

# How to join XrootD Federations with dCache Plugins

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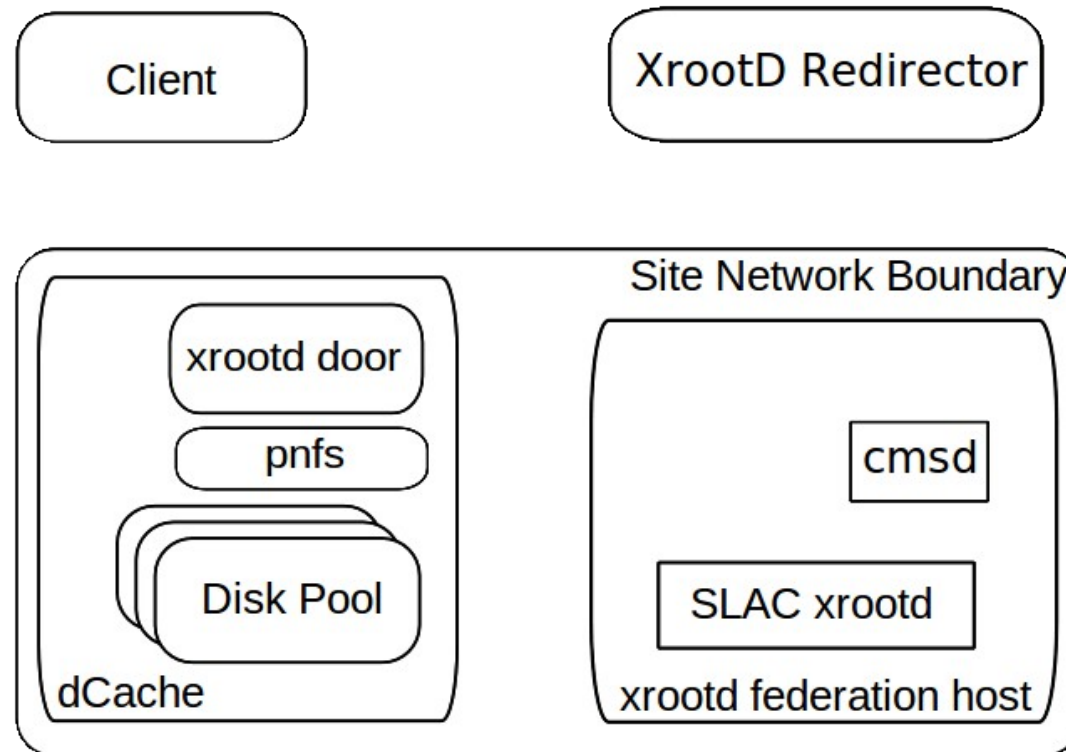
Compiling the plugins (optional)

