For IT service providers, making a decision about the best way to build their private clouds is not an easy one.

A critical element in any cloud solution is to reduce complexity; this can be achieved through better integration between the different software, hardware, and management elements, end-to-end solution validation, and the use of industry-standard components and APIs. These will rapidly translate into faster adoption and a more efficient cloud infrastructure.

The Mellanox and Eucalyptus joint solution provides a robust and affordable cloud solution that leverages your investment in any cloud infrastructure design.

Mellanox’s flexible, energy-efficient server and storage interconnect solution, coupled with Eucalyptus’ software solution, can help you overcome your primary business challenges:

- Lower costs by increasing the density by supporting more VMs per server without the worry of network bottlenecks while saving cost on interconnect equipment and power consumption
- Scalable and secure AWS-compatible cloud resources for compute, network and storage
- Automate the user experience and empower the end-user

**The Eucalyptus Solution**

Eucalyptus cloud software enables IT organizations to use existing compute, storage and network capacity with more flexibility and agility — leading to easier management of cloud resources, faster application deployment and more efficient use of existing infrastructure.

An open-source software platform, Eucalyptus implements on-premise Infrastructure as a Service clouds using the existing infrastructure in your data center. Eucalyptus enables IT to provide robust scalability and performance by orchestrating and abstracting infrastructure resources for self-service provisioning and configuration. Eucalyptus also interoperates with a variety of virtualization technologies, including VMware, Xen and KVM, and it supports multiple guest operating systems, including all major Linux platforms and Microsoft Windows.

**Eucalyptus enables you to:**

- Build a highly scalable and flexible on-premise cloud that will meet the increasingly complex needs of business units and end-users
- Support high-availability IaaS for the most demanding cloud deployments

**You also receive these important IT benefits:**

- Deliver a self-service provisioning infrastructure to end-users who require instant access to compute and storage resources
- Dynamic resource pooling with built-in elasticity that allows organizations to automatically scale up or scale down virtual compute, network and storage resources based on demand
- Investment protection by integrating with your existing infrastructure
- Integrates into your existing architecture to ensure customer data security and availability

**The Mellanox Solution**

Mellanox adapters, switches, and gateways implement the world’s fastest and most robust network infrastructure for the clouds. These capabilities ensure optimum Cloud performance with:

- **Highest I/O Performance** - Up to 40GbE or FDR 56Gb/s InfiniBand interconnect speed to support servers (or blade servers) and storage connectivity. Mellanox provides far more bandwidth out of each node, enabling
offloading, acceleration, and RDMA features that greatly reduce the CPU overhead, leading to better performance and higher efficiency.

- **Hardware based I/O isolation** - Provides high degree of traffic isolation in hardware, allowing true fabric convergence without compromising service quality and without taking additional CPU cycles for the I/O processing. Mellanox's solution provides end-to-end traffic and congestion isolation for fabric partitions, and granular control of allocated fabric resources.

- **Accelerating storage access** Mellanox's award winning VSA™ software or hardware appliance (installed on a standard server) is designed to deliver parallel storage access across multiple Ethernet or InfiniBand interconnect fabrics to eliminate the storage bottleneck. VSA provides the following key features:
  - Use internal fast SSD or Flash for boot, temporary data, or storage cache
  - Significantly increases VM performance and the VMs per server consolidation ratio
  - Delivers easy-to-use FC I/O port virtualization, enabling fabric convergence

- **Provide simple management and monitoring of all storage traffic** Automated Fabric and I/O provisioning Mellanox's Unified Fabric Manager™ (UFM™) provides service oriented network provisioning, virtualization, and monitoring, and integrates with a variety of cloud frameworks. This allow seamless operation of the cloud while ensuring network isolation, security, and SLA management.

**Business Benefits For Your Company**

You need the best interconnect infrastructure. Today, that means a flexible, modular interconnect solution from Mellanox running advanced automation and virtualization applications from Eucalyptus.

![Management](image)

![Eucalyptus](image)

![Hypervisors](image)

![KVM](image) ![vmware](image) ![Xen](image)

![Storage](image)

![Compute](image)

![Networking](image)