Cloud Analytics Engine

Product Overview

Cloud Analytics Engine is a next-generation analytics tool designed for complex, dynamic data centers of any size. Using network data analysis to improve application performance and availability, Cloud Analytics Engine performs data collection, correlation, and visualization to help customers better understand workload and application behavior across the physical and virtual infrastructure.

Product Description

Juniper Networks® Cloud Analytics Engine provides "network context" to applications. As more and more applications are moved to public and private clouds, security, application performance, and application availability are becoming significant challenges. With the growth of network virtualization, Infrastructure as a Service (IaaS) and Software as a Service (SaaS) offerings, public, private, and hybrid clouds, and the proliferation of business-critical applications running in the cloud, networks have to be more flexible and application-aware than ever to dynamically meet service-level agreements (SLAs).

While traditional network diagnostic tools like SNMP, CLI, or traceroute are useful, they were designed for static networks that supported silos of applications. Modern data centers, on the other hand, are all about agility, flexibility, efficiency, and simplicity, requiring a new set of tools that can help customers deal with these emerging requirements. Cloud Analytics Engine provides an aggregated and detailed level of visibility, tying applications and the network together to deliver an application-centric view of network status, improving customers' ability to quickly roll out new applications and troubleshoot problems.

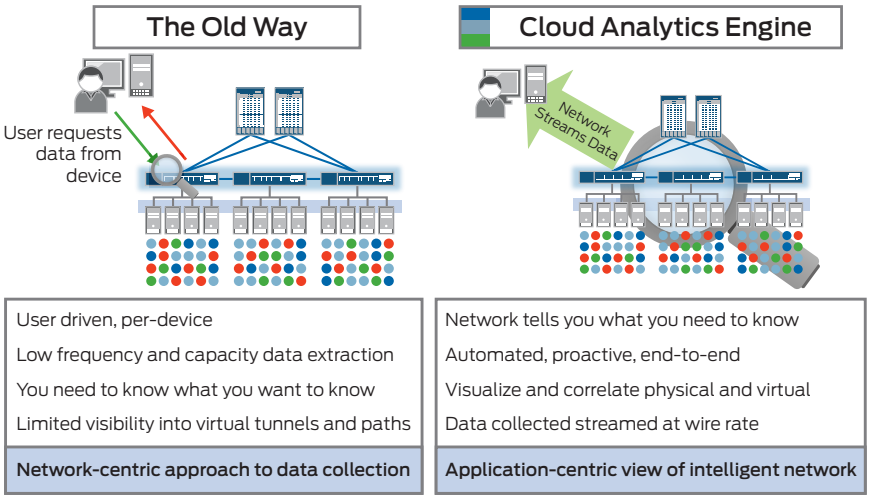

Figure 1: Cloud Analytics Engine offers an application-centric view of the network.

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Architecture and Key Components

Cloud Analytics Engine consists of the following key software components:

- Cloud Analytics Engine Junos OS component: Built into Juniper Networks Junos® operating system releases on supported Juniper switches, this software component processes requests from the Compute Agent to collect data, which is then sent to the Compute Agent.
- Compute Agent: Installed on virtual or bare-metal compute nodes, the Compute Agent works with the Cloud Analytics Engine Junos OS component to collect and configure the requested data from network devices. The Compute Agent is controlled by either an API or by the Data Learning Engine component.
- Data Learning Engine: An optional software component installed on compute nodes that store structured data collected from the Compute Agent, the Data Learning Engine provides longer storage and additional processing of network analytics data. The engine also provides a REST API for integrating with Junos Space Network Director, allowing the application to configure analytics data collection and visualize network analytics data. Other applications can also use the REST API to integrate with Cloud Analytics Engine. For information on how Cloud Analytics Engine works with Network Director, please visit www.juniper.net/assets/us/en/local/pdf/datasheets/1000428-en.pdf.

