File transfer performance between notur/norstore sites.

Abstract

This note is a resume of two file transfer performance reports that was published Q1 2010.
The performance test compare irods with hpn_scp, GridFtp and r-sync.
The file transfer test was between University of Trondheim, Oslo and Bergen
The link between universities are 10Gbps.
All sites have Unix/linux OS and parallel files system.

Definitions:
"Small data" is 37000 small files from 1kB to 1MB; total 3.6 GB.
"Big data" is 16 files of Giga Bytes; total 213 GB.
Njord. HPC computer in Trondheim
Hexagon: HPC computer in Bergen
Norstore-osl: Storage server in Oslo.
Norstore-trd: Storage server in Trondheim.

Results.

File transfer time between norstore-trd and sites in Norway (all results are in minutes).

File collection	Hexagon hpn-scp cipher on	Hexagon hpn-scp cipher off	Hexagon iRODS	Njord hpn-scp cipher on	Njord hpn-scp cipher off	Njord irod	Norstore Osl hpc-scp	Norstore-osl irods	Norstore-osl GridFTP	Norstore-Osl rsync
Small data	25 min	25	34	10	9	54	35	56	43	11
Big data	50	34	15	60	42	10	68	6	12	83

Each result is a average transfer time, and the test was carry out for days.

Conclusion

Best file transfer application was iRODS for transfer of big files between norstore-trd and norstore-osl: 213 GB within 6 minutes. (That is 45 DVD-r discs (4.7GB))

iRODS is fastest for big files and the slowest for many small files.

Note that irods use 1 thread for file transferring for files that are less than 32 MB, and multi-threading for files above 32 MB. See https://www.irods.org/index.php/iRods_file_transfer

iRODS does not encrypt the data.

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