Cisco Prime Fulfillment for Service Design, Creation, and Delivery

Figure 1. Cisco Prime Fulfillment

Cisco Prime Fulfillment

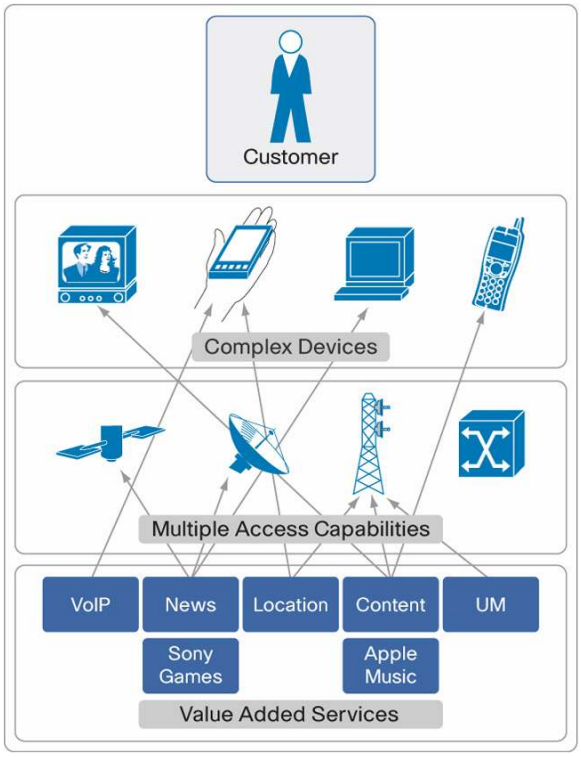
The Cisco Prime Fulfillment is a comprehensive, end-to-end service fulfillment solution that drives highly efficient coordination of business and operational processes for service design, creation and delivery. The solution converts customer orders into live services through efficient resource management and communications with systems, partners, and other entities within today's highly complex telecommunications service ecosystem. The Cisco Prime Fulfillment also enables optimization of the entire product lifecycle management process - from initial design to the provisioning of the new product or service. It is designed to drive continuous improvements in operational efficiencies to help service providers achieve their business goals while meeting demanding subscriber expectations.

Why Is It Important?

The Service Provider Revolution

Communication services are fundamentally changing the way businesses and individuals work, play, and interact. Access networks, whether fixed, cable, or wireless, are converging, in terms of both shared technology and commercial control. Services are increasingly abstracted from the networks that deliver them, accessible through a variety of devices and channels. The worlds of IT, Internet, and telecommunications are colliding and overlapping. These fundamental shifts affect not only how people subscribe to communications services (such as telephony and messaging) and content and entertainment services (such as video and TV) but also the way in which those services are delivered to subscribers. Management and delivery of services is already vastly more complex for many service providers than only a very few years ago. (See Figure 2.)

Figure 2. The Complex Service Ecosystem



Changing Expectations

Customer expectations are also changing. It could take months, even years, for an operator to bring a new service to market, and there was often inconsistency between marketing promises and the capability of networks, equipment, and operations to deliver. Delays were common between service concept and realization and between ordering and activation - drastically slowing the flow of new revenue into the business.

Today, communications markets are much more competitive, with many service providers trying to maximize their share of the market by offering increasing numbers of services, service bundles, and service variants, typically with a much shorter “shelf life” than traditional communication services.

In this much more volatile world, service providers need to be able to launch new and updated services in a fraction of traditional development times. Additionally, in a world where an alternative provider is only a click away, they also need to be sure that subscriber orders can be provisioned faster and more consistently than ever before.

Changing OSS

Changing OSS means that the role of operations support systems (OSSs) must change from the traditional network-oriented workflow, inventory, and activation platform to a more flexible, service-neutral solution that can bring together all the critical groups in the service provider organization, from network and systems architects to product and business management personnel. The Cisco Prime Fulfillment is such a solution.

Business Benefits

The Cisco Prime Fulfillment delivers the following benefits:

- Accelerated time-to-revenue of new services
- Compatibility with existing systems for delivery of new, value-added services
- Efficient re-use of resources and intelligence
- Secure alignment of order processing, inventory management, and network activation prior to new service launch
- Automated provisioning of next-generation services across multiple architectures
- Capability to enable customer self-service and service configuration
- Consistent service delivery
- Reduced costs for customer care and problem resolution
- Continuous business process improvement through trend analysis
- Extensive support for Cisco and multi-vendor devices and platforms

Solution

The Complete Design, Creation, Delivery, and Analysis Cycle

Design Components

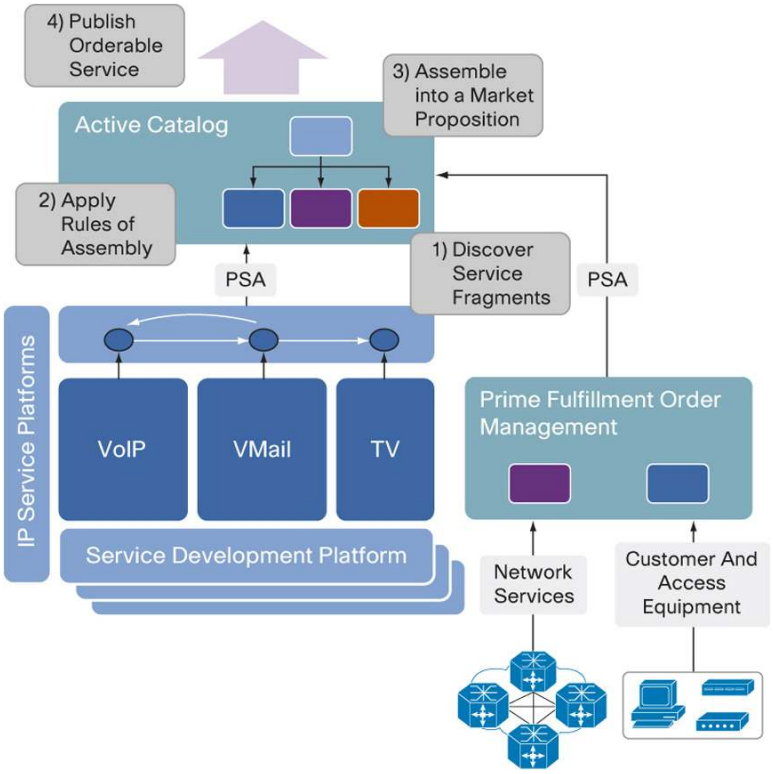
The cycle begins when network and service architects design workflow, resource, and activation components using the Cisco Prime Fulfillment design tools. It is during this design process that the many, often complex, workflow processes, resource elements, and network interfaces needed to provision services can be individually tested as components before being classified and stored within the extensive component library. These reusable components form the building blocks from which commercial products and services will be assembled.

Create Services

Services can be created manually from Cisco Prime Fulfillment design components using tried and tested functions, allowing the individual components to be bound into an end-to-end order process.

