CONTRAIL HEALTHBOT

Product Overview

Increasing data traffic and emerging technologies like IoT, connected vehicles, and 5G mean service providers and enterprises need a way to analyze volumes of telemetry data, gain insight into overall network health, produce actionable intelligence, and take corrective actions as needed.

While network telemetry can collect real-time data points, CLI-based solutions require technical knowledge to process and translate this information into a consumable format. Contrail HealthBot leverages machine learning and sophisticated algorithms to transform real-time analytics into usable KPIs for monitoring, diagnostics, troubleshooting, and maintaining overall network health.

Product Description

As networks evolve to accommodate exponential traffic growth generated by cloud-native applications and emerging technologies, service providers and enterprises alike need a network analytics solution that provides real-time information to help them maintain control over such a dynamic and unpredictable environment.

Machine learning has transformed network analytics by offering real-time data and actionable intelligence that contribute to operational efficiency. By providing multidimensional network views in conjunction with structured network information, machine learning contributes to root cause analysis, traffic engineering, and network optimization.

Combining the power of telemetry, programmability, advanced algorithms, and machine learning, the Juniper® Contrail® HealthBot solution revolutionizes data analytics. Integrated with the Juniper Telemetry Interface (JTI), Contrail HealthBot aggregates large volumes of real-time telemetry data and correlates analytics to provide predictive insights that offer a multidimensional view across the entire network, as well as the applications running on it. Open programmability supports customized playbooks, enabling service providers and enterprises to build highly customized health monitoring and diagnostics workflows.

By focusing on actionable insights, simplified consumption, and a programmable framework supported by open-sourced data pipelines and collectors for data ingestion, Contrail HealthBot democratizes network analytics and encourages collaboration across business units, ultimately enhancing agility and innovation across the entire ecosystem.

Architecture and Key Components

Contrail HealthBot includes the following key features:

- **Streaming Telemetry**: Streaming telemetry is enabled by the standards-based OpenConfig telemetry and JTI, a distributed mechanism designed to stream live event-driven network statistical data. JTI relies on a push model to deliver data asynchronously, eliminating oversight of notable network events and data that occur under the traditional pull model. This results in a highly scalable solution monitoring thousands of objects in a network.
- **Customization**: Network elements play multiple roles on a network, such as broadband network gateway (BNG), provider edge (PE), core, leaf-spine, and more. Each network element follows distinct KPIs where there is no single standard definition of network health across all use cases. Contrail HealthBot provides a framework for defining and customizing health profiles, referred to as playbooks, providing truly actionable insights for the specific network and devices being monitored.

- **Programmability**: A simple service designer offering a functional drag-and-drop GUI lets service providers and enterprises quickly create policies and quality of service (QoS) playbooks designed to intelligently automate service maintenance and sustain overall performance goals.
- **Open Integration**: A programmability-first approach supports multiple open-source data pipelines and collectors. Contrail HealthBot integrates with Fluentd, Logstash, Telegraph, Kafka, and Grafana for data ingestion and analytics.
- **Machine Learning**: Juniper Networks Contrail HealthBot leverages advanced algorithms and machine learning capabilities, correlates multiple data sources, establishes operational benchmarks, and performs historical and predictive analytics—a critical component for intent-based networking.
- **Centralized Dashboard**: A highly customizable dashboard offers users a personalized visual representation of resource metrics, log messages, alarms, health, and reports, correlating the relationship between entities (devices, services, hosts, instances) and enabling users to apply business logic and required policies.
- **Micro services-based architecture**: Based on Docker containers, Contrail HealthBot is based on a scale-out architecture, automatically creating the containers needed to collect and analyze the required data.

Features and Benefits

Network Visibility

Contrail HealthBot eliminates the operational barriers associated with traditional monitoring infrastructure, providing advanced multidimensional analytics across network elements that allow service providers, cloud operators, and enterprises to quickly move from a reactive to a highly predictive model that transforms network operations.

Closed-Loop Automation

Built-in advanced algorithms and machine learning correlate multiple data sources, establish operational benchmarks, identify outliers, and take corrective actions based on predefined KPIs. Playbook capabilities let you create highly customizable diagnostic and heat monitoring workflows, fostering greater collaboration and contributing to the overall ecosystem.

Cost Efficiencies

Contrail HealthBot reduces overall costs. Machine learning and predictive analytics drive CapEx efficiency, enhancing resource planning and traffic engineering that enable service providers and enterprises to launch more innovative services. Contrail HealthBot also allows users to proactively optimize and adhere to established service-level agreements (SLAs), driving OpEx efficiency.

Enhanced Visualization

A web-based GUI means specialized skills are no longer required to extract business value from traditional CLI-based interfaces. Highly configurable graphic capabilities simplify health reports for easy consumption.

Features and Benefits

Features	Benefits
Data collection	Collect and normalize data across standards-based collection methods, including UDP and OpenConfig streaming Telemetry, gRPC, SNMP, Netconf, CLI, and Syslog.
Machine learning-based analytics	Dynamically masters the baseline performance of infrastructure elements and network applications for anomaly detection and network resource optimization.
Intent-based networking	Contrail HealthBot is a critical component of Juniper's intent-based networking solution, providing critical historical and predictive analytics.
Programmable network diagnostics analytics tool	Contrail Healthbot provides customizable analytics through YANG-based playbook definitions and user-defined functions, along with seamless integration with Fluentd, Logstash, Telegraph, Kafka, Grafana, Webhook, Slack, and REST APIs for data ingestion, analytics, and notifications.
Closed-loop automation	By combining the power of fine-grained telemetry and analytics with workflow automation, Contrail HealthBot automates root cause analysis and performs corrective actions based on predefined KPIs.
Network visibility	By providing visualized details about network logs, health status, outliers, and behavior, Contrail HealthBot improves capacity planning while eliminating service downtime.

Specifications

- Telemetry collection methods:
  - Network Configuration Protocol (NETCONF)
  - CLI
  - JTI streaming telemetry
  - OpenConfig telemetry
  - SNMP
  - System logging
- Multivendor capable
- YANG-based health profile (playbook) and root cause analysis definitions
- Python-based user-defined functions and user-defined actions
- ML-based anomaly detection
- ML-based KPI prediction
- Web-based GUI and REST; NETCONF API
- Webhooks, REST API, Slack, Kafka integration
- Docker container-based architecture

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

For Juniper Contrail HealthBot ordering information, please visit www.juniper.net/us/en/how-to-buy/.

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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