



Bringing the Power of the Public Cloud to Any Enterprise Environment

Joint solution by Stratoscale & Mellanox

There is no denying the attraction of the cloud computing paradigm: cloud services deliver high value building blocks to accelerate application development coupled with rapid provisioning of new workloads and the minimal management overhead (of compute, storage, and networking).

Mellanox and Stratoscale have collaborated to create a joint solution that combines the agility and simplicity of the public cloud with the security and control of on-premises equipment.

The joint private cloud solution by Stratoscale and Mellanox delivers a high performance integrated rack fully populated with compute, storage, and network resources. All resources are aggregated and managed as a single, holistic system, delivered in a self-service and on-demand consumption model.

In addition, the solution include a robust suite of managed open source services to accelerate and simplify application development on-premises.

By delivering public cloud APIs, DevOps and IT teams can leverage Infrastructure-as-Code (IaC) in any enterprise environments.

 Self-service portal/APIs (AWS, Google Cloud)

Developer Services



Compute (Instances, GPUs, etc.)	Database (SQL, NoSQL)	Containers (Kubernetes, Docker)	Analytics (Hadoop)
AI/ML	DNS	Notification Services	Messages Services
VPC/NLB (vRouter, LBaaS)	Object Storage	File System	...more



Automation, DevOps

(against public cloud APIs)

Platform Operation

Policy	Monitor	Upgrade	IMA
DR	Audit	Scale	Engines

SDDC



Server, Storage & Networks

Single Node	EDGE
Mobile	DC

Key Use Cases

Private Cloud (IaaS) & Infrastructure-as-Code

Modernized private cloud delivers true infrastructure-as-a-service ideal for DevOps and I-a-C automation.

- Automate complex application infrastructure provisioning and reduce service delivery time (from weeks to hours/minutes)
- Leverage public cloud best practices and management tools (i.e. Terraform)
- Single-pane of glass monitoring
- Multi-tenant, self service portal

Managed Databases Platform (On-Prem DBaaS)

Fully automated cloud-like database service, on-prem, offering multiple open-source and commercial database technologies.

- Reduce costs by offering fully-managed open-source database alternatives
- Simplify operations with integrated database management and monitoring
- On-going delivery of new engines and updates

Enterprise Container Platform and Services

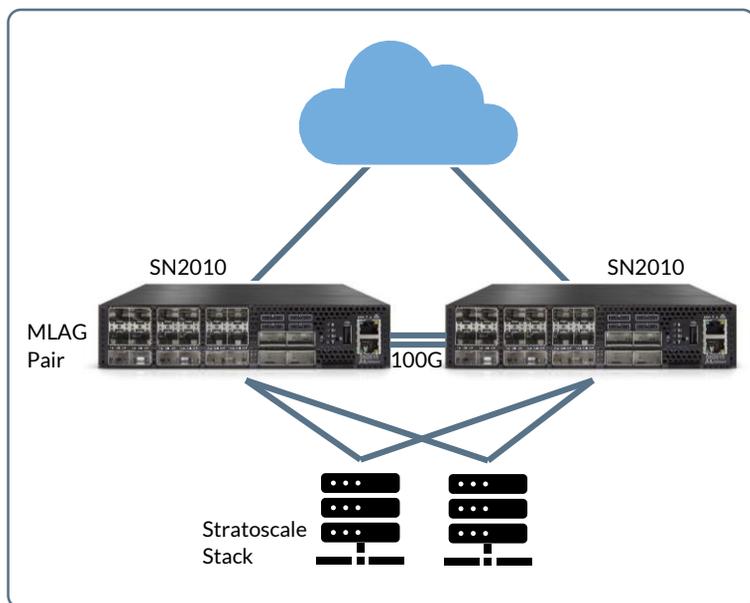
Managed Kubernetes service on-prem for container orchestration, combined with suite of developer services to simplify app development.

- Instantly deliver new cloud services to accelerate application development
- Integrated container registry, message queues, notification, and other developer services
- On-going delivery of new engines as well as patching and upgrading of Kubernetes and other services

AI, Machine Learning (ML), Deep Learning (DL)

Enable self-service ML/DL infrastructure environments and the data lakes necessary for analytics and data science teams.

- Integrated platform for compute (with GPU support) and storage for both training and inference
- Instantly deliver MapReduce, ML/DL, and multiple storage technologies
- Enable AI workloads at the edge



Server Details

4 to 18 servers in a rack:

- Dual socket skylake processor, with optional GPU
- 768 GB memory
- 4 SSD and 1 HDD
- Optional connection to external all flash storage arrays from leading vendors

Highly Available Network Design

- Half-width Mellanox SN2010 switches as TOR switches
- 2 SN2010s side-by-side in 1RU for HA
- 36x 10/25GbE server links
- 40/100GbE uplinks
- 100GbE inter-switch links
- MLAG keeps all ports active

The Advantages of Stratoscale Private Cloud Solution

Developers First

Cloud-native is not about the infrastructure. It's a state of mind. Stratoscale builds the most powerful and flexible platform for developing and delivering modern applications in enterprise environments. Stratoscale's public cloud APIs and comprehensive suite of managed open source technologies help you develop once and deploy anywhere with the same simplicity, ease-of-use and speed you love in the public cloud.

