



Enabling Grids for
E-science in Europe

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Data Management Data Access From WN

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glite I/O

- **Goals**
 - Provides a library for accessing files stored on a remote a SE in a transparent way
- **Release Plan**
 - First version foreseen for PM03
 - Two weeks late...☹

Guiding Principles

- **Based on existing libraries**
 - Aiiod, gfal, rfio, dcap
 - Stable
 - ➔ Quickly deployable
- **POSIX-like I/O API**
 - Remote open, read, write
 - Minimum impact on existent code
- **Extensible**
 - Plug-ins and callouts to support additional protocols and authorization models

API

- **POSIX-like I/O API**

```
glite_handle glite_open(char * name, int32 flags, int32 mode)
int32 glite_read(glite_handle fh, void * buf, size_t count)
int32 glite_write(glite_handle fh, void *buf, size_t count)
int32 glite_lseek(glite_handle fh, int64 offset, int32 whence)
int32 glite_close(glite_handle fh)
int64 glite_size(glite_handle fh)
```

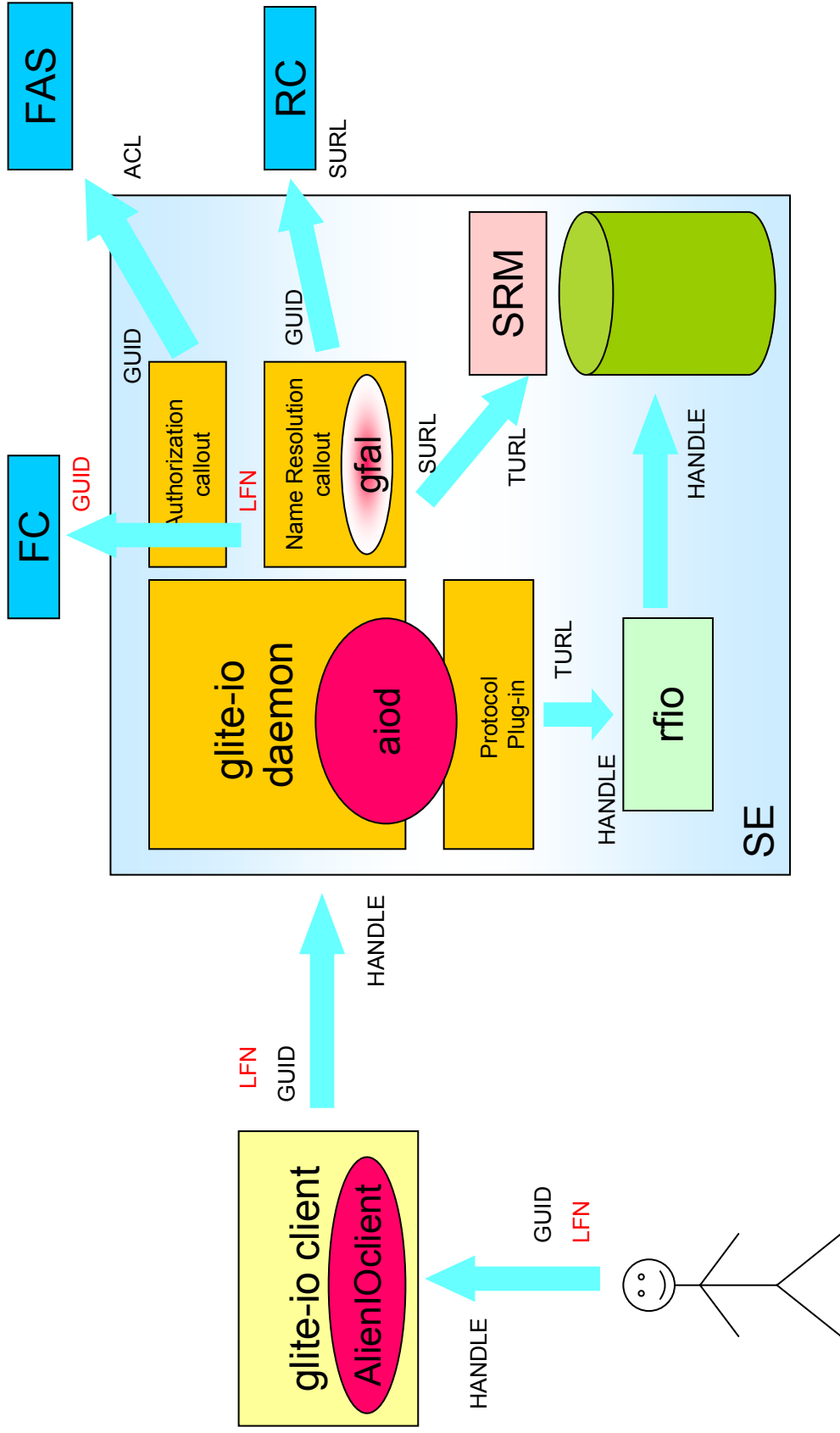
- **Support both GUID and LFN**

```
name = "guid:2cd59291-7ae7-4778-af6d-b1f423719441"
name = "lfn:egee/foo12345"
```