# Join the CMS XrootD Federation (AAA)

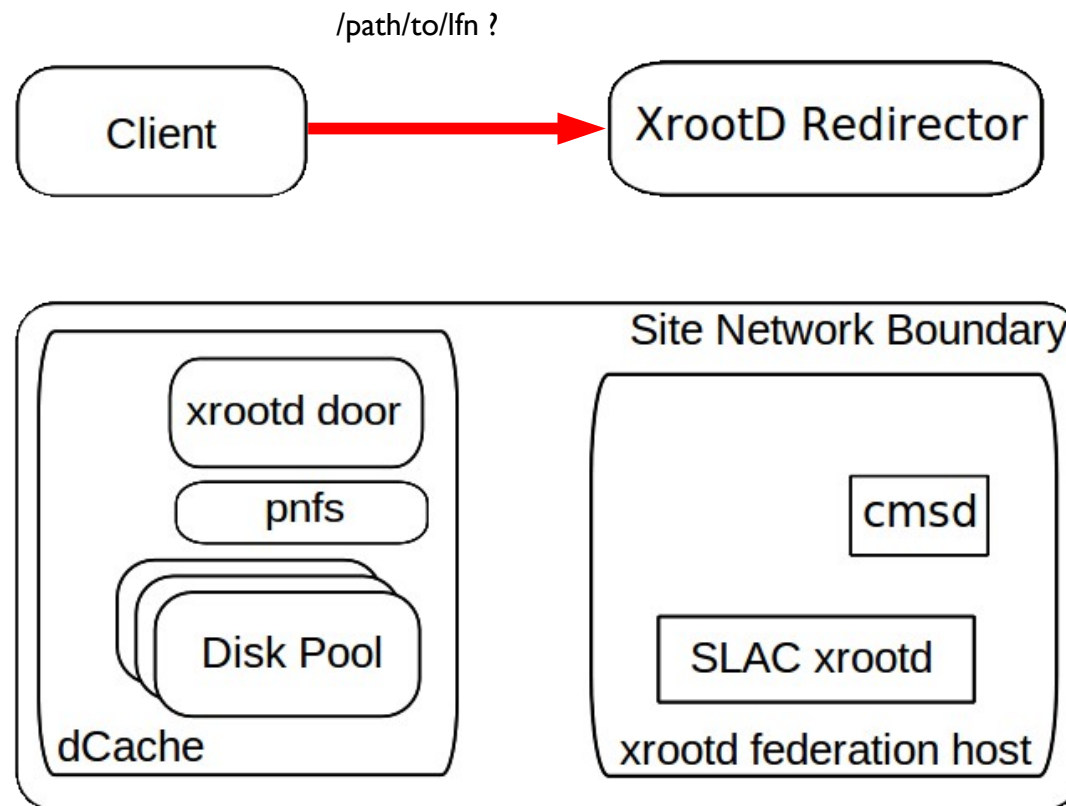
## Use the CMS-TFC Plugin

<https://twiki.cern.ch/twiki/bin/view/Main/DcacheXrootD>

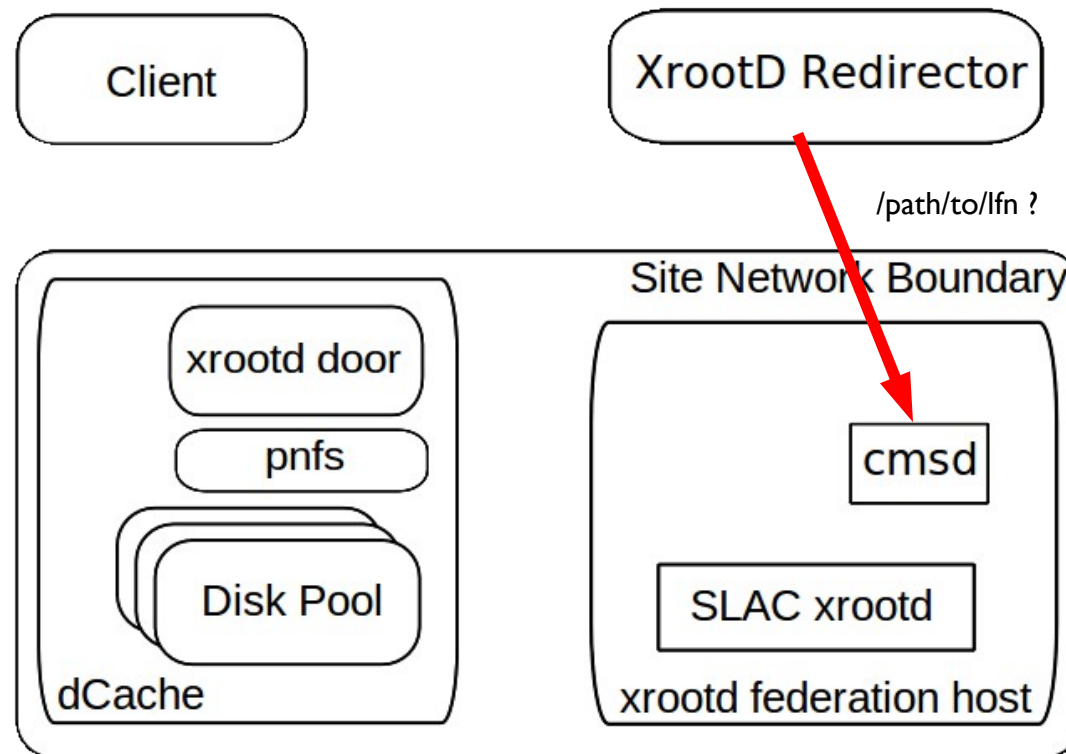
# Join the CMS XrootD Federation



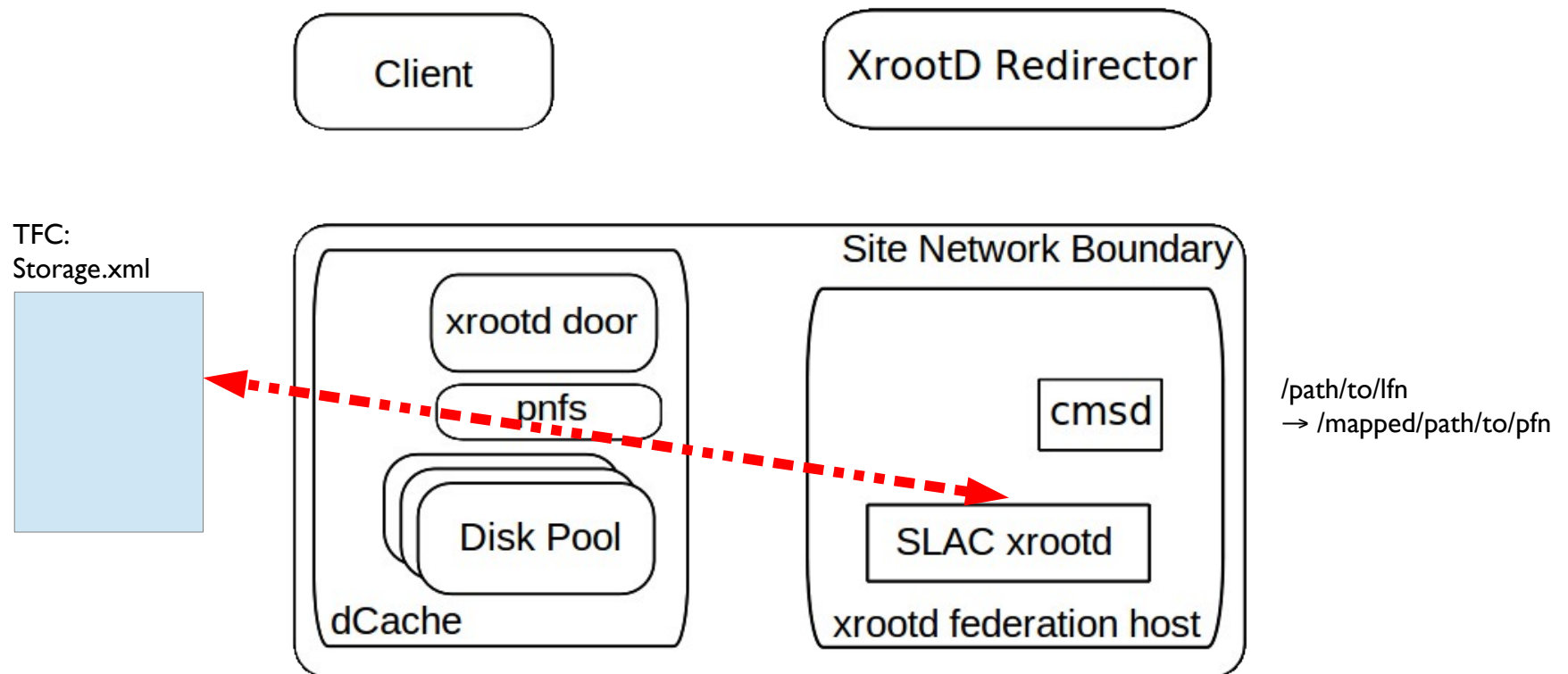
# Join the CMS XrootD Federation



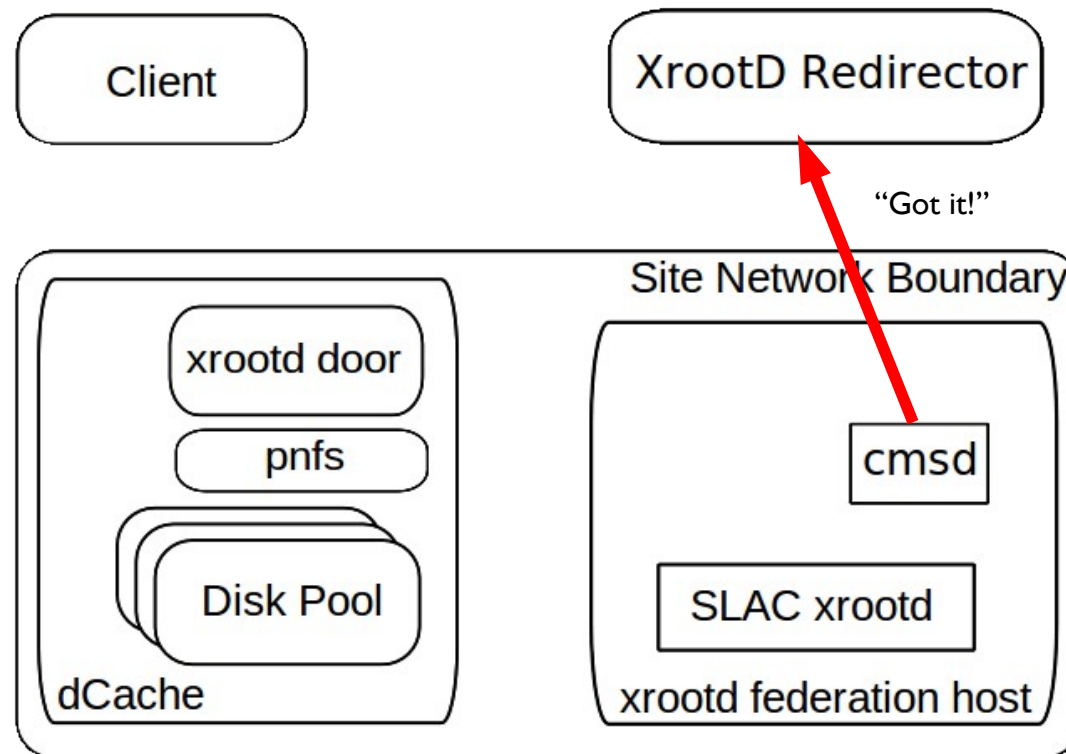
# Joining the CMS XrootD Federation



# Joining the CMS XrootD Federation

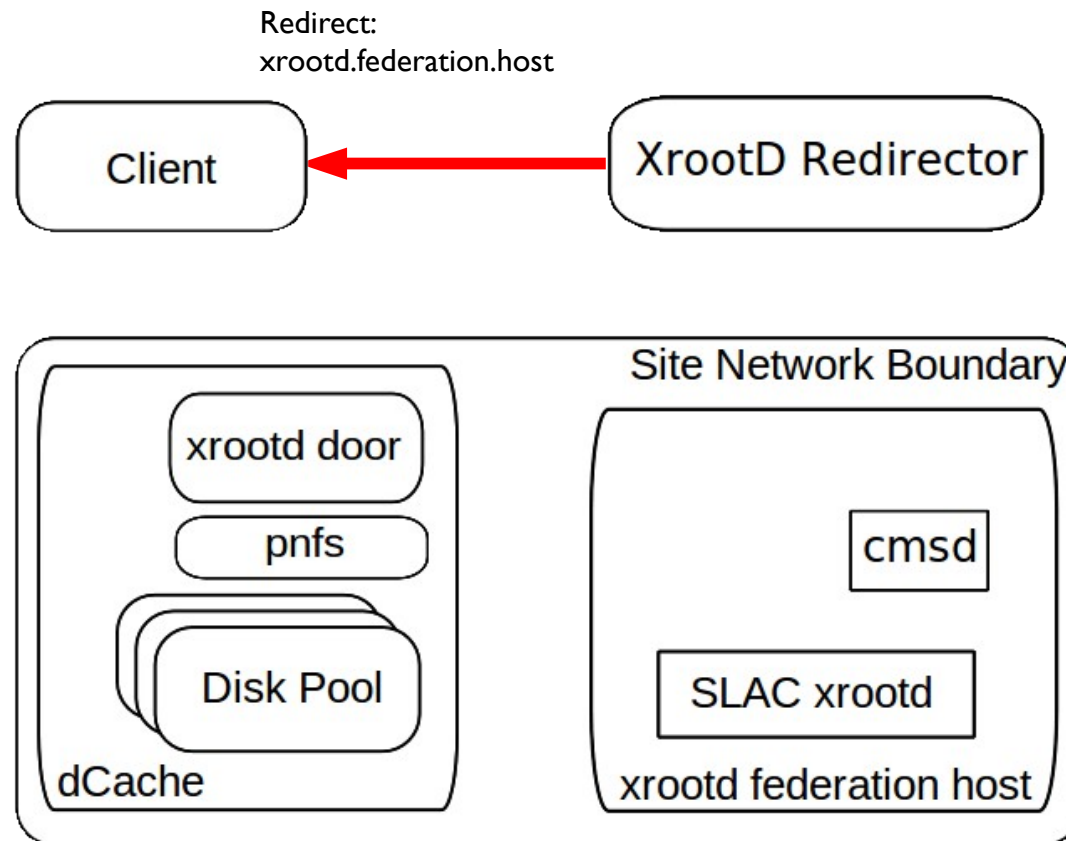


# Joining the CMS XrootD Federation

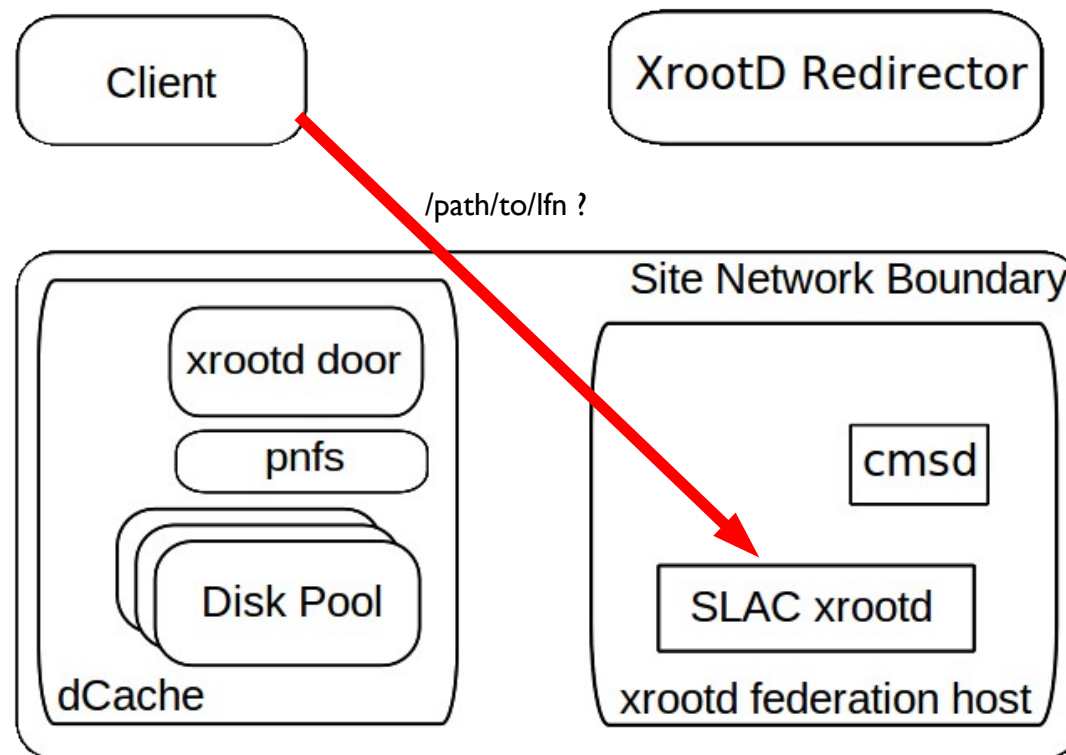




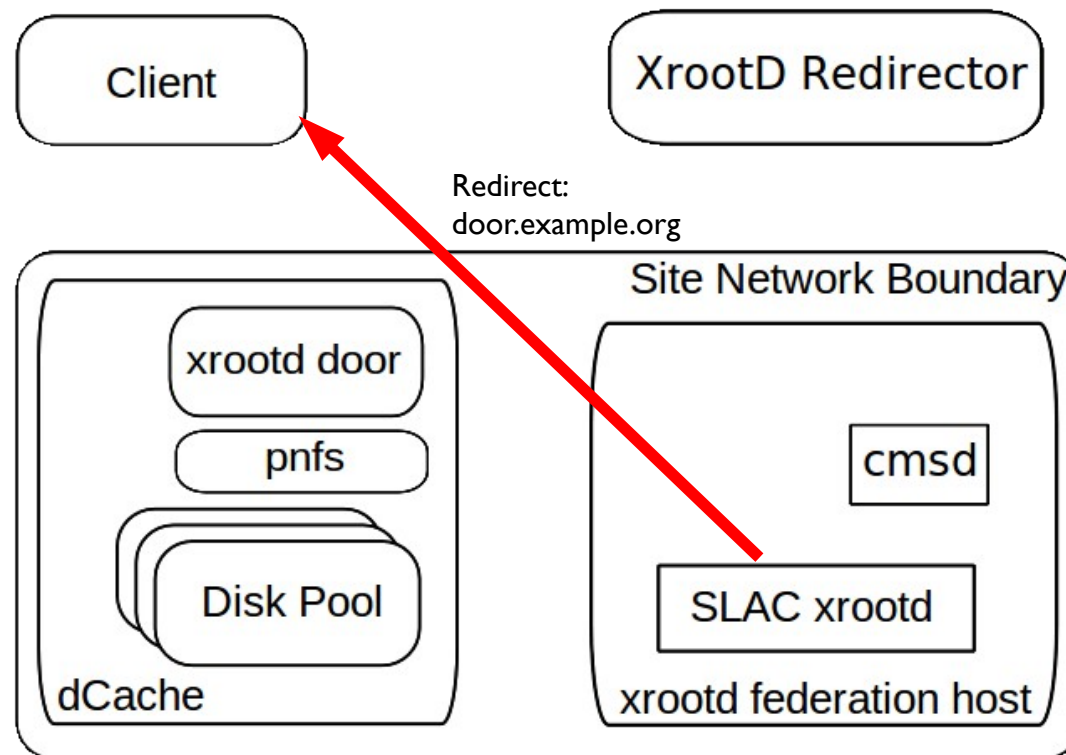
# Joining the CMS XrootD Federation



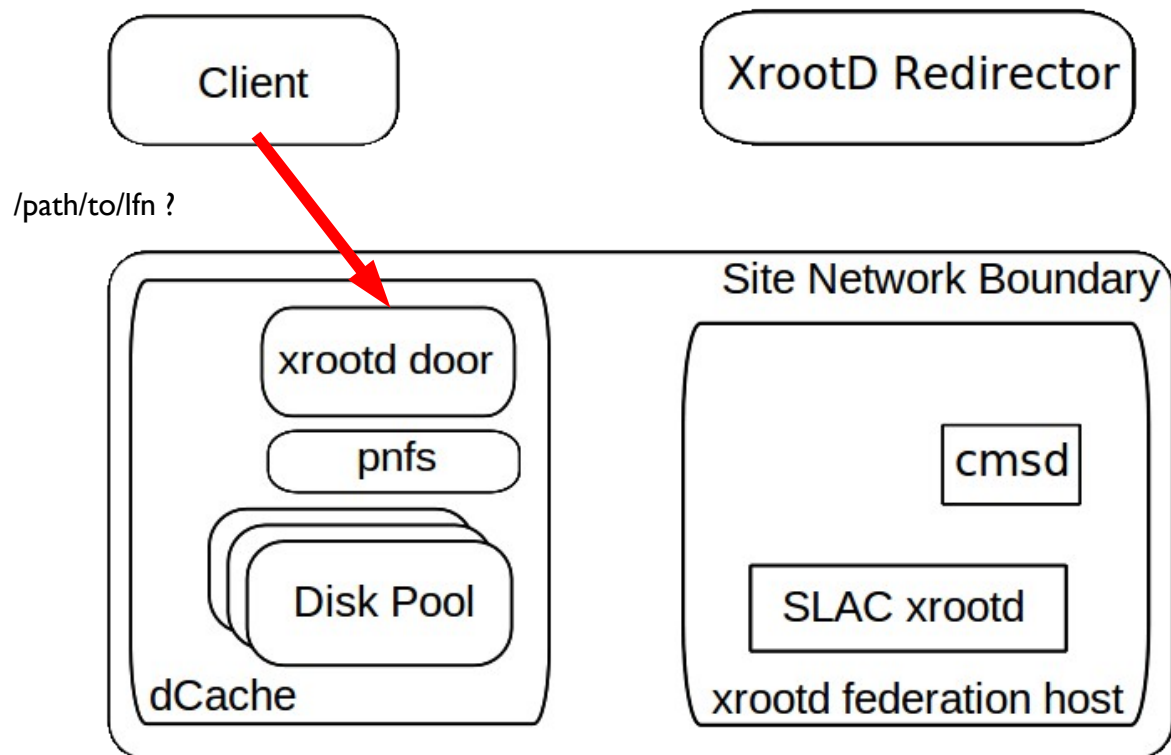
# Joining the CMS XrootD Federation



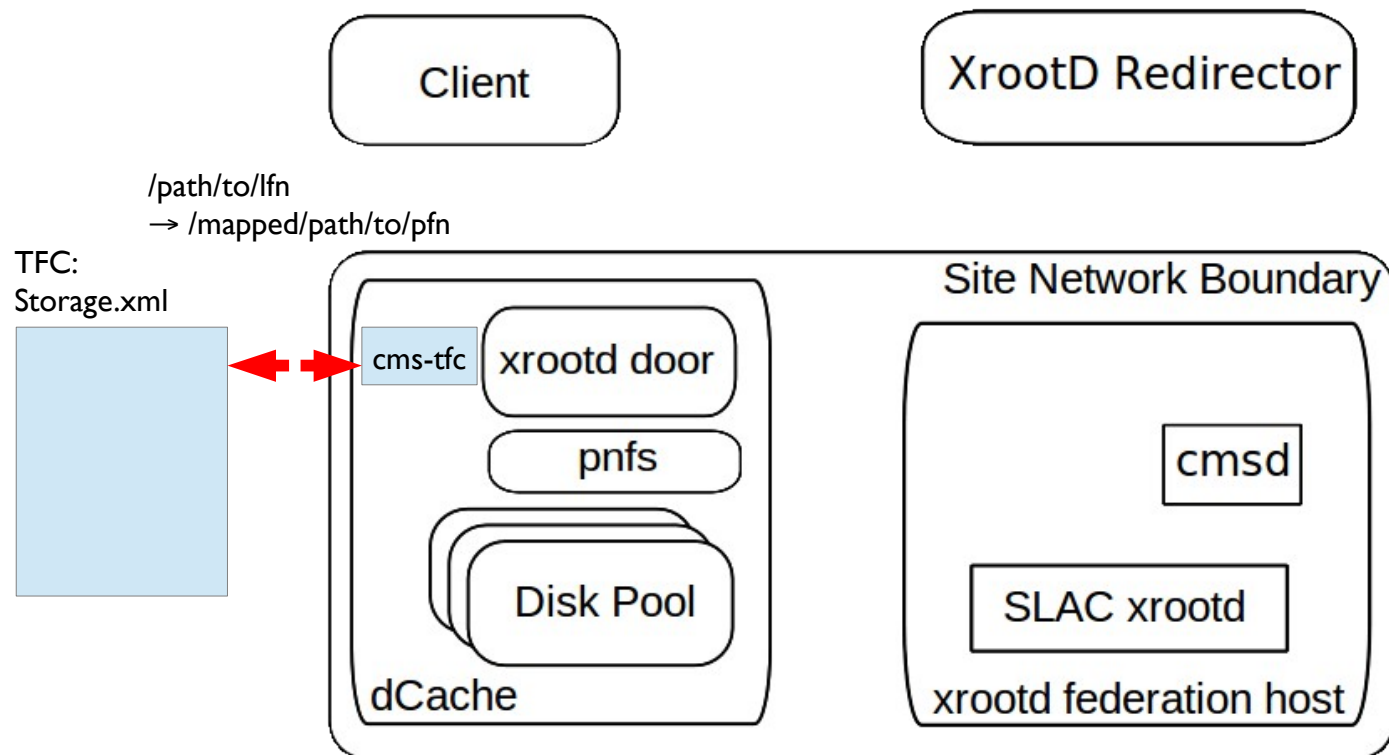
# Joining the CMS XrootD Federation



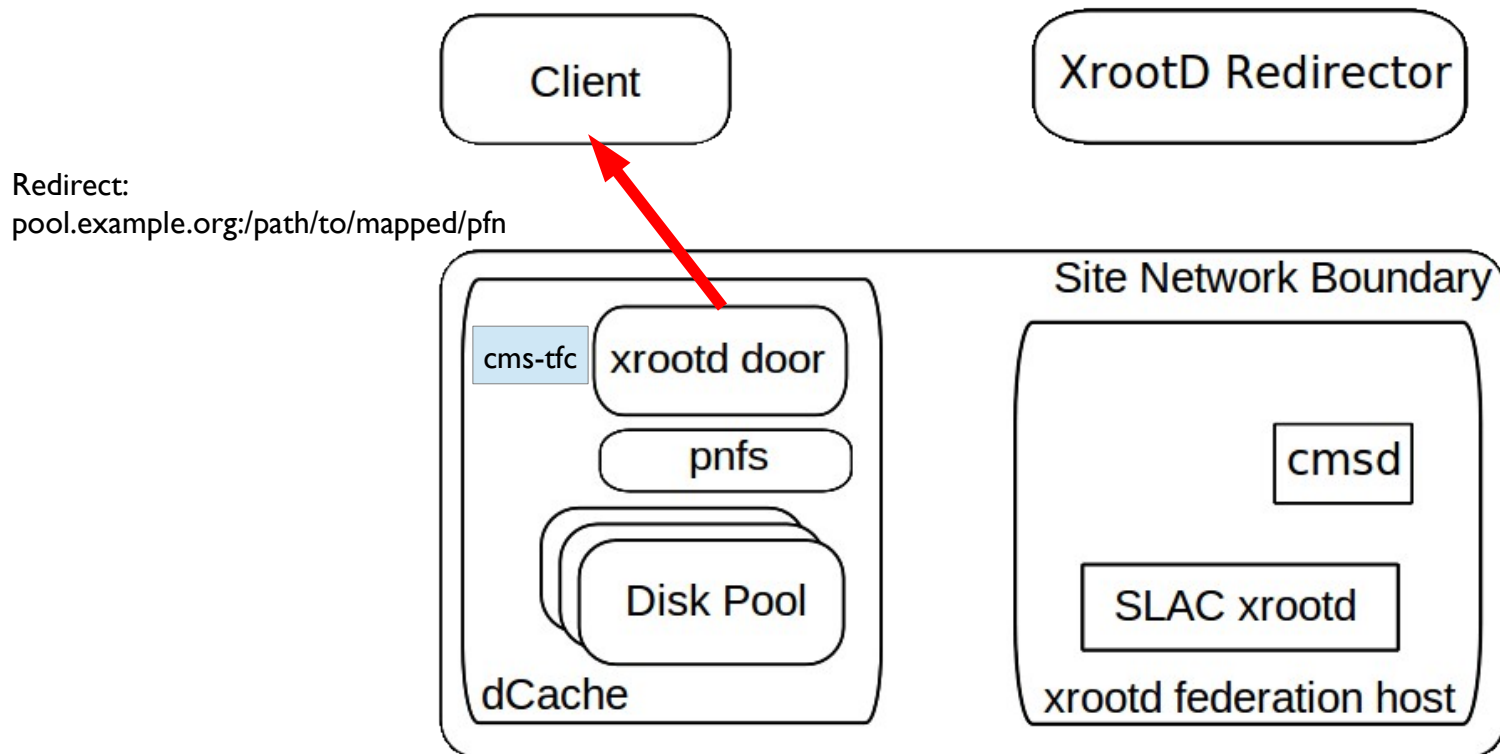
# Joining the CMS XrootD Federation



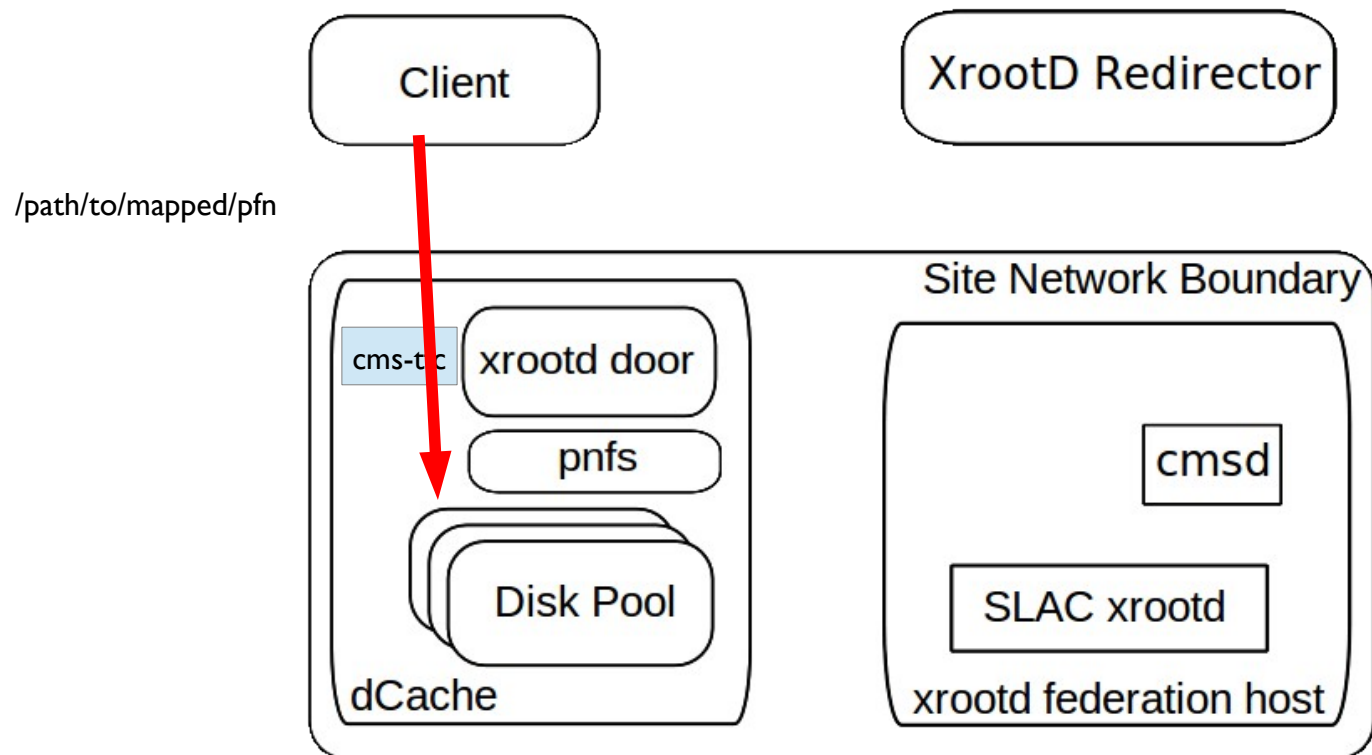
