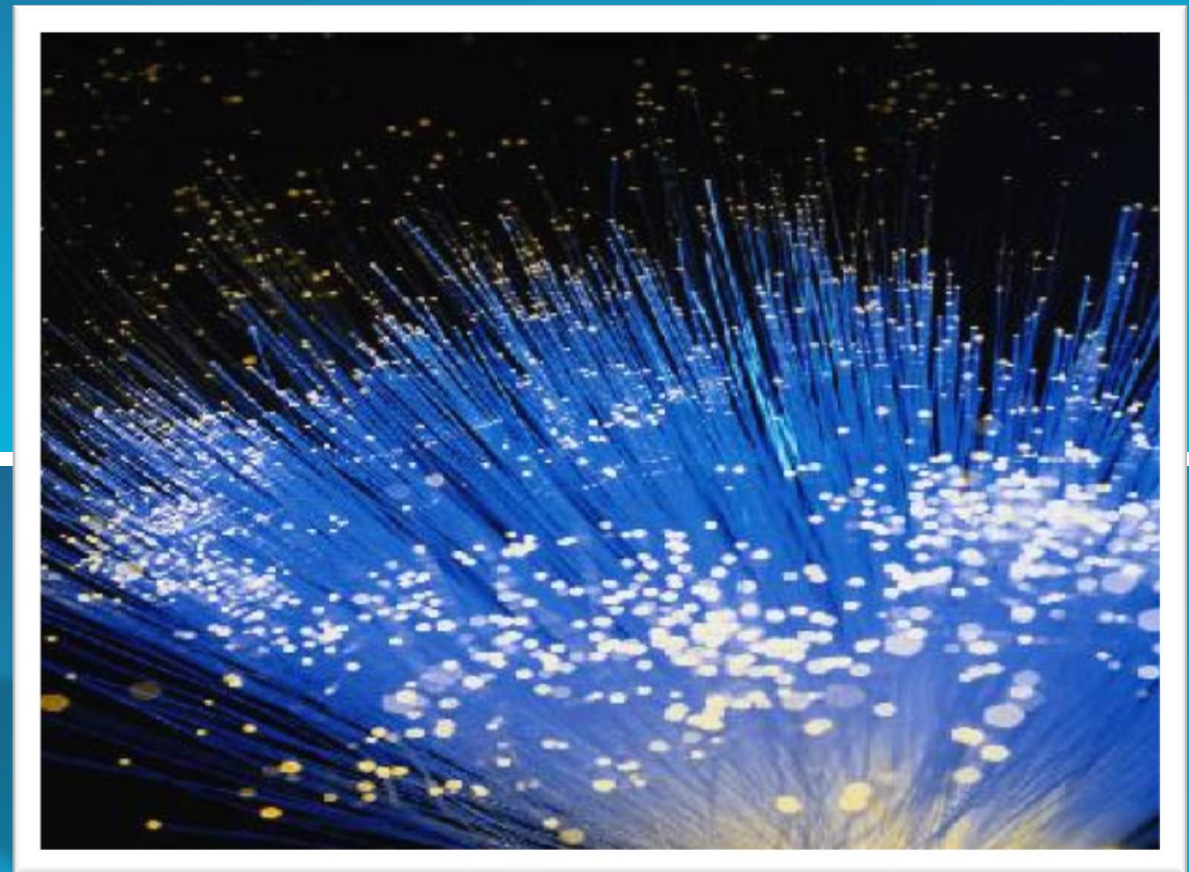
Equal Access: Fibre To The Home Network Deployment

SITUATION

- **Concern:** one Access network, multiple customers
- **Customers:** Commercially independent, competitors, (even) more complex
- **Challenge solved:** Implement service catalog and service supplier model in line with ABA

RESULTS

- **Fibre services to 93% of country premises**
- **Technology-agnostic, catalog-driven, highly automated fulfillment**
- **Rapid OSS integration with 3rd party retail operators (24)**
- **< 6 months deployment time**
- **Cisco Intellectual Property**



