

**Best-of-Breed**  
**10 GbE**  
Technology with  
High Touch Support

High Performance  
**Gigabit &  
10 Gigabit**  
Ethernet

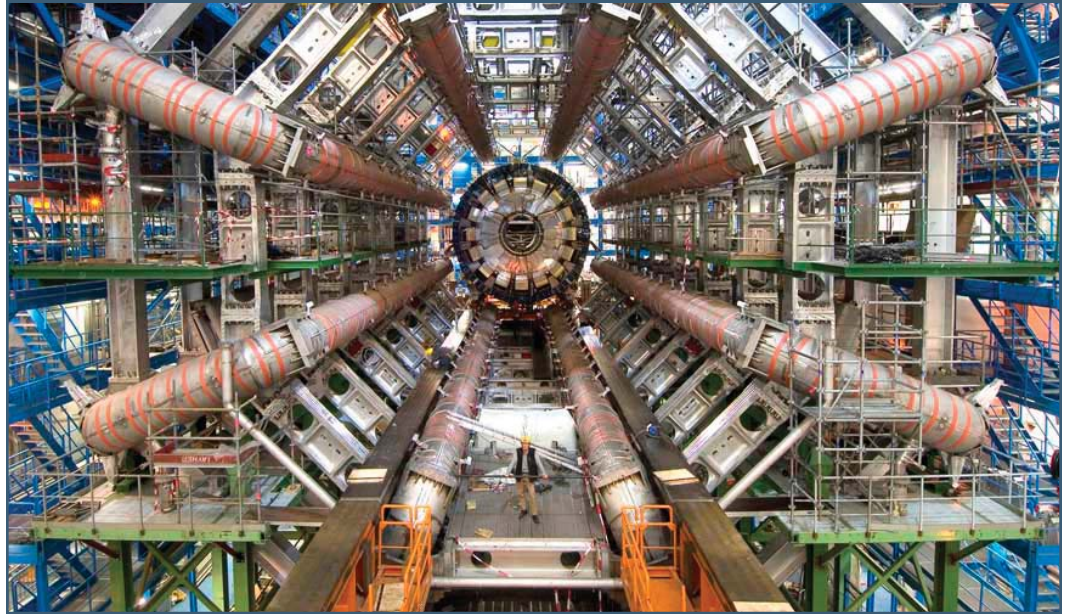
**Lower TCO**  
Through System  
Resiliency &  
High Density

**Lower OpEx**  
By Over **20%**  
Through Reduced  
Power & Cooling Needs

FORCE10

- 10 GbE non-blocking HPCC solution
- Unified data center fabric delivers maximum performance for I/O and MPI while reducing costs
- For demanding application environments where performance is limited by network bottlenecks

## THE ATLAS EXPERIMENT AT CERN



The ATLAS Experiment at CERN, <http://atlas.ch>

### High Performance Ethernet Solutions for HPCC




The transition to 10 GbE is underway in the data center, and the ubiquity and reliability of Ethernet make it a desirable solution for delivering a high performance compute fabric. Modern 10 GbE adapters and server are capable of supporting a variety of hardware-based offload mechanisms delivering high bandwidth, high throughput and low latency Ethernet solutions for the rigorous demands of clustering applications.

A high performance computing cluster (HPCC) system needs to be flexible, powerful and efficient, in order to provide timely, accurate and high quality results for commercial and scientific ventures. The right Ethernet architecture can enhance the performance and reliability of an HPC system and provide the foundation on which to grow for the future.

The combined best-of-breed 10 GbE technology of Force10 Networks switch/routers and Dell high performance systems delivers a new breakthrough in high throughput and low latency, facilitating mainstream HPCC adoption of 10 GbE. The standards-based design of Ethernet and TCP/IP enable IT staff to leverage existing skills and tools to reduce the total cost of ownership and complexity of cluster operations with common spares, common software, and common training for networking, storage, and clustering. Cluster managers can now fully realize 10 Gbps data throughput with extremely low overhead while remaining completely compatible with existing Ethernet infrastructures.

