

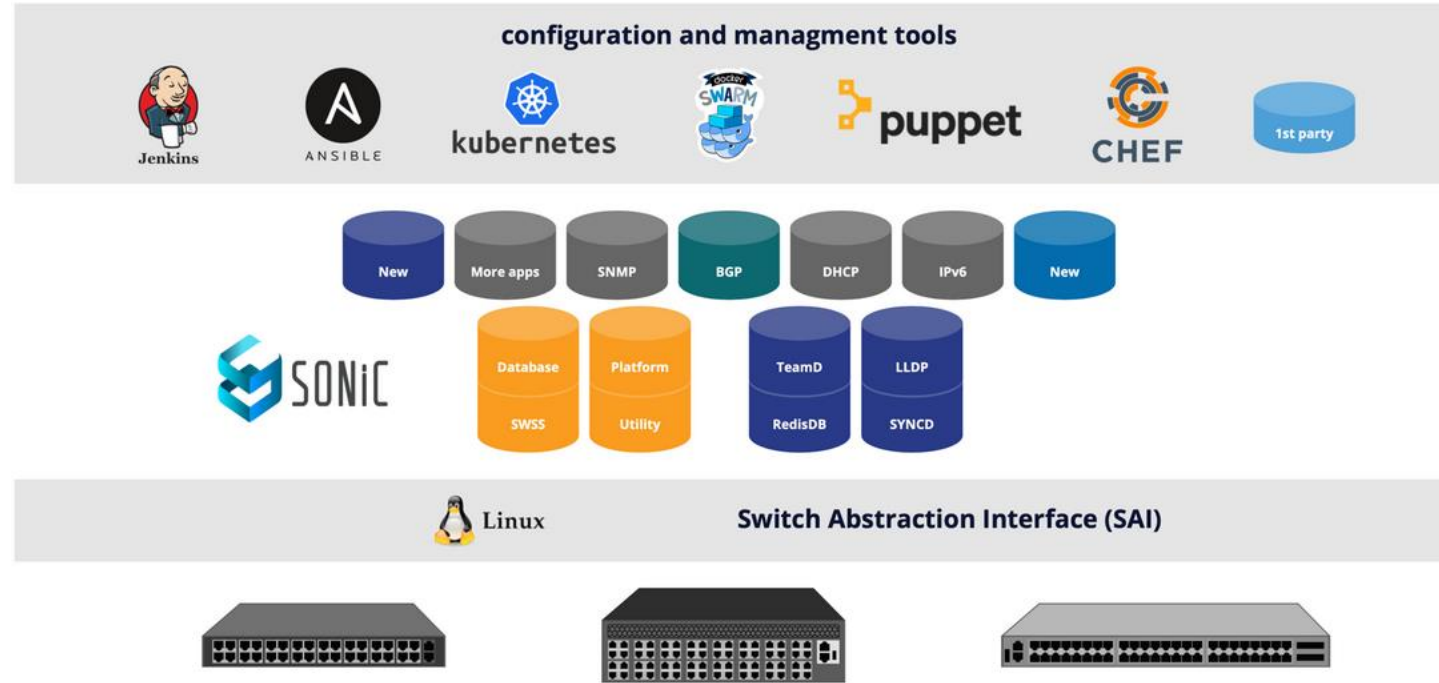
Enterprise SONiC

August 2022

SONiC – A Linux Foundation Project

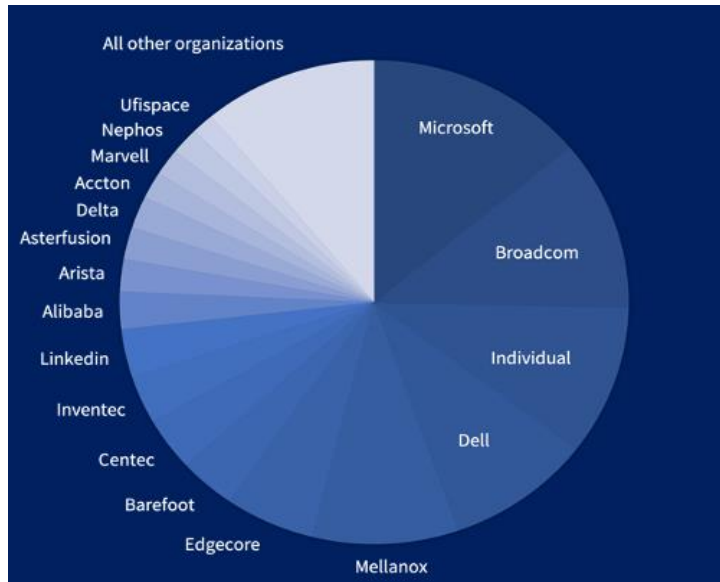
- Started in 2016 as an OCP project by MSFT
- Active Community project
 - Deployers, vendors, OEMs, ODMs, Academia
- Apache licensed (permissive)
- Actively deployed within many Cloud DCs
 - Microsoft Azure, LinkedIn, Alibaba, eBay
 - Clos-based IP Fabrics
- Multi-vendor support
 - With SAI - OCP Hardware Abstraction
- Broadcom involvement
 - SAI since 2016
 - SONiC since early 2019
- In April '2022, SONiC moved to Linux foundation
 - Premier members – Broadcom, Alibaba, MSFT, Google, Dell, Intel, Nvidia
- Hardware Support Matrix
 - Supported on more than 100+ ODM and OEM platforms
- Emerging Use-cases
 - Enterprise Campus, Distributed Chassis Systems

SONiC Software for Open Networking in the Cloud



Enterprise SONiC Contributions By Broadcom

Broadcom largest contributor to SONiC after Microsoft



SONiC trending to become the 'Linux of networking'

"There is a very strong possibility that, within the next two to five years, SONiC for data center networking will become **analogous to Linux** as a server OS, allowing enterprises to **standardize on an NOS** that is supported across hardware vendors."

Gartner

"SONiC has the potential to become the **'Linux of networking'** as the SONiC community now has more than 850 members, including major cloud providers, **service providers**, silicon and component suppliers, as well as network hardware OEMs and ODMs"