This second stage in the cycle is greatly enhanced by a component of the suite - namely, Prime Fulfillment Active Catalog (Figure 3) which abstracts service design from the engineering layer and allows product managers to create services without an intimate understanding of the complex underlying network technologies, inventory resources, and associated processes. Instead, they can drag and drop components from the catalogs (published by partners or suppliers) into a new “container” during the service assembly process. Active Catalog provides the intelligence, identifying any prerequisite components that must be included to allow the product to function correctly, other components that must not be combined, or those that may optionally be combined. For example, Active Catalog could require that high bandwidth access with guaranteed quality of service (QoS) be provided, or available, to support a voice and video service bundle, or could prompt the product manager to offer bandwidth-hungry mobile content services only where the customer already had, or was purchasing, a third-generation (3G)-enabled device.

Figure 3. Cisco Prime Fulfillment Active Catalog



After each of the required components and their dependencies has been included in the service container, a delivery specification for those service elements can be automatically generated and subsequently used to orchestrate the instantiation of the service. Active Catalog thus builds on the service design capability of native Cisco Prime Fulfillment to dramatically reduce the time required to plan, design, test, and implement service delivery processes.

Deliver Services

Customers can place orders using the order wizard. Designed to fit into the service provider's preferred business model, the wizard can either be introduced as a standalone function or incorporated into any existing web portal, order processing, or customer relationship management (CRM) system.

Using its knowledge of the customer's profile and service capability, including existing equipment and services, the Cisco Prime Fulfillment can dynamically adjust the product and delivery process to suit the customer's context. For example, in a triple play (voice, video, and data) scenario, it selects the appropriate access technology based on the customer's current location (perhaps DSL, WiMAX, or fiber), and helps ensure that any existing services provided over the customer's broadband connection are not disrupted by changes (such as adding voice over IP [VoIP] or Internet Protocol Television [IPTV]) to the service bundle. The rigid workflow processes employed by first- and second-generation OSSs become a thing of the past.

Using the resulting service delivery template, the Cisco Prime Fulfillment then automatically breaks down each of the component tasks involved in the delivery process and implements them. Tasks might include the management of the required calling numbers or IP addresses, managing the core network (including any required activation of voice and content servers), activation of any provider edge equipment (such as DSL Access Multiplexers (DSLAMS) for a DSL access service), delivery of end-user devices, such as phones or home gateway equipment, and handling exception conditions and rollback as required. Dynamic communication with any third-party suppliers is also managed by the Cisco Prime Fulfillment, interfacing with wholesale or incumbent providers or with retailers where appropriate, with network platforms (such as a Service Delivery Platform (SDP)), and with billing or charging applications. At all times the customer and customer service representatives can be kept up to date through a Gantt-style visualization of order progress.

Analyze Services

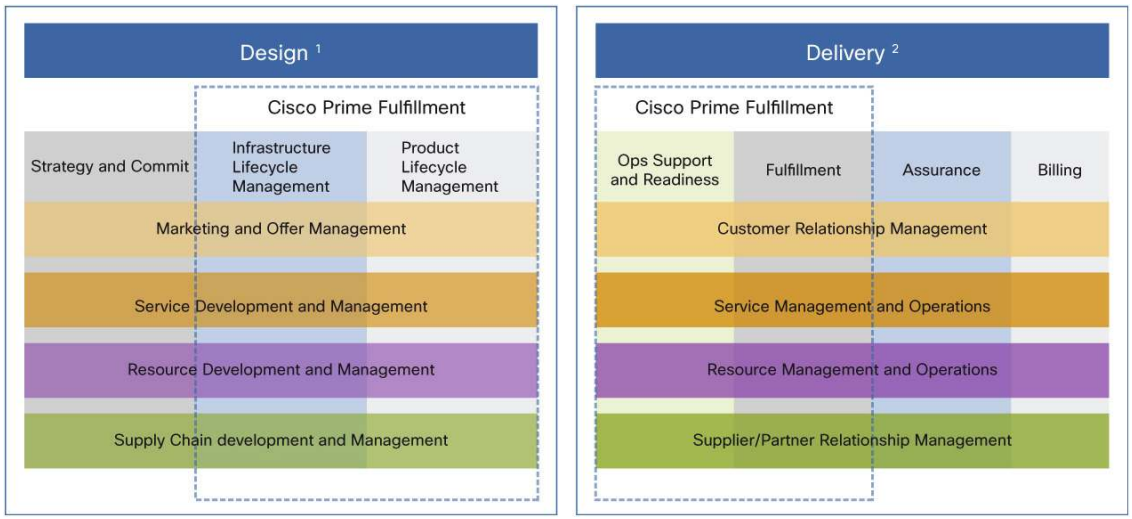
The final stage in the process is supported by the Cisco Prime Fulfillment Service Dashboard. This dashboard gives service provider management a comprehensive view of the status of all customer orders, bringing new levels of real-time business insight and analytics. Executives can monitor, for example, how many orders are being processed, their current status, where the bottlenecks are, and the average time to process orders. The dashboard also gives full visibility of all the resources being used in the service delivery process, of the business units controlling them, and of the customers paying for them - a real-time view of how each service is performing - providing valuable input to the improved design of processes and services.

Moving in Line with Standards

The need for OSSs to develop in this way is reflected in the EnhancedTelecom Operations Map (eTOM) model from the TeleManagement Forum. Although the processes involved in the delivery of services are still covered by the original areas of fulfillment, assurance, and billing on the right side of the model (which also now contains a new area covering operations support and readiness), a whole new set of design-related areas has been added to the left side of the model (Refer to Figure 4.)

As the diagram illustrates, the Cisco Prime Fulfillment plays a major role in supporting many of the critical areas highlighted by the eTOM standard.

Figure 4. Cisco Prime Fulfillment in the eTOM Model

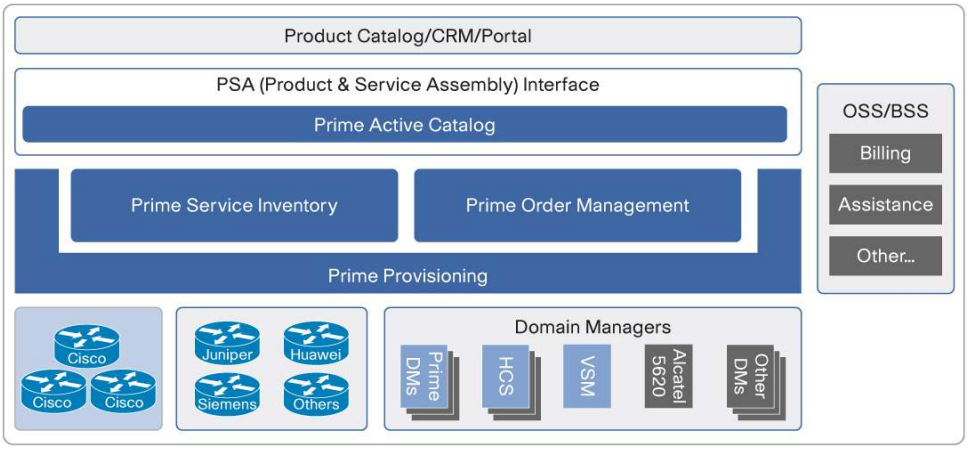


Cisco Prime Fulfillment - Key Components

Figure 5 illustrates the principal products and functional elements of the Cisco Prime Fulfillment.

