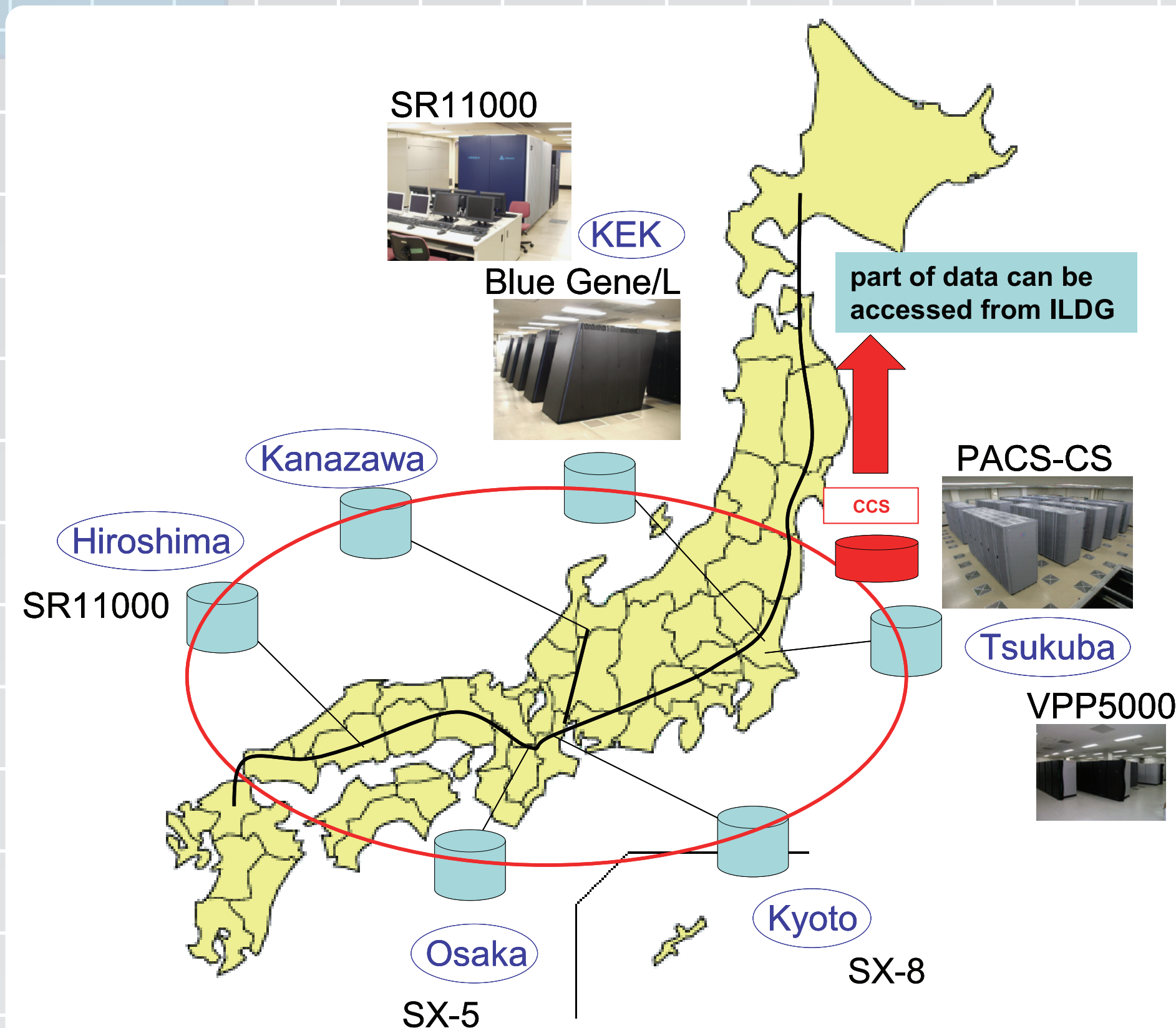




JLDG: Japan Lattice Data Grid

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JLDG is a new data-grid infrastructure for Lattice QCD (LQCD) community in Japan. Several large LQCD collaborations in Japan have been working on QCD simulations using super-computers. Outputs of simulations called "QCD configurations" are valuable, because physicists can study various aspects of QCD using these configurations. JLDG enables the community to share configurations distributed over distant sites. File sharing is realized with Gfarm global file system. GSI authentication is managed by VOMS. JLDG utilizes the HEPnet-J/sc private network as a hardware infrastructure. Part of configurations can be accessed from all over the world through the ILDG interface. Prototype JLDG system is working between Tsukuba and KEK. Full installation on collaborating sites will be completed within FY2006.



ILDG: International Lattice Data Grid

ILDG is an international project to develop a grid of datagrids for sharing lattice QCD configurations world-wide. Design of QCD configuration markup language was finished in 2004. WSDL definition of interface among collaborating grids was also completed recently. Construction of regional grids is almost finalized in US, UK, Germany, Australia and Japan. (JLDG works as the ILDG Japan grid.) Works are in progress toward inter-operation of these local grids. <http://www.lqcd.org/ildg>

LQA: Lattice QCD Archive

LQA is a database of QCD configurations provided and maintained by the Center for Computational Sciences (CCS) since Dec.2003. The Archive currently stores the two-flavor full QCD configurations generated by the CP-PACS parallel computer at CCS and makes them available to lattice QCD community world-wide. Datasets consist of about 8000 configurations stored in 1.5 TB disk space. Configurations for 2+1 flavor full QCD already generated by the CP-PACS and JLQCD collaborations and those for much lighter quarks, which will be generated with the PACS-CS computer, will be added to the Archive. The LQA was designed to serve as a Japan gateway to/from the other sites of ILDG. The system will be restructured as a gateway between JLDG and ILDG in FY2006. <http://www.jldg.org>

Lattice QCD Archive: CP-PACS two-flavor QCD configurations
<http://www.lqa.ccs.tsukuba.ac.jp/CP-PACSconfig.html>

LATTICE QCD ARCHIVE
Center for Computational Sciences, University of Tsukuba

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Two-flavor full QCD configurations by CP-PACS

The two-flavor full QCD configurations in this archive are generated by the CP-PACS Collaboration on the CP-PACS parallel computer at the Center for Computational Sciences, University of Tsukuba.

