

# Contrail Service Orchestration

## Product Overview

Contrail Service Orchestration is a comprehensive management and orchestration platform that delivers virtualized network services built on an open framework. By allowing service providers to selectively centralize or distribute the service creation process, Contrail Service Orchestration addresses the needs of small to midsize businesses as well as large enterprises with a single and elegant point-and-click interface. Product managers get a clean and polished service design experience; service management and troubleshooting are streamlined for administrators; and customers have a personalized self-service portal to select the services that best meet their evolving business requirements.

## Product Description

Service providers today are facing a number of complex network operational challenges, including rigid service delivery infrastructures and operating costs that seldom align with revenue. This hinders their ability to quickly design and deploy new services. Compounding these problems, network operations are increasingly complex and the current infrastructure is expensive to maintain, driving up costs.

Juniper Networks® Contrail Service Orchestration empowers service providers to drastically reduce service delivery times, transforming a several month truck roll experience into a near real-time mouse-click experience by automating the entire service delivery life cycle. It also reduces the operational costs associated with creating new services while significantly enhancing customer satisfaction, leading to long-term revenue growth.

Contrail Service Orchestration is built from the ground up to seamlessly integrate with Contrail Cloud Platform, creating a vertically integrated Network Functions Virtualization (NFV) management system and orchestration software stack that addresses a multitude of NFV use cases.

## Architecture and Key Components

Contrail Service Orchestration consists of the following key components:

- **Network Service Designer Application:** The network service designer application provides product managers and network architects with an intuitive point-and-click solution for performing the service definition process that is part of service life cycle management. An easy step-by-step service design implementation wizard walks users through the complete service definition process, specifying the virtualized network function (VNF) onboarding process, VNF version control, VNF description, and more. The network service designer application also assists with the service configuration parameters, service chaining templates, and customer-specific service catalogs that get exposed through the customer portal. The entire service definition is saved in a database via standard YANG data models, providing easy integration with third-party operations support systems (OSS) and business support systems (BSS).

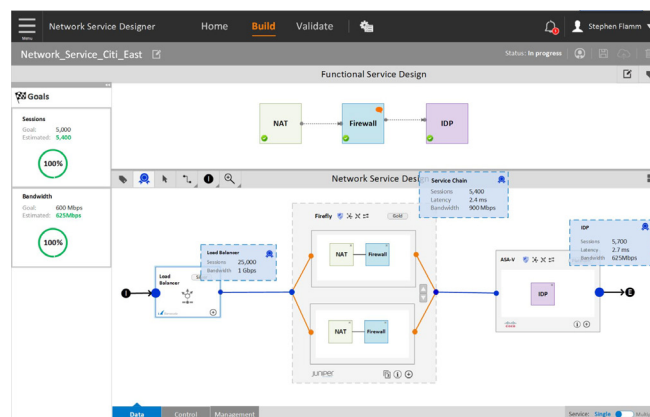


Figure 1: Contrail Service Orchestration network service designer application

- **Administration Portal:** The administration portal is the network administrator's window into customers' on-premise or cloud-based services, enabling them to easily monitor and troubleshoot service health and disruption. Detailed service information is easily accessible for investigating individual, centralized cloud customer premises equipment (CPE) service level agreements (SLAs), on-premise distributed or overlay cloud CPE resource diagnostics reports, service catalog resource management, and others.

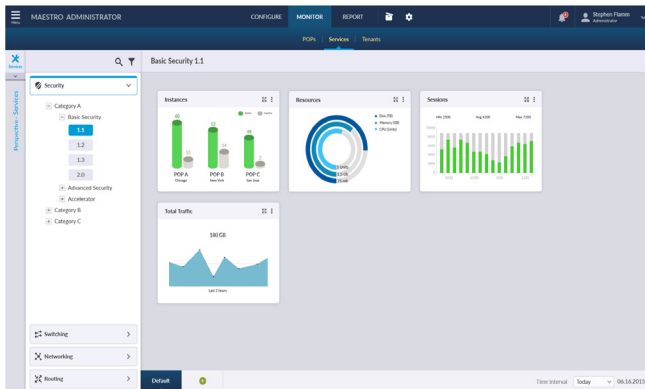


Figure 2 : Contrail Service Orchestration administration portal

- **Customer Portal:** The customer portal is a customized window into the end-user experience, giving customers the freedom to self-select the services that best fit their business needs. They also have the ability to select the appropriate service deployment model on premise or in the cloud with the flexibility to determine when to deploy or cancel a service in near real time.

