



HPE SERVICE PROVISIONER

Agility and automation accelerating service innovation



Accelerate service innovation with HPE Service Provisioner intent-based modeling

- Onboard new services in weeks
- Create dynamic service chains in hours
- Instantiate complex services in minutes

Digital transformation is forcing communications service providers (CSPs) to respond faster to rapidly evolving service demands. Service environments are changing rapidly and the rollout of 5G networks is adding new complexity to operations. At the same time, OPEX budgets are under pressure from high-infrastructure investment cost and shrinking operator margins straining profitability. Consequently, to prevail in a competitive market, service providers are moving toward a service-led, agile, and highly automated business model.

Modern service catalog systems enable product managers to easily create and modify product structures and offerings. This, however, is not enough. IT flexibility is the key to quickly introduce new offerings and modify existing ones. New offerings need to be mapped into services and resources provided by underlying network infrastructure quickly, without causing major delivery effort and enabling short time to market.

In parallel, pressure on costs implies the need for operational excellence. The efficiency of the service ordering process defines how fast a service can be made available to consumers, known as **time to service**. Its quality is critical for the operational costs—with low quality increasing the number of manual interventions and bad data.

As the digital transformation is reshaping the communications, media, and entertainment landscape, the dynamicity and agility required in a world where everything is a service introduces operational challenges to the digital service provider:

- Existing operations support system (OSS)/business support systems (BSS) are not coping with the agility of bringing new services to the market
- Increased scalability requirements necessitate an optimization of operations for hybrid and virtualized environments
- Zero-touch automation is required for coping with complexity and dynamicity in a multidomain, multi-technology environment
- Digital service offerings necessitate a seamless orchestration of connectivity, compute, application functions, and virtualized network functions (VNFs)

Make service provisioning simple through a catalog-driven process

- Manage subscription information quickly and efficiently—across your enterprise.
- Secure service order management expertise and get the power you need to drive large-scale operational success.
- Take away complexity of traditional template-based approach for provisioning.

Insights


- HPE Service Provisioner is a technology-agnostic solution.
- It enables you to grow new business, enhance the customer experience, and improve costs.
- We offer a proven way for navigating through your transformational journey.

HPE Service Provisioner addresses these challenges with intent-based provisioning across physical network environments helping optimize the operational process across connectivity, compute, and application functions. Managing the lifecycle of a service request coming from the customer relation management (CRM) layer, the product includes:


- Fast introduction of new services, thanks to preintegrated software stack and catalog-driven approach that avoids changes in back-office systems
- Ability to orchestrate complex scenarios with Dynamic Service Orchestration process
- Declarative language (dynamic service descriptors) used to define services in catalog and to orchestration service instantiation
- Sophisticated roll-back mechanism and re-dispatching or failing orders that help ensure successful completion of all orders
- Access to accurate resource inventory that simplifies automated provisioning
- High-performance service inventory that maintains real-time representation of service order instances
- Lifecycle of the service itself, from inception to its end of life

BUSINESS BENEFITS


Get a competitive edge and stand out in today’s crowded marketplace with HPE. Our solution for service order management enables you to:



Grow new business—Quickly launch new services through integration of business logic and provisioning mechanism, and off-the-shelf preconfiguration



Enhance customer experience—Help ensure successful completion of every order, and offering richer products and services while reducing delivery time



Improve cost structure—Automate service provisioning process, which helps minimize end-to-end integration and configuration

Our continuous investment in innovation and active engagement in telecom and IT industry standards bodies help ensure you meet your needs for standard compliance, open source software, and readiness of your OSS for new technologies.