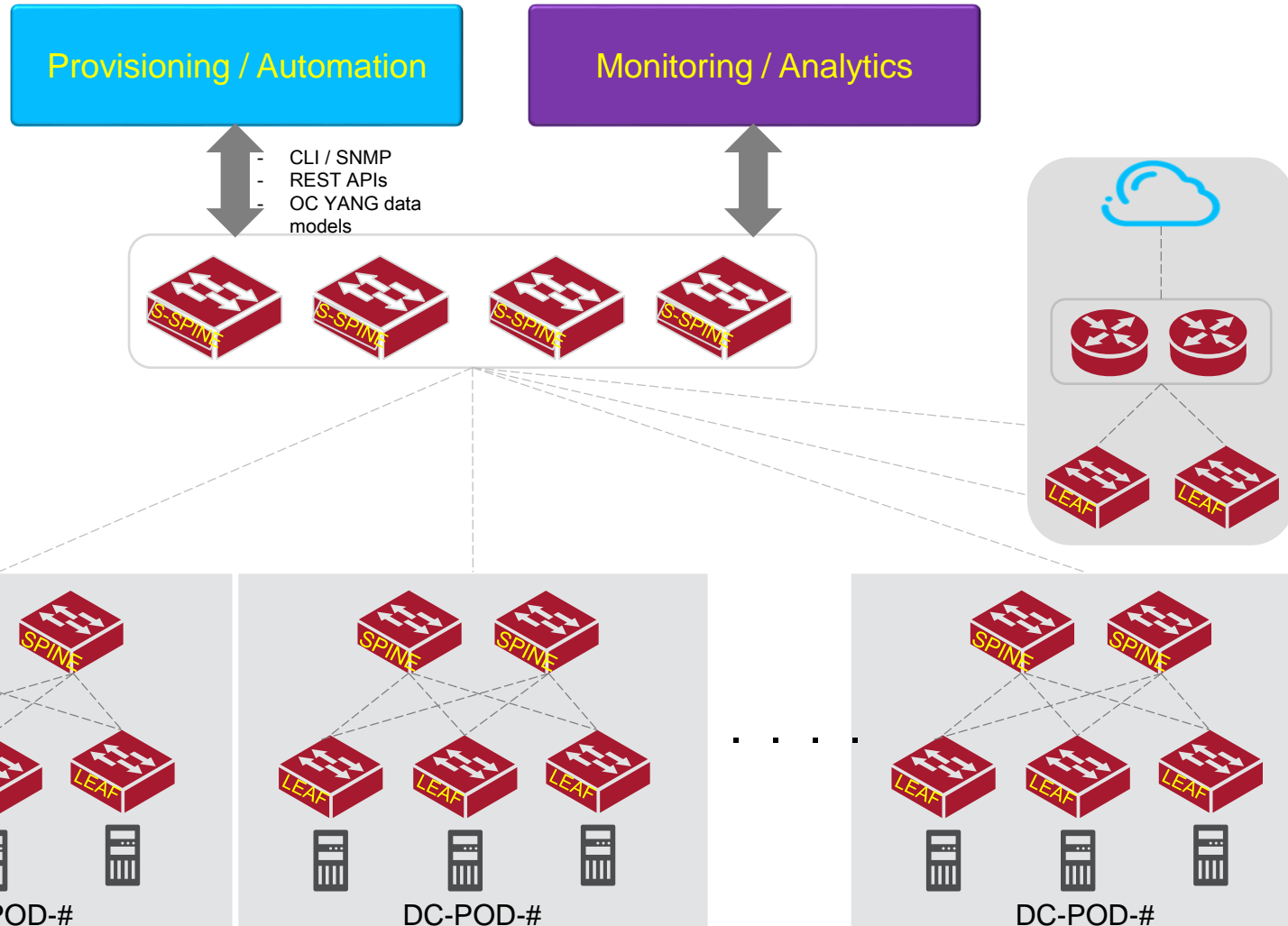


• Key Broadcom Contributions

- Infrastructure: Unified Management Framework, Platform Development Kit, ZTP
- Layer 3: BFD, VRF-Lite, EVPN/VXLAN, BGP Unnumbered, NAT, OSPFv2, Static Anycast Gateway
- Layer 2: PVST/STP, IGMP Snooping, MCLAG, Storm Control, UDLD, Static LAG, Egress Shaping
- Others: Spyttest Automation Framework, RADIUS, TAM – Threshold

Use Case-1 : Scalable L3 Fabric Underlay for Data Center

Target Deployments : Web-scale Data Center, SP/Enterprise DC for workloads like Hadoop



Key Benefits

SIMPLE

- IP based underlay fabric
- BGP as routing protocol
- Scale out architecture
- Simple repeatable configuration with VLAN, BGP, ACL, QOS

