Open. Together.

OCP
SUMMIT

Unlocking SONiC's Potential for Intent-Based Data Centers

Nikos Triantafillis
Member of Technical Staff, Apstra

nikos@apstra.com

OPEN COMMUNITY®

Intent-Based Data Center Automation Requirements

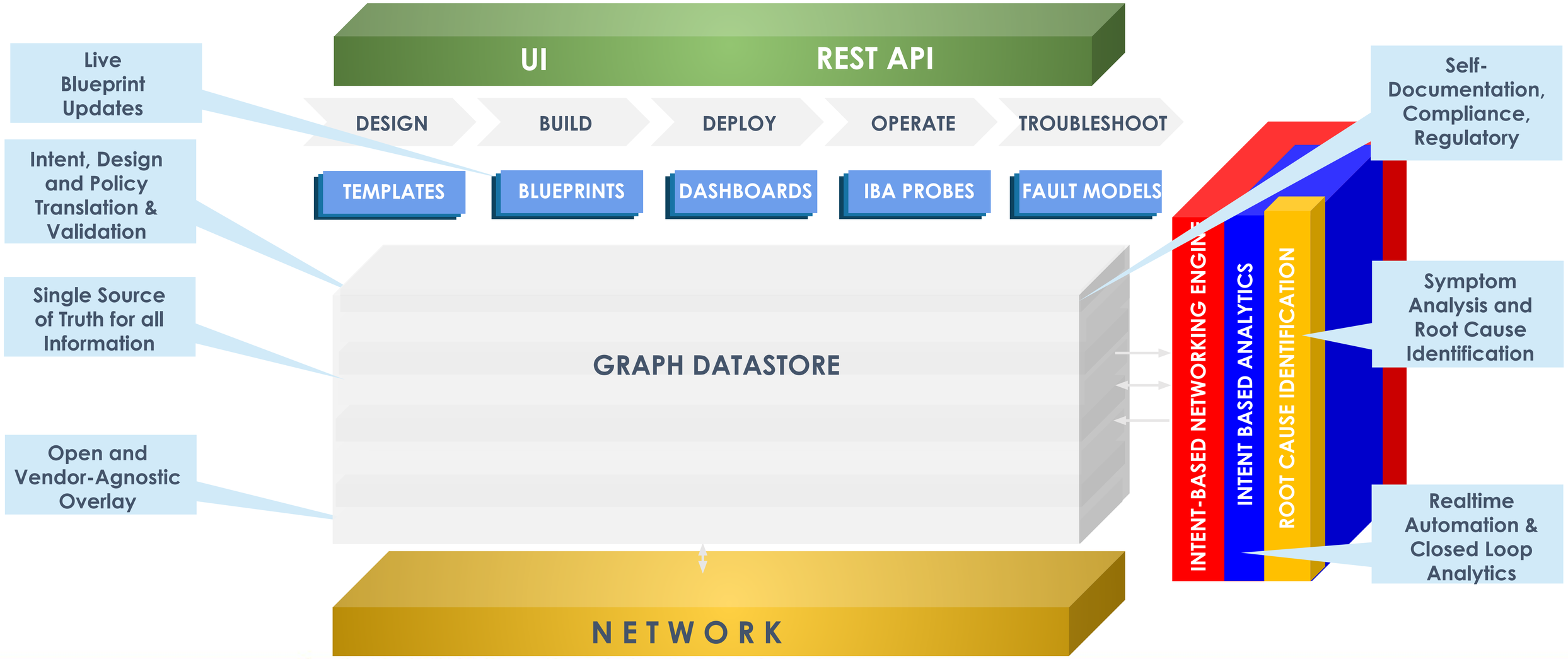
Fully Automated Network

DESIGN → **BUILD** → **DEPLOY** → **OPERATE**

Underlay	Overlay	Virtual Networks	Security Zones	Group Based Policies	Segmentation
Day 2 Change Operations		Real-Time Continuous Validation	Real-Time Correlation		Self Documenting

Choice of Hardware	Choice of Switch OS	Choice of Workload	Choice of Cloud
OPEN Compute Project CISCO ARISTA DELL EMC JUNIPER NETWORKS Mellanox TECHNOLOGIES	SONiC CISCO NX-OS IOS-XR ARISTA EOS Extensible Operating System CUMULUS JUNOS Open Switch	vmware kubernetes	Azure aws

