



SRv6 in SONiC

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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

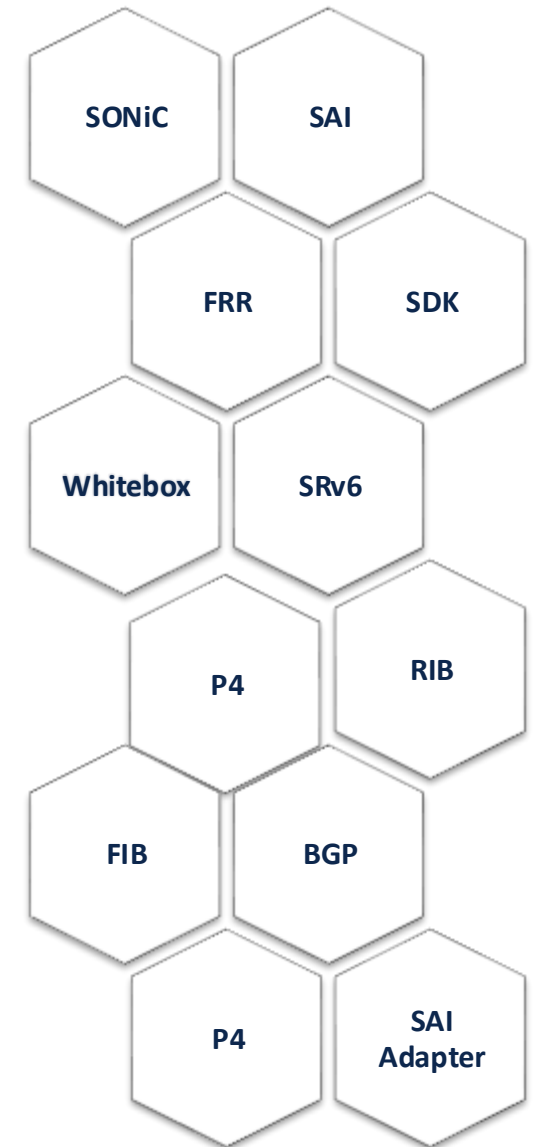


