



SRv6 Traffic Engineering in AI DCI/WAN for AI Traffic

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Member



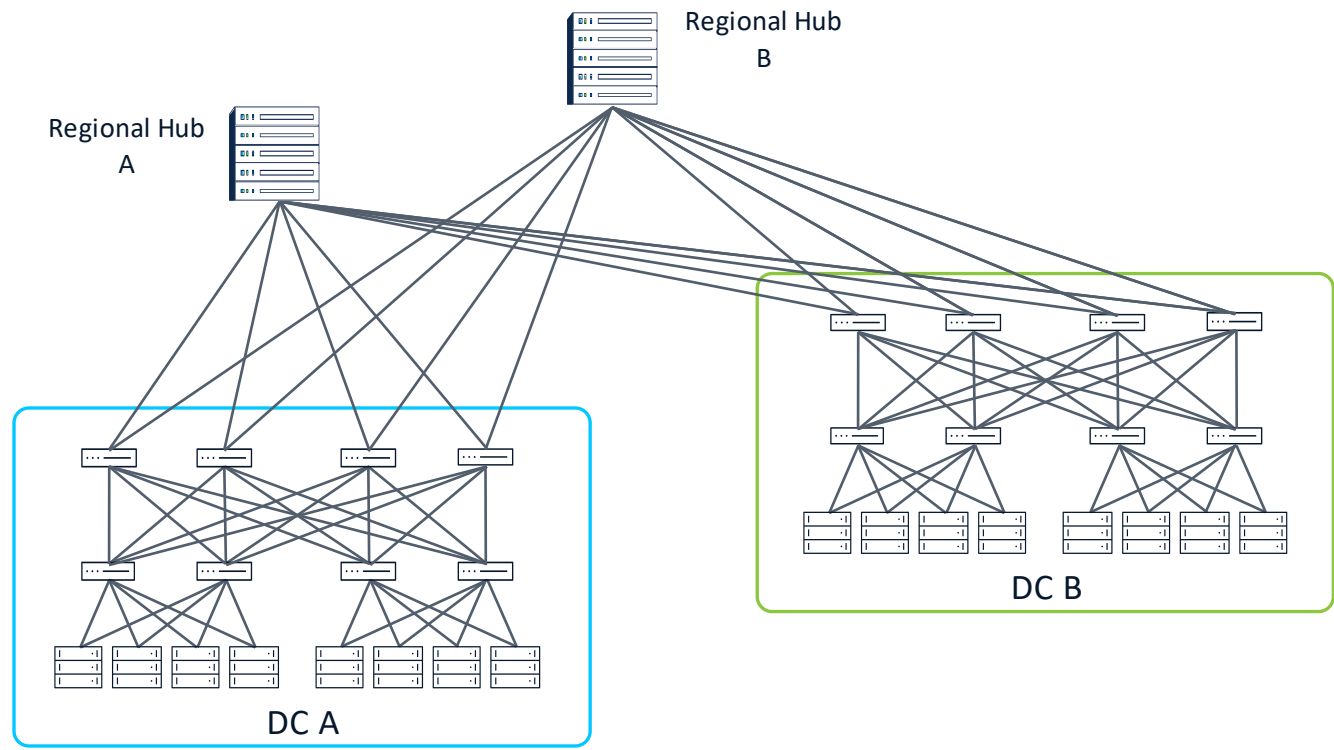
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Scaling Innovation for the AI Era.

