

J-PARC repository

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Interoperability of Digital Repositories

2-4 December 2009

Outline

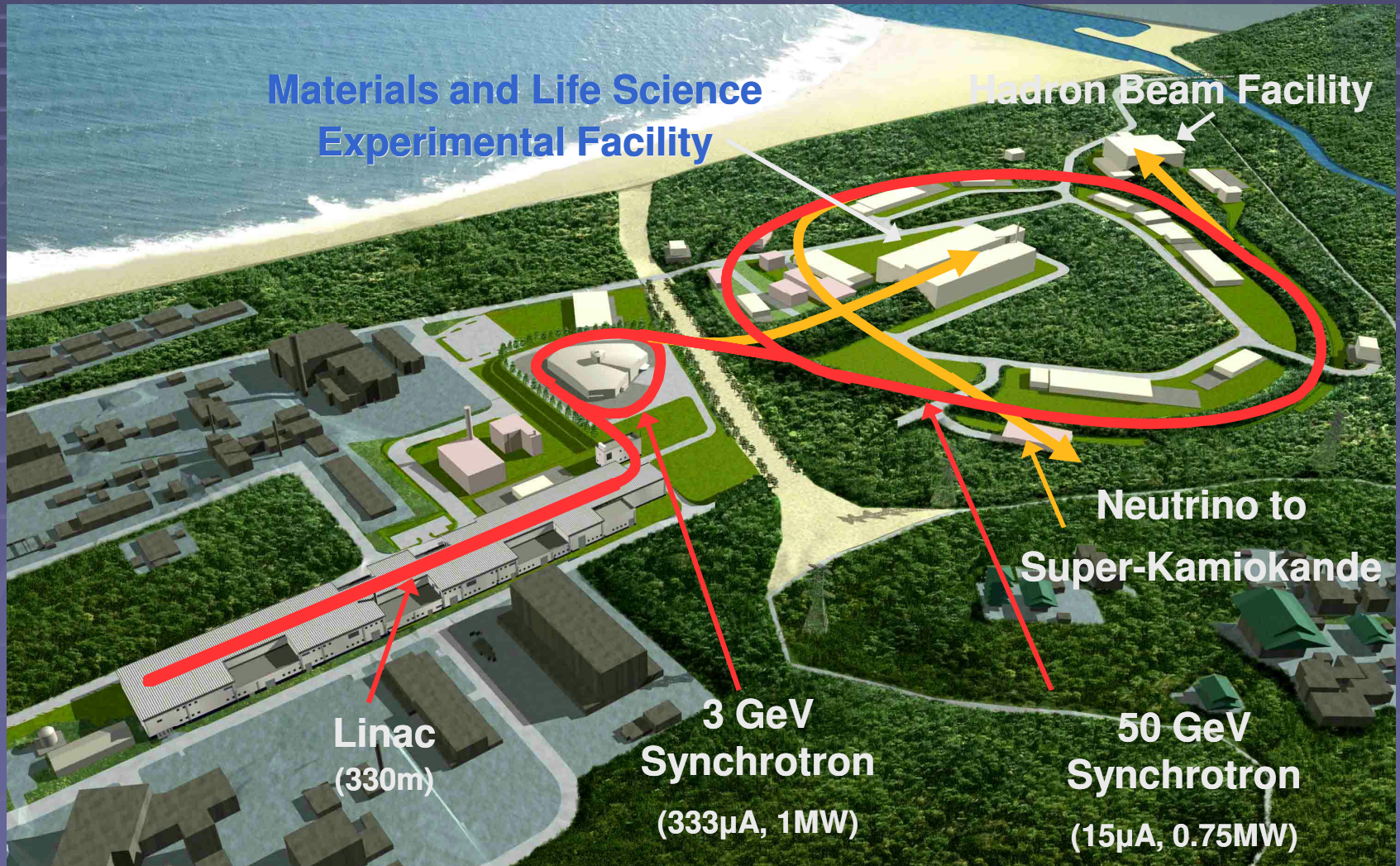
- J-PARC project
- KEKCC
- KEK iRODS
- Future plan
- Summary

