Transforming the Cloud Infrastructure with Speed, Safety and Power

CDMON builds the fastest cloud in Europe using Mellanox end-to-end networking and NVMe-based OpenStack platform

Subscriptions to cloud services are rapidly increasing. To conduct their businesses online and improve operational efficiency, more and more enterprise customers are outsourcing their IT infrastructure and services to Internet Services Providers (ISPs) and Cloud Services Providers (CSPs). While this is a boon for ISPs/CSPs, the rapid increase in demand comes with its own set of challenges.

Keeping Pace with Growing Demands

To keep up with the high demand, ISPs/CSPs are continuously having to expand their cloud infrastructure to deliver the same high level of service quality while maintaining their own IT efficiency. Many ISPs/CSPs struggle as they discover that such continuous expansion hits the quality and efficiency wall with the infrastructure they built years ago.

CDMON, a Spanish CSP, has risen to the challenge by continuously reinventing itself and delivering the best cloud services through technology innovations. Focusing on their customers' current and future needs, CDMON continues to grow and evolve its products and services to provide ever more value to them. Today CDMON is experiencing rapid growth in its customer base while building the fastest cloud in Europe.

The New CDMON Cloud

Constantly innovating, CDMON works continuously with customers to create solutions that are based on the latest technologies. In 2018, CDMON launched their new cloud and completed the rebranding of the company.

CDMON's new private cloud is based on Openstack-Ubuntu free technology and an Infrastructure as Code (IaC) framework to develop all the products and services hosted in its cloud. The cloud architecture is built on a micro-services ecosystem, wherein the APIs are a central element and product, using the highest performance languages such as Golang.

The new CDMON cloud is the first cloud created 100% on NVMe and Optane SSDs, with Ceph storage, Bluestore encryption, and end-to-end Mellanox Ethernet. Its state-of-art infrastructure delivers up to 2.8 million IOPS per node and up to 400GB/s throughput, making it the fastest cloud in Europe.

Highlights

– CDMON builds the fastest cloud in Europe, delivering up to 2.8 million IOPS per node and up to 400GB/s throughput.

– The new cloud is 100% on NVMe and Optane SSDs, with Ceph storage, Bluestore encryption and end-to-end Mellanox Ethernet.

– Mellanox ConnectX® network adapter cards and Spectrum switches provide the best 25/100G Ethernet Storage Fabric.

"Our focus is to design the future! Create an infrastructure that will remain competitive in the next 4 years. We need a networking solution capable of managing TeraBytes of traffic loads, and being integrated with our DevOps to operate an OpenStack Cloud. Mellanox with Cumulus provides extremely good network performance and allows seamless integration with our adoption of Infrastructure as Code."

- Juan de Haro, Head of Infrastructure, CDMON
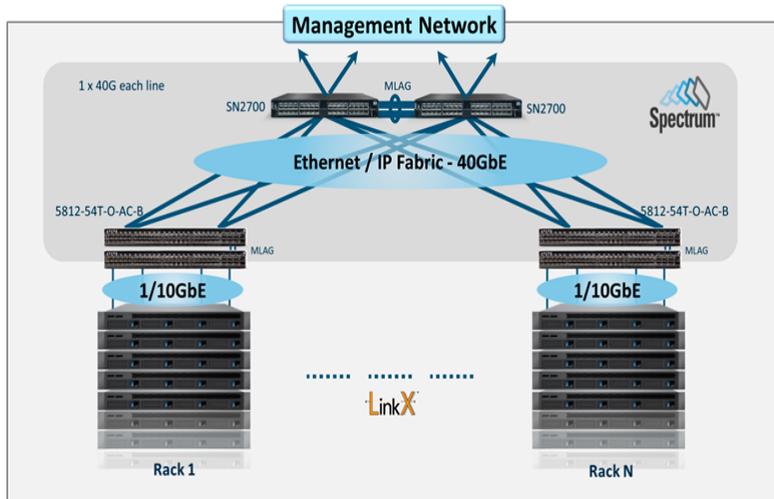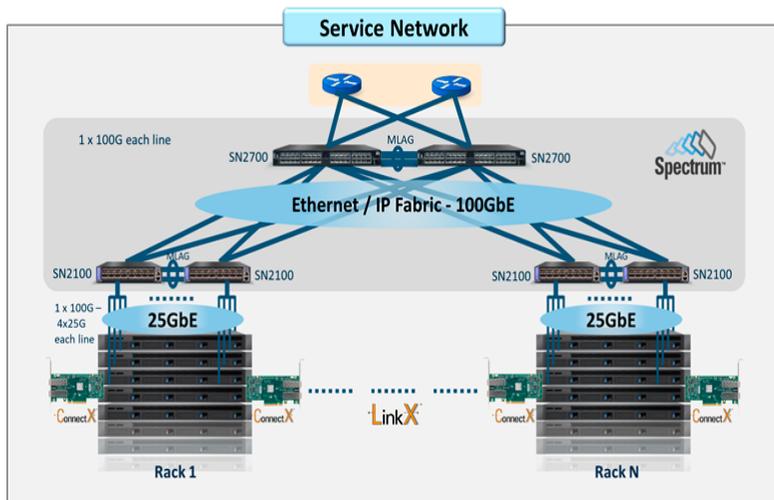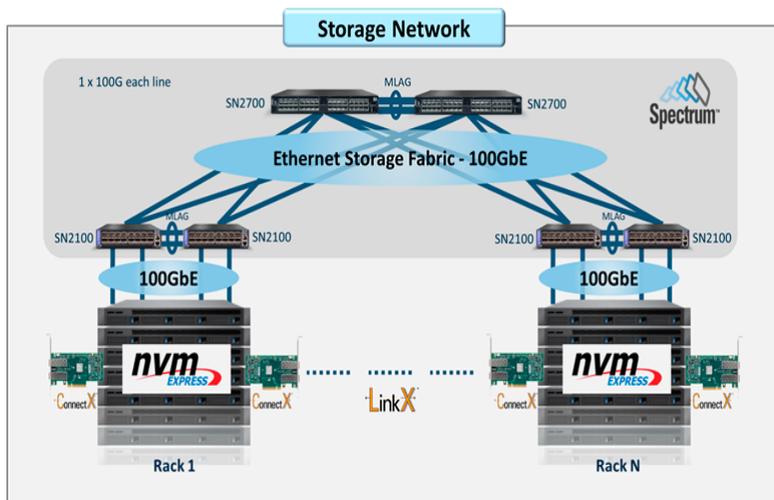
Figure 1. *CDMON Cloud infrastructure with Mellanox Ethernet Fabric*

