FTS architecture, status and plans

Paolo Tedesco (paolo.tedesco@cern.ch)

JRA1 All-Hands Meeting

25 October 2007

www.eu-egee.org

Information Society and Media

What is FTS?

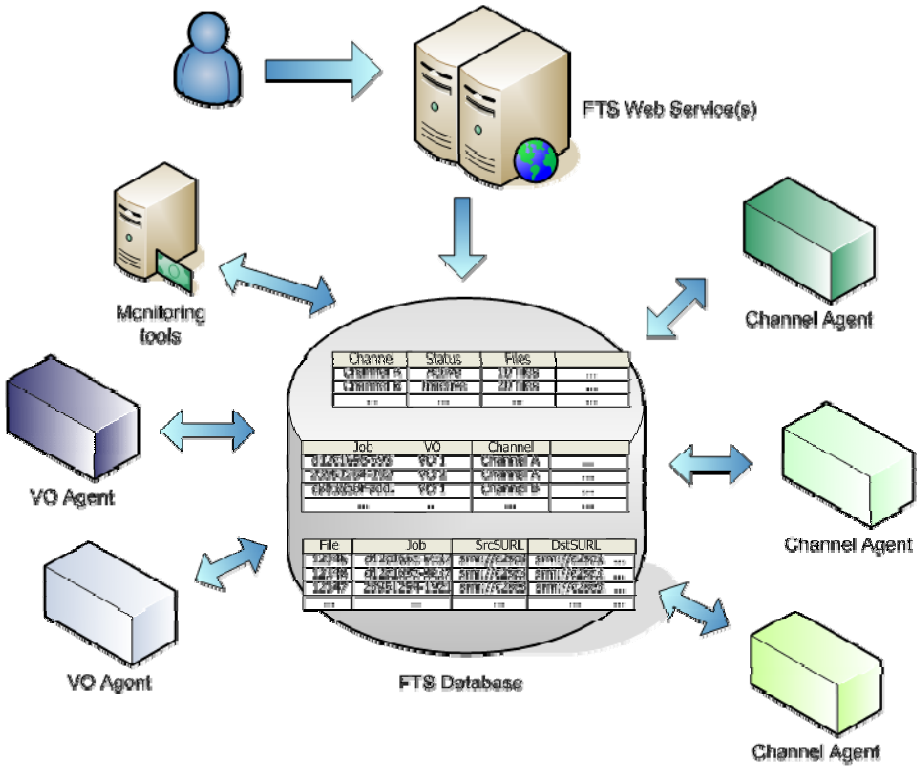
- File Transfer Service (FTS) is a data movement service
- Balance site resources usage
- Prevent network overload
- Prevent storage overload
- Jobs prioritization
- Service monitoring and statistics

What is a channel?

- **Single direction management queue for transfer jobs**
  - Point to point (between two sites)
  - Catch all
  - More flexible definitions on the way
  - Not tied to a physical network path

- **A channel defines:**
  - Transfer protocol (gridftp, srmcopy)
  - Transfer parameters
  - VO shares
  - Transfer priorities

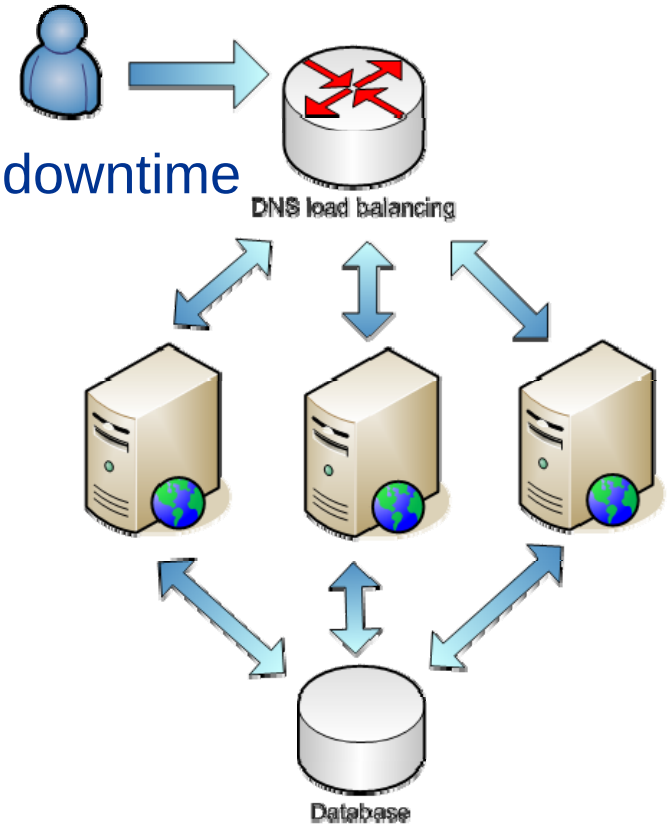
Server architecture



- **Decoupled components**
  - Web service
  - VO agents
  - Channel agents
  - Monitoring service

