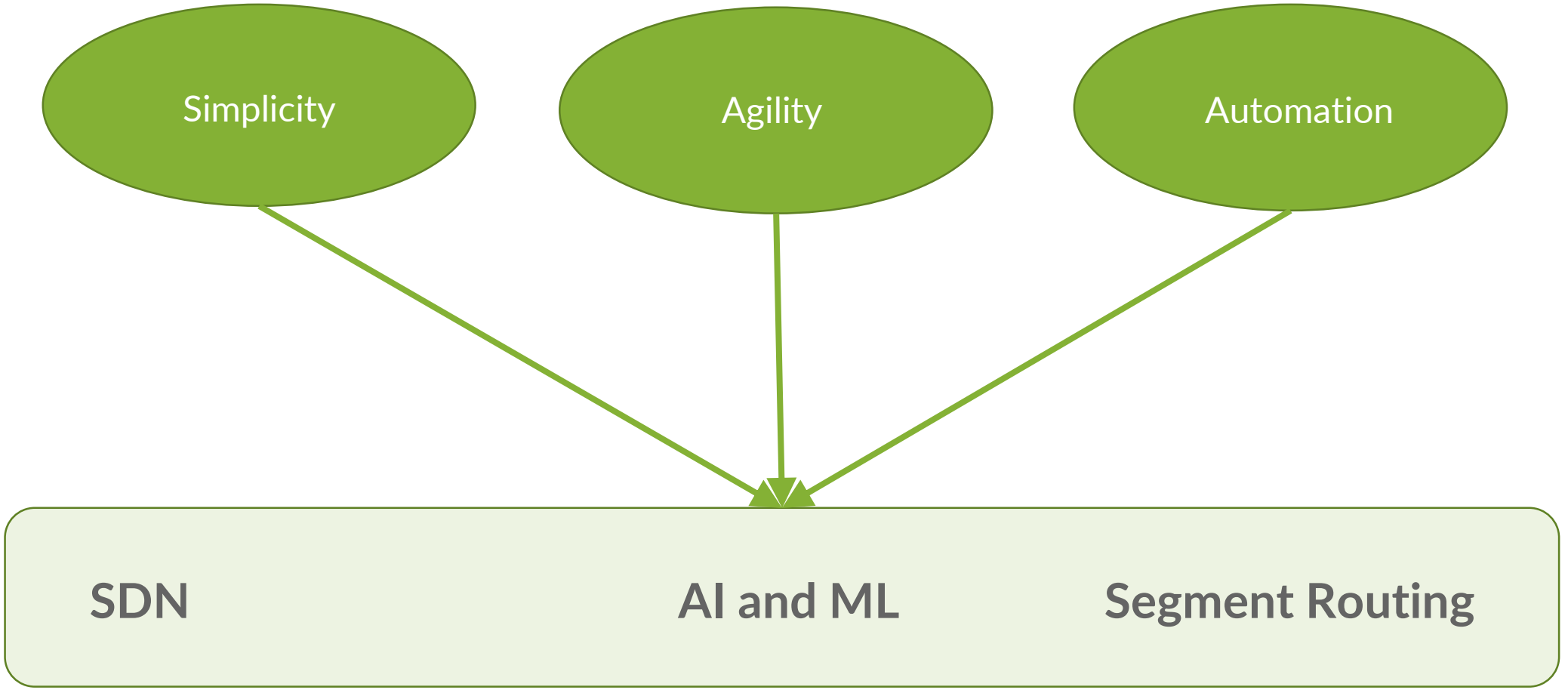
AUTOMATION IN THE SERVICE PROVIDER NETWORK
Waseem Raza Ebrahim
27 February 2020
JUNIPER NETWORKS
Engineering Simplicity

MARKET TRENDS



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CHALLENGES

Network Operations

- Increased demand for connectivity and bandwidth
- Reduce cost
- Improve Quality of Experience (QoE)

