

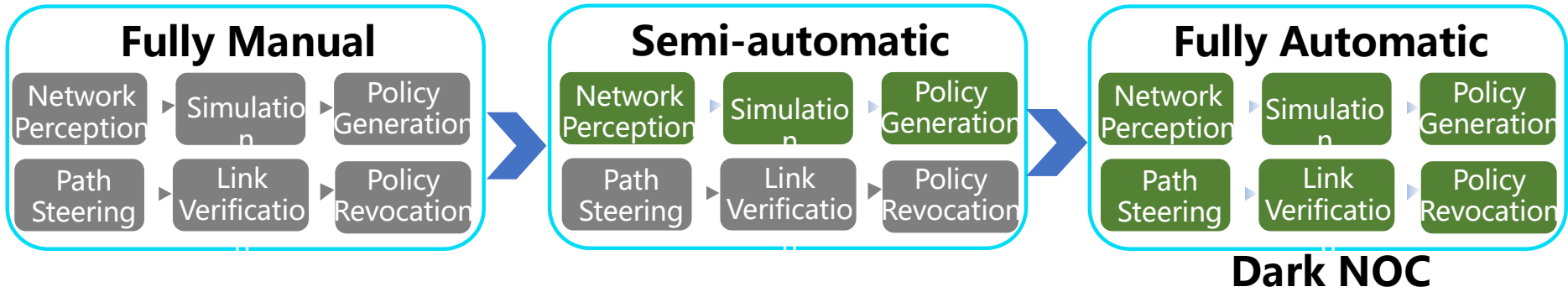


IP Autonomous Network Practices --Network Traffic Steering

CHINA MOBILE
March, 2026



Paradigm Shift: From Manual to Semi-Automatic to Fully Automatic



Manual Operation

	Efficiency	Quality	Mode	Cost
Manual Operation	Slow, serial processing take hours to resolve traffic congestion	Error-prone, inconsistent carries the risks of creating routing loops	Reactive response performed only when congestion occurs	High labor cost requires 6 full-time operations experts

Fully Automatic Operation

Fully Automatic Operation	Fast, parallel processing take minutes to resolve traffic congestion	High precision, standardized achieves zero errors through comprehensive analysis and validation	Proactive prevention, intelligent self-healing predicts and handles potential congestion before it happens	Zero labor cost requires zero human intervention
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Two Major Application Scenarios