- **Cisco Prime Active Catalog** is a service creation and process orchestration platform designed to be fully interoperable with both Cisco Prime Fulfillment and other third party platforms. It addresses the challenge of creating and managing substantial numbers of services without needing to build an OSS stack for each service. Active Catalog allows network, service, and other resource capabilities to be modeled as reusable service components and then aggregated into publishable services and products. It then uses those service and product specifications as orchestration templates for specific product fulfillment. Active Catalog allows technical capability within the operator's own domain and from partner organizations to be combined into a single usable catalog.
- **Cisco Prime Order Management** monitors and controls all the detailed order processes involved in the customer service fulfillment cycle. It manages complex task interdependencies and exception processes and facilitates rapid creation and introduction of new service order types.
- **Cisco Prime Service Inventory** manages all the resources required for successful service delivery and network operations, from customer handsets and devices to access and core network equipment. It provides the unique capability not only to model all required physical and logical resources but also to apply comprehensive business processes to the usage of those resources.
- **Cisco Prime Provisioning** performs all the communications required to activate services, from the configuration of individual network elements to the activation of entire technological domains in a multi-vendor environment Preconfigured communications interface components undertake activation functions for common network device types.
- **Cisco Prime Service Dashboard** gives an immediate, up-to-date view of the service delivery function, including a complete, real-time analysis of order status, resource usage, and trends.

Figure 5. Cisco Prime Fulfillment - Architecture

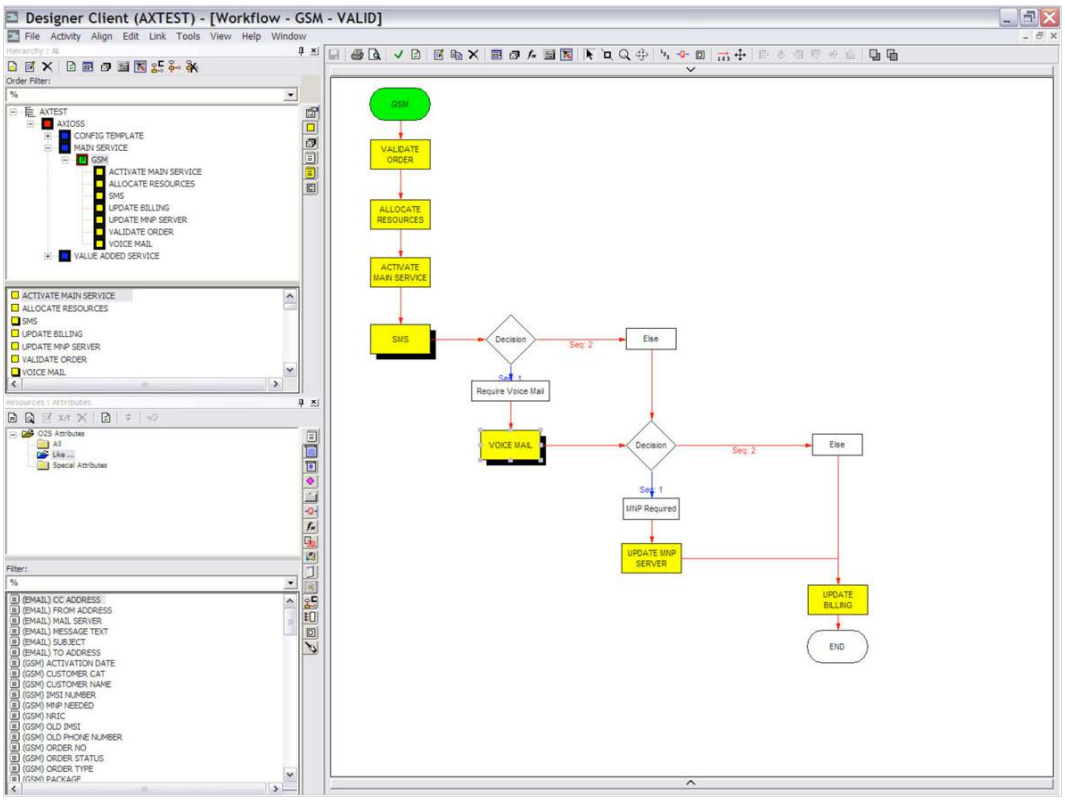


Cisco Prime Order Management

Improved Service Order Design

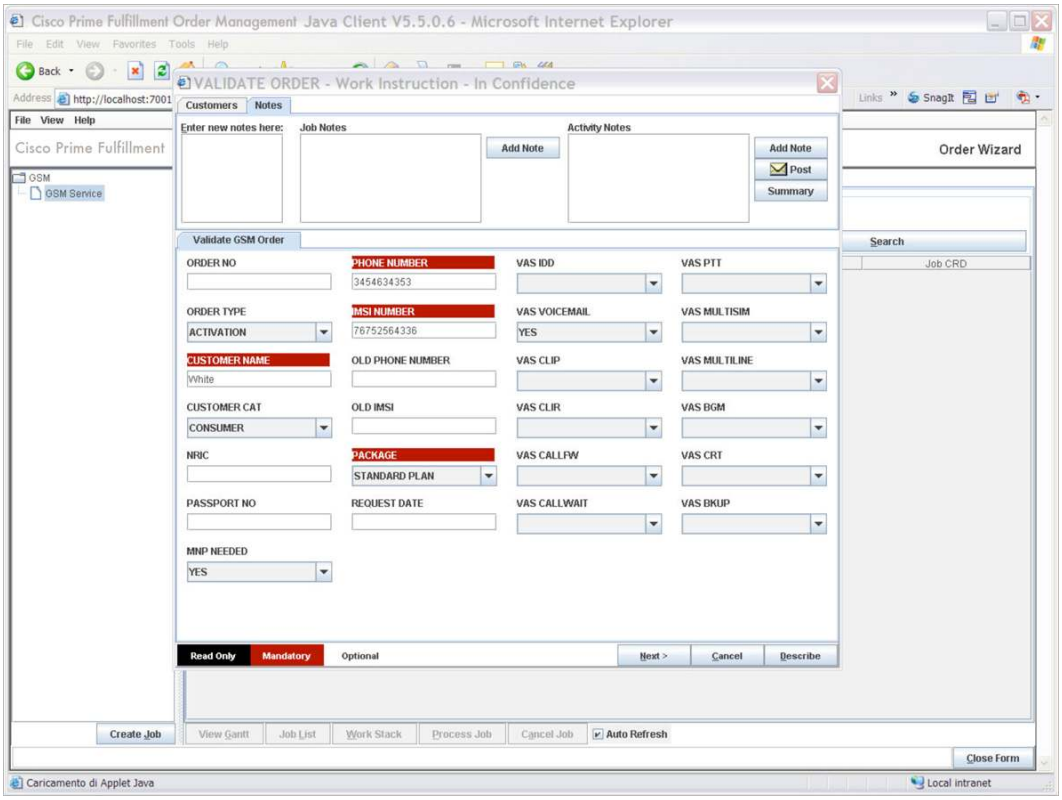
- Use the Cisco Prime Order Management Designer Client to create customized order components to suit specific business needs. (Figures 6 through 9)

