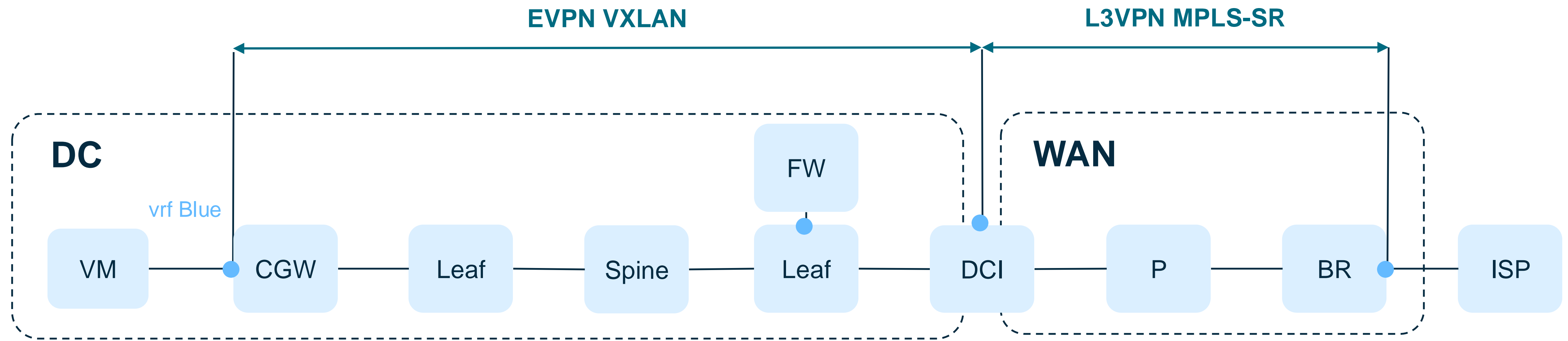


NEBIUS

SRv6 uSID DC Frontend to Peering

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Current architecture of the frontend network



- IPv6 only infrastructure in the Data Center
- Multivendor DC and WAN networks approach
- CGW (Cloud Gateway) and FW are NFV's running on hosts. Nebius develops them

- VXLAN based overlay between CGW and DCI
- DCI does "stitching" between EVPN VXLAN and L3VPN MPLS-SR

Current architecture: evaluation

Pros

- VXLAN EVPN has wide industry support and adoption
- DC fabric is overlay agnostic thus scalable, simple and efficient
- EVPN provides rich variety of network services
- MPLS-SR is a mature technology with good multivendor support. Proven for VPN and TE applications

Cons

- No traffic engineering capabilities inside the Data Center
- Service chaining with VXLAN requires specific routing design (PBR, Default GW, VRF/VLAN hand-off, etc.)
- Majority vendor implementations of VXLAN still require IPv4 loopbacks in the Underlay
- MPLS-SR lacks native Data Center optimisations and not applicable in the DC domain
- Requires "stitching" gateway functionality at the DCI routers to interconnect WAN and DC domains

SRv6 addresses all of them!

Transition to SRv6

Bridges both DC and WAN domains together in efficient and simple way



Creates unified data plane based on IPv6 protocol only



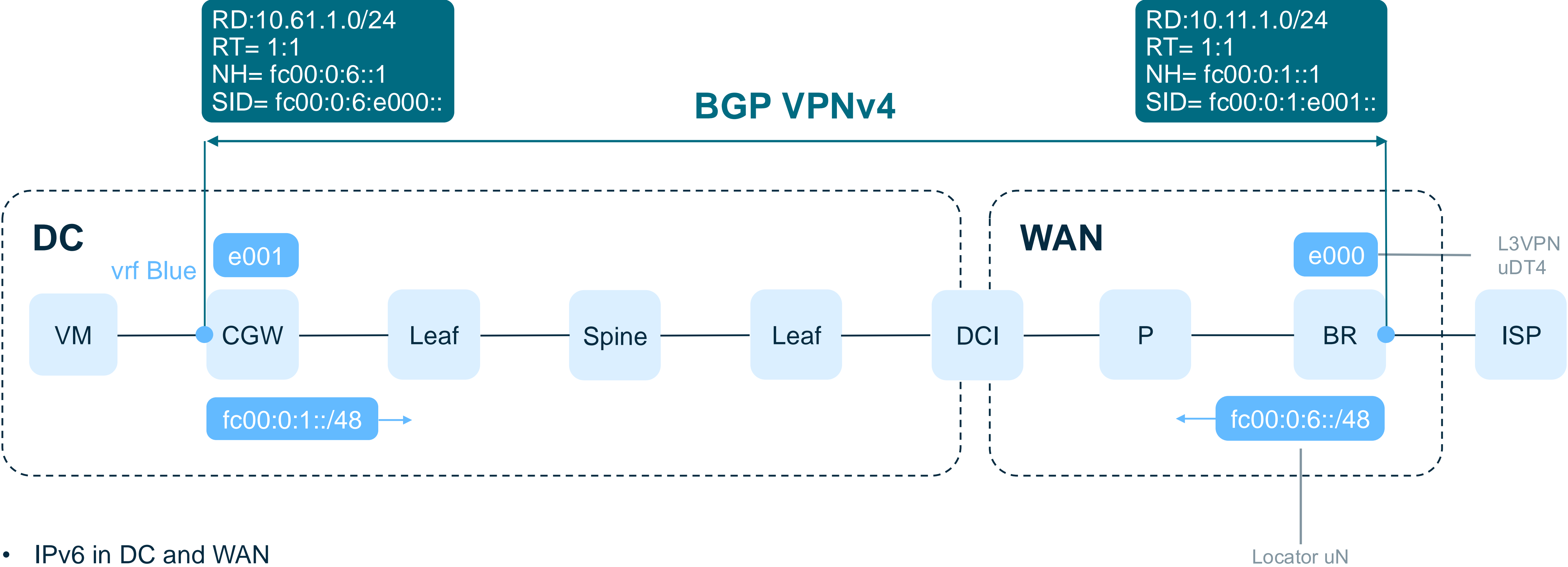
Allows to build end-to-end overlay service across DC and WAN without stitching functionality on the intermediate devices