FEATURE SUMMARY

Service orchestration

- Intent-based modeling of services, its components, relationships, and policies for dynamic provisioning of services taking always the current network environment into account
- One common catalog model allowing unified operations across provisioning
- Supports both simple and composite/nested service instantiation
- Handles end-to-end service lifecycle orchestration
- Provides runtime service catalog
- Supports cross domain orchestration
- Backs orchestration of shared services
- Provides log information in machine readable format
- Offers a unified REST API for catalog management, service, and order management

Zero-touch provisioning

- For every service request, the declarative model engine computes impacted service components across complete model and creates the runbook at runtime
- Supports bulk operations on large number of services
- Aides transactional model (based on Multi-Technology Operations Systems Interface [MTOSI]), retries, and rollbacks
- Supports integration of manual tasks
- Backs timed triggers

User interface

- Browser-based user interface complying to Web Content Accessibility Guidelines (WCAG 2.1)
- Single-pane-of-glass to manage complete service lifecycle
- Tree view and tabular view to browse complete service instance inventory
- Dashboard-view with drill-down functionality
- Supports single sign-on (SSO)-based on SAML
- Helps with personalization and allows customer adaptations and extensions

Secure, reliable, and resilient solution

- Microservices-based platform architecture
- All components are state-less and support container deployment using Docker, Kubernetes, and Helm Charts
- Secured interfaces and APIs—supports https with TLS 1.2
- Role-based access control for tenants and accounts on UI level as well as API level (M2M)
- All API actions are logged in service order registry
- Supports load-balancing
- Handles self-monitoring and high availability
- Supports geo-redundancy architecture across multiple sites separated by large geographical distance

Service order management option

- Offers TMF 641 order management API gateway
- Delivers out-of-the-box extensible order management model
- Supports modeling of manual tasks
- Helps with long waits
- Supports jeopardy management

VPN option

- Automated VPN service provisioning solution
- Out-of-the-box service models for Virtual Private LAN Service (VPLS), Virtual Private Wire Service (VPWS), virtual private network (VPN), and VPN multicast
- Customer-specific extensions
- Multivendor device adaptors (for example, Cisco, Juniper, and Huawei)
- HPE Trueview—active inventory preintegration
- End-customer portal



HPE SERVICE PROVISIONER OVERVIEW

HPE Service Provisioner addresses the fulfillment lifecycle of service requests received from CRM layer, implementing all standard functions for service order management using a catalog model for structure and policies (see Figure 1).

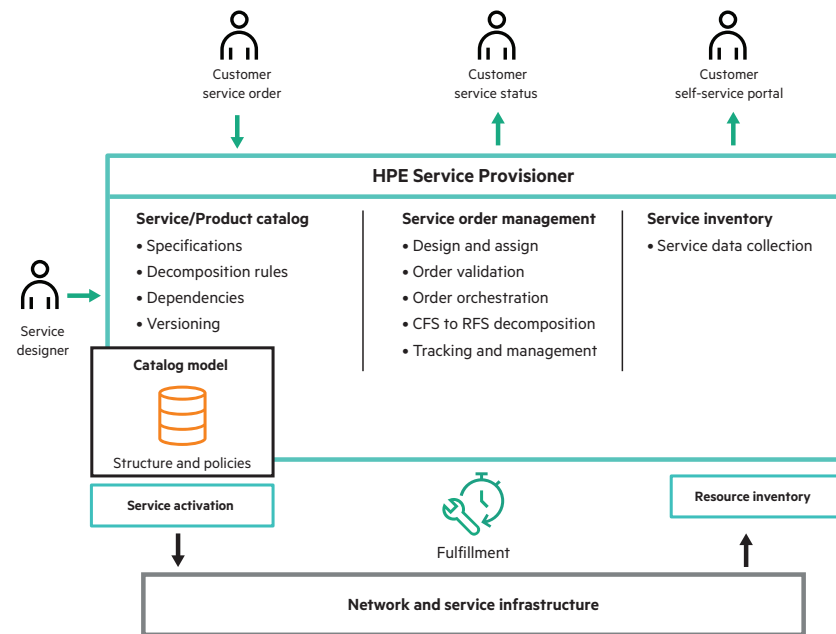


FIGURE 1. Flexible service automation for service order management at digital service providers

Catalog-driven service provisioning is changing the service fulfillment equation. With one modelling approach, it covers any kind of digital product or service and any technology across relevant business processes from ordering and provisioning to configuration. It is 100% intent-based and catalog-driven with runbooks and rules built at run-time. Complete service fulfillment logic is captured in objects, relationships, and policies and no coding is required. There is no need for customization, service-specific user interfaces (UIs), and APIs are generated on the fly.

