INTENT-BASED SERVICE ORCHESTRATION SOLUTION BRIEF

Deploy High-Performance Services In Weeks, Not Months.

Intent-Based service orchestration with Juniper Paragon Automation

The intuitive Juniper Paragon Automation interface provides the user with a selection of pre-defined service models that manage the full-service lifecycle (from Day 0 to Day 2), including design, provisioning, testing, monitoring, and closed-loop automation. Once the business intent is created, the rest is 100% automated. Paragon Automation takes all the guesswork out of design, provisioning, and configuration across every node in the network, led by industry standard service models actively validating success at every step.

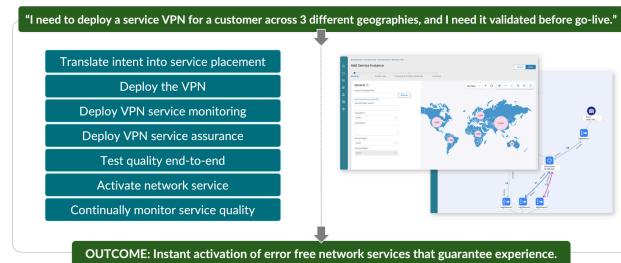[2] The Uptime Institute, 2024 Annual Outage Analysis

Figure 1: An overview of the automated workflow steps in provisioning a service based on declarative intent

It takes one person a few minutes to define a typical network service based on business intent. What would have taken a team of experts relying on multiple system silos weeks of investigation, trial and error, manual CLI-based configuration on every single router, and manual acceptance testing can be done in minutes because it's entirely automated.

Features and Benefits

Eliminate customer complaints with built-in Active Assurance

Active Assurance is a built-in feature of Intent-Based Service Orchestration. It injects synthetic traffic into the network throughout the service lifecycle, automatically emulating the stated business intent and validating true user experience by simulating VoIP calls, DNS lookups, streaming videos, downloads, speed-tests, and more, like a real user. You'll know about any problems in the service long before any customers complain.

Error-free services every time with model-based service designs

Our solution comes with best practice service models, leveraging our decades of experience driving the world's most demanding networks. Our service models are based on open standards, meaning you can localize and customize network services to exactly meet your business needs.

Challenge
Mission-critical, SLA-backed services are a reality today. However, building the highly skilled teams necessary to deliver them is out of reach for many.
Deployment takes months, relying on multiple loosely integrated tools and scarce expertise. An estimated 2/3 to 4/5 of downtime incidents are caused by human error . This leads to frustrated end users and costly outages.

Solution
Intent-based service orchestration—powered by Juniper Paragon Automation— enables accelerated, error-free design, deployment, and management of network services. It leverages model-based designs and industry-proven autonomous networking use cases.

Benefits
- Reduce time-to-activate from months to days
- Eliminate configuration errors with end-to-end active experience validation
- Eliminate performance degradations with proactive assurance and autonomous networking
- Reduce maintenance costs and complexity

Maintain flawless service quality with built-in observability and autonomous networking use cases

Juniper Paragon autonomous networking use cases, including latency-based routing, closed-loop remediation, and autonomous capacity optimization, continuously monitor the network. They look for customer-impacting problems and alerts that indicate future service degradations. Service assurance is critical to maintaining business intent in live operations, so Intent-Based Service

Orchestration from Juniper Paragon helps you proactively find and resolve problems before the customer even notices.

Solution Components

Intent-Based Service Orchestration combines all functional capabilities in a cloud-native architecture to ensure seamless interoperability and the most intuitive user experience.

