Contrail Cloud Platform

Product Overview

In the age of collaborative innovation, organizations are connecting data to people, people to ideas, and ideas to business value by building customized, highly differentiated cloud services connected to intelligent networks. Contrail Cloud Platform combines the automation capabilities of Contrail Networking with Juniper's OpenStack distribution, providing a turnkey cloud orchestration and automation platform for creating, scaling, and seamlessly joining open, intelligent, and reliable OpenStack clouds through secure networks. Combined with Juniper professional services and a rich ecosystem of technology and integration partners, Contrail Cloud can stand up private, public, hybrid, and telco clouds.

Your ideas. Connected.™

Product Description

Federated clouds are becoming the solution of choice for creating elastic infrastructures that meet dynamic business needs in an agile fashion, increasing the availability and flexibility of the services they deliver to end users. CIOs, CTOs, and cloud architects are increasingly building hybrid IT as a service as well as highly differentiated cloud services to address their unique application, compliance, and reliability needs, and federating these clouds through highly intelligent networks.

Juniper Networks® Contrail Cloud Platform is a complete turnkey cloud management platform that is hardened and integrated from open source technologies including OpenStack cloud management platform, Open Contrail, Ceph distributed storage system, and Puppet server management. The Contrail Cloud Platform automates the orchestration of compute, storage, and networking resources to create and scale open, intelligent, and reliable OpenStack clouds that seamlessly merge and hybridize through highly intelligent and secure networks.

Capitalizing on the inherent innovation of multiple open source platforms, scale-out software architecture, standards-based network interoperability, and policy-based automation, Contrail Cloud Platform delivers a robust, multitenant, and elastic cloud for predictable economies of scale, with enhanced interoperability, security, performance, and resiliency. As expectations for cloud automation and continuous integration continue to evolve, Contrail Cloud Platform is part of an open cloud ecosystem that embraces key partnerships and industry initiatives. This ecosystem not only gives customers freedom of choice to select best-in-class modules for building their customized infrastructure, it also boosts the maturity and breadth of the platform itself.

As businesses evolve to a more connected future, it's essential to co-create cloud infrastructure with an innovative technology leader who understands both enterprise and service provider industries—a leader with significant experience in both networking and IT that builds solutions based on open principles. Contrail Cloud Platform stands out by delivering cloud management and automation in a way that gives users freedom of choice, intelligent automation, and always-on reliability.

Architecture and Key Components

Contrail Cloud Platform consists of the following key components:

- **OpenStack**: An open source cloud management platform supported by a fast growing community of cloud developers, end users, and technology vendors, OpenStack software controls large pools of compute, storage, and networking resources throughout a data center, managed through a dashboard or via the OpenStack API. OpenStack works with popular commercial and open source technologies, making it ideal for heterogeneous infrastructure. Juniper is a Gold Member of the OpenStack Foundation, which maintains the OpenStack community and manages its development.

- **Contrail Networking powered by OpenContrail:** Contrail Networking is a simple, open, and agile overlay-style SDN solution that automates and orchestrates the creation of highly scalable virtual networks. Based on open, proven network standards and protocols, Contrail Networking can seamlessly integrate with physical routers and switches to eliminate the challenges of cloud networking. Contrail Networking is integrated with OpenStack through a Neutron plug in.
- **Ceph**: A massively scalable, open source, software-defined storage system that is capable of auto-scaling to the exabyte level and beyond, Ceph unifies object and block storage for OpenStack cloud deployments that run on commodity hardware, is self-healing and self-managing, and has no single point of failure.
- **Server Manager:** Contrail Cloud Platform uses Puppet software, an open source configuration management tool, to perform configuration management on target servers under its control, including the installation and configuration of different software packages and the launching of various services.

Features and Benefits

Freedom of Choice

Whether you are deploying public, private, or hybrid clouds in centralized data centers, or a distributed telco cloud for Network Functions Virtualization (NFV) applications, Contrail Cloud Platform gives you the freedom to use any standard server, storage hardware, or IP network, and seamlessly pool resources regardless of where they are physically located. Offering support for a broad range of hardware options, multiple hypervisors, Linux containers such as Docker, and Linux bare metal, customers can select the best compute infrastructure based on their unique application requirements. By including Contrail Networking, an overlay style SDN solution, customers enjoy the benefits of an agile federated cloud without ripping and replacing their existing network hardware and without fear of future lock-in to a specific hardware vendor. In addition, Contrail Cloud Platform provides a set of open APIs to interoperate and integrate with products and solutions from Juniper's ecosystem partners. These open APIs not only allow customers to pick best-in-class modules to customize their infrastructure without vendor lock-in, they also support a healthy and growing ecosystem that encourages participation by multiple vendors to ignite innovations that enrich cloud offerings.