MPLS Management

- Complexity
- Limited visibility
- Inability to respond rapidly to network changes in real-time

Adoption of new technology

- Heterogeneous / multiple, forwarding plane support
- SR Path management
- Bandwidth reservation for SR

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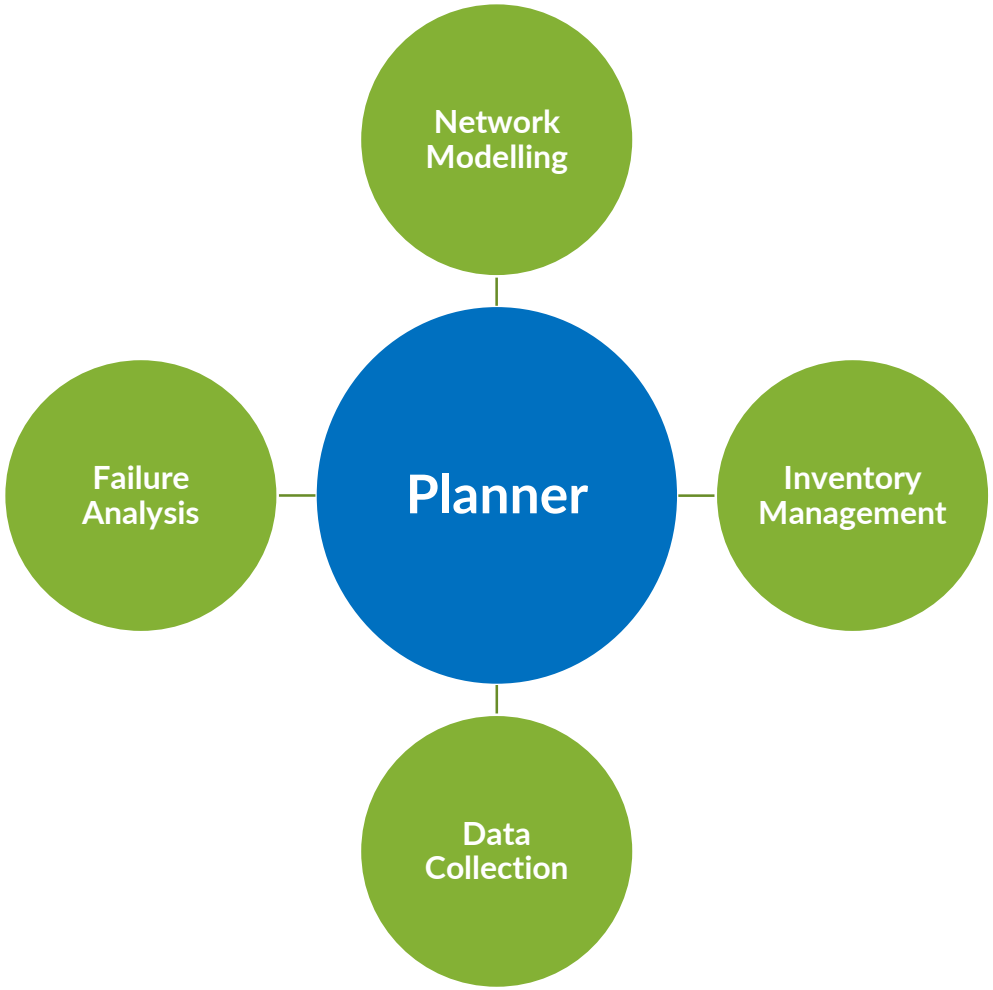
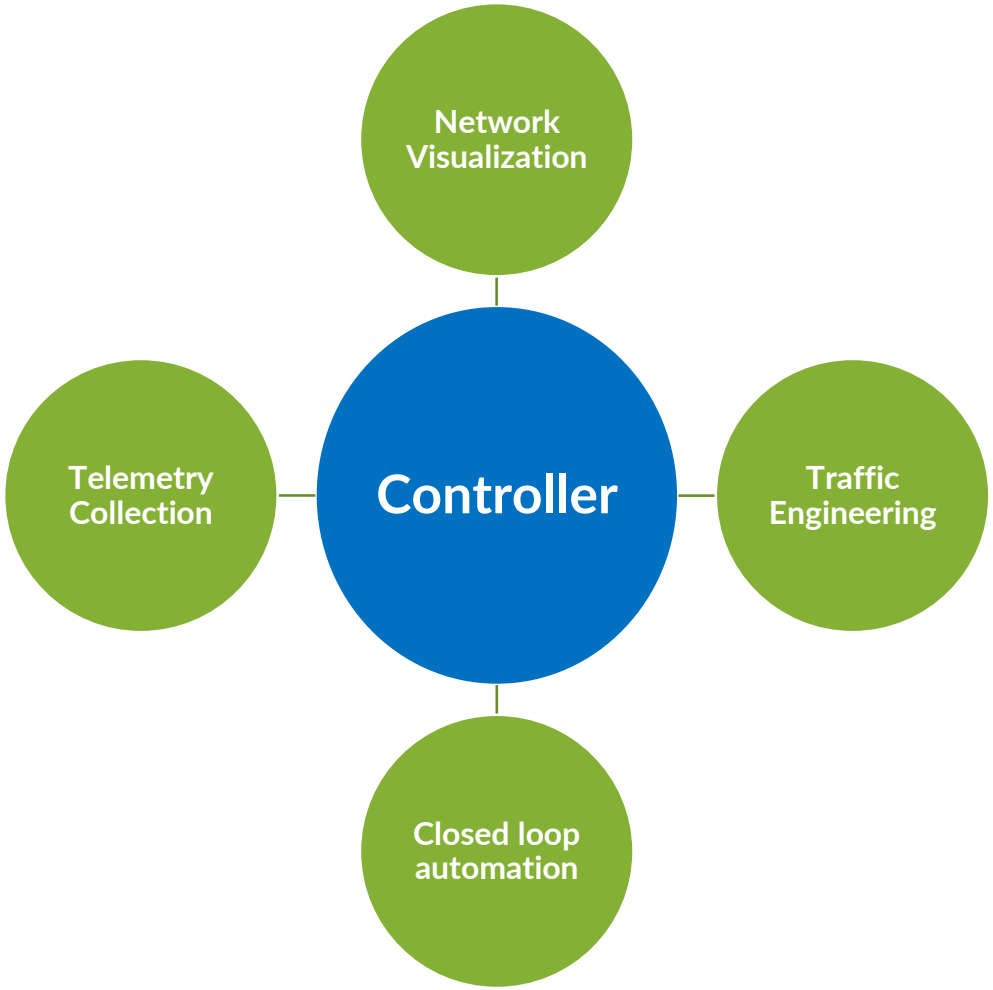
NETWORK TRANSPORT SIMPLIFIED WITH CLOSED LOOP AUTOMATION