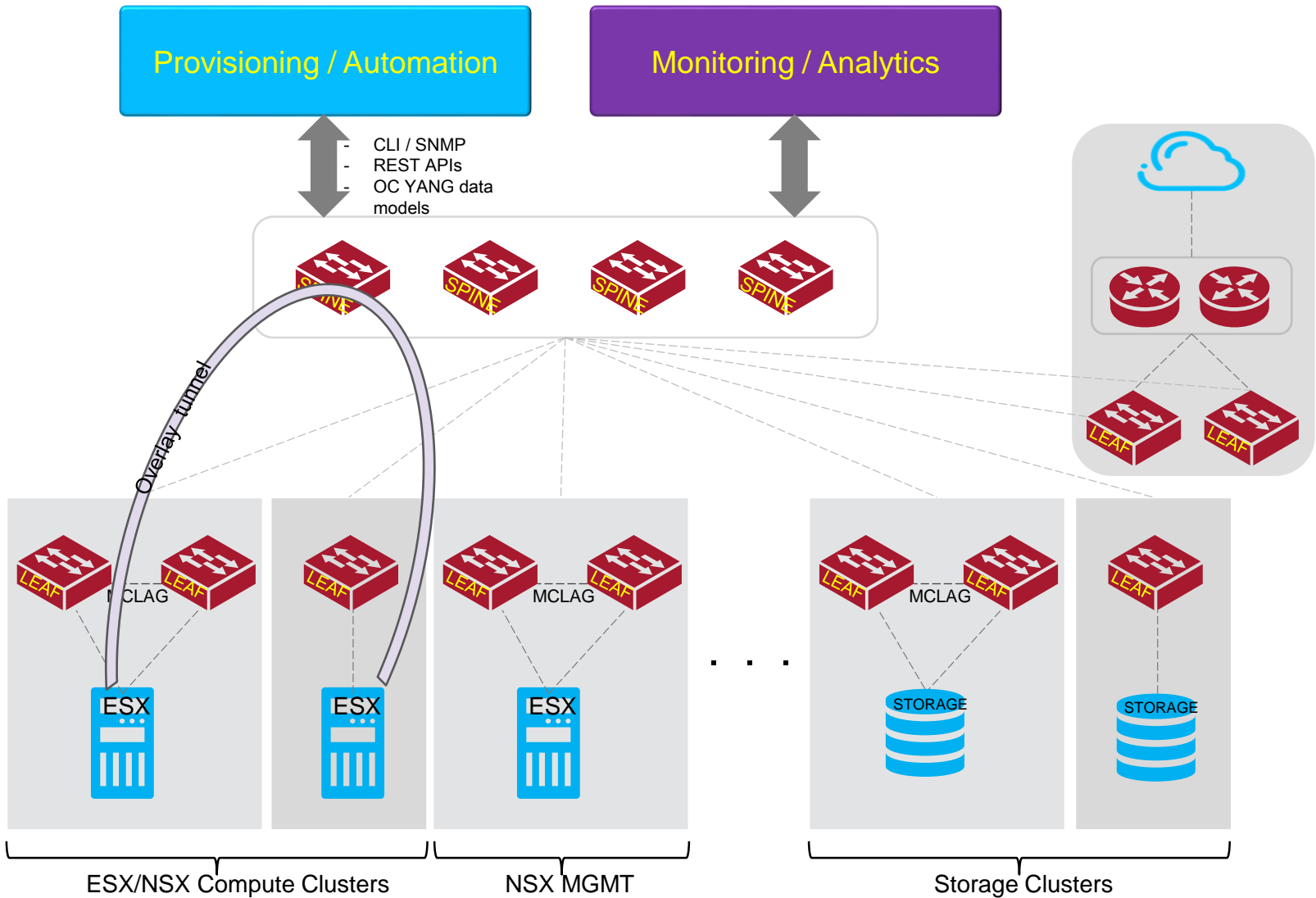
AGILE

- DevOps friendly – Simple CI/CD model
- Fast reboot
- Telemetry / flow analytics for network visibility

COST-EFFECTIVE

- Merchant silicon based

Use Case-2 : Network Fabric Underlay for VMware Deployments (NSX, ESX, vSAN)



Key Benefits

SIMPLE

- BGP based scale-out architecture
- Simple repeatable configs with VLAN, BGP, ACL, QoS
- VMware NSX based Multi-Tenant Cloud
- Overlays support on hypervisor