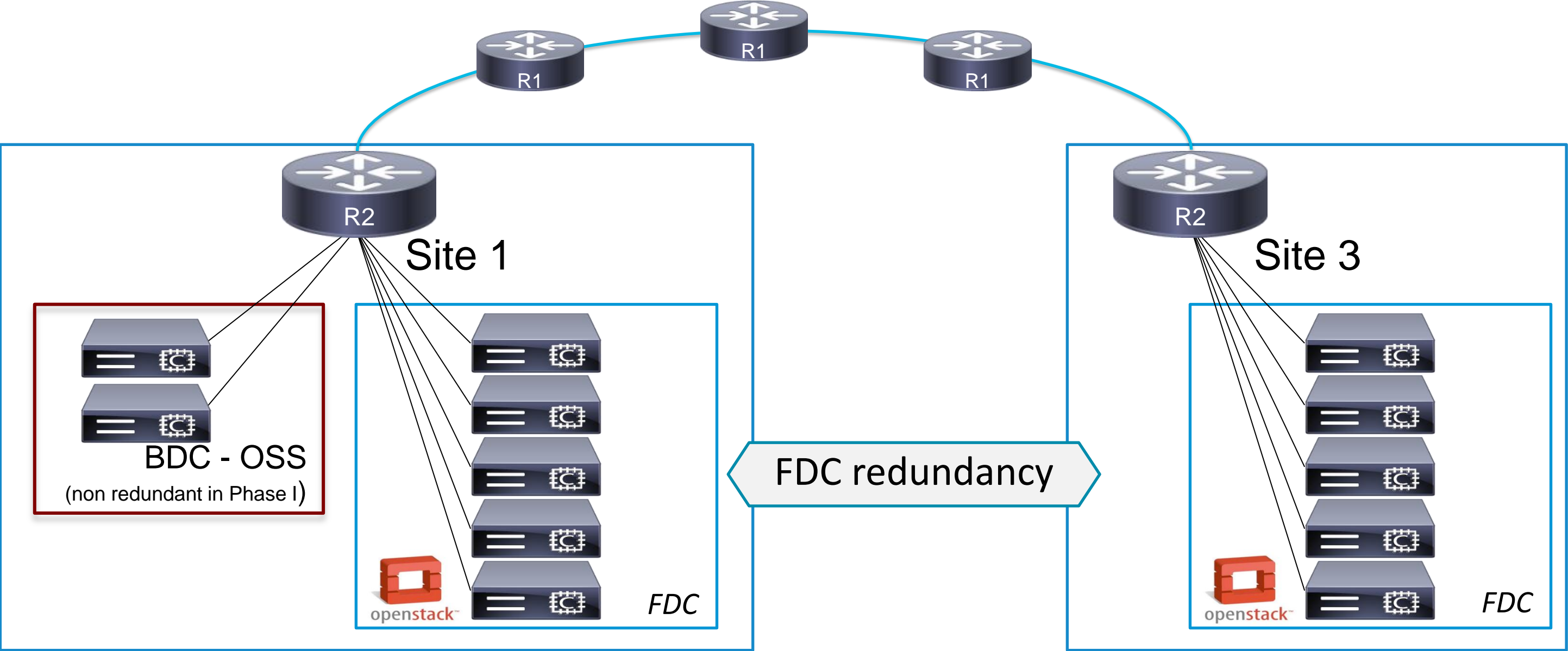
Self Subscription

Case Study: Next Generation Access



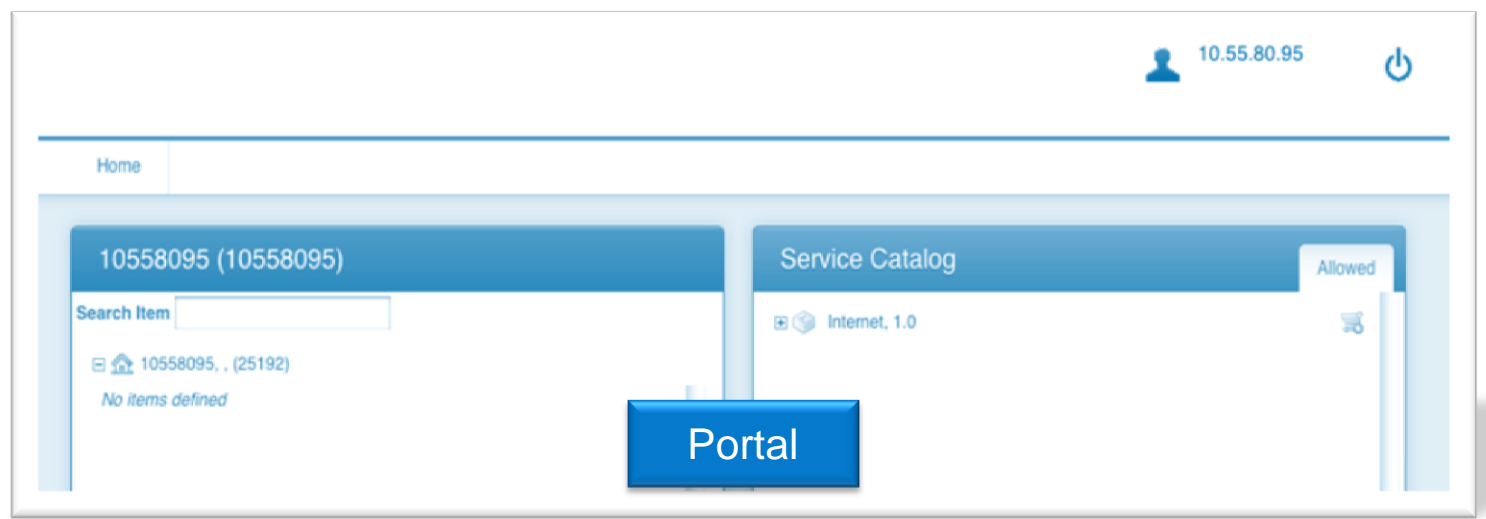
Customer Pilot Phase I: DC

OpenStack Based FDC, OSS In BDC

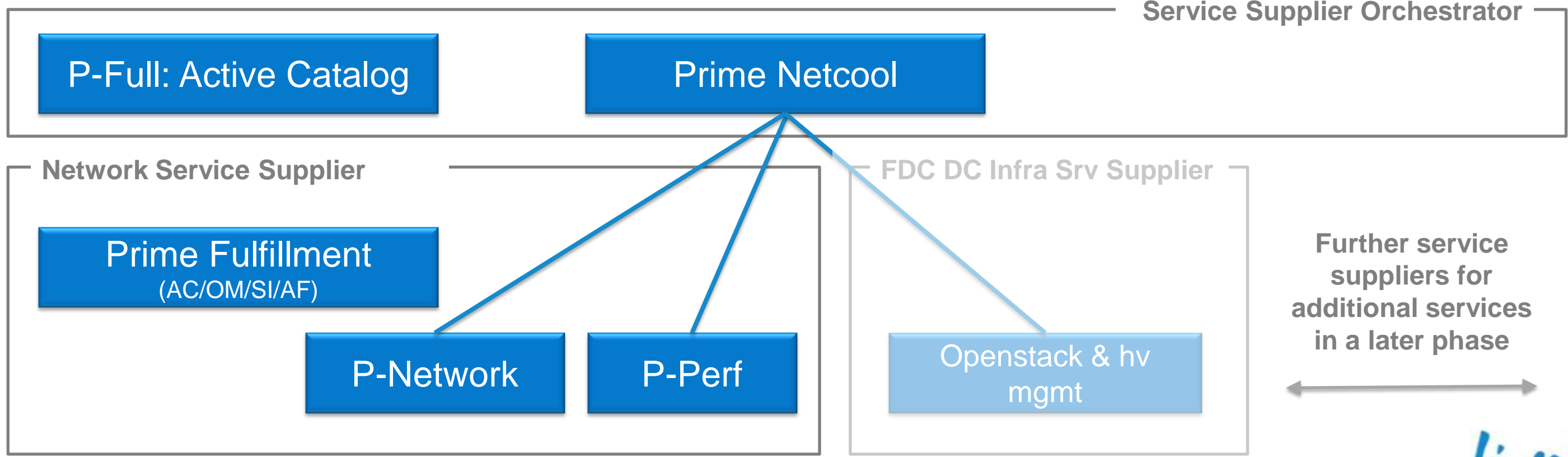


Pilot OSS ABA Setup

Self Service ↑
↓
OSS



- ### Functions Provided
- Extensible Agile Business Architecture
 - Real-time Self-Service Portal
 - Fault Management

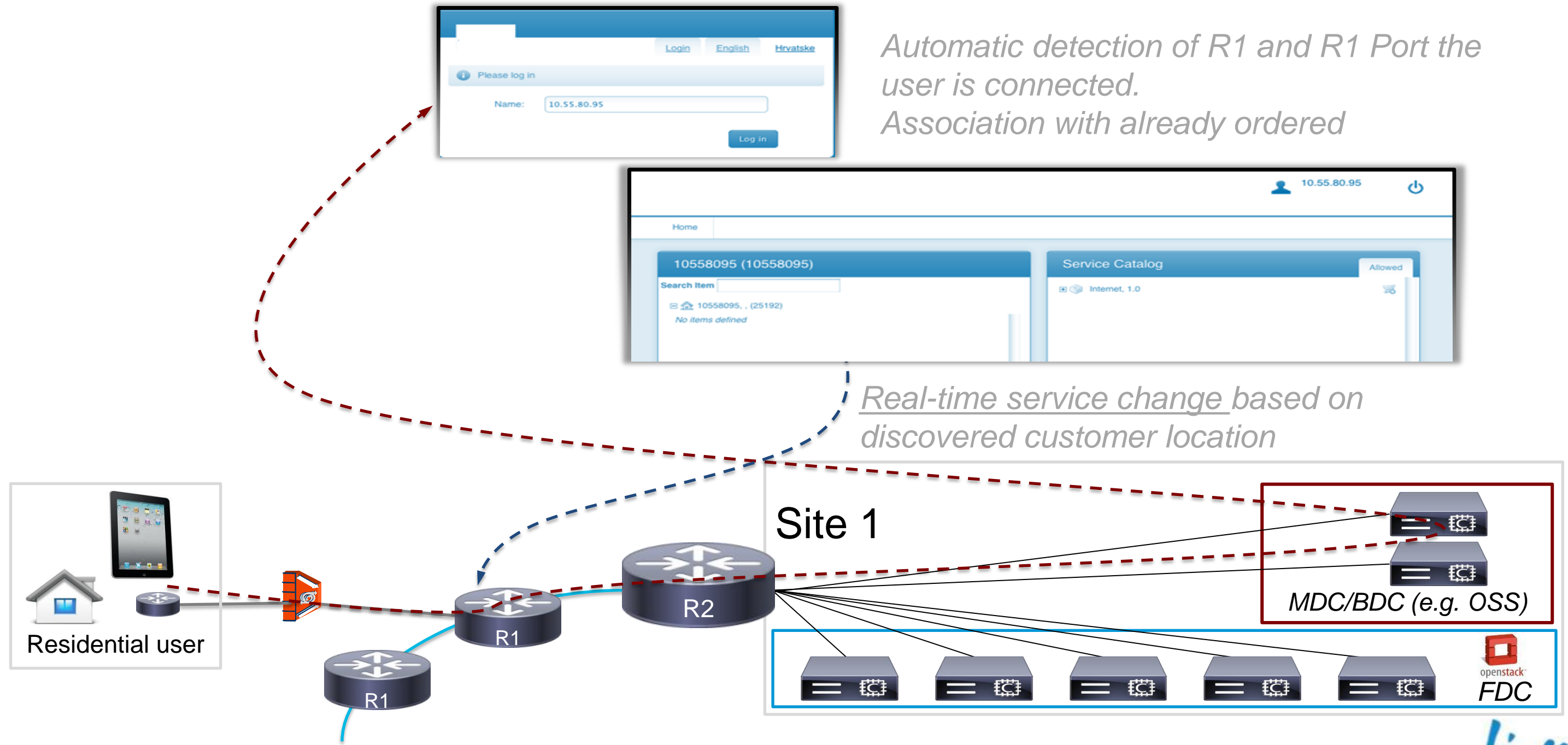


Further service suppliers for additional services in a later phase



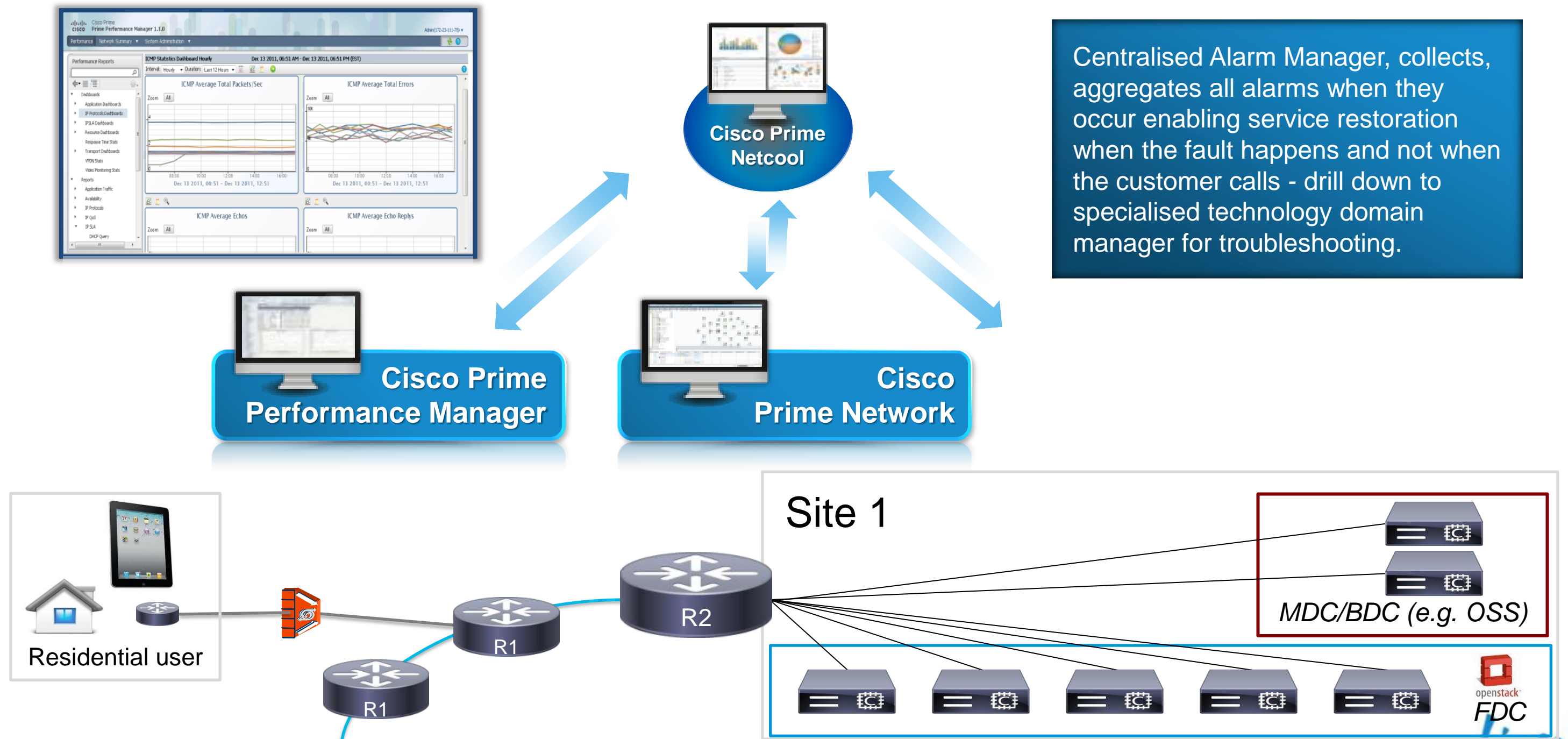
Agile Operations - Fulfillment

Customer Self Service



Agile Operations - Assurance

Technology Domain Management Incl. Root Cause





Service Provider in EMEA

Case Study: Business Transformation



Service Provider In EMEA: Business Transformation



SITUATION

Drivers for transformation:

- High **pressure on OpEx** expenditures
- multiple **Legacy Networks**
- **poor business Agility**
- **Catalog** approach to **Services** design

EVOLUTION

Opportunity for **cost avoidance** and **higher agility** through the implementation of an

Agile Business Architecture:

- **Network simplification** and **consolidation of services** onto an evolved aggregation network
- Automation and simplification of **service orchestration across the network**
- Network and system **build and lifecycle support** for scale and speed
- **Out-tasked** CPE installation and lifecycle support for scale and simplification