# Joining the CMS XrootD Federation



# Joining the CMS XrootD Federation



# Joining the CMS XrootD Federation



# Install the CMS-Mapping-Plugin

Build or download

`xrootd4j-cms-plugin-1.0-SNAPSHOT.tar.gz`

Unpack it in

`/usr/local/share/dcache/plugins`

```
zitpcx18435:/usr/local/share/dcache/plugins % ls -l
total 7952
drwxr-xr-x 2 root root    4096 May 24 15:57 xrootd4j-cms-plugin-1.0-SNAPSHOT
-rw-r--r-- 1 root root 8130504 May 24 15:56 xrootd4j-cms-plugin-1.0-SNAPSHOT.tar.gz
zitpcx18435:/usr/local/share/dcache/plugins % cd xrootd4j-cms-plugin-1.0-SNAPSHOT
zitpcx18435:/usr/local/share/dcache/plugins/xrootd4j-cms-plugin-1.0-SNAPSHOT % ls -l
total 8720
-rw-r--r-- 1 karsten it      904 Oct  5  2012 default.properties
-rw-r--r-- 1 karsten it   34520 Sep  4  2012 LICENSE.txt
-rw-r--r-- 1 karsten it 8857794 Aug 23  2012 scala-library-2.9.2.jar
-rw-r--r-- 1 karsten it   25963 Nov  5  2012 xrootd4j-cms-plugin-1.0-SNAPSHOT.jar
zitpcx18435:/usr/local/share/dcache/plugins/xrootd4j-cms-plugin-1.0-SNAPSHOT %
```



