

HOKUSAI Users Meeting in Oct 2016

Advance Center for Computing
and Communication, RIKEN

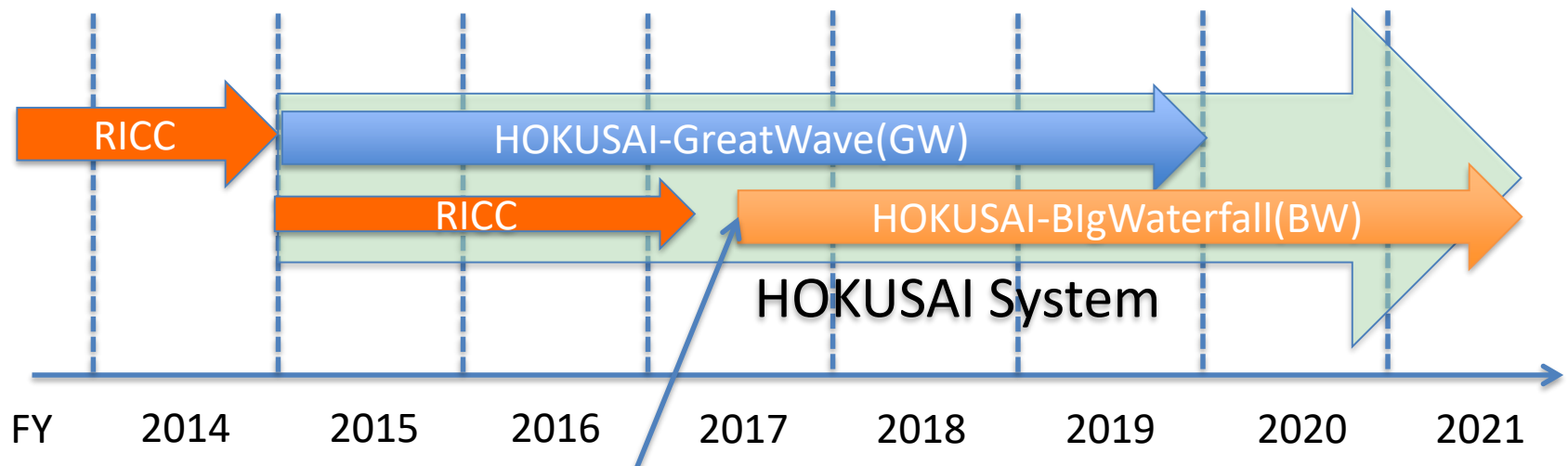
25 Oct. 2016

Outline

- Overview of HOKUSAI system
 - Operation concept
 - Computing resources in FY 2016 (Oct – Mar) and FY2017
- Operation plan of RICC system
 - Successive operation from Jan 2017 to June 2017
- Operation status in FY 2016 (Apr – Sep)
 - Summary of application projects
 - Utilization rate of CPU resources

Operation concept of HOKUSAI system

- We have operated HOKUSAI GreatWave (GW) system since 1st Apr 2015.
- HOKUSAI BigWaterfall (BW) system will be launched around Oct 2017.
 - HOKUSAI GW and BW systems will share the same storage system.
 - HOKUSAI BW system will be decided by Mar 2017. We will inform you as soon as possible
 - The system will be Intel Architecture (IA) compatible.