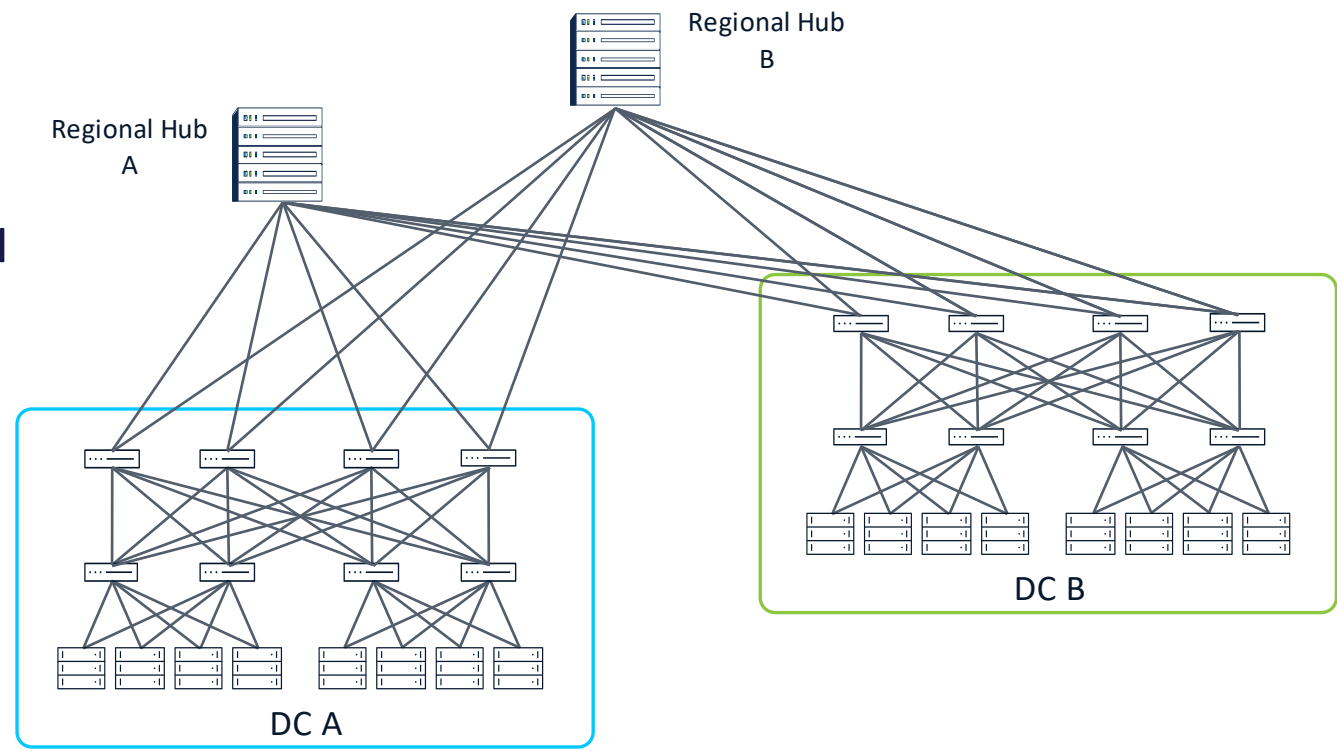
AI DCI/WAN

- Power limitations
- Workload spans clusters scattered over a regional network
- Traffic Engineering is MUST
 - Topology is less symmetric
 - Capacity is scarce
 - Latency matters



SRv6 TE - Perfect fit

- IP nature of AI DCI
- SONiC expansion in AI DCI
 - Leverage the SRv6 richness/maturity in SONiC from AI DC
- SRv6 is rich/mature across DC HW
- End-to-End model
 - SRv6 end-to-end from DC to DC through DCI



