

Changes in the Review Process of Research Project of HOKUSAI system

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Revision History

- v1.0 issued on 4 Feb 2016
- v1.1 issued on 8 Feb 2016
 - Modify the number of cores of ACSL (sheet 7)

Overview

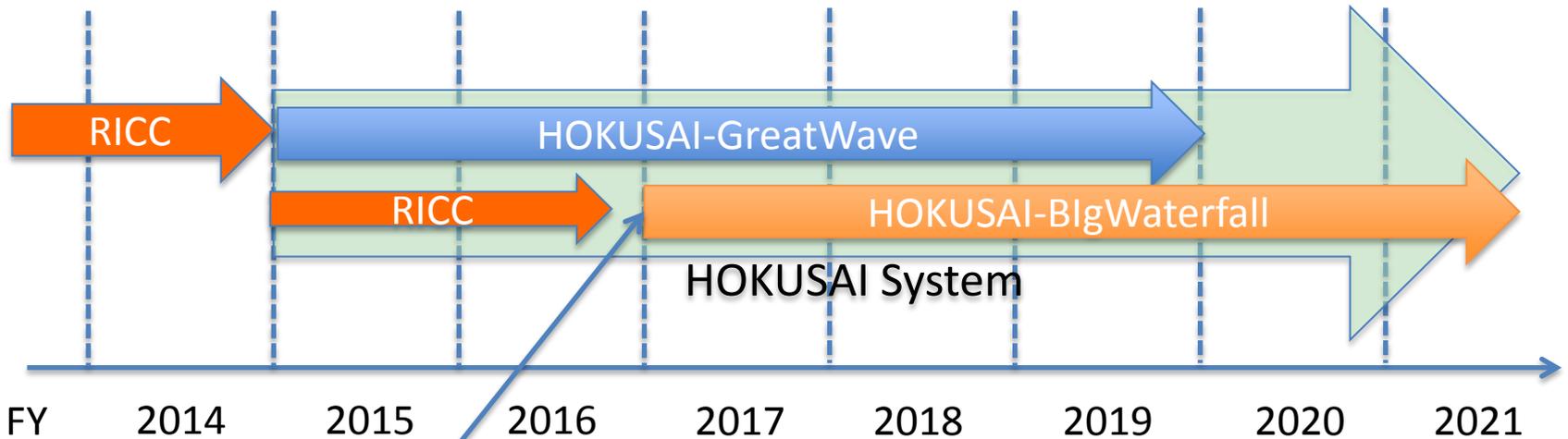
- We have operated HOKUSAI GreatWave system since 1st Apr 2015.
- We are sorry for the inconvenience of usage of HOKUSAI system, because of long-long waiting time in queued jobs.
 - Many users could not use more than half of allocated CPU core time.
 - We could not take timely measures against this situation.
 - ACCC changed the operating policy on 22 Jan. 2016 as a temporary measure.
- We inform users about changes of the method of allocation of the CPU core time (CPU resources).

Outline

- Overview of HOKUSAI system
 - Operation concept
 - Computing Resources in FY 2016
- Operation status in FY 2015
 - Summary of application projects
 - Utilization rate of CPU resources
- Changes in the review process of research project
 - New allocation policy for the CPU resources
 - Large-scale usage and middle-scale usage
 - Cutback of requested CPU resources and rejection of project
 - Changes in application forms

