

# HPE Service Activator 8.0 software

Solving communications service  
providers' challenges



## Insights

- The lack of automation causes inefficiencies.
- An inflexible OSS infrastructure leads to higher costs and complexities.
- A la carte service bundles are expected to ensure customer loyalty.

## Use a la carte bundles

Lack of automation for complex and repetitive operations support system (OSS) fulfillment processes leads to inefficiencies and higher costs for communications service providers (CSPs). In the current competitive landscape, your budget allocations should move from delivering and maintaining existing services to supporting innovation, launch, and growth of new revenue-generating services.

Inflexible OSS infrastructures and organizational silos contribute to the high cost and complexity of technology onboarding and slow downtime to market for new services.

Your customers expect instantaneous and flawless service activation for a satisfying customer experience, but alone, it doesn't ensure loyalty from ever-more demanding customers. The focus is now on dynamic, a la carte service bundles. Such flexibility, at an uncompromised level of quality, is a challenge for legacy or homegrown provisioning and activation solutions. And, most lack flexibility and scalability.

## Benefit from the HPE OSS approach

Hewlett Packard Enterprise (HPE) addresses CSP's challenges with an end-to-end approach, offering combined OSS fulfillment and assurance solutions. Our overall OSS strategy is known as the Service Operations Factory (SOF). The Service Operations Factory is defined as all the technical functions necessary for new customer onboarding and after-sales support. This encapsulates

technical knowledge of services and network, and provides a simplified interface that takes a pure customer-oriented service view. It can be compared to modern industries that reuse production facilities for multiple products to combine them flexibly. The production facility is governed by a set of service key performance indicators (KPIs).

The SOF combines fulfillment with assurance, coupled with a common data framework, and monitors production through service KPIs. This approach is unique in the market; it takes a holistic view of operations instead of splitting IT based on organizational measures.

HPE OSS Fulfillment is our implementation of SOF Customer Onboarding services using HPE-branded software products—HPE Service Activator, HPE Trueview, and HPE Service Provisioner.

HPE OSS Assurance is the implementation of SOF Customer Support service. Common data contains service and resource inventories and all data that may be relevant for HPE OSS Fulfillment and Assurance. To address specific lines of business, we provide prepackaged, in-business solutions, such as mobile, VPN, and FTTx.

