Mellanox TECHNOLOGIES

△ ARKI   XCLOUD NETWORKS

Achieving speed, agility and freedom while scaling the network

Aarki upgrades its data centers in 5 locations with XCloud Networks and Mellanox to achieve performance, reliability and agility at a massive scale.

Background

Ranked 58 on 2019 Deloitte's Technology Fast 500™, a ranking of the 500 fastest growing technology, media, telecommunications, life sciences and energy tech companies in North America, Aarki is a leading online advertising company that uses big data to construct predictive user models for targeted advertising. It delivers superior results using proprietary machine learning technology for performance optimization. The company's customer base includes leading brands, agencies, and app developers.

The main challenges in data center networking for Aarki were:

- Abstract away from operational complexities of network infrastructure
- Scale the infrastructure fast without increasing load on engineering teams
- Improve efficiency in terms of total cost
- Mix and match hardware from multiple vendors
- Apply programmatic DevOPS approach

Aarki adopted open-networking technologies from XCloud to address these challenges. One of the key advantages of the XCloud solution is the seamless user experience between multiple NOS (Network Operating System), which is crucial for Aarki to operate their data centers. After successful adoption of XCloud at their Hong Kong data center, Aarki arrived at the decision to convert to XCloud at all 5 data centers (New York, Silicon Valley, Virginia, Hong Kong and Amsterdam).

For the refresh of the 4 data centers, Aarki has deployed Mellanox Spectrum switches running Ubuntu Linux with open source SwitchDev driver(Linux Switch).

Key Benefits

- Operational efficiencies & cost savings
- Robust, high-performance, highly scalable, and fault-tolerant network
- End-to-end visibility into the network
- Automated network management
- Simplified management and operations
- Rapid deployment through automation
- Operational excellence & network visibility
- Data center efficiencies

" With the help from cutting edge hardware partners such as Mellanox and network automation innovators XCloud Networks, we are deploying infrastructure quickly and with minimal investment."

Mark Kalygulov,
VP of Engineering,
Aarki

XCloud Solution

XCloud Networks is a leading innovator in cloud-networking automation software for next-gen datacenter and telecom networks. The XCloud controller abstracts differences in network operating systems and transforms the entire network infrastructure into one large, centrally managed fabric. It provides a centralized dashboard to manage an entire network infrastructure, empowering a small network team to deal with even larger networks by automating manual, repetitive tasks. API access allows easy integration with DevOps tools, and the role delegation options optimize resource-sharing.

XCloud's Network automation platform allows a streamlined setup and intuitive configuration of the network. XCloud can integrate with various built-in tools like VMware, Kubernetes, OpenStack, Proxmox to simplify compute and storage connectivity and provide automated and seamless operation. The XCloud software automatically handles integration of open-networking components, and provides all the essential network services in ready to use fashion, such as: VPC (L2/L3 segments), Northbound BGP, Virtualized border router, VPN, NAT, ROH (routing on the host), LB (server load balancer), ACLs (with built-in approval workflows). Built-in automated monitoring system, RBAC (role-based access control), logging, and in-system software upgrade mechanisms.

Open Mellanox Ethernet Solution

Complementing the XCloud solution perfectly, Mellanox provides an open, fully automated end-to-end Ethernet solution with hardware-accelerated performance from Spectrum switches and ConnectX network adapter cards. The resulting transparency at network underlay greatly simplifies the deployment and management of high-speed networking in the data center of any scale.

With high throughput and low latency, Mellanox Spectrum switches deliver fair and predictable performance to all data center workloads. The guaranteed performance, combined with automated QoS and congestion control at scale, makes it much easier for XCloud to abstract the network fabric in orchestrating traffic flows per SLA. Through What Just Happened™ (WJH) telemetry capability, Spectrum switches provide real-time network visibility for monitoring and troubleshooting.

A true open platform, Spectrum switches support multiple NOSes, including Mellanox Onyx, Cumulus Linux, Microsoft SONiC, and Linux Switch. Mellanox Linux Switch with a 100% open-source switchdev driver provides users the flexibility to customize and optimize the switch to their specific needs without paying for expensive proprietary software. Working with the XCloud software, the switchdev driver serves as an abstraction layer providing open, standard Linux interfaces for any Linux applications, including commonly used Linux configuration and monitoring tools.

Results and Benefits

The open-networking solution from XCloud and Mellanox has enabled Aarki to achieve:

- Multi-hardware, multi-NOS network with one unified management layer all together leading to operational efficiencies and cost savings

- Mellanox's high-performance, half-width Spectrum switches delivering 25Gbps bandwidth to Aarki's ML (Machine Learning) servers using Mellanox NICs

- Mellanox ConnectX-5 smart NIC with XCloud NFV software served as the most cost efficient alternative to border routers in all 5 data centers

- Robust, high-performance, highly scalable, and fault tolerant   network

- End to end visibility into network

- Automated network management that helps engineers work in a more agile way and reduce time to address problems from hours to minutes.