Service Provider In EMEA: Business Transformation



Results

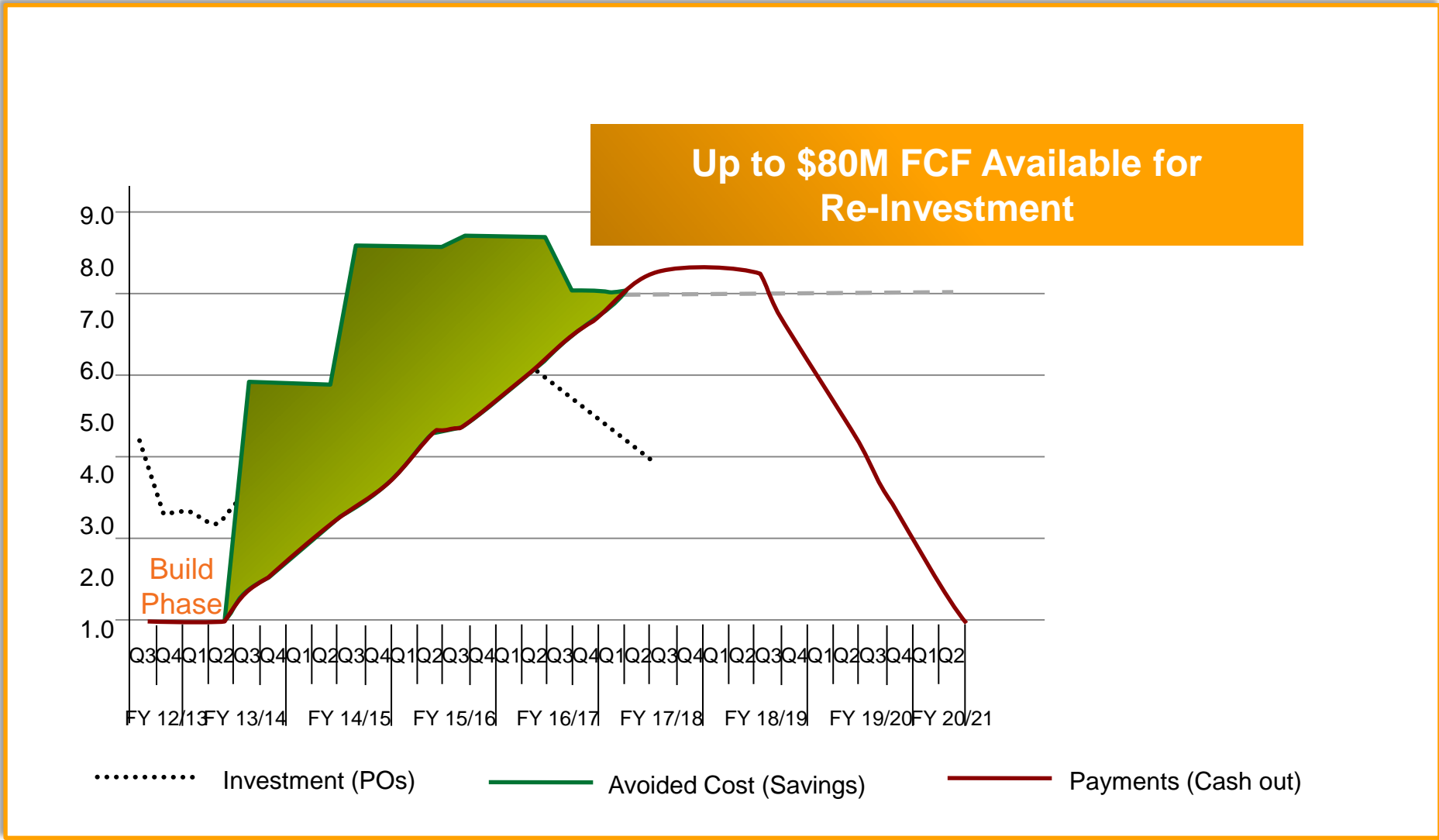
Identified \$180M of cumulative
Avoided Cost over five years on:



Access Tail Costs
CPE Field Costs
Costs to Provide
Real Time Operations

Improvements:

- New Product Development Time ▶ 20%
- Order to Cash Time ▶ 19%
- Product Attach Rate ▶ 30%

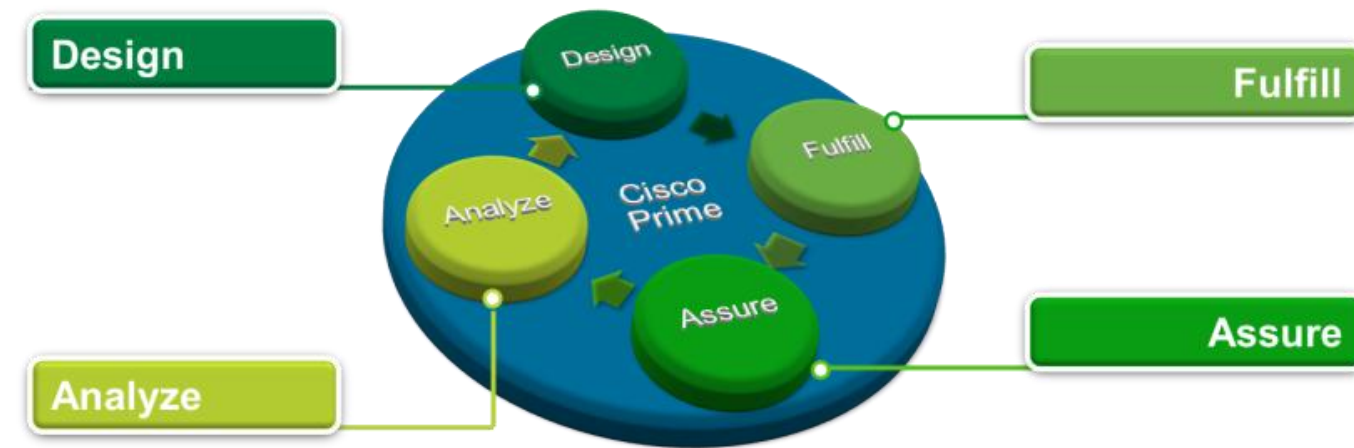


Companies can “reduce costs by 15% to 30% in significant portions of their business by waging war on complexity”

Waging War on Complexity Costs, Wilson and Perumal, 2010

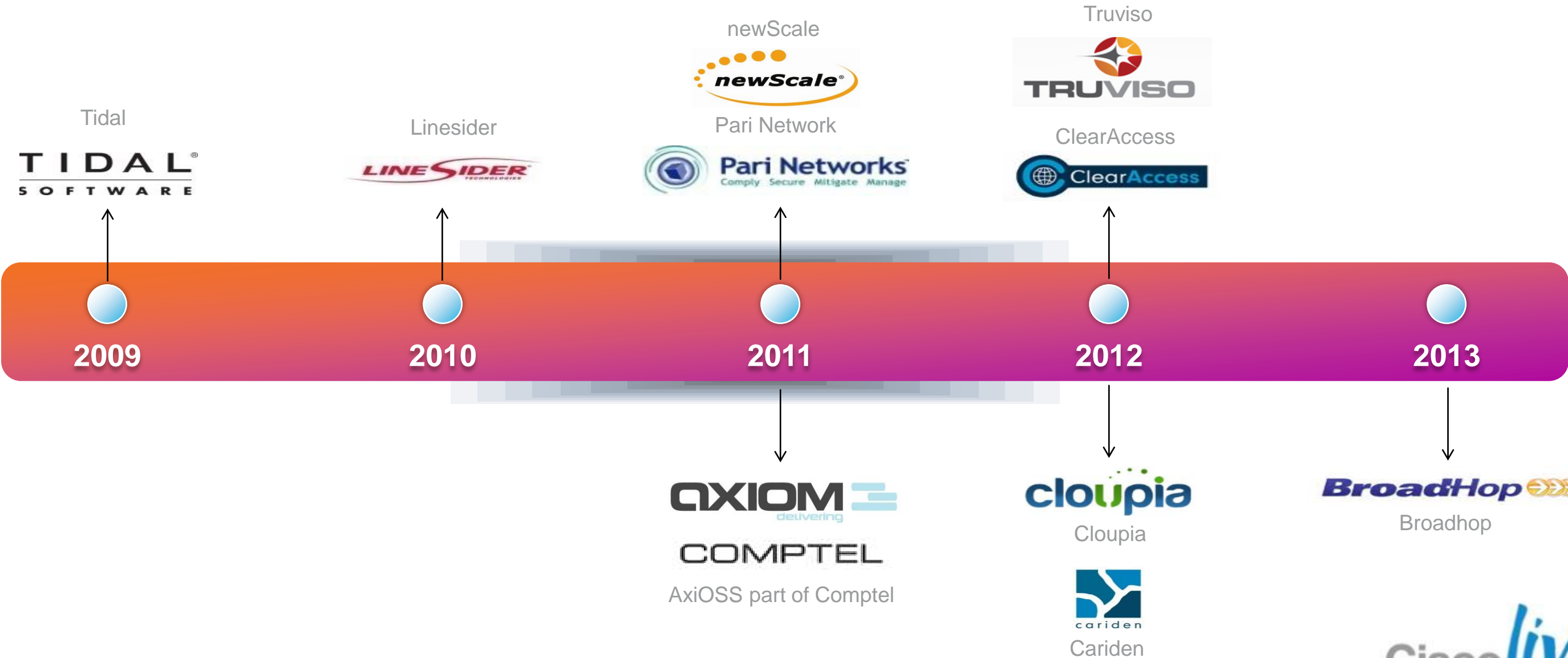
Cisco Portfolio

Agile Operations: Cisco Delivers ABA Components



Cisco's Role In The NMS/OSS

- Cisco is **heavily investing** into the NMS/OSS space through Development and Acquisitions
 - System Management Group Cloud and System Management Technology Group
- Recent Acquisitions enables Cisco to turnkey deliver most relevant parts of ABA



Cisco Prime

The Modular Management Portfolio

Cisco Prime™ Analytics

Prime Analytics

Cisco Workplace® and Cloud Portal
Cisco Prime™ Fulfillment
Cisco Prime Service Inventory
Cisco Prime Provisioning

- Business & Operational Analytics
- Unified self-service portal
- Business process and order management automation
- Customer impact database
- Policy driven activation of network services

Service Management

Cisco Prime Central
Cisco Prime Network
Cisco Prime Optical
Cisco Prime Performance Manager
Cisco Prime Infrastructure
Cisco Prime Collaboration
Cisco Prime Assurance
IBM Tivoli Netcool for Cisco Prime

- Central point of access for network information and control
- IP element and network management
- Optical transport network management
- Network performance management & reporting
- Lifecycle management of wired/wireless networks
- Management of converged voice, video and collaboration
- Collection, analysis and troubleshooting of network traffic
- Multivendor, multiservice management platform