Microsoft Fairwater DC
Guohan Lu @ OCP 2025

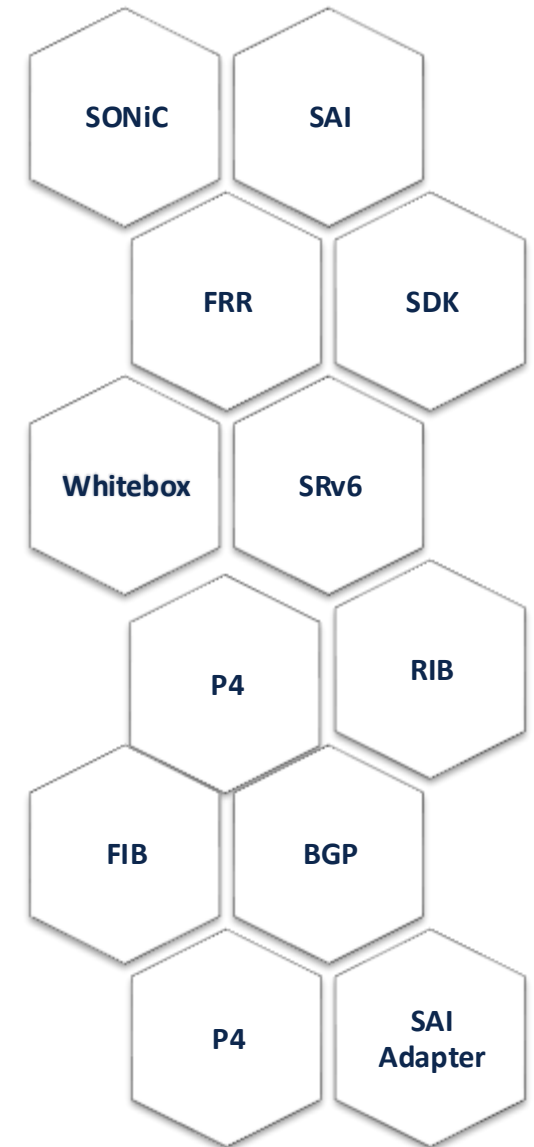


Alibaba eCore
Dennis Cai @ OCP 2025

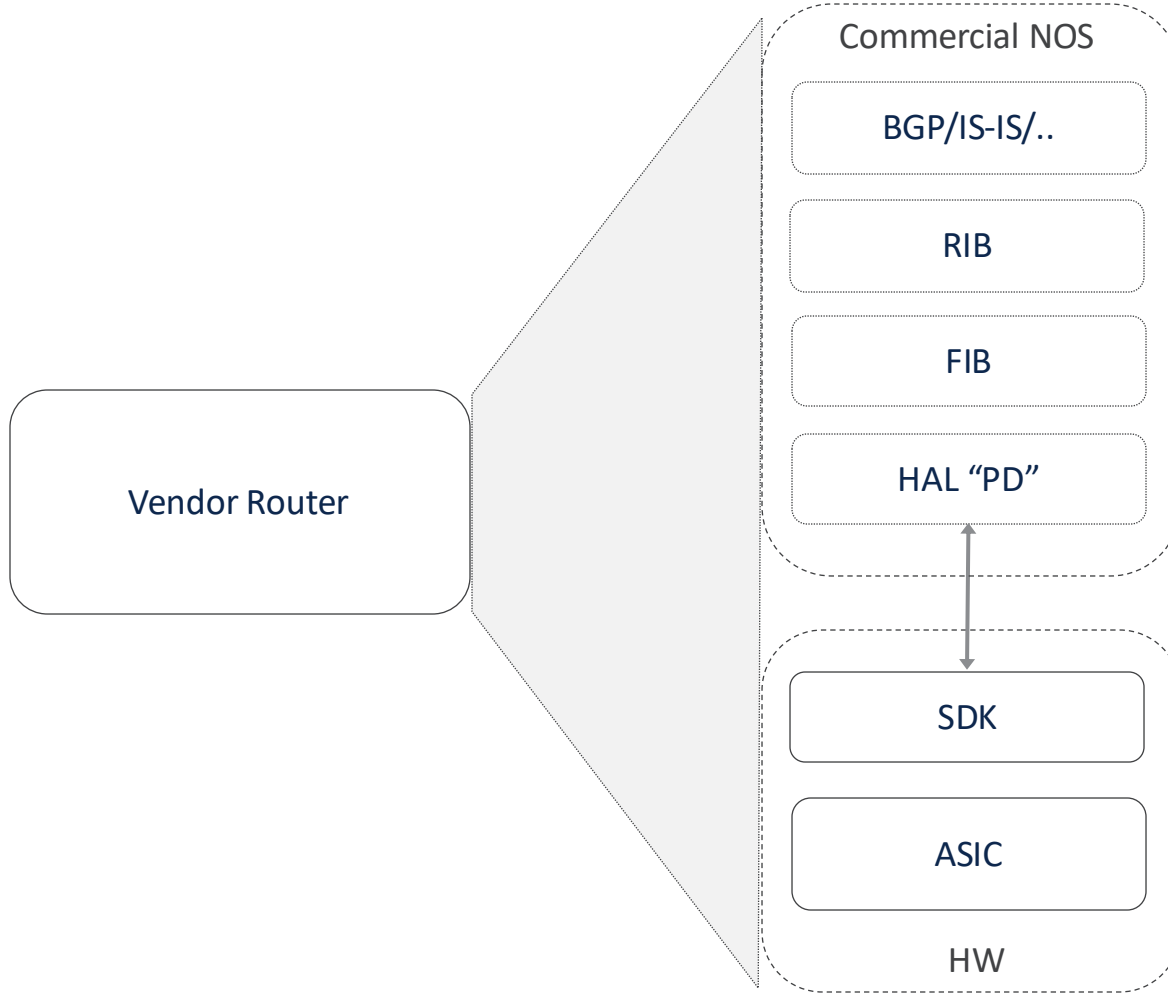
SONiC