Figure 6. Order Management: Order Design



- Utilize preconfigured order components to help ensure best practices and a consistent process for service delivery.
- Include details such as task precedence, dependency, elapsed time, milestones, task attributes, and exception handling and rollback processes.
- Use simple drag-and-drop techniques to add attributes to any of the tasks in the resulting order component.
- Add new work-request processes to order components in a structured fashion, lining up the right people (internal and external) to carry out the right tasks at the right time.
- Use the sophisticated work-allocation and work-notification mechanisms to help ensure that profitable services are consistently delivered according to stated service-level agreements. (SLAs)

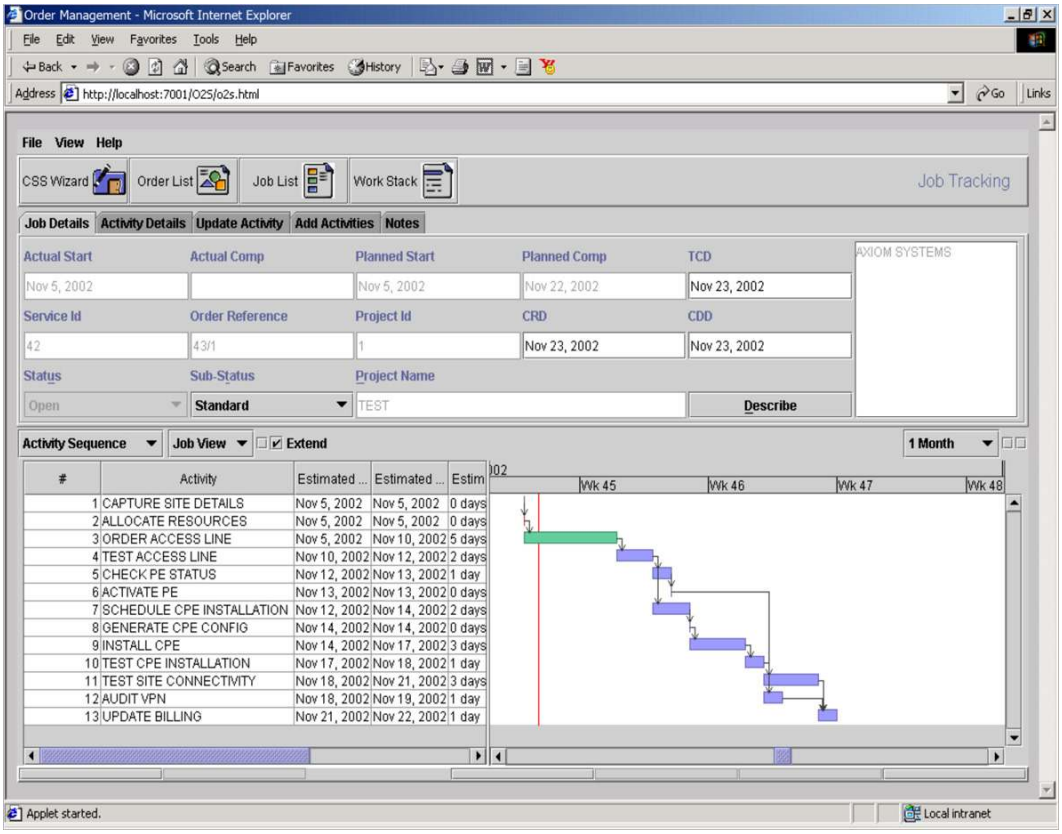
Figure 7. Order Management: Order Entry



Broader Order Entry

- Improve self-service by enabling customers to enter and view service orders through specially designed web portals.
- Enable bulk order entry through formatted files.
- Utilize the Cisco Prime Fulfillment Java-based architecture to accommodate a broad choice of order entry from other sources including CRM packages.

