

HEPnet-J/sc

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Machines for lattice QCD in Japan



- KEK:
Hitachi SR8000,
1.2 TFlops
- Tsukuba:
CP-PACS, 0.6 TFlops
- Osaka:
NEC SX-5, 1.3 TFlops

Three major machines are shared by many lattice groups in Japan: CP-PACS, JLQCD, QCD-TARO, Kanazawa, etc.

Problem was on data storage and transfer: large data were stored and used independently within each machine.



Super-SINET

since 2001

- Network infrastructure for academic research (universities and national labs)
- 10 Gbps backbone: general purpose
- 1 Gbps lines between major institutes: for specific research areas, such as HEP, Bio-science, Nano-technology.

For theoretical high energy physics,

- KEK \leftrightarrow Tsukuba
- KEK \leftrightarrow Osaka
- KEK \leftrightarrow Kyoto

are provided.

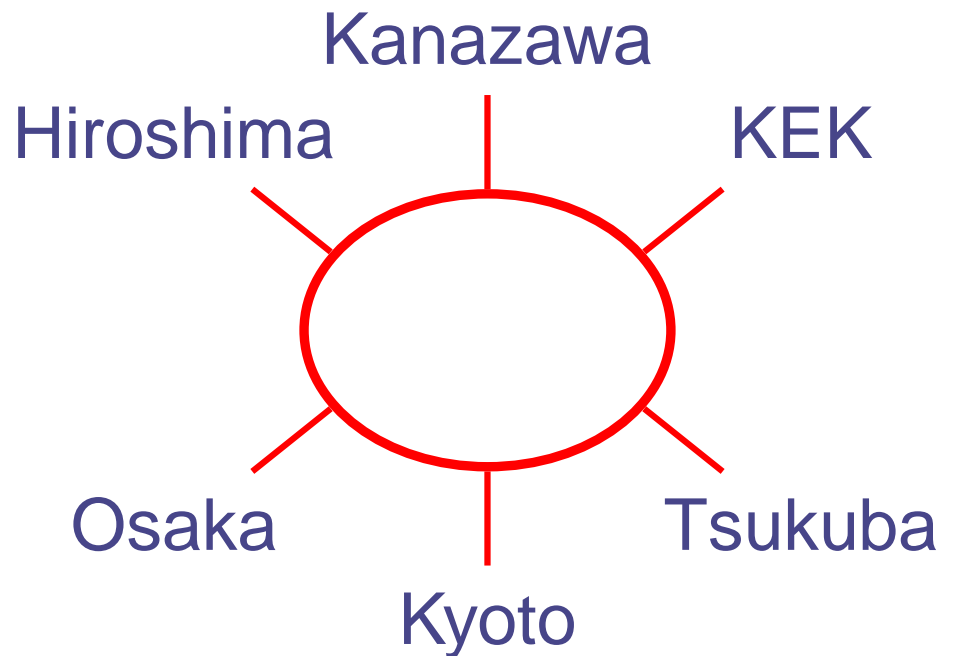
Construct a dedicated network for lattice QCD.



HEPnet-J/sc

- *HEPnet-J*: a network for HEP experiments in Japan
- *HEPnet-J/sc* is a subset; but independent network for HEP theories (\simeq lattice)

Wide area private network



logically flat network (without routing)



Data sharing



- Machines at each institute are connected via file servers (2–20 TB).
- Disks are hourly mirrored between sites.



Current activities and future

Current:

- CP-PACS/JLQCD joint work of 2+1-flavor QCD; data are shared among KEK, Tsukuba and Hiroshima.
- Many groups use the machines at KEK, Osaka and Kyoto. Data are sent via HEPnet-J/sc.

Future:

- To work as a backbone of LQA.
- More intelligent (grid-based) way to share data:
 - SRB (Storage Resource Broker)
 - Gfarm (Grid Data farm)