J-PARC projects

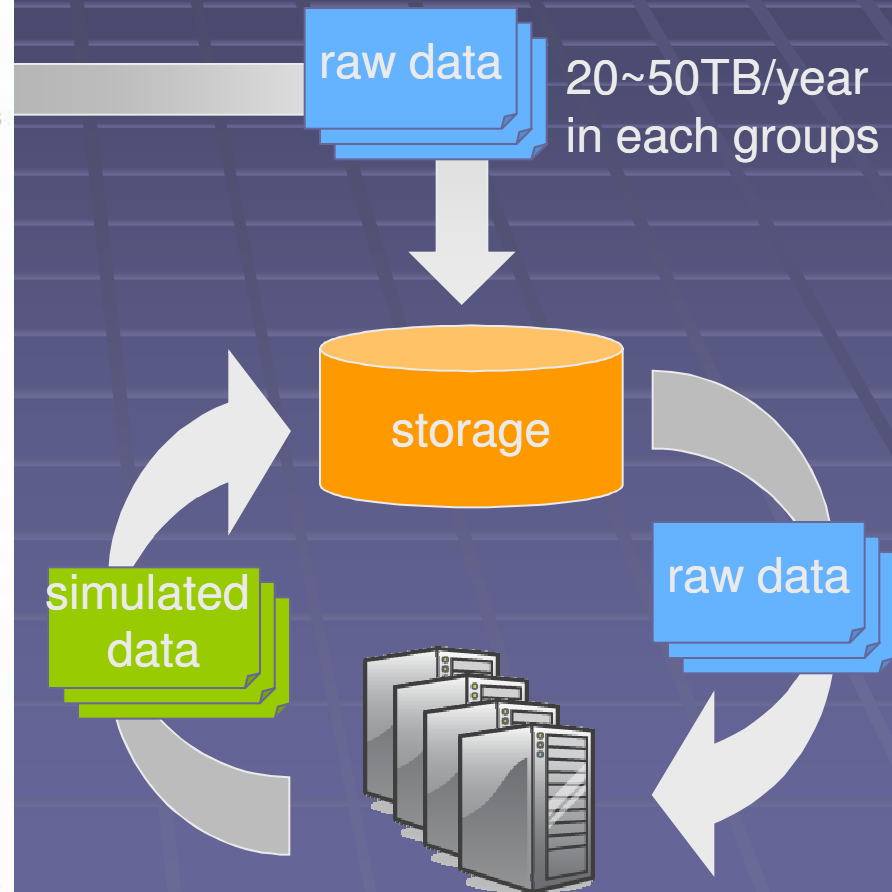
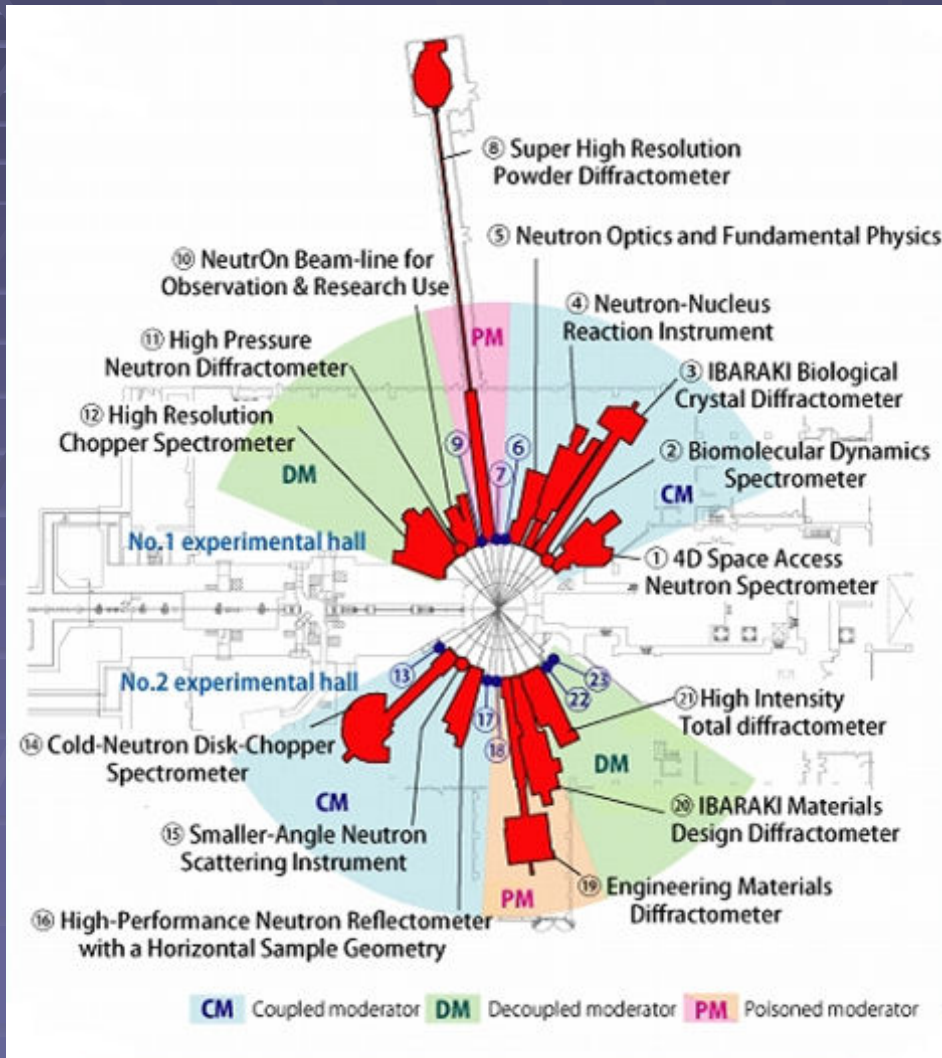
- J-PARC (Japan Proton Accelerator Research Complex)
 - Aim to pursue frontier science in particle physics, nuclear physics, materials science, life science and nuclear technology, using a new proton accelerator complex at the highest beam power in the world
 - A joint project by JAEA (Japan Atomic Energy Agency) and KEK
 - Some experiments started from December 2008