Figure 8. Order Management: Process Dependencies



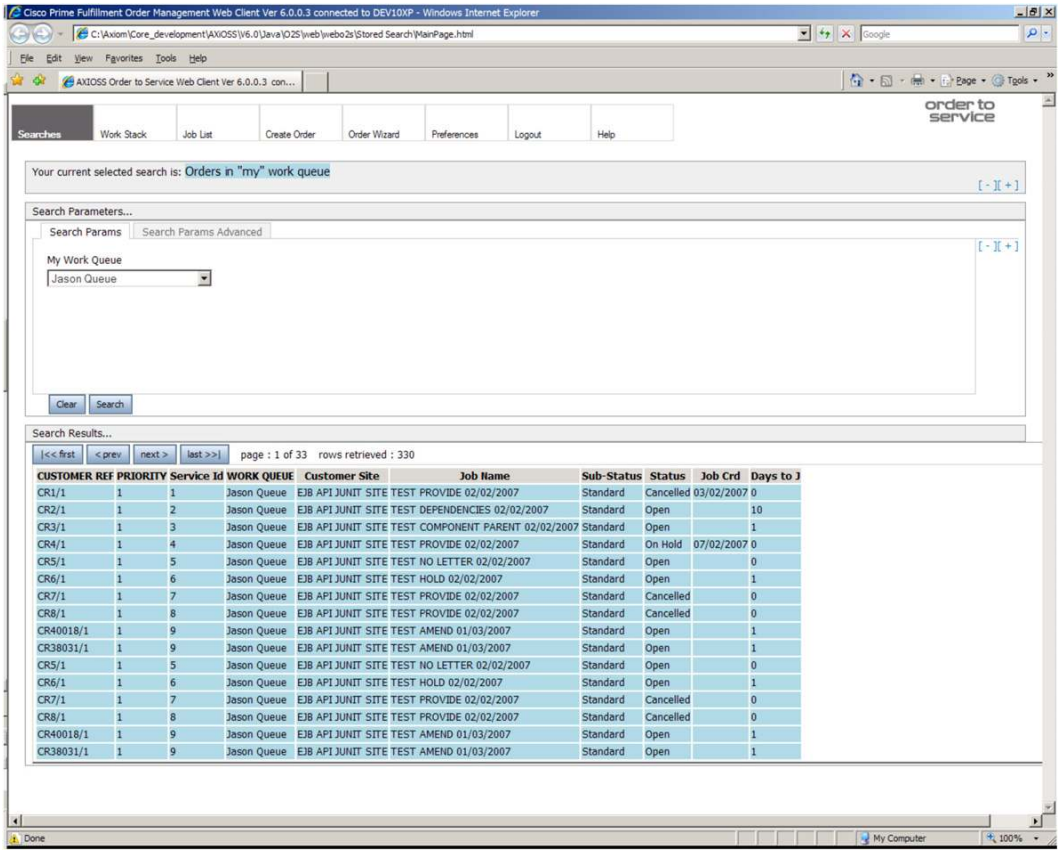
Increased Automation

- Use order components to deliver services more rapidly and consistently by triggering tasks automatically based on the results of other tasks.
- Pass work requests quickly and efficiently between the users and user groups that must action them.
- Make detailed work instructions for each task web accessible.
- Send standard or customized letters, faxes, emails, or data transfers to anyone involved in the service delivery chain.
- Monitor users' work stacks and issue alerts concerning any activity under their control that is jeopardizing committed delivery times.

Improved Job Control

- Create fully configurable dependencies between tasks within order components, so that the effect of change on any one task is clearly shown on all others.

Figure 9. Order Management: Stored Search Capability



CUSTOMER REF	PRIORITY	Service Id	WORK QUEUE	Customer Site	Job Name	Sub-Status	Status	Job Crd	Days to J
CR1/1	1	1	Jason Queue	EJB API JUNIT SITE	TEST PROVIDE 02/02/2007	Standard	Cancelled	03/02/2007	0
CR2/1	1	2	Jason Queue	EJB API JUNIT SITE	TEST DEPENDENCIES 02/02/2007	Standard	Open		10
CR3/1	1	3	Jason Queue	EJB API JUNIT SITE	TEST COMPONENT PARENT 02/02/2007	Standard	Open		1
CR4/1	1	4	Jason Queue	EJB API JUNIT SITE	TEST PROVIDE 02/02/2007	Standard	On Hold	07/02/2007	0
CR5/1	1	5	Jason Queue	EJB API JUNIT SITE	TEST NO LETTER 02/02/2007	Standard	Open		0
CR6/1	1	6	Jason Queue	EJB API JUNIT SITE	TEST HOLD 02/02/2007	Standard	Open		1
CR7/1	1	7	Jason Queue	EJB API JUNIT SITE	TEST PROVIDE 02/02/2007	Standard	Cancelled		0
CR8/1	1	8	Jason Queue	EJB API JUNIT SITE	TEST PROVIDE 02/02/2007	Standard	Cancelled		0
CR40018/1	1	9	Jason Queue	EJB API JUNIT SITE	TEST AMEND 01/03/2007	Standard	Open		1
CR38031/1	1	9	Jason Queue	EJB API JUNIT SITE	TEST AMEND 01/03/2007	Standard	Open		1
CR5/1	1	5	Jason Queue	EJB API JUNIT SITE	TEST NO LETTER 02/02/2007	Standard	Open		0
CR6/1	1	6	Jason Queue	EJB API JUNIT SITE	TEST HOLD 02/02/2007	Standard	Open		1
CR7/1	1	7	Jason Queue	EJB API JUNIT SITE	TEST PROVIDE 02/02/2007	Standard	Cancelled		0
CR8/1	1	8	Jason Queue	EJB API JUNIT SITE	TEST PROVIDE 02/02/2007	Standard	Cancelled		0
CR40018/1	1	9	Jason Queue	EJB API JUNIT SITE	TEST AMEND 01/03/2007	Standard	Open		1
CR38031/1	1	9	Jason Queue	EJB API JUNIT SITE	TEST AMEND 01/03/2007	Standard	Open		1

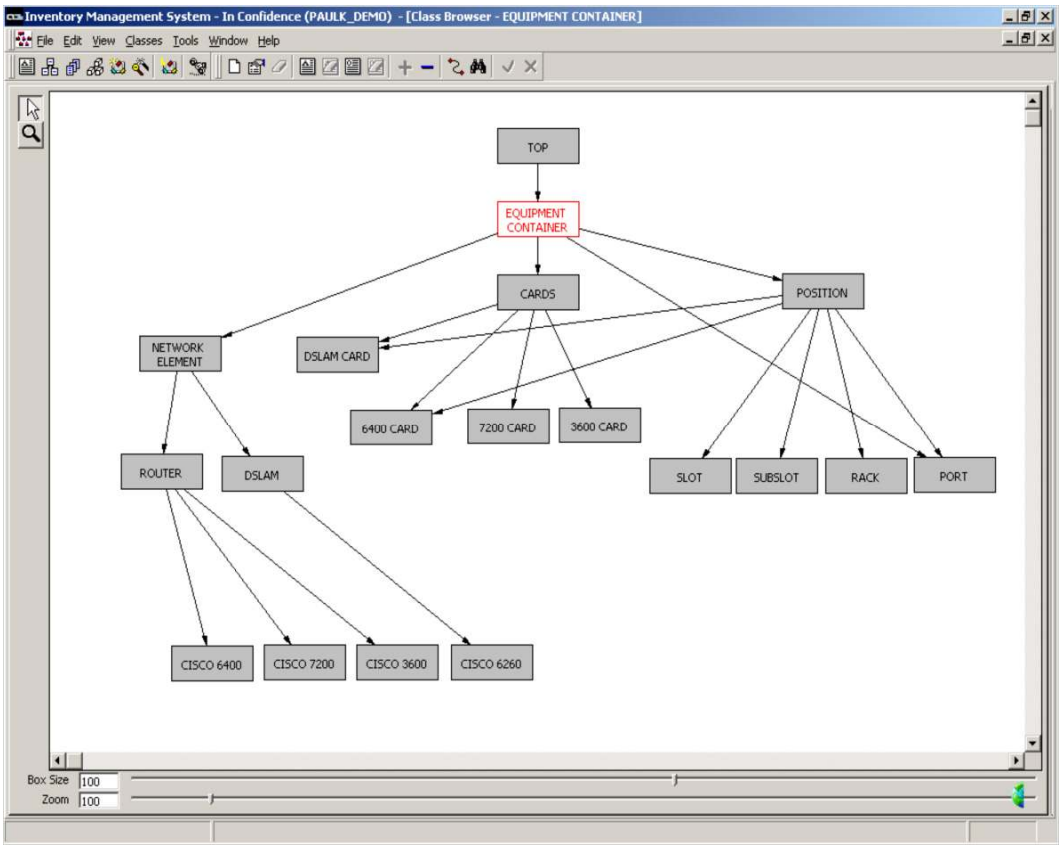
- Create dynamic dependencies based on the prevailing business rules embedded within the workflow component.
- Provide visibility of order status to all involved in the delivery process.
- Show any issues that may impact delivery times clearly including any bottlenecks and delays.
- Define automatic remedial action as required.
- Provide comprehensive search facilities (Figure 9) for support staff to retrieve critical service, order, and customer information. You can configure searches and then store them as “favorites” for reuse. Order search facilities can go to the job or activity level and replace browsing of rigid work stacks.

