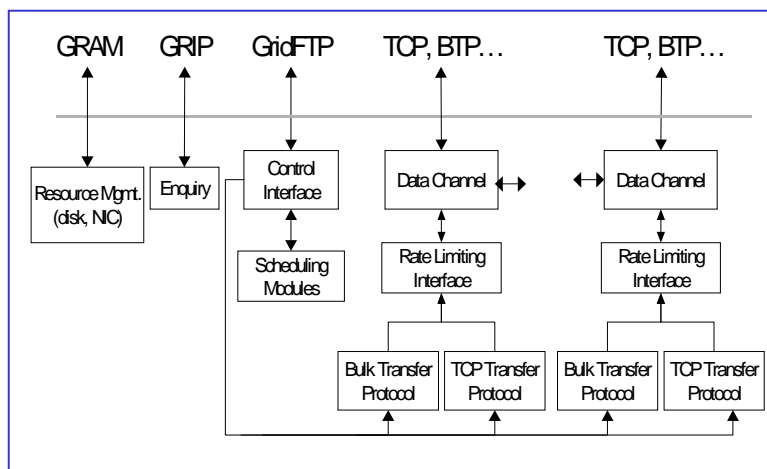




SciDAC DataGrid Middleware

National Collaboratories Program



The Novel Ideas

- Develop new protocols taking advantage of unique properties of data grids
- Develop innovative techniques for co-reservation of compute, network, and storage resources with guarantees for each stage.
- Develop market brokering services to make efficient decisions in the face of constraints, when multiple resources are available to fulfill a request.
- Investigate variants of two-phase I/O strategies used in parallel I/O systems for data transfer optimization
- Develop intelligent, adaptive recovery and performance strategies based on knowledge of end to end routes and guarantees.

Impact and Connections

- IMPACT.
 - Wide spread acceptance of the protocols and services developed will insure interoperability of data grids.
 - High quality APIs and SDKs implementing these protocols will be provided to allow easier access to data grid tech.
 - Efficient, distributed replica management will improve data access efficiency
- CONNECTIONS:
 - To be used by numerous SciDAC collaboratories, including DOE Science Grid, Particle Physics Data Grid, Earth Systems Grid, and Fusion Collaboratory. Uses Security Middleware components
 - Also to be used by many non-DOE projects worldwide, including NSF PACI DTF, NASA IPG, and EU DataGrid

Milestones/Dates/Status

	Mon Yr	DONE
• Deliver GridFTP clients and servers (non-striped)	10/01	
• Deliver Replica Management Service	04/02	
• Replica Management Service used in real data grid	08/02	
• Distributed Replica Catalog	01/03	
• Deliver Extended Resources Mgr & Info Svc.	06/03	
• New data channel technologies demonstrated: Non-TCP, dynamic rate limiting, FEC, etc.	10/03	
• Replica Management Svc used w/ SRM for reliable, high performance, scheduled transfer	05/04	
• Demonstrate alternative data mgmt approaches	10/05	
• Deliver Adv. DataGrid Mgmt systems w/ common SRM services	10/06	

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