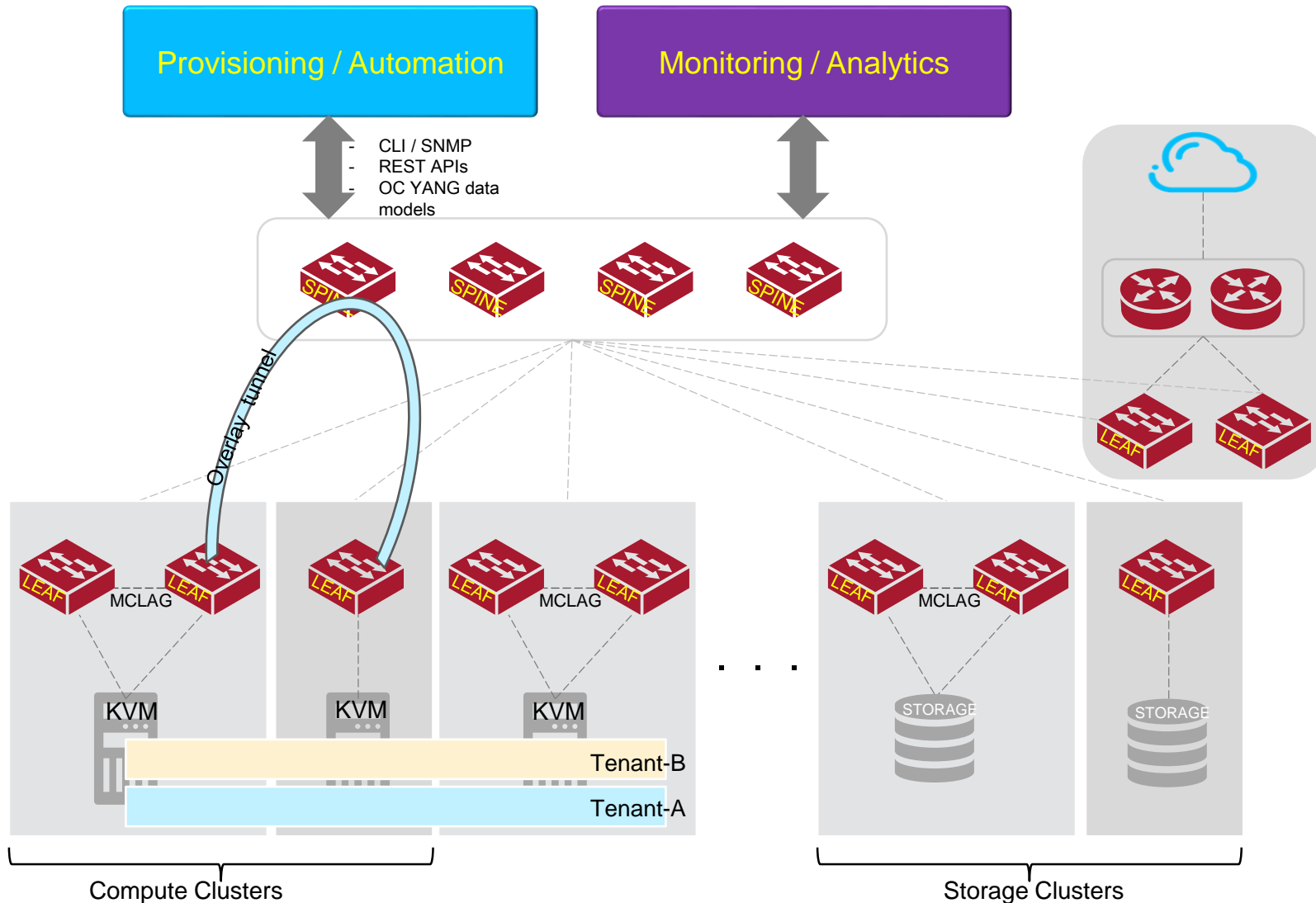
AGILE

- DevOps friendly – Simple CI/CD model
- Fast reboot
- Programmatic interfaces
- Telemetry / flow analytics for network visibility

COST-EFFECTIVE

- Merchant silicon based

Use Case-3 : Multi-tenancy with VXLAN EVPN



Key Benefits

SIMPLE

- Large namespace compared to VLANs
- Future proof scale-out Architecture
- BGP EVPN control plane overcomes "Flood and Learn" limitations