Network Management

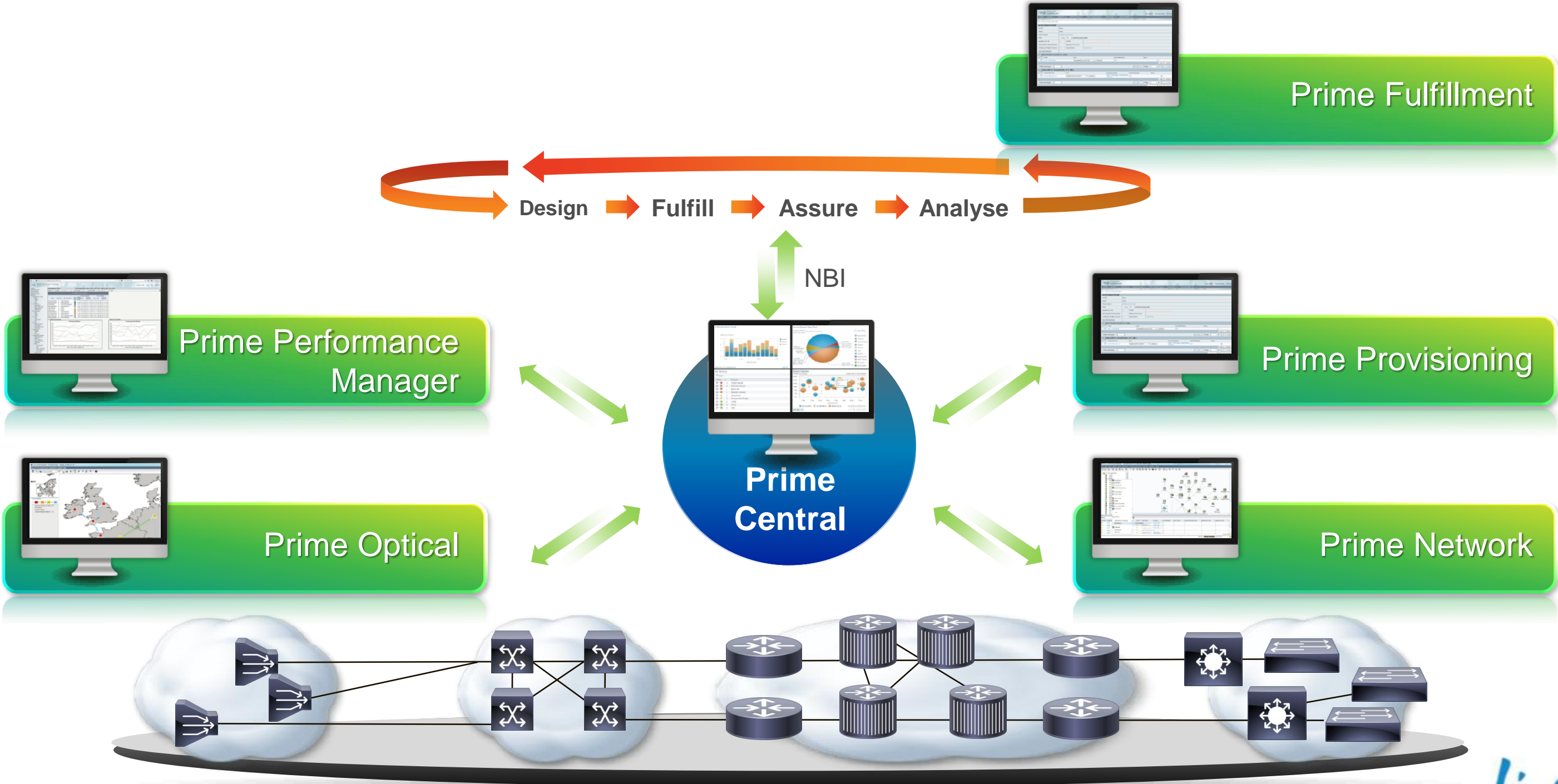
Cisco Prime Home
Cisco Prime Network Registrar
Cisco Prime Access Registrar
Cisco Prime Premises
SP Wi-Fi Service Manager for Prime
BNG Service Manager for Prime

- End-to-end management of home devices
- DNS, DHCP servers and IP address management
- Authentication, Authorisation, Accounting
- Residential/SOHO equipment activation
- Subscriber policy and data management for SP Wi-Fi
- Subscriber charging, policy and data management for BNG