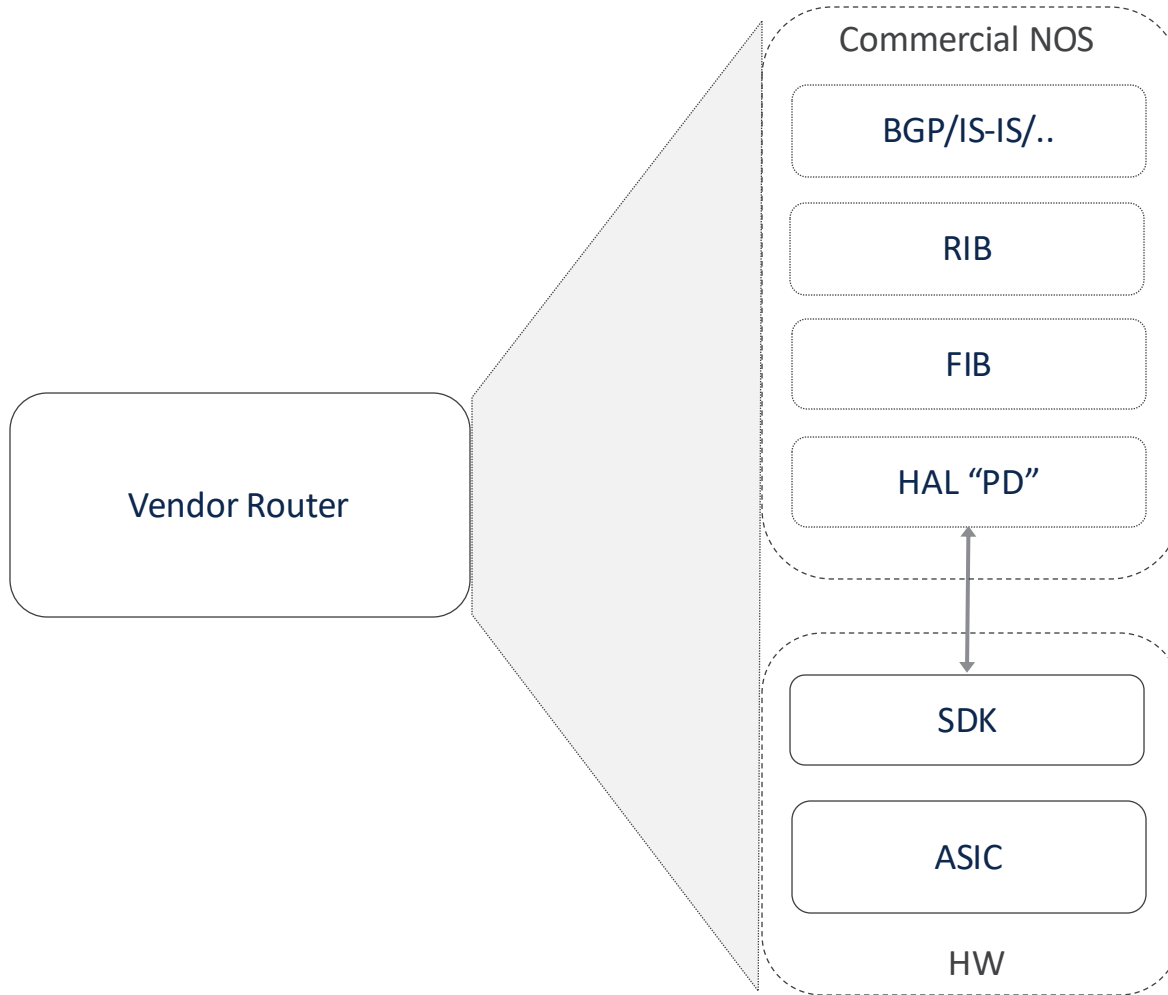
SONiC



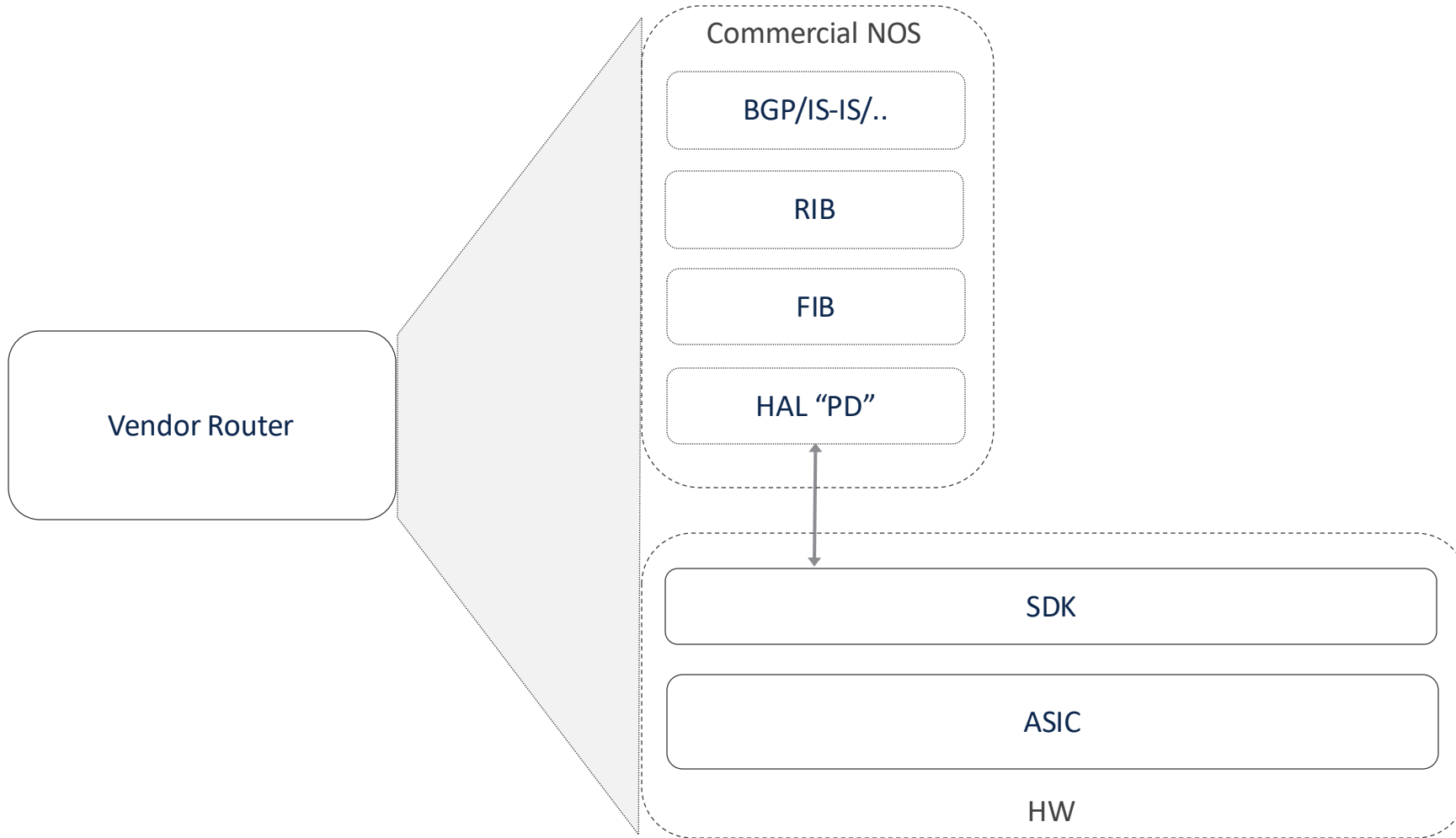
Vendor Router - Running Commercial NOS



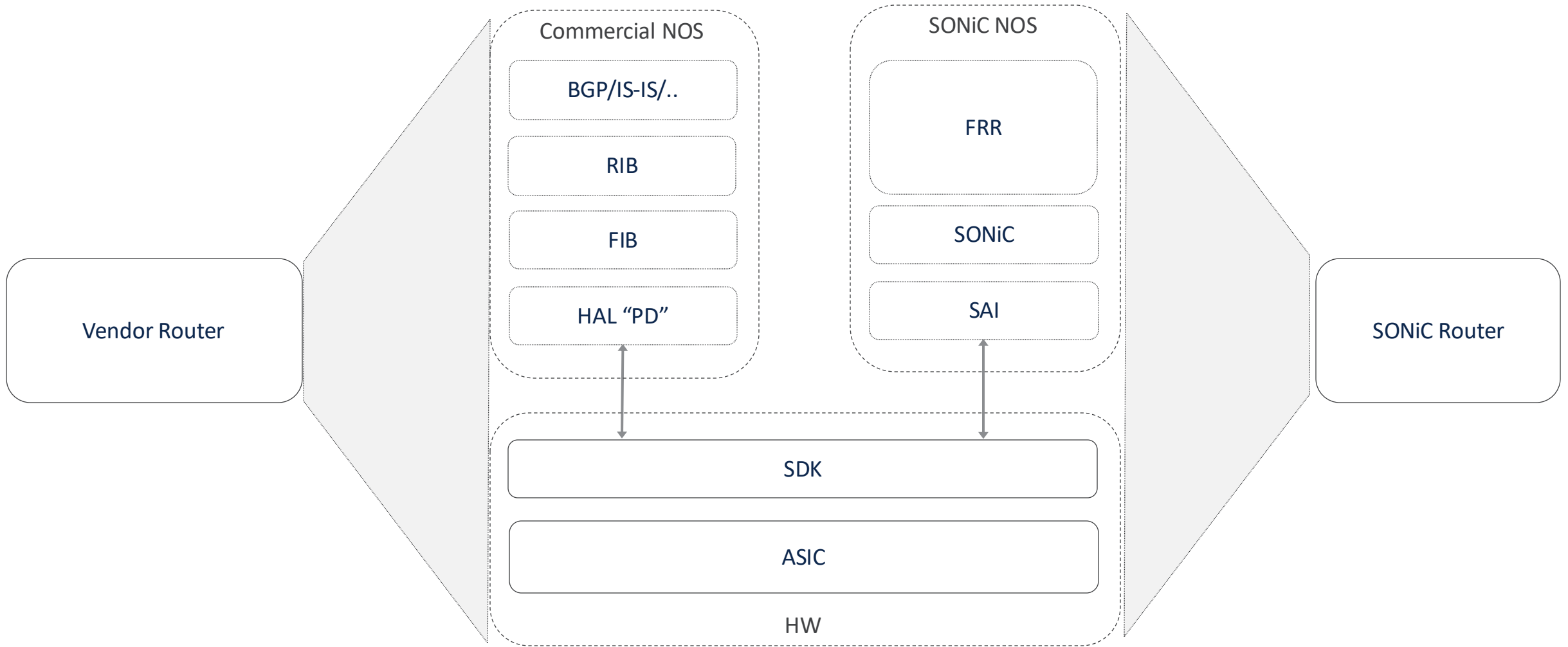
