

# A Federated Grid Environment with Replication Services

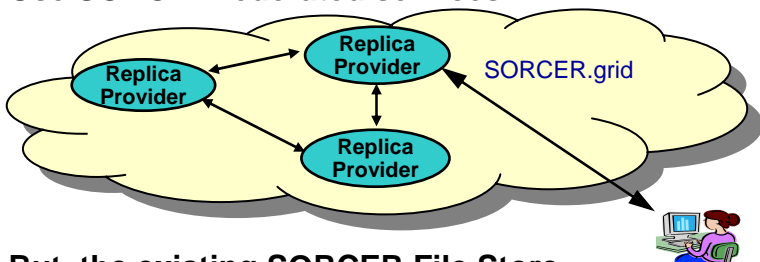
Vivek Khurana

## TASK DESCRIPTION

### The existing distributed BLAST systems

- Are difficult to Install and use for a naïve user
- Are not flexible enough to be adapted to custom requirements without significant amount of programming work
- Are not reliable because of a single point of failure
- Do not scalable well

### Use SORCER federated services



### But the existing SORCER File Store

- Does not replicate files among federating services
- If one File Store service crashes all it's files are not available to participating services

## OBJECTIVE/APPROACH

### Objective:

- Architect federated BLAST as a service-oriented system (S-BLAST)
- Replicate file storage on multiple nodes in the S-BLAST grid
- Provide an update feature to synchronize all Replica Providers
- Provide secure access to files requested by grid services
- Analyze performance of S-BLAST and MPI-BLAST

### Approach:

- Develop S-BLAST architecture
- Analyze and derive different options available for grid file storage, file replication and distributed file access
- Develop a generic Replica Provider
- Develop a Service UI for Replica Provider
- Develop a synchronized federation of Replica Providers
- Develop experimental use-cases for comparison of S-BLAST and MPI-BLAST

## SCHEDULE

Proposal Presentation	09/07/2004
Design	09/12/2004
Develop Replica Provider	09/28/2004
Develop synchronization functionality	10/07/2004
Develop Replica Provider Service UI	10/14/2004
Thesis Document	10/21/2004
Thesis Defense	11/01/2004

## BENEFITS

- High-performance
- Overhead-free scalability
- Ease-of-use of grid resources
- Reliable file replication on multiple nodes of federated file system
- Reliable access to up-to-date files anywhere, anytime
- Zero-install, friendly UI to manage Replica Providers
- Seamless implementation of heterogeneous file systems
- Secure access to S-BLAST services
- Easy replication of BLAST databases