AI DCI/WAN – Solution Options



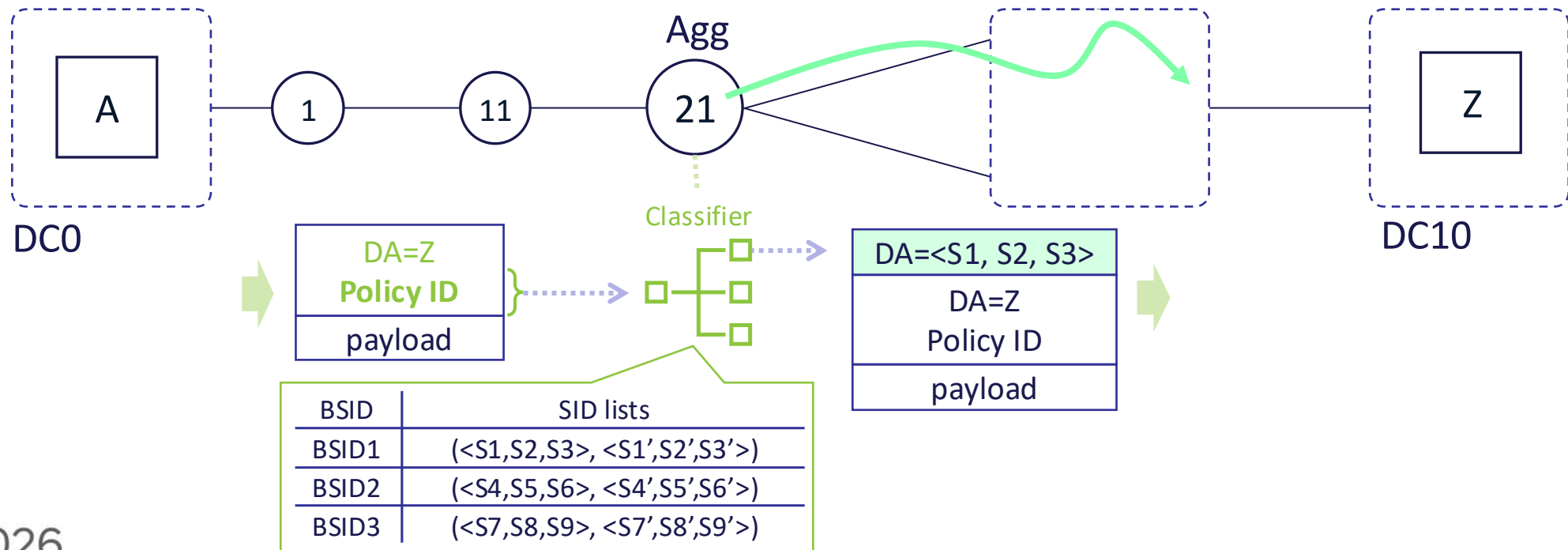
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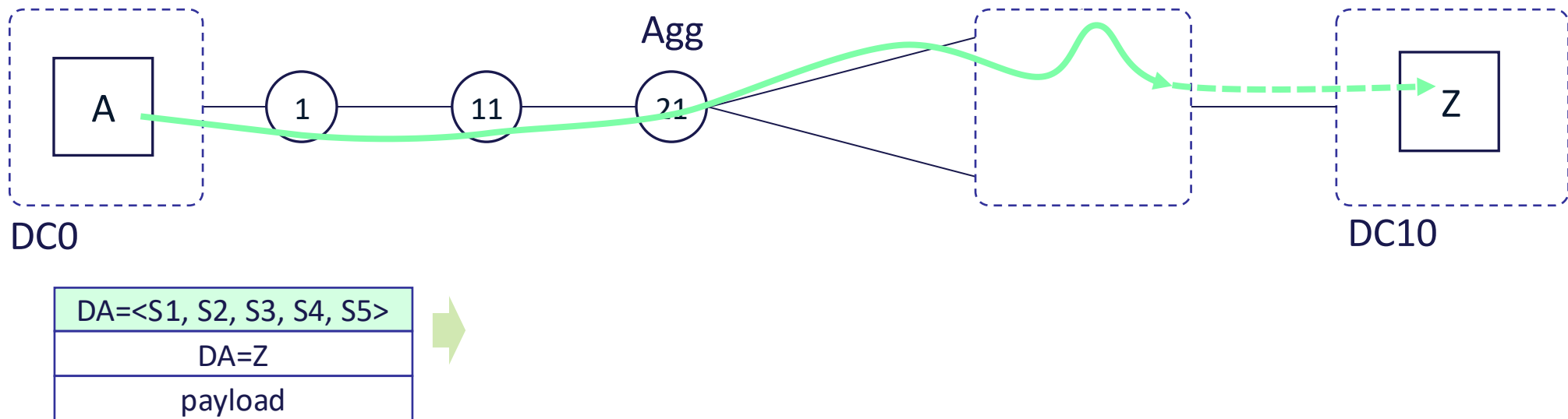
Option A – Classify and Steer @Agg

- No changes on host – no SRv6 on host
- Agg node:
 - Classifies packets based on **Policy ID**
 - Steers classified packets into the appropriate **SRv6 SID list**



