MATE Design

Product Overview

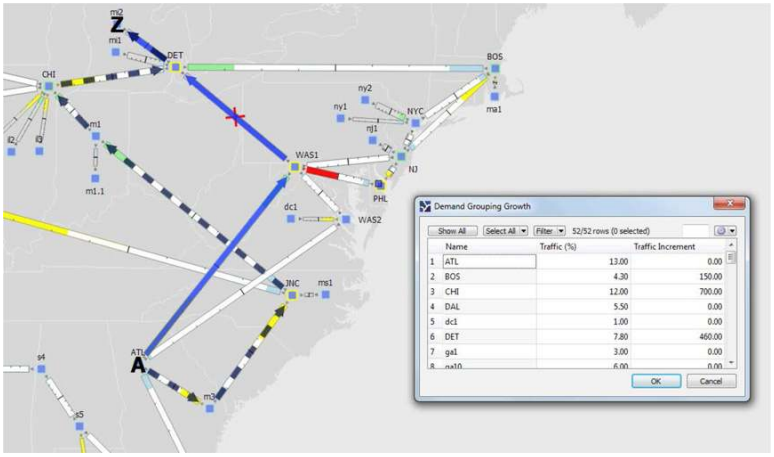
MATE™ Design software offers an integrated system for designing, engineering, and planning IP Multiprotocol Label Switching (IP/MPLS) networks. MATE Design allows you to:

- Maximize your network investments and reduce capital expenditures (CapEx) and operating expenses (OpEx) through capacity planning, failure analysis, and traffic engineering.
- Get precise modeling of complex networks, taking into account settings and configurations for Interior Gateway Protocol (IGP), Resource Reservation Protocol - Traffic Engineering (RSVP-TE), quality of service (QoS), Layer 1, VPN, multicast, and Border Gateway Protocol (BGP).

The MATE Design difference includes:

- Extensive modeling capabilities for simulating network availability and failover scenarios (Figure 1).
- Superior simulation performance and metric analysis of multicore platforms.
- Automated and intelligent traffic balancing and capacity optimization.
- Comprehensive forecasting based on traffic trends, external network influences, regional growth, and a variety of other inputs.
- Ability to combine multiple data sources to construct an end-to-end traffic matrix with the patented Demand Deduction feature.
- Interactive workflow with powerful filters and context-sensitive network display.
- Ability to easily store, retrieve, and share network plans through a web-accessible plan file database.
- Proven carrier-class scale, open APIs for OSS management integration.
- Superior, fully-functional and intuitive GUI.

Figure 1. Forecasting Link Utilization and Traffic Routing Under Failure Conditions



MATE Design Use Cases

- Simulate the impact of circuit, node, Layer 1, and other network component failures on traffic delivery and service-level agreements (SLAs).
- Model complex routing and failover policies with user-defined, advanced-routing external endpoints.
- Right-size circuits and modify topology as part of capacity planning for future network expansion.
- Observe the impact of rolling out new services or adding customers to the production network.
- Maximize existing capacity by using offline traffic engineering to adjust label switched paths (LSPs) and interface metrics.
- Analyze the vulnerability of network elements from high-priority VPNs to fiber cuts (Shared Risk Link Groups [SRLGs]).
- Analyze network QoS design to determine whether queues share capacity as intended under a range of failure and traffic scenarios.
- Model IP/MPLS Fast Reroute (FRR) Label Switched Paths (LSPs) node or link protection scenarios.
- Help to ensure explicit, redundant paths with LSP and the Point-to-Multipoint (P2MP) LSP explicit path initializer.
- Design and validate “greenfield” networks.
- Facilitate risk-free operations when removing network components from service during maintenance.
- Cost modeling: estimate the monetary cost of a network design, demand or group of demands.

MATE Design Solution

From cloud computing to mobility, service providers depend on their networks to deliver services to a broad range of customers. Guaranteeing service delivery and avoiding performance penalties for SLA breaches requires congestion avoidance through capacity planning, traffic engineering, and incremental network design.

The MATE Design network planning and design tools allow you to improve traffic distribution, identify vulnerabilities, and mitigate risks (Figures 2 and 3). Used worldwide by network planners and engineers, the MATE Design solution fully integrates with MATE Live and MATE Collector software, as well as OSS management tools. As a fully integrated and comprehensive system, MATE Design helps ensure network efficiency and cost effectiveness under all operational conditions.

