



# SRv6

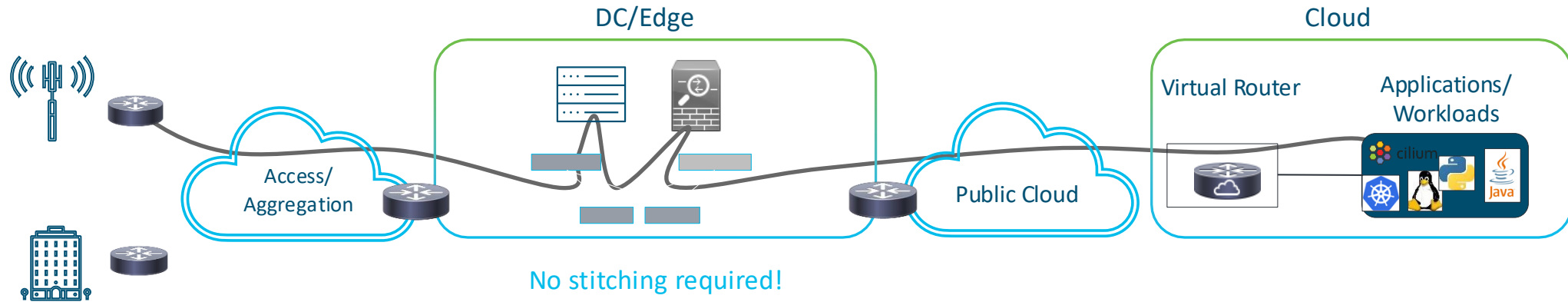
Clarence Filsfils, Cisco Fellow

# A 10-year Journey

- 2016 (June): we find SRv6 uSID
  - End-to-End IP solution which empowers the application to control the network
- 2016 (Sept): first week after Leaba acquisition (Silicon One)
  - Confirm S1 Linerate for all required SRv6 use-cases
- 2019: we deploy our first two SRv6 networks (Softbank, Iliad)
  - We are still the only vendor supporting SRv6 on Jericho1 linerate
- 2023: we deploy Alibaba eCore (DCI/WAN at China scale)
  - A fundamental reference for ongoing AI DCI/WAN deployments
- 2026: **within 10 years, we have revolutionized IP and achieved all our deployment targets:**
  - More than 100k SRv6 routers deployed across
  - All network domains: DC, DCI, WAN
  - All markets: Web, SP, Utilities, Ent
  - Led 13 Proposed Standard RFC's (>130k words)
  - Led open-source implementation in Linux, VPP and Sonic!



