



# The Real Story about the Cisco UCS



July 2010 – Cisco’s marketing machine has been in full gear since early 2009 touting their first attempt at blades, the so called Cisco Unified Computing System (UCS). Now that UCS, has been in the market for little over one year we thought it would be useful to take a closer look at the facts, separated from the marketing hyperbole. While in theory Cisco’s UCS servers compete with the HP BladeSystem, HP’s leadership in the datacenter has been validated by decades of innovation, real world experience and market leadership.

Please consider the following facts.

**Fact 1: Cisco UCS lacks the real world validation points that HP BladeSystem delivers.**

The market leadership and scale demonstrated by HP BladeSystem far outpaces anything Cisco UCS can muster and gives customers the peace of mind that is represented by this real world validation:

**#1 in blades:** HP has a commanding lead in the blade server market, with a 56.1% revenue share, and a 53.1% unit share. HP has led the blade server market for 14 consecutive quarters. Cisco UCS has yet to break out of the “Others” category in the IDC server data.<sup>ii</sup>

**2M+ Blades Shipped.** HP has shipped more than 2 Million blades since IDC began tracking blades in 2002, shipping more than IBM and Dell COMBINED during this time.<sup>iii</sup>

**3M+ Virtual Connect ports shipped.** 24% of all 10GbE ports sold worldwide are HP BladeSystem with Virtual Connect.<sup>iv</sup> Cisco claims 1 million 10 GBe ports for all of Nexus.<sup>v</sup>

**4K+ server datacenter reference.** A recent HP BladeSystem reference consisted of 4352 HP BL2x220c servers, 136 c7000 enclosures and 34 racks.<sup>vi</sup>

By contrast, during an earnings call BMC responded to a question about UCS, that, “Way too many deals out there that are just pilots. You’re not getting still the big shipments of major production systems with production software running on at day one sort of things.”<sup>vii</sup>

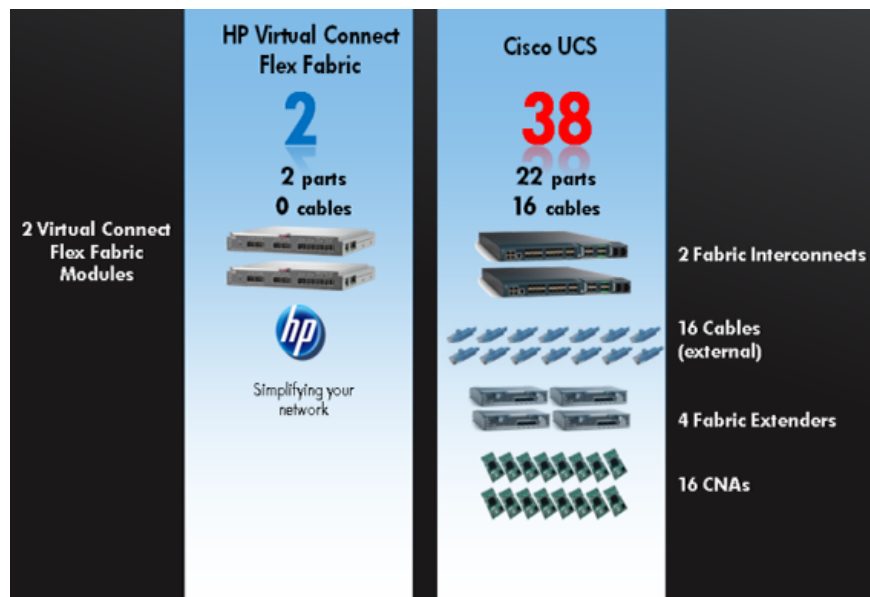
**Fact 2: The HP BL680c G7 delivers 5X times the I/O bandwidth and 4X the memory than the comparable Cisco UCS B440M1 blade allowing HP to deliver up to 4X as many virtual machines per server.**

	HP BL680c G7	Cisco B440M1 <sup>viii</sup>	HP Advantage
<b>Processors</b>	4	4	--
<b>Max Memory</b>	1024GB	256GB	<b>4X Memory</b>
<b>Embedded Ethernet</b>	Six 10Gb FlexFabric Ports (FCoE, Flex-10, hardware-based iSCSI, & TCP/IP offload engine)	None	<b>The HP embedded Ethernet is 1.5X the maximum I/O of the entire Cisco server</b>
<b>I/O Bandwidth (Max)</b>	192Gb	40Gb	<b>5X I/O Bandwidth</b>