The Cloud Infrastructure with 25/100G Mellanox Ethernet Fabric

To build the fastest cloud possible, CDMON decided to move away from a standard hierarchical 10GBaseT network and adopt a native 25GbE/100GbE, leaf-spine network as the fabric for its cloud infrastructure. The leaf-spine architecture provides the scalability and flexibility for CDMON to implement its service network, storage network and management network on the same architecture. While these networks are co-located in the same infrastructure, they are independent in terms of performance, scale and traffic isolation. Overall, the networks need to deliver performance, high availability and security for guaranteed SLAs, and operate with cloud scale and efficiency. To meet these requirements, CDMON built these networks with the end-to-end 25/100G Ethernet solution from Mellanox.

As the sole network solution provider of high performance and efficient end-to-end interconnect solutions for clouds, Mellanox leads the market with its 25/100G ConnectX® network adapter cards, Mellanox Spectrum® Ethernet switches and LinkX® cables and transceivers. Mellanox ConnectX cards unlock the maximum performance of NVMe storage with line-rate 25/100G interfaces and CPU-offload for TCP/IP, virtualization and RDMA/NVMe-oF, which greatly improves CPU utilization and application performance. Spectrum switches underpin the non-blocking, lossless network fabric. With its open platform, high performance and flexibility in supporting 10/25/40/50/100GbE speeds, the Mellanox Ethernet solution works best for the scale-out leaf-spine networks of the CDMON cloud.

Mellanox Ethernet Storage Fabric (ESF) is crucial for CDMON's storage network. Unlocking the high performance of scale-out Ceph storage and ultra-fast NVMe SSDs, Mellanox ESF provides hardware offload of RoCE (RDMA over Converged Ethernet) and NVMe-oF in its Connect-X adapter cards, while Mellanox Spectrum switches provide line-rate, lossless network fabric with superior congestion control. In addition, the half-width 25/40/100G TOR switches are purpose-built for storage racks, offering simplicity, scalability, and cost efficiency with the flexibility to support next-generation storage systems.

The open platform of Mellanox Spectrum switches with Cumulus Linux NOS delivers maximum flexibility and scalability for CDMON's service network. Incorporating the most scalable and high performance VXLAN fabric, with the additon of EVPN/BGP, the Mellanox Spectrum switch fabric provides standard-based, controller-less datacenter interconnect for virtualization and application mobility across clouds. Cumulus Linux also offers OpenStack integration for optimized operation. Making optimum use of CDMON's Linux expertise, Cumulus on Spectrum offers the best platform for quick deployment, easy management and automation, leveraging provisioning tools and scripting capabilities of Linux.

Conclusion

Innovation is the key to providing the best cloud services. With that in mind, CDMON is continuously adapting the latest technologies in improving its products and services. The new cloud CDMON built using 100% NVMe storage, Infrastructure as Code architecture, and 25/100G Mellanox networking delivers up to 2.8 million IOPS per node and up to 400Gb/s throughput, making it the fastest cloud in Europe. As CDMON works with technology leaders to implement new technologies such as RDMA and NVMe-oF, the CDMON cloud will become ever faster, and deliver the best cloud services to meet customers' needs today and tomorrow.

About CDMON

Founded in 2002, CDMON is the ISP, providing internet services such as hosting, domains, email and cloud. Through its website and its award-winning customer service, CDMON helps entrepreneurs, small, medium and large companies to create, manage and develop their Internet projects. CDMON works with leading partners such as Intel, Canonical, Mellanox and Supermicro, to bring the fastest cloud services in Europe to customers and ensure their business success. To learn more, visit https://www.cdmon.com/en/

About Mellanox

Mellanox Technologies is a leading supplier of end-to-end Ethernet interconnect solutions and services for enterprise data centers, Web 2.0, cloud, storage and financial services. More information is available at www.mellanox.com.

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