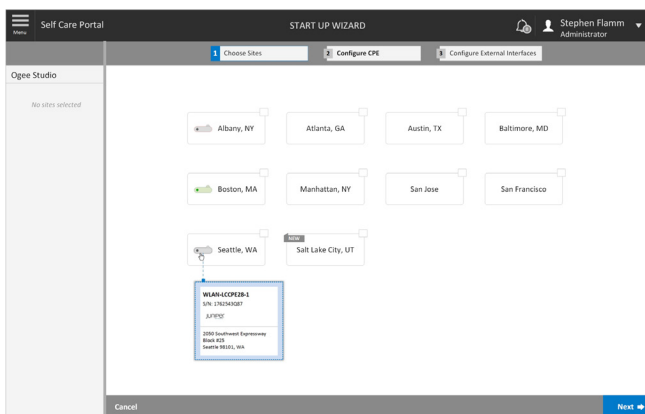


Figure 3: Contrail Service Orchestration customer portal

- **Automatic Service Creation:** Contrail Service Orchestration automates and orchestrates the entire service creation process, from the time a customer selects a new service across the entire network. In the cloud CPE distributed and overlay deployment models, the network service activator auto-associates, auto-provisions, and auto-manages the

entire service creation life cycle for the NFX Series Network Services Platforms. Modular integration with Contrail Cloud Platform through OpenStack heat templates automates the virtualized service spin up/spin down, service configuration, service chaining, and virtualized infrastructure resource management processes, eliminating service provisioning errors and enabling near real-time service delivery.

## Features and Benefits

### Openness

The Contrail product suite is an elegant and modular integrated software stack built upon open protocols and open data models that avoid expensive vendor lock-in. For the first time, customers have the freedom to choose the appropriate Contrail components that meet their business needs: freedom to individually layer SDN control with Contrail Network; freedom to use SDN control and Telco Cloud resource management environments with integrated OpenStack via Contrail Cloud Platform; and freedom to deploy a complete comprehensive management and orchestration layer with Contrail Service Orchestration built with open YANG data models and REST APIs. Openness also extends to an open ecosystem that easily onboards third-party VNFs to enrich the service creation catalog and give customers additional service delivery options.

### Intelligent Management and Orchestration

With a simplified service creation workflow portal, product managers can intelligently and confidently define a customized service catalog through an intuitive, user-friendly service creation wizard. Leveraging insightful resource management schemas, Contrail Service Orchestration recommends the most efficient service creation model based upon defined VNFs that will best meet the customer's requirements. Eliminating erroneous, error-prone, human-driven provisioning processes, the intelligent service design portal establishes a workflow that reduces the time required to define and deliver new services to market, increasing productivity and lowering operational expenses.

Intelligent service creation is followed up with automated service delivery. Once a customer selects a service they want, the entire service life cycle is orchestrated, no matter which deployment model is required (centralized, distributed, or overlay). A consistent cohesive delivery model is automated through the entire software stack and also throughout the entire network infrastructure.

### Personalization

Customizable user-defined portals can be created, elevating user satisfaction, driving a tighter partnership with customers, and ultimately leading to increased profitability. Service providers can build specific service catalogs that are unique to their own or their customers' business objectives.

Features	Benefits
Contrail Service Orchestration is built from the ground up with openness at its core; open protocols, open YANG data models, and open APIs easily integrate into existing OSS/BSS environments.	With a complete management and orchestration software stack, customers can take advantage of accelerated innovation by leveraging the power of the open-source community.
Customized service onboarding with customer-specific profiles provides a personalized user experience.	Every customer receives a personalized experience, allowing for the creation of services that best fit business needs.
Seamless integration with Contrail Cloud Platform ensures an automated management and service orchestration experience across the entire infrastructure.	Contrail Service Orchestration can easily be integrated into existing OSS/BSS networking environments.
Multiple NFV use cases are supported, including Juniper's Cloud CPE solution, in a centralized, distributed, or overlay deployment model extending to the customer premise.	Solution addresses any deployment model; services can be seamlessly chained together to increase revenue-generating service delivery opportunities.
Intelligently managed services extend through their entire life cycle with feature-rich service design and administrative tools.	New services can be cataloged in minutes to quickly meet customer demands and assure the service for greater customer satisfaction.

## Specifications

Single server system recommendations and operating environment:

- Hardware: 64-bit dual x86 processor, minimum memory 256 GB RAM
- Storage: Storage greater than 1 TB Serial Advanced Technology Attachment (SATA), Serial Attached SCSI (SAS), or solid-state drive (SSD)
- Network: 1GbE or 10GbE interface card (one or more)
- OS: Linux OS (Ubuntu 14.0.4 LTS or later)

Dual server system recommendations and operating environment:

- Hardware: 64-bit dual x86 processor, minimum memory 64 GB RAM
- Storage: Storage greater than 1 TB SATA, SAS, or SSD
- Network: 1GbE or 10GbE interface card (one or more)
- OS: Linux OS (Ubuntu 14.0.4 LTS or later)

**Note:** Contrail Service Orchestration must be installed on a separate server from Contrail Cloud Platform.

## Juniper Networks Services and Support

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## Ordering Information

This product adheres to the Juniper Software Advantage pricing model—thus, please be advised of the following items that constitute an order:

As this is a virtual appliance/software product, you would not buy any hardware license from Juniper, but, instead, procure the hardware and additional required support for this hardware from an additional third-party vendor. For additional information on supported hypervisor(s) and VM requirements and recommended hardware configuration, please refer to the technical documentation for this product on our website ([www.juniper.net](http://www.juniper.net)) under the Support section.

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