Figure 2. Failure Analysis Capabilities

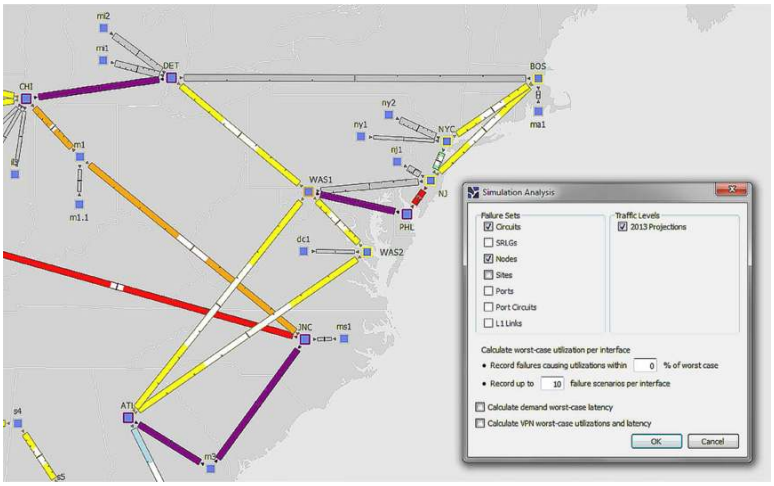
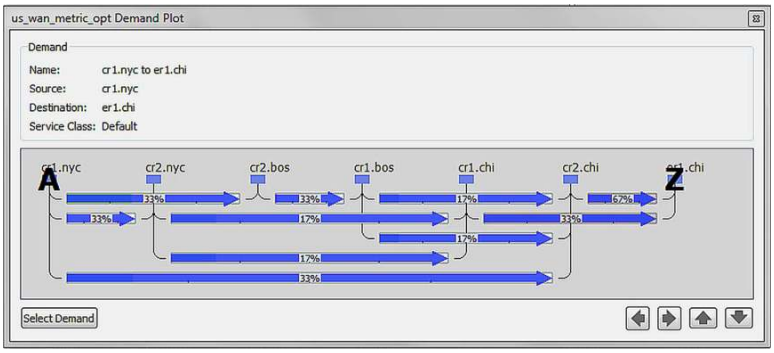


Figure 3. Detailed View of Simulated Traffic Distribution



MATE Design network capacity planning shortens planning and deployment cycles. You can:

- Create baseline demands using highly accurate traffic matrices.
- Predict the impact of future traffic growth on the network infrastructure.
- Simulate how failures affect the network and whether bottlenecks will occur.
- Simulate user-specified policies to isolate worst-case impact on bandwidth utilization and latency, including VPNs.
- Identify how service classes and interface queue policies affect traffic distribution.

MATE Design traffic engineering better utilizes the infrastructure through intelligent traffic distribution while detecting and working around network issues that cause congestion, such as link or node failures or traffic spikes. You can:

- Balance traffic loads across the network, optimizing utilization of the most expensive links.
- Explore the impact of moving traffic from one circuit to another.
- Optimize IGP metrics and link state packets
- Create fully explicit paths between specified LSPs or P2MP LSPs.
- Change IGP metrics to reroute traffic and observe impact.
- Model Fast Re-Route (FRR) LSP node or link protection scenarios

MATE Design network planning capabilities allow you to create plans and make incremental changes. You can:

- Simulate how a Layer 1 topology change affects Layer 3 design.
- Evaluate requirements for express routes and resilient Layer 1 circuit routes using routing and explicit path constraints.
- Improved Layer 1 circuit routing with Simulated Constrained Shortest Path First (CSPF) like properties, to route Layer 1 circuits according to available link capacity.
- Verify complex inter-AS routing policies and BGP peering agreements.

MATE Design GUI with interactive workflow allows you to easily and quickly plan and design your network. You can:

- Graphically view traffic utilization along any path, indicating traffic demands at any point in the network.
- Create and share customized visualization layouts.
- Create and manipulate new network objects graphically or programmatically, including assigning properties.
- Assign site locations based on longitude and latitude, align sites, and segregate edge devices.
- Apply appropriate backgrounds, such as schematic and geographic, offering multiple views of the same network from high-level representations to OpenStreetMap details.

Network Discovery with MATE Collector

MATE Collector is an optional component of the MATE Design solution that provides a complete online and offline network data collection system, leaving no disconnect between the real and planned network. With MATE Collector you get automated discovery of multivendor, multiprotocol network environments, including devices, topology, and traffic statistics through continuous snapshots of the operating network. MATE Collector adapts to network changes without the need for user intervention to keep information current.

System Requirements

MATE Design software runs on standalone laptop and desktop computers and multiple operating systems, including Windows, Mac OS, Linux, and Solaris x86. For a complete list of system requirements, please visit http://www.cisco.com.

Ordering Information

MATE Design software licenses are based on user, application, technology, and device count. Licenses are either perpetual or subscription and either node-locked or floating. MATE Collector is ordered separately.

Cisco® offers training, deployment, and support services to help you achieve the most value from MATE products.

For information on licenses and pricing, or to place an order, please contact your Cisco account representative.

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