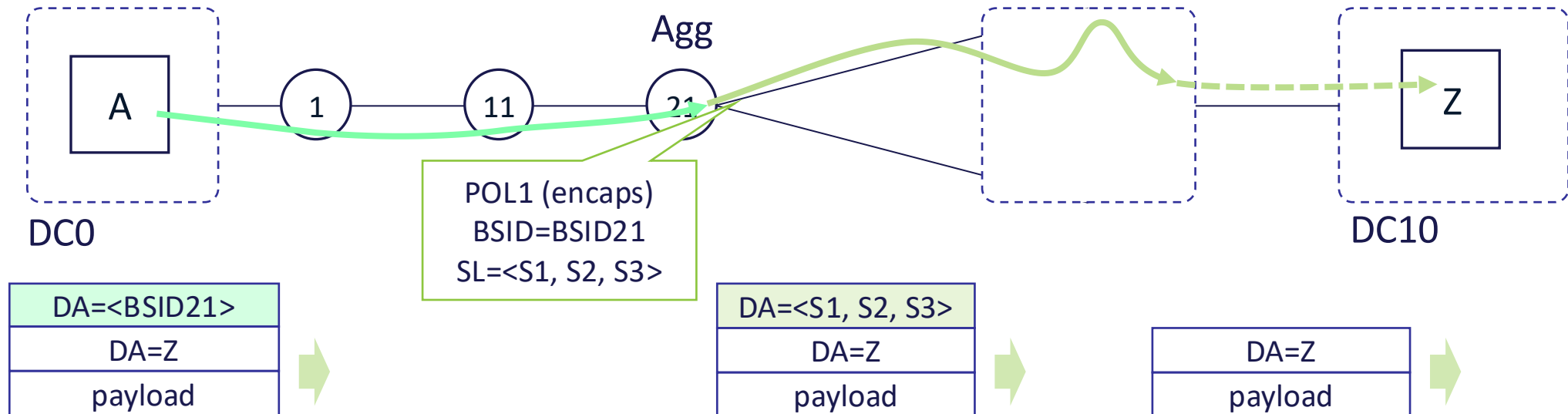
Option B – Classify and Steer @Host

- Host/application:
 - Decides on the desired end-to-end SID list for the packet
 - Encapsulates the packet and encodes the SID list in the outer DA



Option C – Classify @Host, Steer @Agg

- Host/application:
 - Decides on the desired intent for the packet
 - Maps the intent to BSID@Agg and encodes the selected BSID in the packet's DA
- Agg node:
 - Expands the BSID to the SID list



Alibaba AI WAN



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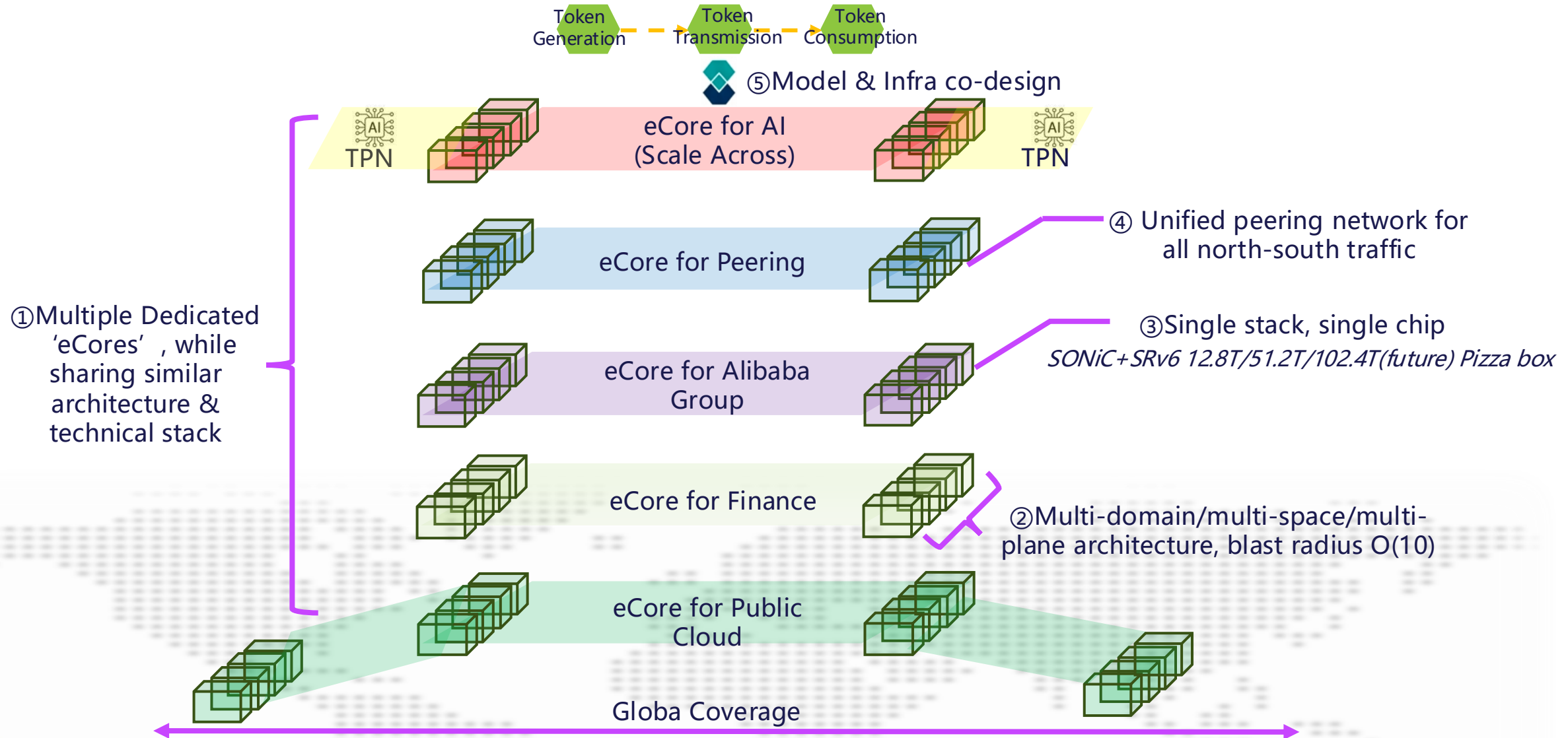
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Following the First Principles: Token Native