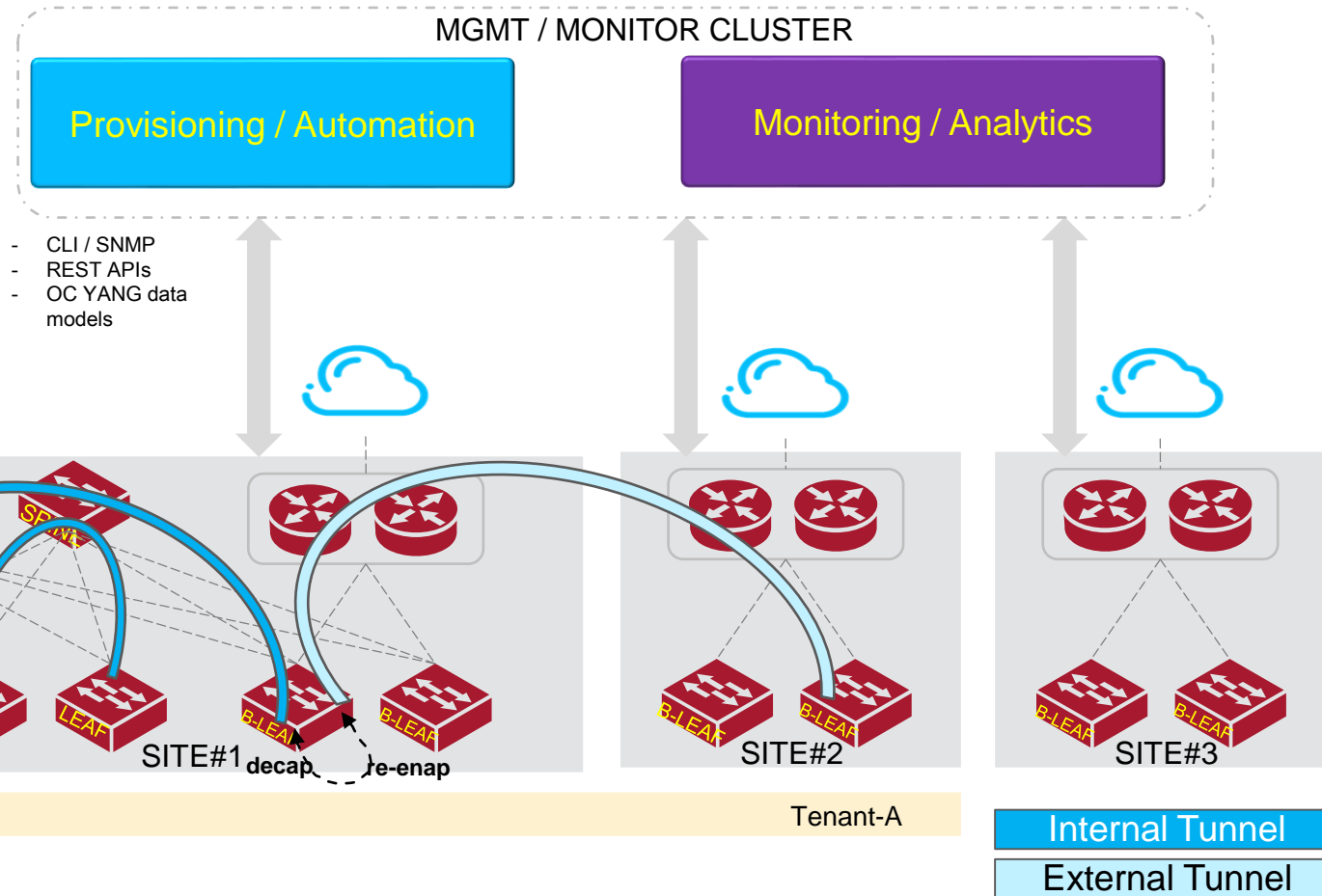
AGILE

- L2 Extension over an L3 underlay allows host mobility
- Multi-tenancy enabled by VXLAN segmentation
- L3 ECMP provides load sharing and redundancy

COST-EFFECTIVE

- Merchant silicon based

Use Case-4 : Multi-Site Data Center Interconnect



- CLI / SNMP
- REST APIs
- OC YANG data models

Key Benefits

SOLUTION

- Intra-site tunnels will have no change
- Inter-site tunnels will originate/terminate on Border-Leaf node
- Border-Leaf switch performs DECAP / RE-ENCAP of VxLAN traffic for DCI traffic

DETAILS

- Type-2 & Type-5 routes are imported / re-advertised between internal & external BGP neighbors

COST-EFFECTIVE

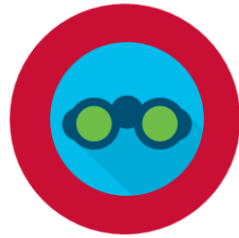
- Merchant silicon based

Use Case-5 : Visibility with Advanced Telemetry

You can't Manage, what you don't Measure. You can't Measure, what you don't See.

Granular, real-time insights from advanced merchant silicon-based telemetry to enable rapid provisioning and remediation

In-band Flow Analytics