Vendor Router vs SONiC Router



Vendor Router vs SONiC Router

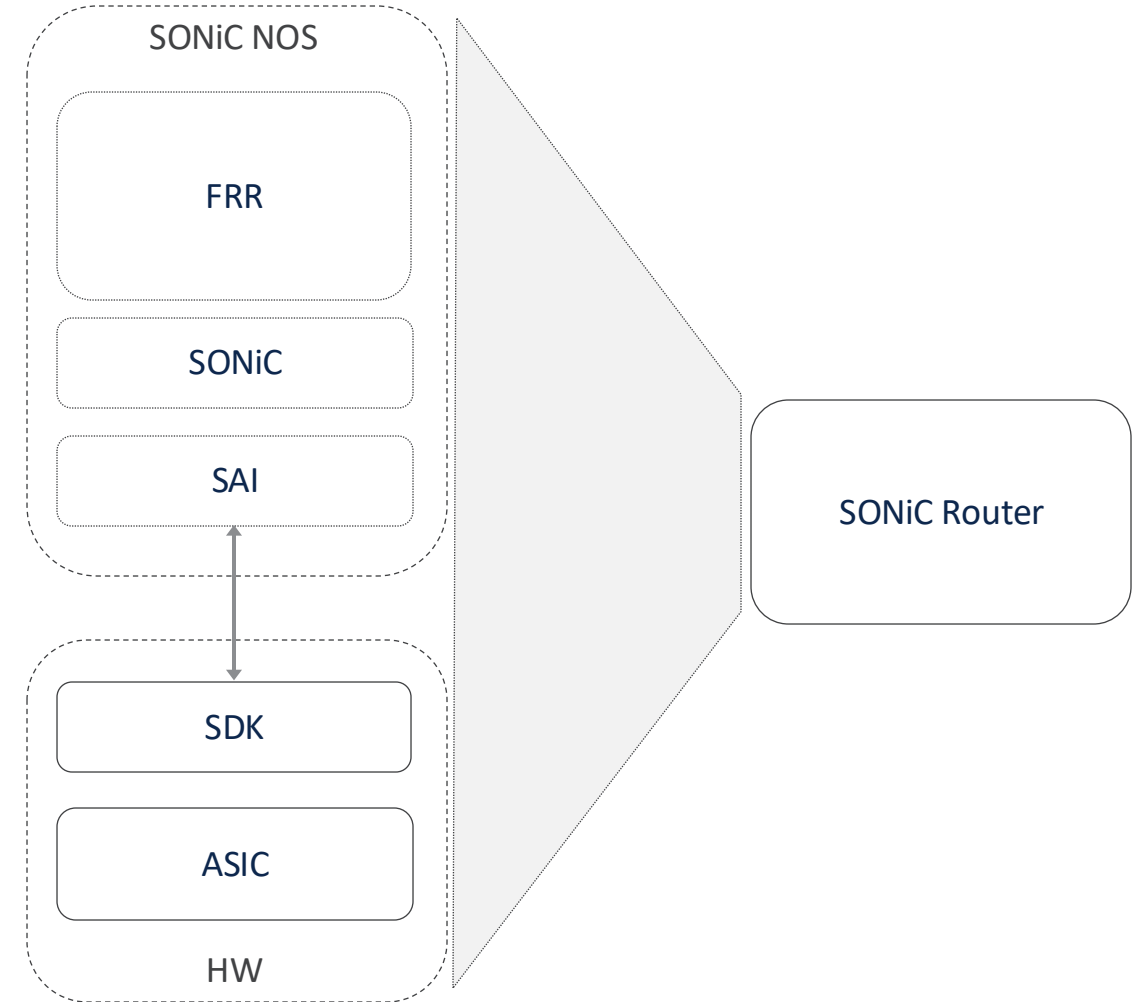


Vendor Router vs SONiC Router



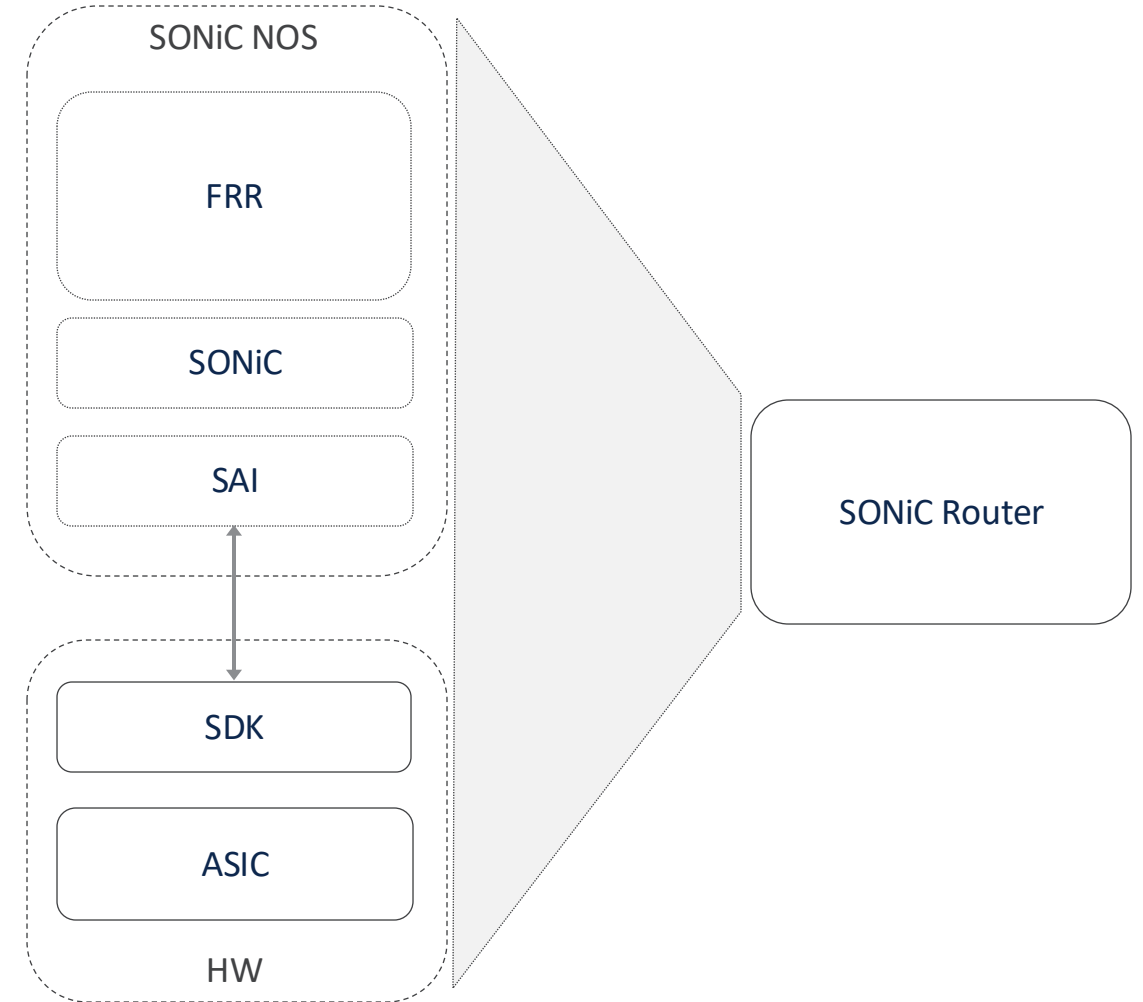