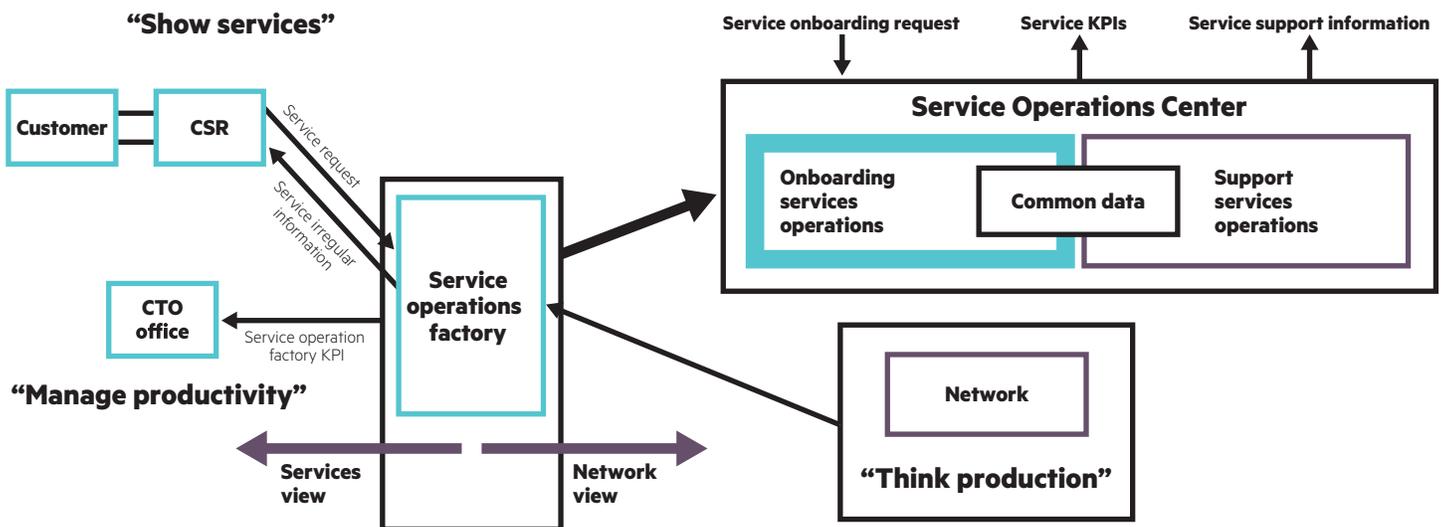


Figure 1. Service Operations Factory

HPE OSS Fulfillment offers a comprehensive and exceptionally flexible answer for providers delivering traditional and converged services. It's a multiservice, multi-technology solution that addresses provider fulfillment processes for high-volume and tailored business services. The eTOM fulfillment process stack is addressed, including catalog-based service order management, provisioning, and activating network and IT service elements stored in a service-resource inventory. It also integrates with network resource inventories.

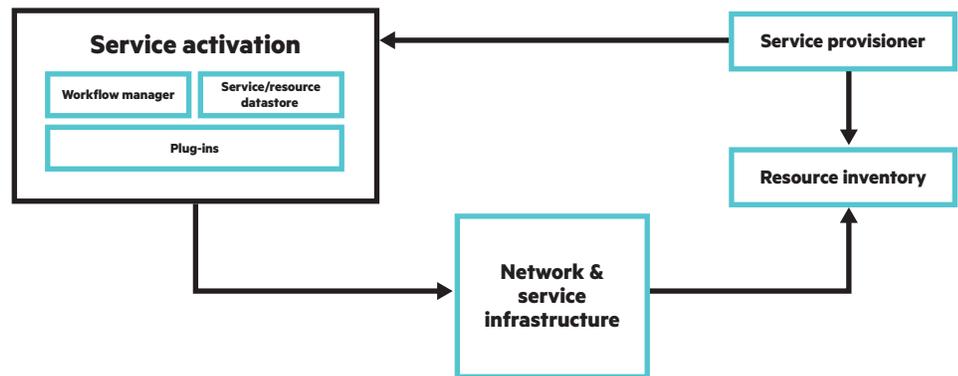
HPE OSS Fulfillment is composed of three fully integrated products, which can be deployed separately or combined with external applications.

- HPE Service Activator (HPE SA) for vendor independent, technology-agnostic service activation
- HPE Trueview for accurate resource inventory with active discovery and service stitching
- HPE Service Provisioner (HPE SP) for service inventory and service order management

### Learn about HPE Service Activator

HPE Service Activator provides solutions for activating all types of services within a single tool—regardless of underlying network technology. It helps CSPs launch and deliver any type





**Figure 2.** HPE OSS Fulfillment

of service with efficiency and accuracy, driving shorter time to revenue and enhancing customer satisfaction. Error prone, repetitive, and complex manual tasks are replaced by automated activation task execution.

Adding new service types is achieved by deploying HPE Service Activator productized preconfigurations for specific lines of business or existing services extension with the HPE SA configuration environment.

### Key features

Our approach to service activation is unique in the market. HPE Service Activator:

- Offers a single common tool for implementing all service activation processes—multi-technology and multivendor, optimized for Telcos with a highly flexible configuration environment; and it streamlines processes for increased efficiency.
- Deploys automated flow-through activation processing to wipe out errors from error-prone manual recurring or complex operations. Automation and advanced error handling reduces the need for expert skills during all service lifecycle phases.
- Relies on a proven scalable and reliable architecture to enable unlimited growth of solution performance by simple cluster configurations.
- Implements agnostic workflow-based activation processing, complete with prebuilt configurations for specific lines of business, such as mobile subscriber activation and IP/MPLS VPN activation for rapid deployment of new services.
- Includes preintegration within HPE Fulfillment stack, enabling end-to-end customer order processing capability within a flexible, agile, and affordable SOF.
- Removes vendor lock-in by exposing fully documented APIs, supporting a large range of activation targets and infrastructure elements.
- Consolidates fulfillment and assurance lifecycle by integrating with Micro Focus Network Node Manager i (NNMi) for IP fault management and Micro Focus Network Automation for IP configuration management.
- Aligns licensing and pricing model to the CSP's business reality by proposing a flexible, capacity-based approach.

