



# MLNX-OS<sup>®</sup>

## Switch-based Management Software

### Integrated Fabric Management Solution

MLNX-OS<sup>®</sup> is a switch-based fabric software tool that enables the management and configuration of Mellanox based switch platforms providing optimal performance for cluster computing, enterprise data centers (EDC) and cloud computing.

The fabric management capabilities ensure the highest fabric performance while the chassis management ensures the longest switch up time. With MLNX-OS running on Mellanox's switches, IT managers will see a higher return on their compute as well as infrastructure investments through higher CPU productivity due to higher network throughput and availability.



Figure 1. Sample Screenshots

### SWITCH CHASSIS MANAGEMENT

Mellanox's advanced chassis management software provides all the parameters and information IT managers will need, including port status with event and error logs, graphical CPU load display, graphical fan speed over time display, power supply voltage alarms, graphical internal temperature display with alarm notification, and more. These chassis management capabilities will ensure low switch maintenance and high network availability.

### FABRIC MANAGEMENT

MLNX-OS fabric management provides reliable and scalable management solutions for cluster and data center fabrics. Its modular design integrates the subnet manager (SM) with advanced features simplifying cluster bring up and node initialization through automatic discovery and configuration. The performance monitors measure the fabric characteristics to ensure the highest effective throughput. Fabric Management is differentiated into basic, advanced and expert modes where support for various routing algorithms, QoS attributes and fabric topologies are included.



### HIGHLIGHTS

- Embedded Subnet Manager (SM)
- Reliable and scalable architecture supporting up to 648 nodes
- Accelerated fabric design and installation
- "Out of the box" experience
- In-band and out-band support for standalone or remote configuration with secure access
- Hardware monitoring and alarms
- Performance monitoring
- Quality of Service based on traffic type and service levels
- CLI, SNMP, WebUI and XML gateway user interfaces
- E-mail alerts
- IPv6 ready
- IPv6 IPsec