Why SONiC

- Same NOS & Northbound API
- Diverse ASIC & Vendor



Whitebox SONiC vs Vendor SONiC

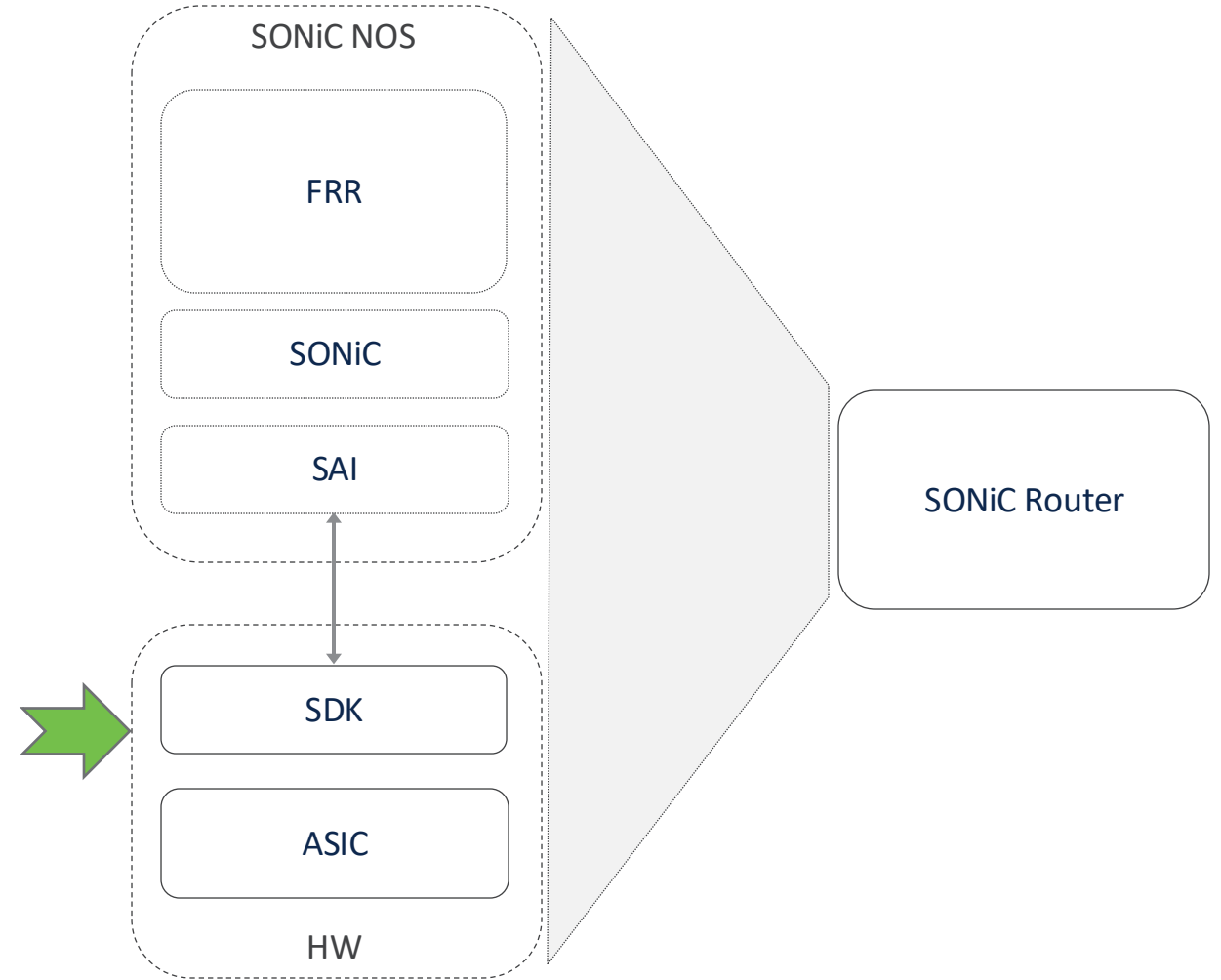
- Whitebox SONiC
 - ASIC [SDK + SAI]
 - OEM: build the system
 - Testing, support, upgrades [DIY/3rd Party]
- Vendor SONiC
 - Vendor router running SONiC
 - Test, support, upgrade by network vendor