### Business benefits

- Zero-touch activations, efficient error handling with clean configuration rollback, and early identification of failing points make the activation process reliable and simplify corrective actions. This enables reassignment of operation and support center staff—in most cases, at least 50 percent—to revenue-generating activities or to save direct costs.
- Process standardization and efficient user interfaces reduce the need for expert skills to operate the platform. Operational costs are slashed, while removing the dependency on individuals to manage the platform.



- After replacing the legacy system, it's common to see massively improved network resource use and business transaction volumes with system capacity frequently increased by 200 percent.
- CSPs are not locked into specific network vendor equipment. HPE SA separates business processes from the network element adaptation through an abstraction layer, eliminating a need to rebuild the solution if you change equipment vendors. The OSS investment is protected, as only the mediation part has to be reworked. The off-the-shelf plug-in approach of HPE SA offers CSPs an important advantage in terms of flexibility and freedom of choice among equipment vendors, resulting in important cost savings for implementing the overall activation solution. It also enables these cost savings by seamlessly integrating and mixing equipment from several vendors, easing new technology adoption.
- HPE SA accelerates the time to market of new services. Being first on the market drives high-market penetration and enables the CSP to set the pace. One HPE SA client deployed a complete LTE activation capability in two months, making this client the leader in its country.
- Accelerating service deployment improves time-to-revenue as shown by one HPE SA client that reduced its digital phone subscriber activation time by 50 percent.
- The HPE SA licensing model keeps upfront investments low and enables future solution expansion at a predictable cost. This is enabled through its flexible capacity-based licensing model, with total license price growing with the solution's capacity and license unit price decreasing with the volume.

### **Architecture**

HPE Service Activator has a modern and scalable Java-based modular architecture that is flexible, robust, and purpose-built, providing a platform that supports the activation of all service types. The modular architecture enables new service introduction or service change quickly and cost-effectively without major development projects.

HPE SA has three main components—workflow manager, resource manager, and data repository subsystem. The web user interface is served by a standard web server, Apache Tomcat, a component of J2EE application server JBoss, which hosts the entire system.

The workflow manager and resource manager make up the workflow engine of HPE Service Activator. The workflow engine does the process work for the activation system by executing workflow jobs.

### **Workflows**

A workflow is a definition of an executable process. The definition is at a detailed algorithmic level, suitable for control of interactions with activation targets. HPE Service Activator workflows should not be confused with business process workflows (such as the ones supported by the BPEL language). It's possible, however, to implement processes that interact with human operators and external systems, and have significant duration in HPE Service Activator. Workflows are composed from a set of action primitives known as workflow nodes. They are executed by the workflow manager, one node at a time. The crucial step in an activation workflow is the "activate" node. This node executes an activation task—where the interaction with the activation targets takes place.

### **Activation tasks and plug-ins**

An activation task consists of one or more atomic tasks; each one interacts with a specific activation target and is implemented in the plug-in for that target. This includes, for example, a specific type of network element—vendor and model—or IT server, such as LDAP or a voice softswitch.