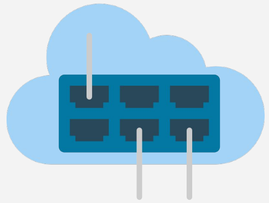
Intent-Based Data Center Automation Architecture



Logical Devices

4 x 100 GE
Role: Spine | Router

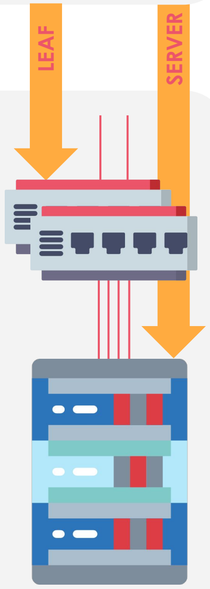
Leaf
Spine
Server



Panels
Roles
Speeds

8 x 25 GE
Role: Server | Peer

Rack Type

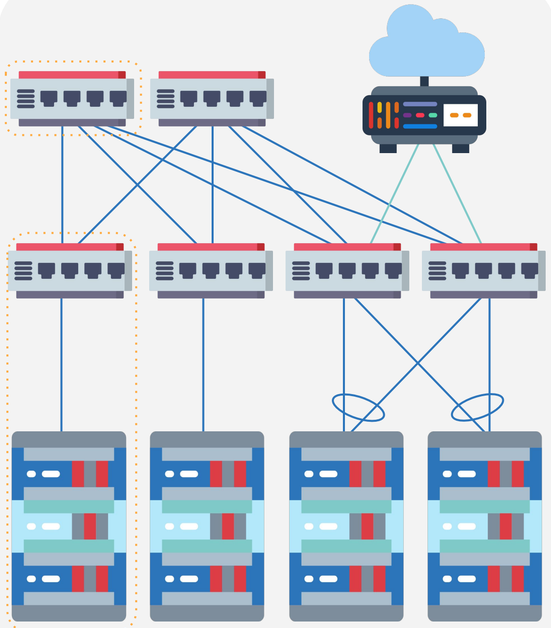


Links to Spines
Leafs/Rack
Server Uplinks
Server Logical Devices

Layer 2 or 3 (ROH) Servers

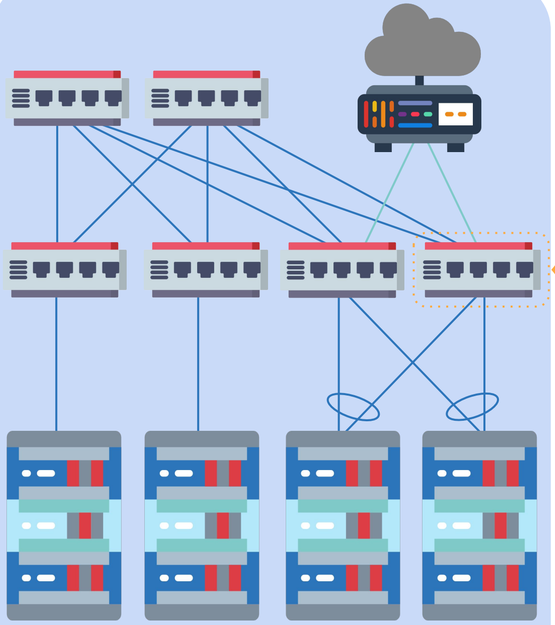
SPINE

Template



Routing Policy
Overlay Control
IPv4 | IPv6
External Links

Blueprint: "It's Alive!"



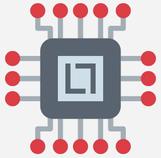
LEAF & SPINE

Virtual Networks
Security Zones (VRFs)
vSphere Inventory
Intent-Based Analytics
Root Cause Identification

Interface Map: "Glue"

Bind **Logical** to **Physical**

Device Profile



Physical Device
HW/SW Capabilities
Port Transformations

Resources: "Identities"

Pools

External Routers

Managed Devices

Hardware/Software Agents
Device Facts
Status
OS Management

BUILDING BLOCKS

ABSTRACTION "RUBBER STAMP"

