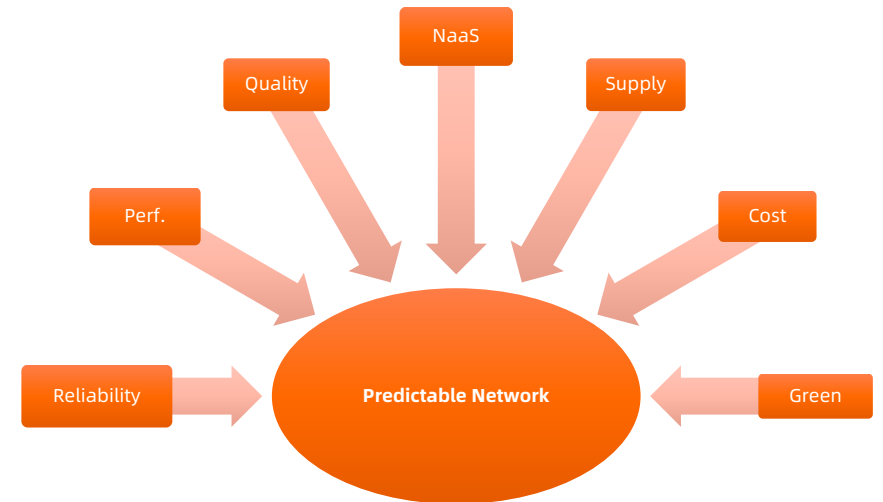
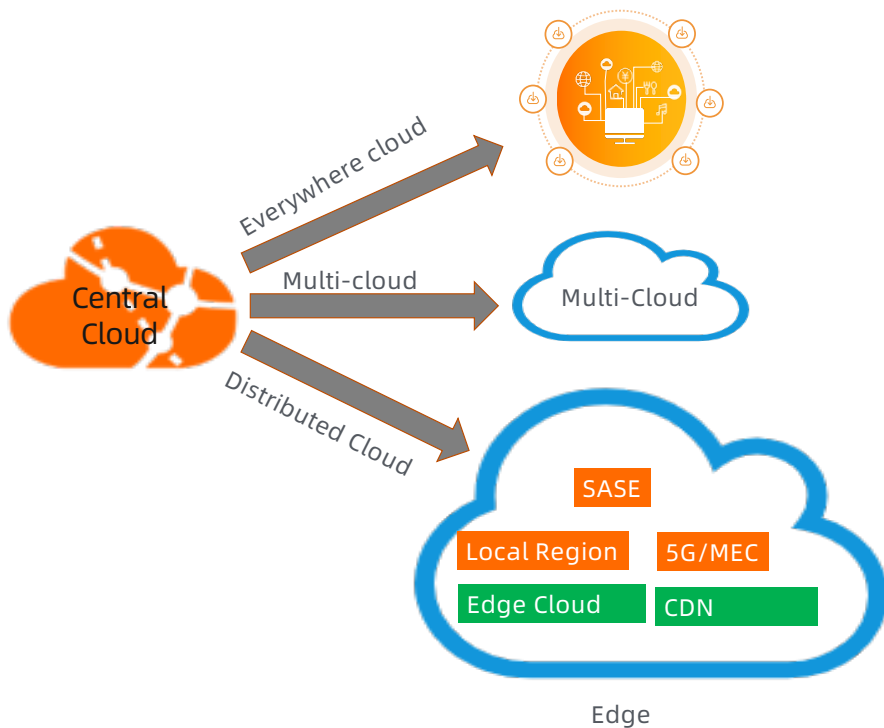