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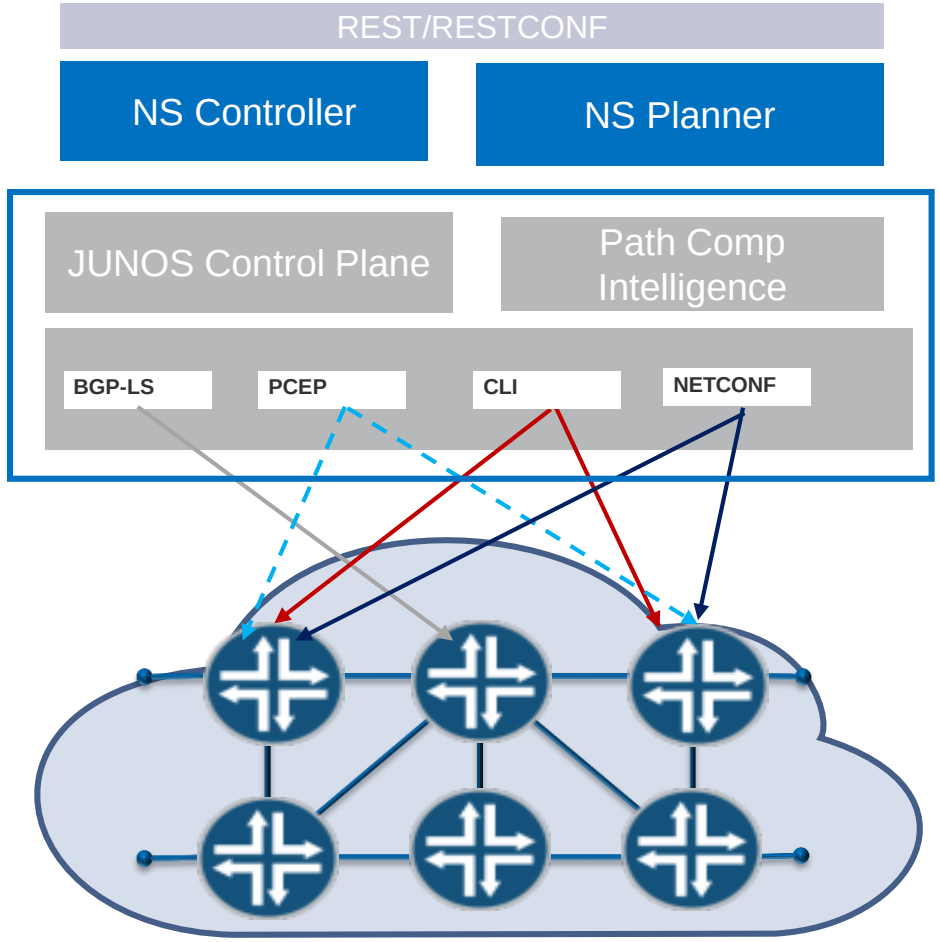
CONTROLLER AND PLANNER