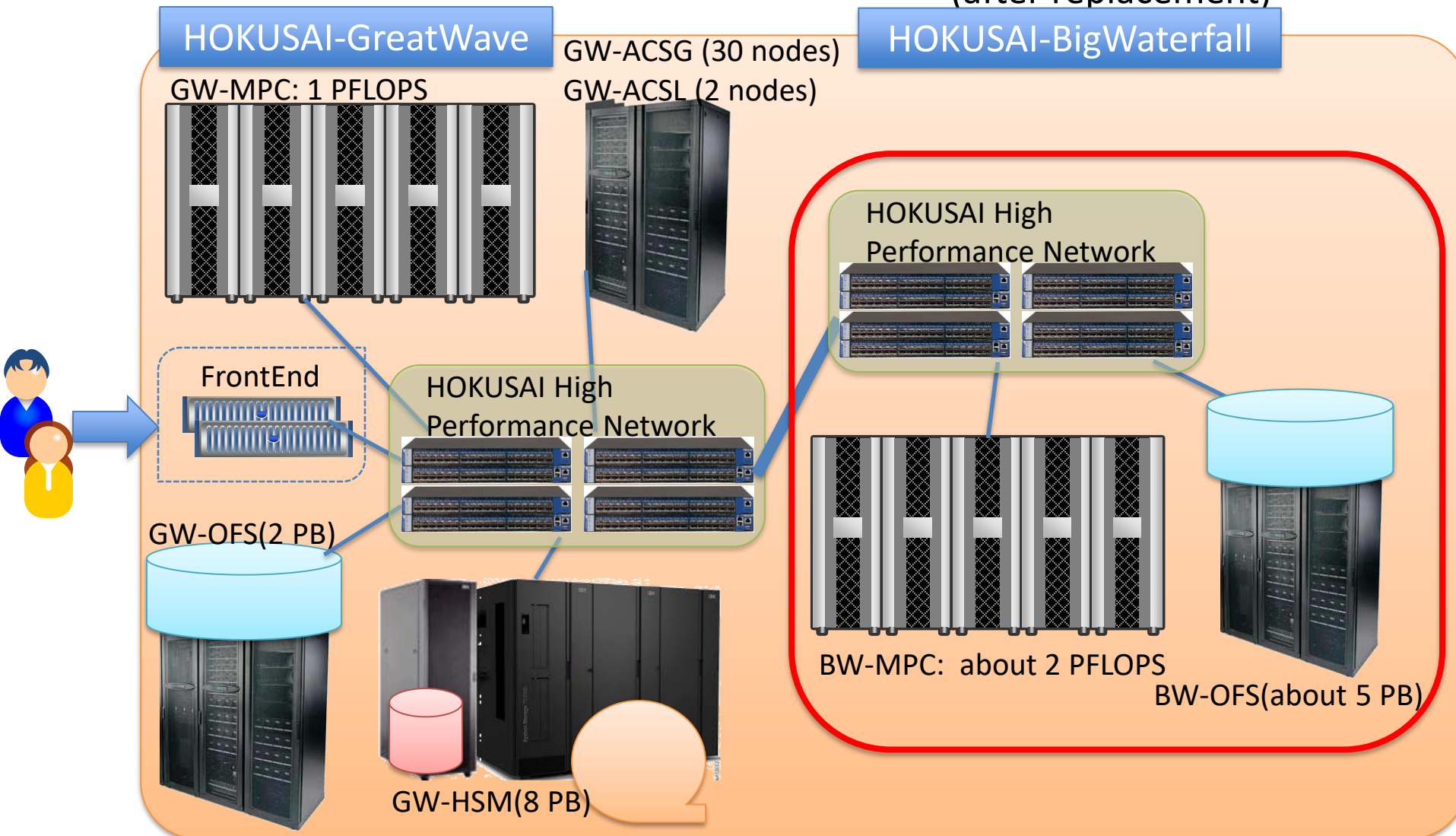


The operation will start around Oct 2017.

(before replacement)



Computing Resources in FY 2017 (after replacement)



Operation plan of RICC system

- Operation of RICC will be extended until June 2017
 - Period of successive operation: from Jan 2017 to June 2017
 - Additional review process for the half-year operation takes time and effort to users and reviews.
- Candidates for allocation plan of computing resources in the successive operation
 - A) Allocate same computing resources to every project
 - The upper limit of core time will set about 10% of RICC system.
 - Available core time is not guaranteed and difficult to estimate.
 - B) Allocate computing resources depending on the allocated computing resources of RICC system in FY2016(Apr – Dec)
 - The upper limit of core time will set 6/9 of FY2016(Apr – Dec).
 - If the upper limit of core time in FY2016 is less than 3% of RICC system, the upper limit of core time will set about 3%.
 - Including Quick Use project and new project in FY2017

OPERATION STATUS IN FY 2016 (APR – SEP)

Allocation policy for the CPU resources on HOKUSAI system

- Allocation policy has been changed since FY2016.
 - To improve the inconvenience of usage of HOKUSAI system in 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 (and 1 user) is 20% of the total CPU resources.
- Review process
 - General Use projects are classified 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 and may assign external reviewer.
 - Requested CPU resources of rank B projects are reduced by half if requested CPU resources of systems are more than 130%.

