

AMS-IX Embraces Open Networking Innovation to Enable Its IX Services



AMS-IX (Amsterdam Internet Exchange) has been operating at the core of the internet for over 25 years. The nonprofit, member-based association operates seven independent internet exchanges (IXs) globally, the largest of which is located in Amsterdam, where AMS-IX delivers high-quality interconnection services to internet service providers, mobile operators, cloud and content providers and a wide range of enterprises, from broadcasting to gaming to financial services.

AMS-IX is experiencing tremendous growth due to the popularity of its neutral exchanges and expanding service offerings, now including internet and mobile peering, private interconnect, DDoS protection, cloud access and IX-as-a-service (IXaaS), a fully managed solution for running a private internet exchange. The interconnection platform in Amsterdam delivers an astounding 6.3 terabits per second of traffic to over 870 customers in 14 data centers geographically spread throughout the Amsterdam metro area, all with only 56 employees.

To deliver this kind of service innovation and traffic scale, AMS-IX continually pursues innovation in its IX platforms using cutting-edge technology. In anticipation of future growth, the AMS-IX network team decided it was time to upgrade the AMS-IX management network.

Goals for the Network Upgrade

1. Higher speeds and more capacity to speed up operations and ensure high-quality user experiences.
2. The ability to support the widely varying requirements of multiple users and applications, including production network operations, storage and virtual machine (VM) replication for high availability and disaster recovery and employee/office connectivity for intranet and internet access.
3. A new, more redundant network topology to improve network resiliency, increase capacity utilization and reduce bottlenecks.
4. A homogeneous network environment for easier management and better visibility.
5. The ability to leverage automation whenever possible to quicken policy deployment, improve network operations and free employees to cover other critical initiatives.

Considering Open Networking and Next-Generation SDN

For many years, open networking and software-defined networking (SDN) in the data center were considered to be practices done mostly by hyperscale data center operators. The team at AMS-IX knew that things had changed and open networking and SDN had matured, driven by industry groups and innovations from the broad vendor community. SDN-based open networks are becoming much more widely adopted, using open source and open standard technologies and best practices, from Linux-based network operating systems (NOSs) to REST application programming interfaces (APIs) and automation playbooks for Ansible.

As the network team compared open networking solutions to traditional integrated network platforms, they identified several advantages to open networking:

- Disaggregating networking hardware and software, an approach with years of proven value in servers, reduces dependence on a single vendor for new capabilities and increases AMS-IX's ability to innovate.
- Mature open standards and open source software, combined with strong support from well-established vendors, mean that open networking can now achieve effective parity with traditional vendor solutions in meeting AMS-IX's requirements for functionality, reliability and performance.
- A range of open networking software suppliers offers choice and innovation in software capabilities and features to better fit AMS-IX's requirements. Newer SDN approaches provide AMS-IX with better manageability than traditional vendor offerings.

- Open platform designs and Linux-based NOSs enable AMS-IX to apply open source software tools to continually improve network operations.

Understanding these benefits, AMS-IX investigated multiple open networking software and hardware solutions and selected Dell EMC hardware with Pluribus Networks software.

Why Dell EMC and Pluribus Networks?

Together, Pluribus Networks and Dell EMC offer open networking switches fully integrated with the Pluribus Networks **Netvisor® ONE** NOS and **Adaptive Cloud Fabric™**(ACF). These components work together to create a powerful and unique solution for multi-site data center networking based on open networking and next-generation SDN.

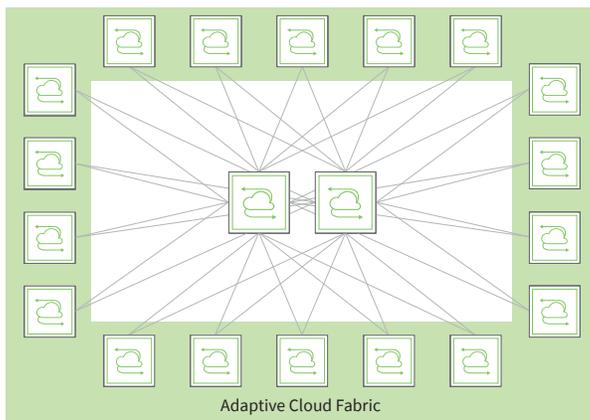


Figure 1: AMS-IX Multi-site Network Unified with the Adaptive Cloud Fabric

For AMS-IX, the Pluribus software solutions offered several distinctively valuable capabilities and advantages when compared to alternatives:

- **Pluribus Netvisor® ONE** is a Linux-based operating system purpose-built to optimize the power and performance of bare metal open networking hardware. It is based on the open source FRRouting routing project and is instantiated in one or more lightweight containers on bare metal leaf-and-and-spine switches, offering a rich set of Layer 2 and Layer 3 protocols.
- **Pluribus Adaptive Cloud Fabric™** is a distributed SDN implementation that radically simplifies network operations with the power of fabric-wide automation and troubleshooting, while improving performance and reducing latency with fully distributed network services. Pluribus' unique controllerless SDN approach delivers operational efficiencies by federating all the switches together in a single programmable entity. This provides the IT team a level of

operational simplicity that dramatically reduces both operating costs and the potential for human error.

The AMS-IX team recognized that the Dell and Pluribus solution would enable them to achieve all their network upgrade goals and deliver additional benefits based on the unique and powerful next-generation SDN capabilities of the Adaptive Cloud Fabric for efficient, automated multi-site data center operations:

- Radically simplified fabric-wide network management and operations, including monitoring and analytics.
- Deep segmentation and isolation of widely varying user groups and applications.
- Streamlined and rapid deployment of multi-site connectivity services for all users and applications with one-touch fabric-wide provisioning.

Based on this assessment, AMS-IX chose the Dell and Pluribus solution and successfully deployed it across their network.

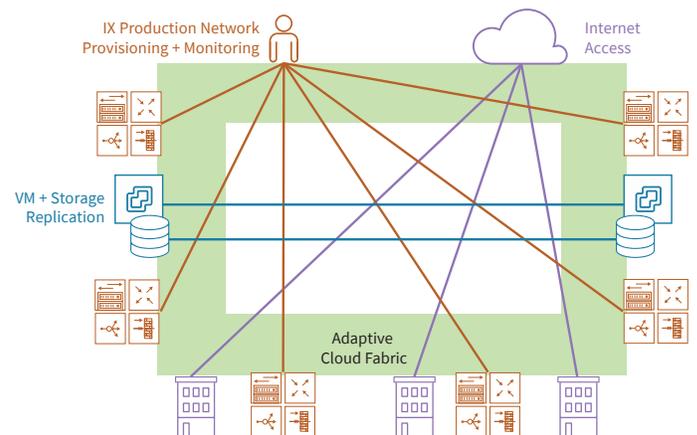


Figure 2: AMS-IX Application Segmentation Enabled by Adaptive Cloud Fabric

Conclusion

AMS-IX has built its reputation on high-speed, high-quality interconnection services with a broad portfolio, from peering and private interconnect to cloud access and IX-as-a-service.

The open networking solution from Dell EMC and Pluribus Networks has enabled AMS-IX to increase network capacity and resilience, improve operational agility and efficiency and deliver high-quality experiences to its diverse users.