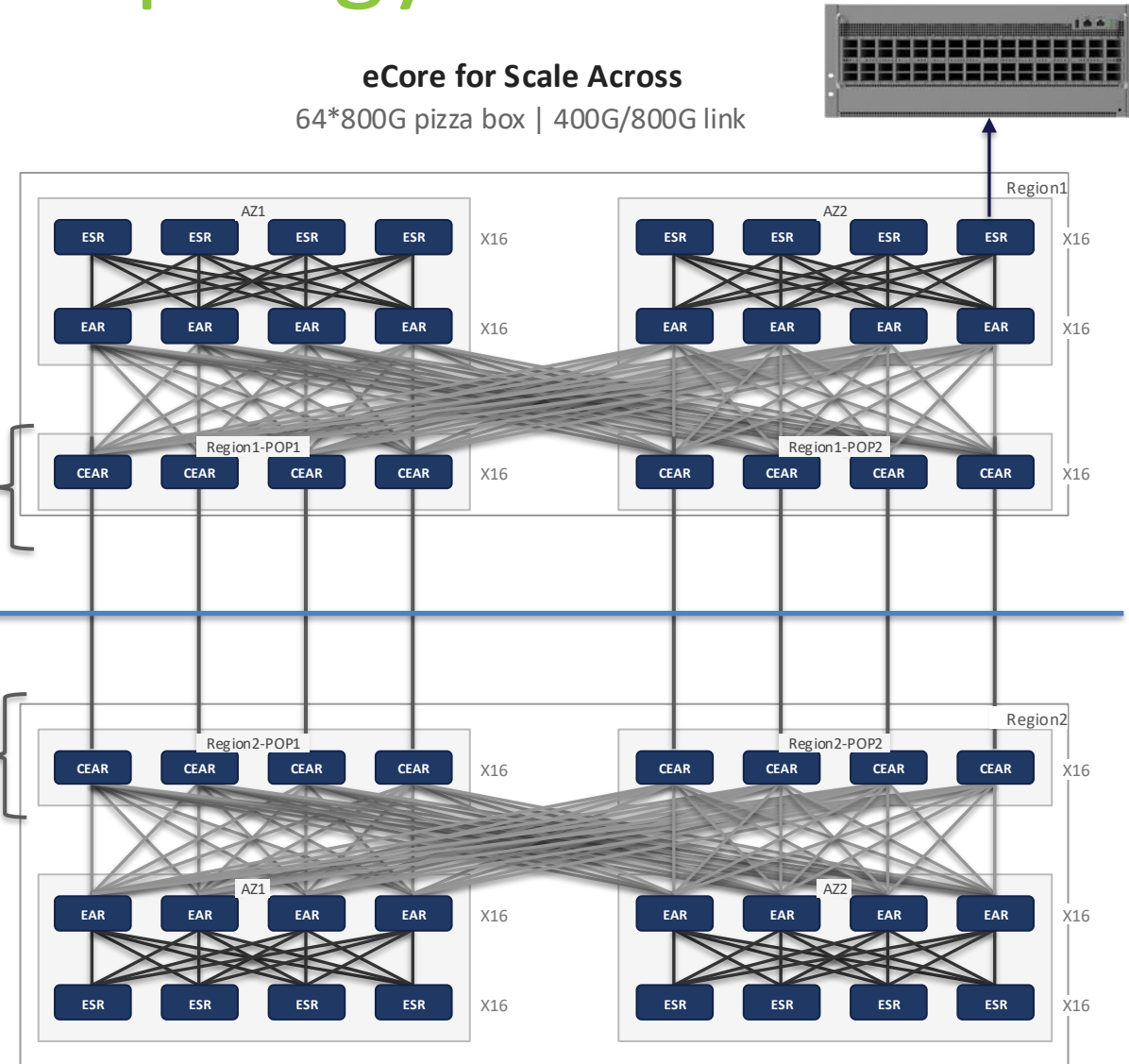
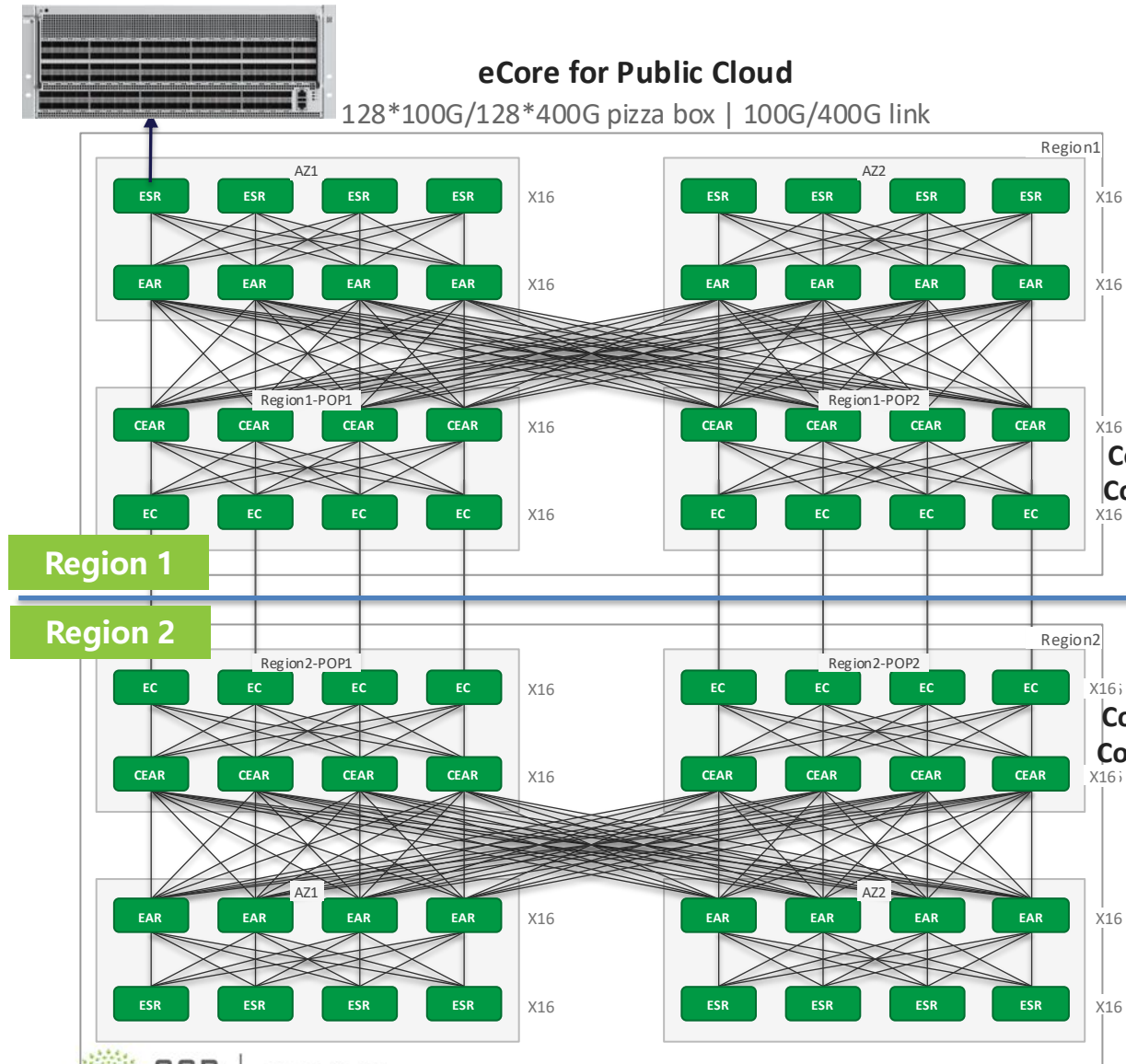
- What Token Need ?
 - Cost efficiency: inference-optimized network, efficient pooling(PD, KVCache)
 - Performance: TTFT, TPOT, TPS
- Design Principles:
 - Dedicated network: **simplified architecture for ultra high scale, no complicated QoS**
 - Single tenant, single stack: **no overlay**
 - Model & infra co-design: **per-job TE for predictable performance, optical layer resilience**



