Dynamic Storage Resource Management Framework for the Grid

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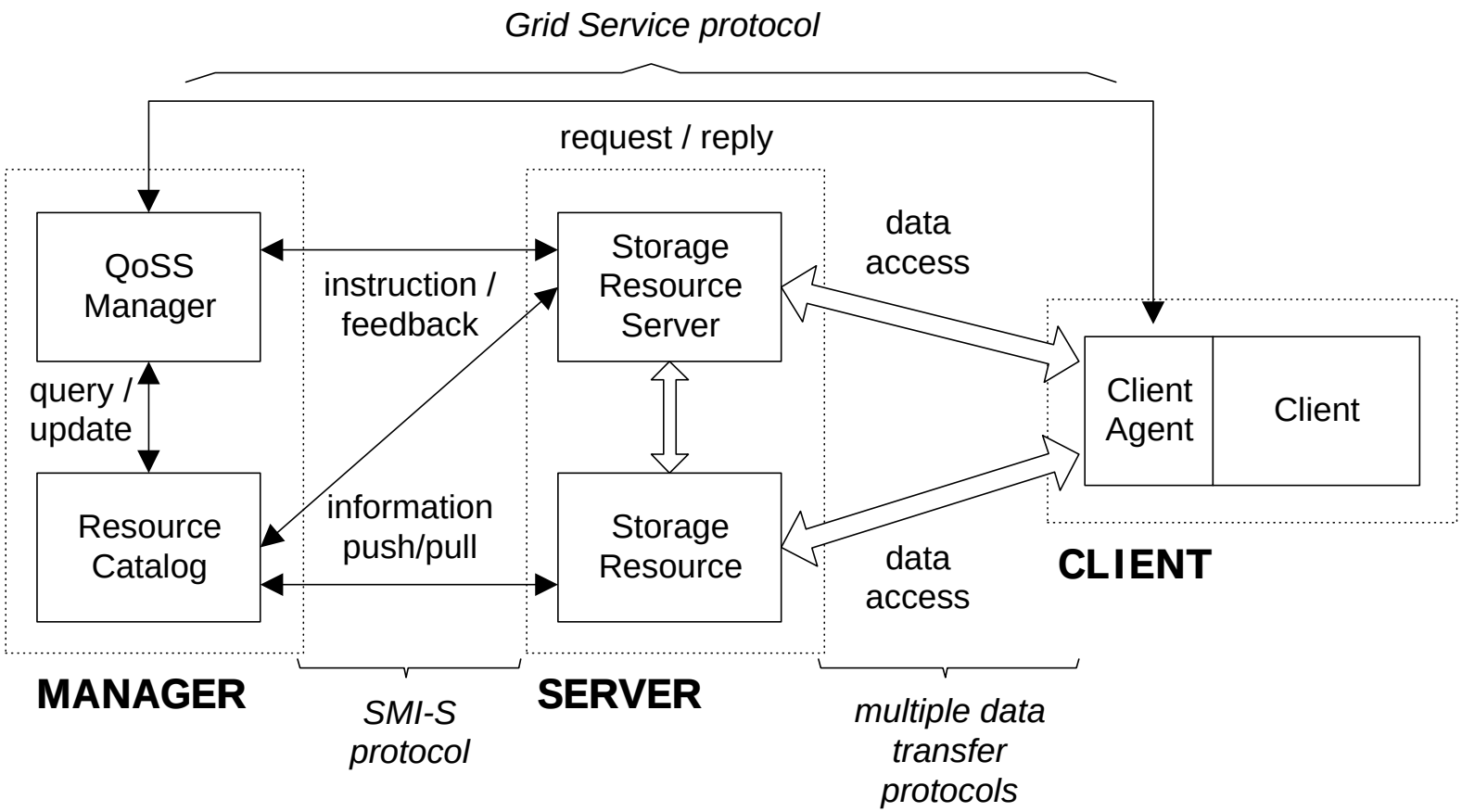
Motivation