Controller

- Granular Visibility
- IP/MPLS/SR Flow Management
- Network Optimization
- Proactive Monitoring
- Traffic Management

Planner

- In-depth network view
- Designing and Planning
- Hardware Inventory
- Network heath audit
- Compliance Assessment



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NORTHSTAR PLANNER

Network Planning

Collector

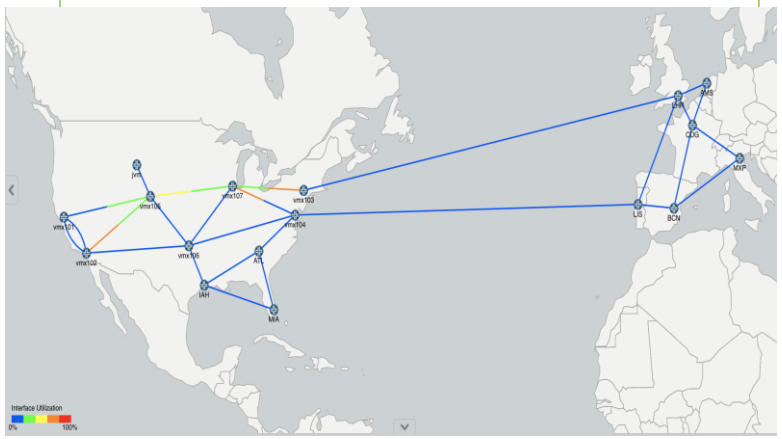
- Device inventory
- Network data collection
- LSP data collection
- Health audits