Cloud Analytics Engine Workflow

Cloud Analytics Engine features the following workflow:

1. **Generating cloud analytics data:** The Cloud Analytics Engine can start generating data using Network Director, the Data Learning Engine REST API, or the Compute Agent API. Customers can select the data they want to generate by specifying an application flow or a Virtual Extensible LAN (VXLAN) tunnel to monitor. Each device in the path of a monitored application flow or tunnel that supports the Cloud Analytics Engine generates cloud analytics data for that flow or tunnel.
2. **Viewing or collecting the generated data:** Customers can use Show commands on networking devices to view certain cloud analytics data. Like generating data, there are different ways to collect cloud analytics data: Network Director, the Data Learning Engine REST API, or the Compute Agent API. Customers can select the data they want to collect by specifying an application flow or a VXLAN tunnel.
3. **Viewing the collected data:** Both the Compute Agent API and the Data Learning Engine REST API return analytics data in JSON format. Network Director reads the data and displays the information in a format that allows the user to visualize it. Any other third-party tool can be used to view collected data through open and standard API interfaces.

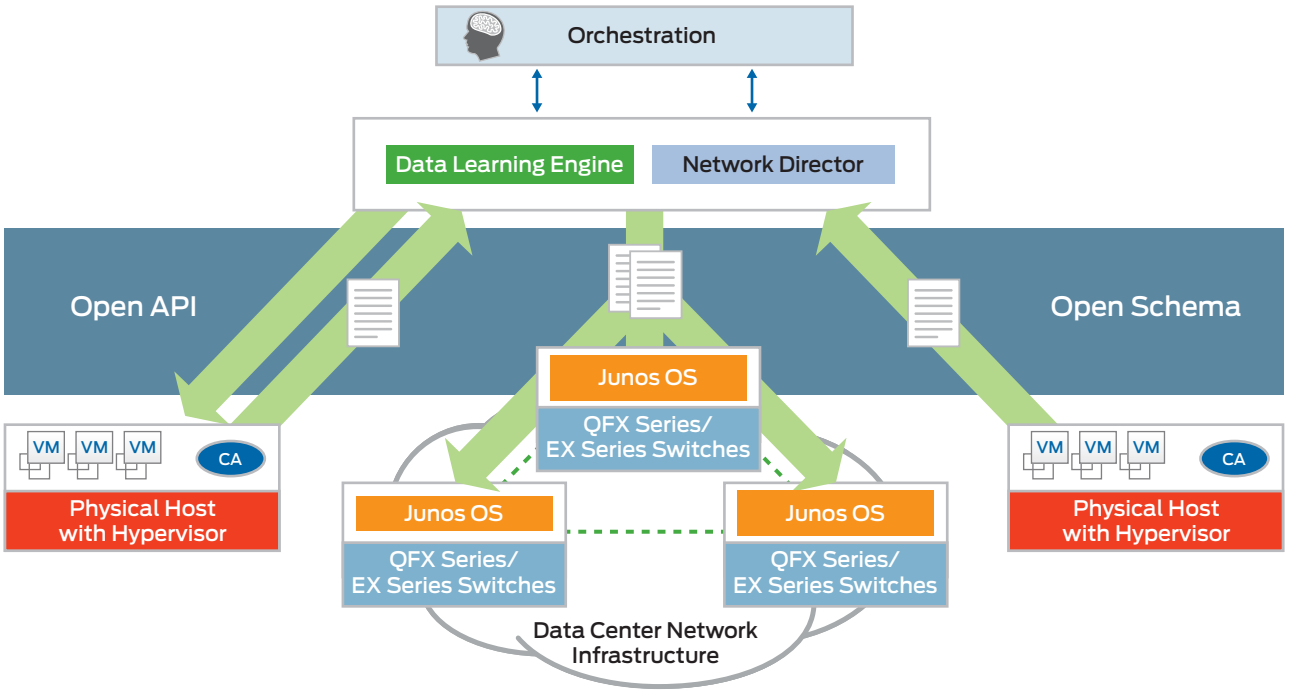

Figure 2: Cloud Analytics Engine components

Features and Benefits

Cloud Analytics Engine enables:

- Application visibility and performance management by controlling application flows and workload placement
- Capacity planning and optimization by detecting hotspots and monitoring latency and microbursts
- Troubleshooting and root cause analysis by correlating overlay and underlay network