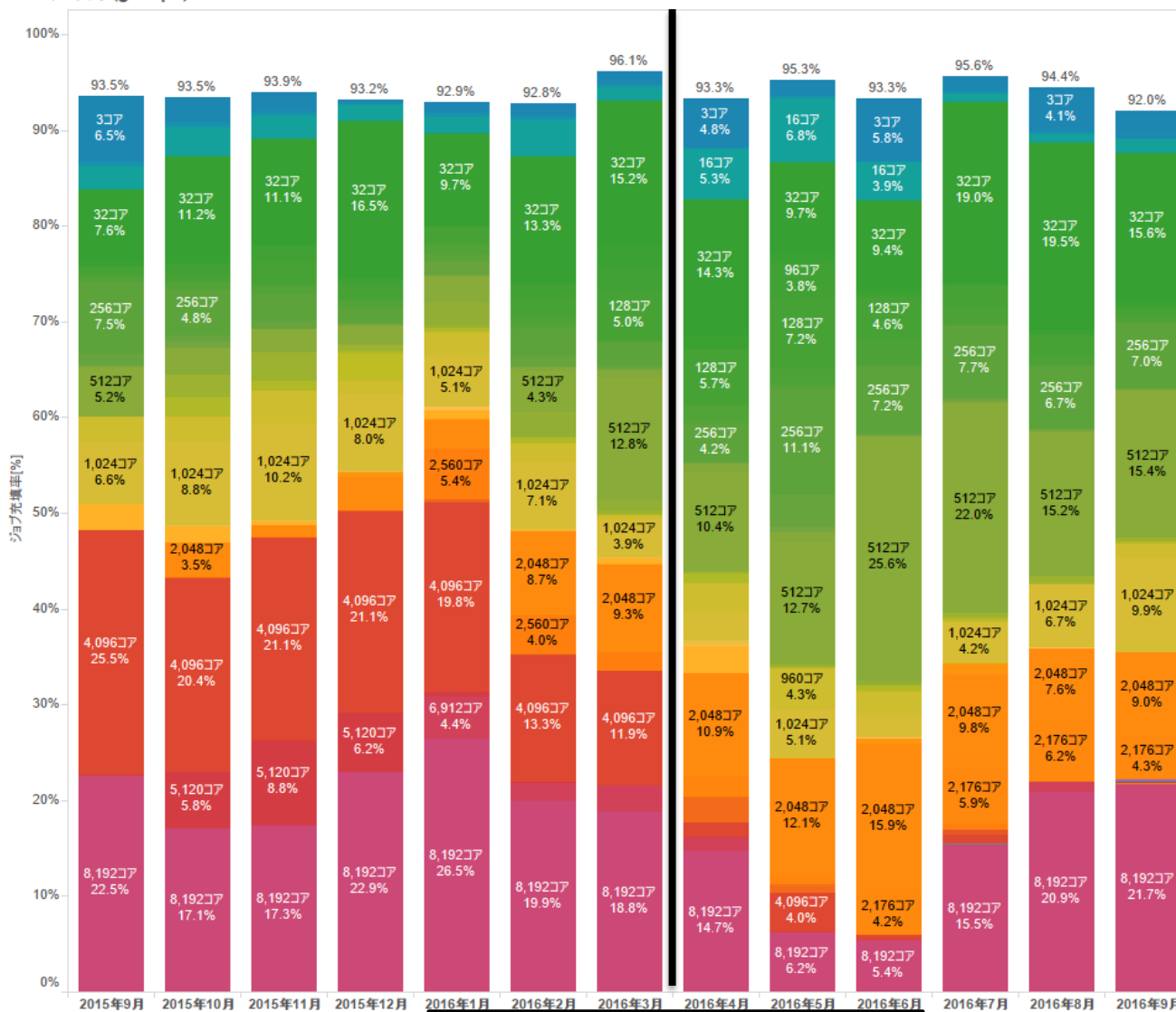
Summary of application projects for HOKUSAI system in FY2016