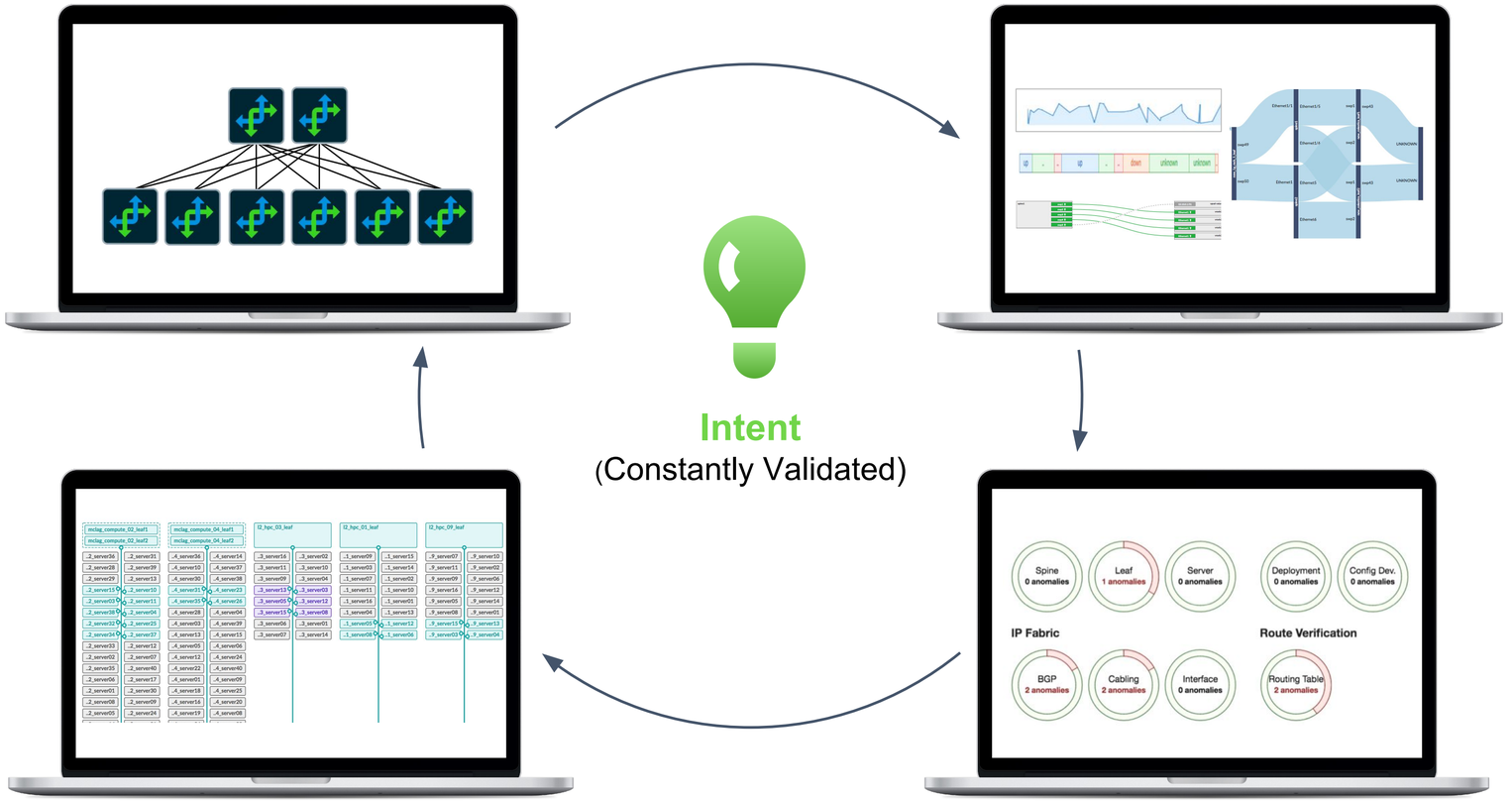
INSTANTIATION "PRINT"