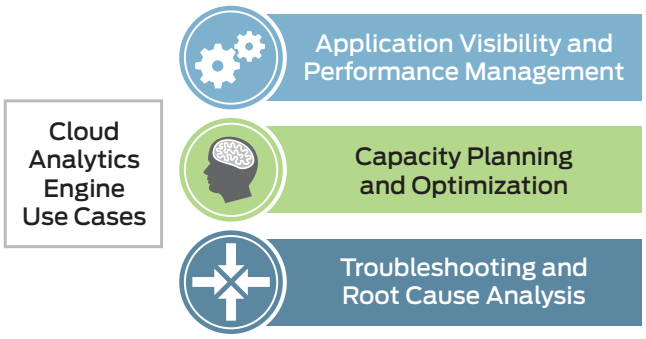

Figure 3: Cloud Analytics Engine use cases

The Cloud Analytics Engine can be used by different IT teams, either independently or in collaboration, to troubleshoot root cause application or network performance and availability problems, eliminating finger pointing between groups while improving IT efficiency and reducing costs.

End-to-End Network Visibility and Flow Path Analysis

The Cloud Analytics Engine provides network data analysis to improve application performance and availability by associating flows with specific applications across the physical and virtual infrastructure. This enhances the ability to quickly roll out new applications and troubleshoot problems. The Cloud Analytics Engine not only shows paths but also end-to-end, hop-by-hop latency for the application. It also detects microbursts in the network and identifies specific applications impacted by the activity (see Figure 4).

Network and Host Statistics

The Cloud Analytics Engine collects hop-by-hop network and host statistics in addition to flow path (see Figure 5).

Overlay-Underlay Correlation

As networks get virtualized, it becomes harder to troubleshoot without having visibility into both the overlay and underlay infrastructure. The Cloud Analytics Engine not only provides overlay visibility, it helps network administrators correlate overlay issues to the specific underlay network entity that is causing the problem, reducing the time required to troubleshoot issues that arise with network virtualization (see Figure 6).

The Cloud Analytics Engine also shows all VXLAN virtual tunnels across the network, along with virtual machine (VM) information that is carried across specific virtual tunnels.