# SRv6 Unified Solution for Mobility



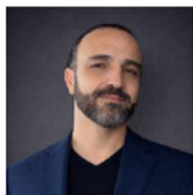
Simplified VPN services

Service Function Chaining

Traffic Engineering and FRR

Operational Simplicity

Enhanced Scalability



**Luay Jalil,**  
Verizon



**Nicolai Leymann,** Sr  
Deutsche Telekom



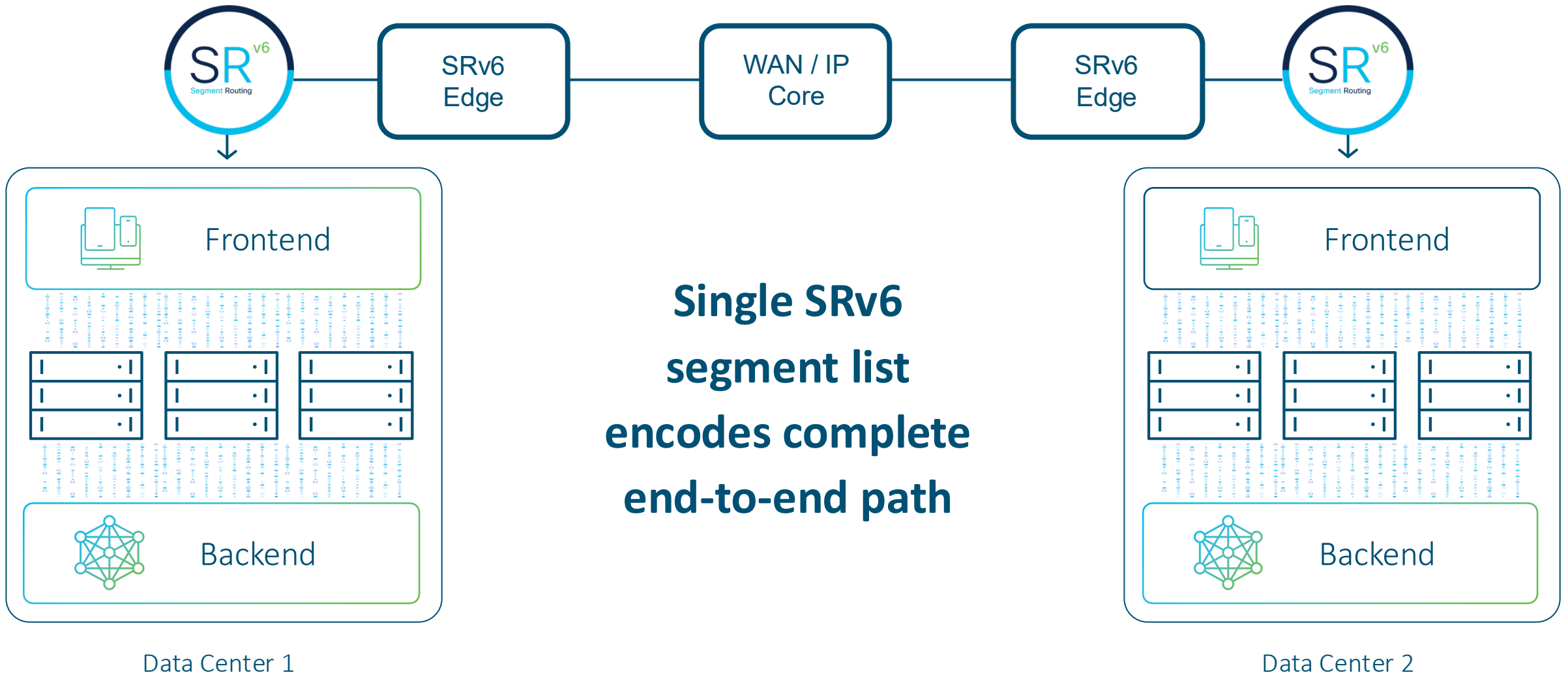
**Akash Agrawal,** D  
Rakuten Mobile

# Extensive SP/Utilities Deployments



- Over 100k Cisco SRv6 routers deployed

# SRv6 Unified Solution for AI



Data Center 1

Data Center 2

# SRv6 — Powers the world's most powerful AI DC

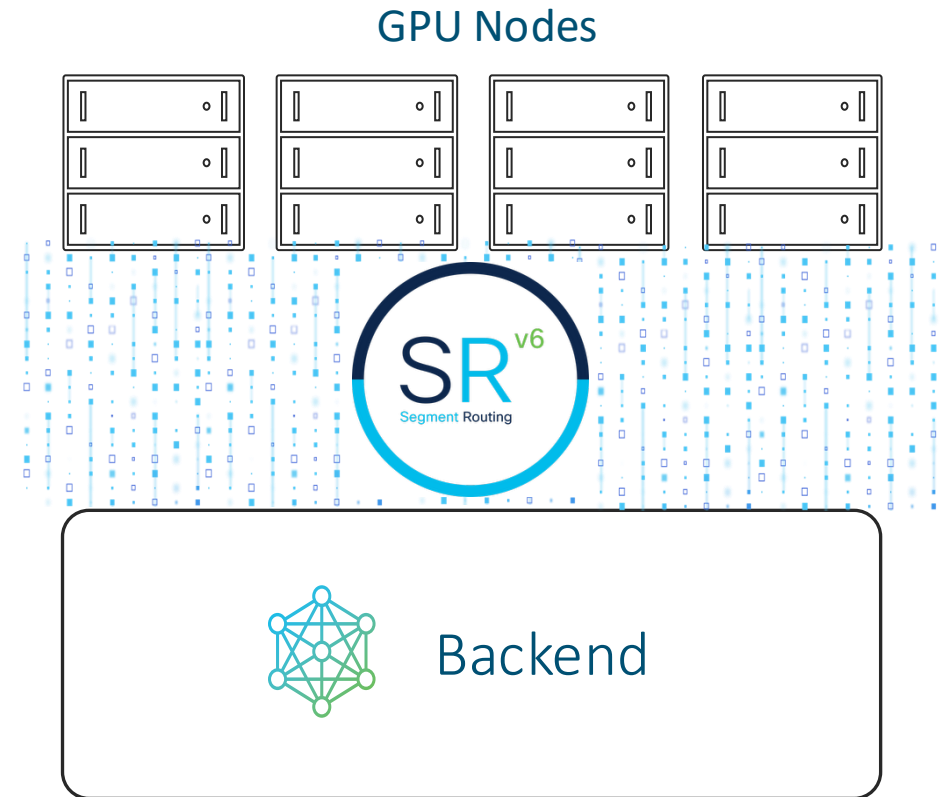


- Inside the world's most powerful AI datacenter. Microsoft Blog [\[Link\]](#)
- SRv6 is the key enabling technology for Microsoft DC. Guohan Lu, Microsoft. OCP Global Summit [\[Link\]](#)



