

Considerations of AI-powered ASA Communication and Scenarios

AINIMA WG

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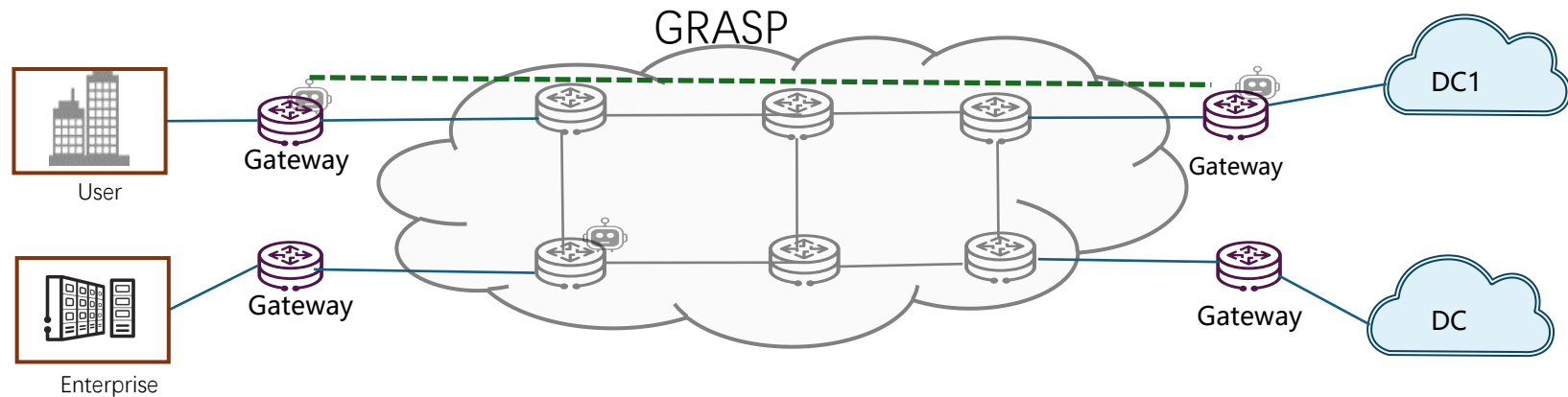
MENGYAO HAN, JING ZHAO, ZHANG SHUAI, ZHENG RUAN (CHINA UNICOM)

Background

- Large-scale network models gain great attention in AI networking.
- Integrate network technologies and LLMs with broad potential.
- Provide innovative solutions for complex network OAM.
- AI-powered Autonomic Service Agent (AI-ASA) can achieve more intelligent management functions.
- Embedded in devices to boost OAM efficiency with LLMs.

The Vision of AI-powered ASA

- Enables intelligent OAM for network devices
- Realizes intention-driven & auto-driven networks
- From Autonomic Networking to intelligent Networking



Scenarios of AI-ASA Communication between Network Devices

This congestion relief mechanism is automated within the device. Leveraging traffic analysis, it precisely calculates the volume of traffic requiring redistribution. Subsequently, it redirects this traffic to paired devices via inter-device protocol announcements and the automatic adjustment.

Step 1: Traffic Modeling

Real-time TOP-N traffic modeling for core links.

Step 2: Traffic Monitoring

Automatic detection of CR1-C1 link failures.

Step 3: Intelligent Policy Generation

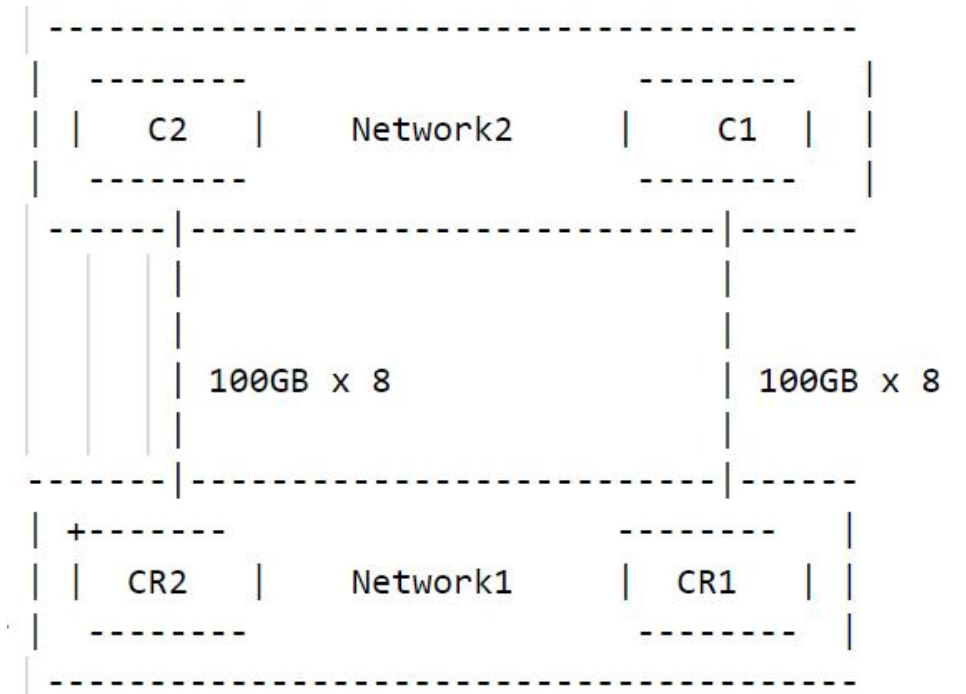
Identify key routing prefixes and generate adjustment policies.