- General Use
 - Accepted 36 projects (until 1st Oct. 2016)
 - Large-scale projects: accepted 3 projects and rejected 2 projects
 - Middle-scale projects: accepted all 33 projects
 - After review process, requested CPU resources on every system are less than 130%.
 - Requested CPU resources of rank B projects are not reduced by half.
- Requested CPU resources in 1st (Mar) applications
 - GW-MPC: 129%
 - GW-ACSG: 109%, GW-ACSL: 111%
 - RICC: 111%
- Requested CPU resources in 1st (Mar) and 2nd (Sep.) applications
 - GW-MPC: 129%
 - ACSG: GW-130%, GW-ACGL: 119%
 - GW-RICC: 116%

Utilization rates of CPU resources on GW-MPC system

ジョブ充填率(gwmpc)

MPC



32 cores

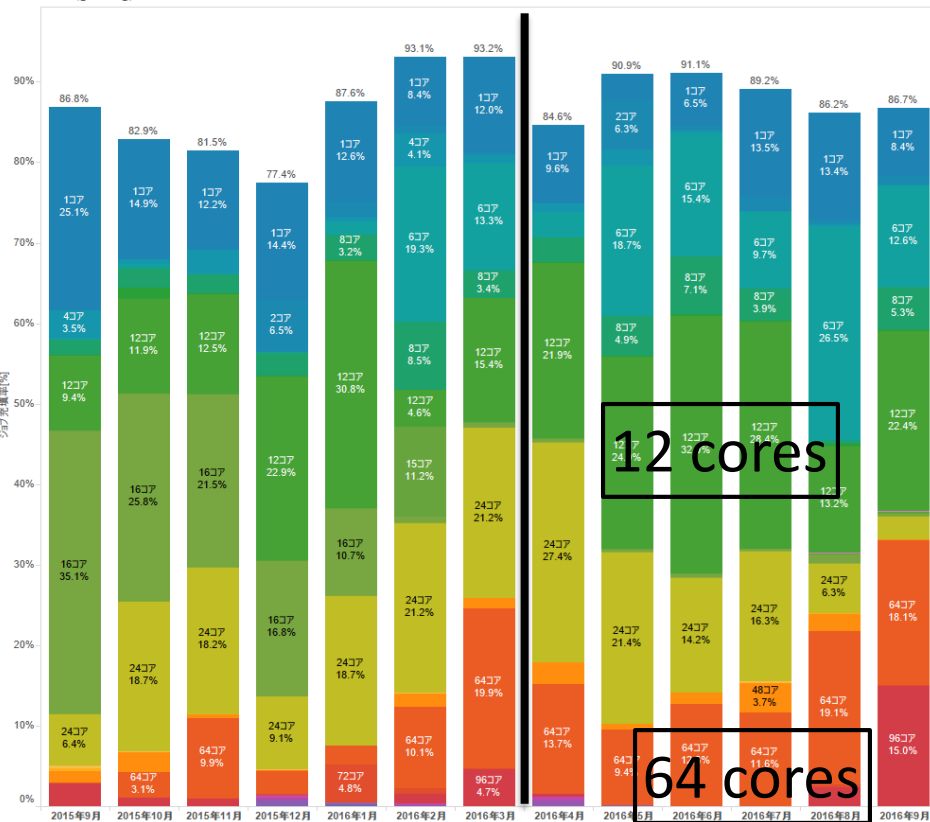
512 cores

8192 cores

Utilization rates of CPU resources on GW-ACSG/L system

ACSG

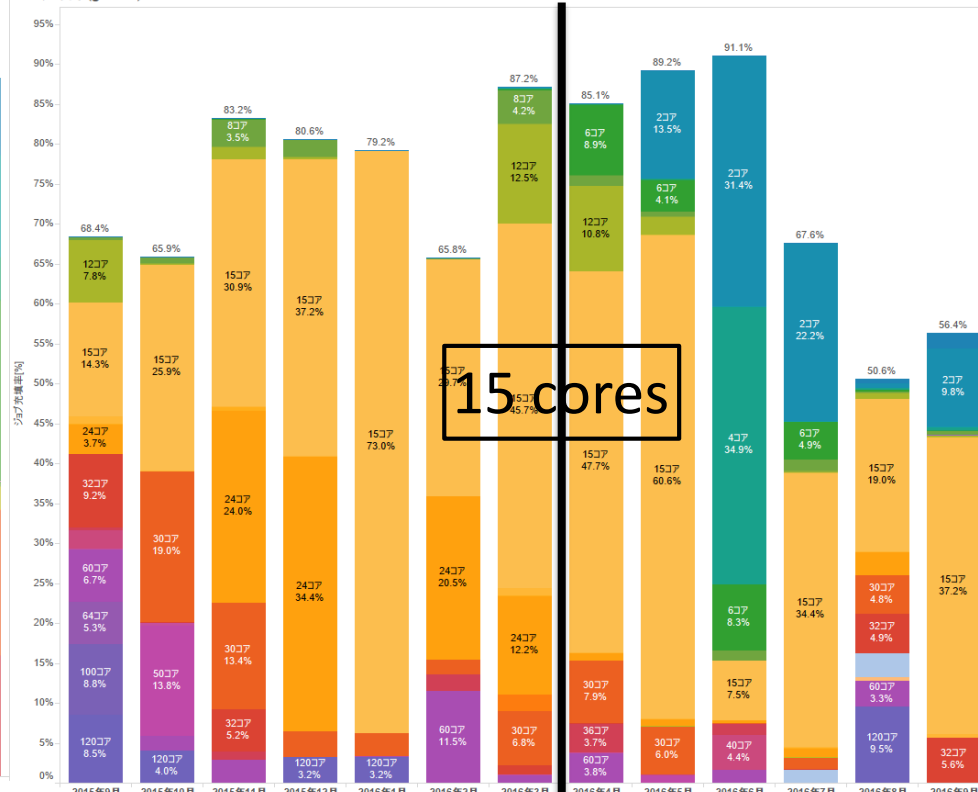
ジョブ充填率(gwacsg)