J-PARC projects

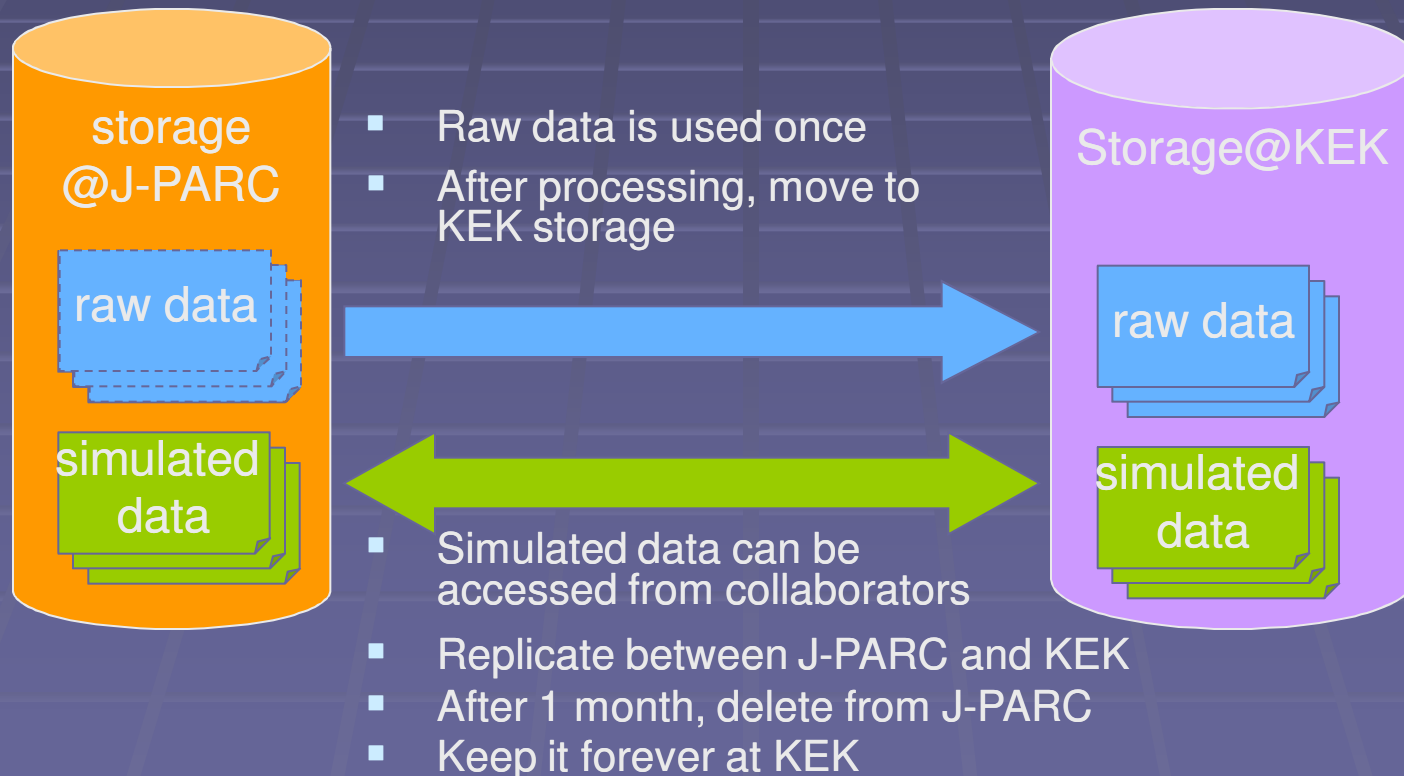


J-PARC projects - MLF



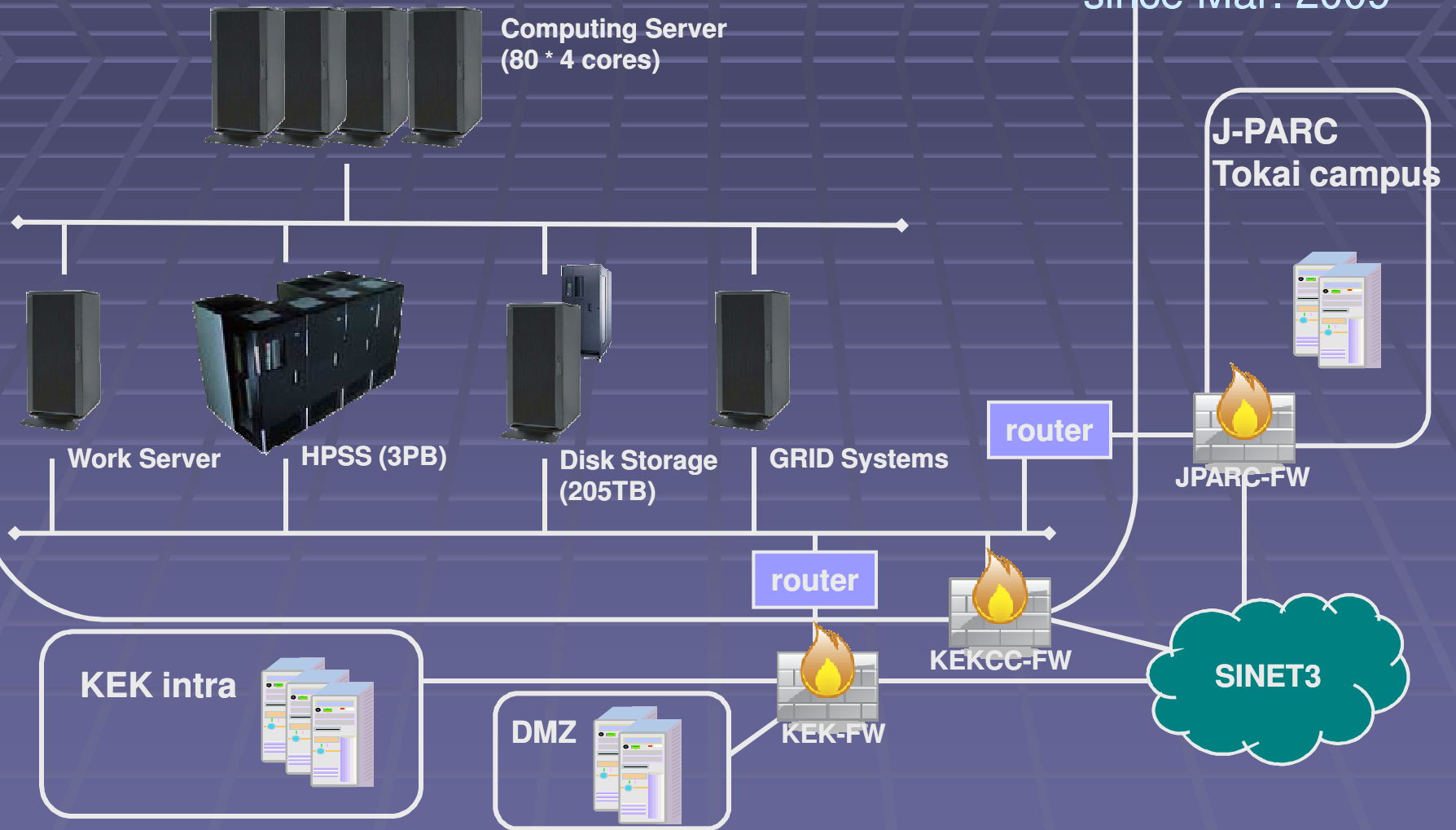
J-PARC projects - MLF

- J-PARC storage
 - not large enough
 - too secure to access from outside



Central Computing System (KEKCC)

since Mar. 2009



KEKCC HPSS



- Access methods
 - ClientAPI, pftp
 - Need to install the HPSS package
 - Directly access to the core server of HPSS
 - Good transfer speed
 - Use some unknown ports on both server and client
 - Many Japanese university don't open these ports
 - Scp
 - Well known tool
 - Work server at KEKCC mount HPSS area with VFS
 - Easy to use and access from outside of KEK
 - Not enough speed