Core Services

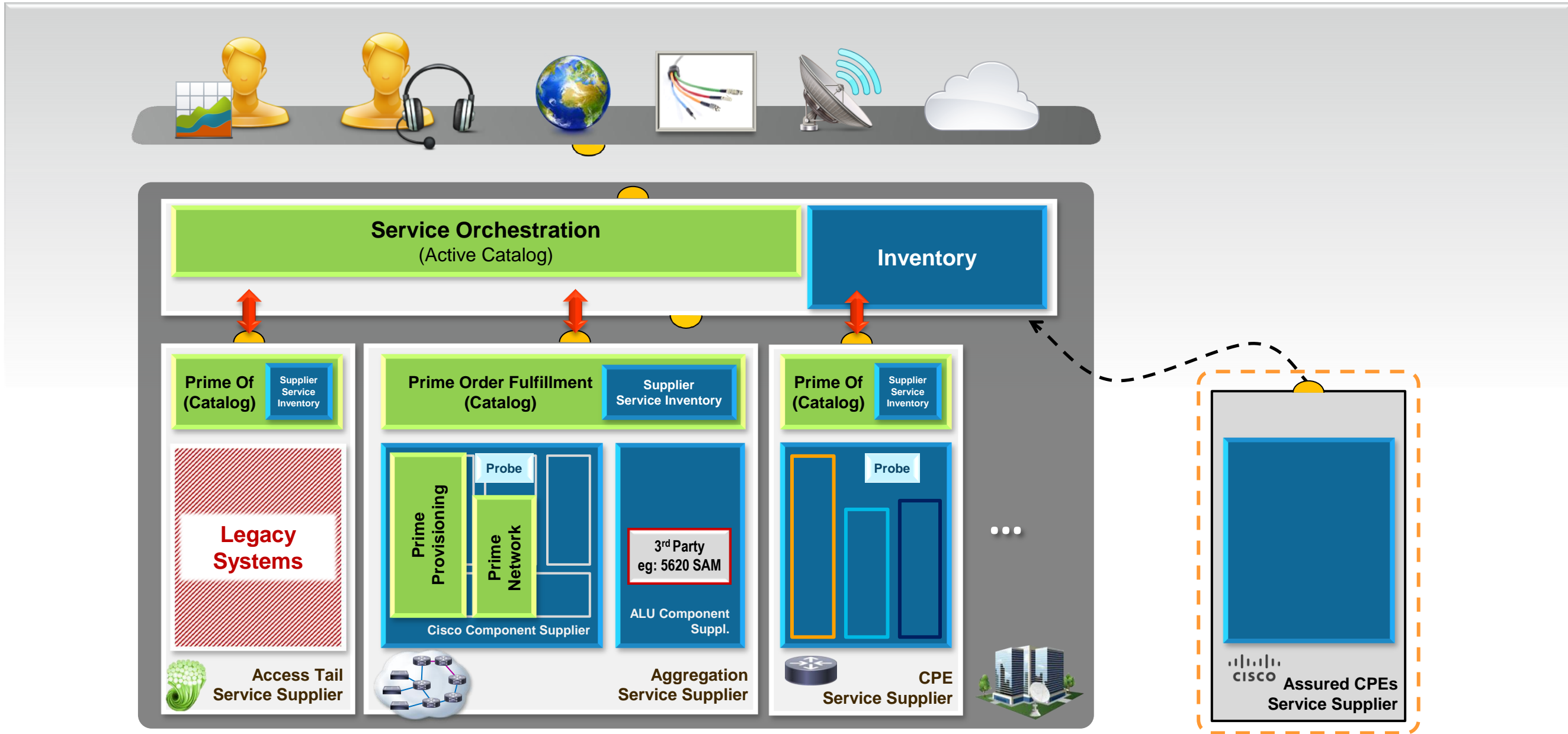
Cisco Prime

Simplify The Design, Provisioning And Management



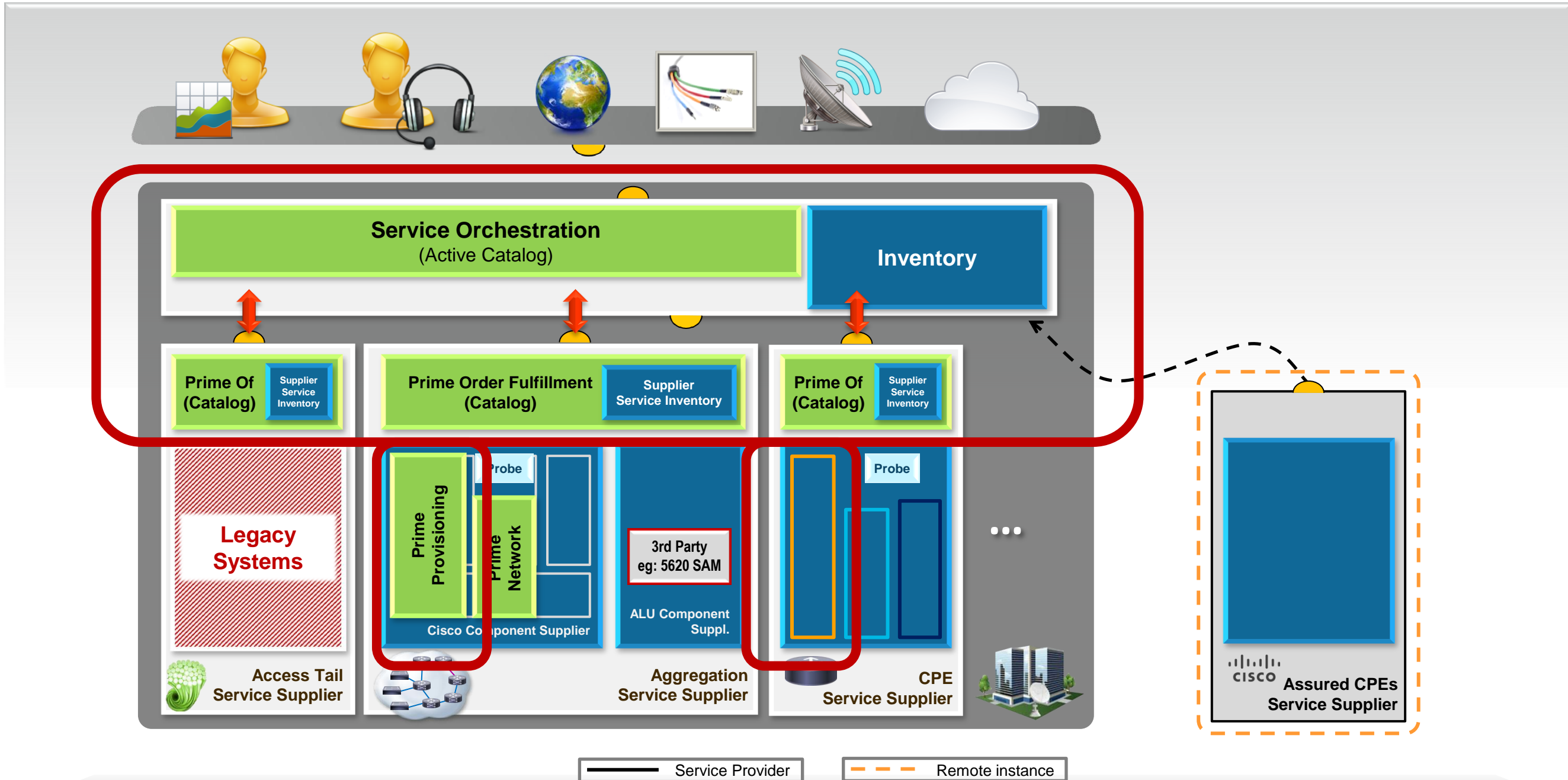
End-to-End Service Orchestration

Powered By Cisco Prime



End-to-End Service Orchestration

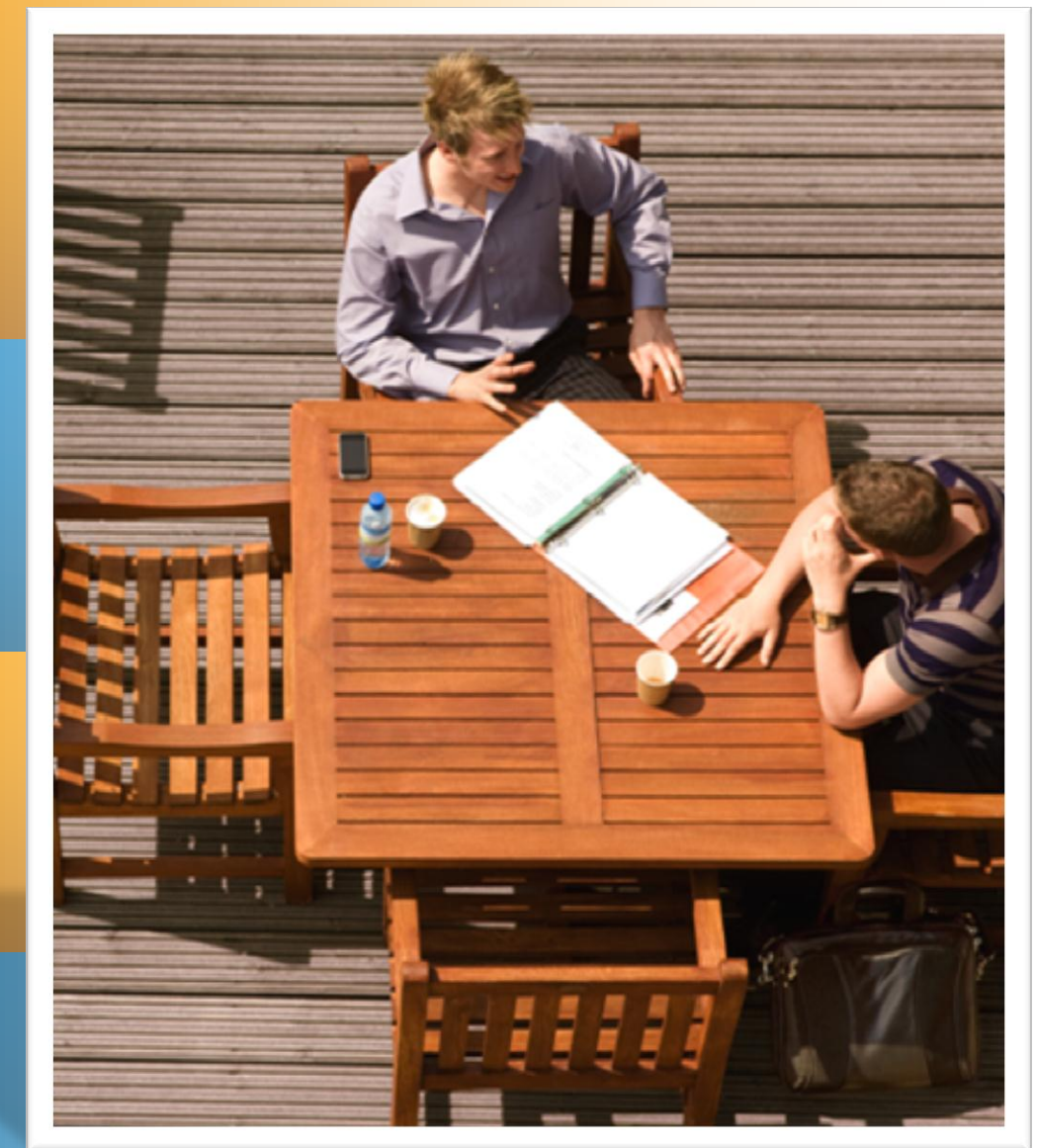
Prime Fulfillment



Cisco Prime Fulfillment

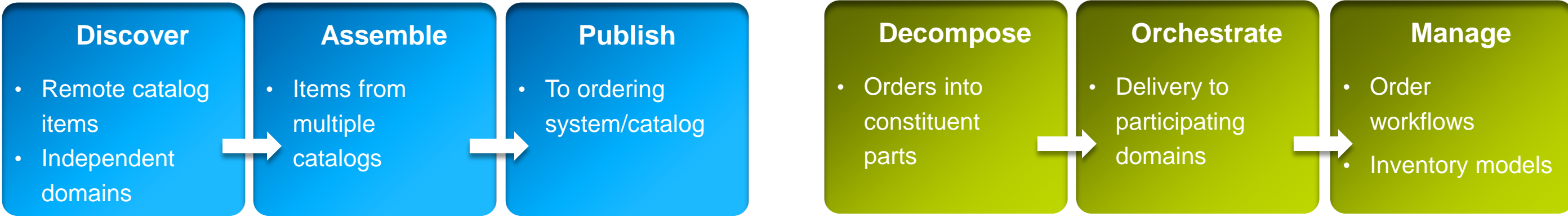
Overview

- Cisco Prime™ Active Catalogue
 - Serves as a service creation and process orchestration platform; interoperable with Cisco Prime Fulfillment as well as third-party platforms
- Cisco Prime Order Management
 - Monitors and controls all detailed order processes involved in the customer service fulfillment cycle
- Cisco Prime Service Inventory
 - Manages all resources required for successful network operations and service delivery
- Cisco Prime Provisioning
 - Performs provisioning and activation functions for Cisco® and third-party devices and services

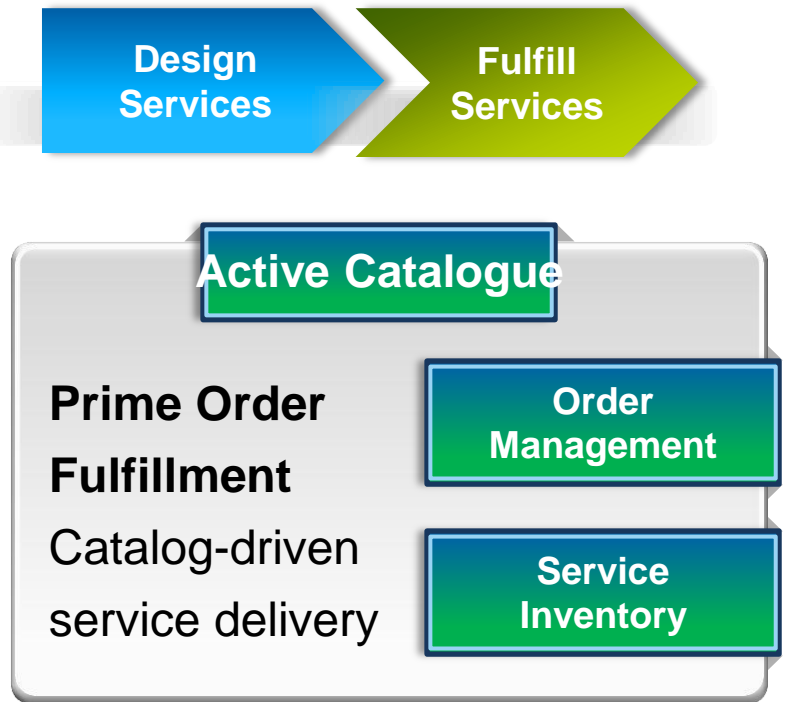


Prime Order Fulfillment

Catalog-Driven Service Delivery

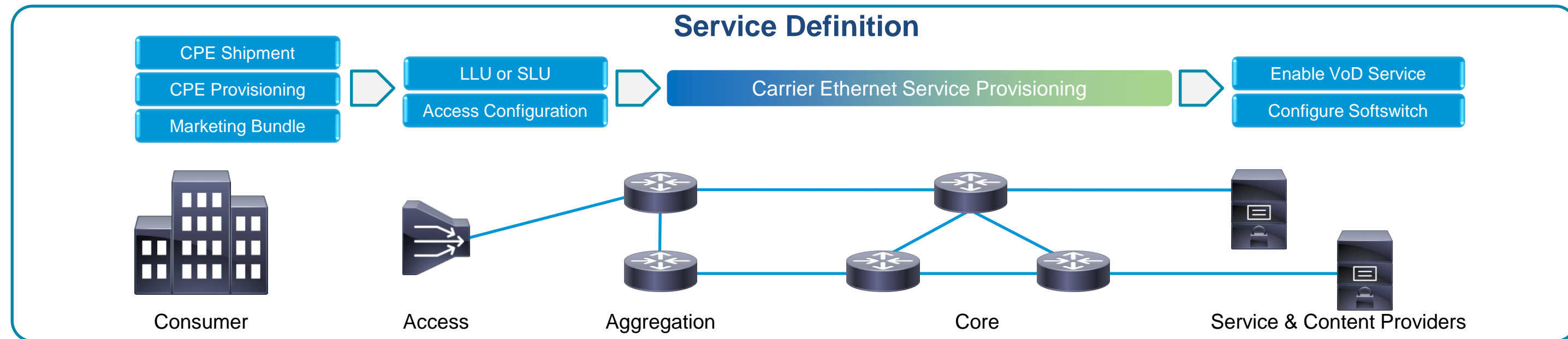


- Discover and catalog resource facing capabilities from each participating technology domain
- Assemble into viable product bundles
- Publish to participating customer facing ordering system



