SYSTEM UPGRADE OF KEK CENTRAL COMPUTING SYSTEM

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GPFS HPSS INTERFACE AS HSM

High Performance Storage System

- ☐ GPFS parallel file system staging area
- ☐ Perfect coherence with GPFS access (POSIX I/O)
- ☐ KEKCC is the pioneer of GHI customers (since 2012).
- ☐ Data access with high I/O performance and good usability.

GPFS FILE SYSTEM PERFORMANCE
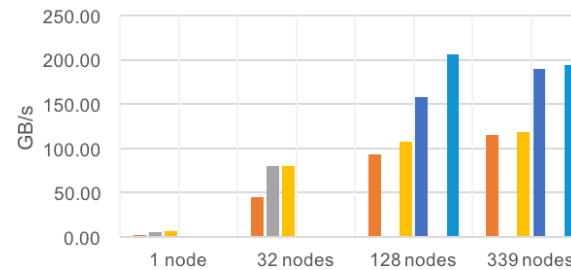
Total throughput : 200 GB/s

REAL TIME MONITORING WITH KIBANA

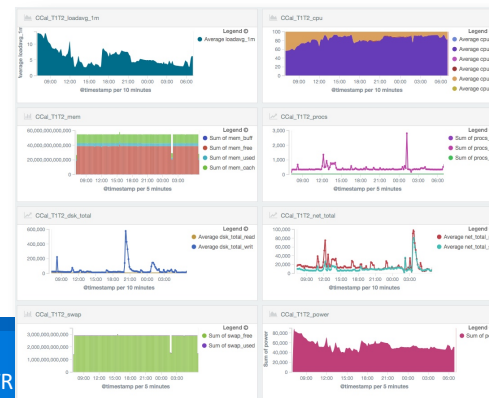|	Old	New	Upgrade Factor
CPU Server	IBM iDataPlex	Lenovo NextScale	
CPU	Xeon 5670 (2.93 GHz ,6core)	Xeon E5-2697v3 (2.6GHz, 14cores)	
CPU cores	4,080	10,024	x2.5
OS	SL 5.7	SL 6.7	
IB	QLogic 4xQDR	Mellanox 4xFDR	
Disk Storage	DDN SFA10K	IBM Elastic Storage	
HSM Disk Storage	DDN SFA10K	DDN SFA12K	
Disk Capacity	7 PB (3PB for HSM)	13 PB (3PB for HSM)	x1.8
Tape Drive	IBM TS1140 x 60	IBM TS1150 x54	
Tape Speed	4TB/vol, 250 MB/s	10TB/vol, 360 MB/s	
Tape max capacity	16 PB	70 PB	x4.3
Power Consumption	200 kW (actual monitored value)	< 400 kW (max estimation)	

SUMMARY

☐ The new KEKCC system was launched in September 2016.

☐ Increase computing resources based on requirements of experimantal groups.
   ☐ CPU : 10K cores (x2.5), Disk : 13PB (x1.8), Tape : 70PB (x4.3)

☐ Storage requirements are very important for the coming experiments in KEK.
   ☐ Large capacity, High speed, High scalability
   ☐ Realize 200 GB/s total throghput in the GPFS file system
   ☐ Tape system is still important technology for us, not only hardware but software (HSM) points of view.
   ☐ GHI is a promising solution for HSM for large scale of data processing.

☐ Scalable data management is a challenge for next 10 years.
   ☐ Belle II experiment will start in 2017.
   ☐ Data processing cycle (data taking, archive, processing, preservation…)
   ☐ Data migtation as a potential concern