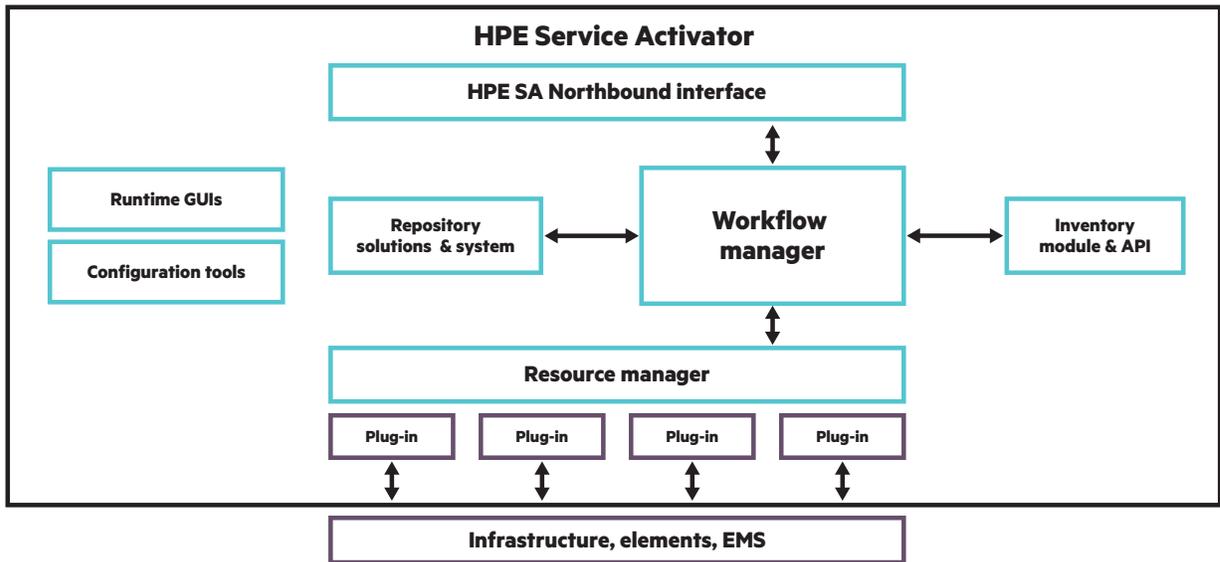


Figure 3. HPE Service Activator architecture

### Data repositories

Service Activator uses several data repositories, all stored in tables of one or more databases, for different purposes:

- Static Repository contains customized items deployed on the system—workflows, plug-ins, compound tasks, and inventory presentation tree definitions—for atomic and compound tasks, also called the Task Repository.
- Workflow job repository states information about running workflow jobs and cluster nodes.
- Audit and message repository contains an audit trail collected from running workflow jobs and modifications of inventory data; messages are shown to operators.
- Statistics repository contains server use and workflow job statistics.
- Solution Data Repository contains any type of data pertaining to the external infrastructure the solution has to interface with, such as network and resource. The close integration with HPE Trueview Inventory removes the need for a solution data repository. This offers simplified and centralized management of similar information, which increases consistency in the process.

### High availability architecture

HPE Service Activator extends the high availability considerations to the processing rate, platform robustness, solution deployment at runtime, and elasticity capabilities.

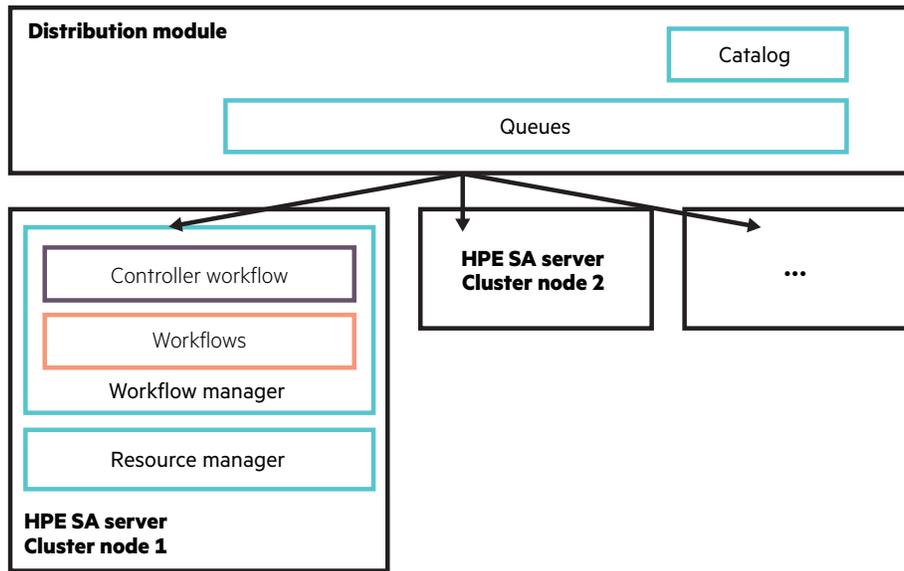
To address those high performances areas, HPE Service Activator relies on a scalable cluster architecture, with a built-in virtual IP address and single point of request entry.

