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Chimera - a new, fast, extensible and Grid enabled namespace service

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After successful implementation and deployment of the dCache system over the last years, one of the additional required services, the namespace service, is faced additional and completely new requirements. Most of these are caused by scaling the system, the integration with Grid services and the need for redundant (high availability) configurations. The existing system, having only an NFSv2 access path, is easy to understand and well accepted by the users. This single 'access path' limits data management task to make use of classical tools like 'find', 'ls' and others. This is intuitiv for most users, but failed while dealing with millions of entries (files) and more sophisticated organizational schemes (metadata). The new system should support a native programmable interface (deep coupled, but fast), the 'classical' NFS path (now version 3 at least),
a dCache native access and the SQL path allowing any type of metadata to be used in complex queries. Extensions with other 'access paths' will be possible. Based on the experience with the current system we highlight on the following requirements:
- large file support (64 Bit) + large number of files (> 10^8)
- fast
- Platform independents (runtime + persistent objects)
- Grid name service integration
- custom dCache integration
- redundant, high available runtime configurations (concurrent backup etc.)
- user usable metadata (store and query)
- ACL support
- pluggable authentication (e.g. GSSAPI)
- external processes can register for namespace events (e.g. removal/creation of
files

The presentation will show a detailed analysis of the requirements, the choosen design and selection of existing components. The current schedule should allow to show the first prototype results.

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