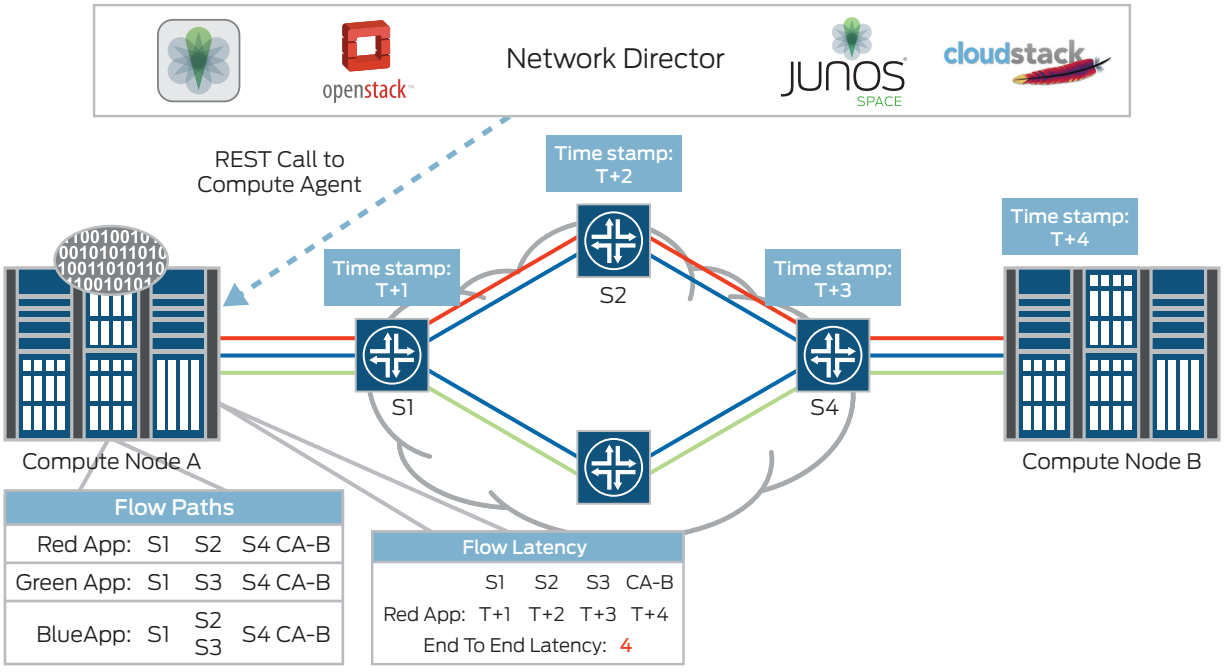

Figure 4: Application flow path visibility

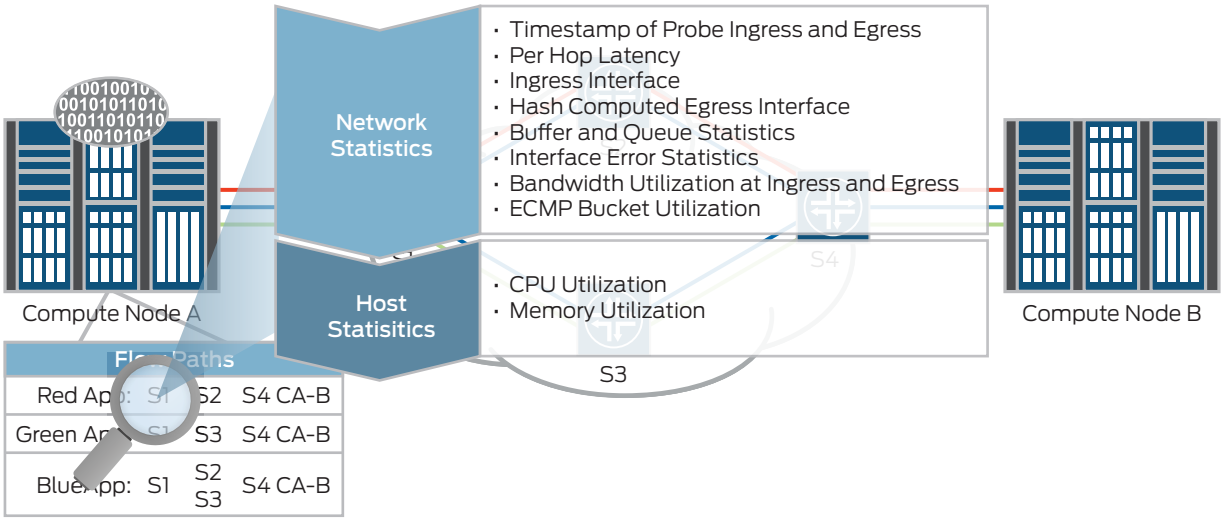

Figure 5: Network and host statistics information provided by the Cloud Analytics Engine

