

Apstra, Awnix, and Dell EMC Deploy Revolutionary Open IaaS Network Infrastructure into Tier 1 Service Provider Cloud:

Joint Solution Provides Hybrid Cloud for OpenStack Deployments

INDUSTRY

Telecommunications

CHALLENGES

- Maintain operational visibility
- Provide network automation and control

SOLUTION

- Apstra AOS Intent-based Networking turn-key software
- Awnix Advanced Rival Cloud
- Dell EMC open networking fabric switches and OPX network operating system

RESULTS





- Increased control, auditability and security
- Ease of management



Overview

Apstra, the pioneer of Intent-Based Networking and Intent-Based Analytics™, delivered Apstra AOS® to dramatically simplify the operations of small to large scale data center network deployment, get full visibility into the network through advanced analytics and continuous validation, as well as auditing and reporting. AOS delivers agility, reliability and significantly reduces both CapEx and OpEx expenses for data center network operations and capacity management. The revolutionary Apstra AOS® enables network operators to quickly and easily design, build, and operate leaf-spine fabrics. AOS enables disaggregation in the data center by being vendor hardware and software agnostic – and applies to any size network.

Awnix is an industry leader in providing advanced private and multi-tenant cloud platforms, based on open source software, for virtual servers and containers, such as Kubernetes (K8S), to service providers, government agencies, and enterprises. Awnix uniquely delivers turnkey semi-custom clouds which include: cloud software for VMs and K8S, cloud restoration, off-site and backup physical compute, physical and virtual (software defined) networking, hyper-converged storage, and 24x7 support. Awnix removes the complexity of operating on-premise clouds with industry-leading TCO and optional managed services, for both government and corporate customers. Awnix delivers the ability for small, medium, and large organizations to quickly, securely, and reliably deploy an on-premise private cloud.

The **Dell EMC** Open Networking strategy helps customers innovate network operations for greater business agility. Dell EMC Open Networking allows customers to choose from a rich set of open network operating systems and software applications for greater automation, security, analytics, and ultimately greater flexibility. With Dell EMC Networking, customers can break vendor lock-in and embrace innovation that drives out complexity and can lower the total cost of ownership.

-  DELIVER A CUSTOMIZED, SECURE ON-PREMISE CLOUD
-  ONBOARD WORKLOADS
-  PROVIDE CONTROL
-  MANAGE AND CONTROL THE DATA CENTER NETWORK CENTRALLY

-  MAINTAINING OPERATIONAL VISIBILITY
-  HAVING A SINGLE SOURCE OF TRUTH FOR AUDITING AND CONTROL

-  IMPROVE NETWORK MANAGEMENT AND CONTROL
-  CONTROL COST
-  EXPANDABILITY

Objectives

- Awnix needed to deliver a customized, secure on-premise cloud as a managed service for a Tier 1 service provider supporting critical internal and external customer workloads. This turnkey platform hosts diverse workloads such as Internet of Things (IoT), Smart Cities, and cyber security threat profiling.
- Enable the service provider to onboard workloads as easy as with public clouds, with lower TCO, and better IT productivity.
- Provide delegated control so that user projects can be managed by the project administrators, with configuration change traceability and alerts to minimize time to problem resolution
- Manage and control the data center network centrally, prevent unauthorized access, log changes, continuously monitor and alert, and eliminate manual, error-prone configuration through automation.

Challenges

The service provider's requirements included the capability to handle diverse user needs, with the ability to quickly scale the system to meet the needs of future production workloads, such as municipal sensor IoT networks and connected vehicles with millions of flows and multi-hundred gigabit per second throughput. Many of these applications will be subject to regulatory controls, cyber threat protection, and stringent uptime requirements, where outages have severe impact to the service provider's bottom line.

Maintaining operational visibility and having a single source of truth for auditing and control was critical. Awnix also wanted to ensure a solution for the service provider that would not require many one-off products which only partially met their needs or required many feature licenses, all while keeping cost in check.

Requirements

Awnix needed to deliver three key requirements in addressing the service provider's challenges:

- 1. Improve network management and control:** Eliminate box-by-box and error-prone configuration processes, as well as proprietary management tools to enable a single management and control interface for all network devices across multiple vendors to provide complete operational visibility and control via an easily-auditable system capable of centralized or delegated management of and ongoing operations.