FY2015 ← | → FY2016

ACSL

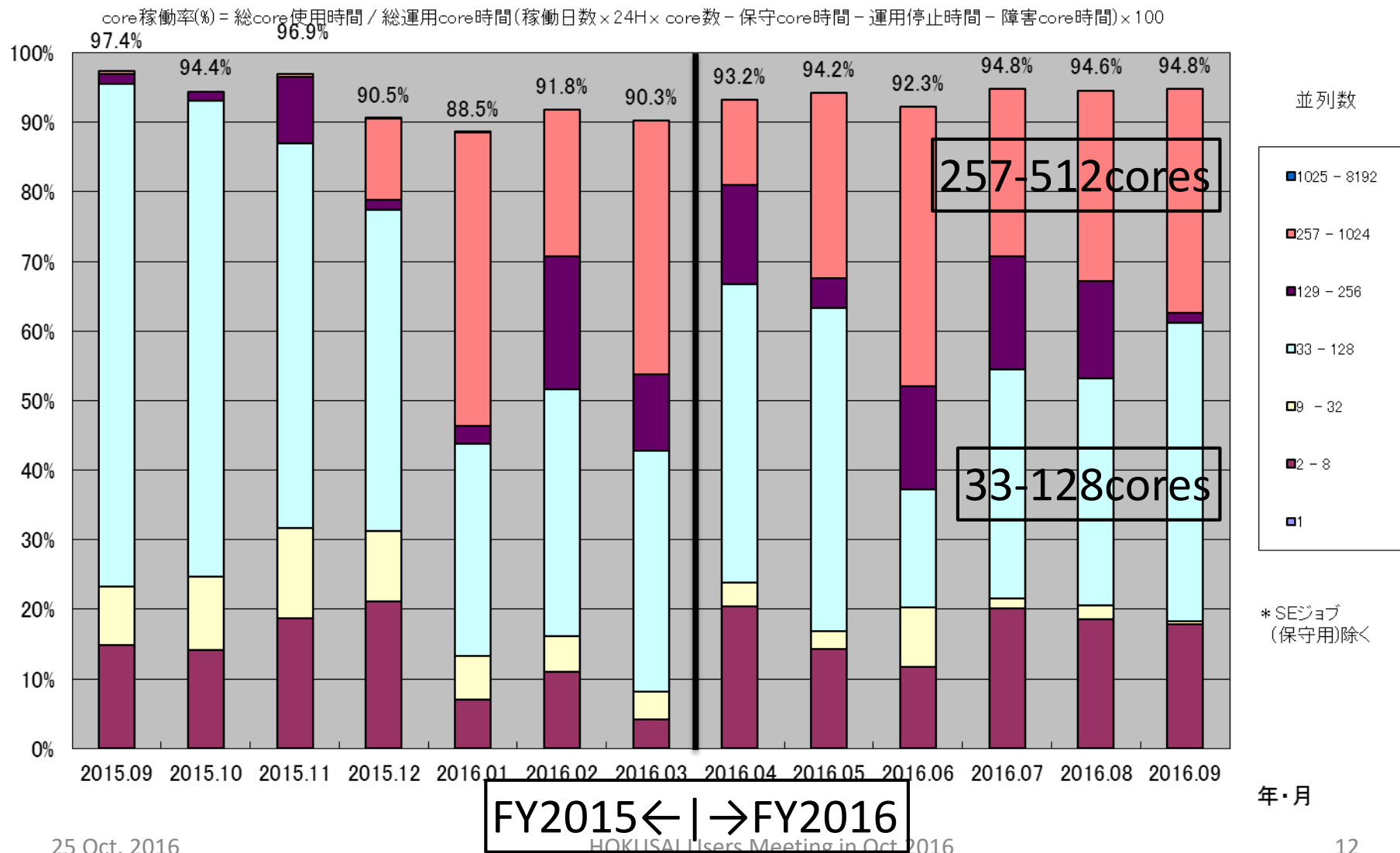
ジョブ充填率(gwacsl)