Network Modelling

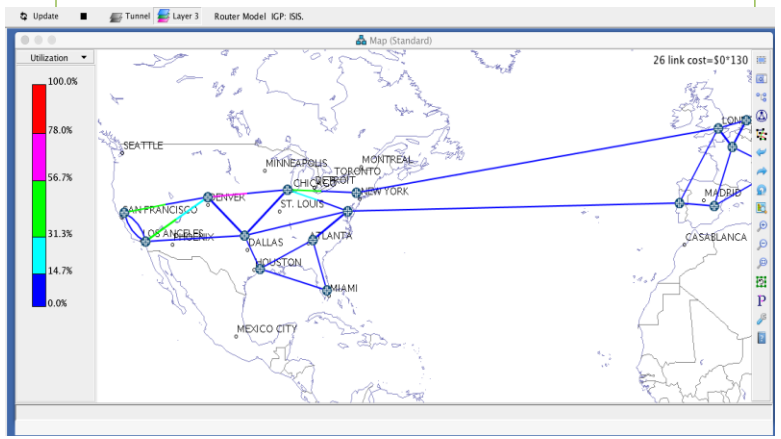
- Scenario modelling
- Trending Analysis
- Routing simulations
- Network visibility
- Service level topology views

Failure Analysis

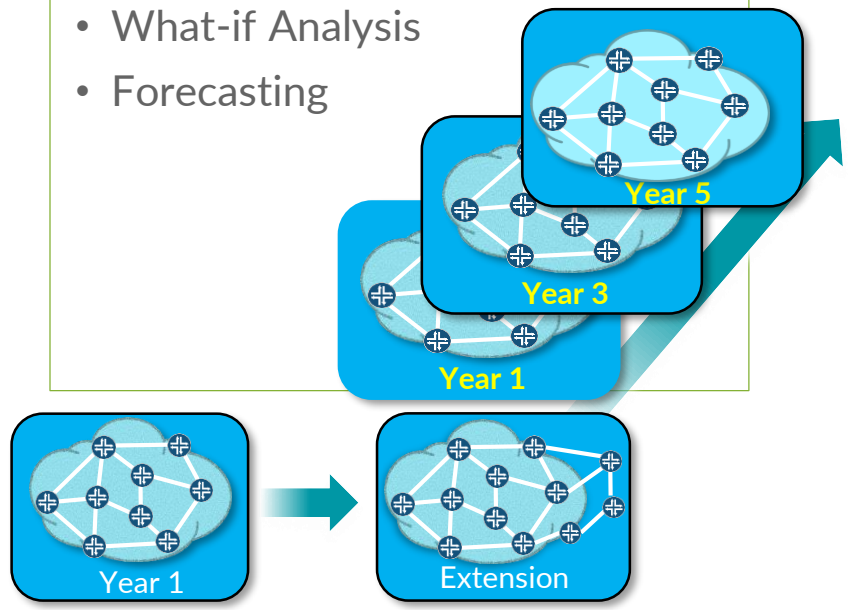
- Link failure
- Node failure
- SRLG
- What-if Analysis
- Forecasting



Live topology pulled into the NorthStar Planner.



Simulated Network
(Northstar Planner)



