



Introduction to Computing Environments at KISTI-GSDC LDG

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KISTI (Korea Institute of Science and Technology Information)
GSDC (Global Science experimental Data hub Center)

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- 01 Introduction to KISTI-GSDC
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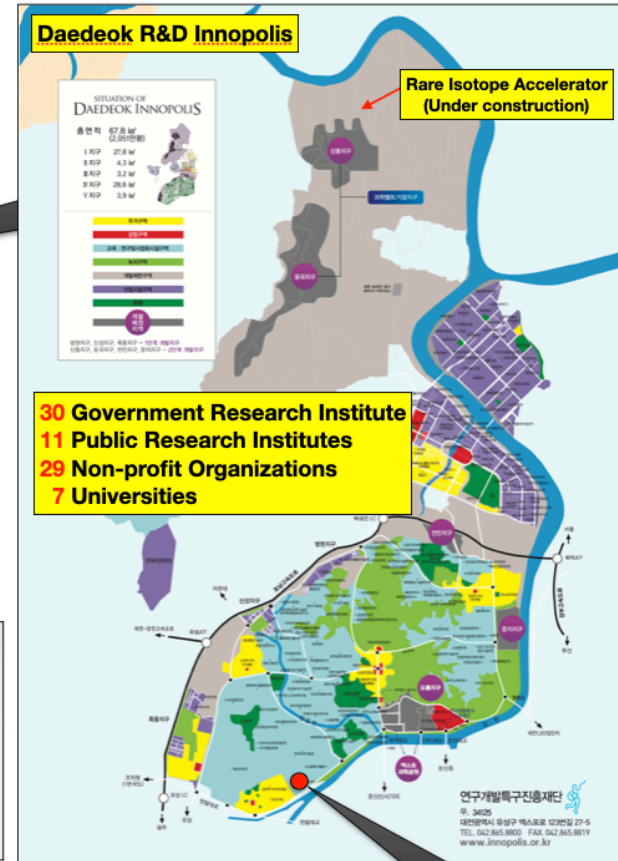
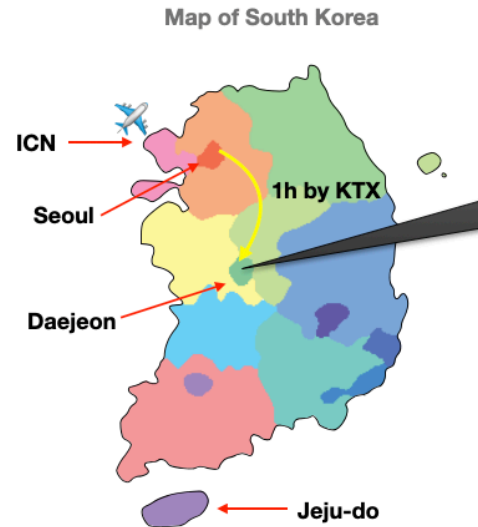
Introduction to KISTI-GSDC



KISTI

Korea Institute of Science and Technology Information

- Government-funded research institute founded in 1962 for National Information Services and Supercomputing
- National Supercomputing Center
 - **Nurion** - Cray CS500 system
 - 25.7 PFlops at peak, ranked 11th of Top500 (2018) => 21st (Nov 2020)
 - **Neuron** - GPU system, 1.24 PFlops
 - **KREONet/KREONet2** - National R&E network