Congestion Steering

Evening Rush Hour
20:00-22:00

Hot Events
Chinese Spring Festival

Network Fault
Link Outage

Unexpected Events
Natural Disasters

Differentiated Service Steering

Latency Guarantee
Low latency

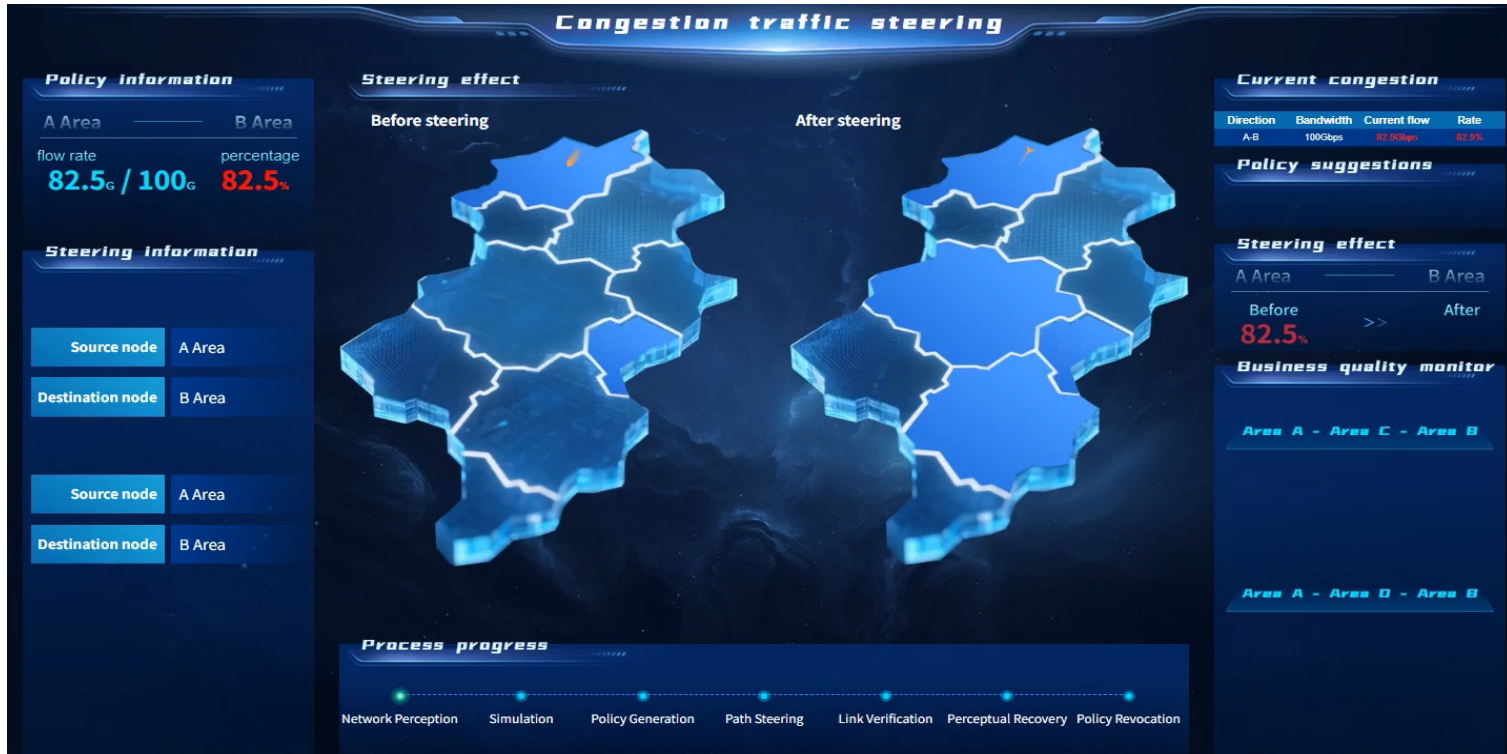
Jitter Guarantee
Minimal Jitter

Bandwidth Guarantee
High Bandwidth

Packet Loss Guarantee
Minimal Packet Loss

Core Workflow for Congestion Steering

Zero Service Degradation, Zero-Failure Experience



Congestion-Free Data Highway, +50 Tbps Virtual Capacity

Enabling Technologies

Real-Time Awareness

BGP-LS

TWAMP

Telemetry

Netstream

BGP/BMP

iOAM

Syslog

SNMP

Policy Decision

Digital Twin

Ant Colony

SRv6

Policy Deployment

BGP SR Policy

BGP Flowspec

BGP

Netconf

Our Related Standard Efforts in IETF

Some relevant protocols that my team has enhanced, or is currently enhancing, in collaboration with the IETF community:

- **Micro OWAMP/TWAMP/STAMP, [https://datatracker.ietf.org/doc/rfc9533\(rfc9534\)/](https://datatracker.ietf.org/doc/rfc9533(rfc9534)/)**
- **BGP SR Policy Extensions for Performance-Aware Path Selection, <https://datatracker.ietf.org/doc/draft-li-idr-sr-policy-metric/>**
- **BGP SR Policy Extensions for BFD Configuration, <https://datatracker.ietf.org/doc/draft-li-idr-bgp-sr-policy-bfd-extension/>**
- **BGP SR Policy Extensions for State Report, <https://datatracker.ietf.org/doc/draft-li-idr-bgp-sr-policy-state-report/>**
- **BGP Flowspec Redirects to SR Policy, <https://datatracker.ietf.org/doc/draft-li-idr-flowspec-sr-policy/>**
- **BGP Extensions for Network Resource Partition, <https://datatracker.ietf.org/doc/draft-li-idr-bgp-nrp/>**
- **Agentic AI for IP network operation (AgenticOps), side meeting, <https://sidemeetings.ietf.org/>,**



Thank you!