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NORTHSTAR CONTROLLER

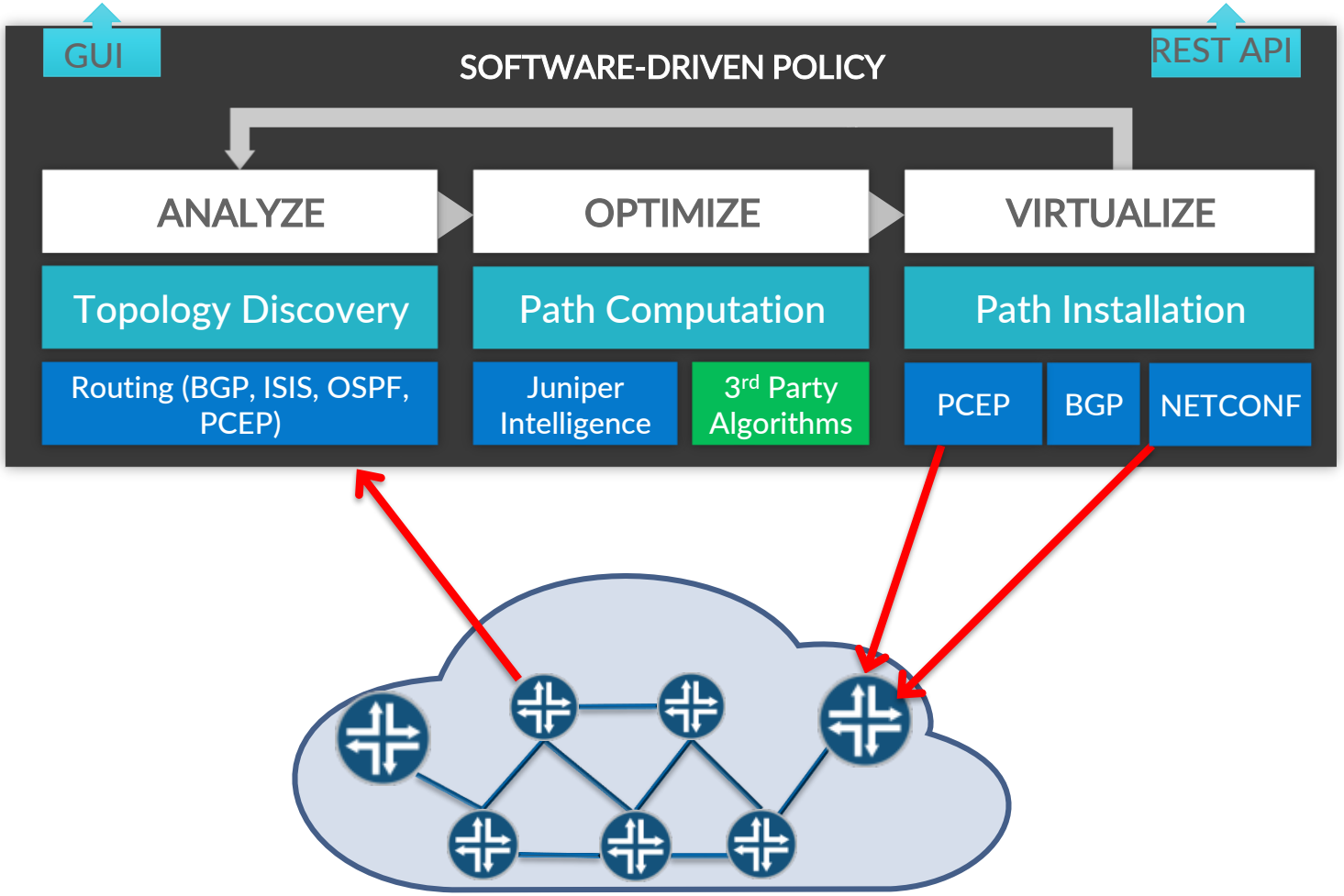
A Standards Based Stateful SDN and Segment Routing Controller

Address real networking problems with a centralized TE controller

- ✓ Bin-packing, Predictability, Adaptive TE control-loops, Inter-domain, GCO, diverse path calc, …

An evolutionary deployment model leveraging the distributed control-plane(s) of IP/MPLS networks

- ✓ Real-time control-plane integration through run-time state synchronization
- ✓ Standardized south bound protocols



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TYPICAL USES FOR NORTHSTAR CONTROLLER

1. Real-time Topology and LSP Visualization
2. Bandwidth Calendaring
3. Coordinated Maintenance
4. Path Diversity
5. Traffic based Network Wide Optimization
6. Multi-layer PCE

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FOR MORE INFO…

NorthStar: www.juniper.net/products-services/sdn/northstar-network-controller/

Segment Routing: www.juniper.net/sr

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