

Consortium Delivers 400 Mbytes/sec from NRL



Live Demo
in Marconi Booth #1113

Powerhouse Consortium unites to demonstrate 400 Mbytes/Sec of throughput between NRL and SC2002. Six companies have brought together their high performance technology to show a wide area network file system operating over a distance of 50 miles.

At Supercomputing 2002, SGI, LightSand, Marconi, Brocade, Bay Microsystems, and the Naval Research Laboratory (NRL) have collaborated to demonstrate the delivery of up to 400 Mbytes/sec of high definition TV across a wide area network. Two simultaneous threads of 720P HDTV will be shown from NRL into the Marconi booth. Each video stream will be running at 200 Mbytes/sec for a total data throughput of 400 Mbytes/sec (one-way). In addition, we will demonstrate the MOADB application between SC2002 and NRL.

The HDTV data is hosted on an SGI TP9500 storage array configured as four logical disk drives. This data is attached to the NRL's Onyx 3800 supercomputer running the CXFS file system. The Onyx and the disk array are connected to the NRL's Brocade 12000 Fibre Channel switch. A pair of LightSand's S-2500 SONET gateways are used to bridge the FC SAN onto the WAN. These gateways also provide IP connectivity for the metadata of the CXFS file system. The output of the LightSand gateways (SONET OC-48) is connected to a Bay Microsystems Internetworking Processor (InP). This high performance network processor converts the packetized output of the SONET gateways into OC-48 ATM to interface with the Marconi ATM switch.

At the core of this demonstration is the Marconi BXR-48000 ATM switch. This 480 Gb/s switch-router is being shown with a new generation of interface cards that provide OC-192c (10 Gb/s) physical interfaces. This OC-192c provides the link between the NRL and the SC2002 show floor (in the Marconi booth). Once the data has arrived at the SC2002 show, the BXR-48000 breaks out two OC-48 ATM streams and presents them to the Bay Microsystems InP. In the InP, we convert the two OC-48 ATM streams back into OC-48 FC over SONET and then make it available to the LightSand S-2500 gateways. The S-2500 gateways break the data back into four 1 Gb/s Fibre Channel streams that are connected to a pair of Brocade 3800 Fibre Channel switches. Here, the data is delivered to two SGI workstations (Fuel and Deskside Onyx2). The Fuel workstation will be running HDTV and the Deskside Onyx2 will run either HDTV or the high performance MOADB application.

The "glue" for this demonstration is the CXFS technology from SGI. All three systems (Onyx 3800, Deskside Onyx2, and Fuel) are running CXFS with the Onyx 3800 acting as the metadata server. The two workstations at SC2002 are acting as metadata clients. All three systems are seamlessly working with each other across the WAN.

For the first time, we have shown a high performance, multi-OS file system running across the wide area network. We have shown multiple streams of HDTV with an aggregate data rate of 400 Mbytes/sec from a file system operating over a distance of 50 miles.

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Consortium Delivers 400 MBytes/Second over Distributed Cluster

	Fibre Channel (data)
	Ethernet (meta-data)
	OC-48 FC/SONET
	OC-48 ATM
	OC-192 ATM