Large-scale Scientific Data:
20Km CD stack with data
produced per year in CERN

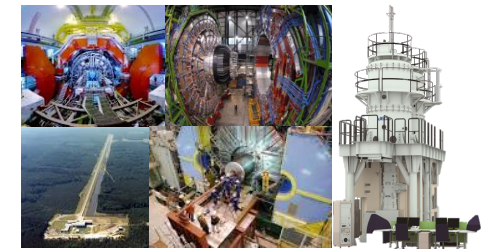
Global Science

experimental Data

hub Center

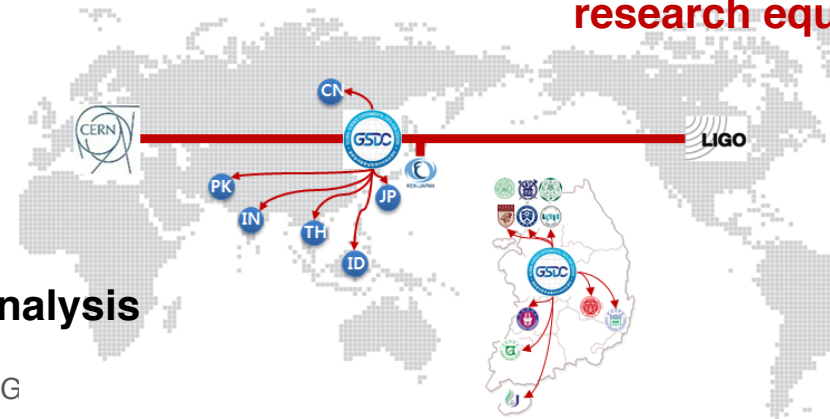


**Collaboration with
global laboratories**



**Data from
large and high-valued
research equipment**

- **(Global)**
Asia representative **Data Hub**
- **(Domestic)**
Scientific data management and analysis
platform service



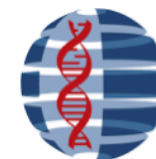
GSDC

Global Science experimental Data hub Center

- Government-funded project, started in 2009 to promote Korean fundamental research through providing computing power and data storage
- Datacenter for data-intensive fundamental research
 - 17 staff: system administration, experiment support, external-relation, management and planning