# Configure the CMS-Mapping-Plugin

In your layout file (or dcache.conf) set

```
xrootd/xrootdPlugins=gplazma:none,authz:cms-tfc
```

Configure the path or url to the rules file

```
xrootd.cms.tfc.path=$CMS_PATH/SITECONF/local/PhEDEx/storage.xml
```

and the “entry point” protocol

```
xrootd.cms.tfc.protocol=root
```

# Sample rules file

```
<storage-mapping>
```

```
  <lfn-to-pfn protocol="root"
```

```
    path-match=".* /path/to/l(.*)"
```

```
    result="root:///mapped/path/to/p$1" />
```

```
</storage-mapping>
```

```
"root:///foo/bar/path/to/lfn" →
```

```
"root:///mapped/path/to/pfn"
```

# Joining the Atlas XrootD Federation (FAX)

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- Way one:

Use dCache as a Posix storage with NFS 4.1

<https://twiki.cern.ch/twiki/bin/view/Atlas/FAXposixStorage>

- Way two:

Use dCache as xrootd storage

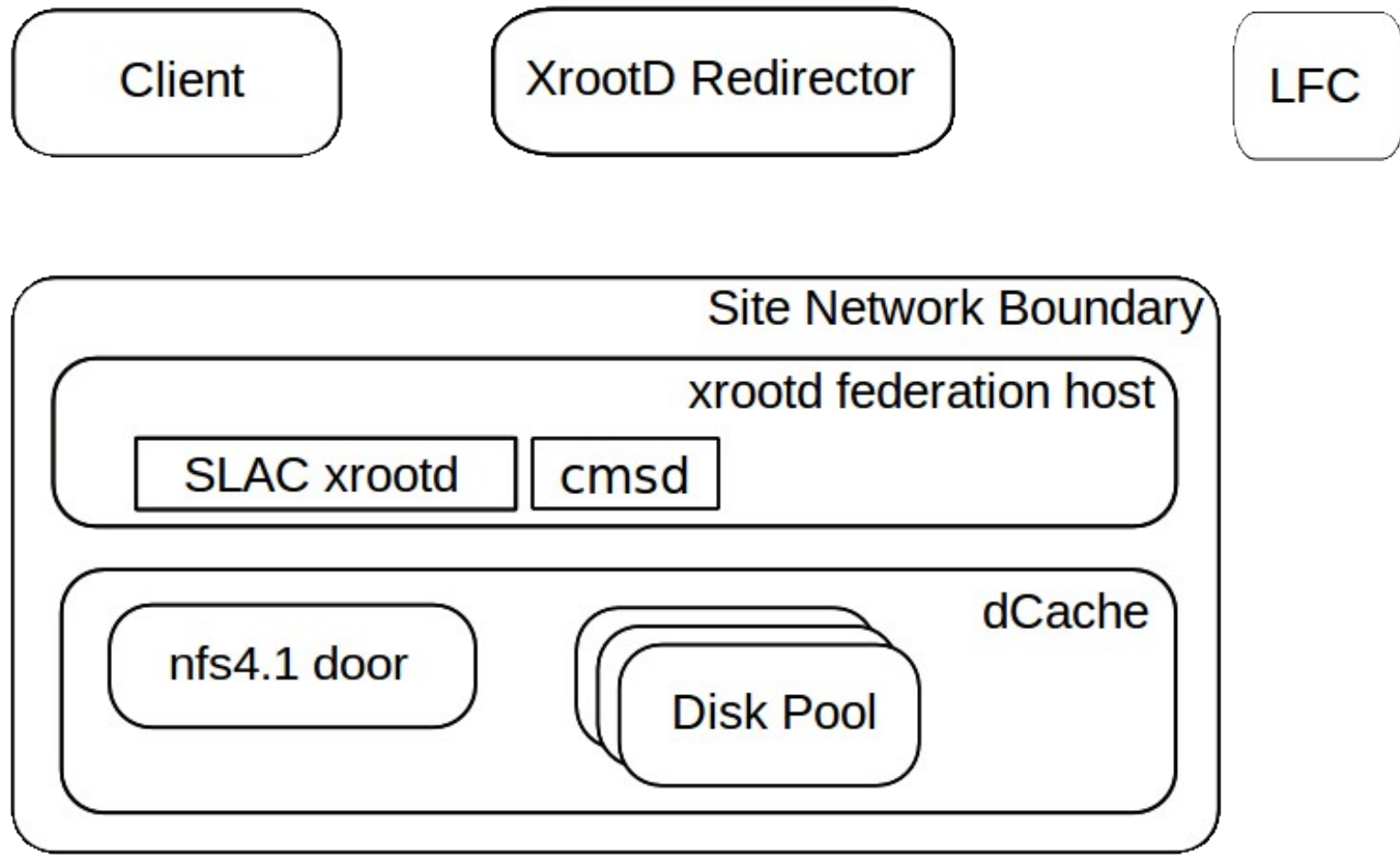
<https://twiki.cern.ch/twiki/bin/view/Atlas/FAXxrootdStorage>

- Way three:

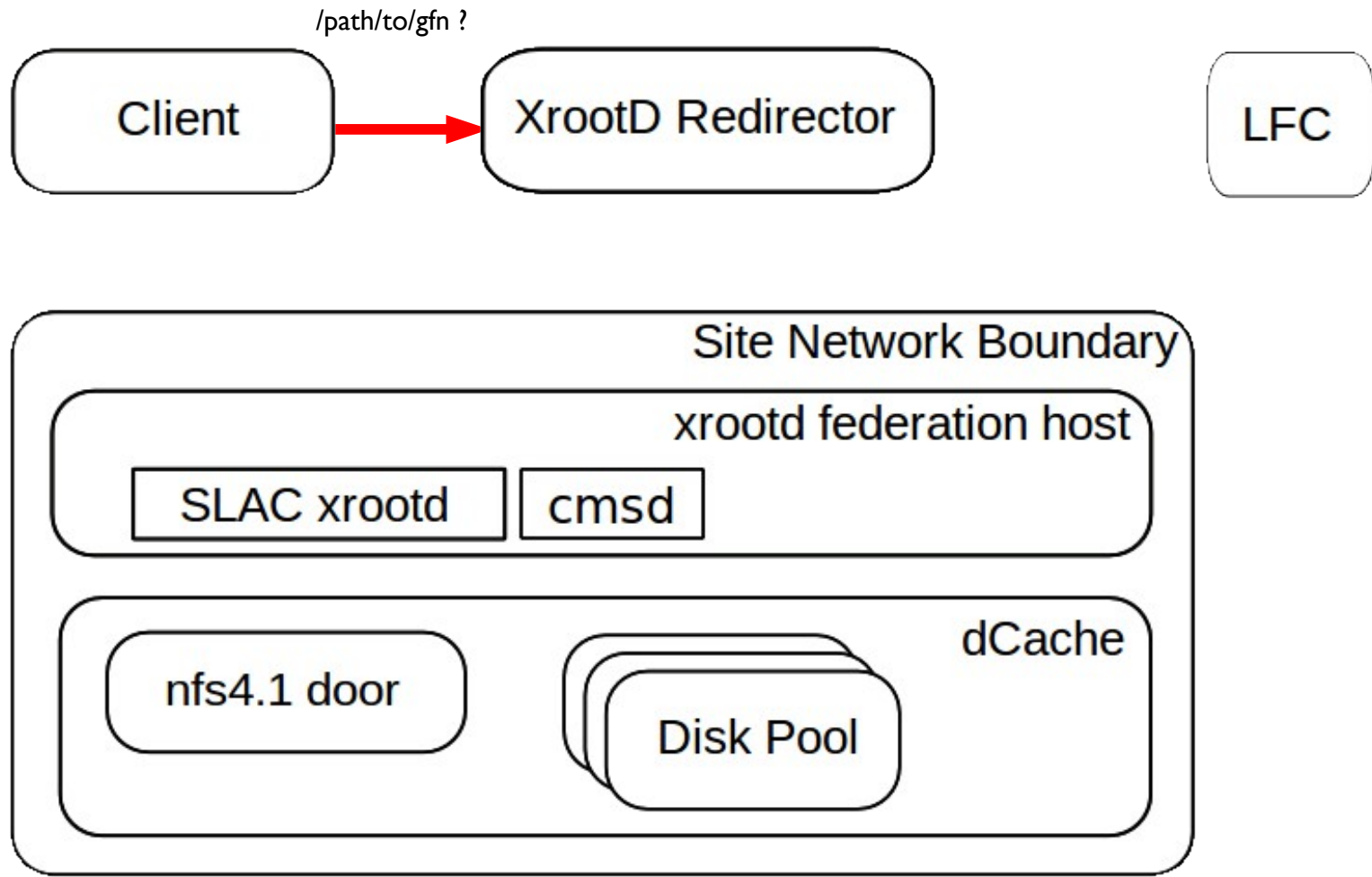
Use the FAX Name-to-Name Plugin

<https://twiki.cern.ch/twiki/bin/view/Atlas/FAXdCacheN2Nstorage>

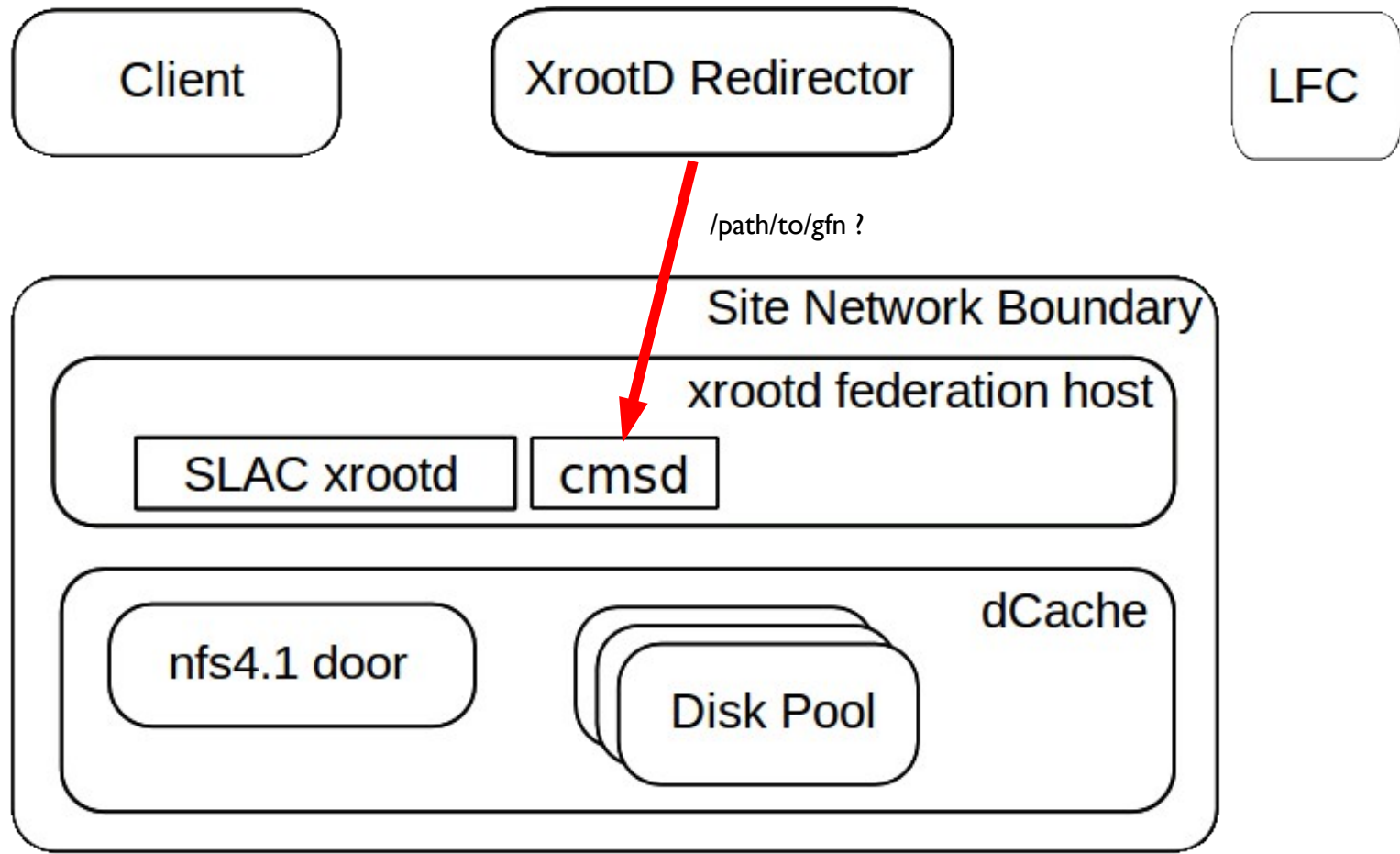
# Using dCache as Posix storage



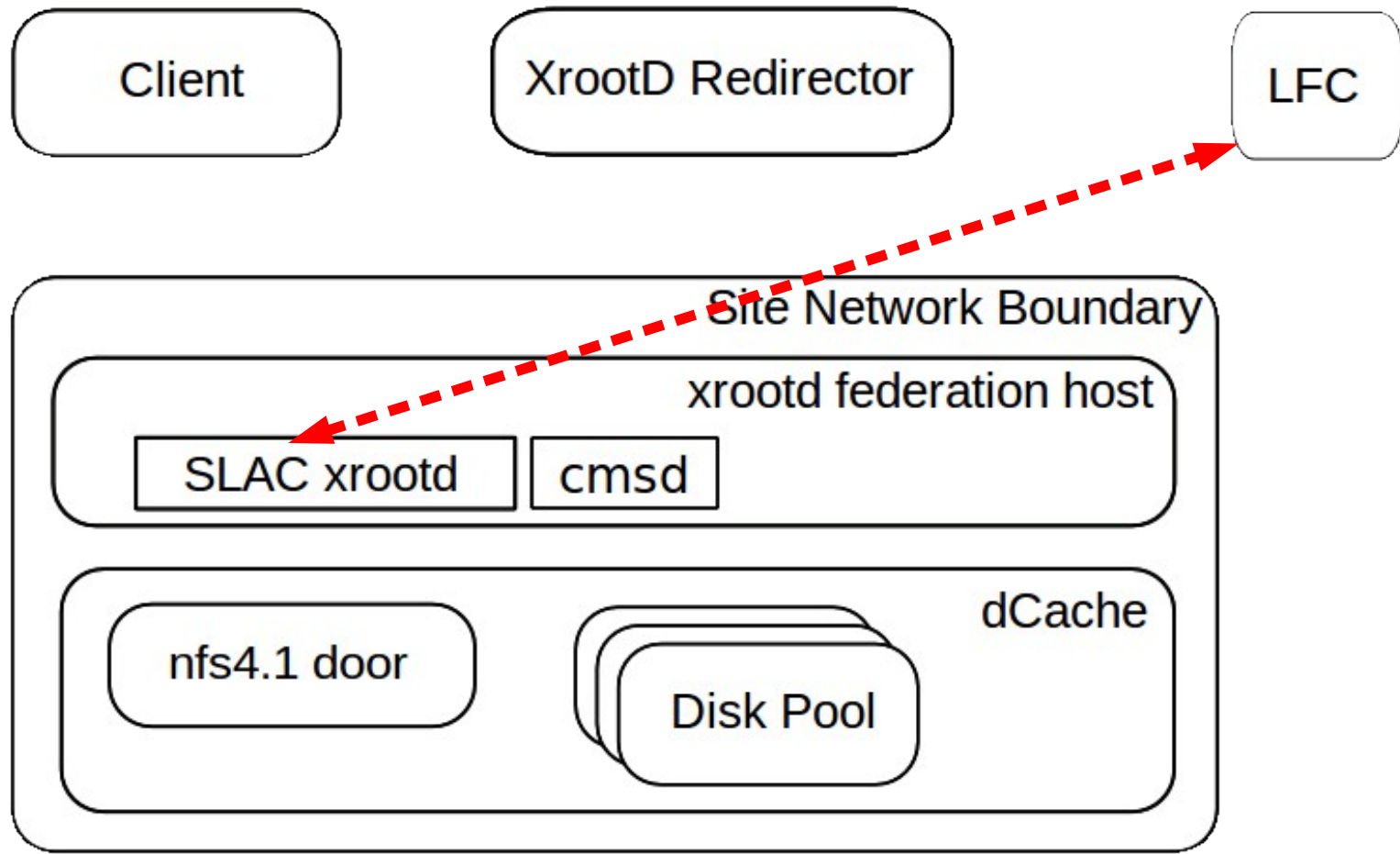
# Using dCache as Posix storage



# Using dCache