- Decompose customer orders into their constituent parts
- Orchestrate delivery of each constituent order to each technology domain
- Manage the business process associated with each order in each domain
- Manage the inventory required including network, service and customer information

Cisco Prime Fulfillment



- Multi-Vendor, Multi-Domain at its heart
- Assemble new services crossing all domains in a single GUI
- Reuse existing OSS investment where appropriate
- Enables OSS replacement & consolidation without “breaking” higher level end-to-end products
- Each module or business can operate independently of the others
 - Allowing for the changing nature of SP business
 - ONE size no longer fits all with different approaches required for each business
 - Each can have its own systems, own processes & appropriate levels of automation

Cisco Prime Fulfillment

Order Management Features

Business process definition

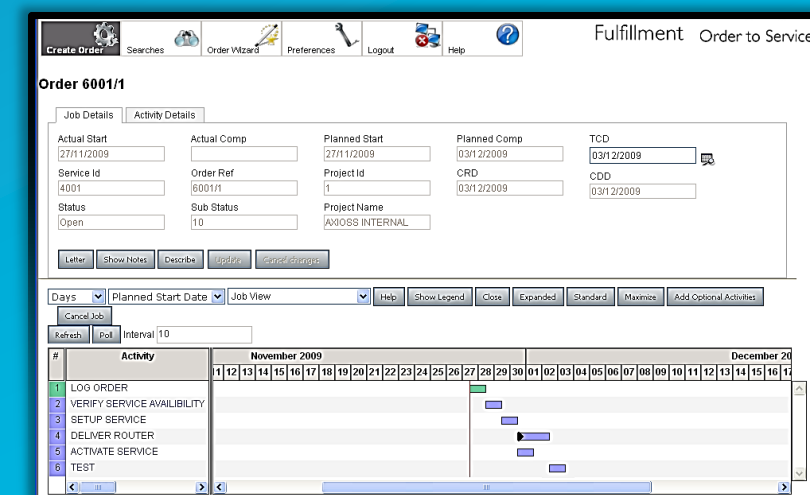
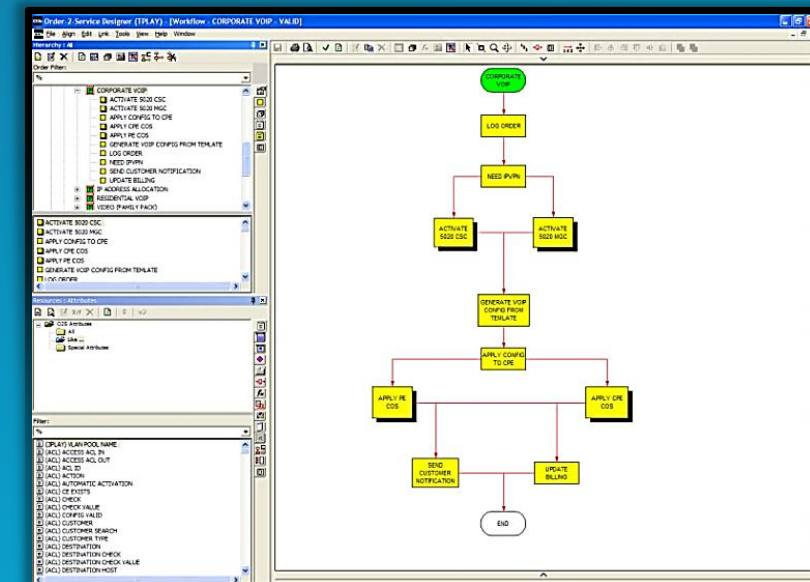
- Create comprehensive process definitions and individual work instructions through GUI interface
- Assemble product bundles based on defined dependencies and outputs using drag-and-drop service definitions
- Automatically decompose complex service orders (single or in bulk) into their constituent components
- Allocate automatic or manual work queues

Service delivery status

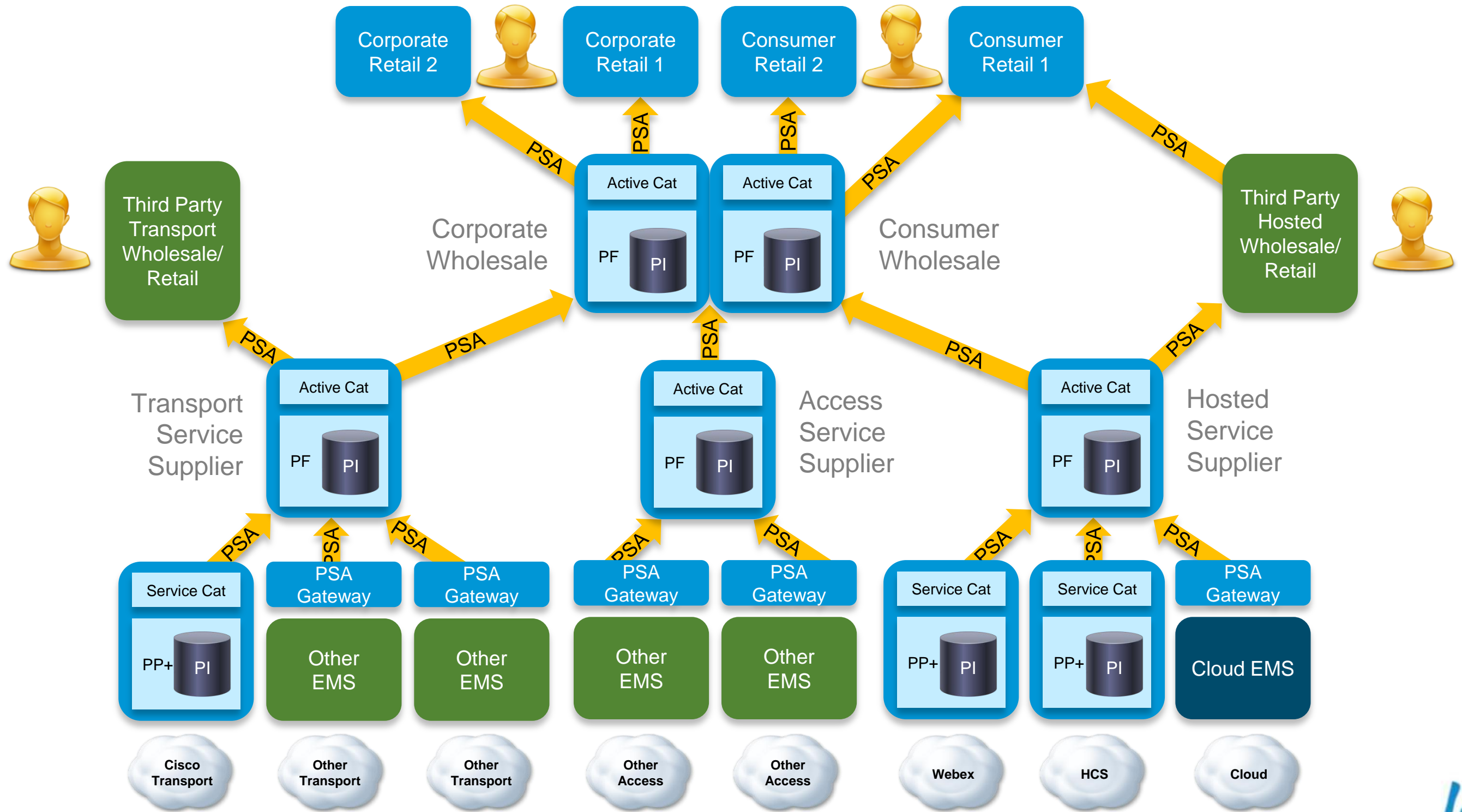
- Gain visibility across all activities in the service delivery process
- Provide order management, including jeopardy monitoring
- Confirm services