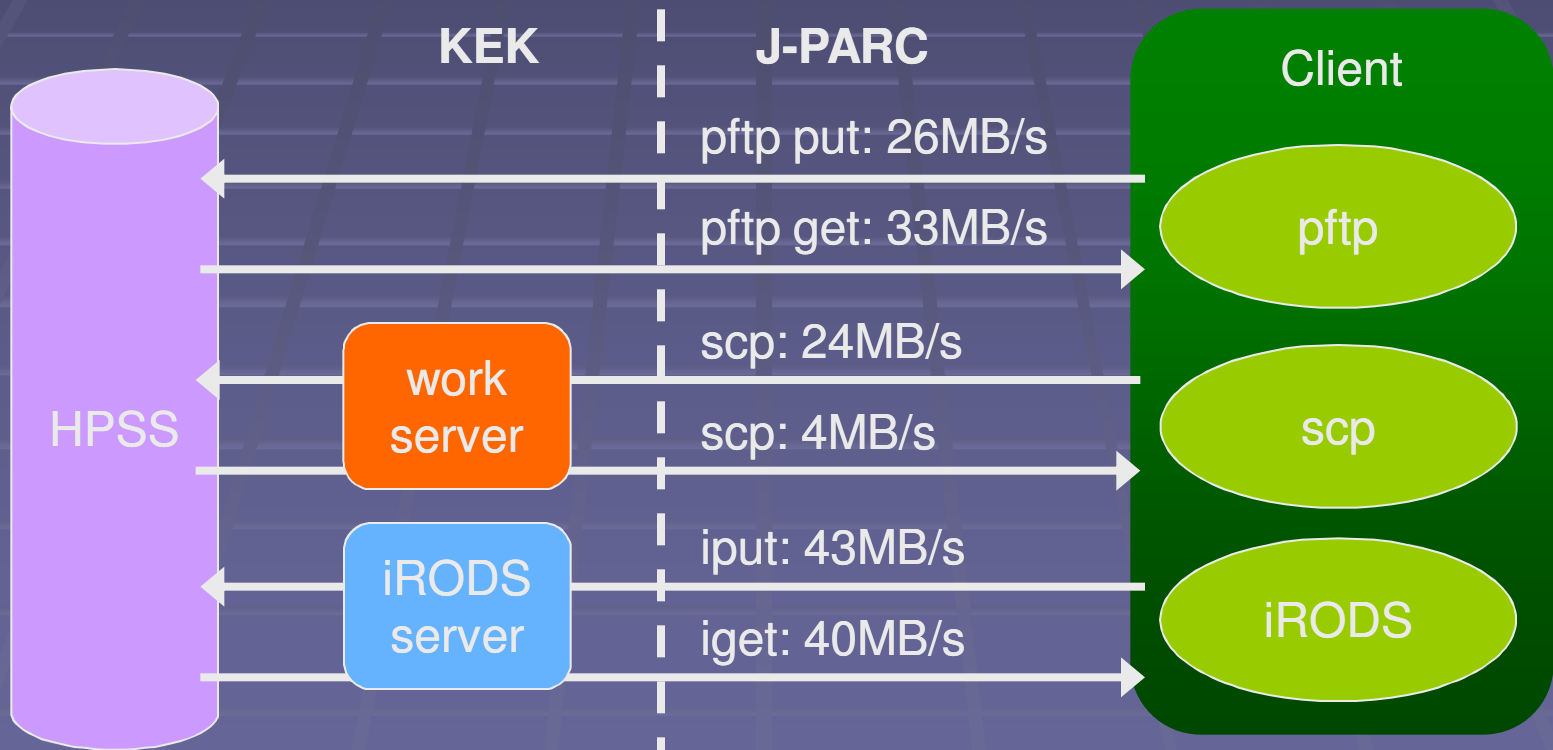
KEKCC HPSS



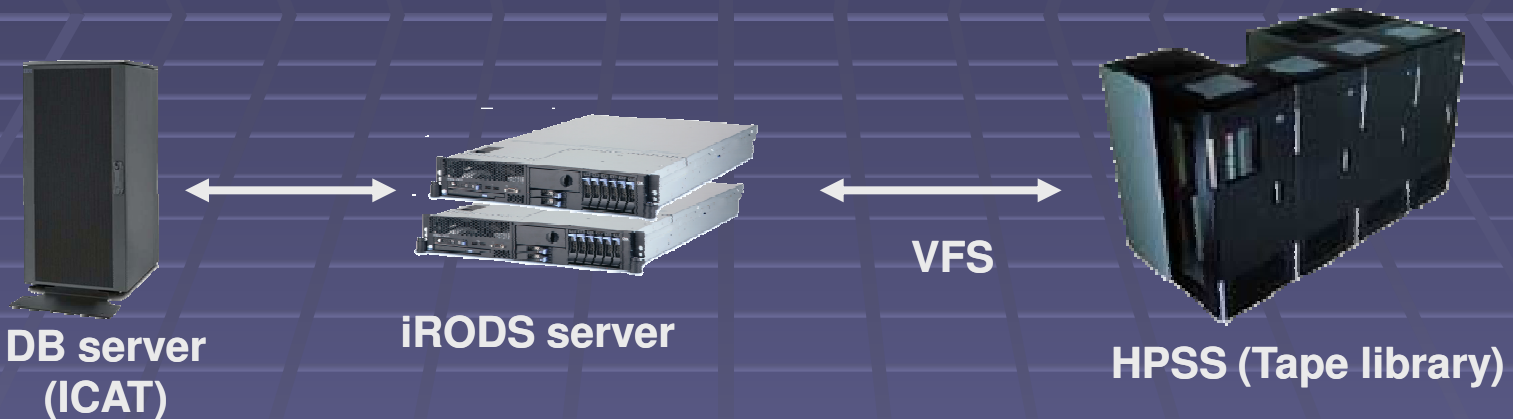
- Access methods
 - iRODS
 - Need to install iRODS package
 - iRODS server at KEKCC mount HPSS area with VFS
 - Support the parallel transfer
 - Good transfer speed
 - Manage the storage resource logically
 - Use the storage across J-PARC and KEK as one file system
 - Don't need to open port at client side

KEKCC HPSS

- Data transfer between KEK and J-PARC



KEK iRODS



■ Postgres server

- IBM x3650
- QX5460 (4 core)
- Memory 8GB
- HDD 293.6GB
- RHEL 5.2
- Postgres 8.2.5

■ iRODS server × 2

- IBM x3650
- QX5460 (4 core)
- Memory 8GB
- HDD 293.6GB + 600GB
- Scientific Linux 4
- iRODS 2.1
- HPSS-VFS client
- GPFS client

■ HPSS

- TS3500
- HPSS 6.2.2.2p
- 3PB in maximum (3000 vols)
- 10TB cache disk
- 10 tape drives
- 5 movers
- 2 VFS servers

KEK iRODS

■ Firewall setting

■ Between server and server

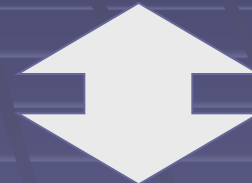
- Open ports on each server
 - irods port (for authentication)
 - communication ports (for data transfer)

■ Between client and server

- Open ports on server
 - irods port
 - communication ports
 - https port (for davis)
- Open no port on client