Intelligent Automation

Contrail Cloud Platform delivers business agility, predictable operational excellence, and total cost of ownership (TCO) optimization through the intelligent automation of resource allocation and scaling, infrastructure configuration, and application life cycle management. It does this by establishing an application provisioning feedback loop, using the insights derived from rich infrastructure analytics to drive application resource adjustment and optimization. Contrail Cloud Platform then builds a policy-driven infrastructure that accepts application resource allocation, scaling, and security requests as high-level declarative policies, implementing them as low-level machine understandable configurations. This feedback loop and the automation it enables minimize manual intervention of cloud application provisioning.

Always-On Reliability

The cloud is increasingly carrying mission-critical business applications and data, and Cloud Builders expect the cloud to deliver always-on reliability to their end users. Contrail Cloud Platform meets that requirement by providing high availability, robust security, and elastic scalability to both the platform itself and the applications running on top of it.

- **High Availability**: Contrail Cloud Platform is designed to run in a distributed fashion and scale out for high availability and horizontal scaling. By reducing the size of the failure domain and performing backup and replication consistently, it enables in-service software upgrades and error recovery without downtime.
- **Robust Security:** With Contrail Cloud Platform, security for virtualized environments can be enforced in a more granular way at the hypervisor level, automatically "following" mobile workloads. In addition, a wide range of security functions from both Juniper and ecosystem partners is available to run on top of Contrail Cloud Platform, protecting the infrastructure and workload.
- **Elastic Scalability:** Contrail Cloud Platform is responsive enough to change resource provisioning levels on demand. This is reflected in three ways: elastically scale virtualized resources up and down on demand; scale infrastructure beyond data center and cloud boundaries; and scale software out to meet any control and management demands.

Features	Benefits
OpenStack release compatibility: Contrail Cloud Platform releases are aligned with an OpenStack community release, maintaining API compatibility.	• Leverages strong community support behind the OpenStack project for new innovations and accelerated software maturity.
Automated Resource Provisioning: Contrail Cloud Platform can intelligently automate the provisioning, configuration, and operation of compute, storage, and networking resources needed by cloud applications.	• Minimizes any manual intervention of the application provisioning process while improving operational efficiency and reducing operational cost.
Seamless Inter-Cloud Federation and Compatibility: Cloud network virtualization is designed to use a set of proven networking standards and protocols to make it easy to extend a virtual network across multiple data centers and clouds. Virtual PC (VPC) API provides compatibility with public clouds such as Amazon Web Services (AWS).	• Enables workload mobility and workload placement flexibility. • Facilitates backup and disaster recovery across multiple data centers or clouds. • Allows DevOps automation scripts to be written once and deployed anywhere.
High Availability and Scalability: Contrail Cloud Platform supports high availability (HA) and scalability for both OpenStack and Contrail Networking through a scale out software architecture that can expand elastically and is built to handle failures gracefully. It includes built-in software deployment redundancy and backup.	• Provides anytime availability of the cloud for operation, activation, and management of new and existing application workloads.
Rich and Prescriptive Analytics: Powered by a high-speed data collection engine, the Contrail Cloud Platform provides granular infrastructure telemetry information through very large-scale ingestion and querying of structured and unstructured data. Real-time and historical data is available via a simple REST API, and information from virtual and physical layers are correlated.	• Provides visibility into a wide range of information to facilitate system monitoring and troubleshooting. • Optimizes infrastructure planning based on usage patterns. • Provides opportunities to create value-added services based on infrastructure analytics.

Specifications

System recommendations and operating environment:

- Hardware: 64-bit dual x86 processor, minimum memory 64 GB RAM
- Storage: >64 GB Serial Advanced Technology Advancement (SATA), Serial Attached SCSI (SAS), or solid-state drive (SSD); volume storage: two disks with 2 TB SATA
- Network: 1GbE or 10GbE interface card (one or more)
- OS: Linux OS (CentOS 6.4 or 6.5, Ubuntu 12.04.3 or later)

Ordering Information

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

- Select a software license based on the number of sockets required. The license is either subscription (fixed term) or perpetual (unlimited term).
  - A subscription software license includes Juniper Care Software Advantage, entitling you to software updates and upgrades, 24x7 remote technical support, and online support.
  - A perpetual software license excludes Juniper Care Software Advantage; the latter must be purchased.
- If your order includes a hardware product/platform, select a hardware license based on your networking, connectivity, and/or security requirements (e.g., interface options, I/O, services). You may need to purchase additional licenses in support of the base hardware license (e.g., power cables, network interface cards).
- If this is a virtual appliance/software product, you would not buy any hardware license from Juniper, but instead procure the hardware elsewhere. For information on supported hypervisor(s) and virtual machine (VM) requirements, please refer to the technical documentation for this product on our website (www. juniper.net) under the support section.

Juniper Networks products are sold directly as well as through Juniper partners and resellers. For more information on the Juniper Software Advantage business model, please visit www.juniper.net/us/en/products-services/sdn/contrail/.

For information on how to buy, please visit: www.juniper.net/us/en/how-to-buy.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

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