Cisco Prime Service Inventory

Faster Resource Definition

- Use preconfigured modules within Cisco Prime Fulfillment Service Inventory to maintain best practices for resource management.

Figure 10. Service Inventory: Object Modeling

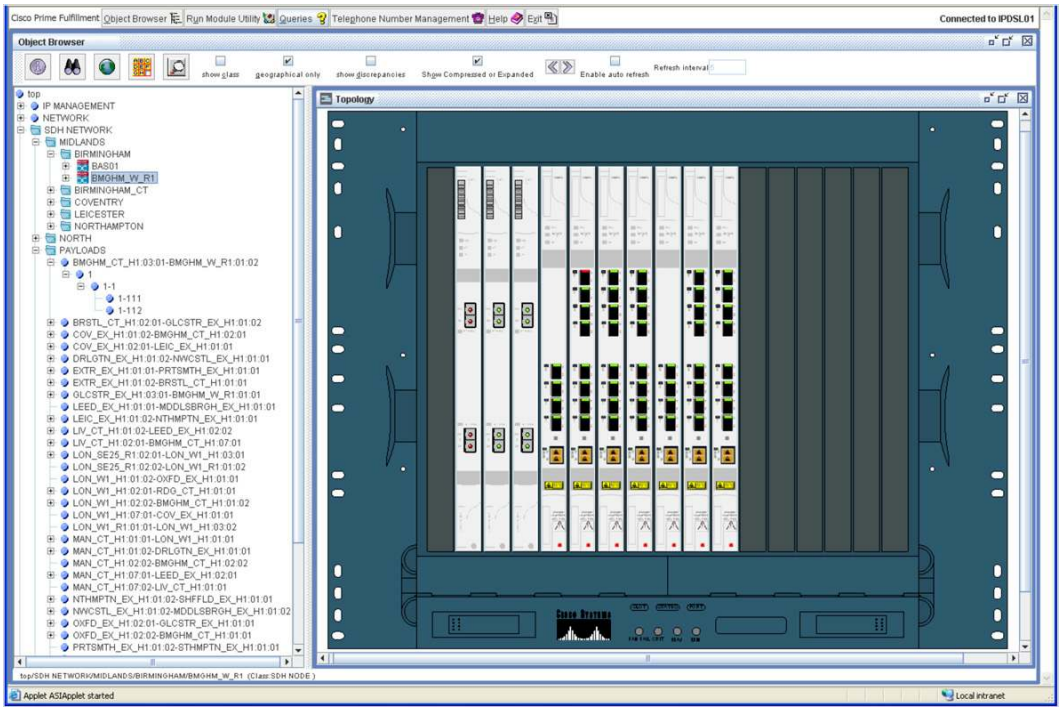


- Resource Designer to create customized resource components to undertake resource management tasks more quickly and reliably.
- Represent any object, from a physical piece of equipment to a logical entity or action to be taken (Figure 11).
- Create associations between those objects, including relationships among equipment, services, and customers.
- Define tasks within resource components, including (for example) how resources are to be retrieved from stores and what extra tasks are to be carried out when they are.
- Apply business rules to objects so that all the knowledge associated with them is made available to all service delivery business processes.
- Run resource components automatically from Cisco Prime Fulfillment or from any other OSS or other business support system (BSS).

Improved Visibility

View multiple hierarchical and topological representations of object classes, including all their ancestors, their children, and their other linked objects. (Refer to Figure 11.)

Figure 11. Service Inventory: Resource Visualization



- Display logical circuits such as VPN and transmission network routes.
- Create and distribute reports containing any resource information, including that relating to customers, services, networks, capacity plans, and so on.
- Manage the allocation and modeling of bulk items such as IP addresses and telephone numbers.

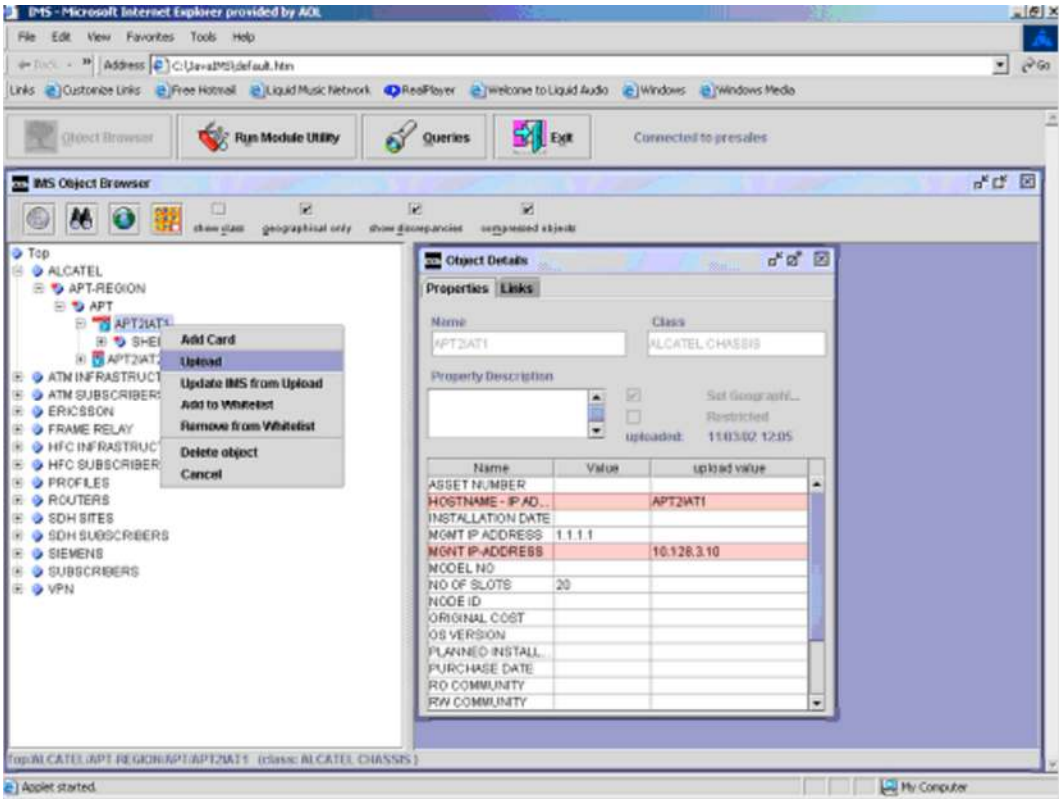
Better Resource Utilization

- Check the utilization levels of all network inventory objects required to complete the end-to-end service delivery process.
- Automatically allocate unused resources, keeping utilization of existing equipment at optimal levels.
- Facilitate organic growth of the network by triggering “just-in-time” ordering sequences such as:
  - Send a request to the financial controller asking for approval to purchase new equipment.
  - Automatically place an order with the appropriate supplier and track through to delivery.
  - Automatically place a task in a field engineer’s work stack to install the equipment.
- Manage allocation of IP addresses using standards bodies such as Réseaux IP Européens (RIPE).
- Dramatically improve the whole network planning, operation, and upgrade function.