ALICE



International
Cancer Genome
Consortium



Disk Storage



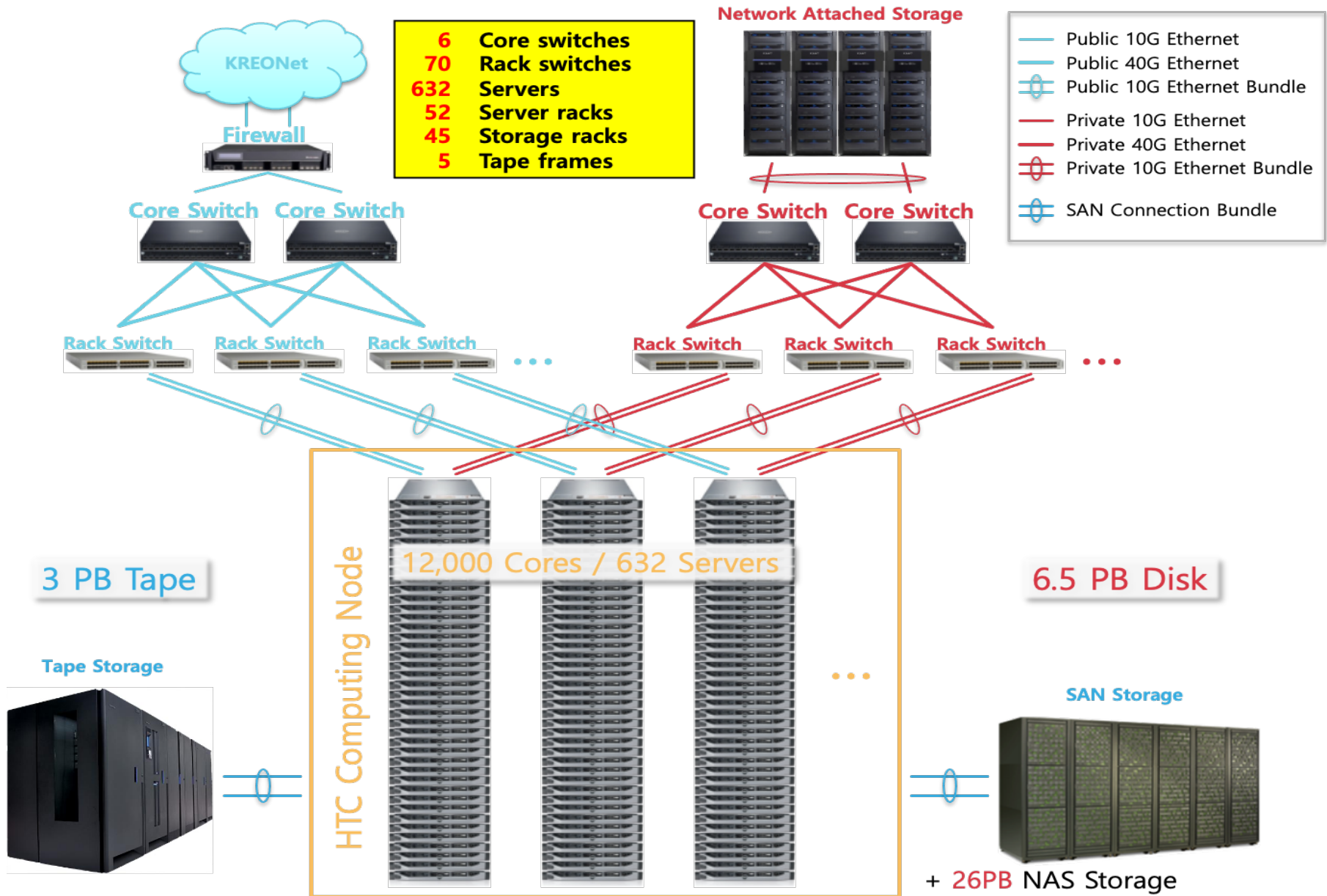
Tape System



Computing Nodes



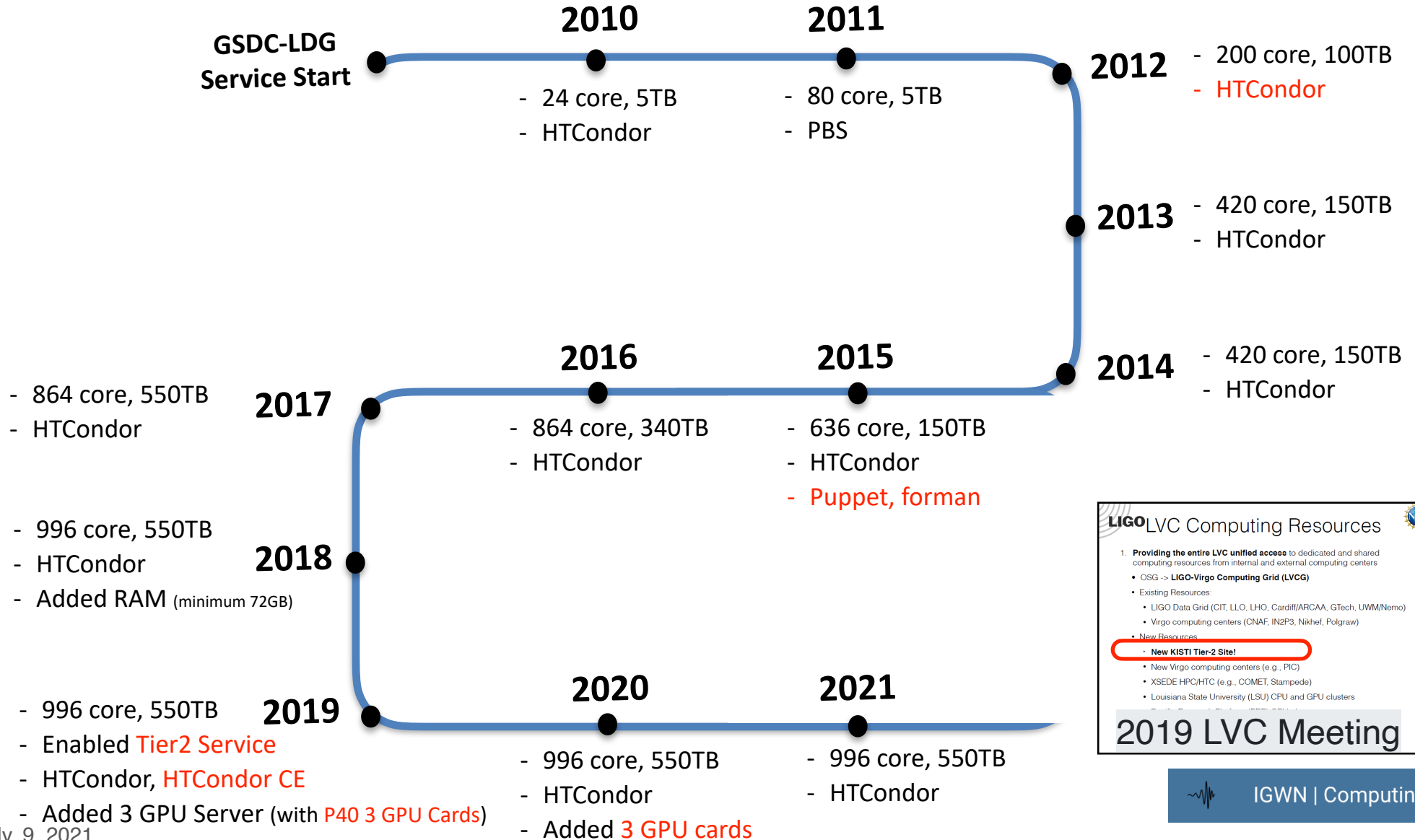






Introduction to GSDC-LDG

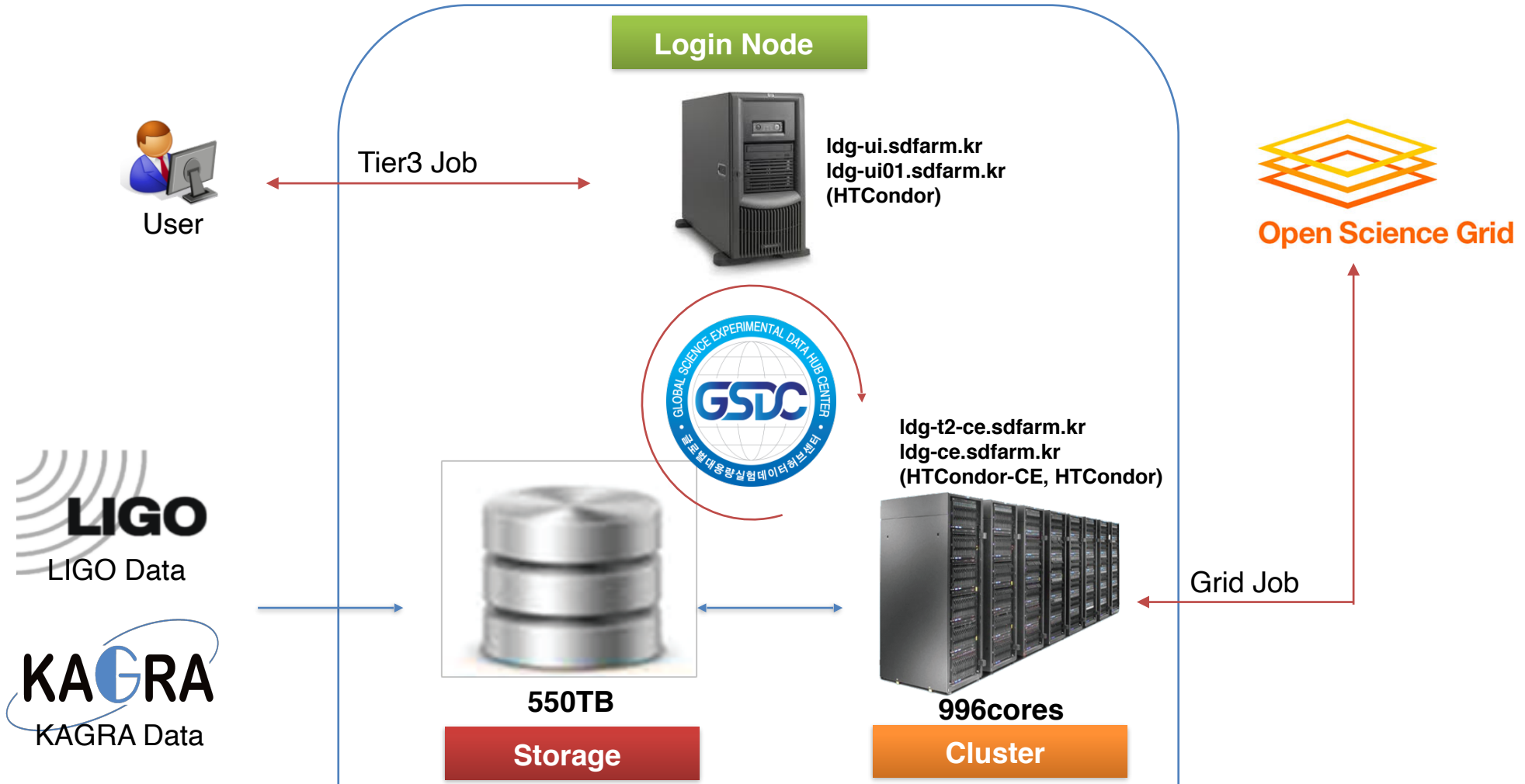


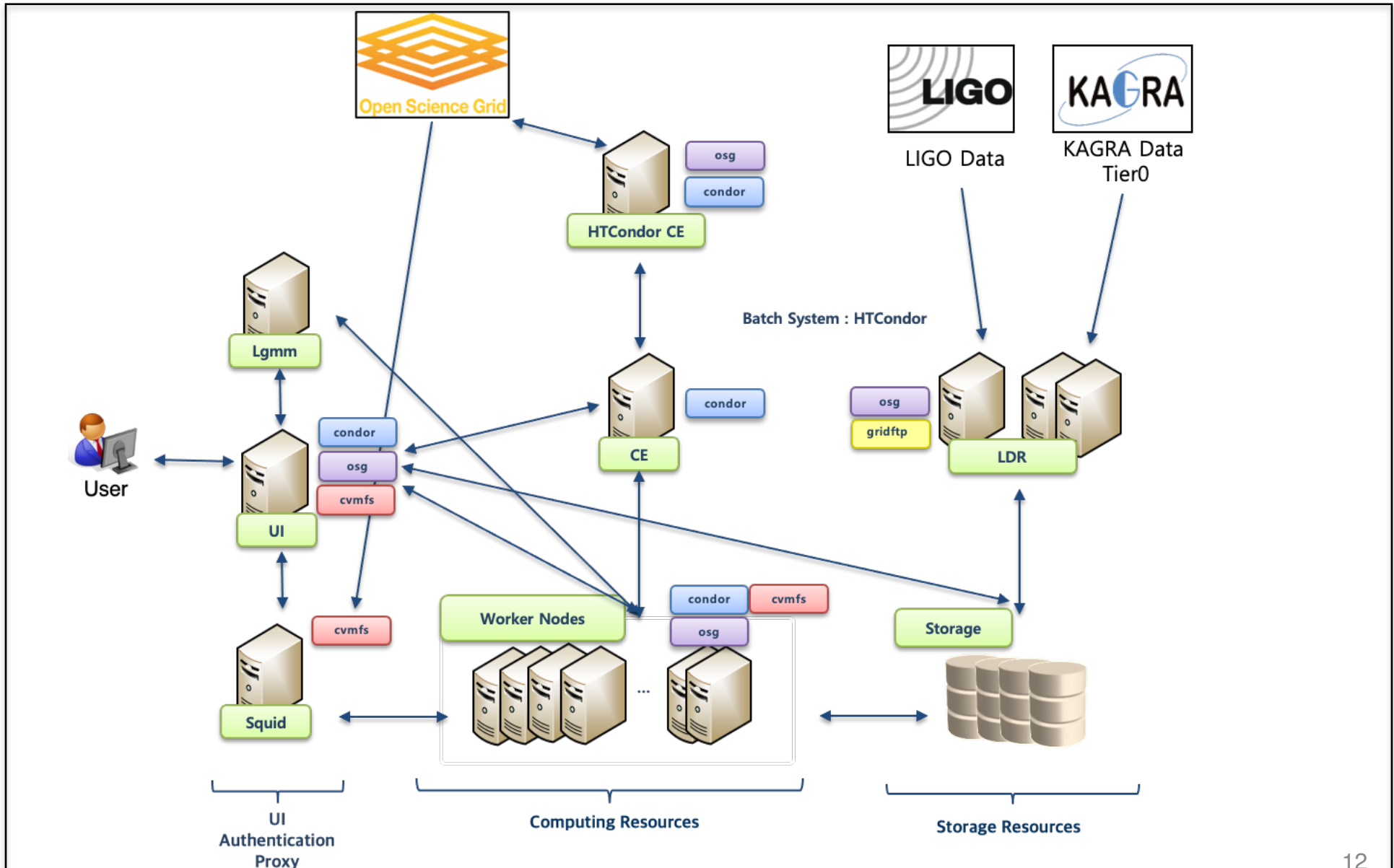


LIGO LVC Computing Resources

- Providing the entire LVC unified access to dedicated and shared computing resources from internal and external computing centers
 - OSG -> LIGO-Virgo Computing Grid (LVCG)
 - Existing Resources:
 - LIGO Data Grid (CIT, LLO, LHO, Cardiff/ARCAA, GTech, UWMNemo)
 - Virgo computing centers (CNAF, IN2P3, Nikhef, Polgraw)
 - New Resources:
 - New KISTI Tier-2 Site!**
 - New Virgo computing centers (e.g., PIC)
 - XSEDE HPC/HTC (e.g., COMET, Stampede)
 - Louisiana State University (LSU) CPU and GPU clusters

2019 LVC Meeting







• Computation Resource

	Physical Core	Memory
Work Node	996 (66 servers)	72GB X 27 96 GB X 33 384 GB X 6
UI,CE,LGM,LDAS,LDR	60 (5 servers)	24GB X 5
Total	1056	7416