# SRv6 for AI Back-End

- GPU fabric optimization through deterministic path placement
- NIC-level source routing via uSID
- Stateless, predictable distribution
- Reliable Fabric (no dynamic routing)
- uSec Reaction to congestion/failure



**Rita Hui,**  
Microsoft

[Paris 2025. Recording](#)

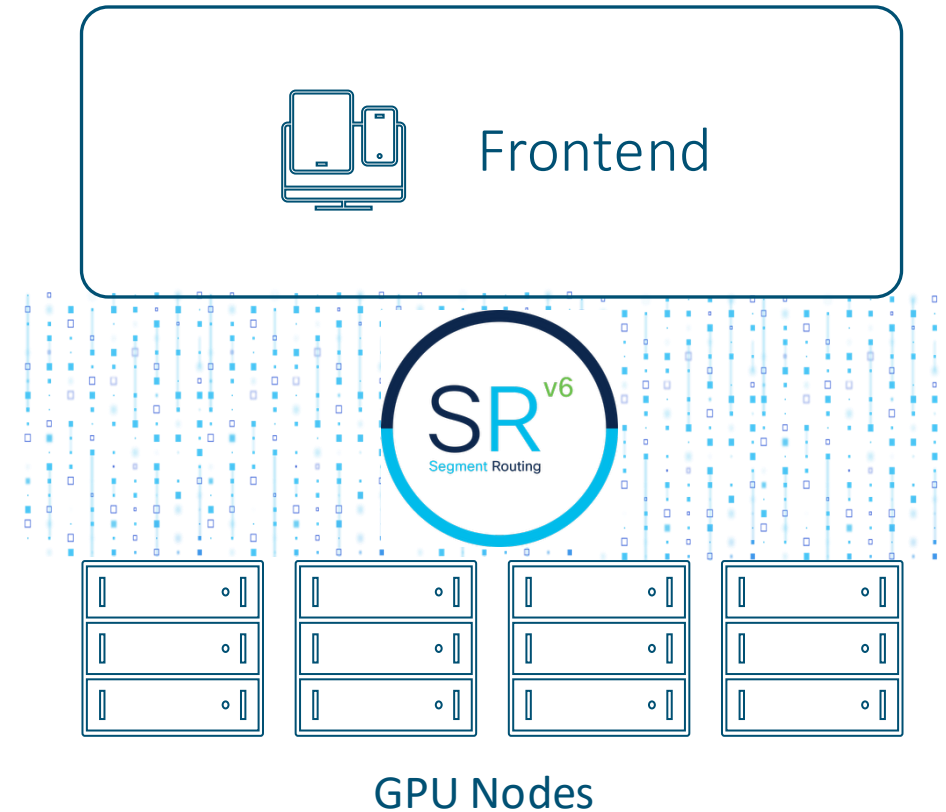


# SRv6 for AI Front End

- Stateless Service Chaining
  - uSID bound to Firewall
- High Availability
  - Anycast uSID bound to Firewall
- Automated Steering
  - Traffic automated steered through service chains to the Internet and from the Internet
- WAN TE controlled from FE
- Egress Peer Engineering controlled from FE

