

***BLADE Network Technologies' new "5.1 Software Feature Release" delivers additional value!***

***IT technologies are always evolving; it is for that reason that BNT is looking for new ways to help clients improve availability and security, simplify management and get better performance. BLADE OS release 5.1 is now available as a base switch software release for the BNT 6-port 10G Ethernet Switch Module, and includes the following new features.***

## High Availability

### HotLinks<sup>TM</sup>

- Description: HotLinks is a sub-second Layer 2 redundancy features that replaces Spanning Tree. HotLinks uses a pair of ports (or LAGs) that are configured to act as a backup of each other. One port is active, while the other port functions as a backup. If the active port (or link aggregation group (LAG)) fails, the backup port instantly takes over. HotLinks speeds the L2 convergence by updating the forwarding database (FDB) of upstream network devices using a Multicast flood. To help avoid link flapping, a configurable pre-emption option and a fail-back delay feature are also available.
- Benefit: HotLinks helps increase availability and provides seamless interoperability with other vendors.

### UniDirectional Link Detection (UDLD)

- Description: UDLD is a protocol that helps detect when a link is down in one direction or the other between two Ethernet switches. It helps prevent a looped network, which can be common if a fibre link is broken or plugged into the wrong port. UDLD is often used in Ethernet networks where Spanning Tree is required to block one or more ports to prevent a loop from forming.
- Benefit: UDLD helps provide better fault-detection, plus enhancing interoperability with other vendors' switches.

### Private VLAN

- Description: A private VLAN is where a VLAN contains switch ports that are restricted and can only communicate with a given "uplink". The restricted ports are called "private ports." Each private VLAN often contains many private ports and a single uplink. The uplink will typically be a port connected to a router, firewall, server, provider network, or similar central resource. The switch forwards all frames received on a private port out the uplink port, regardless of VLAN ID or destination MAC address. Frames received on an uplink port are forwarded to the port hosting the destination MAC address, or to all VLAN ports for unknown destinations or broadcast frames. "Peer-to-peer" traffic is blocked. A typical application for a private VLAN is a hotel where each room has a port for Internet access. Allowing direct data link layer communication between customer nodes would expose the local network to various security attacks, as well as increasing the potential for damage due to misconfiguration.
- Benefit: Private VLANs can improve security, simplify IP management, and increase performance.

## Performance

### OSPF Enhancements

- Description: OSPF is perhaps the most widely-used interior gateway protocol in large enterprise networks. BNT has added Loopback interface support, sub-second hello timer and Point to Multipoint in this release.
- Benefit: OSPF can help improve performance.

## Management

### Link Layer Discovery Protocol (LLDP)

- Description: LLDP Is a standard Layer 2 protocol used by network devices for advertising their identity and capabilities on the local network. The protocol is formally referred to as IEEE standard 802.1AB-2009 and

replaces proprietary protocols, such as Cisco Discovery Protocol, Extreme Discovery Protocol, and Nortel Discovery Protocol (also known as SONMP).

- Benefit: LLDP helps enhance interoperability and functionality between different vendors switches by adhering to the IEEE standards. For BNT switches this allows for seamless interoperability with upstream switches.

### Remote Monitoring (RMON)

- Description: RMON allows network devices to exchange network monitoring data, gather cumulative and history statistics for Ethernet interfaces, and create/trigger alarms for user-defined events.
- Benefit: RMON helps capture information that can assist IT administrators to make improvements for the future.

### Ranges

- Description: With configuration ranges for multiple interfaces, IT can simplify configuration of common parameters across multiple interfaces and VLANs.
- Benefit: By allowing more configuration ranges deployment and management becomes a lot easier.

### SFLOW®

- Description: sFlow is an industry standard technology for monitoring high speed switched networks, and has been adopted by many networking vendors to provide full data center visibility. sFlow, in conjunction with management software, allows informed control decisions: for example eliminating malicious traffic, ensuring adequate VoIP QoS, or provisioning adequate storage bandwidth. Some benefits of sFLOW compared to Cisco's proprietary NetFLOW protocol is that sFLOW: 1) Monitors all traffic: L2, L3, IP, VoIP etc. 2) provides detailed data supporting many applications and 3) adds negligible impact to switch and network performance.
- Benefit: sFLOW provides IT with complete visibility into network traffic, making it possible to enable performance optimization, accounting/billing for usage, and defense against security threats.

**Other Enhancements** were made includes: **Operation/Administration/Maintenance protocol; Link Layer Detection Protocol, Internal Loopback Interface, rate limiting, L2 failover, Forwarding Database, ISL layer 2 protocol and PVRST..**

***For the BNT 6-port 10G Ethernet Switch Module there are two versions of software code that switches have shipped with and depending on what your switch shipped with is what you are entitled to 1.X or 5.1.X.***

- *Switches purchased on or before 1/31/2008 can purchase as software upgrade license by sending a request to [support@bladenetwork.net](mailto:support@bladenetwork.net)*
- *Switches purchased after 1/31/2008 are entitled to 5.1 and its maintenance releases. Clients also have the choice to download 1.5 code, which would allow standardization for those already having the older switches and not wanting to upgrade. <http://www.bladenetwork.net/IBM-BladeCenter-support.html>*

### Terms

- "Software Feature Release" is a release of Software that enhances the functionality of the Software as compared to its most recent Product Specification Document, except for software features that IBM and BNT mutually agree should be separately licensed.
- "Software Maintenance Release" is a release of Software that provides fixes in the Software as compared to its Product Specification Document, including without limitation, firmware fixes required to support new hardware introduced by IBM.