IPv6 Predictable Network

Dennis Cai / Eddie Ruan
03/2023

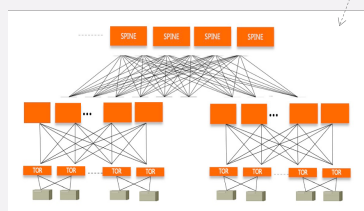
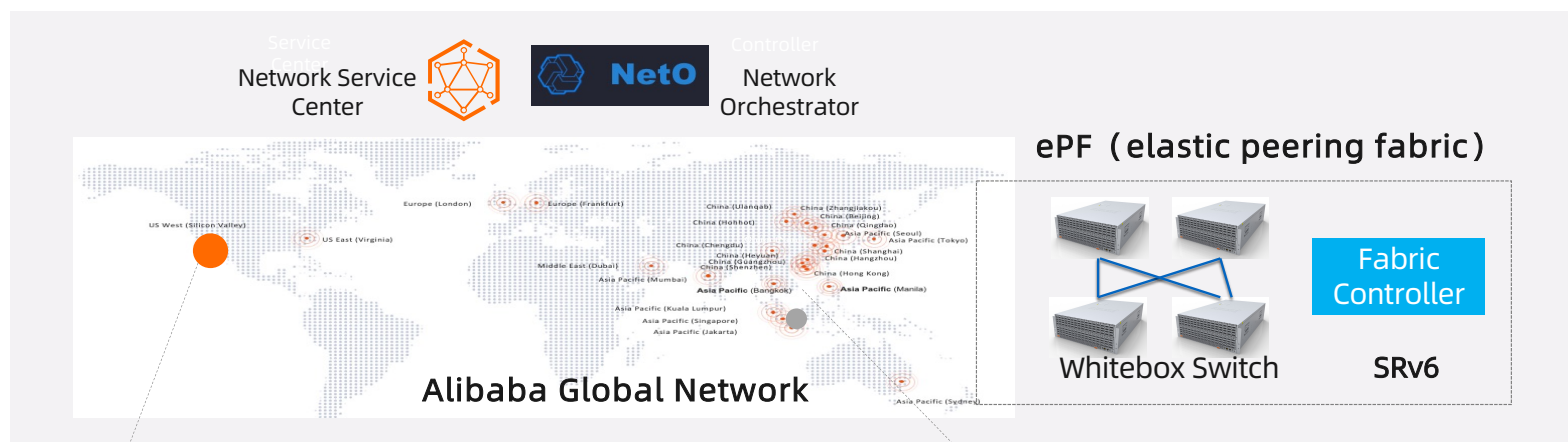
App & Internet-scale Driving Network Evolution



Alibaba Predictable Network Framework

2

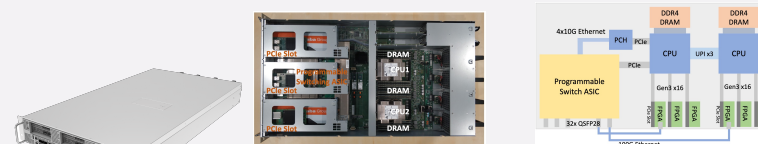
Endpoint-Network Synergy System: Endpoint+Network fullstack optimization, APP+Network co-design



