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

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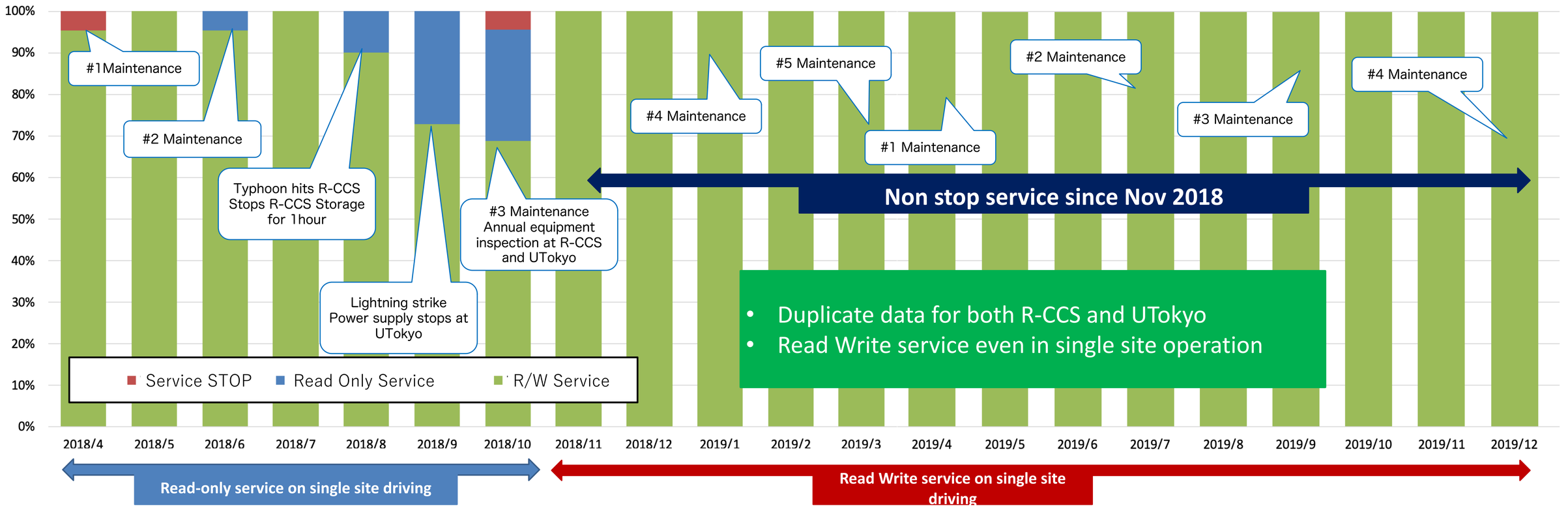
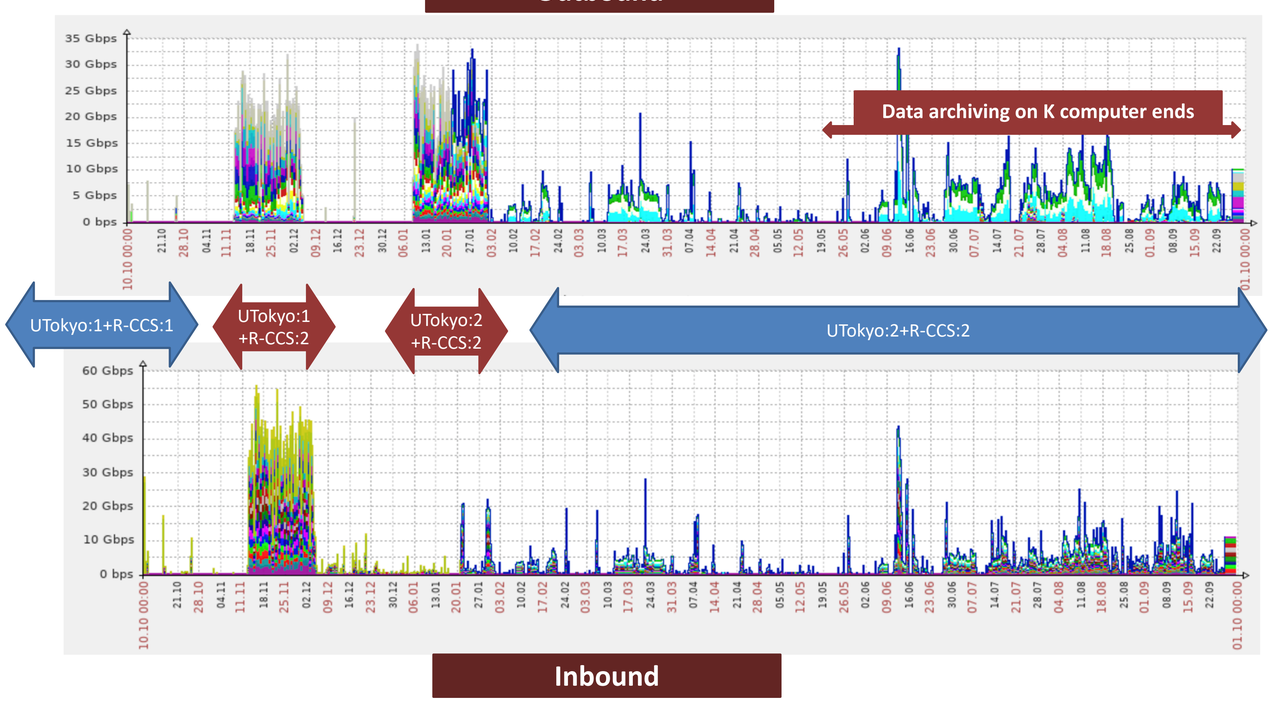
Service Availability of HPCI Shared Storage 2018 ～2019

