Marvis AI Assistant for Data Center

Product overview
Marvis AI Assistant for Data Center is the digital network expert who supports your data center network operations team, providing proactive and prescriptive data center actions and simplifying operations tasks via the Marvis conversational interface.

Product description
Part of Juniper Data Center Assurance, Marvis AI Assistant for Data Center combines a natural-language interface with a powerful generative AI (GenAI) framework to improve insight, speed, and reliability.

Marvis AI Assistant for Data Center works in conjunction with Apstra Data Center Director's comprehensive data center fabric management and full lifecycle automation to provide proactive intelligence and prescriptive actions. It revolutionizes operational workflows through the intuitive Marvis conversational interface, powered by cutting-edge GenAI, allowing teams to complete many day-to-day tasks simply by talking to Marvis. By combining the power of AI and full lifecycle automation, Marvis AI Assistant and Data Center Director enable data center network operations teams to build private cloud infrastructure with the insight, speed, and reliability they need to meet business demands and deliver great customer experiences.

Marvis Actions
Marvis Actions drives operational simplicity and transforms IT from reactive troubleshooting to proactive remediation. It offers a "morning cup of coffee" view that delivers visibility into the most critical network issues at an organizational level so that administrators know exactly what they need to prioritize and focus on.

Extending this visibility across your entire enterprise, Marvis AI Assistant for Data Center seamlessly integrates data center insights into the top-level Marvis Actions dashboard. Gain end-to-end awareness of anomalies, from users in campus and branch networks all the way to the applications residing within your data center.

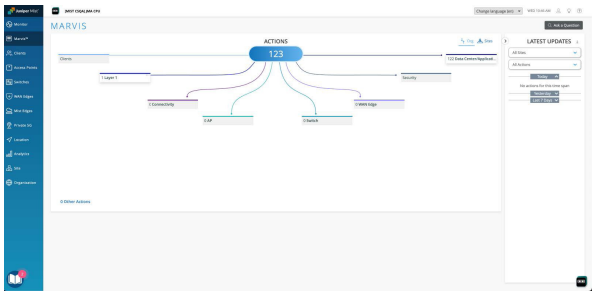

Figure 1. Marvis Actions dashboard, including data center

Marvis AI Assistant for Data Center leverages Data Center Director's rich telemetry data to provide a high-level view of data center network health on the Marvis Actions dashboard. Marvis surfaces critical anomalies and delivers prescriptive, AI-native recommendations for data center switching devices, virtual infrastructure, physical and logical connectivity, and security. AI-native insights lead to faster root cause identification and issue resolution. If more detailed information is required, a single click opens the relevant screen in the Data Center Director user interface where you can continue troubleshooting. or you can simply ask Marvis for help via the conversational interface.

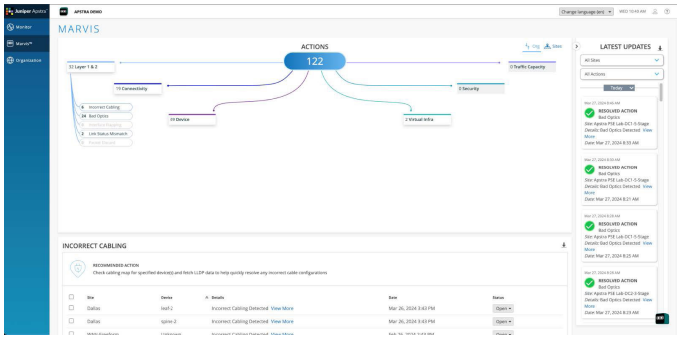

Figure 2: Marvis AI Assistant for Data Center actions dashboard

From the data center dashboard, you can select a category to see more detail about a specific metric, such as incorrect cabling or MTU issues. Table 1 shows the full list of data center action categories and metrics.

Table 1. Marvis AI Assistant for Data Center action categories and metrics

Layer 1 & 2
Incorrect cabling
Bad optics
Interface flapping
Link status mismatch
Packet discard

Connectivity
Missing routes
BGP mismatch
LAG imbalance
MLAG imbalance
BGP flapping
EVPN host flapping
Type-3 missing routes
Type-5 missing routes
VXLAN flow lists mismatch
Device
Config deviation
Deployment status mismatch
Resource health issues
Environment health issues
Virtual infrastructure
Configuration mismatch
Missing VLANs
MTU issues
Non-redundant hosts
Security
802.1x issues
Traffic capacity
Spine faults
Critical services alerts
Hot/cold interface warning

Conversational interface

The Marvis AI Assistant for Data Center's conversational interface uses advanced natural language processing (NLP) and GenAI capabilities of large language models (LLMs) to interpret user intent and goals and provide easily understood responses. Pose natural language inquiries — whether you're actively troubleshooting critical operations or searching through extensive data center documentation — and receive precise, contextually relevant answers, all in natural language.