HPE Service Provisioner is built to reduce complexity and to increase automation in dynamic networks. Intent-based runbooks cope with network evolution without requiring recurrent recoding of fulfillment logic. Services are built by composition and support versioning.

HPE SERVICE PROVISIONER—KEY FEATURES

Zero-touch provisioning

HPE Service Provisioner is built around an intelligent engine, the Dynamic Descriptor Engine. It orchestrates end-to-end services using intent-based service catalogs and driven by incoming service lifecycle requests (create, modify, and tear down). The engine dynamically derives the impacted components and generates an infrastructure-specific runbook on the fly, taking the current service instances and network environment into account. Efficient execution of the runbook implements the required changes in the network to provide the requested services in the desired manner.

Model-driven

Instead of coding-specific flows and exception handling procedures, HPE Service Provisioner is completely model-driven. It uses an intent-based modeling notation called Dynamic Service Descriptors (based on Heat Orchestration Templates) to model the services, service components, its relationships, and the required policies to help ensure proper service stitching. Making use of multiple inheritance, the model-driven approach of HPE Service Provisioner allows to compose complex service models and out-of-service building blocks, tremendously reducing time-to-market by reusing proven and flexible service components.

Cloud-native application

HPE Service Provisioner architecture is based on stateless microservices allowing for distributed deployment of its components and independent scalability. The application supports deployment in a container environment, for example, using Docker.

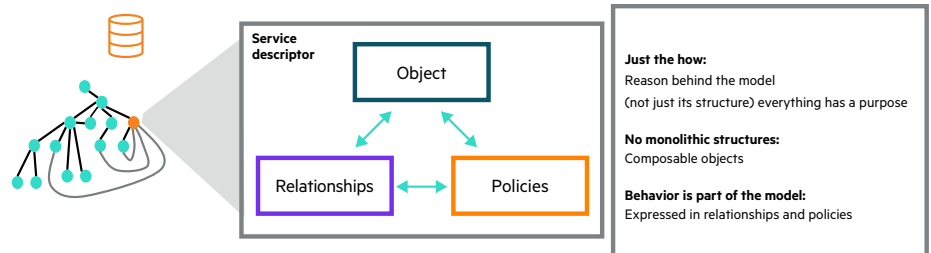


FIGURE 2. Intent-based models drive zero-touch operations

In order to capture the intent of a service instead of only defining its structure, incorporating policies and the relationship between services into the same model is key for driving the intelligent orchestration of services across dynamically changing network environments.

HPE Service Provisioner supports typical relationship-based policies such as reference policies and containment policies. It also supports more complex policies, where a certain function will be called during execution, to retrieve a parameter value or policy decision on the fly. In addition, the orchestrator also supports definition of placement policies or business policies as dedicated service objects to be executed in the overall orchestration flow.

Service order management

HPE Service Provisioner implements a complete service order management solution. It adds the means for adding long transactions and manual tasks during the design phase, and the engine has been extended with means to execute jeopardy management for orders in long wait states.

In order to ease the integration, HPE Service Provisioner additionally offers a certified implementation of the TMF 641 Order Management API to allow third-party applications such as CRM solutions to use TMF 641 as the north-bound input to provide order requests following the standard order lifecycle (create, modify, and delete).

Agility is key for digital services transformation

HPE Service Provisioner has been developed as a true fail-fast system. The onboarding and modeling process supports concurrent delivery. Well-defined roles enable efficient collaboration in agile teams. Immediate feedback significantly shortens the release cycles. New network functions can be rolled out in weeks instead of months.