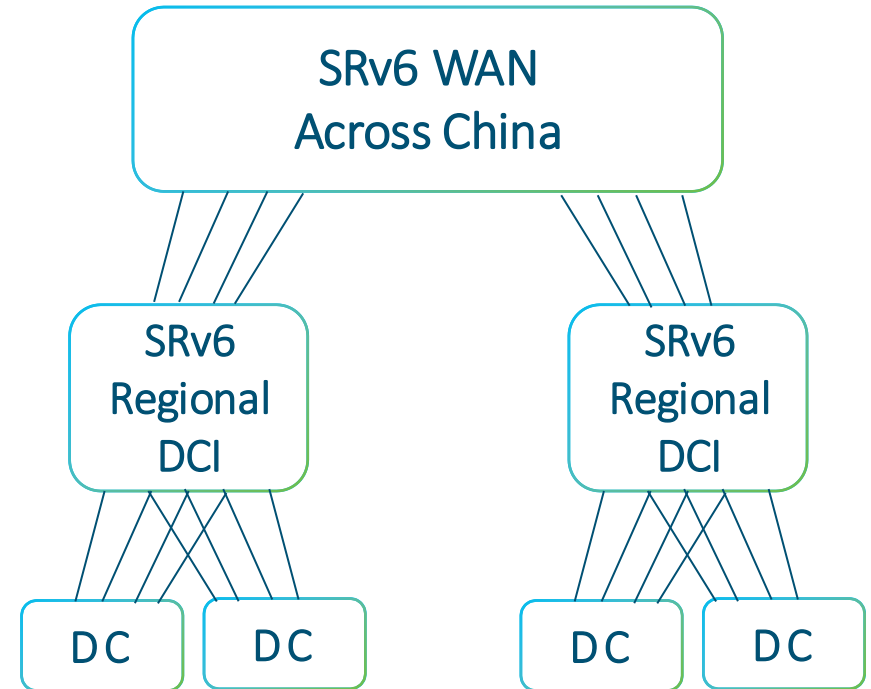


**Alexey Gorovoy,**  
Nebius



# SRv6 for AI DCI/WAN

- Alibaba eCore
- Ultra Scale SRv6 DCI/WAN deployment across 1000 cities in China
- S1/SONiC/SRv6 in DCI
- S1/XR/SRv6 in WAN
- 3 years of Deployment experience
- Amazing design!



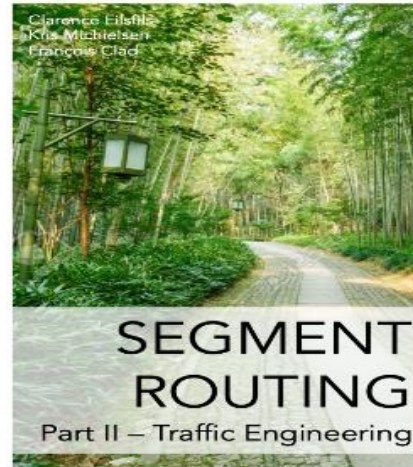
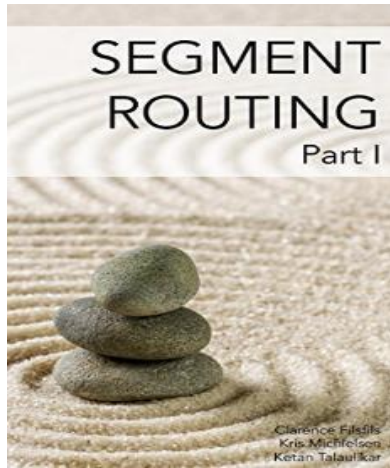
**Roy Jiang,**  
Alibaba Cloud