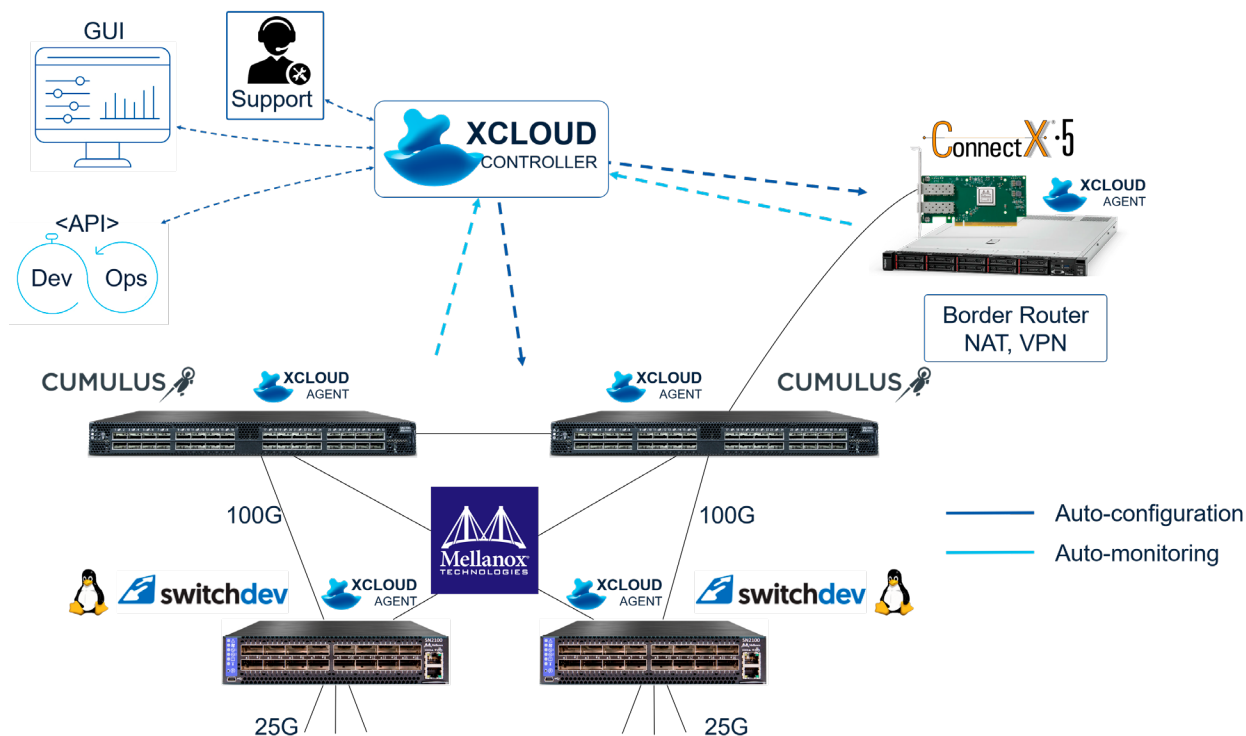- Simplified management and operations with a unified solution

Figure 1. Open-Networking XCloud Solution with Mellanox Spectrum Switches

	Conventional Solutions	**The Current Solution**
Network CapEx	1x	0.25x (75% savings)
Network OpEx	1x	0.5x (50% savings)
Network engineers	3	1
Network Change Duration	2-5 days	2-5 minutes
Load Balancer	No	Yes
DevOps ready	No	Yes
Real-time Network Visibility	No	Mellanox WJH (available soon)

"Aarki has been rapidly growing over the last few years," said Mark Kalygulov, VP of Engineering at Aarki. "We had to expand our datacenter presence very quickly. Going from a couple of cabinets to multiple cages with hundreds of servers in data centers all across the world looked like a very expensive and complicated proposition with traditional networking stacks. Fortunately, modern open networking solutions have proven to be highly reliable, scalable, and able to deliver exceptional performance required in the world of RTB. With the help from cutting edge hardware partners such as Mellanox and network automation innovators XCloud Networks, we are deploying infrastructure quickly and with minimal investment."

About Aarki

Aarki is a leading online advertising company that uses big data to construct predictive user models for targeted advertising. Aarki helps companies grow and re-engage their mobile users, using machine learning (AI), big data, and engaging creative. We strive to deliver performance at scale across different marketing objectives to meet the target return on investment. Our data offer deep insights into user intent and usage habits. To drive performance, we activate our data assets through proprietary machine learning algorithms and engage users in real time with personalized creative. Aarki has been recognized by The American Business Awards, Red Herring 100, Internet Advertising Competition, Deloitte's Technology Fast 500, The Drum Advertising Awards US, Horizon Interactive Awards, Effective Mobile Marketing Awards, and The Wires by Exchange Wire. For more information, please visit www.aarki.com or follow us on Twitter: @aarkimobile

About XCloud Networks

XCloud Networks is leading innovator in network automation software that makes it easy for customers to reduce costs & resources required for administering high speed datacenter networks by providing simple cloud-style & DevOps workflows. Offering an intelligent network controller with intuitive GUI and RESTful API. XCloDiane19591ud abstracts away CLI-based administration of individual devices. With XCloud customers are able to mix and match hardware from various vendors (remove HW vendor lock-in), dramatically increase operational agility (up to 90%), reduce costs & time required to manage networks by as much as 80%, and receive 24/7 full-stack support covering both commercial and open-source components. More information is available at www.xcloudnetworks.com

About Mellanox

Mellanox Technologies (NASDAQ: MLNX) is a leading supplier of end-to-end Ethernet and InfiniBand intelligent interconnect solutions and services for servers, storage, and hyper-converged infrastructure. Mellanox intelligent interconnect solutions increase data center efficiency by providing the highest throughput and lowest latency, delivering data faster to applications and unlocking system performance. Mellanox offers a choice of high performance solutions: network and multi-core processors, network adapters, switches, cables, software and silicon, that accelerate application runtime and maximize business results for a wide range of markets including high performance computing, enterprise data centers, Web 2.0, cloud, storage, network security, telecom and financial services. More information is available at www.mellanox.com

350 Oakmead Parkway, Suite 100, Sunnyvale, CA 94085
Tel: 408-970-3400 • Fax: 408-970-3403
www.mellanox.com