Mega-scale DC



Mega-scale High-perf DC



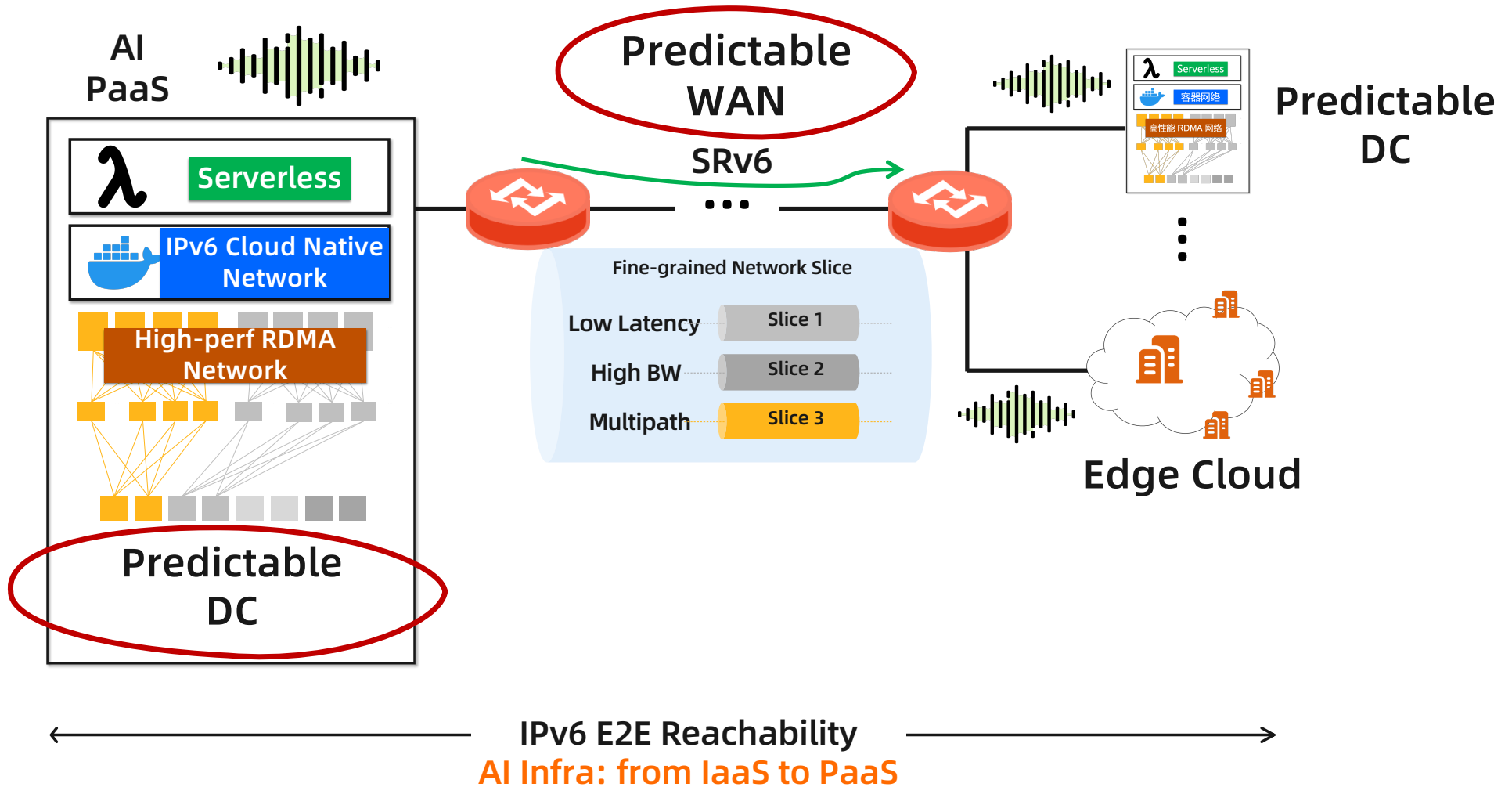
Edge Cloud Super-converged GW Platform

1

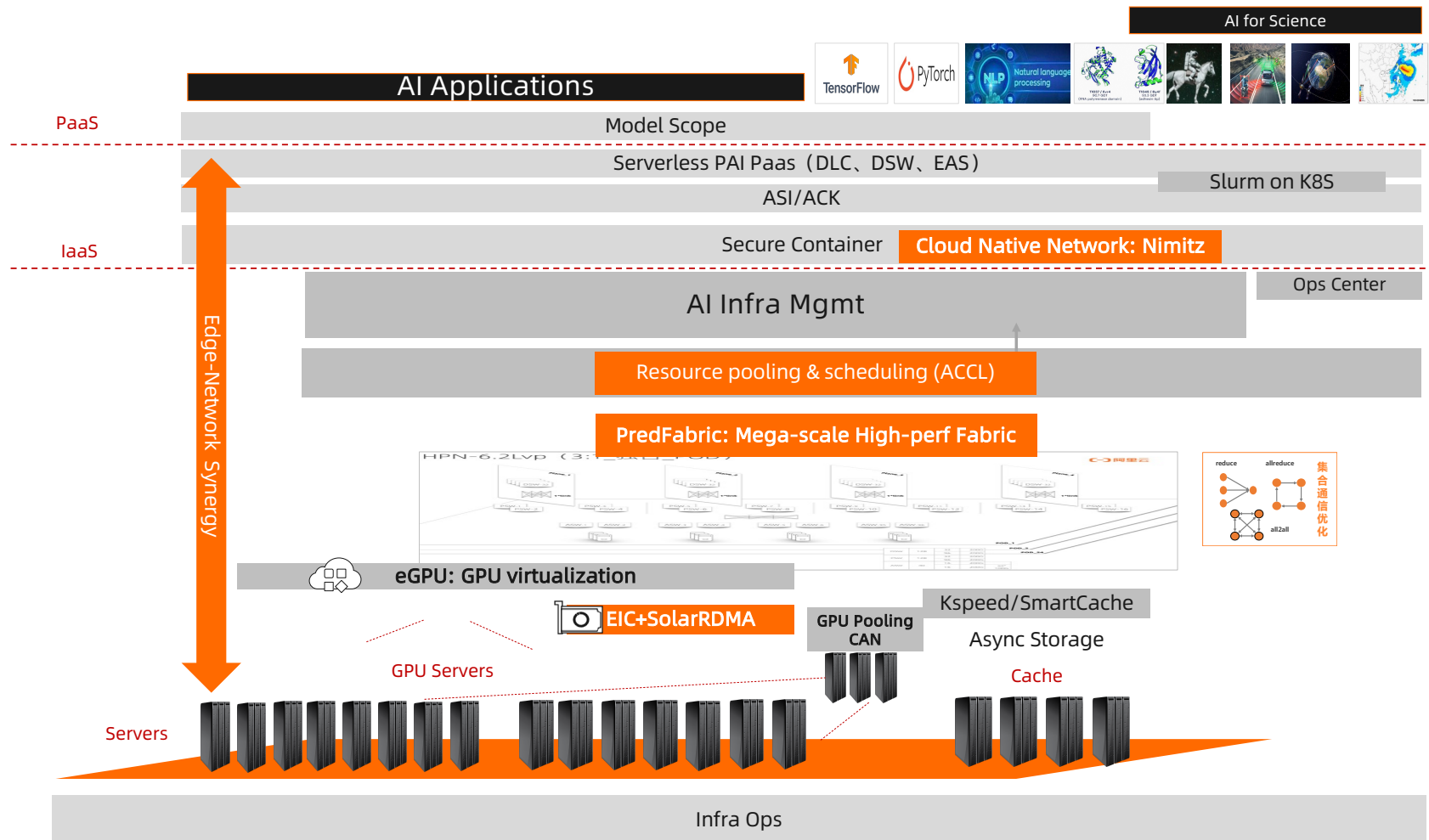