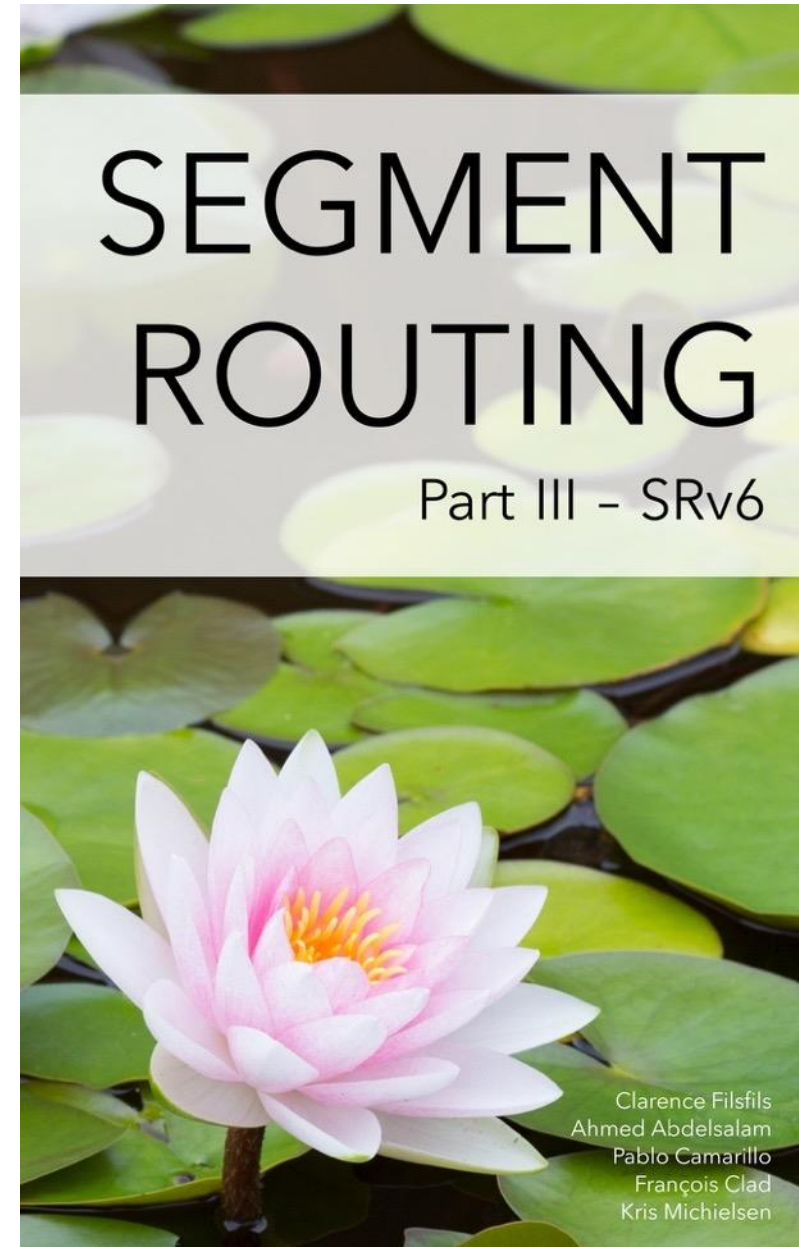
# Conclusion

- SRv6 makes IP more scalable, richer with backward compatibility
- SRv6 provides a Unified IP Solution
  - SP Mobility: from access to Internet through DCI and WAN
  - AI Fabric: BE, FE, DCI and WAN
- Cisco SR team invented, standardized and deployed across all domains
- Are we done? Not at all. Lots of new SRv6 use-cases!

Stay up-to-date



segment-routing.net



<https://www.amazon.com/dp/B0D6GWWRWH>

# SRv6 Lead Operator Event

- 2-day event
- 75% Operator Content
- 2026/09: Nice / Rome
- 2026/10: Miami



# Cisco Pinnacle Award 2025 – SRv6 Arch team

SRv6: Richer IP for AI  
from DC to WAN

Market Impact

2025  
Pinnacle  
Award





# TE is a MUST for AI DCI

- The topology is less symmetric
- The capacity is more scarce
- Latency matters more
- Weirdness:
  - Shortcuts between clusters only for specific workloads
  - SRLG's

# SRv6 TE – The Perfect fit for AI DCI

- Perfect fit for the “IP nature” of legacy DCIs
  - Most pre-SRv6 uses IPinIP for source routing
  - **No MPLS in Legacy DCI** – MPLS requires pervasive deployment
- Perfect fit for the SONiC expansion in AI DCI
  - Leverage the SRv6 richness/maturity in SONiC from AI DC
  - **No MPLS in SONiC** – too much investment, too slow, too late
- Perfect fit for DC HW
  - SRv6 is rich/mature across all DC HW (S1 family)
  - **No MPLS on DC HW** – significant gaps
- Perfect **End-to-End model**
  - SRv6 end-to-end from DC to DC through DCI
  - **MPLS breaks the end-to-end model**. Expensive and Complex DCI gateway.

# SRv6 in SONiC (Mature, Deployed, Rich Ecosystem)

- Mature:
  - [AI Backend: SDN Provisioned SRv6 Fabric](#)
  - L3VPN: IPv4/IPv6 – Static & BGP (RFC9252)
  - SRv6 GRT: IPv4/IPv6 – Static & BGP (RFC9252)
  - Underlay Traffic Engineering: Static & IS-IS (RFC9352)
  - Static steering of IPv4/IPv6 traffic over SRv6 uSID
  - SRv6 SID Manager – Interoperability with IOS-XR/Other Vendors
  - BGP-LS: IS-IS and eBGP fabrics
  - 460+ PR and 2000+ commits across SAI/SONiC/FRR.
- Deployed in production:
  - Microsoft Fairwater DC – Guohan Lu at OCP 2025 [\[Link\]](#)
  - Alibaba eCore – Dennis Cai at OCP 2025 [\[Link\]](#)
- Rich Ecosystem:
  - Contributors: Cisco, Microsoft, Alibaba, Broadcom, Nvidia



Microsoft Fairwater DC  
Guohan Lu @ OCP 2025



Alibaba eCore  
Dennis Cai @ OCP 2025