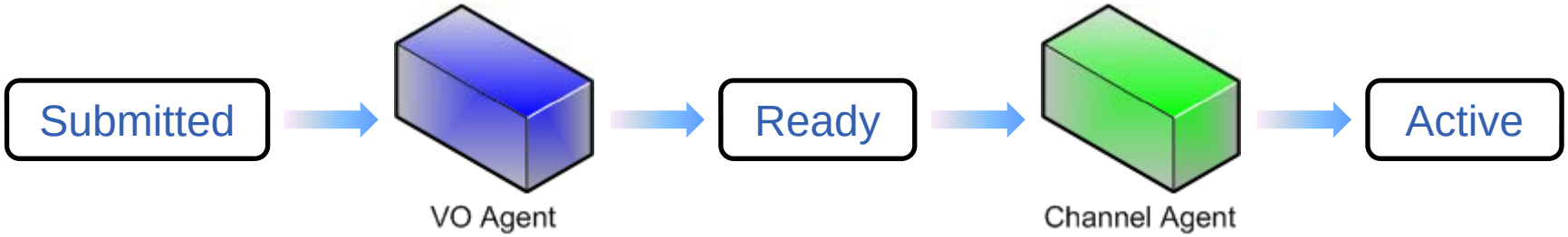
Web service

- **Stateless**
- **Load-balanced**
  - scalability
  - software upgrade with zero user-visible downtime
  - graceful failover if one node dies
- **Job submission / tracking API**
- **Service / channel management API**



Agents

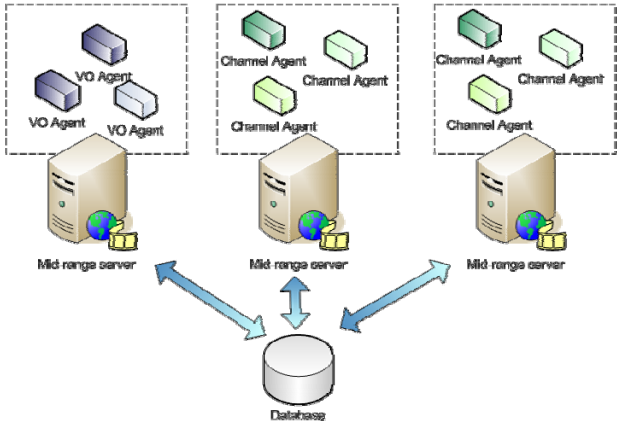
- **Daemons that run a set of tasks**
- **Each task operates on a particular state**



Allocate: find a channel between the source and the destination site where the VO has a share.

Fetch: select a transfer according to shares and priorities and start it.

- **One agent per VO and per channel**
- **Independent from each other**
- **Split across multiple nodes**



FTM node

- **Status: pre-production**
- **File Transfer Monitor (FTM) node**
  - Schema additions for FTS database
  - Periodically queries FTS database
  - Creates weekly/daily/hourly summaries
  - Publishes summaries into gridview
- **Currently publishing data rates for site to site transfers**
- **Pluggable architecture**
  - Incremental approach
  - Easy to extend
  - Add external contribution

Security

- **Transfers are run using the clients' X509 credentials**
  - delegated by the client to the service (impersonation)
- **Full audit on all operations**
- **VOMS credentials (attribute certificates) used (and renewed as necessary) in FTS 2.0**

- **Roles**
  - VO production manager
  - Channel administrator
  - Service manager

Current status

- **FTS 2.0 is in production**
- **Installed at CERN and all T1 sites**
- **Well tested**
  - being stressed in experiment activities
    - currently CMS' CSA'07, more to follow
    - support for this is absorbing most of the team's effort
  - Still open issues
    - Slow job cancelation
    - Corner cases where things break (e.g. MAXTRANSFERS bug)
    - These are being addressed with urgency
  - Focus is now upon operational procedures
    - Integration with experiment operations

Plans

- **Focus continues upon service monitoring and making it easier to run the transfer service**
- **Continue testing SRM 2.2 support**
- **SL4 and VDT 1.6 support**
- **Closer integration with experiment software frameworks**
- **Incrementally improve service monitoring and admin**
  - Better service admin tools being released
  - Monitoring work now prototyped and running on pilot
- **Site grouping in channel definition (“clouds”)**
- **SRM/gridFTP split**
- **Notification of job state changes**