SRv6 in SONiC

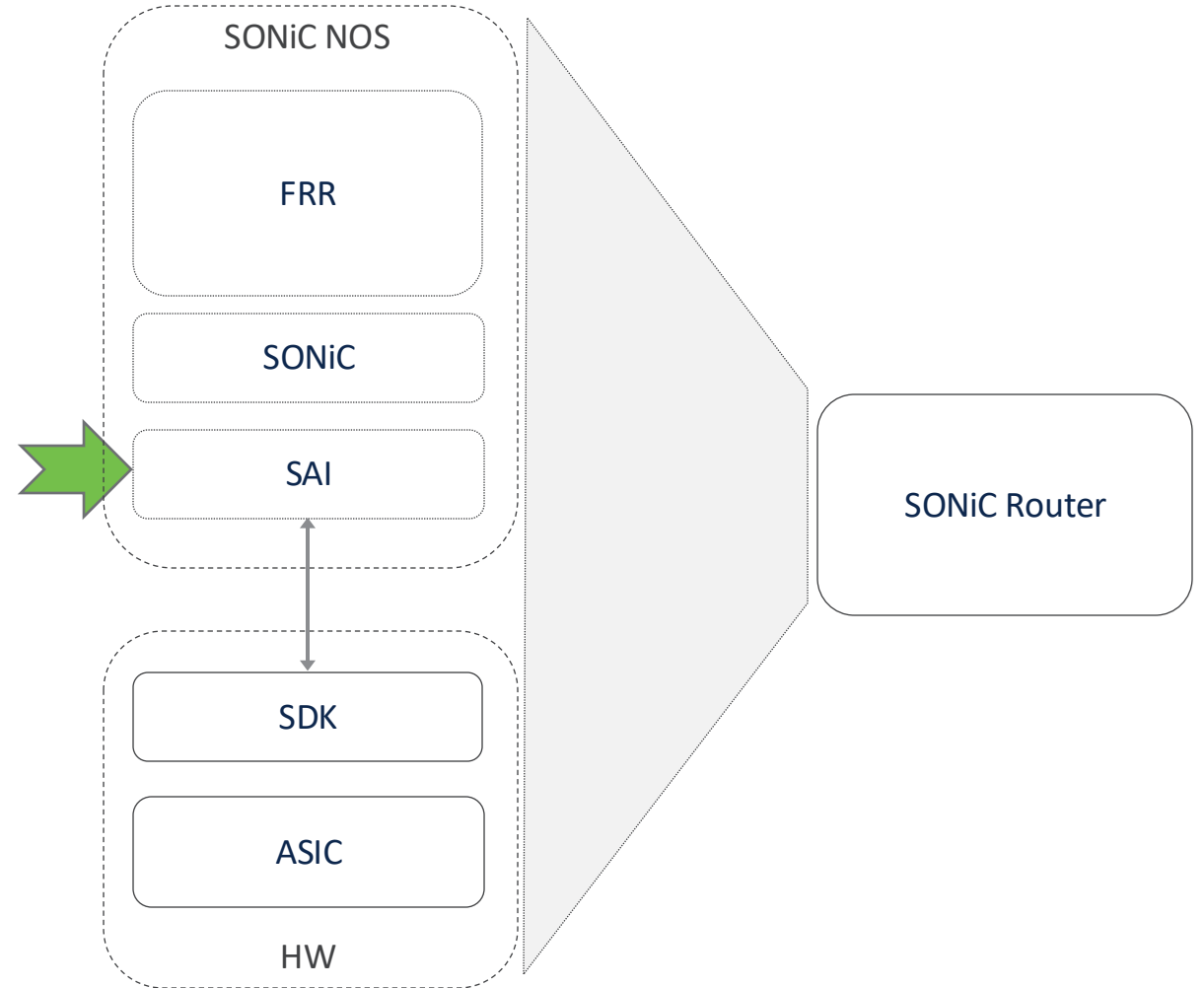
SRv6 uSID in SONiC

- ASIC and SDK
 - Full SRv6 uSID support across merchant silicon vendors
- Fully supported in Linux