Open interfaces

- Use a comprehensive set of open interfaces

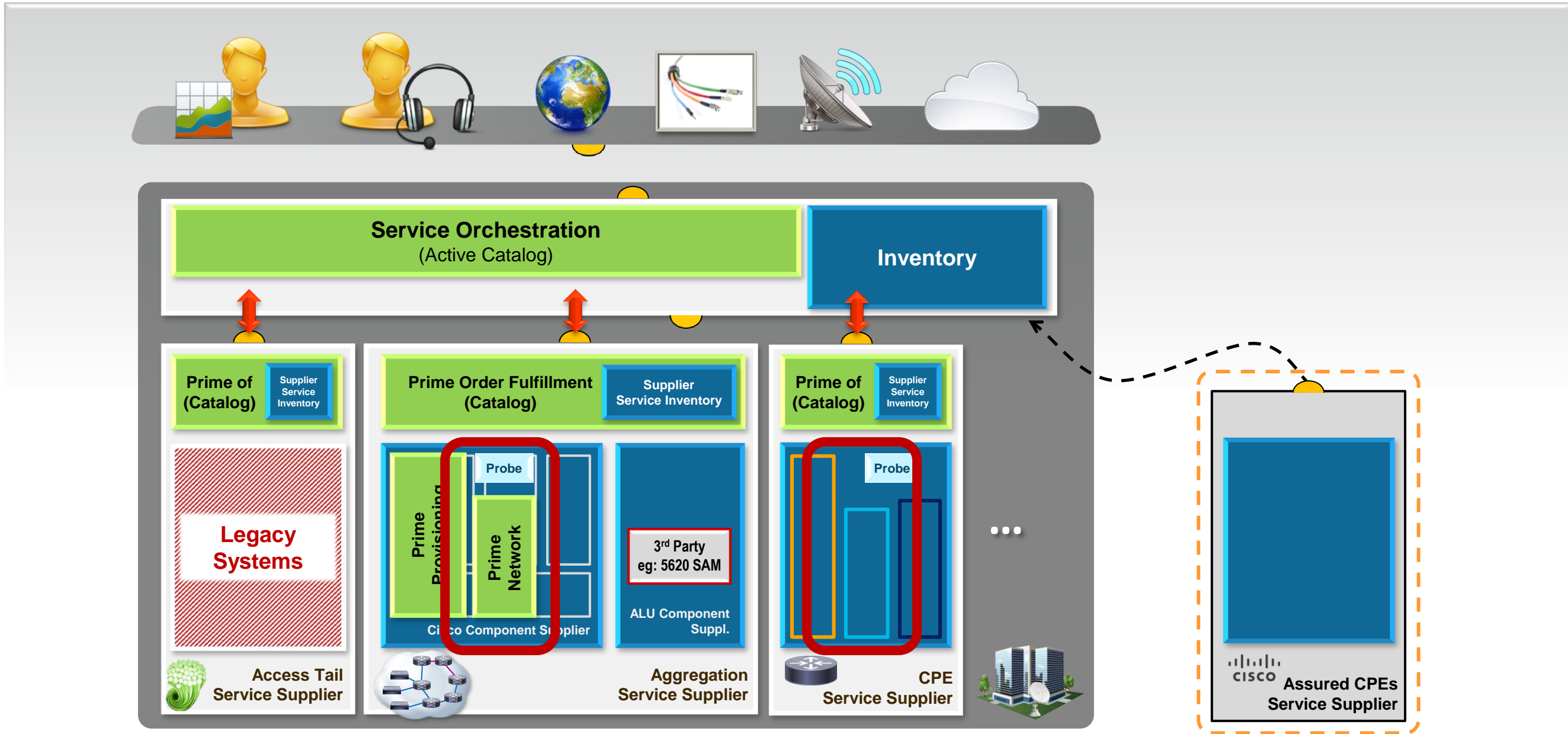


Prime SP Multi-Domain - Design



End-to-End Service Orchestration

Prime Performance



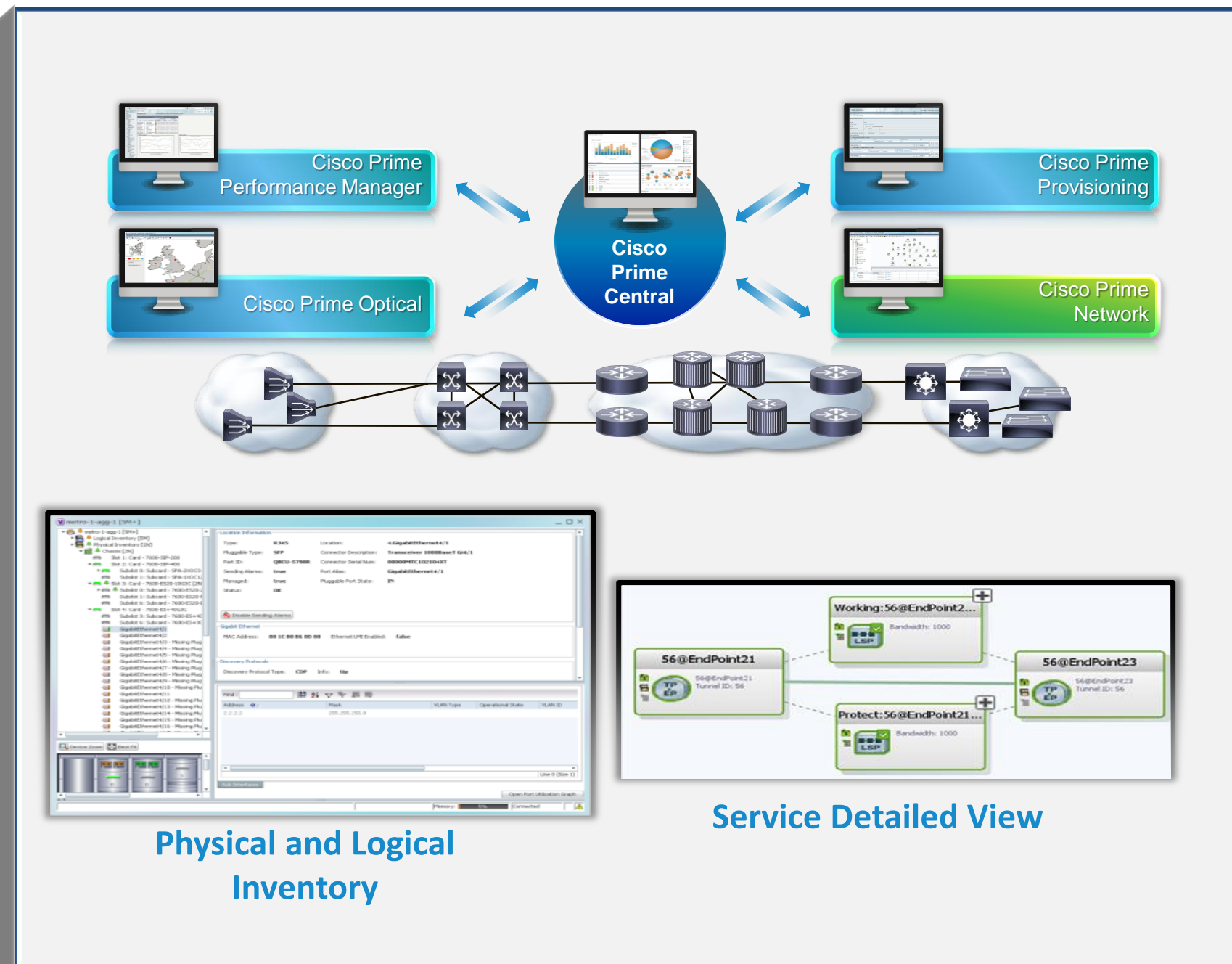
— Service Provider - - - Remote instance



Cisco Prime Network Features

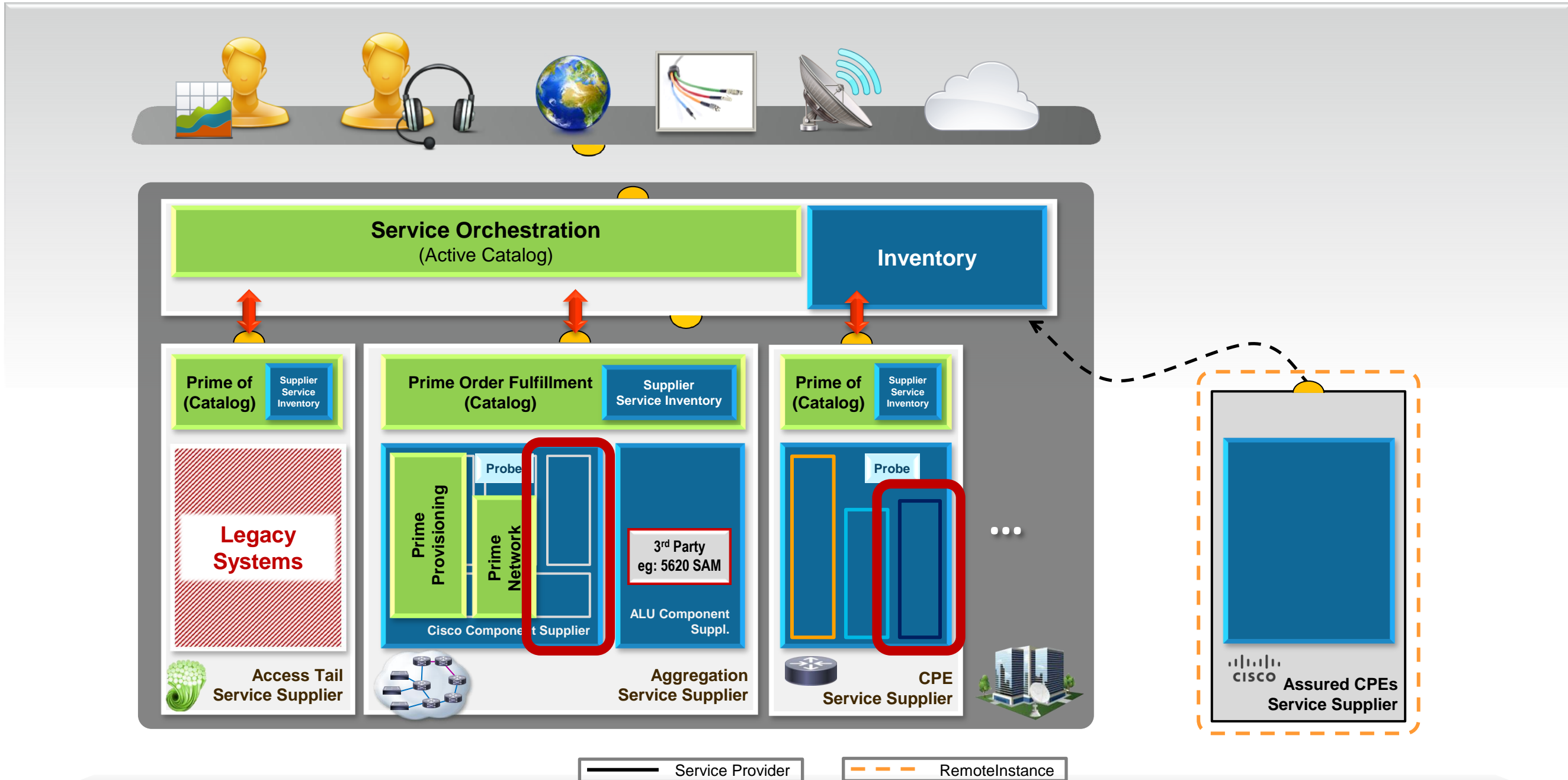
For Carrier Ethernet, RAN Backhaul, MPLS And Packet Transport Networks

- Granular and detailed view of logical and physical inventory of over 50 Cisco device families
- Automated discovery of topology and services
- Advanced troubleshooting tools: path tracing, service overlay and service view
- Fault analysis, root-cause event identification, and topology-guided troubleshooting
- First level alarm reduction through topology correlation and de-duplication
- Advanced customisation tools for application extensions
- Provides full configuration and image management across Cisco routers and switches
- Multivendor Support



