High Availability Assessment

Service Overview

High levels of service are required in today's networks. Better than five nines availability (99.999%) are needed to insure that the network survives a failure and continues to perform and meet contractual service-level agreements (SLAs), even under failure conditions.

This assessment is targeted at service providers supporting an IP infrastructure. The assessment will evaluate the current network design for resiliency and accuracy of implementation, both of which are difficult if not infeasible to do manually in a reasonably sized network.

Service Description

Network availability depends on having the right design and ensuring it is deployed and operated accordingly. Issues related to implementation are often hidden until a failure occurs, when they are highlighted by a service interruption or degradation in service.

Customers requiring assurance that their network is robust and will survive single points of failure will benefit from this assessment. The High Availability Assessment is also appropriate for customers that may have recently experienced unexpected downtime or disruption of service due to reaching capacity limitations or potential misconfigurations in the network.

The overall goal of this assessment is to analyze the customer's network and perform automated "what if" failure simulations to evaluate the expected flow of traffic during a failure.

Juniper Networks Professional Services consultants bring skill and experience that comes with working with the world's largest infrastructure providers. Our consultants perform the assessment with leading tools such as Juniper WANDL IP/MPLSView, Juniper's multivendor, multiprotocol, and multilayer traffic management and traffic engineering solution for IP and/or MPLS networks. Using these modeling tools, multiple hundreds if not thousands of topologies are examined to discover impacts of point failures on overall network performance.
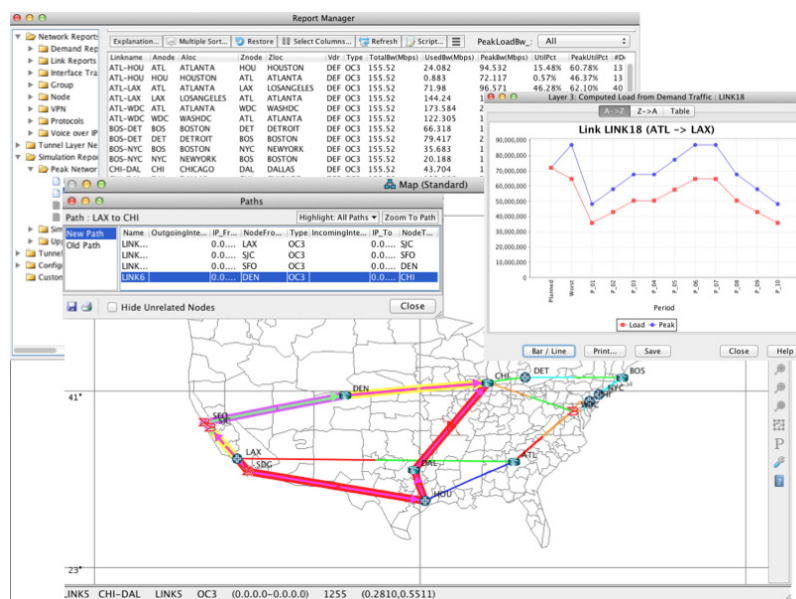

Figure 1: Use of tools such as WANDL MPLS/View are used to examine multiple topologies to discover impacts of point failures on overall network performance.

Your ideas. Connected.™

Features and Benefits

Feature	Feature Description	Benefit
Single point of failure identification	Exhaustive automated analysis to identify single points of failure in the network due to misconfiguration or failures	Understand the weakest parts of the network and address them before they impact network performance
Failure simulation	Validation of design showing impact of link and/or node failures	Identify congestion points and quality-of-service (QoS) impacts due to various simulated failures to better prepare for such events
Worst case scenarios identification	Simulated failure of nodes and links that highlight the worst case conditions where the network has to route around the failure	Understand and address potential scenarios where degraded service levels occur due to simulated failures

Outline Methodology

Juniper Networks Professional Services team takes the following steps to perform a High Availability Assessment of a multilayer converged network due to simulated failures:

1. Understand your cost and technology requirements

2. Perform a focused review of the pertinent areas of your current network and collect data to build IP/MPLS traffic matrix

3. Analyze and evaluate the network through failure simulations to identify:
   - Single link failure impact
   - Single node failure impact
   - Primary label-switched path (LSP) failure impact
   - Worst-case link utilization (single node or single link)

4. Develop recommendations and potential impact on high availability requirements by utilizing such data as:
   - Core routed topology
   - Configurations and link state database
   - Traffic statistics
   - Relative per port/per link costs

Service Deliverables

Specific deliverables will be defined for each engagement. One of Juniper Networks Professional Services team members will consult with you to define the entire project. However, all basic assessments will include analyses of the current network covering:

- IP routed topology
- Link utilization (based on normal utilization and worst-case utilization) per QoS
- Recommended next steps

Service Scope

The basic assessment service is applicable to a single IP/MPLS over transport network only. It considers the provider edge to provider edge (PE to PE) routed network only and excludes PE to customer edge (CE) links, metro, backhaul, or other last mile facilities. Full service and detailed evaluation of further failure scenarios and multiple points of failure are available from Juniper Network Professional Services. Contact your account team for more details.

Juniper Professional Services

Juniper Networks Professional Services consultants and engineers are uniquely qualified to assist service providers in designing, implementing, and optimizing network and security solutions. Our team appreciates the complexities and the subtleties inherent in large-scale internetwork design and can assist service providers and enterprises, plus provide customized and integrated "turn-key" solutions. Juniper Networks Professional Services helps accelerate your network's time to value and enhanced security, capacity, and availability, bringing revenue-generating capabilities online faster for bigger productivity gains, faster rollouts of new business models and ventures, and higher levels of customer satisfaction.

Your onsite staff will work closely with Juniper Networks specialists, building operational capabilities and reducing your exposure to IT risks. As a result of our previous experience involving hundreds of customers around the world, Juniper Networks Professional Services is uniquely qualified to help you design, implement, and optimize your network for confident operation and rapid returns on infrastructure investments. These professionals understand today's network and security demands and those that are just around the corner—for bandwidth efficiency, best-in-class security, solid reliability, and cost-effective scaling.

Additional Services to Optimize Your Network

Juniper Networks provides additional consulting services to consider along with the High Availability Assessment service. In addition to engagements that are customized for individual customers, a broad range of consulting and packaged implementation services are available to help you enhance your network design and optimize your production environment.

- **Assessment Service:** Leverages the breadth and depth of Juniper Networks experience to identify your technology options and develop your network and security plans for the future

- **Design Service:** Provides a design and technology recommendations for a network that will meet your business and technical needs

- **Migration Service:** Delivers an end-to-end risk managed migration of your network or security environment

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

To order the High Availability Assessment service or for additional information, please contact your Juniper account manager. Before the service begins, a statement of work (SOW) will be established outlining the scope of effort to be performed.

Model Number	Description
PRO-ASSESS	High Availability Service

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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