Operation concept of HOKUSAI system

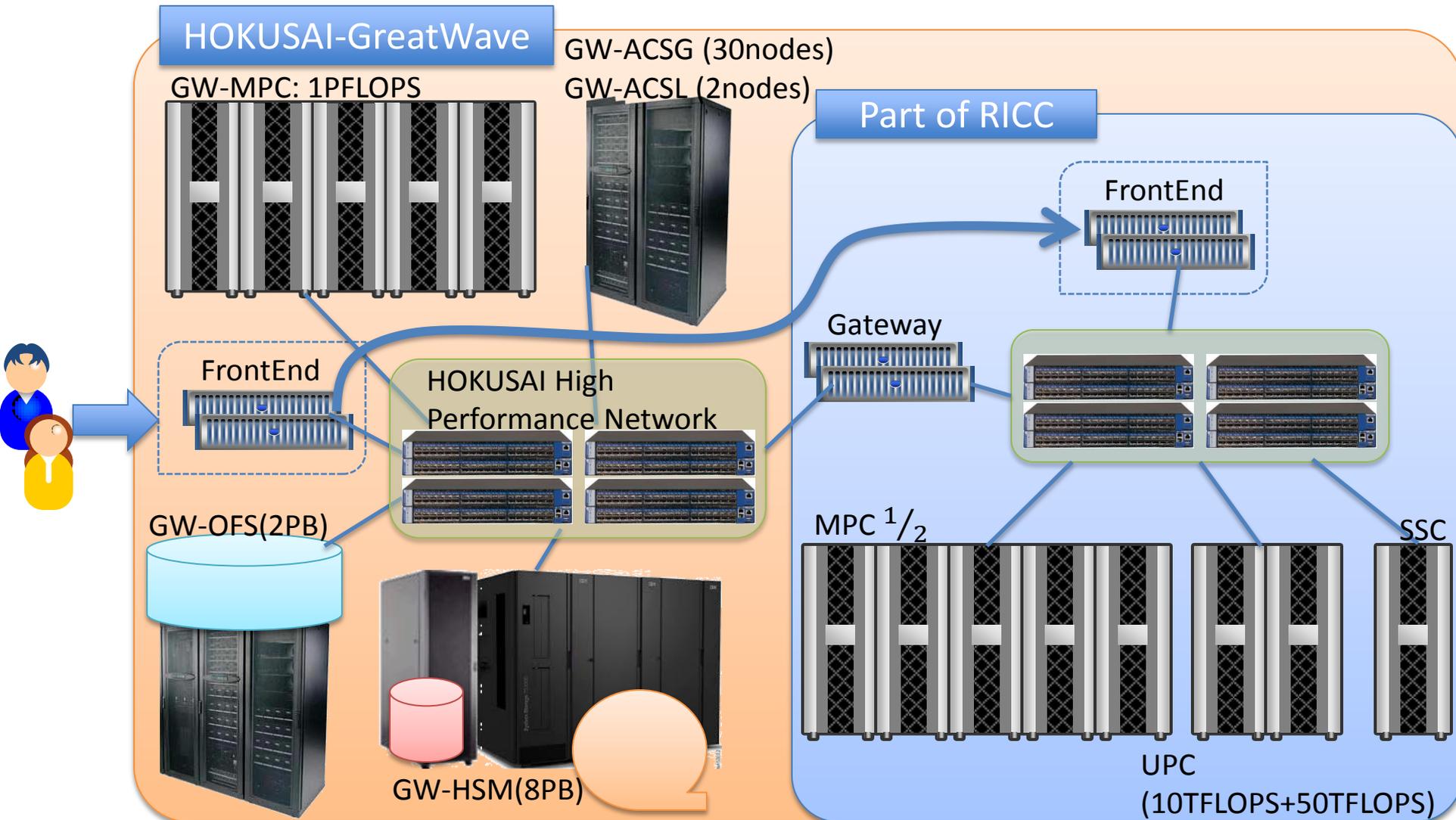
- We have operated HOKUSAI GreatWave (GW) system since 1st Apr 2015.
- HOKUSAI BigWaterfall (BW) system will be launched around the end of FY 2016.
 - HOKUSAI GW and BW systems will share the same storage system.
 - HOKUSAI BW system will be decided by Sep. 2016. We will inform you as soon as it is decided.
 - The most likely candidate is Intel Architecture (IA) system.



The installation date is not fixed yet.



Computing Resources in FY 2016



Computing Resources in FY 2016

1. Massively parallel supercomputer (GW-MPC)

- FX100 (Fujitsu)
- 1,080 nodes, 34,560cores (1.975GHz)

Own source code with high parallelization

2. ACS with GPU (GW-ACSG)

- Intel Xeon type server
- 30 nodes, 720cores (2.30GHz)
- GPU: 4GPU/node (NVIDIA Tesla K20X)

GPU

Large memory space

3. ACS with Large memory (GW-ACSL)

- Intel Xeon type server
- 2nodes, ~~120 60~~cores (2.50GHz)
- Memory: 1TB/node

ISV (e.g. Gaussian) or open source program

4. RICC system (RICC)

- Intel Xeon type server
- 586nodes, 4,688cores (2.93GHz)
- Operation will stop at the end of Dec 2016