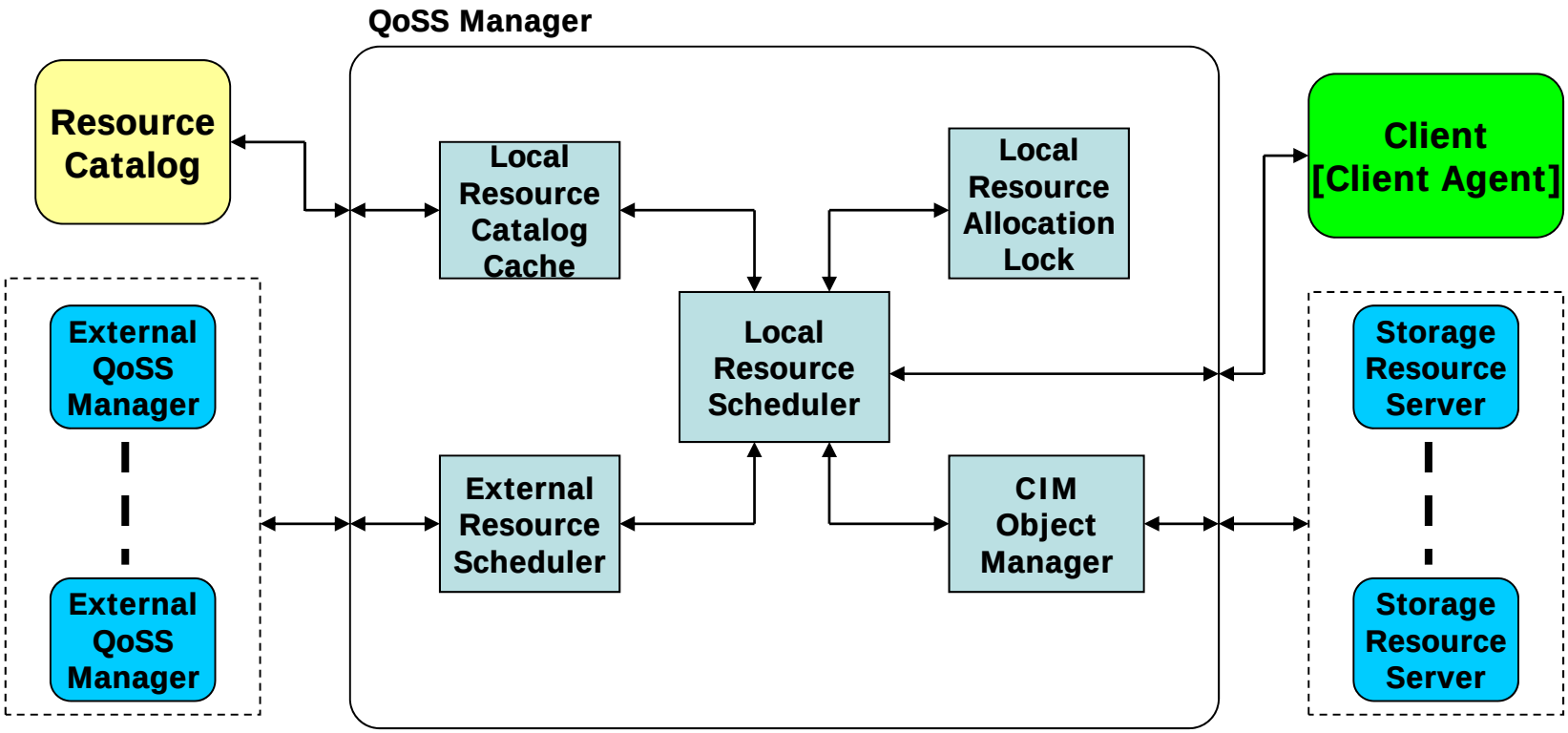
- To enable distributed system and applications to benefit from the intelligent and flexible properties of storage subsystem:
  - Provide for optimum storage resource allocation and on-demand storage with QoS metrics.
  - Leverage on SNIA's SMI-S standard and Web based Grid service architecture in developing the mechanism and framework to monitor, control and efficiently providing on demand storage resource.