Step 4: Policy Propagation

Deploy policies to divert high-priority traffic and relieve congestion.

Step 5: Policy Reversion

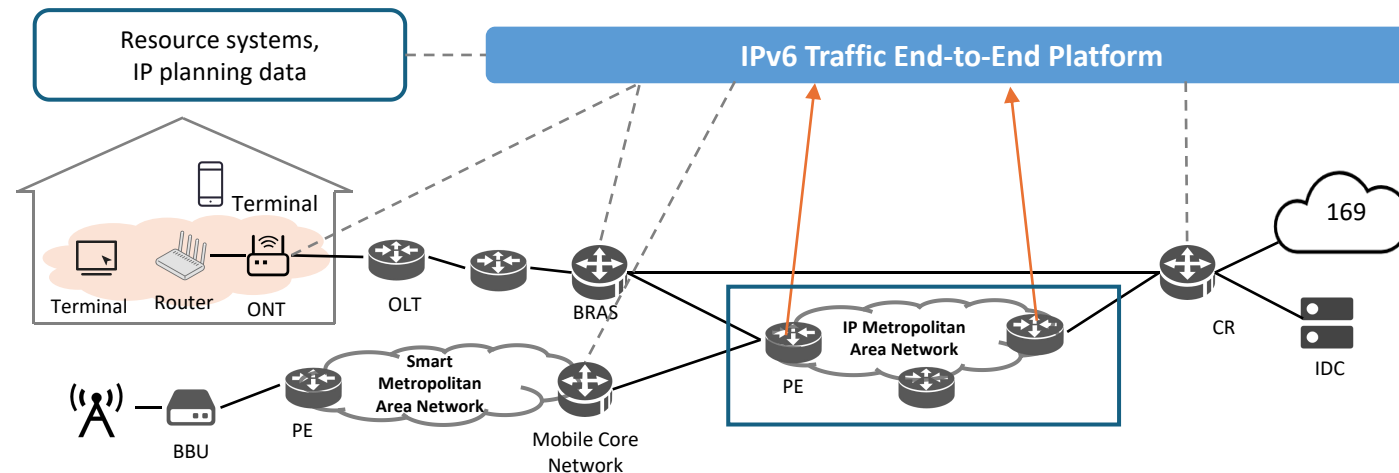
Automatic policy withdrawal after link recovery



Automation Decision-Making Usecase for Automatic Network Congestion Relief

Scenarios of AI-powered ASA Communication between Network Management Systems and Devices

- Traditional IPv6 end-to-end traffic monitoring is manual and resource-intensive.
- We introduce AI Agents on controllers and devices, using **GRASP** for hierarchical collaboration.
- Controllers and devices **collect IPv6/IPv4 traffic** and **do local analysis** in real time. The monitoring platform makes intelligent decisions like link expansion and CDN deployment.
- Configurations are delivered via **GRASP** to form a closed automation loop.



Next Steps

- Take an active part in the AINIMA WG and explore AI-related collaborative work.
- AI-powered ASA may achieve GRASP-based autonomous negotiation, such as autonomously defining objectives and other functions, thereby enhancing network autonomy.
- According to the WG comments, define the GRASP objectives to achieve the congestion relief.

If you are interested in draft or have suggestions on how we can enhance our draft. Please reach out to us!

Email: hanmy12@chinaunicom.cn

draft-han-anima-ai-asa-01 & draft-han-anima-grasp-congestion-relief

Thanks for Listening!