## Mellanox Management Solution

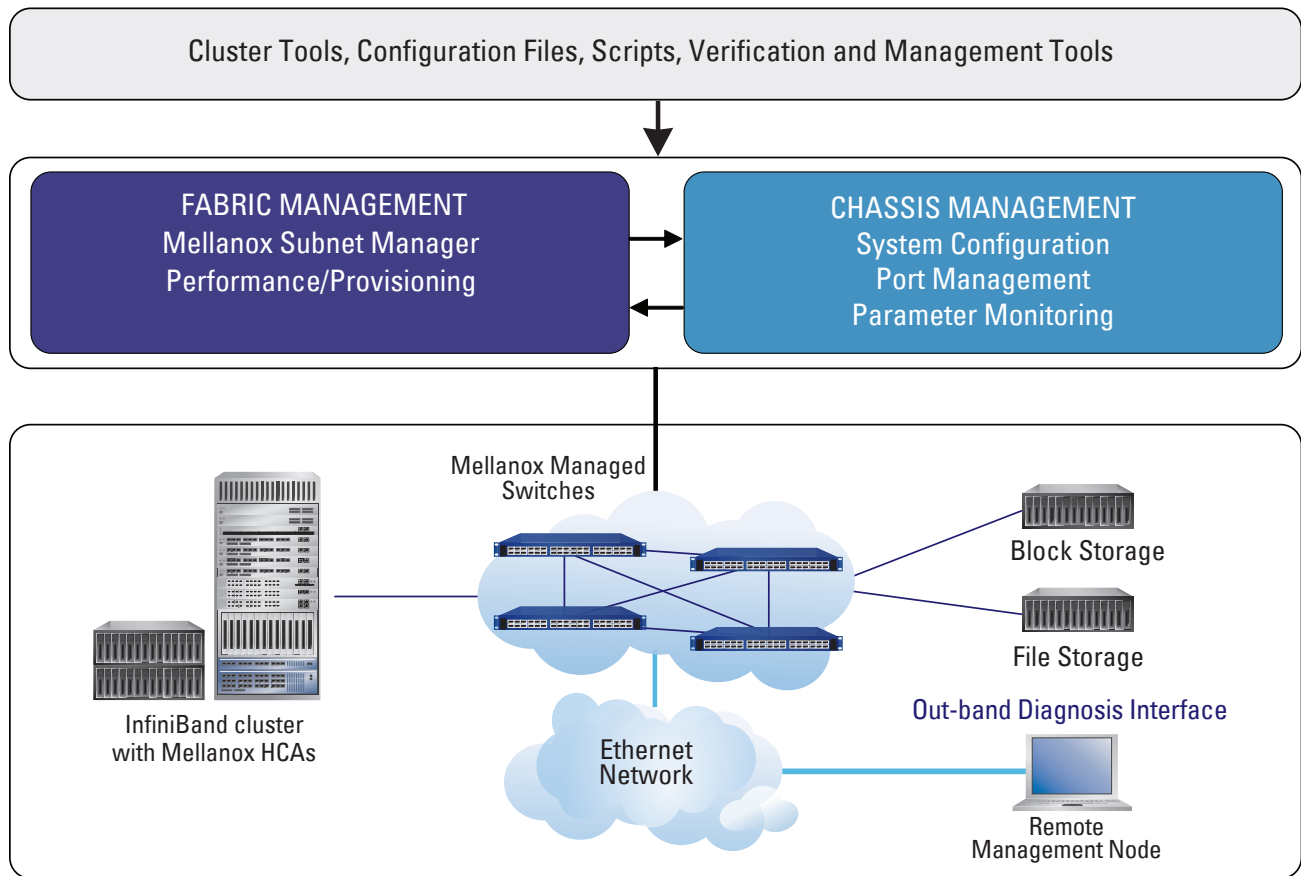


Figure 2. MLNX-OS Solution

### WORLD-CLASS DESIGN

MLNX-OS software includes: CLI, WebUI, SNMP and XML gateway interfaces. The XML Gateway provides an XML request-response protocol that can be used by end-user tools to get and set management information on the appliance. The service can be accessed over HTTP/HTTPS or over SSH. The management also enables the user to store all data into defined logs, define e-mail alerts and security capabilities such as RADIUS, TACACS+, AAA and LDAP.

### MELLANOX ADVANTAGE

Mellanox Technologies is a leading supplier of end-to-end servers and storage connectivity solutions to optimize data center performance and efficiency. Mellanox InfiniBand adapters, switches, and software are powering Fortune 500 data centers and the world's most powerful supercomputers. The company offers innovative solutions that address a wide range of markets including HPC, enterprise, mega warehouse data centers, cloud computing, Internet and Web 2.0.

## FEATURES

### Layer 2 Feature Set

- Multi chassis LAG (MLAG)
- IGMP V1,V2, Snooping, Querier
- VLAN 802.1Q (4K)
- Q-In-Q
- 802.1W Rapid Spanning Tree
  - BPDU Filter, Root Guard
  - Loop Guard, BPDU Guard
- 802.1Q Multiple STP
- PVRST+ (Rapid Per VLAN STP+)
- 802.3ad Link Aggregation (LAG) & LACP
  - 32 Ports/Channel – 64 Groups Per System
- LLDP
- Store & forward / cut-through mode of work
- HLL
- 10/25/40/50/56/100GbE
- Jumbo Frames (9216 Bytes)

### Layer 3 Feature Set

- User and management VRFs (BGP)
- IPv4 & IPv6 routing including route maps:
  - BGP4, OSPFv2
- PIM-SSM
- BFD (BGP, OSPF, static routes)
- VRRP
- DHCPv4/v6 Relay
- Router Port, int VLAN, NULL Interface for Routing
- ECMP, 64-way
- IGMPv2/v3 Snooping Querier

### Synchronization

- PTP IEEE-1588 (SMPTE profile)
- NTP

### Quality of Service

- 802.3X Flow Control
- WRED, Fast ECN & PFC
- 802.1Qbb Priority Flow Control
- 802.1Qaz ETS
- DCBX – App TLV support
- Advanced QoS – qualification, Rewrite, Policers
  - 802.1AB
- Shared buffer management

### Management

- ZTP
- Ansible, Puppet
- FTP / TFTP / SCP
- AAA , RADIUS / TACACS+ / LDAP
- JSON & CLI , Enhanced Web UI
- SNMP v1,2,3
- In-band management
- DHCP, SSHv2, Telnet
- SYSLOG
- 10/100/1000Mb/s Ethernet RJ45 mng ports
- USB Console port for Management
- Dual SW image
- Events history
- ONIE

### Network Virtualization

- VXLAN Hardware VTEP – L2 GW
- Integration with VMware NSX & OpenStack

### Software Defined Network (SDN)

- OpenFlow 1.3:
  - Hybrid
  - Supported controllers: ODL, ONOS, FloodLight, RYU, etc.

### Docker Container

- Full SDK access through the container
- Persistent container & shared storage

### Monitoring & Telemetry

- sFlow
- Real time queue depth histograms & thresholds
- Port mirroring (SPAN & ERSPAN)
- Enhanced Link & Phy Monitoring
- BER degradation monitor
- Enhanced health mechanism
- 3<sup>rd</sup> party integration (Splunk, etc.)

### Security

- USA Department of Defense certification – UC APL
- System secure mode – FIPS 140-2 compliance
- Storm Control
- Access Control Lists (ACLs L2-L4 & user defined)
- 802.1X - Port Based Network Access Control
- SSH server strict mode – NIST 800-181A
- CoPP (IP filter)
- Port Isolation (PVLAN)

### Hardware Support

- All Mellanox switch ASICs and platforms
- All Mellanox ConnectX<sup>®</sup> network adapter cards