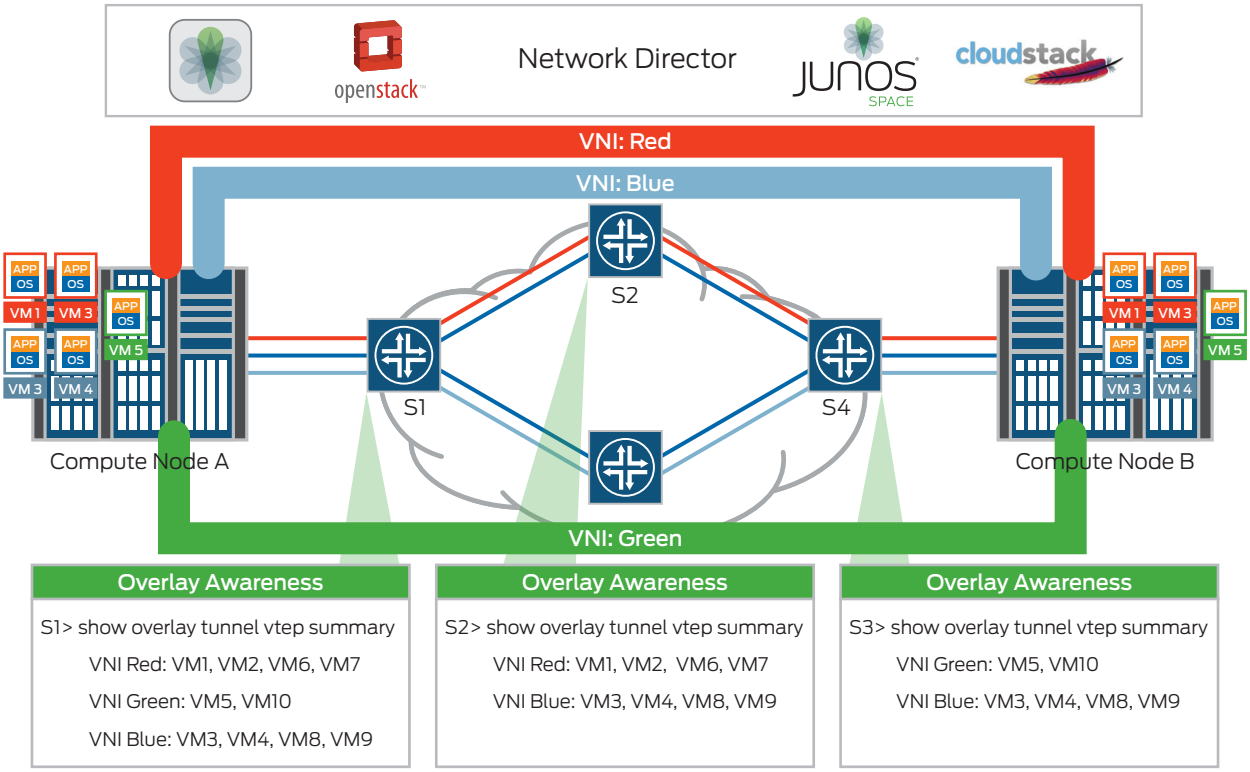

Figure 6: Overlay-underlay correlation provided by Cloud Analytics Engine

Specifications

Supported Platforms

Switching Platform: QFX5100 switches

Junos OS Release: 14.1X53

Compute Platform: Centos 6.5 Bare-Metal Server or KVM Hypervisor

Compute Agent API Resources:

For information on all available APIs, please visit ggwww.juniper.net/techpubs/en_US/junos14.1/information-products/pathway-pages/qfx-series/cloud-analytics-engine-ca-api.pdf.

Unsupported Juniper or Third-Party Devices

For Cloud Analytics Engine to provide complete end-to-end visibility, all networking devices must support the Cloud Analytics Junos OS component in order to communicate with the Compute Agent probes. The Cloud Analytics Engine will work with devices that do not support this component, including non-Juniper devices, in the application flow path, but the only data it will collect from them is their IP address and hop number.

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit www.juniper.net/us/en/products-services.

Ordering Information

Cloud Analytics Engine is sold as a solution for 25, 50, or 100 devices. The SKU pricing includes the price of agents running on virtual or bare-metal compute devices. Perpetual and subscription-based licenses are available for Cloud Analytics Engine. Subscription licenses include support services, while perpetual licenses require the purchase of a separate service SKU.

License SKU	Name
S-CAE-25	Cloud Analytics Engine Solution License for 25 Devices; Perpetual
S-CAE-50	Cloud Analytics Engine Solution License for 50 Devices; Perpetual
S-CAE-100	Cloud Analytics Engine Solution License for 100 Devices; Perpetual
S-CAE-25-1Y	Cloud Analytics Engine Solution 1 Year Subscription License for 25 Devices
S-CAE-25-3Y	Cloud Analytics Engine Solution 3 Year Subscription License for 25 Devices
S-CAE-100-1Y	Cloud Analytics Engine Solution 1 Year Subscription License for 100 Devices
S-CAE-100-3Y	Cloud Analytics Engine Solution 3 Year Subscription License for 100 Devices

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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