Model-based service definition and provisioning
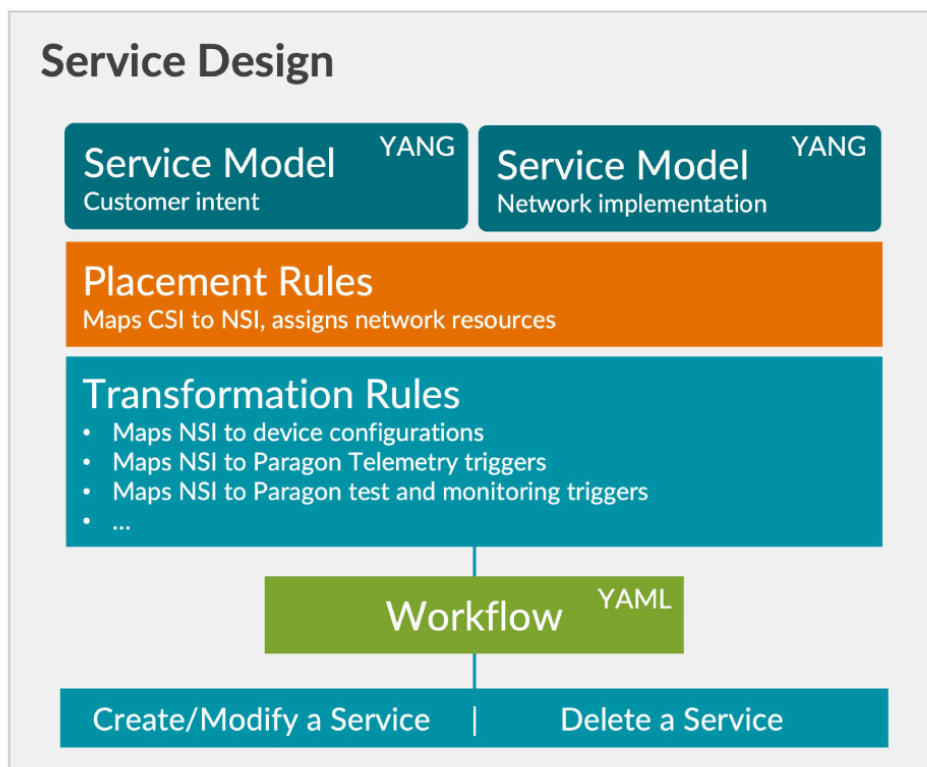
Each service category is provided in the form of a standardized, user-configurable model, including placement and transformation rules. The user only needs to define the Customer Service Intent (CSI), and Paragon Automation automates the entire service creation process from there with a shared workflow engine. This includes defining the network service instance(s) (NSI), identifying and assigning network resources, committing and verifying device configurations, and creating service monitoring dashboards that process active (data-plane) and passive (device telemetry) as needed to visualize performance and trigger remediations to maintain the stated intent.
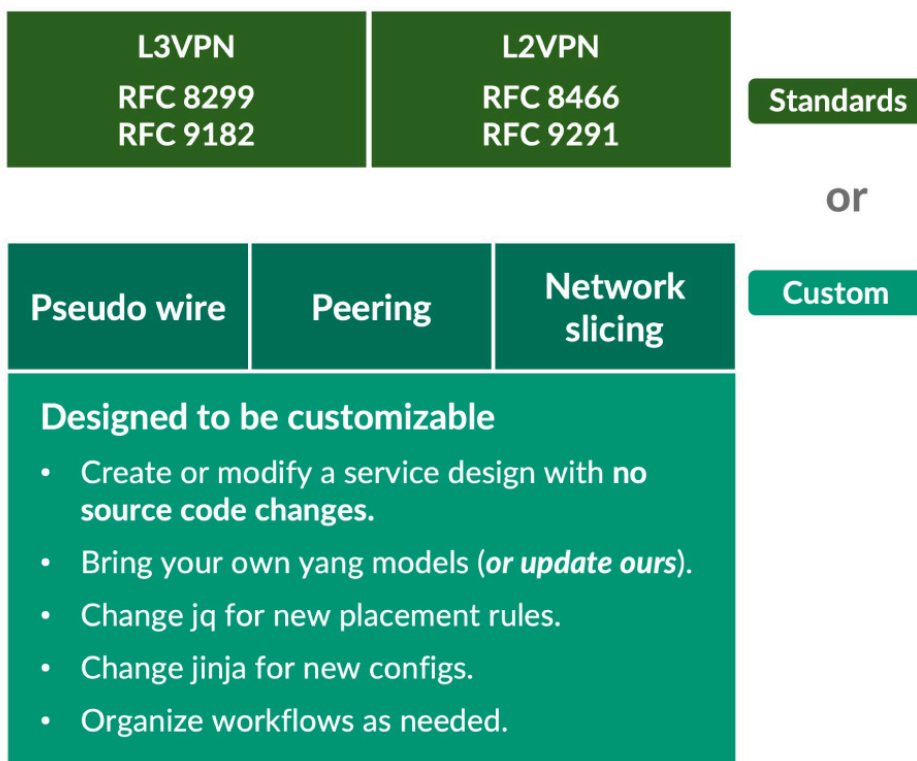
Alongside the standard service categories that come with the solution, you can easily create custom service models, leveraging YANG modeling language, JINJA templating language, and JQ/JSON based placement and transformation rules. Start from an existing service model or build your own entirely from scratch, depending on the extent of customization required.