Own source code with low parallelization

Data processing

revised on Feb 8

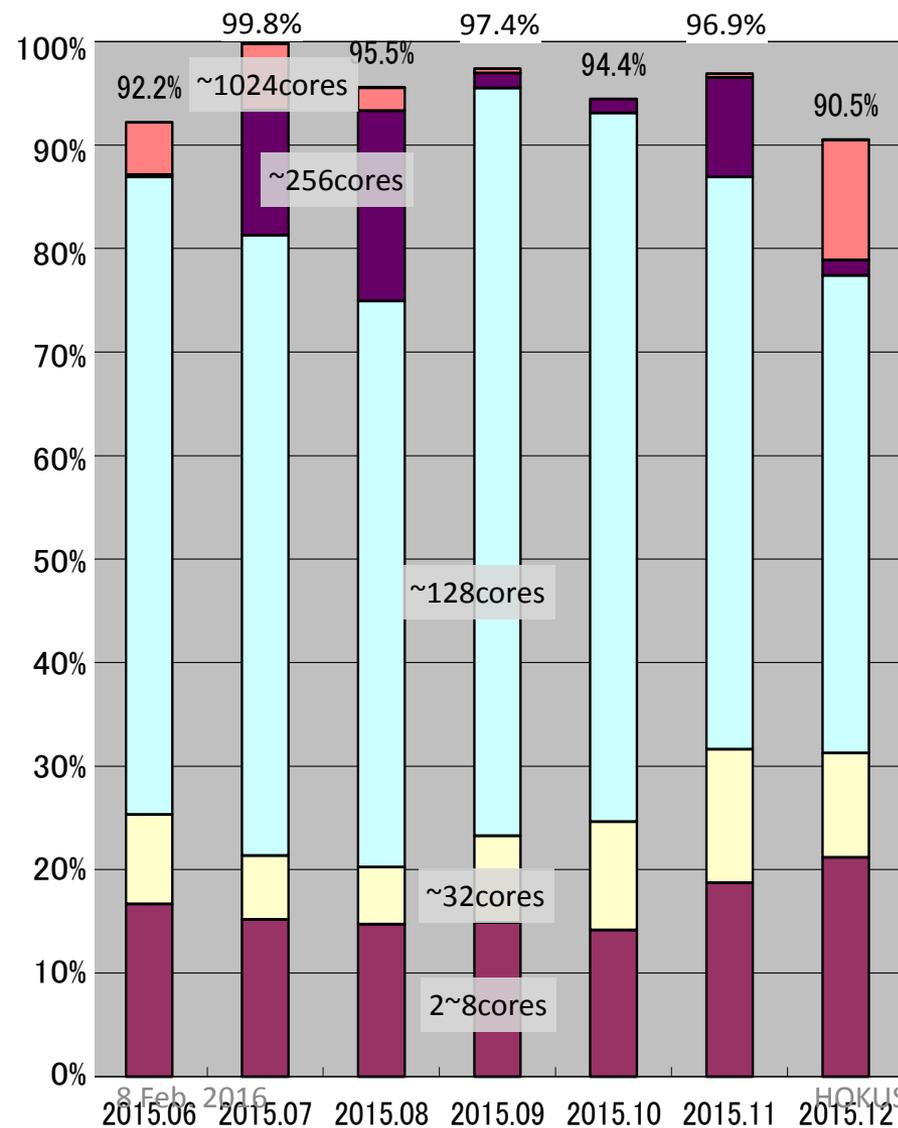


Summary of application projects for HOKUSAI system in FY2015

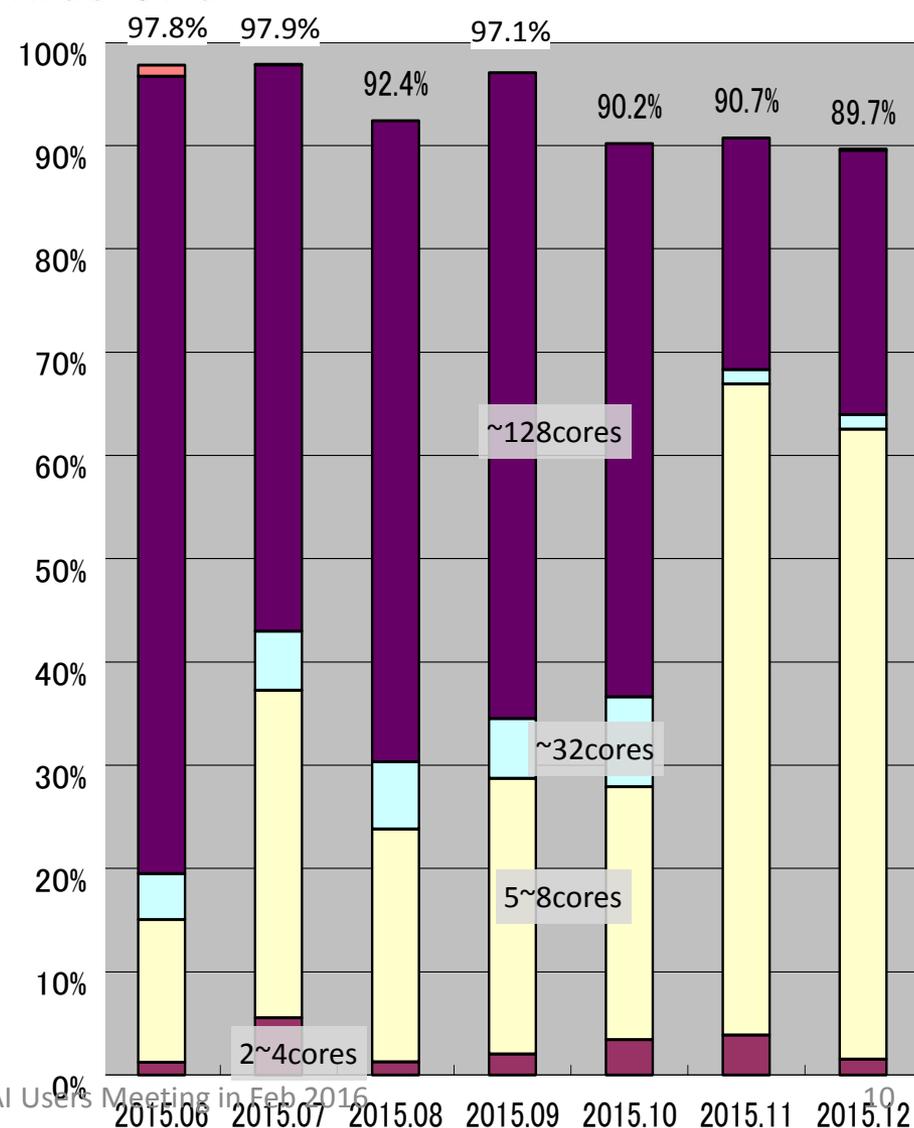
- General Use
 - 39 projects (until 1st Jan. 2016)
- Quick use
 - 113 projects (until 1st Jan. 2016)
- Requested CPU resources in 1st (May) applications
 - MPC:195%
 - ACS:102%
- Requested CPU resources in 1st (May) and 2nd (Sep.) applications
 - MPC:258%
 - ACS:136%

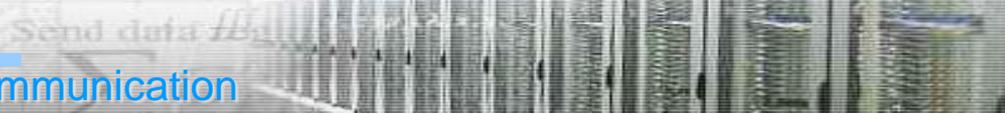
Utilization rates of CPU resources in RICC system