Example

```
int main(int argc, char **argv) {
    int i;
    glite_handle fh;
    char buf[BUFF_LEN];
    int rc;
    if ((fh = glite_open (argv[1], O_RDONLY, 0)) == NULL) {
        return -1;
    }
    rc = glite_read (fh, buf, BUFF_LEN);
    if (rc < 0) {
        (void) glite_close (fh);
        return -1;
    }
    // ...
    if ((rc = glite_close (fh)) < 0) {
        return -1;
    }
    return 0;
}
```

Flow



Open Issues

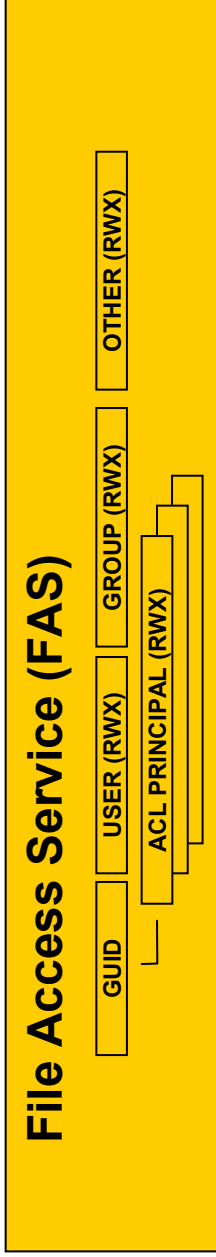
- Is Read-Only access ok for now?
- Writes (later): updating is not a problem, synchronization with other replicas is. Depends on semantics of file update policy – single master, multi-master with reconciliation, etc.
- Creation of a new file through this interface? We think not...

Problems:

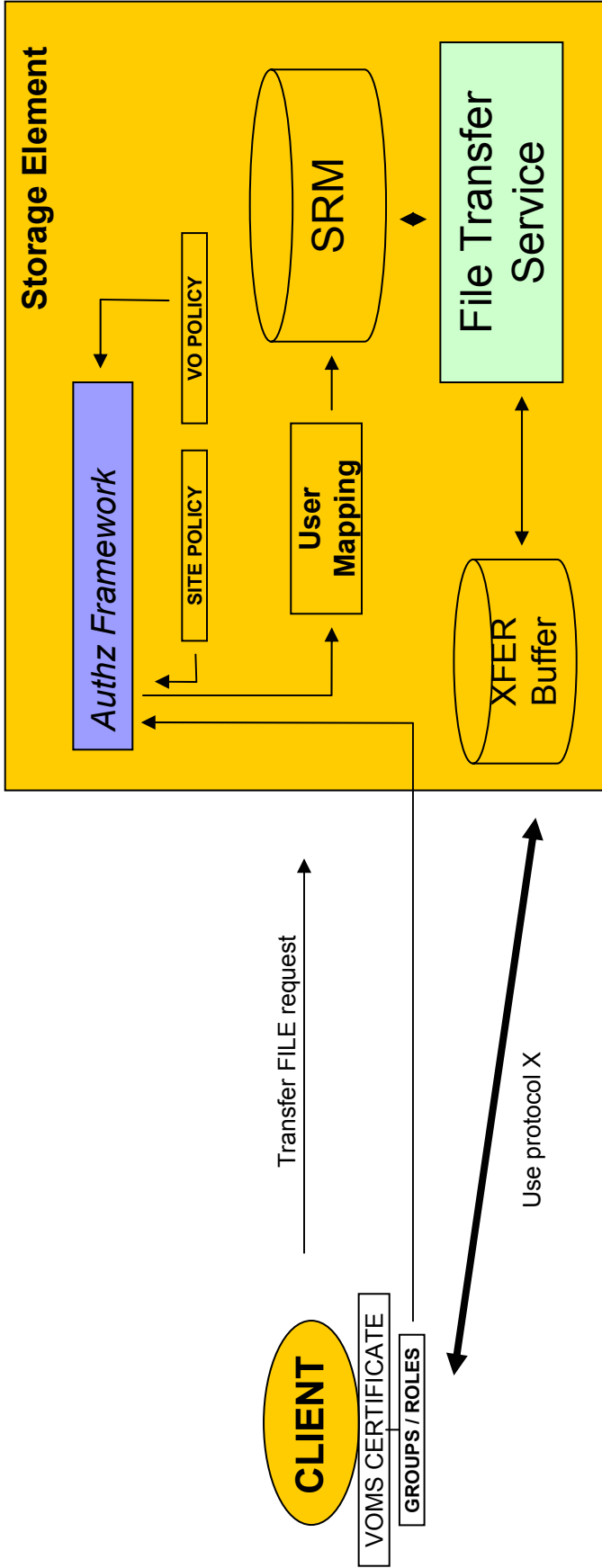
```
gLite_open (name, O_WRONLY | O_CREAT, mode)
```

- Is name a GUID/LFN?
- Should the file name already be registered or should it be inserted into the File Catalog later?
- When should the file be inserted in Replica Catalog? During open or close?

File Access Service



GET PERMISSIONS



Security Implementation

- **Authentication**
 - GSI / Proxy Certificates
- **Authorization**
 - VOMS – Attribute Certificates
 - Authz Framework
 - XACML compatible
 - End of summer (alpha / beta before that)
- **Toolkits**
 - Java – Java CoG
 - C++ – gSOAP with GSI plugin
- **Delegation**
 - JRA3 magic