Vendor-specific resource configuration

Future-proof, multi-vendor support is ensured with vendor-specific NSI transformation rules that apply the specific vendor device configurations required to support a given NSI definition. Support for OpenConfig provides vendor neutrality for applicable routing platforms, including from Juniper, Cisco, Arista, Ciena, and Dell.

Further information about Juniper's extensive and expanding OpenConfig support can be found [here](#).

Integrated active and passive observability of intent
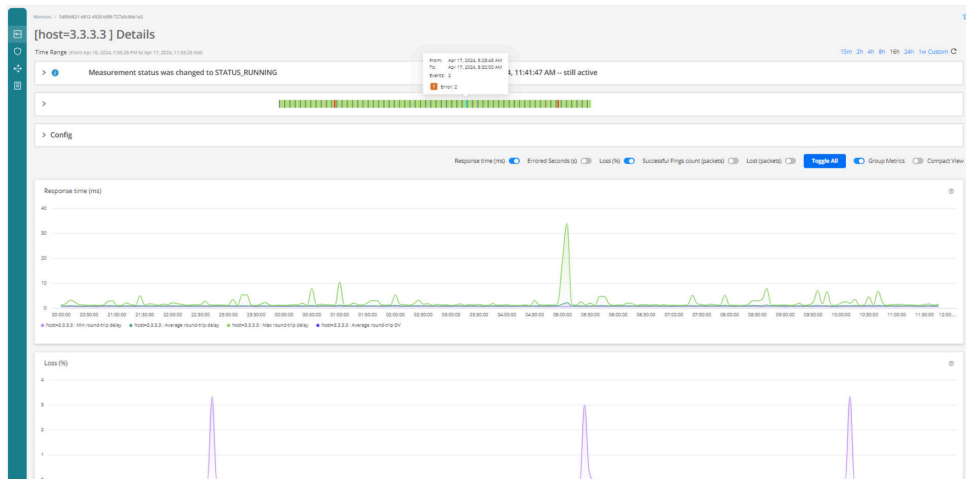
Full observability (combining active data plane and device telemetry testing and monitoring) provides intuitive, real-time, and time-series views of live service performance against stated intent, with color-coded threshold alerts so you can quickly identify and prioritize issues based on urgency.

Multi-vendor traffic engineering

The solution includes a centralized Path Computation Engine (PCE) for enhanced traffic engineering. It auto-remediates problems to avoid or mitigate intent SLA breaches by re-routing services around problematic devices, in response to latency, jitter, throughput, or congestion anomalies. It maintains optimal performance of the stated intent of every live service in your network simultaneously, such as re-routing multiple services in response to a single threshold crossing event.

Since our Intent-Based Service Orchestration solution is powered by Juniper Paragon Automation—built to be cloud-native from the ground up—we're adding enhancements and new functions all the time. This includes expanded device support, new service models, more issue detection and troubleshooting features, and new autonomous networking use cases.

Cut time and cost while delivering superior performance

Intent-Based Service Orchestration from Juniper Paragon Automation is everything you need to deploy and manage error-free, resilient WAN network services without the complexity. It's designed to be simple and intuitive, while also being flexible and customizable. Our model-based orchestration approach delivers repeatable, flawless performance. Integrated active and passive observability means you can detect problems before they impact the end user experience. Autonomous networking use cases let you completely automate the mitigation of common problems so you can focus on creating business value instead of fighting fires.

Next Steps

Read the announcement blog to learn why our solution is unique in the market

Read the Appledore white paper on best practices in intent-based service orchestration

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