iRODS
server



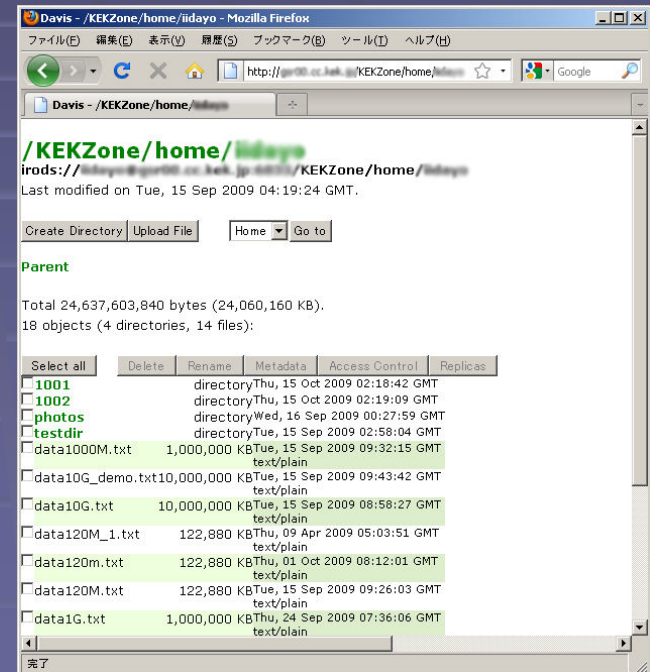
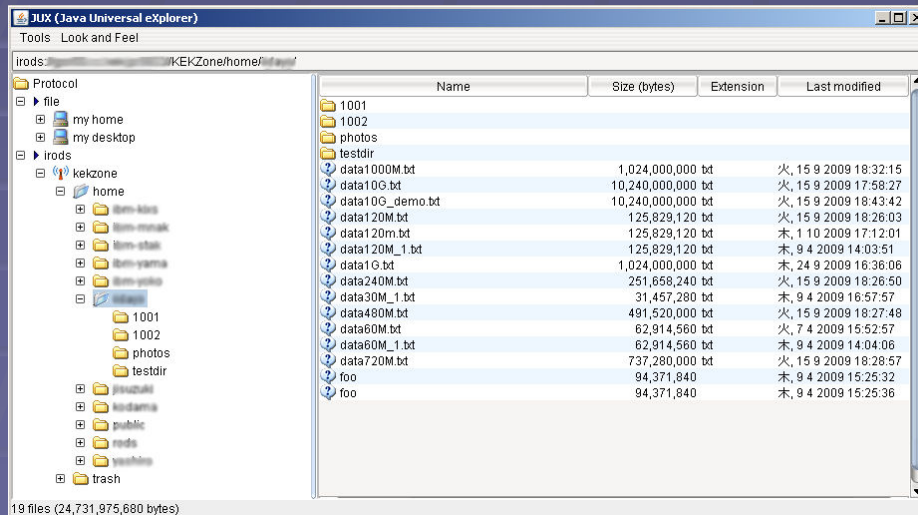
iRODS
server



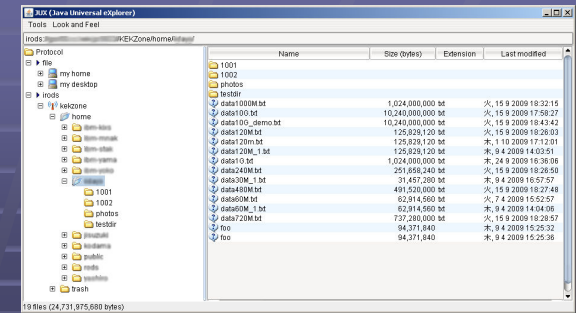
iRODS
client

KEK iRODS

- Client tools
 - i-commands (command line)
 - JUX (GUI Application)
 - Davis (Web Application)



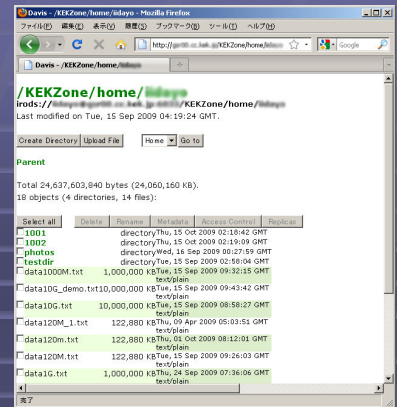
KEK iRODS



- JUX (Java Universal eXplorer)
 - Presented by Pascal yesterday
 - Works on Linux, Windows
 - trying on Mac
 - ☺ Looks like windows explorer
 - Visually confirm the file structuring
 - Copy the files by drag and drop
 - Not recognize the replicated files
 - Not handle Japanese character