Whitebox System :IPv6/SRv6 + Single-chip white box + Programmability

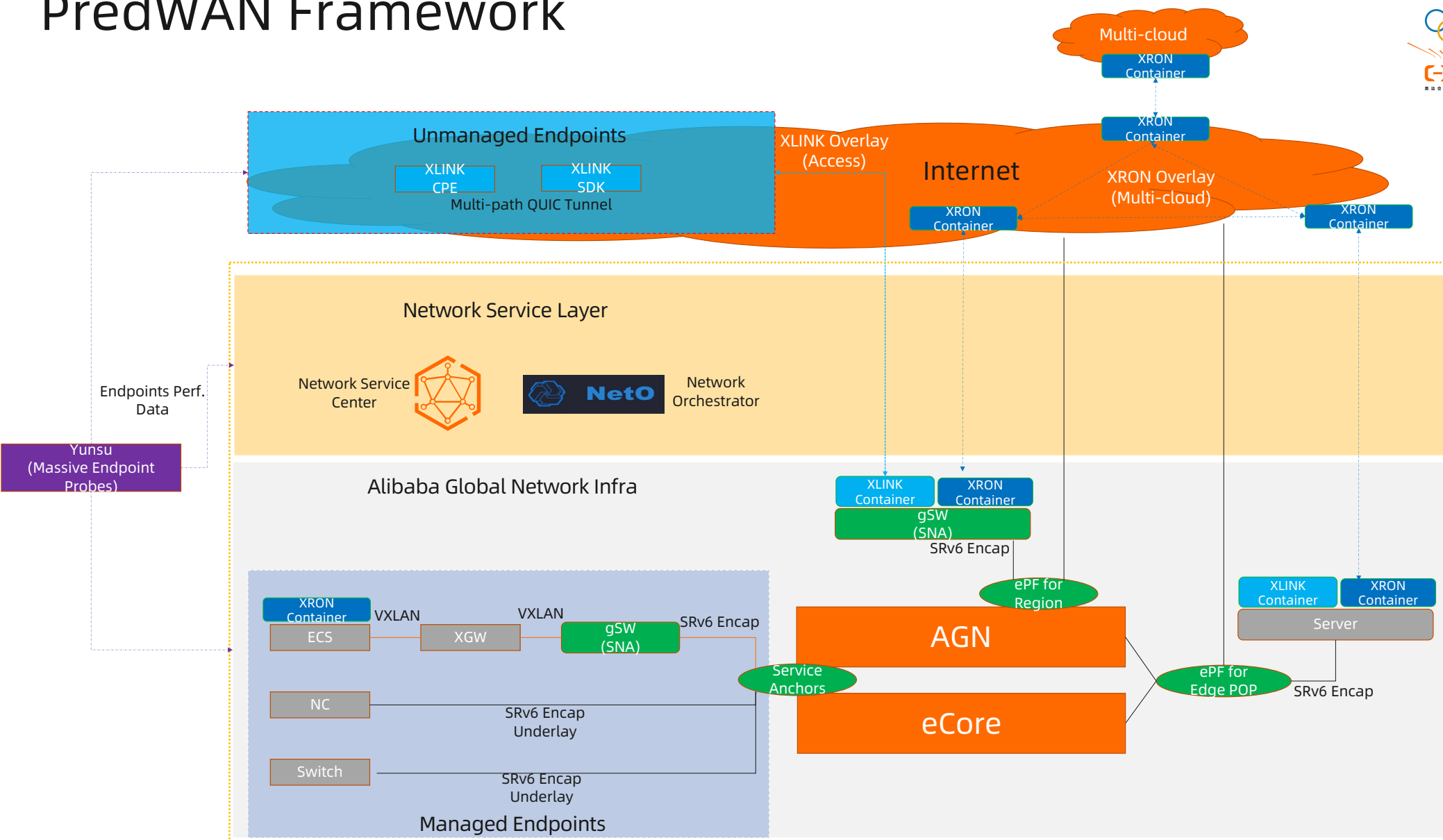
Key Innovation: Endpoint-Network Synergy for AI/ML



