Introduction of HPCI shared storage that has achieved year-round non-stop operation

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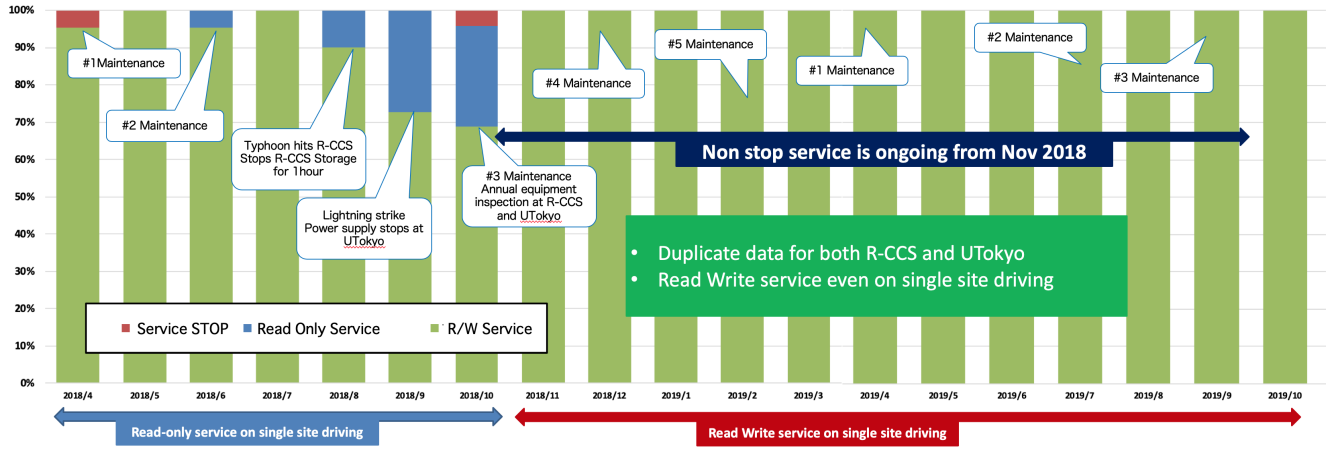

Figure 1: Service Availability 2018 to 2019.

ABSTRACT

HPCI shared storage is a distributed file system that uses Gfarm and can be accessed from major Japanese supercomputers. In fact, it has been used in about 100 research projects and has accumulated about 10 PB of research results. HPCI shared storage is distributed across the University of Tokyo Kashiwa Campus and RIKEN Center for Computational Science(R-CCS). In HPCI shared storage, since 2018, data multiplexing has been promoted, aiming for a highly available system. Data duplication was completed at the beginning of 2018, and one or more copies were placed at the University of Tokyo and RIKEN. With data multiplexing, even if the operation of one site is stopped, the operation can be continued by utilizing the other site. In fiscal 2018, power interruptions due to lightning strikes occurred, but the operation was continued. Operation can be continued even when system maintenance or Gfarm version upgrade is performed. From October 2018, the operation has been improved so that write access is possible even if it is operated at one site. Even in single-site operation, data protection during single-site operation was strengthened by placing two or more replicas at the University of Tokyo and RIKEN, for a total of four replicas. As a result, the system has been operated without interruption for one year. In this poster presentation, we will introduce the high-availability operation of the HPCI shared system, along with network traffic and incident analysis during data multiplexing.

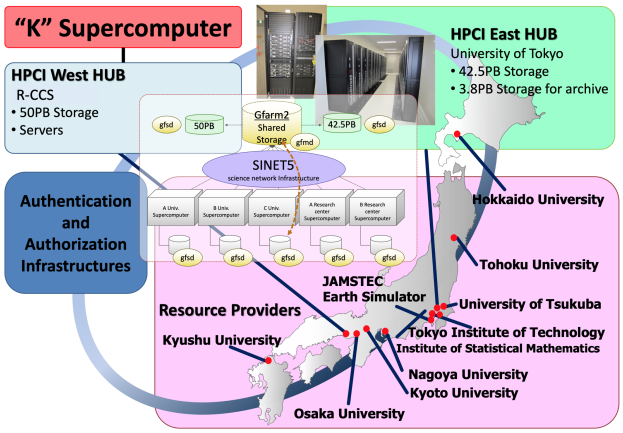

Figure 2: Overview of HPCI Shatred Storage