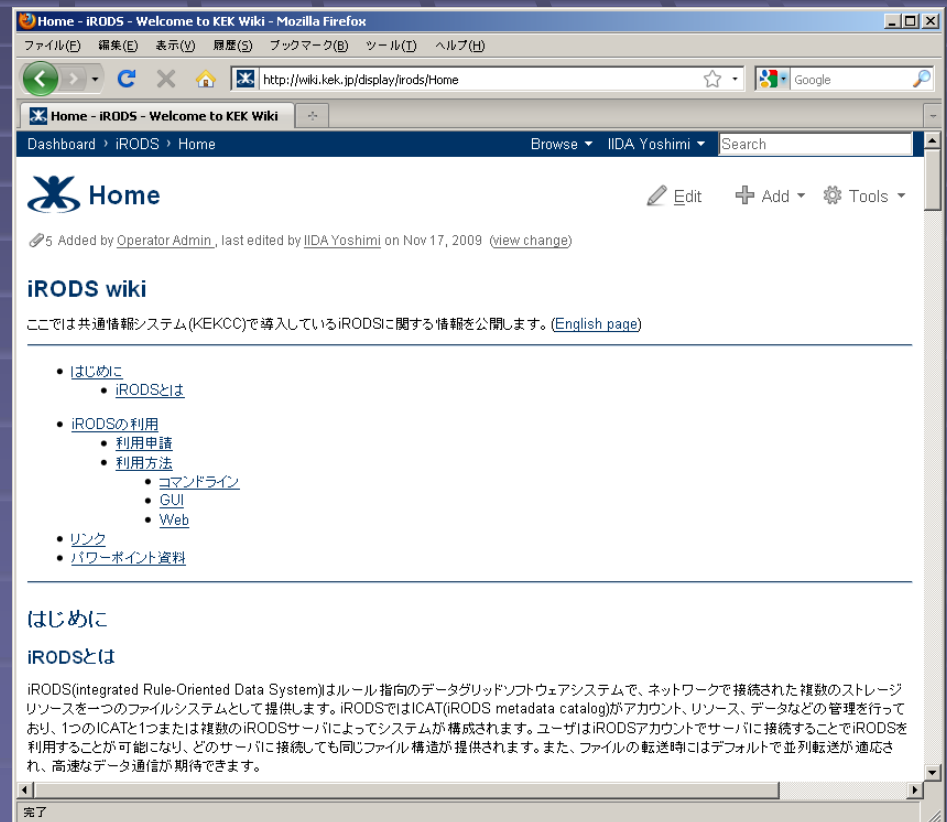
KEK iRODS

- Davis (A webDAV-iRODS/SRB)
 - <https://projects.arcs.org.au/trac/davis/wiki/>
 - Need Jetty and Apache on iRODS server
 - ☺ Useful for a small laboratory of the university
 - Don't need a special software at client side
 - Run on http port or https port
 - Not able to upload/download some files at the same time



KEK iRODS

- Wiki page in Japanese for end users
 - what is iRODS
 - how to use at KEK
 - how to install
 - how to make rule
 - how to make MS
 - ...



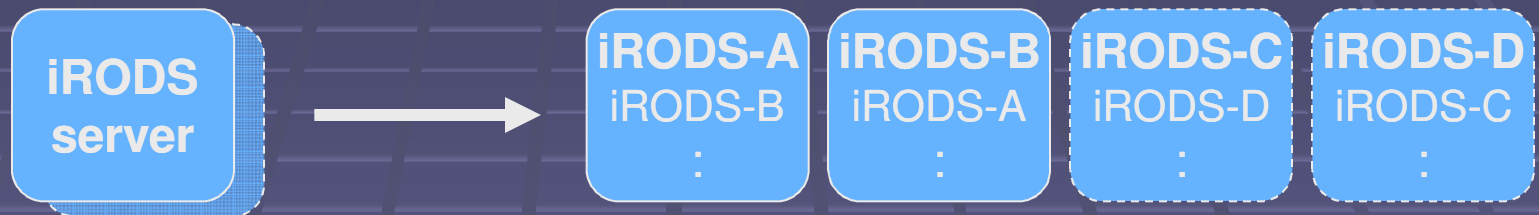
KEK iRODS

- Testing at 2 experimental groups from MLF
 - Installed some client tools
 - Try to set up iRODS server at J-PARC
 - Discuss about the policy
 - Make rules or micro-services
 - support for the data management administrator
 - and also end users

- Real use will start from next spring

Future plan

- Set up some iRODS servers



- Now: running 1 iRODS on 2 machine (active & standby)
- run the iRODS every experiment
 - in order to change the writing user to HPSS for each experiment group
 - in order to avoid the influence of the congestion of other experiment groups
- will add new machine if the group increase

Summary

- J-PARC projects
 - A joint project by JAEA and KEK at Tokai
 - Data accumulate at KEK HPSS
- KEK iRODS
 - Good data transfer between Tokai and Tsukuba
 - Provide a GUI and Web application and wiki page
 - 2 experimental groups are testing
- Future plan
 - Set up the multi iRODS server
 - Continue support for user