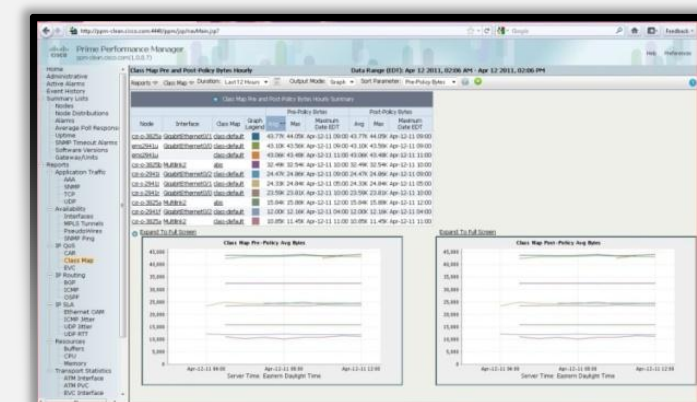
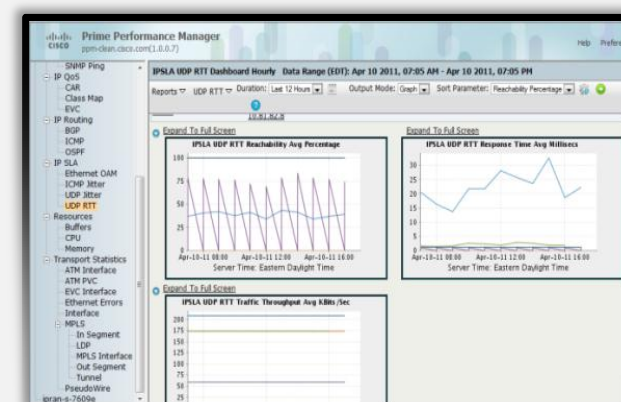
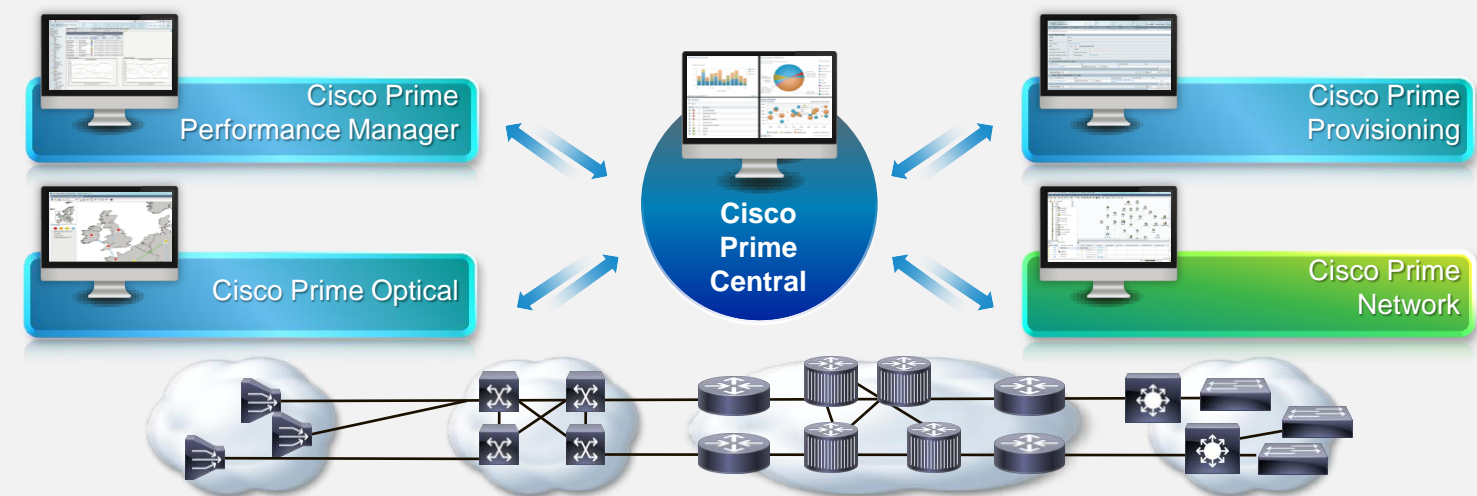
End-to-End Service Orchestration

Prime Performance



Cisco Prime Performance Manager Features

- Web-based interface providing more than 900 predefined reports
- Provides information on application and IP traffic, availability, IP QoS, resources and transport statistics
- Report extensions through format customisation and MIBs support
- Threshold crossing alerts
- Support for Cisco and third-party devices



Summary

Agile Business Architecture



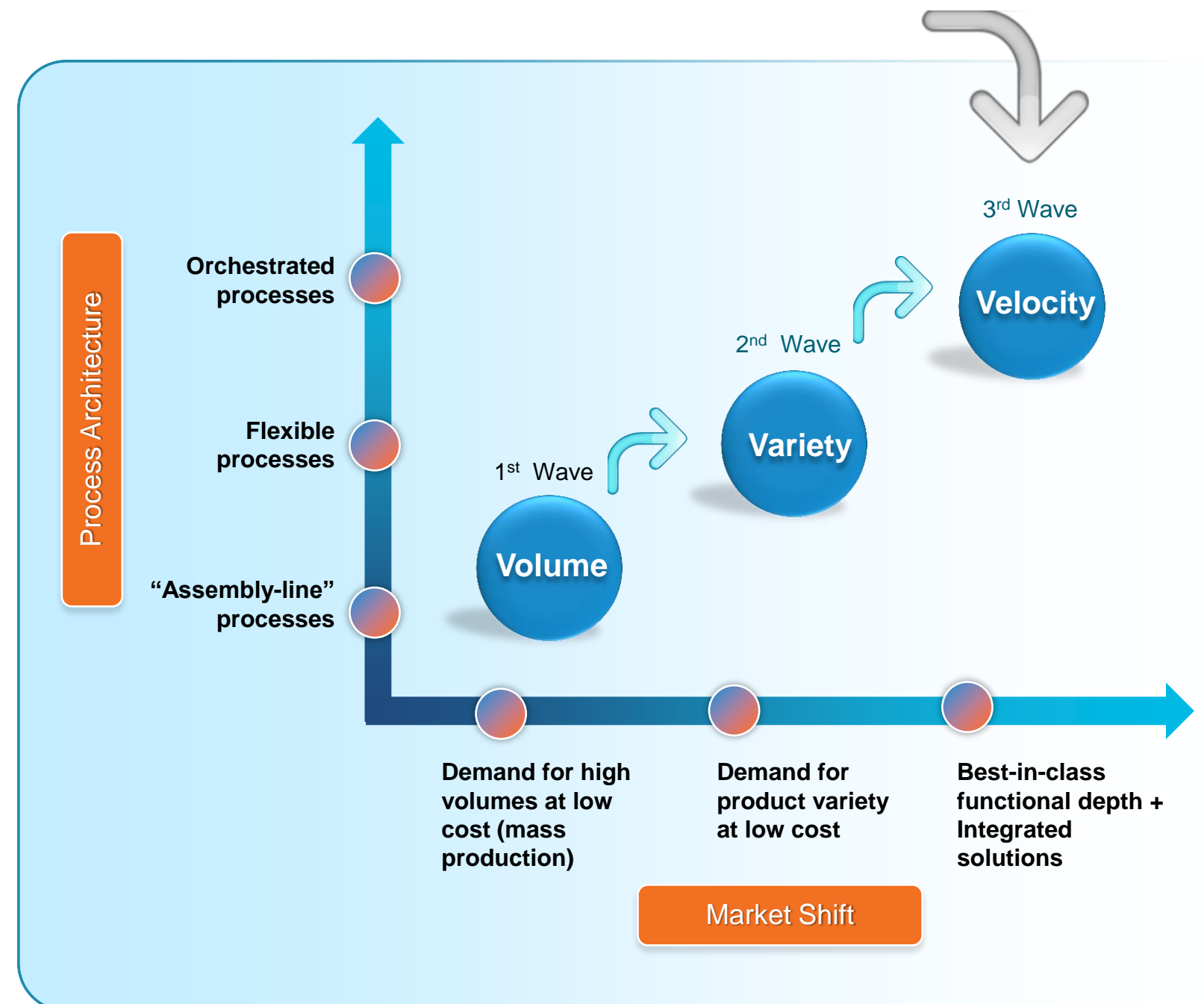
The Three Waves

Telecom Operators are facing their second transition, the **Velocity**



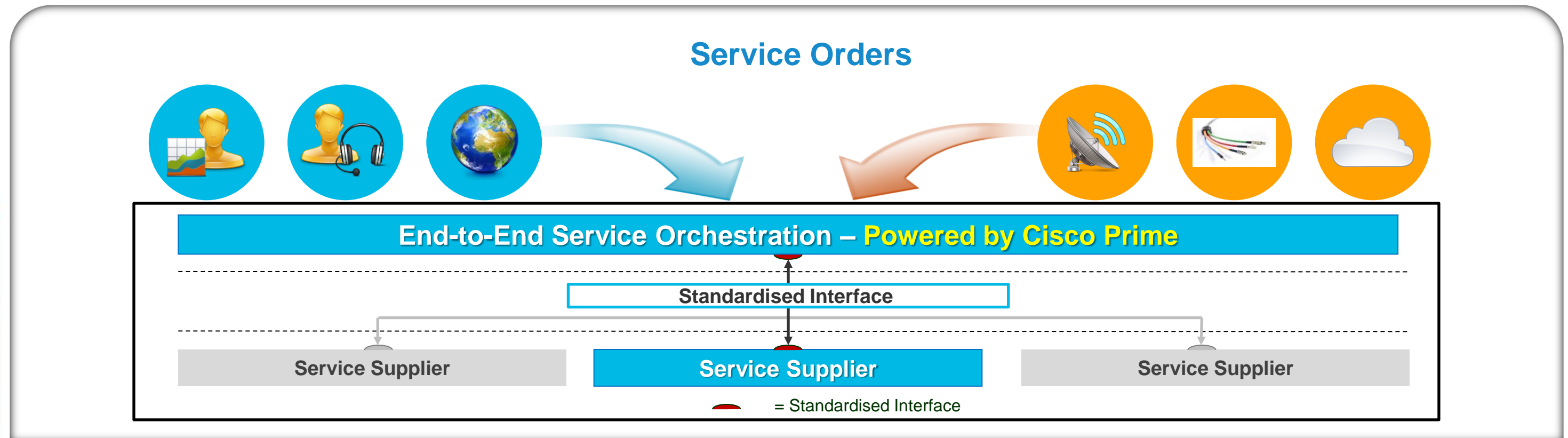
What's different:

- First transition was supported by the telco “boom”, now the **economic climate is challenging**
- **OTT** entered in the game
- Huge legacy **complexity** in Processes, Products, Organisation



Agile Operations Powered By Cisco Prime

Future Readiness At Lower Cost To Serve



Agility

- **Service Orchestration** agnostic to underlying technology or network
- **Modular and Flexible** design
- Supporting **Organic Growth** and **Transformational** change
- **Faster Time to Market**

Simplification

- **Minimised component Dependencies**
- Standardised interface for **Consistent Service Assembly**
- **More Accurate Inventory Data**
- **Lower Cost to Serve**

Foundation



Agile Business Architecture design

- Modularity
- Agility
- Velocity

Support Business transformations

- Competitive Advantages
- OpEx reduction
- Faster Time to Market opportunity

Innovative Cisco Prime portfolio

- Full control on network
- Foundation for the Agile Business Architecture
- Lifecycle management Network

Key Strategic Questions

How Can The Service Provider...



- Introduce new IP/Cloud-based communications, collaboration and entertainment services rapidly into the market with high quality, efficiency and scalability?



- Quickly integrate third party capabilities into service offerings to gain strategic and economic advantage?



- Develop an in-house service innovation/production process that can easily and quickly adapt to changing market environments?



Agile Business Architecture
Cisco's capability and commitment to deliver this turnkey Cisco's Active Catalog – integrated fulfillment & diagnostic

Q & A



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