Requirements per VM: 3GB memory and 300Mb/s I/O (600MB/s I/O for redundancy)<sup>ix</sup>

	HP BL680c G7	Cisco B440M1	HP Advantage
VMs per server (limiting factor)	<b>273 (I/O)</b>	<b>67 (I/O or Memory)</b>	<b>4X VMs/server</b>

**Fact 3: HP Virtual Connect Flex Fabric can simplify server networking by connecting 16 servers to the LAN and SAN with just 2 parts versus 38 total parts for the Cisco UCS<sup>x</sup> to accomplish the same thing.**



**Fact 4: Cisco's design that places the management within the top of rack switch (Fabric Interconnect) forces trade-offs between bandwidth and management scale.**

**Scale limits Bandwidth:** In order to scale the UCS to the maximum number of enclosures (per Fabric Interconnect pair) requires a 4:1 oversubscription where 8 servers share two 10Gb links. Testing found that when the UCS is configured with shared links that contention for network resources caused server to server bandwidth degradation.<sup>xii</sup>

**Bandwidth limits Scale:** To deliver 10Gb I/O per server, at 1:1 subscription ratio, requires all 8 FEX links to be connected per enclosure<sup>xiii</sup>. This limit s the number of servers that can be managed in a single UCS manager instance to just 80 servers (on a 40 port Fabric Interconnect).

Connecting multiple UCS Manager Instances requires additional 3rd party software, like BMC BladeLogic<sup>xiii</sup> adding cost and complexity.

It was reported that an expert predicted the need for a Cisco UCS design to change to address increasing bandwidth requirements for virtualization workloads.<sup>xiv</sup>

**Fact 5: HP BladeSystem delivers advantages in power and cooling, critical for data center design.**

**Air flow:** Testing found that the Cisco UCS B200 M1 blade server required 2.6X times as much air flow as the ProLiant BL460c G6 blade server<sup>xv</sup>. Servers requiring a lesser amount of air pressure for cooling can ease datacenter constraints by allowing higher density designs using less air, fewer CRACs and lower energy costs.

**Advanced Power Management:** HP BladeSystem Thermal Logic delivers advanced features such as power forecasting and dynamic power capping at the enclosure level. Cisco has only recently added static power capping at the server level.<sup>xvi</sup>

**Choice of single and three phase power.** Cisco's four (4) single-phase power supplies make it more complex to balance loads across the three phases of data center power. Data center administrators appreciate the flexibility of choosing between single- and three-phase power supplies but Cisco only offers a single-phase power approach for UCS<sup>xvii</sup>. HP BladeSystem was designed with the choice of single- or three-phase power supplies that balance across three phases.<sup>xviii</sup>

**Fact 6: HP adds an unmatched supply chain**

HP has the leading PC business<sup>xix</sup> and is the leader in industry standard servers<sup>xx</sup>. Our supply chain enables us to have economies of scale that no one can match. Intel reported that HP was its largest customer in an annual report.<sup>xxi</sup> This enables HP to deliver an unmatched cost structure resulting in a sustainable and thriving worldwide x86 server business. HP is absolutely committed to offering the broadest choice of platforms based on industry standard x86 architectures to address the wide range of customer server requirements.

**Fact 7: HP BladeSystem Matrix delivers much more than Cisco can by itself**

HP BladeSystem Matrix brings functionality to the table that is simply not included with UCS such as:

- A self service portal able to deploy entire application stacks in an automated fashion. All the infrastructure (physical servers, virtual machines, networks, storage) and applications.
- Capacity Planning and Consolidation tools
- Disaster recovery capabilities allowing applications and storage to be failed over to redundant datacenters in the case of a site failure.

**Bottom-line:** HP's Converged Infrastructure strategy as embodied by the HP BladeSystem fits into your existing processes and data center infrastructure (including Cisco networks), offering end-to-end integration of servers, storage, networking, management, and power/cooling. HP's leadership in the datacenter has been built over decades of innovation, experience and market leadership.