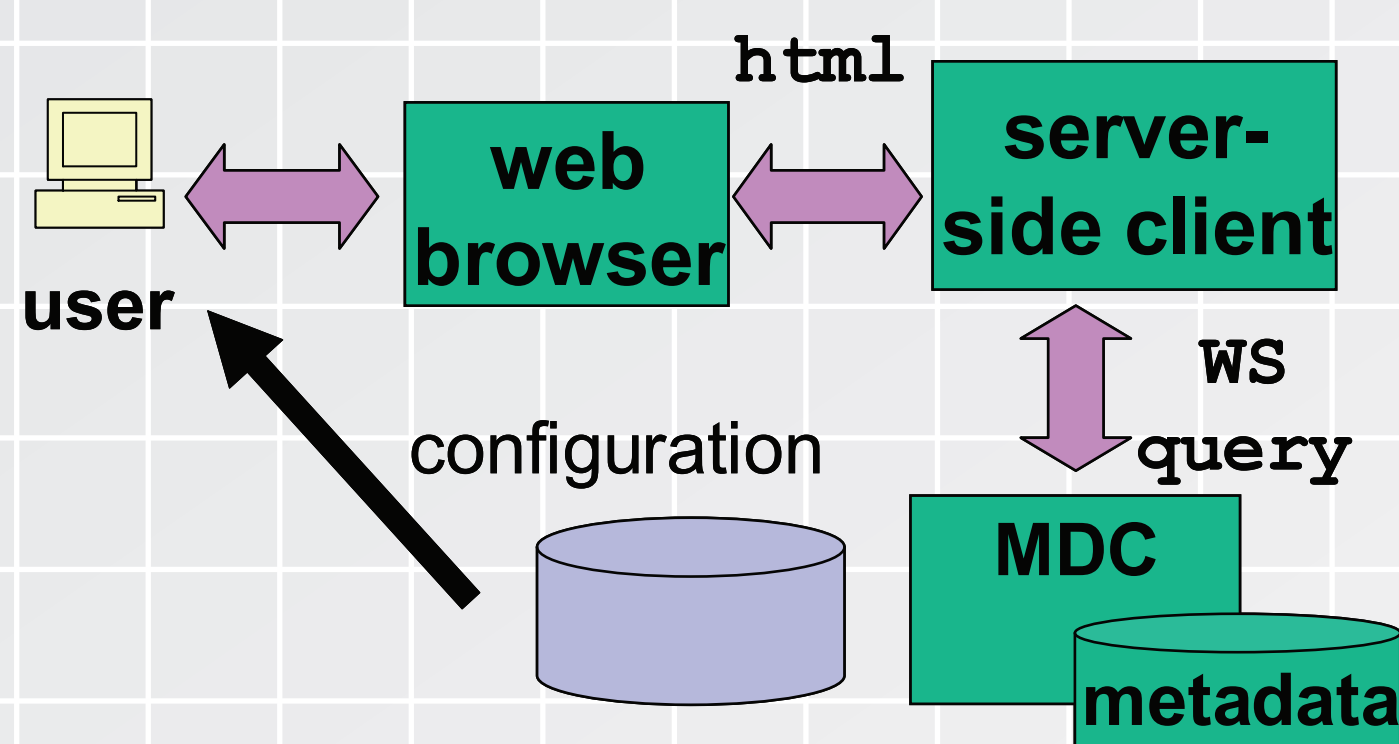
Access policy

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Simulation parameters

These gauge configurations are generated with a renormalization-group improved gauge action and a mean field improved clover quark action at three values of $\beta = 6/g^2$, corresponding to lattice spacings of a approx 0.22, 0.16 and 0.11 fm, and four sea quark masses corresponding to m_{π}/m_{η} approx 0.8, 0.75, 0.7 and 0.6. The sizes of lattice are chosen to be $12^3 \times 24$, $16^3 \times 32$ and $24^3 \times 48$ so that the physical spatial size is kept constant at L_0 approx 2.5 fm. The scale a is fixed by $M_{\pi 10} = 768.4$ MeV.

β	lattice	κ_{SW}	a [fm]	L_0 [fm]	m_{π}/m_{η} for sea quarks #traj (thermalized)			
1.80	$12^3 \times 24$	1.60	0.2150(22)	2.580(26)	0.807(1) 6250	0.753(1) 5000	0.694(2) 7000	0.547(4) 5250
1.95	$16^3 \times 32$	1.53	0.1555(17)	2.489(27)	0.804(1) 7000	0.752(1) 7000	0.690(1) 7000	0.582(3) 5000



HEPnet-J/sc

HEPnet-J/sc is a Japanese domestic network for theoretical high energy physics. It utilizes SuperSI-NET 1Gbps private network connections operated by NII. Major LQCD sites in Japan are connected. HEPnet-J/sc started as a collection of NAS storages and a file mirroring system among them for Japanese Lattice QCD collaborations distributed over 6 sites. Storages connected to the HEPnet-J/sc amount to 60TB. The HEPnet-J/sc will be dissolved and absorbed into JLDG.