Intent-Based Networking Analytics

Leverage Closed Loop Continuous Validation

Architecture

Operational Changes

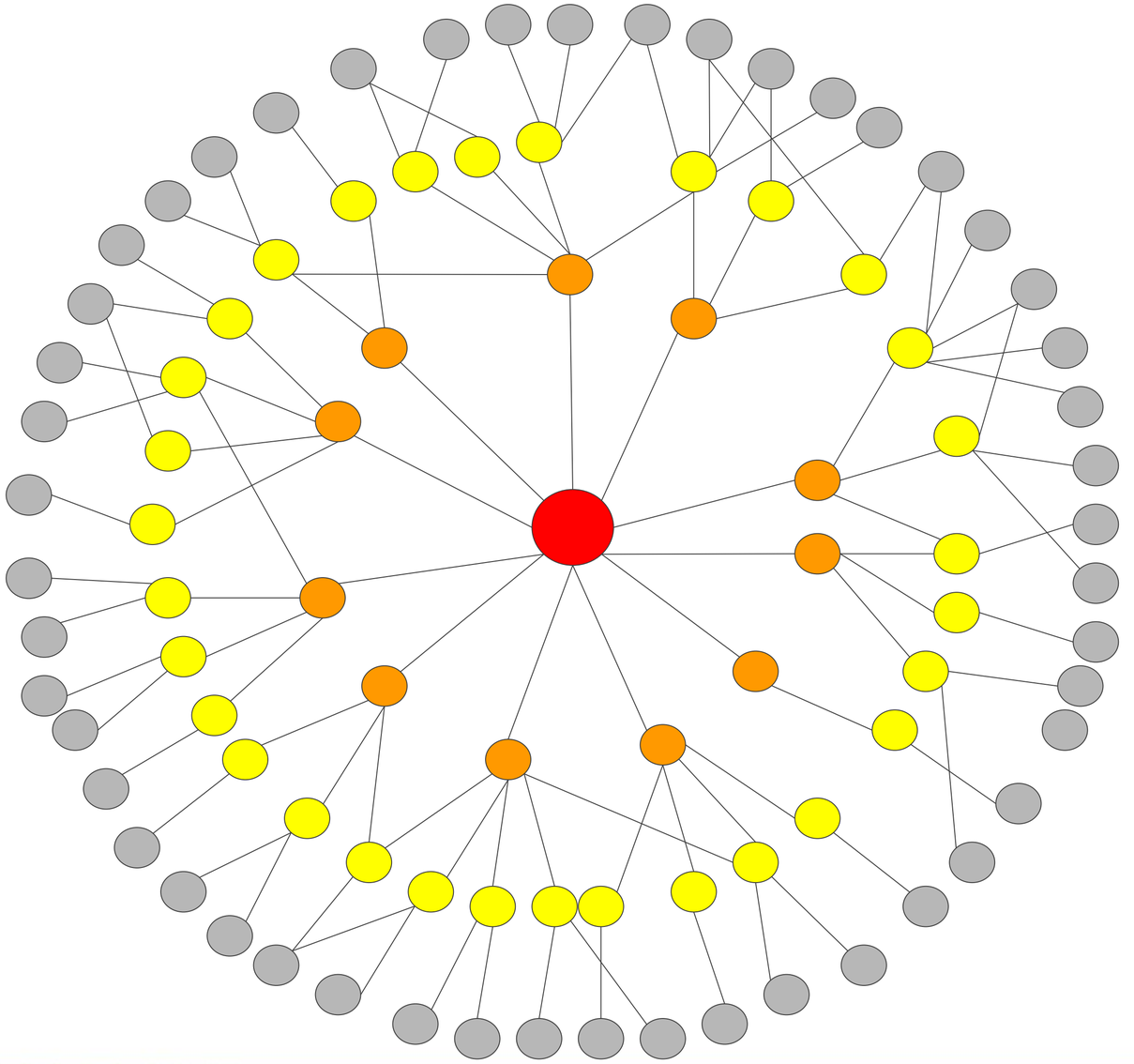


Continuous Validation – Intent Based Analytics

Service Visibility

Root Cause Identification

DEFINITION	*EXAMPLE*
Low fidelity anomalies caused by event propagation	*Point of sale systems slow or intermittent*
Anomalies and impacts caused by high fidelity symptoms	*Throughput restricted, bandwidth limited*
High fidelity symptoms related to root cause	*IP routes failing*
Root cause	*Cable Swap*



SONiC changes for enabling intent-based networking

- SONiC on box system agent
- SONiC with frr routing stack and move from 4.0 to 6.0.2
- ConfigDB split config capability for routing stack
- Mgmt interface in a vrf

Demo Intent-Based Networking

Demonstrate Root Cause Identification with IFA on SONiC

Summary

- SONiC is integrated, supported and is now a viable option in Apstra’s intent-based networking architecture
- Interest in SONiC continues to grow. SONiC with Apstra’s AOS is being considered by customers and partners in DC, cloud and campus environments
- Excellent work by SONiC community so far
- Continue effort with call for more focus in:
  - Stability
  - Feature velocity
  - Manageability
  - Telemetry

More Demos in Apstra Booth (B21)

apstra®


Open. Together.
OCP Global Summit | March 14–15, 2019
OCP
SUMMIT