

Turn Your Data Center into a Mega-Datacenter

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Introduction

Today's computing business environment is one in which everyone is always looking for "more": more compute, more storage, more data transfers, more bandwidth. To remain static is to fall behind. It is crucial that companies take advantage of the latest advances in technology to maintain their market supremacy or to gain on their competition.

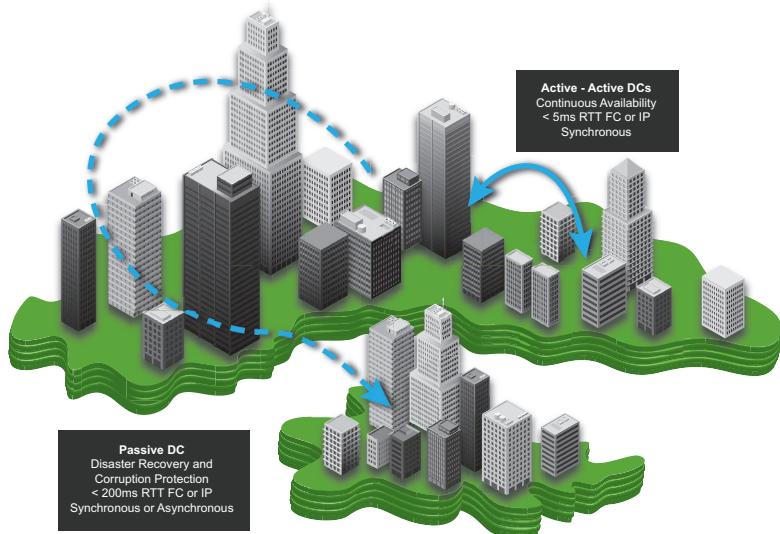
One area in which "more" is now easily achievable is the data center. Traditional data centers are localized because of power and space limitations, and companies have been forced to build multiple data centers to overcome these challenges. According to one recent report, 36% of data center facilities were in danger of running out of power, cooling, or physical space in 2012, and 60% of companies in the survey claimed they would need to build new data centers and perform upgrades over the following three years.¹

However, thanks to Mellanox's new MetroX long-haul switch system, it is now possible to move from the paradigm of multiple, disconnected, localized data centers to a single multi-point meshed mega-datacenter. In other words, remote data center sites can now be localized through long-haul connectivity, providing benefits such as faster compute, higher volume data transfer, and improved business continuity. Thus, MetroX provides the ability for more research, more development, and more applications, while supporting more Web 2.0 or cloud users. This leads to faster product development and remote storage for fast backup and disaster recovery.

Disaster Recovery

For example, with MetroX it is possible to build a dynamic mega-datacenter that provides superior disaster recovery protection by utilizing remote sites. Synchronous disaster recovery data centers can be located tens of kilometers from the primary site. These sites seek to achieve the lowest possible RPO (Recovery Point Objective), enabling zero data loss when the primary site is down by designating a secondary site as master. MetroX, using its big 40Gb/s pipes, low system latency, and simple out-of-the-box fabric-based high-availability management (InfiniBand Subnet Manager) is a perfect solution for achieving the RPO goal.

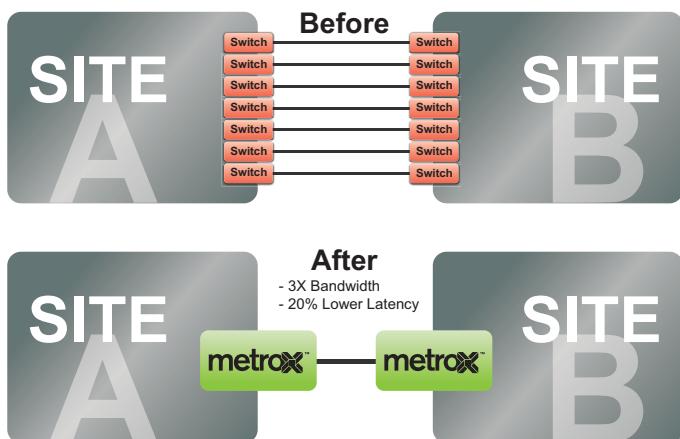
¹ "Annual Data Center Survey," Uptime Institute, May, 2011



High-Performance Computing

Similarly, it is possible to boost your supercomputing performance using MetroX appliances, as MetroX is the only solution that enables high-performing RDMA (Remote Direct Memory Access) transactions over long haul connectivity. Imagine a high performance computing setup in which hundreds of thousands of nodes are spread over multiple facilities separated by a number of kilometers. Using MetroX to create a mega-datacenter, it is possible to see huge improvement over the competition in both bandwidth and latency while realizing significant savings in capital expenditures.

Because of MetroX's ability to handle higher throughput at a higher port density, the savings in hardware costs and the improvement in bandwidth are significant. One customer deployment was using 16 competitor systems to connect thousands of compute nodes across two remote sites separated by 1.5 km. They can do the same by replacing the 16 systems with only 2 MetroX appliances, and in so doing see a 3X improvement in bandwidth and a 20% reduction in latency.



Storage

It is also possible to use MetroX to achieve the performance levels of local storage with the flexibility of central storage. In an ideal setup, multiple clusters, database machines, and data analytics machines that are all located in various data centers, are all connected to a centralized storage. However, without exceptionally high speed interconnect, real-time processing is impossible. MetroX, when combined with Mellanox's 40Gb/s or 56 Gb/s interconnect technology, enables high speed computing as if centralized storage were local, with none of the associated performance penalties.

Summary

The advantages of using MetroX are significant. You can easily control and manage distant sites tens of kilometers apart, extending the reach of your InfiniBand and Ethernet RDMA interconnect. With Mellanox products you get a low-cost, low-power solution for long-haul interconnect, as well as the benefit of the fastest interconnect over 40Gb/s InfiniBand or Ethernet links. Only MetroX can offer FDR 56Gb/s downlink speed, InfiniBand integration in the switch, and latency through the switch as low as 200 ns.

MetroX allows you to build a more efficient and more powerful network by connecting your remote facilities, transforming your data centers into one mega-datacenter.



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