The true value of investment protection—helping clients save potentially millions of dollars with flexibility of 1G and 10G.

The BNT Virtual Fabric 10G Switch Module can help you avoid the need for a forklift upgrade to 10G Ethernet. Migrations from 1G to 10G can happen in independent steps at your pace without having to take your systems down. Leverage the advantages of networking virtualization, CEE/FCoE, high availability, easy management and significant cost savings by choosing BNT switches.

**Highlights**

This solution helps:

- Save millions of dollars on acquisition cost
- Simplify deployment and management
- Provide investment protection for the future
- Provide unmatched 1G and 10G uplink bandwidth

Over 50% of IT shops have already started to deploy servers’ virtualization products. That number is expected to grow over the next couple years to over 70%. I/O bandwidth is becoming a concern as IT deploys multiple guest virtual machines on a server, resulting in a growing demand for 10G Ethernet. While some clients have already started to deploy 10G, larger portions are actually in the planning phase.

IBM BladeCenter has been the preferred platform due to its advantages in power efficiency, space savings, simplified management and the ability to leverage the same technologies used with rack servers. Now we are starting to see more focus on networking. Today there are two types of folks looking at 10G those looking for port aggregation at the top of the rack thus requiring 10G uplinks and then there are those that want end to end 10G.

Well today IBM and BNT have you covered in either scenario with the extremely flexible switch that support either 1G or 10G from the blade, in addition to 1G or 10G uplinks from the switch. Plus the BNT switch also supports a mix of downlink and uplink configurations so clients can leverage cost and performance as they see fit. With so many clients looking at 10G the BNT Virtual Fabric 10G switch actually can help address concerns around both the hardware acquisition costs and the “soft costs” of the time and resources it would take to do a rip and replace. BNT also delivers additional investment protection for converged fabrics since this switch is hardware ready for CEE/FCoE.

**More Bandwidth and Standard Advanced Features**

Many folks will be excited about the fact that the BNT switch provide ten Ethernet uplink ports, so with two switches you have up to twenty 1G or 10G or a combination of 1G/10G uplinks which is extremely competitive when you think of six Cisco 3110G having twenty-four 1G uplinks. And for those clients with a plan for a 10G infrastructure the bandwidth difference can be up 3.3 times more bi-directional bandwidth (400Gbps vs. 120Gbps). Advanced Layer 2 switching and Layer 3 routing protocols that come standard with BNT’s 10G switch ensure network reliability and performance: such as Link Aggregation Control, Rapid Spanning Tree, Cisco UplinkFast compatibility, PortFast compatibility, RIP, OSPF, BGP, 802.1q VLANs, broadcast storm control, controlled link failover with NIC teaming and Virtual Router Redundancy Protocol (VRRP) Hot-Standby further enables effective use of Layer 2 NIC teaming.
**Significant Cost Savings**

With acquisition cost savings being as much as $80,000 the BNT switch often captures the client’s attention. For many the BNT Virtual Fabric 10G switch is able to meet their 1G requirement today and their 10G plans for the future – without hardware upgrade in the future. And with the future support for vNIC, the ability to divide up a 10G NIC into multiple independent NICs can provide even more value as clients will not have to have 6 physical 1G ports on each server.

<table>
<thead>
<tr>
<th>Acquisition Cost</th>
<th>Cisco (Qty)</th>
<th>BNT (Qty)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1G switches</td>
<td>$41,994 (6)</td>
<td>Included below</td>
</tr>
<tr>
<td>10G uplink switches</td>
<td>$61,734 (6)</td>
<td>$22,398 (2)</td>
</tr>
<tr>
<td>3 year Power Costs*</td>
<td>$1,013</td>
<td>$563</td>
</tr>
<tr>
<td>Total per chassis</td>
<td>$104,741</td>
<td>$22,961</td>
</tr>
</tbody>
</table>


**Easy to Deploy and Manage Network Virtualization**

Clients also like the fact that they would be able to deploy an all 10G network in a phased approach, allowing them to move at their own pace and minimize IT staff time required to setup and manage the environment.

Hardware installation times are cut in half - simply by installing a single switch for both 1G and 10G, versus having to install 1G now and replace it with 10G later.

Planned upgrade software from BNT reduce management time, allowing multiple switches to be managed as a single node and allows I/O to be shared across multiple chassis or a full rack. Server administrators can then easily provision I/O for an entire rack, and independently provide server, storage and I/O capacity while also improving fault tolerance.

VMready™ provides support for virtual machine movement - allowing the switches to move the networking and security policies along with the virtual machines (VMs), also referred to as NMotion™. Allowing VM’s to move without opening security vulnerabilities is critical in datacenter environments. Another advantage is the ability to have multiple Virtual switches connected to multiple upstream switches without using spanning tree which can provide more robust highly-available topology, faster recovery from failures and avoid the complexity of STP.

Clients also appreciate the proven track record that the BNT switches seamlessly interoperate with other vendors’ upstream switches, including Cisco. Plus the industry-standard CLI provided a familiar environment for IT staff that have Cisco training and experience.

Once the 10G infrastructure is put in place inside the datacenter, the next step is simply to install the transceivers and run the fiber cables to the 10G blade switch modules.

To activate the 10Gb connections, the customer simultaneously rolled out a new configuration using BLADEHarmony™ Manager. No changes to ESX, Vswitch, port groups or guest VM’s were needed.

**Hardware used and IBM Part Numbers:**

- IBM BladeCenter H chassis (PN 88524YU)
- BNT Virtual Fabric 10G Switch (PN 46C7191)
- HS22 blades (CFFh 1G/10G Ethernet adapter)
- SFP, SFP+ Transceivers or Copper DAC/Twinax

**More information**

Visit http://www.bladenetwork.net/ibm

* Future support planned via updates, license included with the price of the switch.

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