Synchronized Resources

Automatically upload (discover) real-time data from the network and compare it with data in Service Inventory or other inventory systems. (Refer to Figure 12.)

Figure 12. Service Inventory: Network Inventory Synchronization

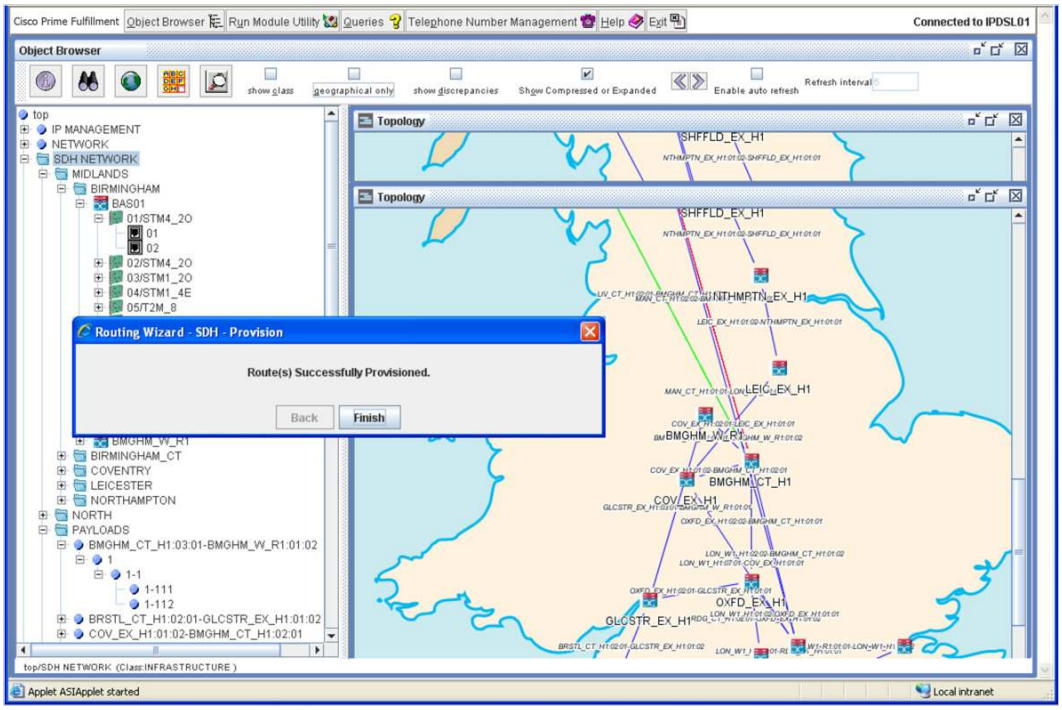


- Recover “stranded” assets that appear to be in use based on inventory records but are not actually linked to any customer or service.
- Provide a statement on resource availability and capacity usage in the network.
- Synchronize configurations held on the network equipment with those held in the “master” inventory systems.

Apply to Core Network Management

- Map and monitor the core network. (Figure 13)
- Document equipment, location information, and capacity information.
- Help ensure through autodiscovery that the inventory record is aligned with the installed physical network.

Figure 13. Service Inventory: Core Network Management



- Manage the rollout and upgrade of network elements through sophisticated workflow and inventory capability.
- Apply routing algorithms and policy through dedicated routing wizards.

Cisco Prime Provisioning

Greater Support for Multitechnology Environments

- Utilize preconfigured activation components (snap-ins) to interface directly with network elements, with network element management systems, and with other OSS/BSS applications used in the service delivery process.
- Use the Cisco Prime Fulfillment Integration and Software Development Kit to create interfaces to suit specific network element communication needs.
- Guarantee the timely delivery of end-to-end services using a comprehensive library of communications protocols, technologies, and network equipment.

Improved Activation

- Group together activations on one or many network elements as a single batch job.
- Process activation orders either immediately or on a scheduled basis to improve automated flow-through activation.
- Automatically pass information back to the originating order management system to further accelerate the order management process.
- Handle changes to services through the same process, quickly and efficiently.
- Reduce provisioning time from days or hours down to minutes or seconds.
- Reduce accumulated backlog.
- Reduce the need for complex reengineering of OSS/BSS applications.
- Exploit the advanced architecture of the Cisco Prime Fulfillment to provide the glue between such systems without the need for expensive code or database schema changes.
- Integrate all communications processes from start to completion.

Enhanced Service Rollback

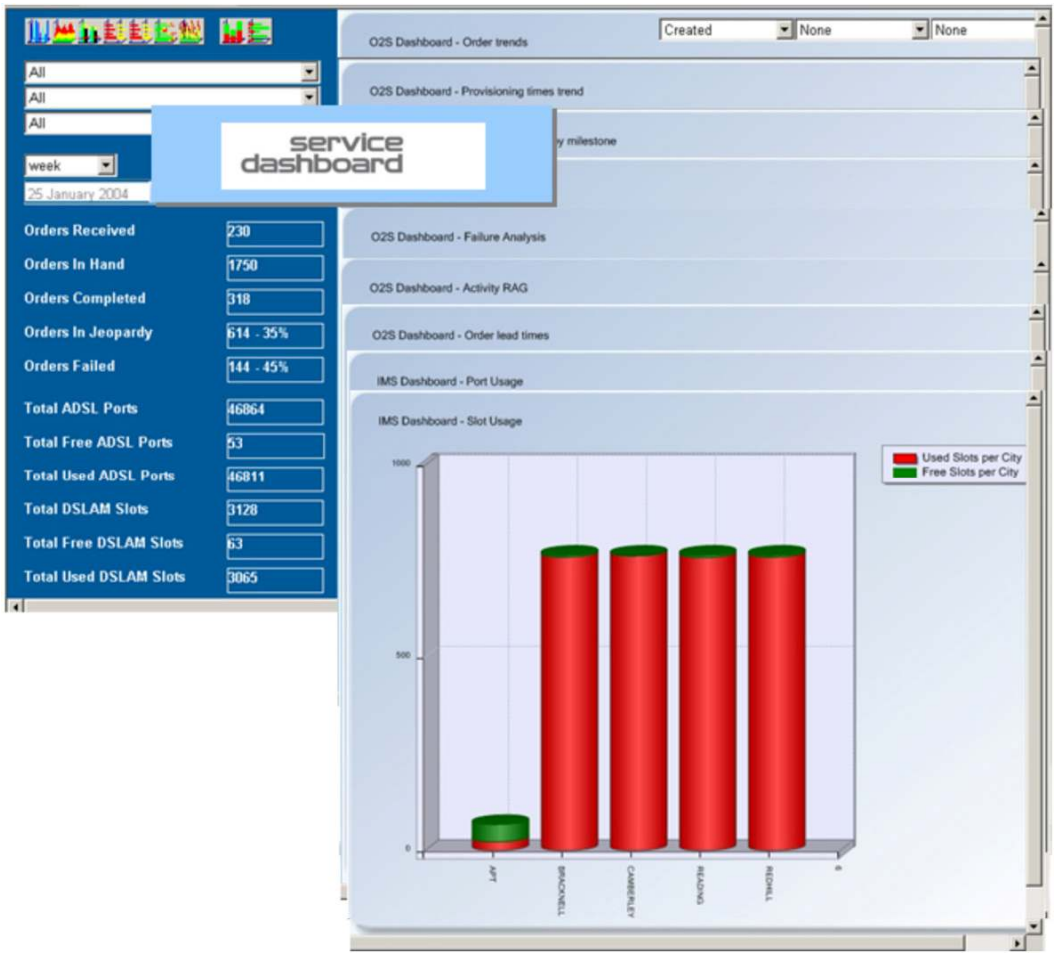
- Detect exception conditions using the business process engine within the Cisco Prime Fulfillment Order Management module.
- Act promptly and efficiently according to the business rules stated in the preconfigured activation components.
- Notify all appropriate customer support and problem resolution systems where necessary.
- Indicate that such a rollback has occurred in the service delivery process chart.
- Schedule retries automatically after the problem is rectified.
- Indicate the effect of rollback on the overall delivery process.
- Improve communication of the latest order status to all involved - most importantly, to the customer.