- Horizontal scaling—HPE SA cluster scales with additional HPE SA servers
- Vertical scaling—Memory and CPU scale with multiple cores
- Database scaling—Database scales with Oracle RAC with installation on a separate server, separating system and solution data

Benefits of this architecture:

- HPE Service Activator solutions scale with increasing business demands without starting a new project.





**Figure 4.** HPE Service Activator cluster architecture example for a high volume mobile subscriber activation solution

- Optimized hardware utilization with built-in load balancing for jobs between active servers, the HPE Service Activator cluster has built-in load balancing, and jobs running on a failing server are automatically moved to active servers ensuring continued operations.
- Addition of new nodes directly increases throughput and is an easy way to increase solution bandwidth.
- Robustness with high availability and automatic failover of jobs from one server to the next ensure uninterrupted operations.
- Continued operations enable upgrades of a single HPE SA server while remaining servers in cluster are in operation.
- Easy maintenance with the solution deployment tool ensures identical setup of all servers.

## HPE Service Activator at runtime

During activation process execution, the supporting architecture relies on two main components.

### Workflows execution and orchestration—Workflow manager

Once deployed, workflows can be consistently activated with few errors, and thousands of workflows can be executed daily with minimal operational interaction. Common workflow functionalities may be implemented as macros that induce minimal invocation overhead, while enabling high-performances solutions.

Workflows have built-in resilience, letting them restart at the point of failure, reducing unexpected downtimes. Automatic rollback at the resource manager level avoids partial configuration of network devices, which result in inconsistencies in the network. Communication to the network and IT servers happens through HPE Service Activator plug-ins that supports many protocols, vendors, and technologies. For example, plug-ins available off the shelf or developed as part of a customer implementations include:

- MPLS routers used in VPN and other solutions from major vendors, such as Cisco, Juniper, Huawei, and Alcatel



### Benefit from HPE Pointnext

HPE CMS Services offer a proven way for navigating through your transformational journey:

- HPE Solution Consulting Services help define business transformation and translate strategies into actionable solutions.
- HPE Solution Implementation Services offer a low-risk project lifecycle across design, development, customization, and network and system integration.
- HPE Solutions Management Services increase the operational efficiency of your existing solutions, including reactive, proactive, operational, and enhancement management services.
- HPE Outsourcing Services offer a variety of sourcing options—including IT and infrastructure outsourcing, application management, and business process outsourcing—designed to improve business agility while reducing your operational expenses.

- Fiber, GPON, and DSL access switches and routers from a range of vendors, including Cisco, Alcatel-Lucent, Huawei, and Nortel
- HLRs, HSS, INs, MMS, and other service platforms for a range of mobile services from major vendors, such as Ericsson, Siemens, Huawei, Nokia, Alcatel, and Comverse
- Voice softswitches and IPTV middleware
- Gateway routers for residential use

### Presentation and interaction of data and processes—User interface

The user interface (UI) is a web-based client connected to a JBoss web server. It provides a single, easy-to-use interface for key operation and maintenance functions. These include:

- Viewing active and queued service requests
- Viewing audit records and messages
- Interacting with jobs requesting operator input
- Modifying service requests status and priority
- Tracking activations
- Viewing network and service data handled by HPE Service Activator
- Investigating problems efficiently with log search facilities supported by an indexing service

### HPE Service Activator configuration

HPE Service Activator has a range of configuration tools to facilitate rapid adaption of activation processes. As services evolve, these tools help reduce maintenance time and effort needed.