DELL

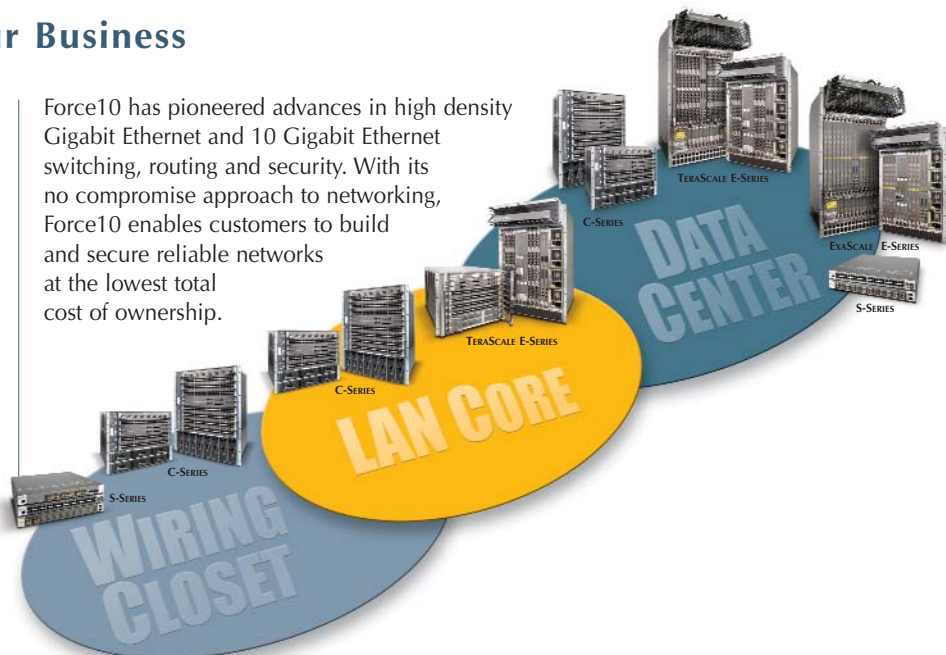
FORCE10  
PARTNER

Ethernet Switches for HPC Solutions	STACKABLE L2/L3		CHASSIS SWITCH/ROUTERS			
	S-SERIES		C-SERIES		EXASCALE E-SERIES	
						
Chassis:	S50N / S50V	C150	C300	E600	E1200	
Chassis Height (RU)	1	9	13	16	21 (DC) / 24 (AC)	
Line Card Slots	—	4	8	7	14	
Expansion Module Slots	2	—	—	—	—	
Raw Switching Capacity (Gbps)	288	768	1,536	1,750	3,500	
Slot Capacity - Half Duplex (Gbps)	24	96	96	125	125	
Forwarding Capacity (Mpps)	131	476	952	1,042	2,083	
40 GbE and 100 GbE Ready	—	—	—	Yes	Yes	
<b>Ports:</b>						
Line-rate 10/100/1000Base-T	48	192	384	630	1,260	
Total 10/100/1000Base-T	48	192	384	630	1,260	
Line-rate GbE (SFP)	4 (Shared)	192	384	—	—	
Total GbE (SFP)	4 (Shared)	192	384	—	—	
Line-rate 10 GbE	4	32	64	70	140	
Total 10 GbE	4	32	64	70	140	
Line-rate OC-3c/OC-12c/OC-48c	—	—	—	—	—	
Power over Ethernet (IEEE 802.3af Class 3)	48 (S50V)	192	384	—	—	
<b>Power:</b>						
AC + AC Power Redundancy	Yes	Yes	Yes	Yes	Yes	
DC + DC Power Redundancy	Yes (S50N)	Yes	Yes	Yes	Yes	
AC + DC Power Redundancy	Yes	—	—	—	—	

## When Your Network is Your Business

**Force10 Networks** is the pioneer in building and securing reliable, high performance networks that extend pervasive reliability, network control and scalability from the data center to the enterprise wiring closet to create a unified network fabric that is designed to ensure application readiness and protect long-term investment. With patented advances in high performance system and backplane design as well as switching and routing optimization technologies, Force10 delivers the tools that have allowed many of the world's largest data centers, service providers and research organizations to transform their networks into strategic assets.

Force10 has pioneered advances in high density Gigabit Ethernet and 10 Gigabit Ethernet switching, routing and security. With its no compromise approach to networking, Force10 enables customers to build and secure reliable networks at the lowest total cost of ownership.



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