Internet2LandSpeedRecord

Internet2 Land Speed Record

The Internet2 Land Speed Record is an open and ongoing competition that should foster pushing the performance boundaries of high-speed networks. The competition is about high-speed long-distance bulk data transfer over TCP, and its metric is

(data volume * round-trip time) / elapsed time

This can be expressed as something like "Terabit-meters per second". Over the years, Land Speed Record participants have contributed significantly to the understanding of bottlenecks in high-speed data transfers as well as to research on high-speed TCP variants. As computers have closer and closer to being able to fill 10 Gb/s paths with TCP (between a single pair of endpoints), and there are no host interfaces and very few backbones with capacities higher than 10 Gb/s, the competition has recently become somewhat focused on who can build the 10 Gb/s with the longest RTT.

Because of the significant effort involved at building competitive entries, and the low significance for the vast majority of network users (see under wizard gap), these competitions are sometimes criticized as producing "hero numbers".

Current Numbers

As of February 2007, the current records date from November 2005 to February 2006:

Category	Metric	Volume	Distance	Duration	Average Rate	Team
IPv6 Single Stream	208,800 Tbm /s	585 GB	30,000 km	30'	6.96 Gb/s	U. Tokyo, WIDE, Microsoft et al.
IPv6 Multiple Stream	208,800 Tbm /s	585 GB	30,000 km	30'	6.96 Gb/s	U. Tokyo, WIDE, Microsoft et al.
IPv4 Single Stream	264,147 Tbm /s	2.98 TB	30,000 km	45'	8.80 Gb/s	U. Tokyo, WIDE, and Chelsio et al.
IPv4 Multiple Stream	264,147 Tbm /s	2.98 TB	30,000 km	45'	8.80 Gb/s	U. Tokyo, WIDE, and Chelsio et al.

For complete/up-to-date information please check with the official Internet2 LSR site, see references.

Related Work

In a similar vein, the SC (formerly "Supercomputing") conference has a "Bandwidth Challenge" contest.

References

- Internet2 Land Speed Record Web site, http://www.internet2.edu/lsr/
- Internet2 Land Speed Record - history and timeline of record-setting entries, http://www.internet2.edu/lsr/history.html

- SC06 HPC Bandwidth Challenge, http://sc06.supercomputing.org/conference/hpc_bandwidth.php

– Main.SimonLeinen - 23 Feb 2007