FY2015 ← | → FY2016

Utilization rates of CPU resources on RICC-MPC system

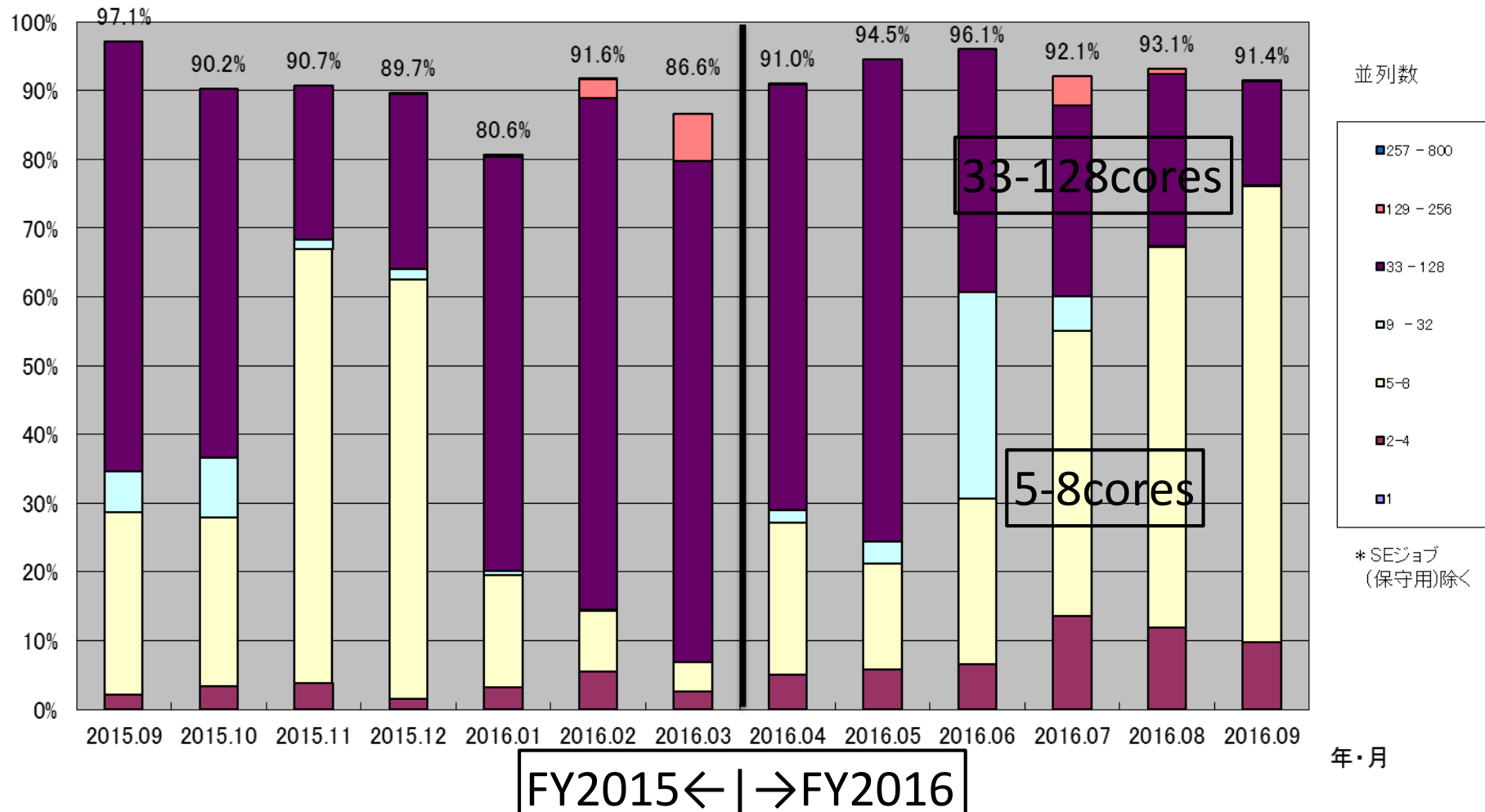
超並列PCクラスターcore稼働率



Utilization rates of CPU resources on RICC-UPC system

多目的PCクラスタ core稼働率

core稼働率(%) = 総core使用時間 / 総運用core時間 (稼働日数 × 24H × core数 - 保守core時間 - 運用停止時間 - 障害core時間) × 100