RICC-MPC



RICC-UPC



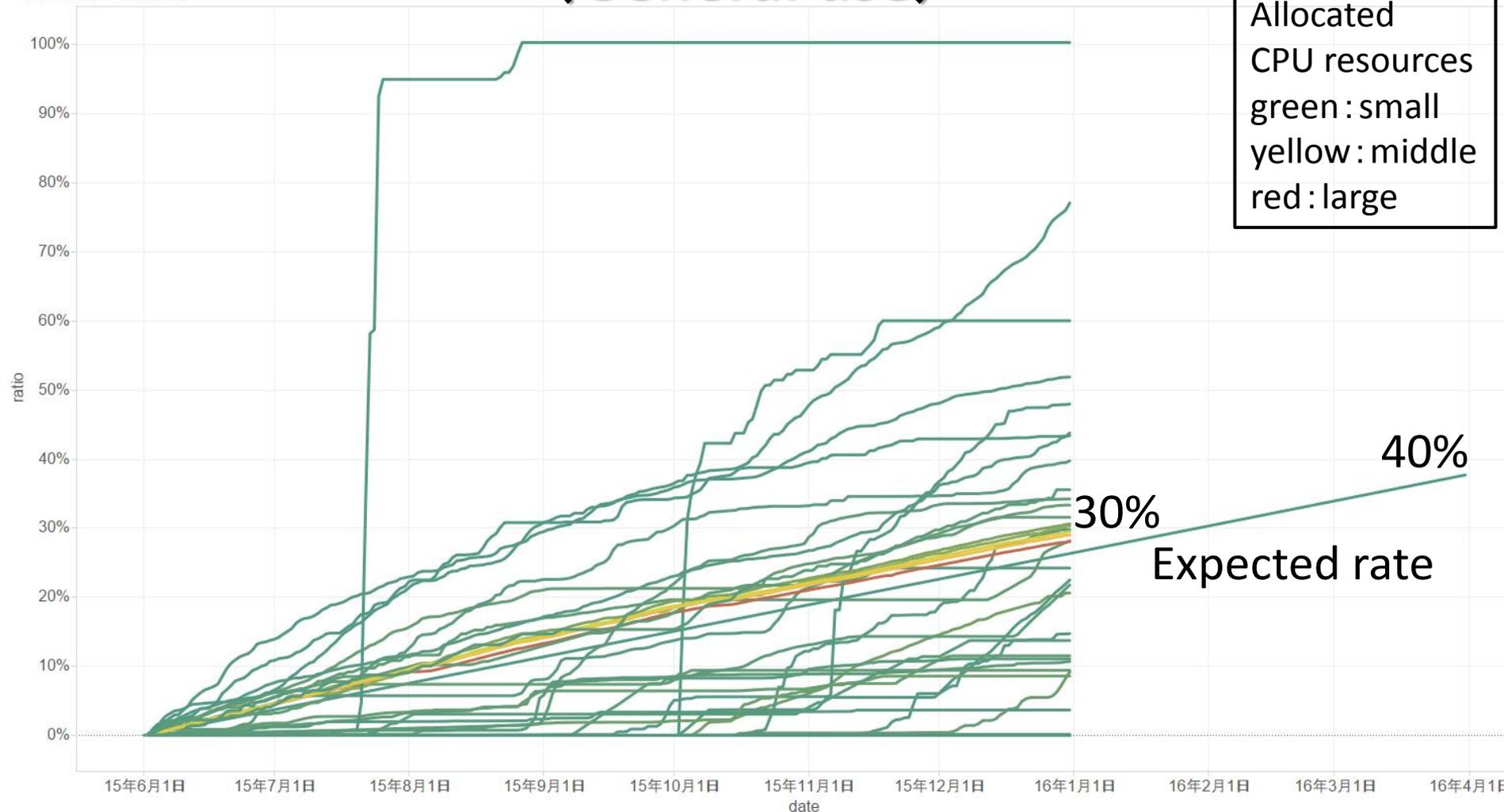


Utilization rates for each CPU resource

- The utilization rate of CPU resources have been high from the beginning of regular operation of HOKUSAI GW.
- MPC
 - Utilization rate is more than 90%.
 - More than 70% of CPU resources are used by large-scale jobs (use more than 512cores).
- ACSG
 - Utilization rate is around 80%.
 - 80-90% of CPU resources are used by within 1 node.
- ACSL
 - Utilization rate is around 70%.
 - Many jobs use only less than 10% of memory.
- RICC(-MPC&UPC)
 - Utilization rate is more than 90%.
 - More than 50% of CPU resources are used by mid-scale jobs (use 64-128cores)

Consumption rates of allocated CPU resources (General use)

一般消費割合(全期間) (2)