Cisco Prime Service Dashboard

Improved View of Orders

- Immediate, up-to-date view of the service delivery functions, including a complete, real-time analysis of order status, resource usage, and trends. (Refer to Figure 14.)
- Real-time analysis of orders entering the business, orders in progress, orders in jeopardy, orders cancelled, and orders completed.

Figure 14. Service Dashboard: Order Visibility



- Monitor activation performance, including minimum and maximum days to provision orders, average days to provision orders, and a comparison with target times per product or product group and by operation or operational department.
- Get an indication of future order trends and the changes needed to help ensure continued profitability.

Improved View of Resources

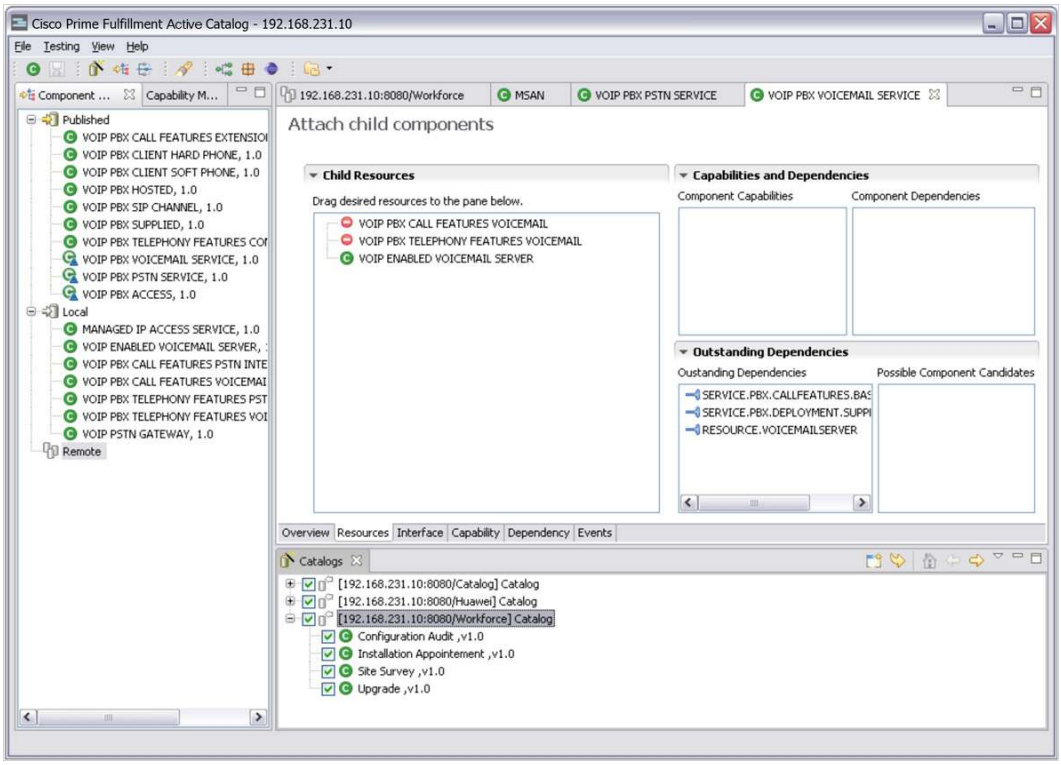
- View in real time the usage of all resources throughout the organization, including unused, reserved, planned, allocated, and in-use resources.
- Assess how resource usage could be optimized by service, by product, and by organizational group.
- Monitor and control the usage of company assets, services, and customers - everything that drives profitable service delivery.

Cisco Prime Active Catalog

Service Design and Process Orchestration in a Complex Service Ecosystem

Active Catalog is a service design and assembly platform that is fully integrated with the rest of the Cisco Prime Fulfillment components and interoperates with other third-party OSS products and platforms. (Refer to Figure 15.)

Figure 15. Cisco Prime Active Catalog: Capability Mapping



Active Catalog allows resource, service, and application capabilities that exist within the operator's own domain to be "discovered," and combined with capabilities drawn from partner or supplier organizations and made accessible by the business. Rules that govern the assembly of published components into commercial products are applied, supporting product design, assembly, delivery, and customer support. Active Catalog combines an optimum balance of flexibility and maintainability with the resilience needed to manage increasingly complex and unpredictable product and service bundles.

Active Catalog allows the complexity of the new-generation service ecosystem to be more easily managed, allowing:

- Reduced development effort in building new products and services
- More efficient use of specialist expertise in customer-facing functions
- Reduced integration costs
- Reduced customization costs
- Fewer points of failure in the delivery chain
- Faster time to market and quicker revenue
- Increased customer satisfaction
- Reduced customer churn

Further Information

About Cisco Prime

The Cisco Prime portfolio of enterprise and service provider management offerings empowers IT organizations to more effectively manage their networks and the services they deliver. Built on a service-centered foundation, the Cisco Prime portfolio of products supports integrated lifecycle management through an intuitive workflow-oriented user experience. The portfolio of Cisco Prime solutions for service providers provides A-to-Z management for IP next-generation networks, mobility, video, and managed services.

Service and Support

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco® services help you to protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, see Cisco Technical Support Services or Cisco Advanced Services.

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