Intent-based modeling approach allows reusing service components already modeled and stored in the service catalog by composition, in addition, introduces multiple inheritance in the model to leverage proven service components. This leads to fewer errors while helping eliminate unnecessary workflows with less exception handling to significantly reduce overall complexity leading to much faster time-to-market.

HPE Service Provisioner also has a proven track record of successful integration into customers' CI/CD chains driving increased agility on our customer's side.



SOFTWARE PREREQUISITES

Software	Version
Operating system	Linux® RHEL 7.x Or CentOS 7.x
Database	EnterpriseDB PPAS 11.4 Or Oracle 12.2c/18c/19c
Java	OpenJDK 11.x or later, 64-bit

HPE Service Provisioner also uses the following open source components, which are not shipped as part of the product and need to be directly downloaded (details available in installation guide).

Software	Version
Apache CouchDB	2.3.x
Node.js	12.x
Redis	5.x

Optional software

The following software is not mandatory but recommended for operational readiness of HPE Service Provisioner.

Software	Version
Elastic (ELK)	7.0.1
Kubernetes	1.17.x/1.18.x
Prometheus	2.2.1



HPE OSS FULFILLMENT SOLUTIONS

HPE Service Provisioner is part of the HPE OSS Fulfillment portfolio, a set of software solutions and services that helps CSPs streamline and automate business processes and network operations. These multiservice, multivendor, and multi-technology solutions are built for CSPs to meet carrier-grade requirements.

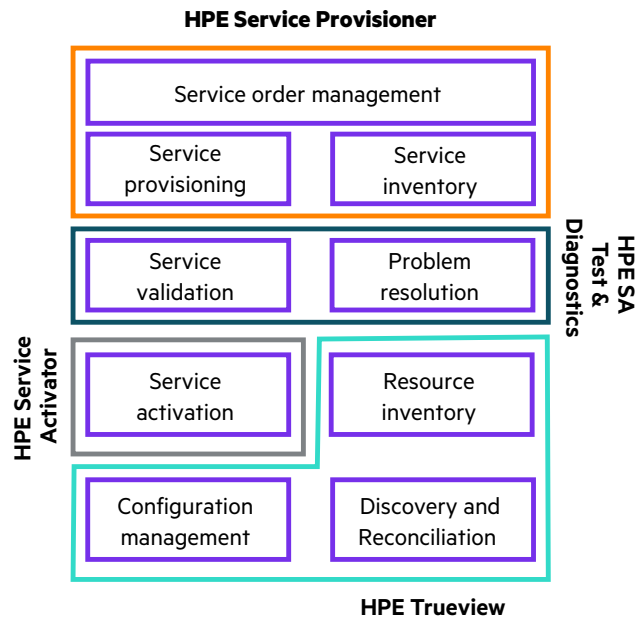


FIGURE 3. HPE OSS Service Fulfillment portfolio

Today, the HPE Service Provisioner product also contributes to service orchestration approaches for zero-touch service management solutions based on HPE Service Director product.

COMMUNICATIONS AND MEDIA SOLUTIONS, HEWLETT PACKARD ENTERPRISE

Communications and Media Solutions is the business unit at HPE that provides vertical solutions to the communications and media industry. With over 30 years of experience in the industry, we have over 50 solutions and over 1500 active contracts, with more than 300 telco customers in 160 countries. We provide software and services capabilities to enable your digital transformation, automate your operations, and help you grow your business with innovative cloud-native network solutions and digital, 5G-ready services.

ABOUT HEWLETT PACKARD ENTERPRISE

Hewlett Packard Enterprise is the global edge-to-cloud platform-as-a-service company that helps organizations accelerate outcomes by unlocking value from all of their data, everywhere. Built on decades of reimagining the future and innovating to advance the way people live and work, HPE delivers unique, open, and intelligent technology solutions, with a consistent experience across all clouds and edges, to help customers develop new business models, engage in new ways, and increase operational performance.

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