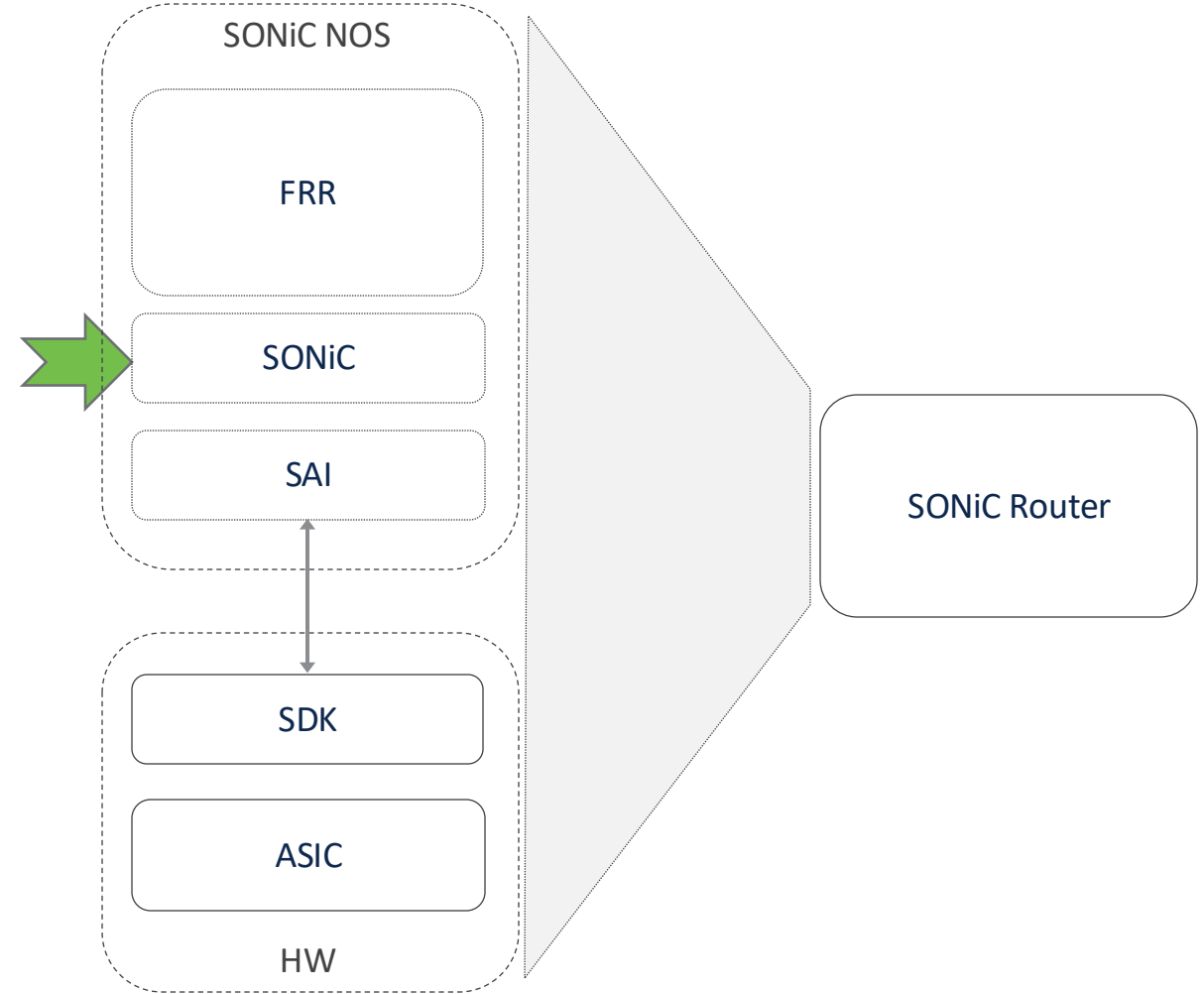
SRv6 uSID in SONiC

- SAI Header
 - SRv6 Endpoint behaviors for Underlay and Overlay (uN, uA, uDT4, uDT6, uDT46, uDX4, uDX6)
 - SRv6 Endpoint flavors (PSP, USP, USD)
 - SRv6 Headend/Encapsulation behaviors (H.Insert, H.Insert.Red, H.Encaps, H.Encaps.Red)
 - Traffic Steering over SRv6 Encapsulation “SID List”



SRv6 uSID in SONiC

- SONiC
 - SRv6 Endpoint behaviors for Underlay and Overlay
 - SRv6 Endpoint flavors
 - SRv6 Headend/Encapsulation behaviors
 - Traffic Steering behaviors



SRv6 uSID in SONiC

- FRR
 - AI Backend: Static uSID Fabric - SDN controller
 - L3VPN: IPv4/IPv6 - Static & BGP (RFC9252)
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 - SRv6 SID Manager - F3216/GIB/LIB/WLIB