as Posix storage

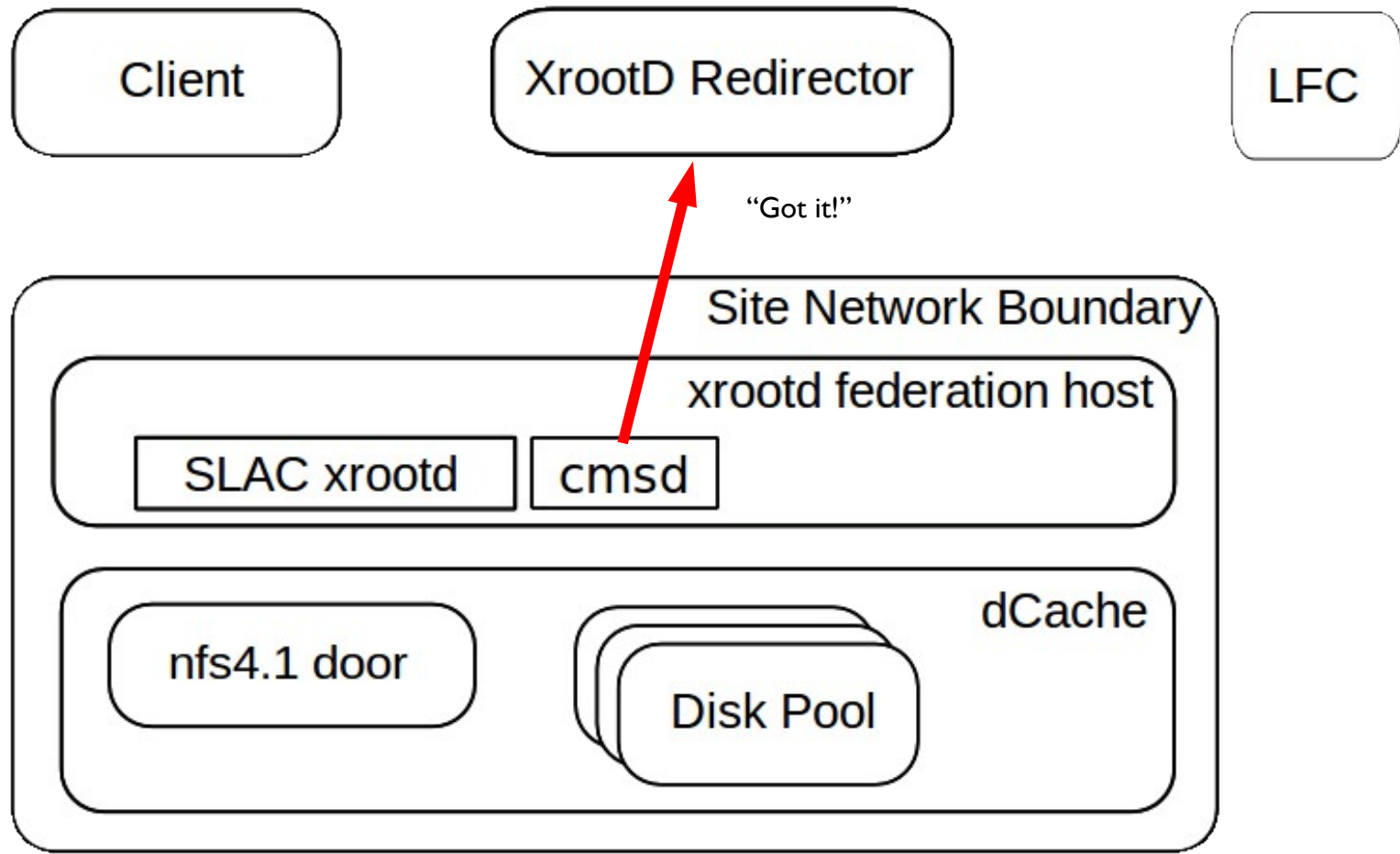


# Using dCache as Posix storage

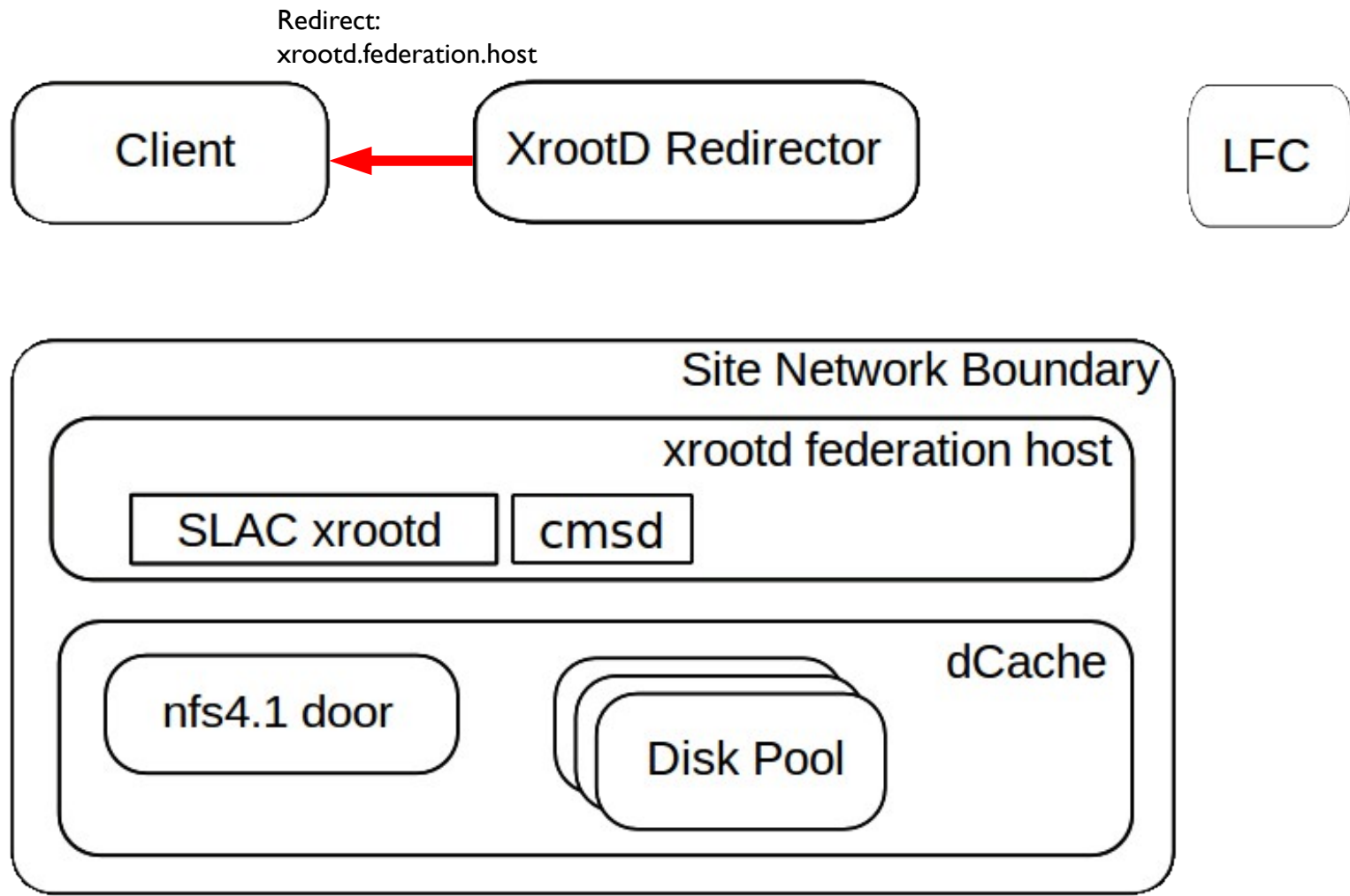




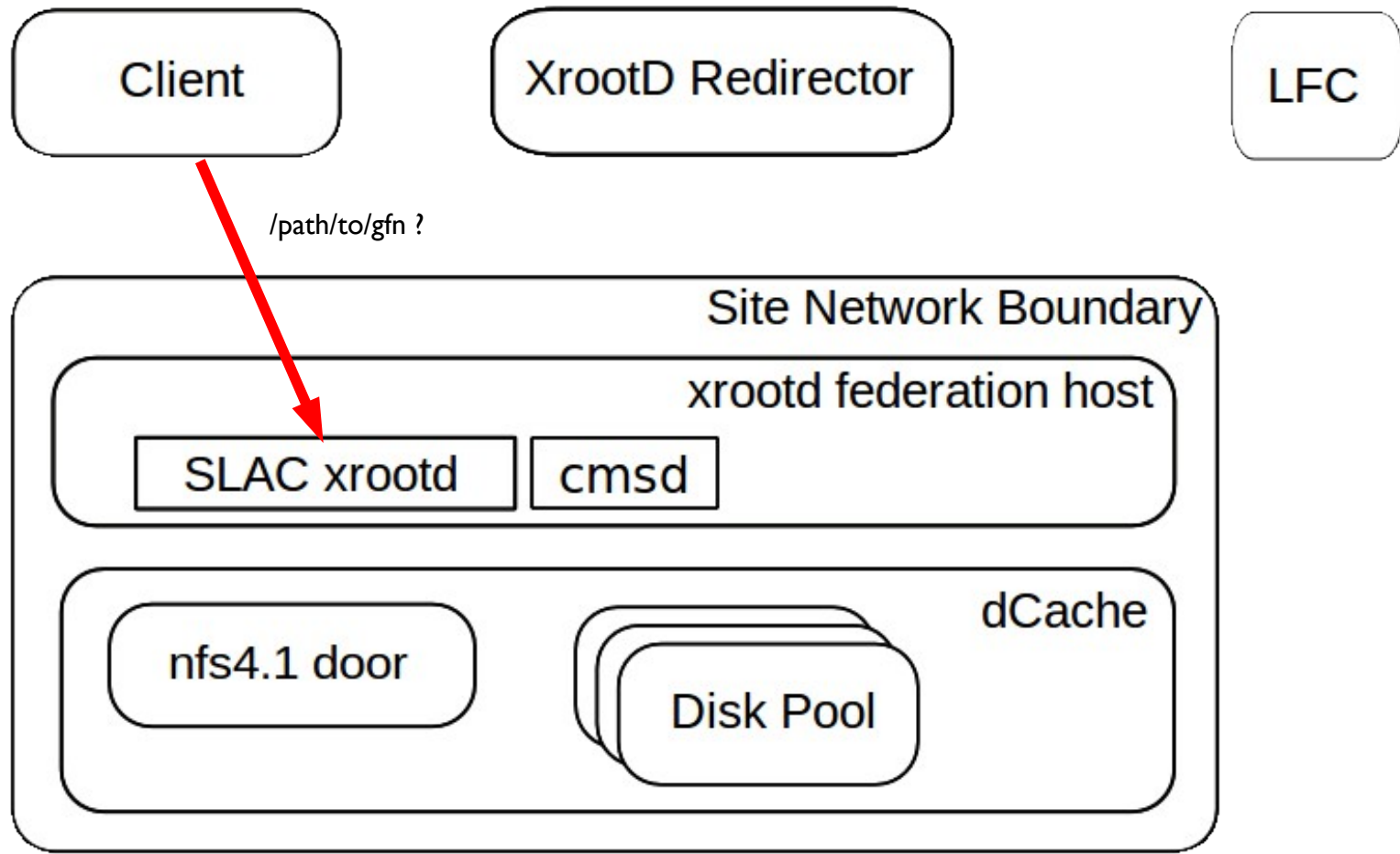
# Using dCache as Posix storage



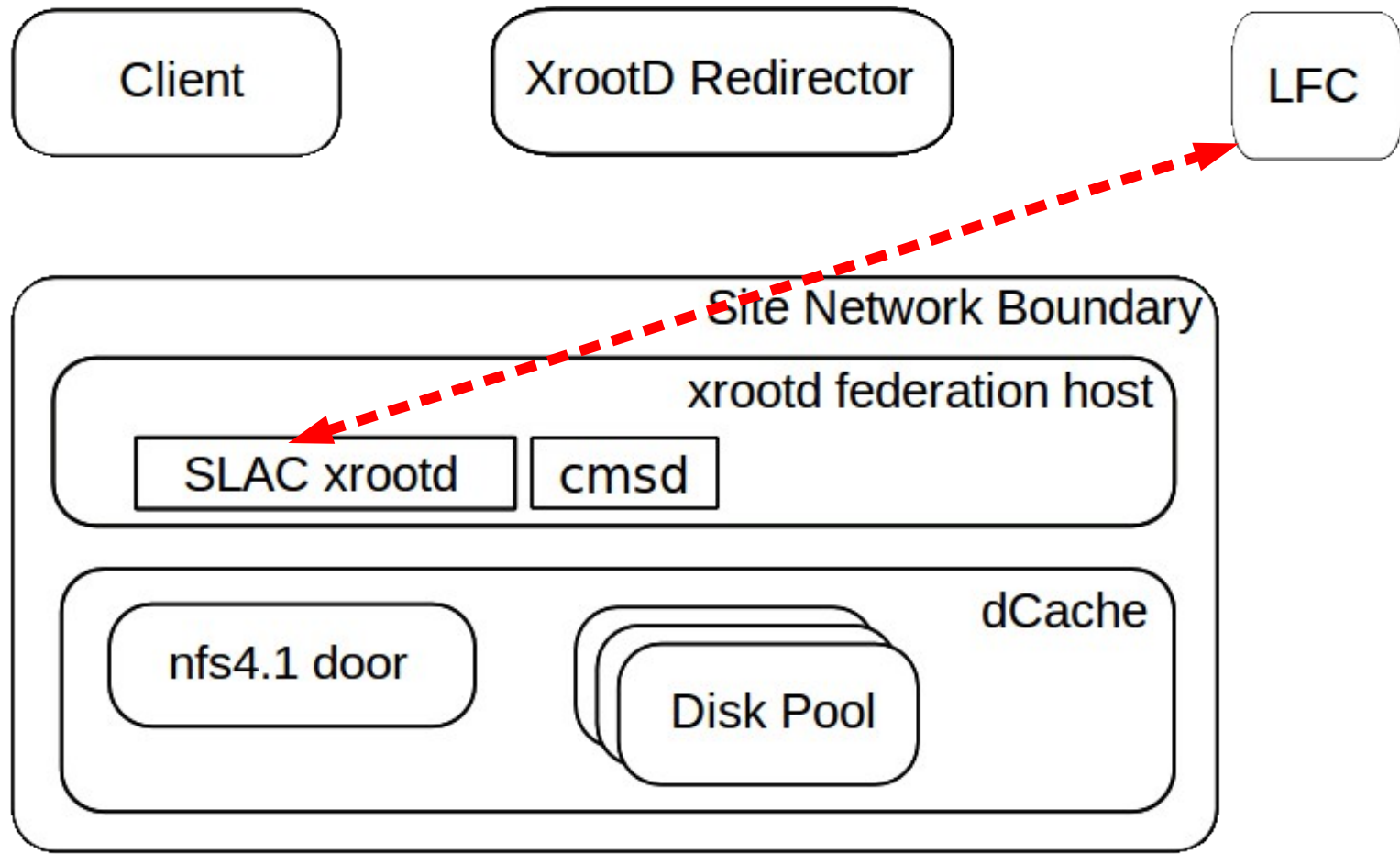
# Using dCache as Posix storage



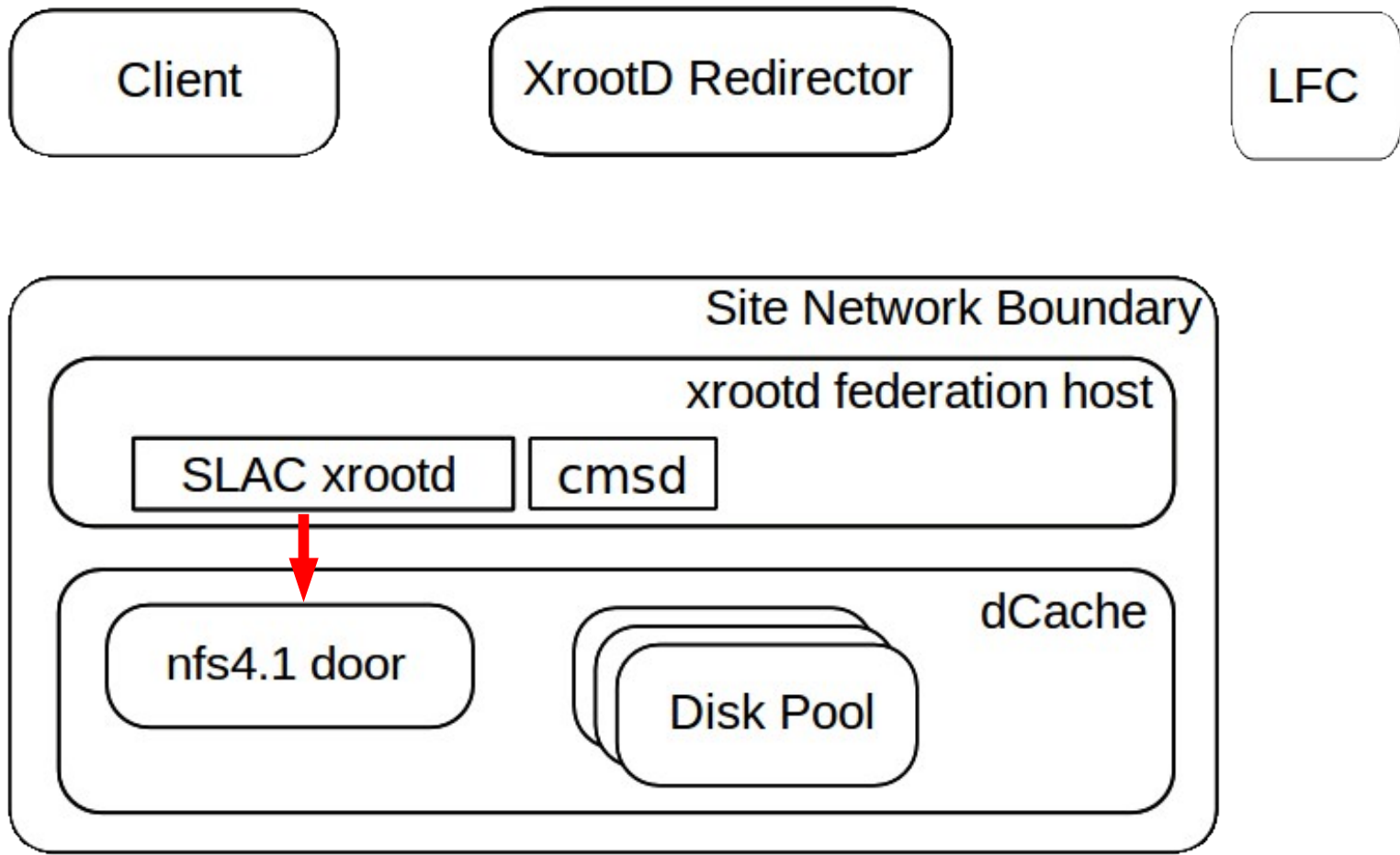