Empower Operators

Stratoscale enables IT to operate as an internal cloud service provider so that IT can offer single-click consumption of resources and managed open source technologies, and respond at the speed of the public cloud. Stratoscale's private cloud delivers true infrastructure-as-a-service,

ideal for DevOps and Infrastructure-as-Code automation. With single-pane monitoring and scaling of all resources and services as well as automation of the entire life cycle of open source technologies, IT can now shift focus to business specific innovation, governance and compliance.

Consistent DevOps. Any Environment

APIs are the best way to consume open-source technologies. But different cloud environments offer different sets of APIs which adds a significant layer of complexity and prevents DevOps professional from maximizing their potential. Stratoscale delivers infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS) and containers-as-a-service (CaaS) with public cloud APIs so that DevOps professionals can leverage consistent infrastructure-as-code practices across all environments.

Key Features and Benefits of the Mellanox Ethernet Switch

The Mellanox SN2010 Ethernet switch used in this configuration brings industry leading rack and power efficiency, and switching latency, providing unmatched performance advantages while lowering operating expenses.

The Mellanox SN2010 is a 10/25G TOR switch with 18 ports of 10/25GbE and 4 splittable ports of 40/100GbE, it delivers line-rate throughput between the compute nodes in this solution as well as line rate connectivity with the existing client network. Based on Mellanox's Spectrum® silicon, the SN2010 features an industry-leading latency of 300ns and 57W power efficiency while providing optimal performance. The unique form factor of the SN2010 makes it the perfect TOR switch for storage and hyperconverged racks where high availability is hard required. Two SN2010s can be installed side-by-side in 1U rack space, providing high availability at TOR and enabling high density rack design.

The Mellanox SN2010 switch has a rich set of networking and application performance features, making this switch the perfect component for building the network fabric of this DCR solution. Whether it runs database applications, analytics, virtual desktop infrastructure, or other cloud computing applications, a guaranteed high performance, lossless fabric is integral to the success of this solution.

The two Mellanox SN2010 switches in this solution will coordinate packet forwarding by operating in the Multi Chassis Link Aggregation (MLAG) mode, which enables server ports to be teamed together in an active/active mode (LACP) and all inter-switch ports to forward simultaneously in an active/active fashion with no blocked ports from Spanning Tree. Any link failure event is detected at the physical layer and recovered from in under a second.

This MLAG mode is accomplished with a very simple configuration, where both switches in this solution have functionally identical configuration files, making network provisioning simple and field replacement of switches head-ache free.

The network fabric for this solution is ultra-low latency, with an average node-to-node latency of well under a microsecond. This network advantage improves Application-level performance with decreases in time to completion durations and faster live migrations of Virtual Machines within the rack.

The Mellanox SN2010 is the physical connection between the Stratoscale solution and the rest of the client infrastructure. The ability to interoperate with the rest of the network is an implicitly important consideration, as any incompatibility at a physical layer, like optical connectivity, or at logical layer, like a protocol stack, would limit the ability to deploy this solution. The interoperability capabilities of the SN2010 has been tested and verified by the largest server EOMs, in 3rd party labs, and in live deployments world-wide, which enables a worry free deployment of this solution into any modern data center.

To ease the management of the internal network, this solution includes Mellanox NEO, which provides a single unified interface to the fabric, thus extending existing tools capabilities into monitoring and provisioning the data center network. Mellanox NEO uses an extensive set of REST APIs to allow access to fabric-related data and provisioning activities.

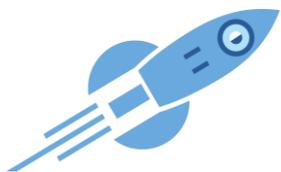
Leveraging the advanced telemetry capacity of SN2010 switches, Mellanox NEO automates the provisioning and monitoring of the modern data center fabric, the configuration of devices, provides deep visibility into traffic and health, and enables the early detection of errors and failure events.



Conclusions

Stratoscale is redefining the data center, delivering a software platform that converges compute, storage and networking, and enables on-demand consumption of resources as well as true IaaS, PaaS and CaaS in enterprise environments.

Combining the control and scale of Stratoscale's software with the performance of Mellanox switching hardware enables offers enterprises a powerful private cloud solution that delivers the agility, simplicity and automation of the public cloud in any data center or edge location.



For additional information please visit:

www.stratoscale.com

www.mellanox.com