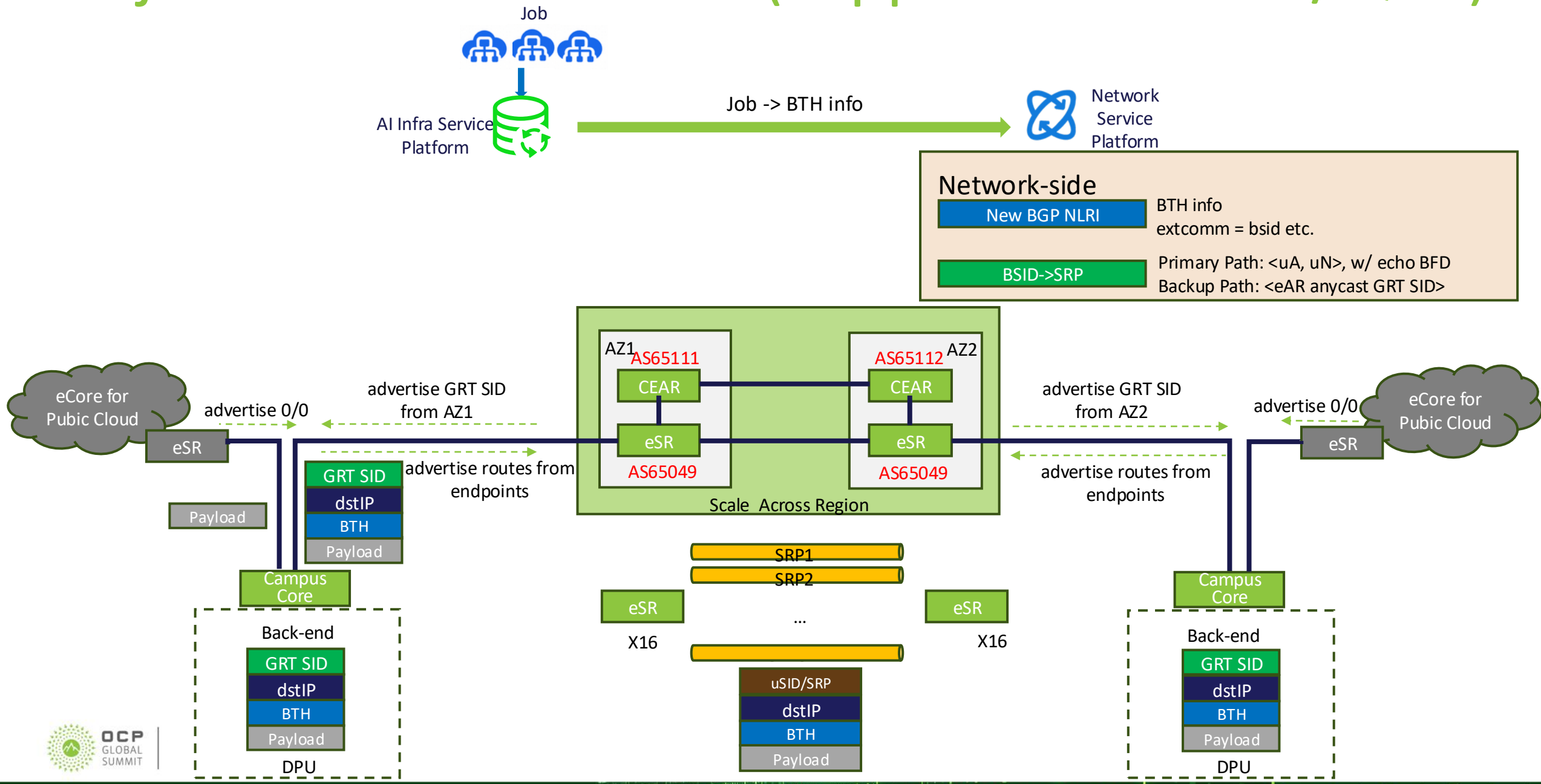
Alibaba Cloud 'eCores' *



Alibaba Cloud Scale Across Topology

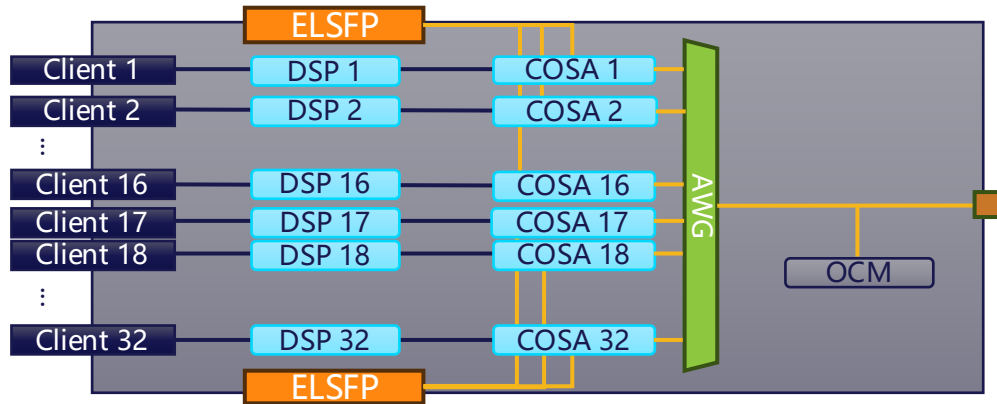


Per-job TE: Job->BTH->TE (supported in P200/Q4D)



