

CROC Chooses Mellanox to Implement Its Ceph Storage Solution

Background

CROC, a leading system integrator and cloud services operator based in Russia, has partnered with Mellanox for its network infrastructure for many years. CROC and Mellanox successfully designed and migrated its second data center from 10Gb/s Ethernet to 56Gb/s FDR InfiniBand using Mellanox's Virtual Protocol Interconnect® (VPI®) gateway devices, seamlessly migrating existing customers from the Ethernet network to InfiniBand-based infrastructure.

So, given the positive working relationship between the companies, it was no surprise when CROC approached Mellanox to implement a new Ceph-based storage solution. CROC sought a cost-effective system for maintenance and backup of its customers' VM images and snapshots, and Mellanox had the experience, expertise, and technology to execute it successfully.

Solution

CROC decided on the Ceph S3 storage cluster, with five storage nodes for each of its two data centers. Each data center runs a separate InfiniBand network with a virtualization domain and a Ceph domain. The networks were connected via four Mellanox SX1012 VPI gateway switches, which convert the InfiniBand traffic to standard Ethernet/IP

that is then carried between the DCs. The virtualization and storage domains run on different PKeys in order to logically separate the traffic across the unified network.

The Ceph S3 cluster is composed of the following:

- 5 storage nodes per data center
- 2 Rados Gateway servers per data center
- 2 HaProxy balancers per data center

The balancers provide the connection between the Internet and the storage cluster, receiving traffic from customers who consume storage space via the cloud and sending it to the gateway servers. Users can upload their VM images and files to the S3 system for backup, and can download the snapshot at a later time, or initiate new VMs from these images.



OVERVIEW

Mellanox had the experience, expertise, and technology to execute CROC's new Ceph-based storage solution successfully.

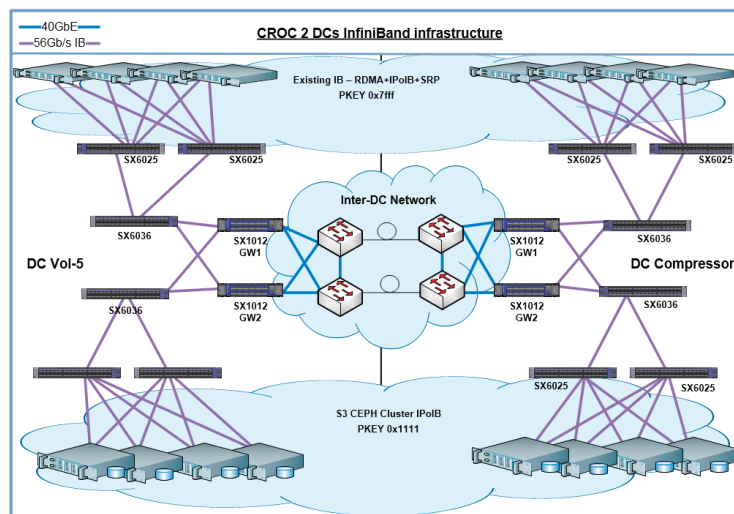


Figure 1. CROC InfiniBand Infrastructure

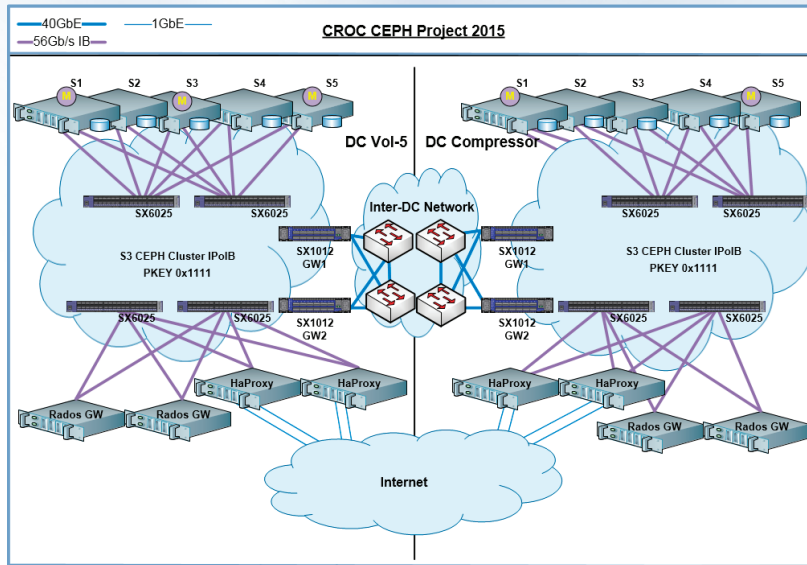


Figure 2. CROC Ceph Storage Solution

Benefits

By using Mellanox’s VPI technology, CROC did not need to redesign their network infrastructure in order to implement their storage solution. They were able to maintain their high speed InfiniBand data centers without having to add Ethernet switches or NICs.

Moreover, this translated into big savings for CROC. They were able to avoid the capital expense of new Ethernet hardware, while also saving on operating expenses by maintaining a unified InfiniBand network across their data centers and their storage.

At the same time, CROC ensured that their Ceph cluster can grow whenever they are ready, simply by adding new storage servers in any part of the network. They will not need to redesign the infrastructure in order for their network to scale further.

Furthermore, CROC has significantly improved the flexibility it offers to its customers. CROC users can now create snapshots and backup files of VMs and store them on a separate service network. This creates a high level of resiliency in the network, and

the Mellanox solution also ensured high availability of the interconnect, with two gateway devices on each network backing each other up and load balancing the traffic.

Conclusion

When CROC sought a cost-effective storage system for maintenance and backup of its customers’ VM images, it turned to Mellanox to execute the solution successfully.

Mellanox provided CROC with SX1012 VPI gateway switches to connect their InfiniBand data centers, allowing CROC to deploy their Ceph S3 storage cluster without having to redesign their network. The result was a flexible, futureproofed, resilient infrastructure that translated into big savings for CROC.

The success of this solution further solidified the relationship between Mellanox and CROC, which will continue to trust Mellanox as its first option for solutions in the future.



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