



SC07 Bandwidth Challenge: End-to-End Achievement
Serving as a Model
Bandwidth Challenge Call for Participation

10 Gbps network links are becoming ever more prevalent; however, achieving data rates close to 10 Gbps or even 1 Gbps across those high bandwidth networks is still unattainable by most users.

Those who can achieve high data rates, who can take full advantage of high bandwidth links, need to serve as models. They need to show the researchers at their institutions and their colleagues around the world new ways to truly utilize high bandwidth networks.

While network speeds now include multiples of 10 Gbps (on the same fibers or aggregated together) and 100 Gbps standards are underway, full utilization of 10 Gbps links is still a challenge for many.

This year the Bandwidth Challenge will focus on showcasing those who can serve as a model for end-to-end achievement which should be emulated by others. We've put these great networks in place, now let's make sure everyone can use them to the fullest extent.

This is a Call for Participation in the Bandwidth Challenge at SC07. The intention is that your participation not only will benefit your home institution, but that your example will serve as a model for other institutions to follow.

To enter the Bandwidth Challenge, please submit your entry, by July 31, 2007, at:
<http://www.sc-submissions.org>

The Challenge this year is: Can you fully utilize one 10 Gig path, end-to-end, disk-to-disk, from SC07 in Reno, Nevada back to your home institution, using the actual production network back home? Can you realize, demonstrate and publish all the configuration, troubleshooting, tuning and policies, not only to show off at SC07, but to leave a legacy at your home institution whereby your scientists can achieve the same results after you? Can you serve a model for others to follow?

Bandwidth Challenge entries will be judged on a number of criteria, including:

- Support of science mission:
 - How important is the application to the scientific community it supports?
 - What is the potential impact of this application?
 - How will this application enable or enhance the science?

- Use of production network at your home institution:
 - To what degree are you using the normal production network at your home institution, versus a specialized setup which bypasses your normal network and security infrastructure?
 - How much of the configuration and path will remain after SC07?
 - To what extent do users at your home institution have access to the same infrastructure and same bandwidth utilization results?
- Serving as a Model
 - What lessons learned and advice can you share?
 - What documentation and web pages did you create to communicate how your success was achieved, how others can understand and emulate your model.
- Efficient Bandwidth Utilization – maximum 1 x 10 Gbps
 - How much total bandwidth utilizing can you achieve on a 1 x 10 Gbps link as compared to the bandwidth available to you? Note that we will make an effort to take into account (to a reasonable extent) the background traffic on shared links/networks with which your application must compete.
- Innovative use of protocols
 - Use of innovative and fair TCP and non-TCP implementations.
 - Use of emerging or underutilized technologies such as IPv6.
- End-to-end, disk-to-disk applications
 - How well does your application put all the pieces together, including going to/from disk? The “disk-to-disk” criteria is not meant to discourage or rule out applications where the natural endpoint for data is not disk, as in visualization applications.

Qwest Communications[®] is generously providing a monetary prize for the winning entry and Force10 Networks[®] is providing the high-density 10GigE switch at the nexus of the Bandwidth Challenge for SC07. The data throughput amounts will be verified using high performance monitoring gear from Spirent Communications[®], via network taps provided by Net Optics[®].

The deadline for submitting a full entry to the Bandwidth Challenge is July 31, 2007. Please make all submissions through the following website: www.sc-submissions.org

Help us showcase new approaches and make the Bandwidth Challenge a success by serving as a model for all to follow.

For more information, please contact: bwc@sc07.supercomputing.org