Alibaba AI Infra

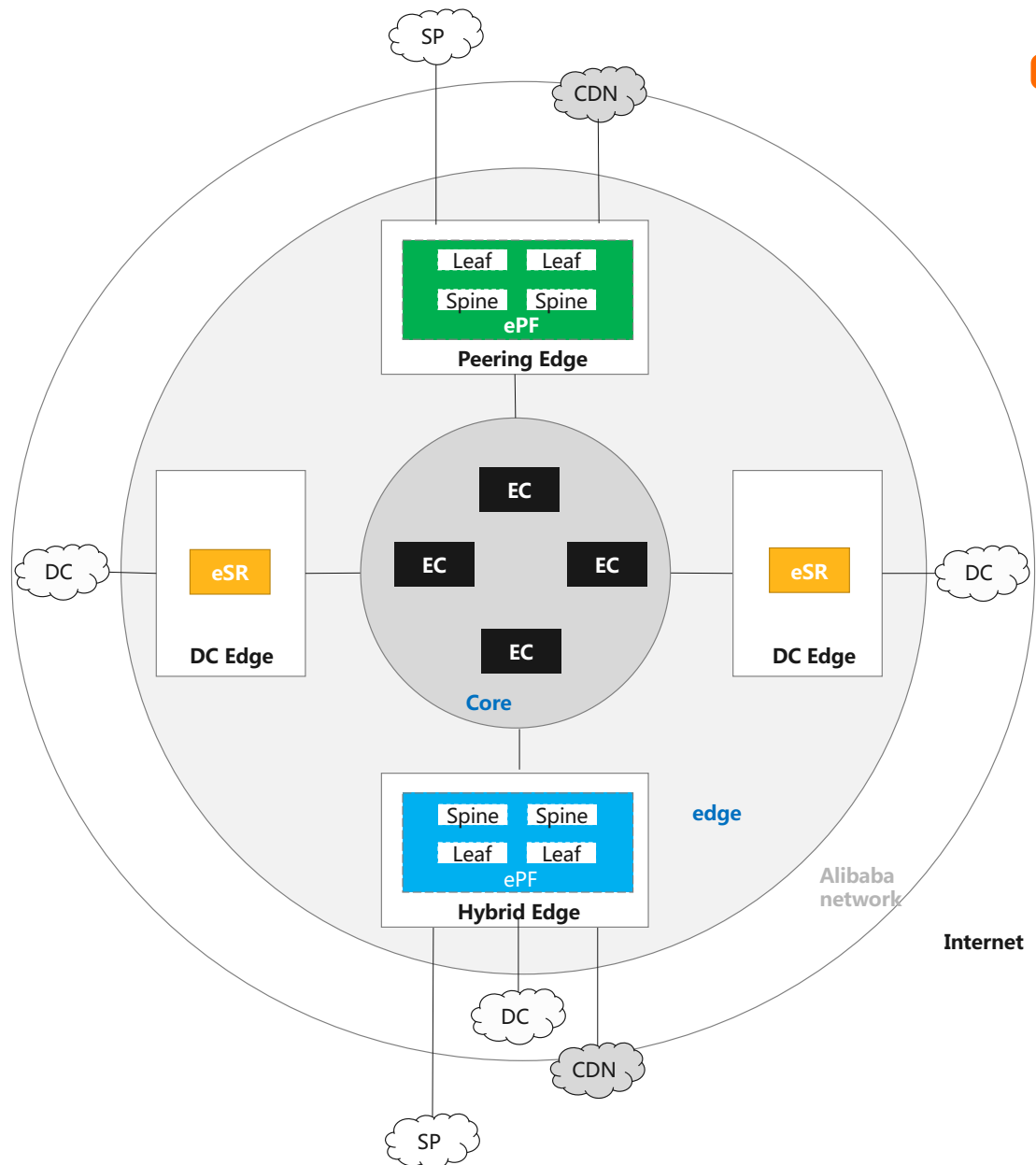


PredWAN Framework

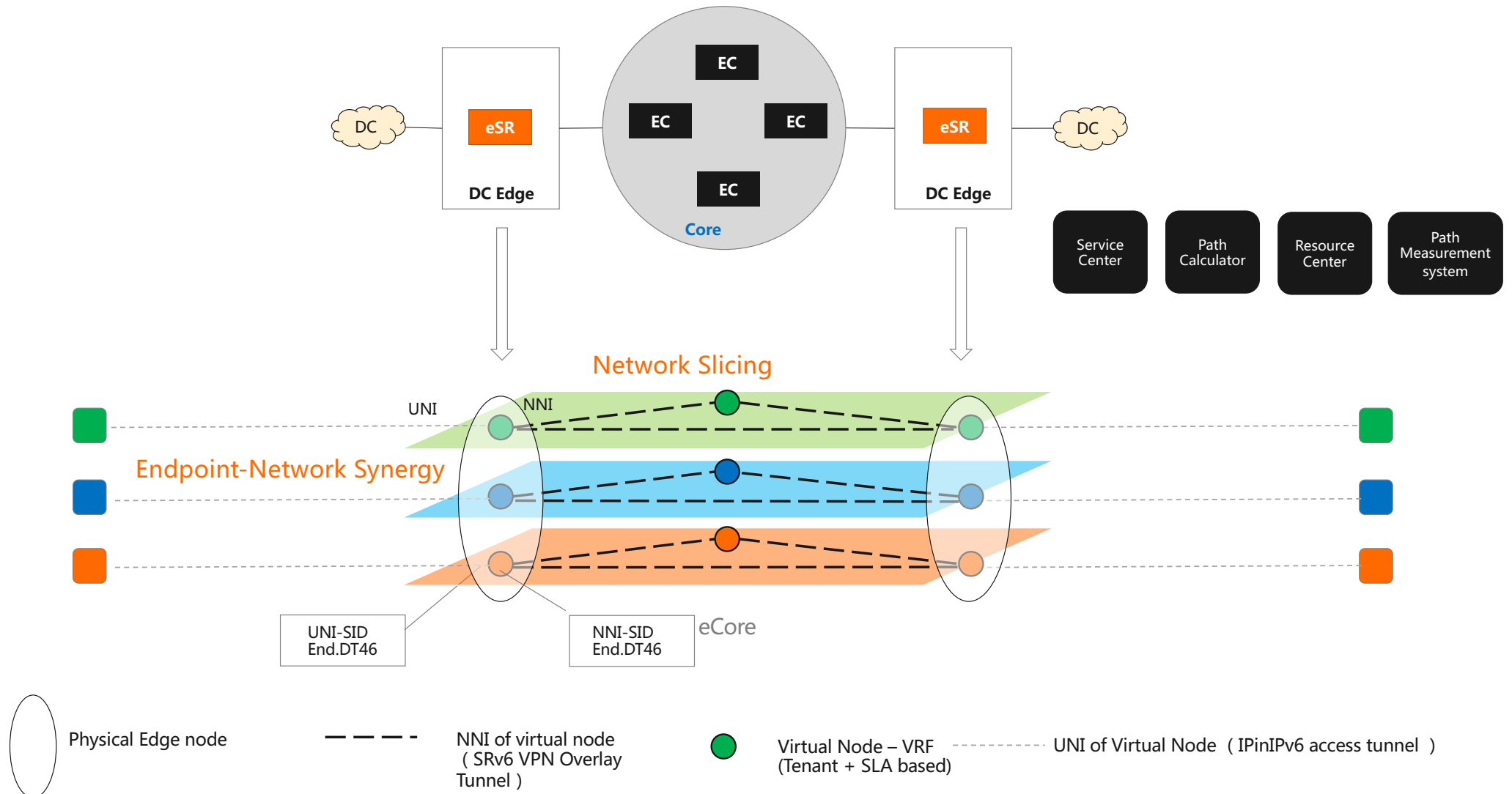


eCore Overview

- Core
 - IPv6 underlay with SR Traffic Engineering
 - Multiple Physical planes
- Edge
 - SONiC Pizza-box + commercial Pizza-box
 - SRv6 VPN PE – overlay
 - Simple SRv6 Policy – Traffic dispatching across planes



Service-Oriented network



Self-developed Router Portfolio(eSR/ePF)