Work Node (GPU)	3 Servers	6 GPU Cards (P40)
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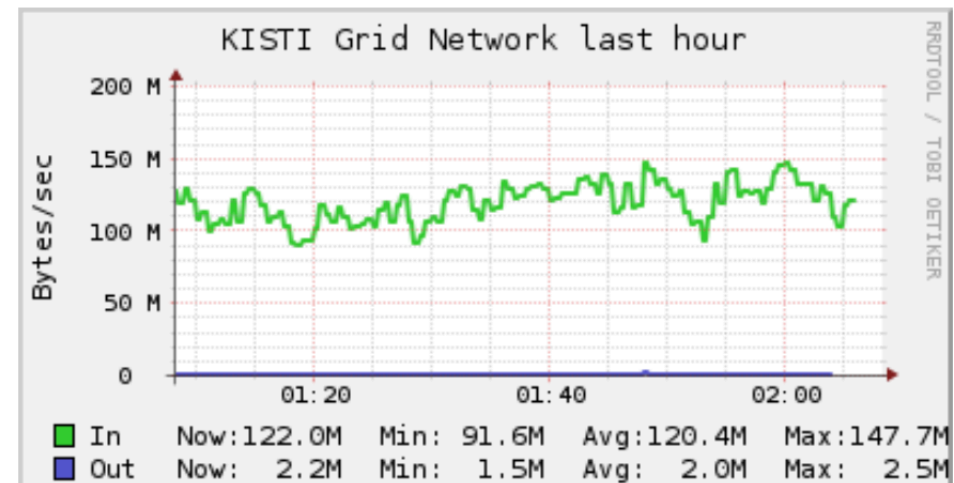
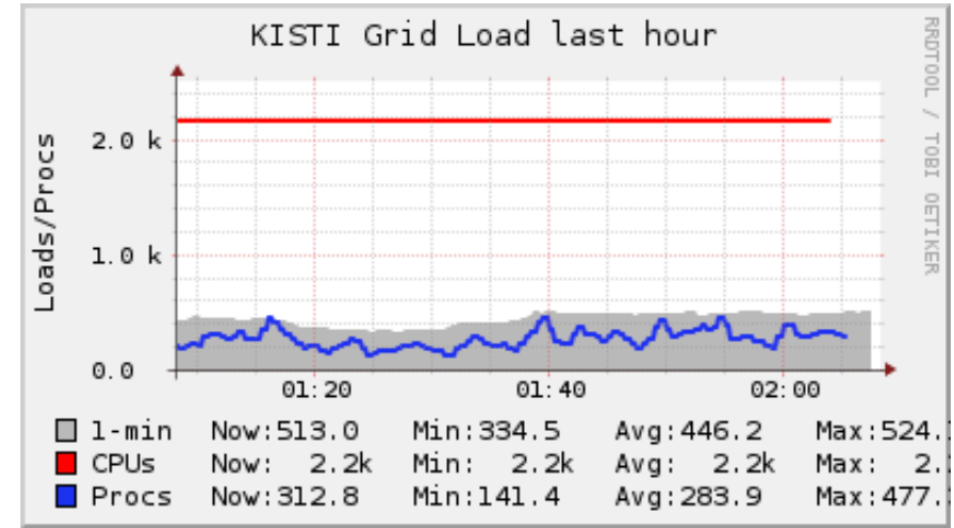
• Storage Resources

	Mount on	Size	Used	Avail	Use	Total
LIGO	/data/ligo/	400T	317T	84T	80%	pool0.gsn.sdfarm.kr:/ifs/service/ligo
KAGRA	/data/kagra/	150T	113T	38T	76%	pool0.gsn.sdfarm.kr:/ifs/service/kagra

- LDG central monitoring system
- Ganglia installed on all GSDC-LDG resource



http://watchtower.phys.uwm.edu/ganglia/?r=hour&cs=&ce=&m=load_one&s=by+name&c=&tab=m&vn=&hide-hf=false



RROOTool / TOBI OETIKER

RROOTool / TOBI OETIKER



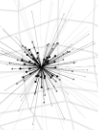
Conclusion





- We briefly introduced the configuration resources, environment and operation status of KISTI-GSDC LDG.
- We hope to develop a good collaboration in the computing and data management of KAGRA.

GSDC Promoting Science



**THANK
YOU**