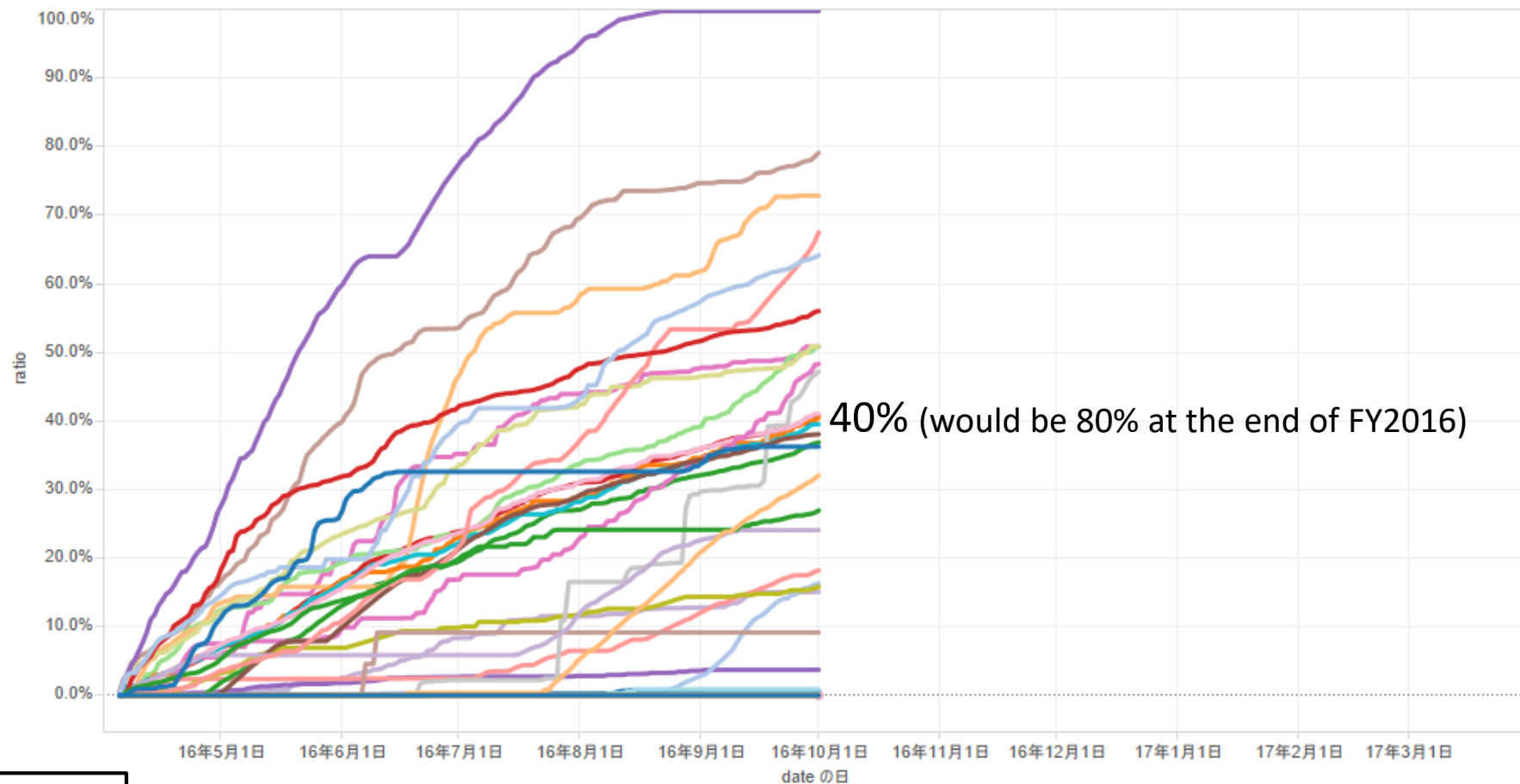


Utilization rates for each CPU resource

- The utilization rate of CPU resources have been high from the beginning of FY2016.
- MPC
 - Utilization rate is more than 90%.
 - More than 50% of CPU resources are used by large-scale jobs (use more than 512cores).
- ACSG
 - Utilization rate is around 85%.
 - 80-90% of CPU resources are used by within 1 node.
- ACSL
 - Utilization rate is around 50 - 90%.
 - 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 small- and mid-scale jobs (use 1-128cores)

Consumption rates of allocated CPU resources (GW-MPC, General Use)

一般消費割合(全期間)_gwmpc



FY2016

Summary and schedule

- Computing Resources in FY 2016 and FY2017
 - FY2016 and the former half of FY2017
 - HOKUSAI-GW system and RICC system
 - Operation of RICC system is until Jun 2017
 - Successive operation of RICC system (Jan 2017 – Jun 2017)
 - The latter half of FY2017
 - HOKUSAI-GW system and HOKUSAI-BW system
- User Event Schedule
 - The first quarter of 2017
 - Application for general use of HOKUSAI-GW system in FY2017
 - Around Apr of 2017
 - Next meeting about information of HOKUSAI-BW system