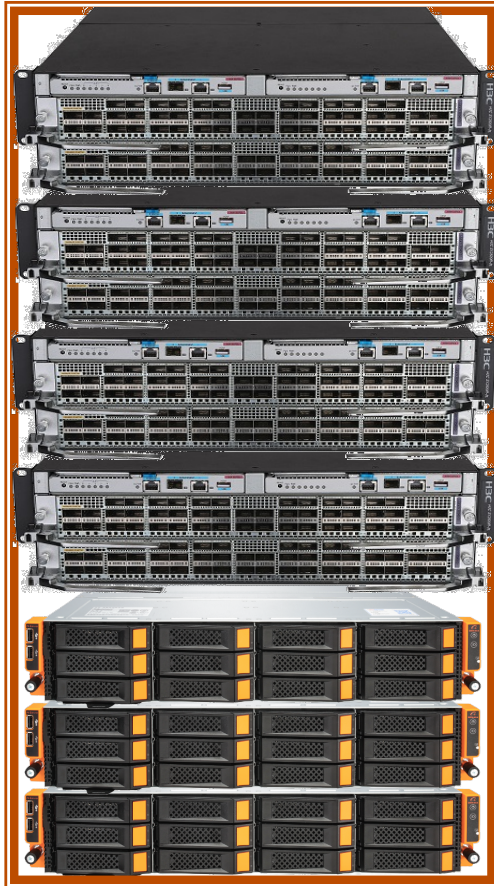
Announced@Apsara Conference 2022

ePF

①
Spine

②
Leaf

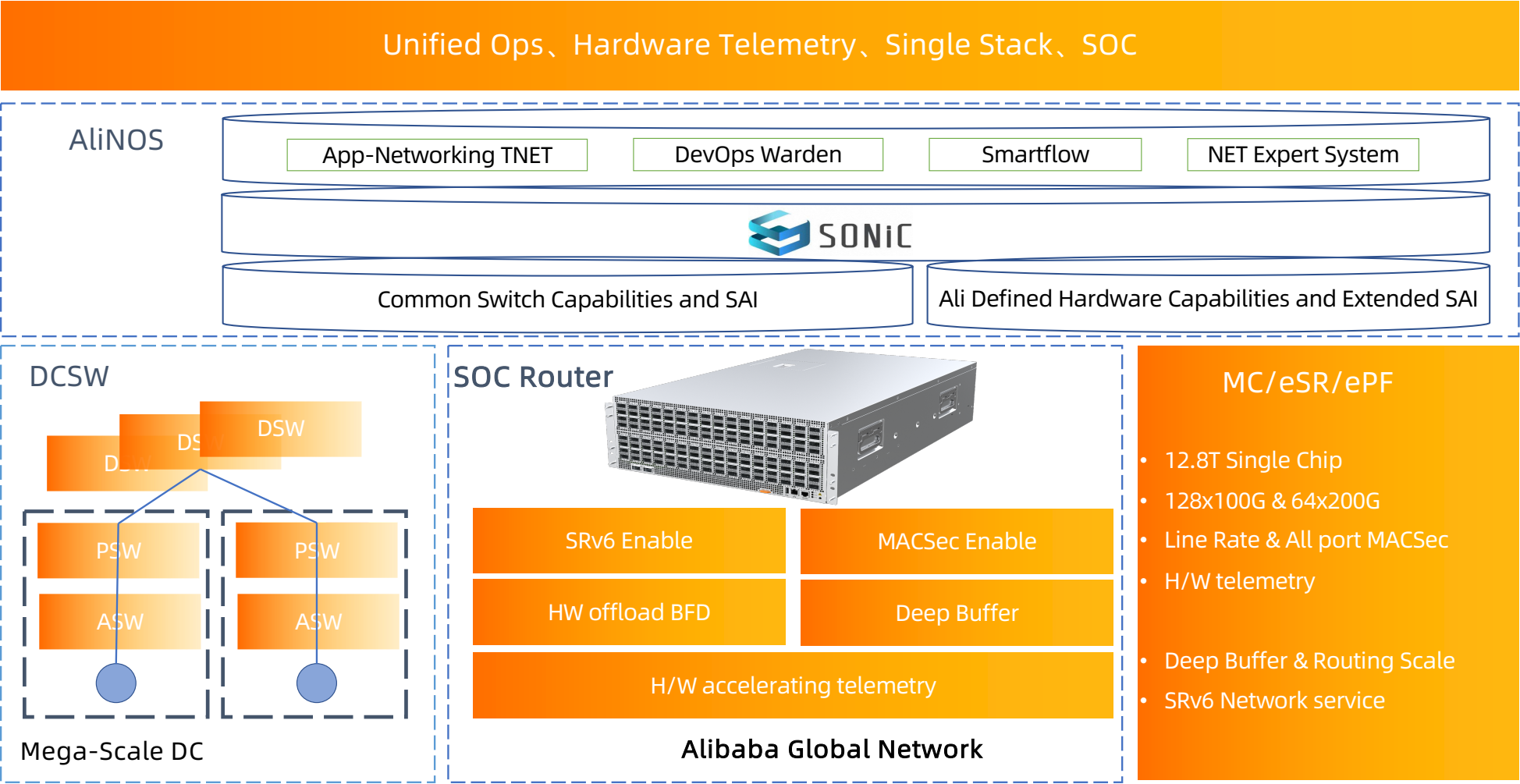
③
FC



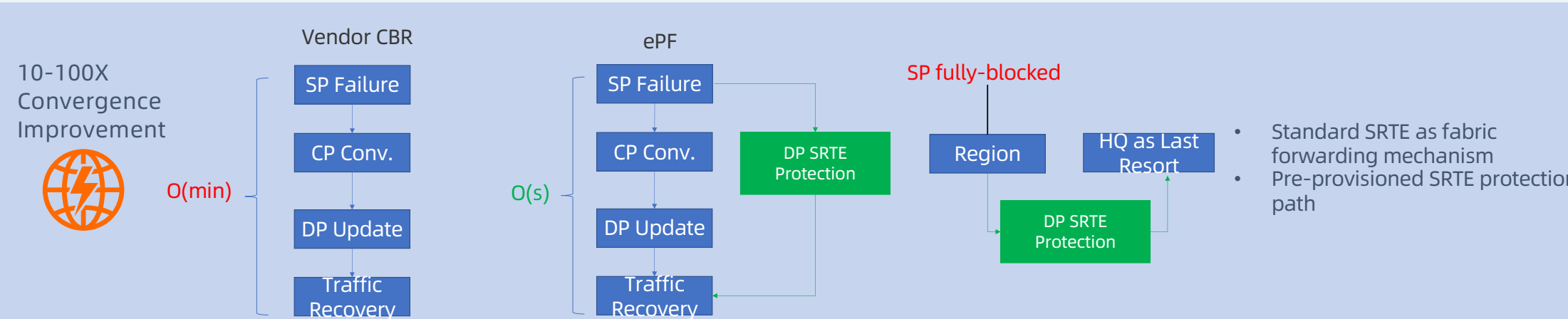
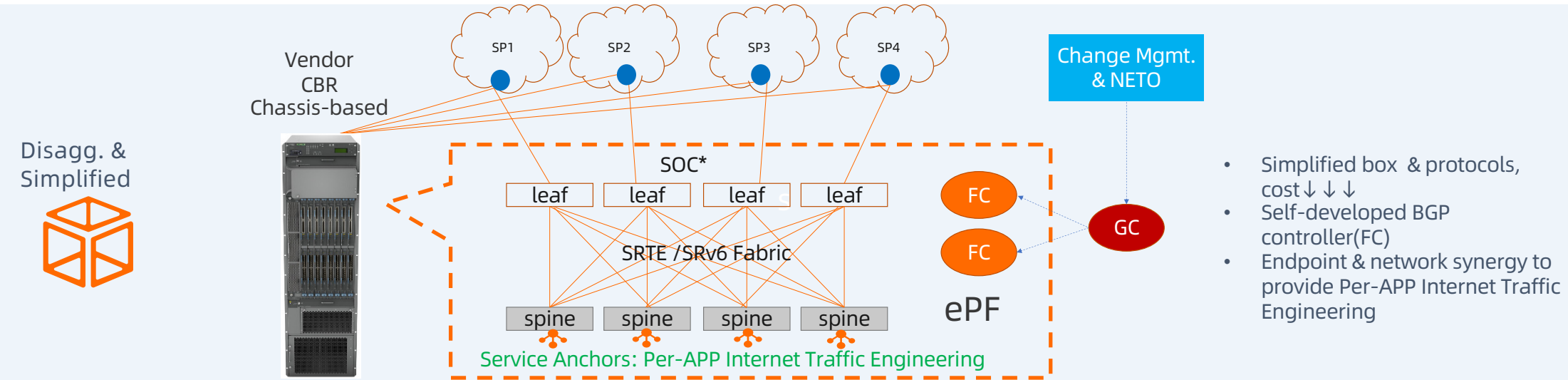
Self-developed eSR



Self-developed Service Router: eSR



Self-developed Cloud-scale Router: ePF



*Vendor SOC for now, will migrate to self-developed eSR next year

SONiC Initiative-1: SRv6 for SONiC



SRv6 VPN/SRv6 Policy with uSID will be upstreamed to SONiC 202305

- Key contributors: Alibaba, Cisco

The screenshot shows a GitHub pull request interface for the repository `sonic-net/SONiC`. The pull request is titled "SRv6 VPN HLD for 202305 release #1252" and is currently open. It was created by `eddieruan-alibaba` and aims to merge 9 commits into the `sonic-net:master` branch from the `eddieruan-alibaba:eruan-srv6` branch. The pull request has 386 issues, 120 pull requests, 295 watches, 967 forks, and 1.8k stars. The commit history shows two commits: "Initial draft for SRv6 VPN HLD" (3840e94) and "Fix image location" (fd342eb). The pull request is reviewed by several members, including `prsunny`, `venkatmahalingam`, `kafka-soda`, `svshah-intel`, `reshmaintel`, `kperumalbfn`, and `shay-zadok`. The pull request is marked as "Open" and has a green checkmark indicating it is ready for merge.

SONiC Initiative-2: Routing Working Group

Router !=high scale switch

1. Routing related features, such as L3 VPN
2. High scale L3 VPN routes
3. Routes loading time
4. Routes convergence time
5. Efficient communication among FRR, kernel and SONiC

Goals for Routing Working Group

Gather contributors from both FRR community and SONiC community to improve white box support for a router.

Initial focus areas:

1. Communication among FRR, kernel and SONiC
2. Routing related features
3. Routes memory reduction
4. BGP loading time
5. Routes convergence time

- Organization:
 - Chairman: Eddie Ruan (Alibaba)
 - Co-Chairs:
 - Praveen Bhagwatula (Cisco)
 - Syed Hasan Raza Naqvi (Broadcom)
 - Rita Hui (Microsoft)

From Elastic to Predictable!