General Framework



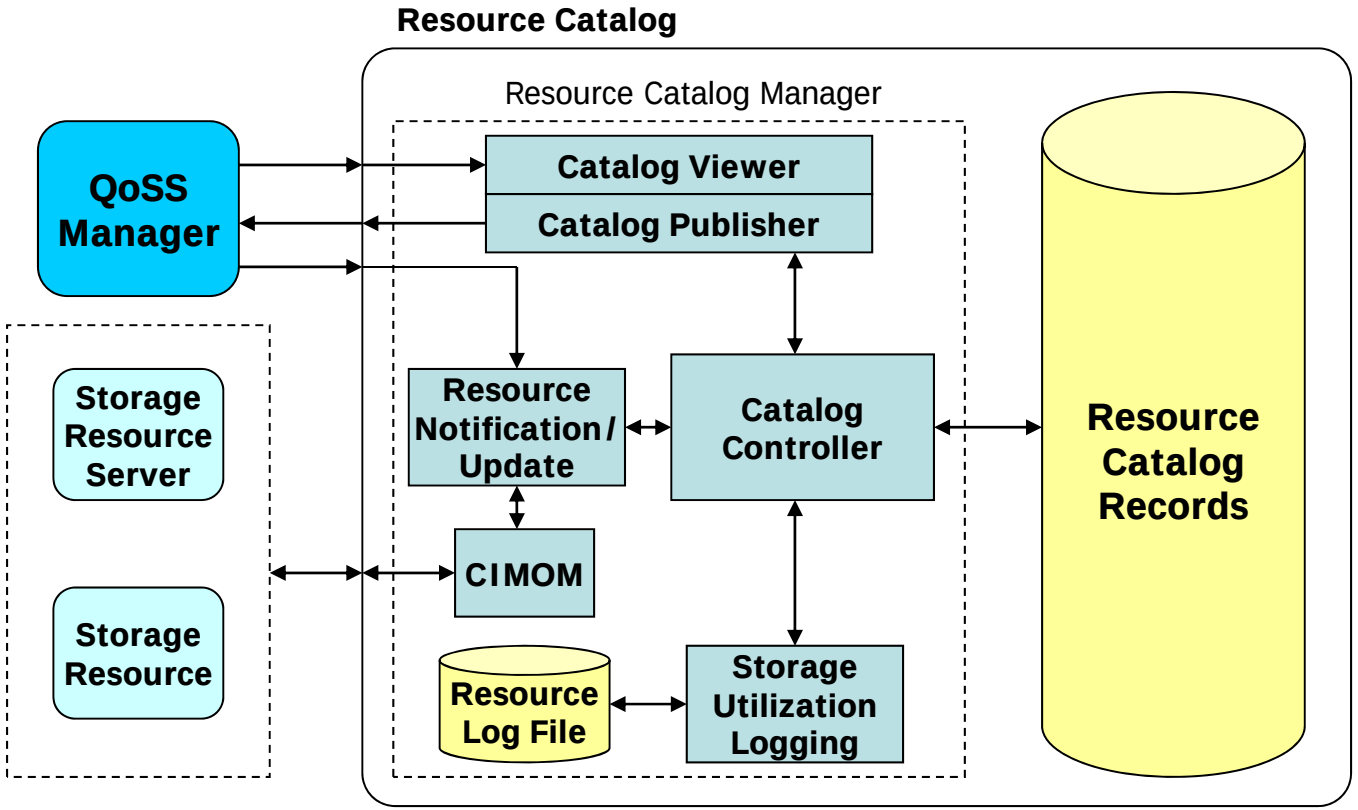
Quality of Storage Service (QoSS) Manager

- Main controller of its own respective domain
- Resources allocation / negotiation
- Load balancing mechanism
- P2P relationship with other QoSS Manager



Resource Catalog

- Registers all the storage resources in the domain
- Query and updated by the QoSS Manager
- Updated by the SRS for resource related issue
- Storage Resource health monitoring
- Storage Utilization Logging



