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CASE STUDY

Univa Helps Mellanox Technologies Extend Silicon Design HPC Cluster to Hybrid Cloud

Navops Launch extends on-premise EDA cluster to the cloud providing Mellanox with cost-effective on-demand capacity.

With nearly 3,000 employees worldwide, Mellanox Technologies is a leading supplier of end-to-end Ethernet and InfiniBand intelligent interconnect solutions for servers, storage, and hyper-converged infrastructure. Fortune 500 data centers, and half of the world's top 500 fastest supercomputers, employ Mellanox products in their operations - a solutions line-up that includes high performance network and multicore processors, network adapters, switches, cables, software and silicon.

A combination of high-level customer service responsiveness and continuous innovation has fueled Mellanox's tremendous growth since 1999. With such an impressive, award-winning portfolio, Mellanox understands the value of smart innovation and operational efficiency. Accelerating further success required innovation in Mellanox's cluster management approach, coupled with the ability of tapping cloud computing resources.

THE CHALLENGE

Mellanox needed a solution from a trusted partner that would bridge their current cluster management software to a future with a robust scheduler while leveraging hybrid cloud

To stay on top of their market, Mellanox must remain focused on the complex development processes that drive its next generation of products. Enhancing their current cluster management solution was needed to ensure IT's ability to meet the future needs of central engineering.

Mellanox needed a highly stable engineering cluster for their silicon design-related activities - one that could perform exceptionally well in their on-premise high performance computing environment and burst transparently into Microsoft Azure Cloud during tape-outs (the most critical and peak load periods).

The Mellanox high-performance computing cluster runs EDA design pipeline software and simulation for next-generation product development. From state-of-the-art in-house tools, to licensed commercial applications, the Mellanox silicon engineering environment is computationally intensive and superior workload orchestration is critical to its success.

Having previously deployed an open source workload scheduling system, Mellanox realized an enterprise-grade solution would improve stability and performance while allowing them to enjoy advanced features to help them

maintain their leading-edge design work. Moreover, adding a capability to readily extend their cluster and existing workflows to the cloud would be an advantage. Explains Doron Sayag, IT Enterprise Computing Services Sr. Manager, "We were running an open source job scheduler, but it presented stability issues. We wanted to replace it with a robust enterprise-supported solution that was cloud-enabled."

THE SOLUTION

With Navops Launch and Univa Grid Engine, Mellanox can intelligently address peak performance needs via hybrid cloud-bursting

In testing a short-list of potential solutions, the Mellanox team analyzed performance, features, costs, and implementation time.

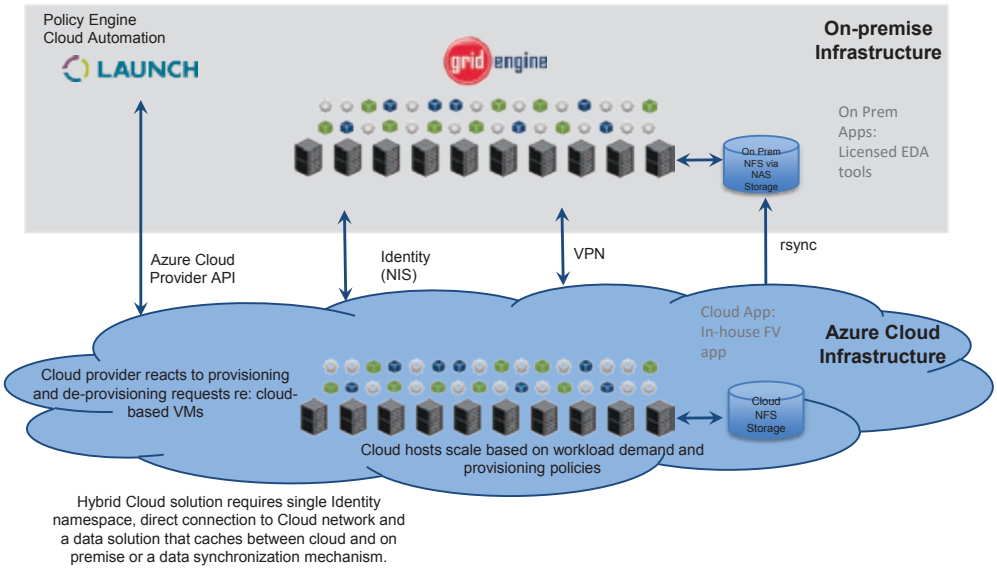
Univa, the leading provider of enterprise-class workload orchestration software, offered the shortest implementation effort with leading price/performance metrics. The Univa solution, comprised of Univa Grid Engine, Navops Launch, and Unisight, presented many welcome features, including Resource Management, Quotas and Limits, Priority and Utilization Policies. Most importantly, Navops Launch seamlessly enabled Mellanox's existing on-premise infrastructure and workflows to encompass the cloud. Explains Sayag, "By extending Univa Grid Engine to the Microsoft Azure Cloud, we gained practically infinite capacity from our hybrid cloud solution in a very cost-effective manner. The impact to our engineering teams is noticeable in terms of throughput and turnaround time, even though use of the cloud is completely transparent to them."

Navops Launch enabled Mellanox to increase the efficiency of its on-premise data center usage while addressing unmet peak performance needs with a cloud bursting 'pay-as-you-go' scenario - a hybrid model that augments local compute resources with those of Microsoft Azure, able to simultaneously run as many jobs as required. Because engineers routinely scale workloads beyond the local infrastructure, their productivity is positively enhanced.

By intelligently leveraging the cloud during peak usage periods, the team has reduced time-to-market, gained capacity without the need for additional infrastructure, and reigned in costs with a reliable enterprise-grade solution.

With Navops Launch, Mellanox is able to leverage the latest hybrid-cloud technologies.

Mellanox estimates that the Univa solution saves one third of the time of a skilled FTE. And, the full benefits of implementing Univa software were realized in less than 2 fiscal quarters. Says Sayag, "The Univa team is highly professional and always available, willing to support and improve our usage of Univa software and tools. I highly recommend Univa to all my peers."



About Univa

Univa is the leading independent provider of software-defined computing infrastructure and workload orchestration solutions. Univa's intelligent cluster management software increases efficiency while accelerating enterprise migration to hybrid clouds. Millions of compute cores are currently managed by Univa products in industries such as life sciences, manufacturing, oil and gas, transportation and financial services. We help hundreds of companies to manage thousands of applications and run billions of tasks every day. Univa is headquartered in Chicago, with offices in Toronto and Munich. For more information, please visit **www.univa.com**.

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