Wide Area Network Autoscaling for Cloud Applications

IETF 113 – PANRG

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Agenda

• Scenario and concept
• Prototyping
• Performance
Scenario

(1) Increase Underlay Capacity Vertical Autoscaling
(2) Change Overlay Path Horizontal Autoscaling

SDN Controller

Application data

Cloud orchestrator

Cloud Applications

App

Users
Horizontal Network Autoscaling

- User Host
- SD-WAN Edge
- Branch
- SD-WAN Controller
- Standard Connection
- Premium Connection
- Connectivity Provider
- SD-WAN Edge
- DC/Cloud
- App
Horizontal Network Autoscaling

- User Host
- SD-WAN Edge
- Branch
- SD-WAN Controller
- Standard Connection
- Premium Connection
- Connectivity Provider
- SD-WAN Edge
- DC/Cloud
- App
Vertical Network Autoscaling

SD-WAN Controller

Underlay API

User Host
SD-WAN Edge
Branch

Premium Connection
Connectivity Provider

App
SD-WAN Edge
DC/Cloud
Vertical Network Autoscaling

SD-WAN Controller

Underlay API

Premium Connection

Connectivity Provider

User Host
SD-WAN Edge
Branch
SD-WAN Edge
DC/Cloud
App
Prototyping
Performance

Horizontal Network Autoscaling

- Rate-limited Tunnel
- 1 Gbps Tunnel
Performance

Vertical Network Autoscaling

- Traffic
- Target Replicas
- Virtual Circuit Bandwidth
- Traffic Moving Average
Thank you!

Any questions?
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https://arxiv.org/abs/2109.02967