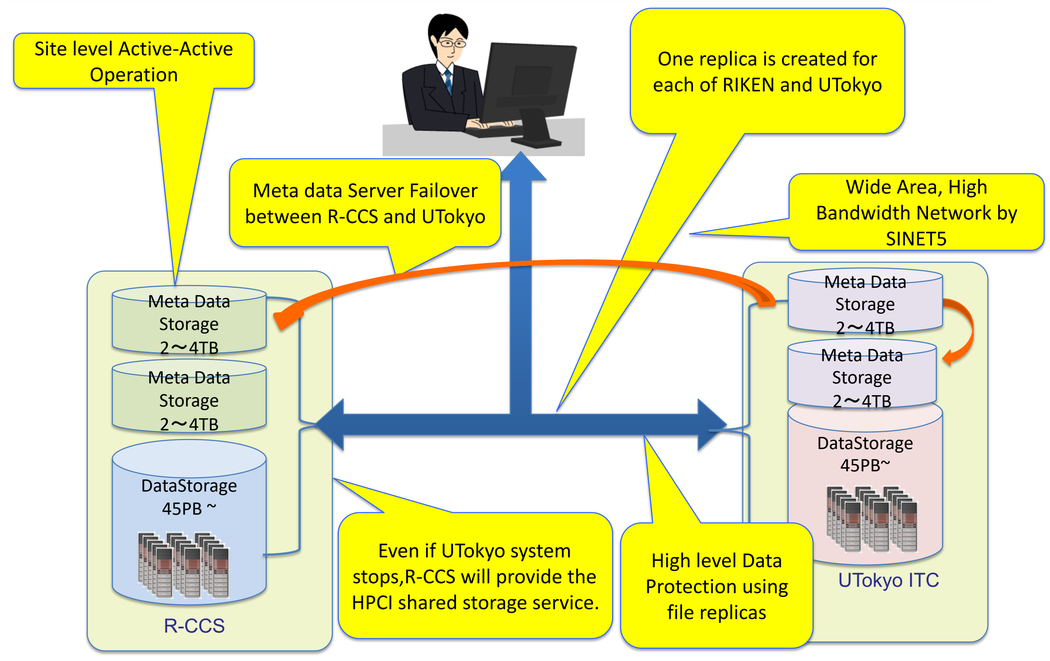


- Duplicate data for both R-CCS and UTokyo
- Read Write service even in single site operation

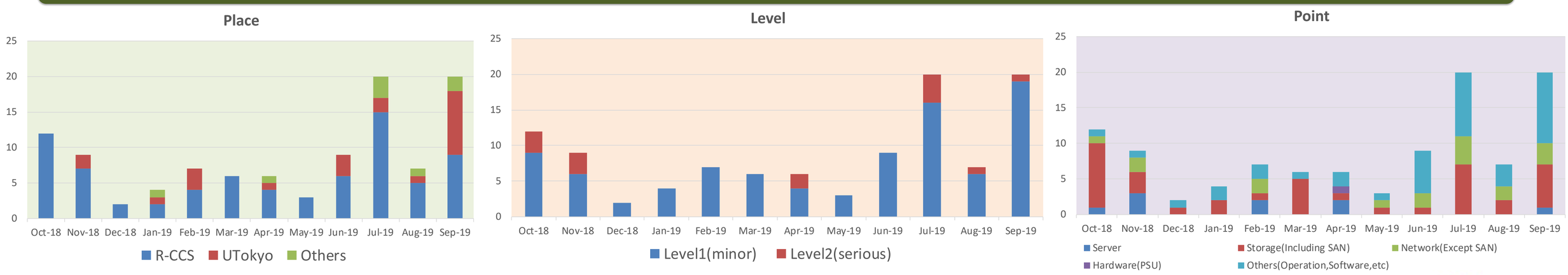
R-CCS network traffic on data multiplexing operation



HPCI shared storage system



Incident Analysis



HPCI shared storage Overview

- Provide 45PBytes single view file space for all the HPCI users.
- Available from all the HPCI super computer resources in Japan.
- HPCI single sign on authentication, if a user wants to transfer the computational results to the HPCI shared storage after the computational session, the user does not have to log in again to the HPCI shared storage.
- Automatic file replication, HPCI shared storage adopts 2 file replicas for each in default.
- File replicas improve access performance from distant clients, and fault tolerance.
- Support Secure network communication, data encryption method such as “gsi” can be specified.
- Support Data Integrity by calculating digest like md5 when accessing files automatically.
- The file digest is calculated at a storage node before writing to a storage, and managed in file system metadata.
- The file digest is also calculated when reading entire data of file.
- The read system call returns input/output error when the digest mismatches.
- The digest is calculated when accessing files sequentially to reduce additional overhead for calculation digest.
- For files which is created by random access write, the digest is calculated when creating replicas.
- The file digest check is also performed when creating a file replicas.
- The data corruption can be detected by comparing metadata digest with file data digest.
- To cope with data corruption during the network transfer from a client, the digest calculation is also supported by client side to ensure end-to-end data integrity.
- Minimum additional overhead and enough data integrity support.