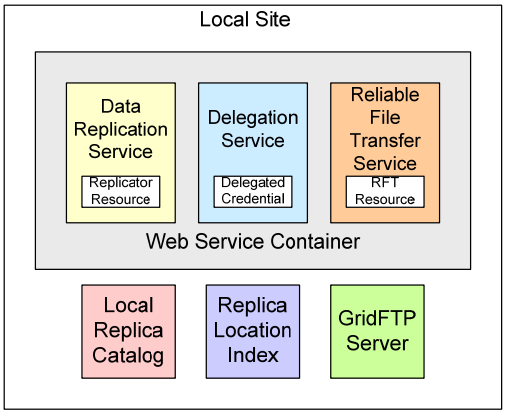
The Globus Data Replication Service

The function of the Globus Data Replication Service (DRS) is to replicate a specified set of files onto a local storage system and register the new files in appropriate catalogs. DRS builds on lower-level Grid data services, including the Globus Reliable File Transfer (RFT) service and Replica Location Service (RLS). The function of the Data Replication Service (DRS) is to ensure that a specified set of files exist on a storage site. The operations of the DRS include discovery, identifying where desired data files exist on the Grid by querying the Replica Location Service; transfer, copying the desired data files to the local storage system efficiently using the Reliable File Transfer Service; and registration, adding location mappings to the RLS so that other sites may discover newly-created replicas. Throughout DRS replication operations, the service maintains state about each file, including which operations on the file have succeeded or failed.

The DRS is implemented as a Web service that complies with the Web Services Resource Framework (WS-RF) specifications and is available in the Globus Toolkit Version 4.0.2 release.

DRS is typically deployed along with other services that it uses in its operation, These include Globus Web Services (the Delegation Service and the Reliable File Transfer Service) and pre-Web services components (the Replica Location Service and GridFTP services).



The DRS client uses DRS interface to specify which files are required at local site. Then DRS uses the following services:

- Delegation Service to delegate proxy credentials
- Globus RLS to discover whether replicas exist locally and where they exist in the Grid
- Selection algorithm to choose among available source replicas
- Globus Reliable File Transfer service to copy data to local site
  - This uses GridFTP data transport protocol
- Globus RLS to register new replicas

For more information:

Data Replication Service Documentation:
http://www.globus.org/toolkit/docs/4.0/techpreview/datarep/

“Wide Area Data Replication for Scientific Collaborations”, A. Chervenak, R. Schuler, C. Kesselman, S. Koranda, B. Moe, in Proceedings of 6th IEEE/ACM Int'l Workshop on Grid Computing (Grid2005), November 2005.

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