Offers true traffic engineering capabilities initiated from the source of an application allowing efficient service chainings creation

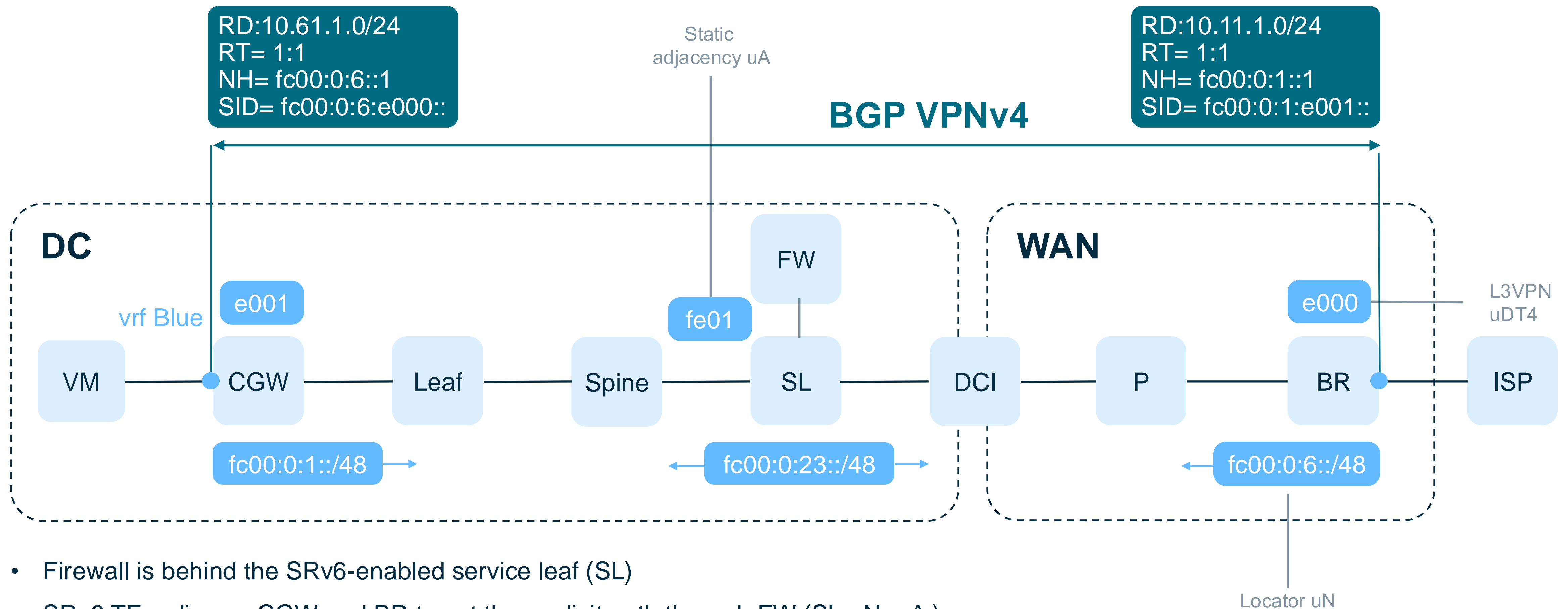


Overlay with SRv6 uSID



- IPv6 in DC and WAN
- SRv6 only required on CGW and BR
- CGW and BR act as SRv6 L3VPN PEs

Services Chaining with SRv6 uSID (e.g. Firewall)



- Firewall is behind the SRv6-enabled service leaf (SL)
- SRv6 TE-policy on CGW and BR to set the explicit path through FW (SL uN+uA)
- FW is a plain IPv6 forwarder, inspects the inner packet, does not change the outer IPv6 header

SRv6 Benefits:

Simplicity and unification

Unified solution
across all
domains



Operational
& configuration
simplicity



Gain scalability



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Thank you!

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