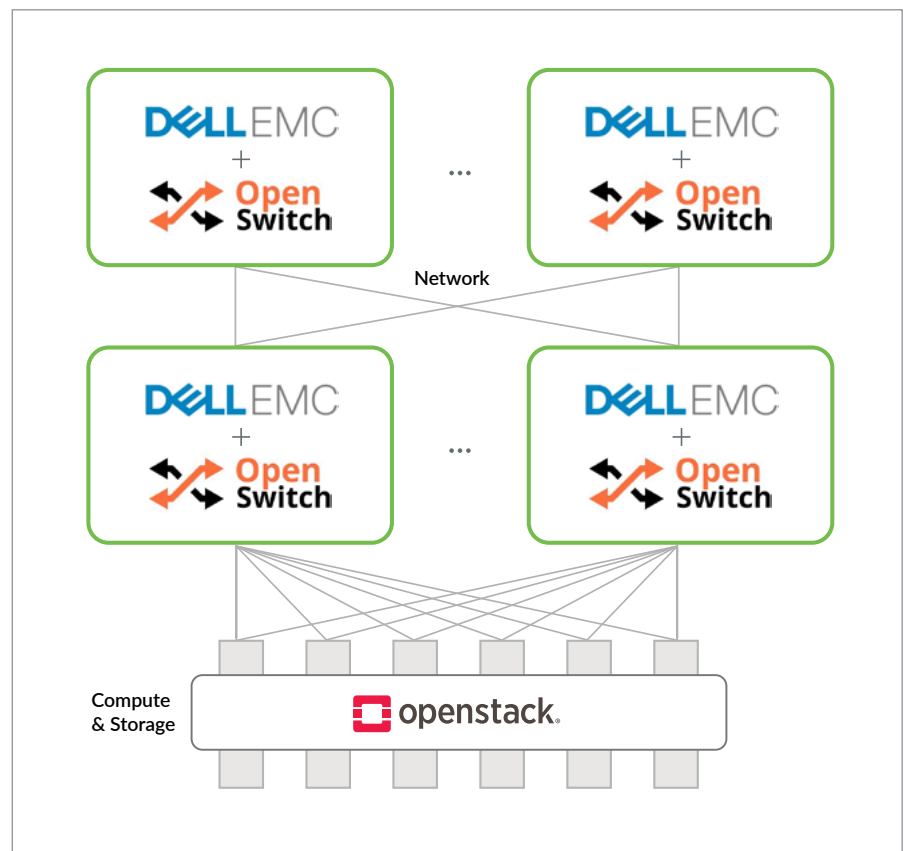
2. **Control cost:** Implement a disaggregated network design capable of meeting the network bandwidth, throughput and security requirements, by utilizing best-of-breed and best priced physical networking devices from multiple vendors without increasing management complexity.
3. **Expandability:** Ability to easily add new physical network devices, makes and models from various vendors to accommodate for future growth and to easily scale out and up.

Solution

- Apstra AOS® Multi-Vendor Intent-Based Networking turn-key and extensible software
- Awnix ARC (Advanced Rival Cloud) turn-key Cloud platform for VMs and K8S
- Dell EMC Z9100 100GbE Open Networking fabric switches
- OpenSwitch OPX Network Operating System

FIGURE DIAGRAM:

APSTRA AOS +
AWNIX ARC OPENSTACK



“The Z9100s are amazing. In fact, the entire line of Open Networking switches from Dell EMC is phenomenal –and Apstra’s AOS software is the best management and monitoring tool I’ve seen for networking in decades.”

- Rick Kundiger | CEO at Awnix

“With OpenSwitch, Dell EMC Networking expands its Open Networking strategy to Open Source Networking enabling Awnix to combine OPX with Apstra’s AOS to give unparalleled value and flexibility to the customer.”

Alley Hasan | Director of Strategy
at Dell EMC Networking

Business Benefits and Results

The Awnix, Dell EMC, Apstra solution provides a cloud platform that meets the needs of both internal and external users. The solution includes the features and ease of use desired by the service provider, while increasing control, auditability, security, and ease of management. The outcome is lower cost—beyond what is available from public cloud service providers or proprietary on-premise alternatives.

The solution is comprised of the Awnix ARC cloud platform, Dell EMC’s state-of-the-art 100GbE Z9100 switches at top-of-rack in a layer-3 Clos design, automated and operated by Apstra AOS. The combined technologies leapfrog 40GbE to provide 200Gb/s of bandwidth to each cloud hypervisor with each Z9100 capable of up to 6.4Tb/s non-blocking switching I/O, ensuring plenty of bandwidth is remaining at 100s of Gb/s to Tb/s of available bandwidth for East-West and uplink traffic.

As IoT services such as Smart Cities, Smart Cars – and a multitude of others – transition from the early adopter phase to pervasive use, the ability to scale not only the virtual servers and containers quickly and easily, but also to scale the physical network while maintaining control of configuration, complexity, and cost, is critical to the success of the companies or government agencies that will manage or consume these services today, and far into the future.

The state of the art 100 Gigabit Ethernet fabric provides high bandwidth and low latency networking for today and into the future, enabled by the breakthrough price point of the Dell EMC Z9100 fabric switch, and OpenSwitch OPX software.

“Apstra’s AOS provides scalable vendor-independent intent-based automation of the entire life cycle of network services – from day zero, day one, and day two and beyond – including change operations, as well as advanced intent-based analytics for unmatched reliability, visibility, and troubleshooting ability,” said Mansour Karam, CEO and Founder at Apstra. “As new products become available, they can be incorporated seamlessly without having to change operating procedures. Apstra is pleased to partner with Dell EMC and Awnix to deliver AOS support for this OPX cloud deployment in a Tier 1 service provider production network, providing greatly enhanced agility and reliability and reduced cost.”

“The Z9100s are amazing. In fact, the entire line of Open Networking switches from Dell EMC is phenomenal –and Apstra’s AOS software is the best management and monitoring tool I’ve seen for networking in decades,” said Rick Kundiger, CEO at Awnix. “100Gb is the new 10Gb; big brands are that past; cost effective devices and tools, security, and reduced lock-in are in now. In today’s highly competitive cloud and IoT space, companies that can iterate faster for less will win. By combining our cloud with Dell EMC’s switches and Apstra AOS for network automation and operations, we can help customers achieve that desired win.”

“Dell EMC’s Open Networking initiative is about choice and flexibility, without a compromise on technology. With OpenSwitch, Dell EMC Networking expands its Open Networking strategy to Open Source Networking enabling Awnix to combine OPX with Apstra’s AOS to give unparalleled value and flexibility to the customer,” said Alley Hasan, Director of Strategy at Dell EMC Networking.

www.apstra.com

sales@apstra.com

1-844-9APSTRA

333 Middlefield Rd, Menlo Park, CA 94025

All Rights Reserved © 2018 Apstra Incorporated



DELL EMC