Optical Layer Innovation: FST & LD/RD

Full Spectrum Transponder: One Transponder One Fiber



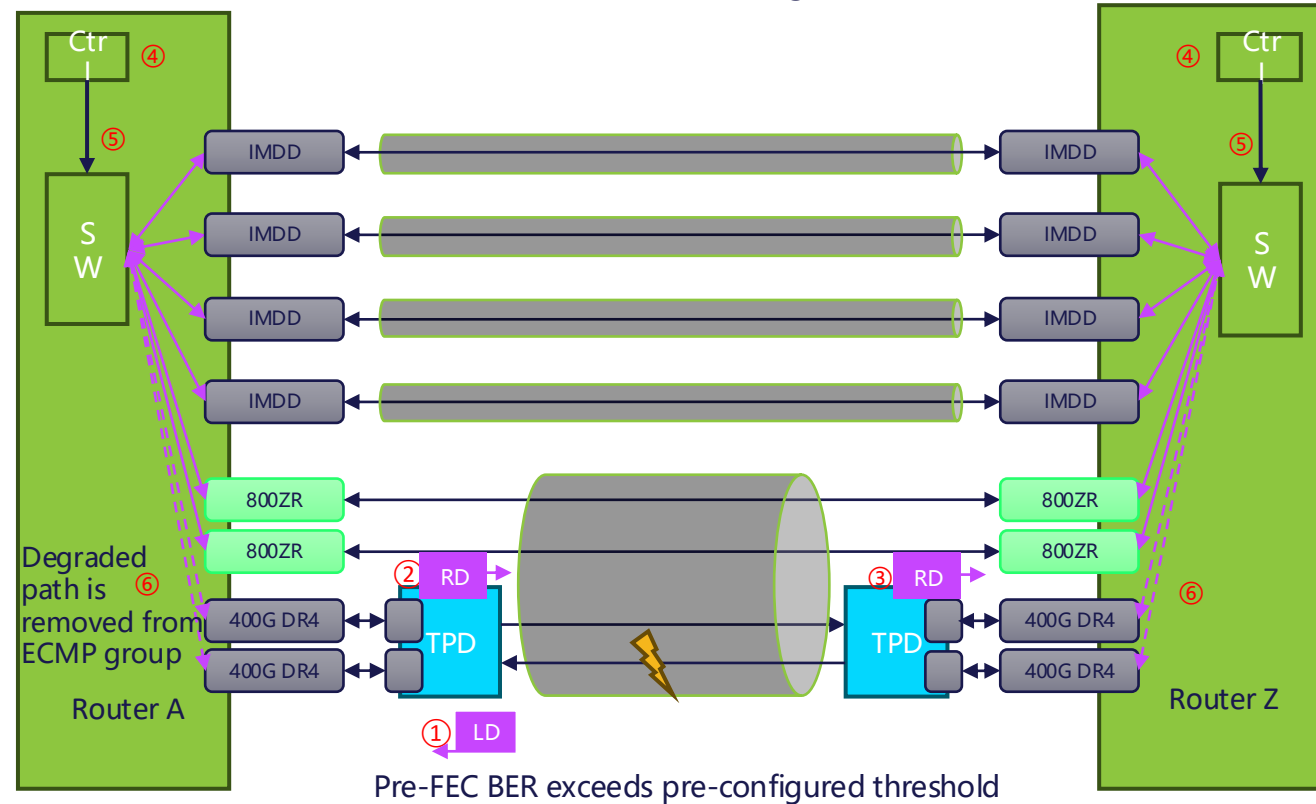
25.6Tb/s per chassis per fiber



- 8*Fixed wavelength DFB Laser per module
- 20dBm channel power
- C-Band 4.8THz spectrum
- High frequency stability

Lossless convergence through LD/RD propagation

LD: link degrade
RD: remote degrade



Acknowledgement

- Thanks to the SAI and SONiC communities and the SRv6 ecosystem partners



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Call to Action

- For more information about SRv6 <https://www.segment-routing.net/>
- OCP Global Summit 2025: eCore Architecture and Whitebox Evolution of Alibaba's Service-Oriented DCI network <https://www.segment-routing.net/conferences/2025-10-16-ocp-summit25-alibaba-ecore/>
- Inviting contributions to SRv6 SONiC
 - SONiC Community meeting: <https://sonic-net.github.io/SONiC/Calendar.html>
 - SONiC Routing Workgroup: sonic-wg-routing@lists.sonicfoundation.dev | [Home](#)



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Thank You!



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