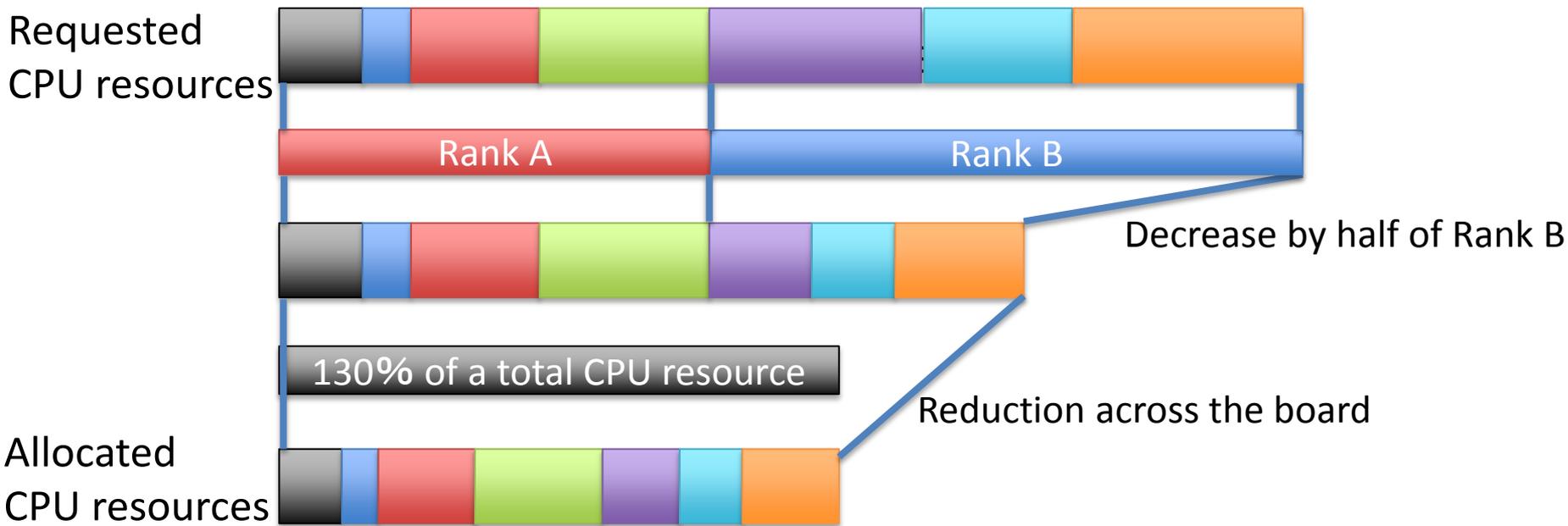


New allocation policy for the CPU resources

- Allocated CPU resources in FY2015 are reset at the end of FY2015.
- All allocated CPU resources of general use projects are limited to 130% of the total CPU resources on the system.
- The upper limit of CPU resources in 1 project is 20% of the total CPU resources.
 - The upper limit of CPU resources in 1 user is also 20% of the total CPU resources.



Conceptual scheme of cutback of CPU resources





Changes in review process (1/2)

- ACCC will classify the general use projects into large-scale projects (more than about 10% of a total CPU resources) and middle-scale projects.
 - Large-scale project is reviewed by all reviewers.
 - If necessary, review committee assigns an external reviewer who is specialist of the research area of the project.
 - (1)scientific aspect and (2)reasonableness of requested CPU resources are evaluated.
 - Middle-scale project is reviewed by 4 reviewers.
 - (1)scientific aspect is evaluated.

Changes in review process (2/2)

- Reduction of amount of CPU resources of applications.
 - Depending on the evaluation, projects are divided into A and B ranks.
 - Requested CPU resources of rank B projects are reduced by half.
 - If the total requested CPU resource are more then 130% of the total CPU resources.
 - All requested CPU resources is reduced across the board to about 130% of the total CPU resources.
- If the review committee decides to reject a project, the project is rejected and changed to quick use project.
 - Decision of reject is based on agreement of all reviewers.

Important: application documents and usage report

- **Application documents are very important for good evaluation in review process**
 - Most reviews are not experts of your research area; it is important to write the explanation, clearly and simply.
 - In the case of a large-scale project, you should clearly write the necessity of large CPU resources and significance of research.
 - Occasionally, application document is not conscientious, which may lead to rejection the project.
- **Usage report is essential for your next application of research project.**
 - Review result of your next application of research project is mostly based on your usage report in this year.

Schedule

- Application general use of HOKUSAI system in FY2016
 - The announce date: 8 Feb 2016.
 - The submission start date: **15 Feb 2016**.
 - The closing date: **25 Feb 2016**.
- Application quick use of HOKUSAI system in FY2016
 - The submission start date: **in the middle of March 2016**.
- Operation of HOKUSAI system of FY2016 will be started in the beginning of Apr.