For more on the HP BladeSystem see:

<http://www.hp.com/go/bladessystem>  
<http://www.hp.com/go/virtualconnect>

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- <sup>i</sup>See the Real Story about Server Market Share: <http://h71028.www7.hp.com/enterprise/w1/en/messaging/realstory-server-mktshare.html> with data from IDC Worldwide Quarterly Server Tracker for 1Q10, May 2010
- <sup>ii</sup>See the Real Story about Server Market Share: <http://h71028.www7.hp.com/enterprise/w1/en/messaging/realstory-server-mktshare.html> with data from IDC Worldwide Quarterly Server Tracker for 1Q10, May 2010
- <sup>iii</sup>See the Real Story about Server Market Share: <http://h71028.www7.hp.com/enterprise/w1/en/messaging/realstory-server-mktshare.html> with data from IDC Worldwide Quarterly Server Tracker for 1Q10, May 2010
- <sup>iv</sup>Dell'Oro Group, Q409 data  
[http://www.theregister.co.uk/2010/05/12/cisco\\_q3\\_f2010\\_numbers/](http://www.theregister.co.uk/2010/05/12/cisco_q3_f2010_numbers/)
- <sup>v</sup>[http://www.information-management.com/newsletters/avatar\\_data\\_processing-10016774-1.html?pg=1](http://www.information-management.com/newsletters/avatar_data_processing-10016774-1.html?pg=1)
- <sup>vi</sup>BMC Software Q4 2010 Earnings Call Transcript, May 2010, <http://seekingalpha.com/article/203345-bmc-software-q4-2010-earnings-call-transcript>
- <sup>viii</sup>Cisco [http://www.cisco.com/en/US/prod/collateral/ps10265/ps10280/ps10921/at\\_a\\_glance\\_c45-591187.pdf](http://www.cisco.com/en/US/prod/collateral/ps10265/ps10280/ps10921/at_a_glance_c45-591187.pdf)
- <sup>ix</sup>Based on expert recommendations
- <sup>x</sup>Cisco UCS servers are configured for production with each server having a dedicated 10GB connection
- <sup>xi</sup>Tolly "HP BladeSystem c7000 with ProLiant BL460c G6 Servers vs Cisco UCS 5100 with B200 Servers Network Bandwidth Scalability Comparison", sponsored by HP.
- <sup>xii</sup>Source: [Cisco UCS Manager GUI Configuration Guide](#) " With 80 Gbps to the chassis, each half-width server in the Cisco UCS instance can get up to 10 Gbps in a non-oversubscribed configuration, with an ability to use up to 20 Gbps with 2:1 oversubscription."
- <sup>xiii</sup>See slide 12: [http://www.cisco.com/web/FI/expo2009/documents/Tore\\_Brynaa.pdf](http://www.cisco.com/web/FI/expo2009/documents/Tore_Brynaa.pdf)
- <sup>xiv</sup>Source: [Cisco UCS testing shows throughput constraints](#), one lab says  
 February 25, 2010  
 "As virtualization proceeds over the next 18 months, the bandwidth requirements will increase," he said, adding that eventually Cisco will have to address the problem."
- <sup>xv</sup>Source: Tolly Test Report: HP BladeSystem c7000 with ProLiant BL460c G6 Servers vs. Cisco UCS 5100 with B200 Servers – Chassis Airflow Comparison, sponsored by HP, May 2010: <http://www.tolly.com/Docdetail.aspx?Docnumber=210108>
- <sup>xvii</sup>[http://www.ciscosystems.com/en/US/docs/unified\\_computing/ucs/sw/gui/config/guide/1.3.1/UCSM\\_GUI\\_Configuration\\_Guide\\_1\\_3\\_1.pdf](http://www.ciscosystems.com/en/US/docs/unified_computing/ucs/sw/gui/config/guide/1.3.1/UCSM_GUI_Configuration_Guide_1_3_1.pdf)
- <sup>xvii</sup>Cisco UCS 5108 Server Chassis Hardware Installation Guide;  
[http://www.cisco.com/en/US/docs/unified\\_computing/ucs/hw/chassis/install/5108\\_HIG.pdf](http://www.cisco.com/en/US/docs/unified_computing/ucs/hw/chassis/install/5108_HIG.pdf)
- <sup>xviii</sup>[Powering HP BladeSystem c7000 Enclosures.](#)
- <sup>xix</sup>[http://reports.idctracker.com/webdownloads/P0004/pressreleases/IDCWWPCT\\_2009Q1PR.pdf](http://reports.idctracker.com/webdownloads/P0004/pressreleases/IDCWWPCT_2009Q1PR.pdf)
- <sup>xx</sup>The Real Story about Server Market Share, <http://h71028.www7.hp.com/enterprise/w1/en/messaging/realstory-server-mktshare.html>
- <sup>xxi</sup>Intel Corporation Annual Report:  
<http://www.sec.gov/Archives/edgar/data/50863/000089161809000047/f50771e10vk.htm>