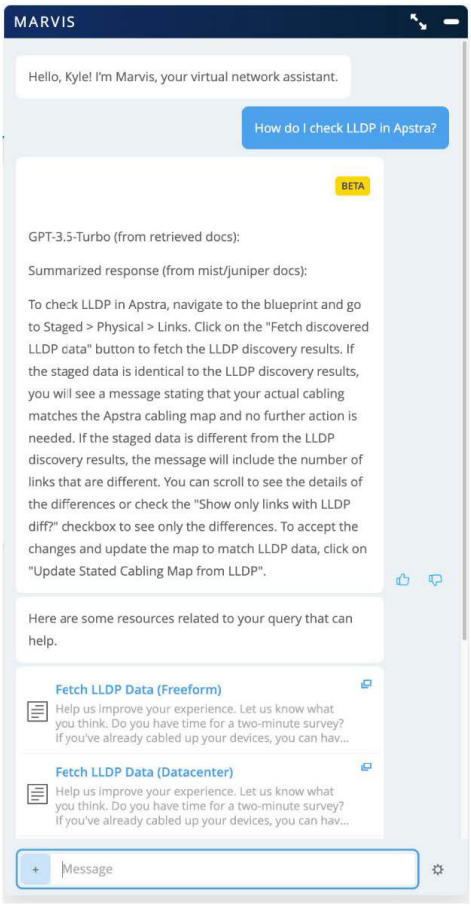

Figure 3. Marvis AI Assistant for Data Center's conversational interface illustrating a knowledge base search

Marvis Minis for Data Center

Marvis Minis for Data Center are agents designed to proactively assure data center core services for uninterrupted application availability. This capability addresses a set of common challenges for data center network operators, when servers and applications unexpectedly lose access to critical network services such as a domain name server (DNS) or a network storage device, resulting in poor application performance or even application downtime. Marvis Minis proactively test critical service access from various devices and locations in the network, identifying issues before they impact applications and end users. These Minis can be activated by network operators for specific situations, such as post-maintenance network health validation, and can also run autonomously with configurable test intervals to catch problems that may arise due to network changes or failures.

Agentic AI framework

The Marvis agentic AI framework for data center gives Marvis access to deep contextual knowledge about the data center network and multiple data sources, so you can accomplish an increasingly large percentage of your operational goals by talking to Marvis.

Today, the Marvis agentic AI framework for data center works with two data sources of truth, the data center knowledge base and the contextual graph database built into Apstra Data Center Director. It supports almost 300 API queries, which can be combined to answer a virtually limitless number of complex questions.

The agentic AI framework is designed to support future capabilities that will fulfill the vision of a self-driving data center network:

— Enable service provisioning and trouble resolution activities to be completed by Marvis, as directed by an operator using the conversational interface, or initiated autonomously (subject to human trust)

— Integrate additional data sources of truth, including elastic search and graph database queries

— Enhance feedback mechanisms that enable continuous learning, reflection and efficacy improvement

Multivendor compatibility

Because Data Center Director is inherently multivendor, working with both HPE and many third-party switching devices, Marvis AI Assistant for Data Center inherits those multivendor properties. Get comprehensive visibility into data center network health, anomaly detection, and AI-native recommended actions, regardless of the underlying switching vendor.

Data Center Director integration

Marvis AI Assistant for Data Center, part of the Juniper Data Center Assurance family, is a cloud-based application while Data Center Director is based on-premises. Connectivity between the two applications is enabled over a secure WebSocket connection that supports REST API requests, responses, and the streaming of telemetry data and alerts. This intelligent cloud-premises synergy unlocks the advanced AIOps benefits of Marvis AI Assistant for Data Center for your on-premises data center network.

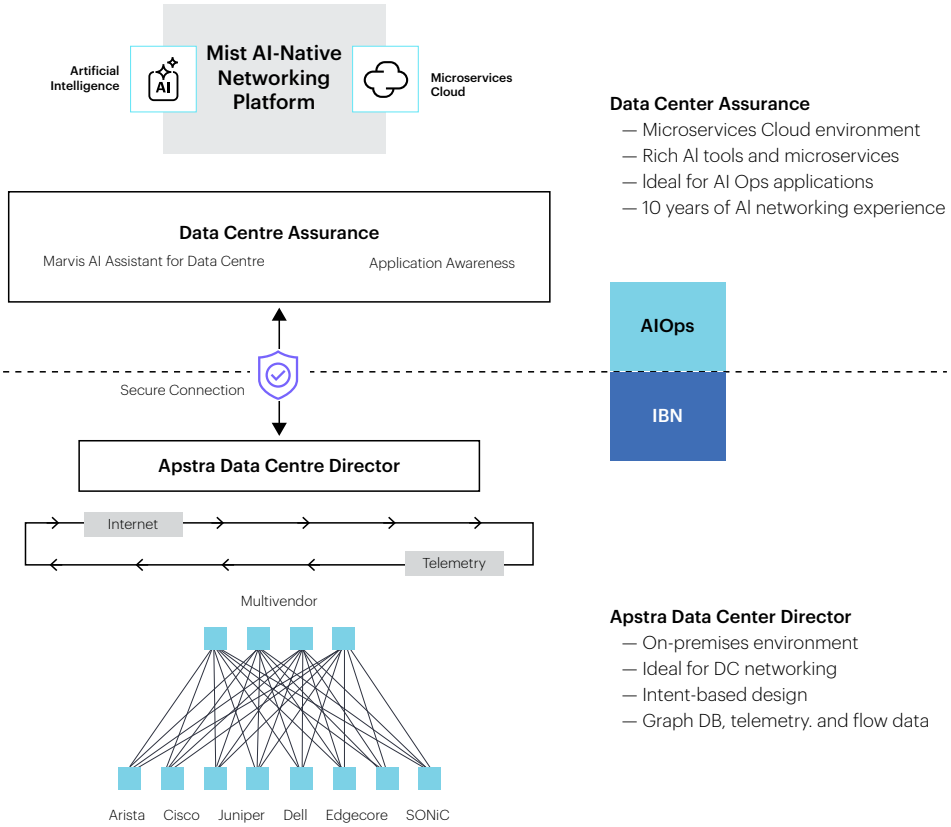

Figure 4. Juniper Data Center Assurance — Juniper Data Center Fabric Director Integration

Marvis AI Assistant for Data Center licensing

Marvis AI Assistant for Data Center is included in the Juniper Data Center Fabric Director "Standard" license tier.

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