#### Definition of how activation requests are handled—Workflow designer

Workflows are designed using predefined building blocks, which simplify the definition of a service. The basic building block library is extensive and can be expanded to include any function type. Workflows can be tested using the test and debugging tool, ensuring correct operation and then deployed.

These tools and their corresponding areas of the modular architecture are Workflow Designer (workflows), Workflow Debugger (workflows), Web Service Designer (integration), Service Builder (plug-ins), and Deployment Manager (solutions and their customizations and patches).

#### Caching data model of services and resources—Data repository

It's possible to maintain a local data model of network and service infrastructure resources, and activated services for use cases where HPE Service Activator isn't deployed within the complete HPE Fulfillment stack. This is also possible when no workable inventory management solution exists. This is essential to an automated activation solution.

HPE Service Activator provides a set of UIs to efficiently define a model that matches the existing network infrastructure or ensures proper integration with an existing Inventory Solution—Inventory Builder (inventory) and Inventory Tree Designer (presentation).

### Automate the service activation process

HPE Service Activator is a robust platform used to rapidly build an activation solution for innovative services or to automate the activation process for existing services. HPE Service Activator offers:

- Secure transaction-based activation processes across a wide range of activation targets. If a problem is encountered, earlier steps of the transaction are rolled back to a known state.

## Data sheet

### The HPE OSS solution is:

- Built on more than 20 years of deep and broad OSS experience
- Implemented successfully at more than 500 clients worldwide
- Backed by a portfolio of more than 300 field-proven best practices

### Further, the HPE OSS solution:

- Integrates OSS capabilities from Hewlett Packard Enterprise and solution partners
- Lets clients access HPE Pointnext personnel available in more than 170 countries
- Enables fast deployment with minimal disruption to existing operations, together with our global delivery and integration teams
- Gives you the peace of mind that comes with local experts based near you who speak your language

- Reusable plug-ins enable easy adaptation to communicate with activation targets. These targets can be network elements, element managers, or software systems that use a variety of communication protocols.
- Predefined data models are used for a large class of next-generation networks.
- Easily tailored data model encompasses network resources, activated services, and any desired related data. The data model is customized to fit the provider's service model exactly.
- Preintegration within the HPE Fulfillment Stack offers easy integration with order management systems and other OSS and BSS components.
- Flexible workflows control the service activation logic around interactions, data retrieval, and calculation steps.
- Customization is supported by design tools that require no programming except for new Java plug-ins.

**Table 1.** Software prerequisites

Software	Description
Operating system	Linux® RHEL 6, Microsoft® Windows Server® 2008 R2
Database	Enterprise DB PPAS 9.4 Oracle 12c and RAC 12c
Java	Java Development Kit (JDK) version 8.0

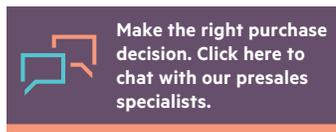
## Rely on a trusted partner

As a trusted partner for OSS transformation, we have a unique combination of many years of transformation consulting experience, industry-leading solutions, mature deployment methodologies, and highly experienced delivery teams.

Hewlett Packard Enterprise is an active member of the TM Forum, helping drive the development and adoption of its Framework standards. We are equally active with Information Technology Infrastructure Library (ITIL®) and are the only technology vendor to author one of five ITIL v3 core books. In addition, we authored the ITIL glossary and built the overarching process maps for the new library. We bring this rich experience to our consulting and product development. An active participation in TM Forum, ITIL, and other bodies enables us to closely align our solutions with the industry's direction, so investments made today continue to pay off long into the future.

And, we offer a variety of financing and operating options for OSS, depending on your needs.

Learn more at  
[hpe.com/us/en/solutions/telecom-network-automation.html#header](http://hpe.com/us/en/solutions/telecom-network-automation.html#header)



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