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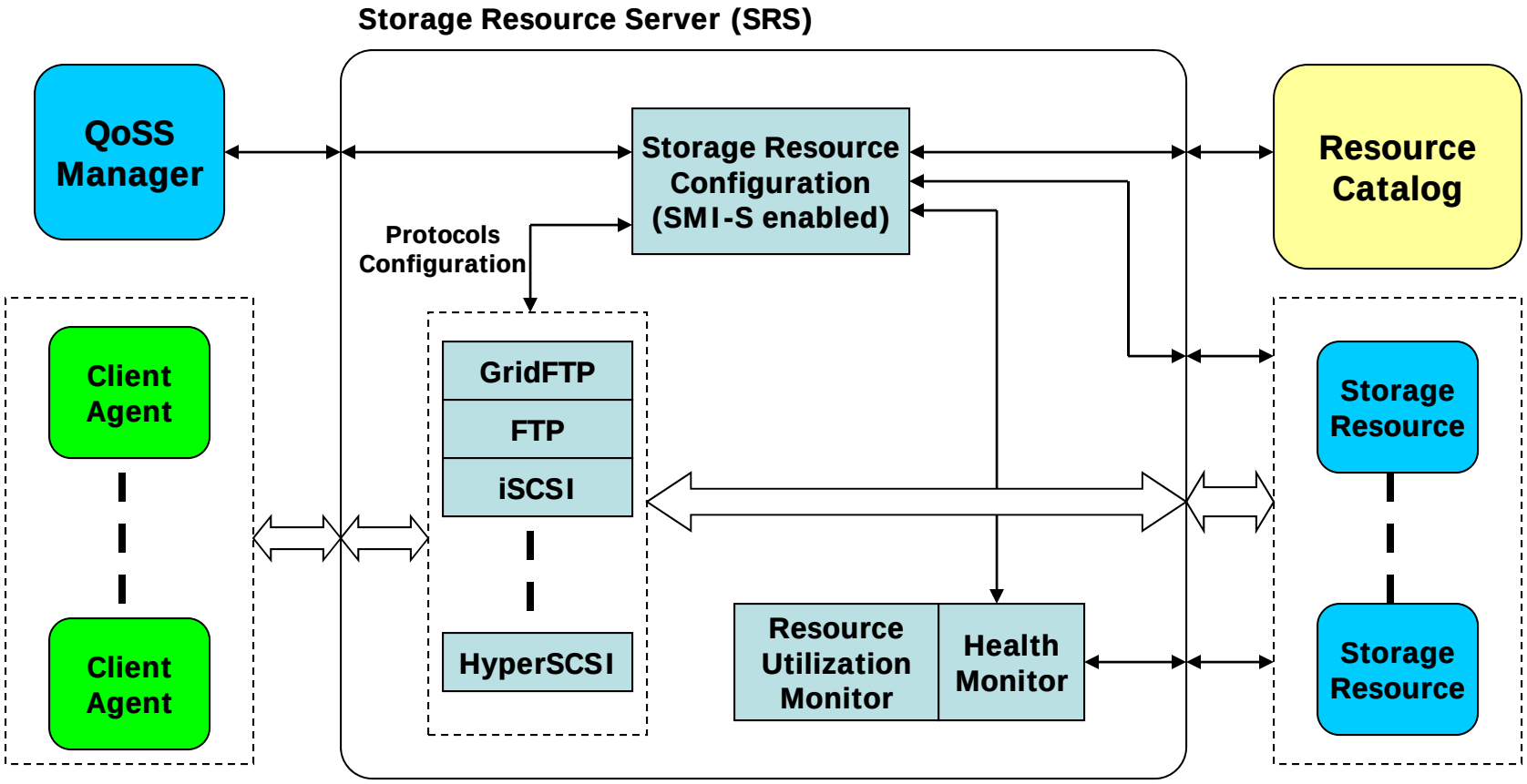
Storage Resource Server (SRS)

- Provide storage resources through virtualization
- Provide an uniform storage resource management interface through SMI-S
- Support multiple data transfer protocol such as GridFTP or iSCSI



Storage Resource

- Different type of resources such as disk or tape
- Different redundancy such as RAID 0, RAID 1 or RAID 5
- Different performance or cost of resources such as FC, SATA or SCSI disks

Client Agent

- Request / negotiate with QoSS Manager for resources
- Communicate with the QoSS Manager
- Direct data access with Storage Resource Server or Storage Resource
- Performance (QoS) monitoring

Thank you !

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