MMCFTP's Data Transfer Experiment Using Ten 100 Gbps Lines Between Japan and USA

Massively Multi-Connection File Transfer Protocol (MMCFTP) is a file transfer protocol developed by NII for big data transmissions in fields of cutting-edge science & technology. It supports native multi-path transfers, which enable data transfer of over 100 Gbps speed.

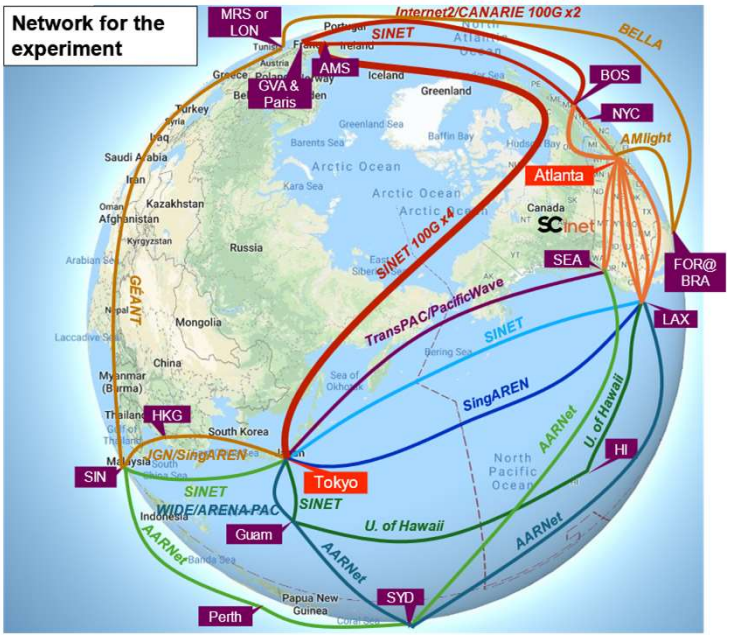
MMCFTP's data transfer experiments and results

Several data transfer experiments using MMCFTP's multi-path transfer function have been conducted. Results are shown in the table below. In these experiments, 10 TB-96 TB data was transferred by MMCFTP in a memory-to-memory configuration.

Event	Paths	Result
SC16	1. Tokyo - Seattle - Salt Lake City 2. Tokyo - Los Angeles - Salt Lake City	150 Gbps
SC17	1. Tokyo - Seattle - Denver 2. Tokyo - Los Angeles - Denver 3. Tokyo - Hong Kong - Singapore - Los Angels - Denver	231 Gbps
SC19	1. Tokyo - Amsterdam - New York - Denver 2. Tokyo - Seattle - Denver 3. Tokyo - Los Angeles - Denver 4. Tokyo - Singapore - Los Angeles - Denver 5. Tokyo - Hong Kong - Singapore -London - New York- Denver	387.5 Gbps (Peak 416.3 Gbps)

Data transfer experiment at SC24

We will try data transfers by a pair of servers between Tokyo and Atlanta over 10 x 100 Gbps lines shown in the network map below.



Specification of servers

	Tokyo / Atlanta
Model	Dell PowerEdge R7615
CPU	AMD EPYC 7354P (3.25 GHz, 32C/64T) x 1
Memory	768 GB (DDR5-4800 64GB x 12)
Disk	System Disk: SATA SSD
NIC	Nvidia ConnectX-6 Dual-Port (100 GbE) x 5 (MTU:9000)
OS	Alma Linux 8.10

Network partners

aarnet, AmLight ExP, TRENA-PNC, BELLA II, canarie, CERN, GÉANT, INTERNET2, JGN, NAOJ, RedCLARA, TransPAC, SCinet, SINET6, SingAREN, SURF, WIDE, University of Hawaii

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