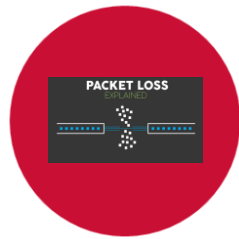
- Unprecedented packet level visibility for granular latency and path tracking at flow level

Congestion Monitoring



- Proactive port congestion detection via buffer monitoring

Mirror on Drop



- Notification for packet drops with the reason and the flows being impacted

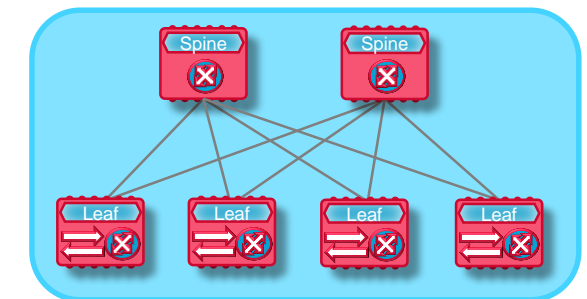
Get Hands-On Experience

SONiC Cloud Lab (Min Time Commitment: 2-3 hours)

- Ready to use remote SONiC Labs running in Azure.
- Customer only needs to install a small client App on their computer (GNS3)
- Common topologies/use-cases are already built, to optimize time spent.

Build your own Virtual SONiC Lab (Min Time Commitment: 4-6 hours)

- Build your own test topologies by running virtual SONiC on GNS3 on your computer (Windows/MAC/Linux)
- Download virtual instance of Enterprise SONiC from [GitHub](#)
- Follow [these](#) instructions to start building your own vSONiC Lab





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