

# Discussion of File Catalog Standardization

GFS-WG, OGF24 Singapore

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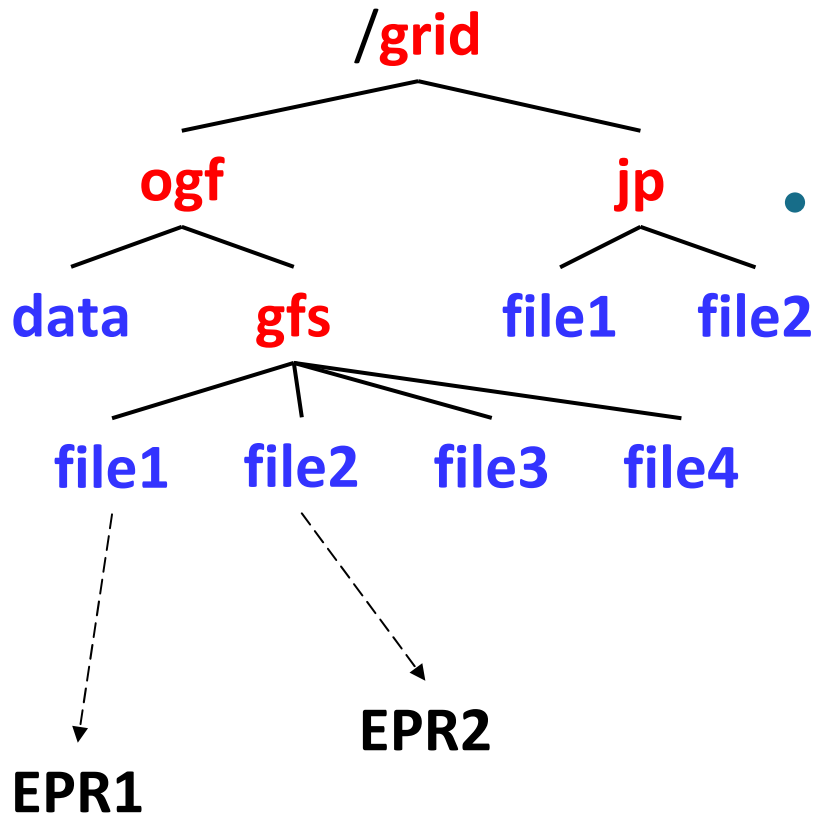
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# Agenda

- Introduction: RNS and File Catalog Profile
- File Catalog Development in Japan e-Science Project
  - Hideo Matsuda (Osaka Univ)
- RNS Requirements by KEK
  - Go Iwai (KEK)
- Study of Load Balancing of Resource Namespace Service
  - Masahiro Nakamura (Univ Tsukuba)
- Discussion

# Resource Namespace Service (GFD-P-R.101)



- Hierarchical namespace management that provides name-to-resource mapping
- Basic Namespace Component
  - **Virtual Directory**
    - Non-leaf node in hierarchical namespace tree
  - **Junction**
    - Name-to-resource mapping that interconnects a reference to **any existing resource** into hierarchical namespace

<http://www.ogf.org/documents/GFD.101.pdf>

# RNS Operations

**add** ( string: name, EPR: reference, . . . )

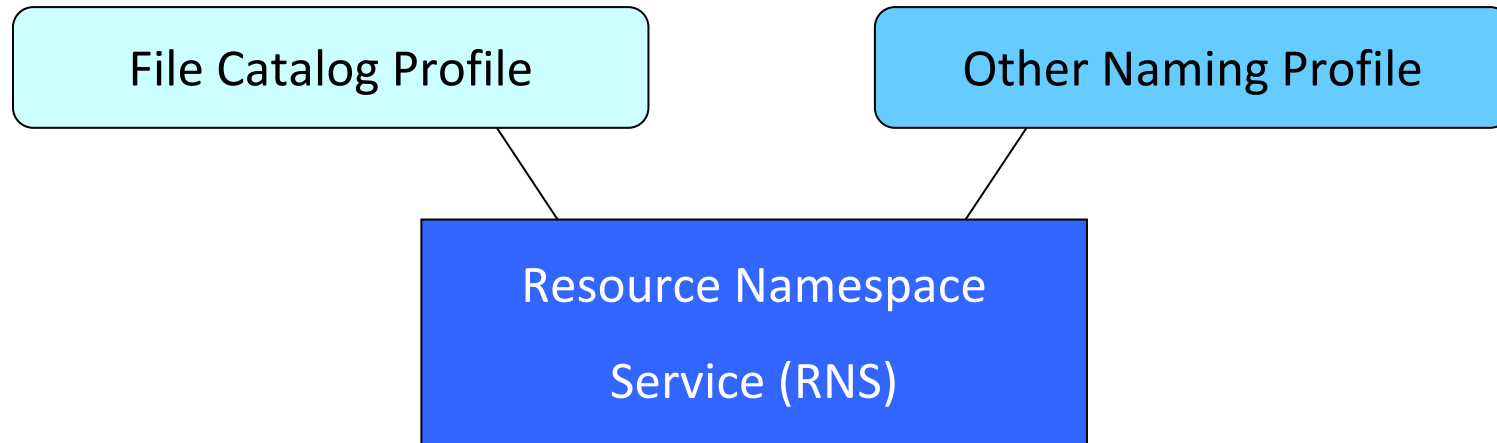
**list** ( [ string: regexp ] )

**update** ( [ EPR: parent, string: name, EPR:  
reference, . . . ] )

**query** ( )

**remove** ( [ string: name | string: regexp ] )

# File Catalog Profile



- Define necessary feature for File Catalog on top of RNS
  - Entry property for File Catalog
  - Iterator – WS-Enumeration / WS-Iterator
  - Resolver – WS-Naming

# File Catalog Entry Property (1)

<b>Checksum</b>	String representation of the actual checksum corresponding to the physical file or fileset symbolized by this data resource junction.
<b>ChecksumType</b>	String representation of the checksum type or algorithm used to produce the checksum.
<b>ChildCount*</b>	Number of subentries corresponding to this VFDS entry, if and only if the entry is a virtual directory; zero or NULL otherwise.
<b>Description*</b>	Description of entry.
<b>Complete</b>	Identifies whether or not the file or filesystem source targeted by this VFDS entry is complete. In the case of files, a value of true connotes all of the file content is embodied in the file; for filesets (filesystem subtrees) this identifies whether or not the fileset is complete in terms of number of files participating and the coherency of these files.

# File Catalog Entry Property (2)

<b>MutableSource</b>	Identifies whether or not the file or filesystem source targeted by this VFDS entry can change.
<b>ReadOnly</b>	Identifies whether or not a local copy of the data should be locally read-only.
<b>ReplicaCopy</b>	Identifies whether or not the file or filesystem source targeted by this VFDS entry is a replica copy.
<b>Size</b>	The physical size of the targeted data source. If the target data is in the form of a file (implying a Physical File Name) then this value discloses the size of the file in bytes. If the target data is in the form of a fileset (implying a Physical File System Name) then this value discloses the summation size of all the contained files.
<b>ModificationTime*</b>	The replica or fileset's point-in-time timestamp corresponding to the time at which the source snapshot was made.
<b>Version</b>	The version number of the targeted data if available.

# Further Consideration

- Performance
  - Bulk operation
    - NFSv4-like COMPOUND procedure, which is used to combine one or more operations into a single RPC request
- Security
  - Access control list
    - To namespace information
    - To the target resource that the namespace refers to

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