# Using dCache as Posix storage



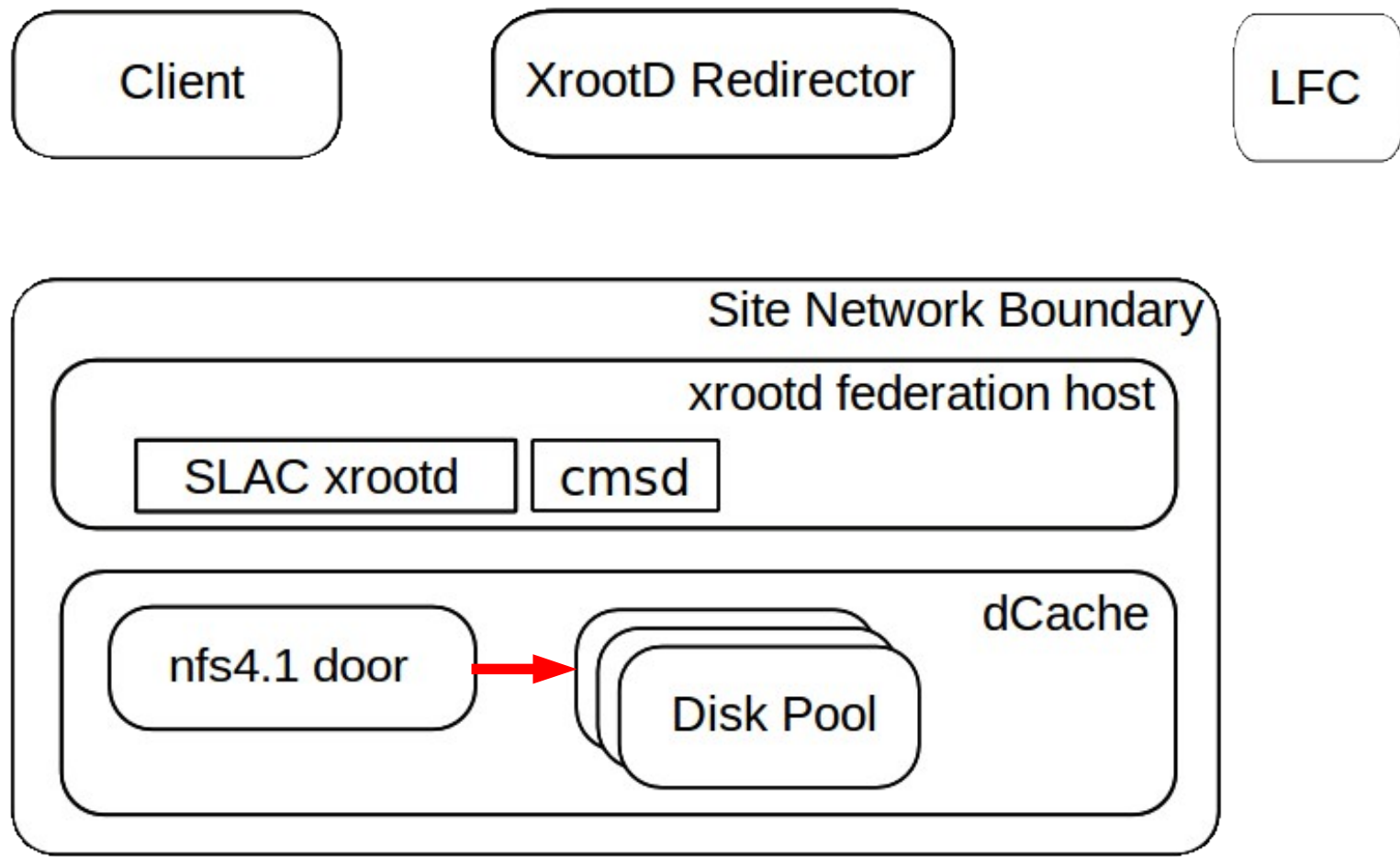
# Using dCache as Posix storage



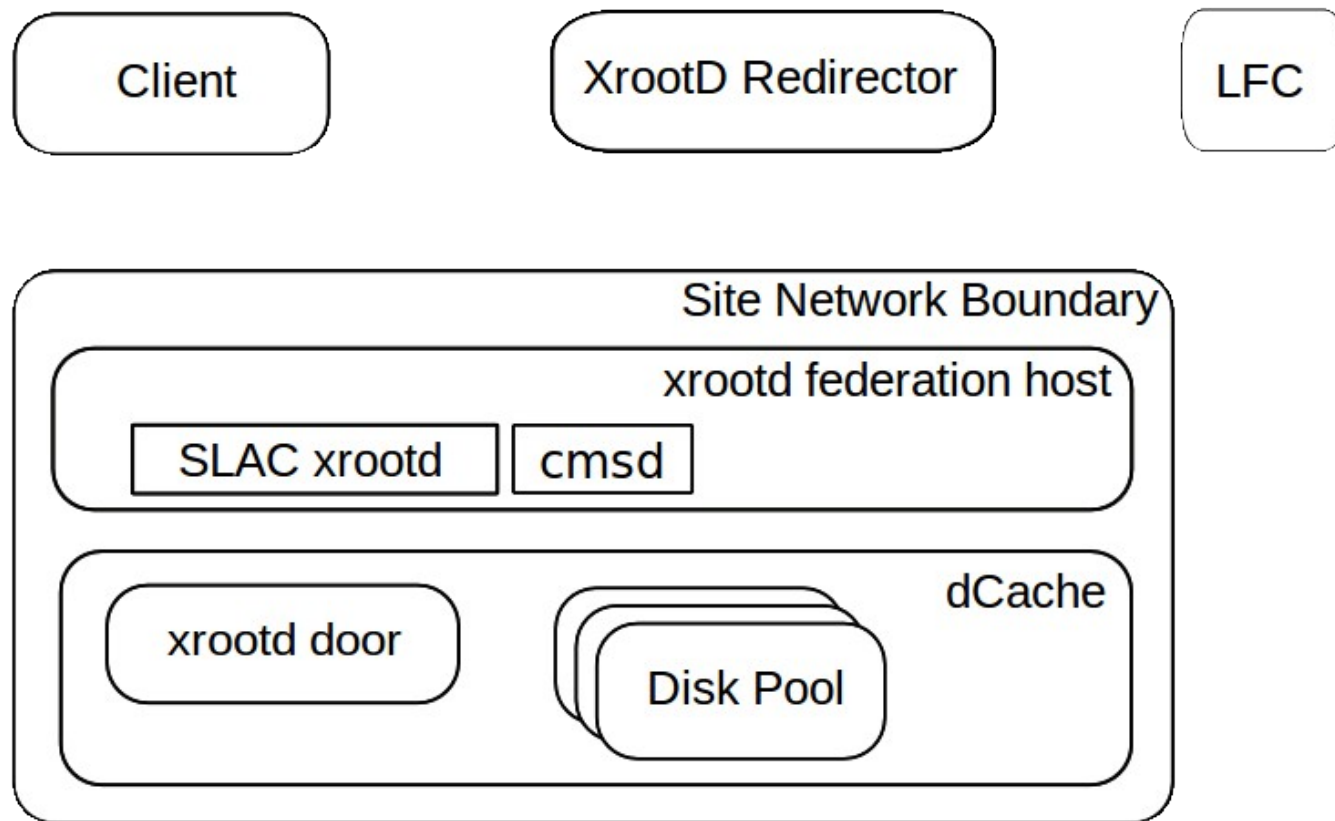
# Using dCache as Posix storage



# Using dCache as Posix storage



# Using dCache as XrootD storage



See <https://twiki.cern.ch/twiki/bin/view/Atlas/FAXDECloud> for a real life example by Günther Duckeck (LMU München)

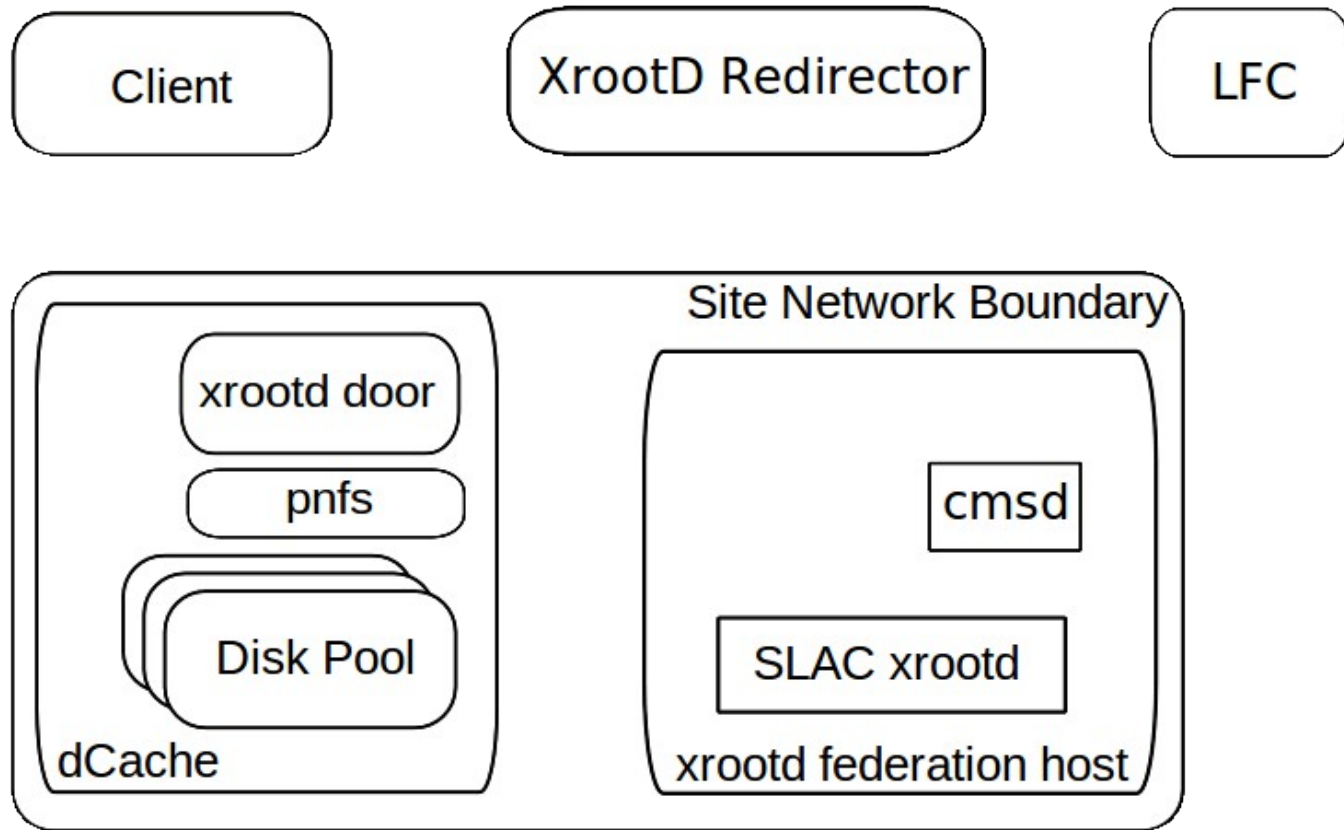
# Using the FAX Name-to-Name Plugin

Third-party plugin by Ilija Vukotic

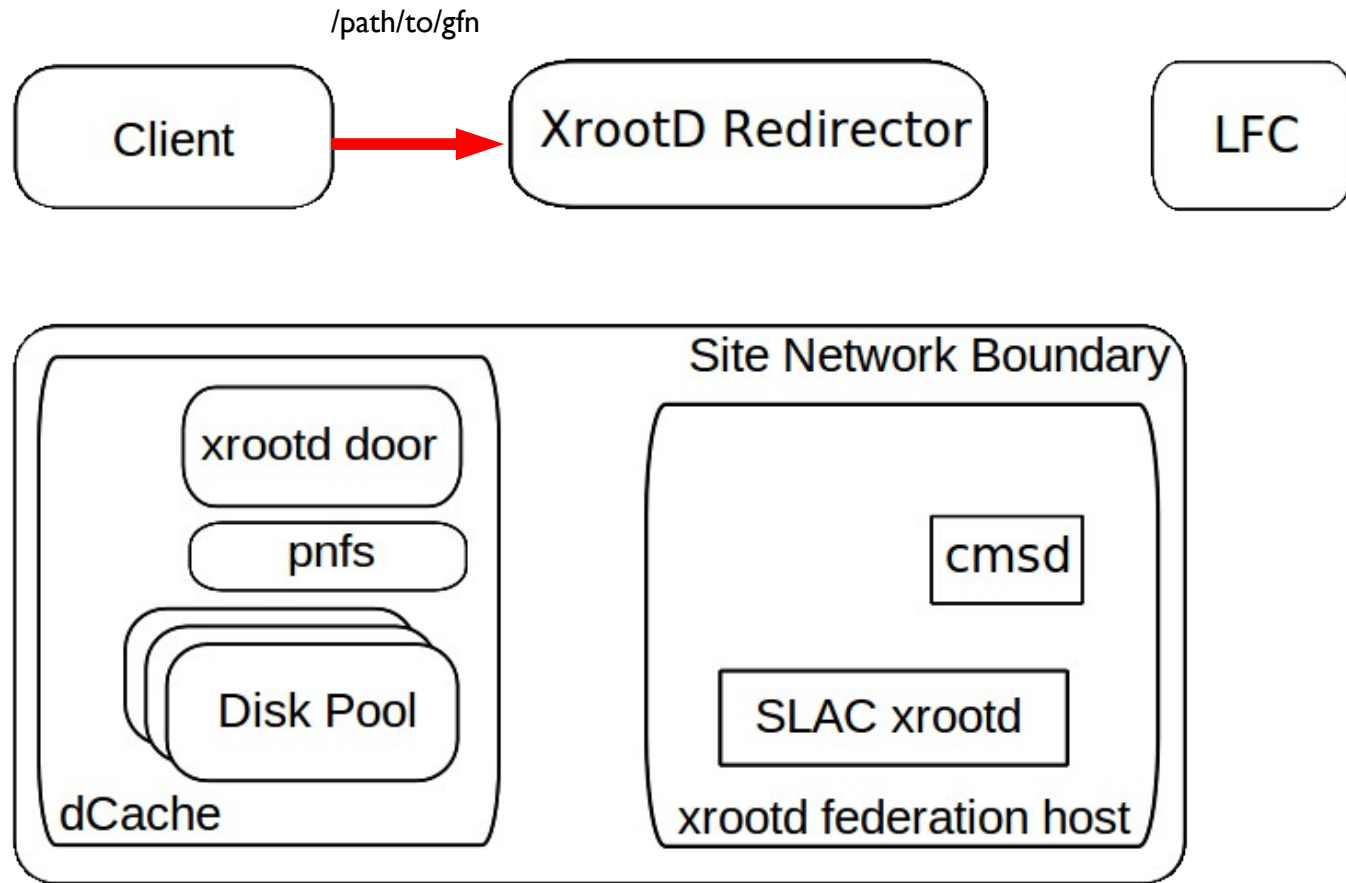
`https://twiki.cern.ch/twiki/bin/view/Main/IlijaVukotic`



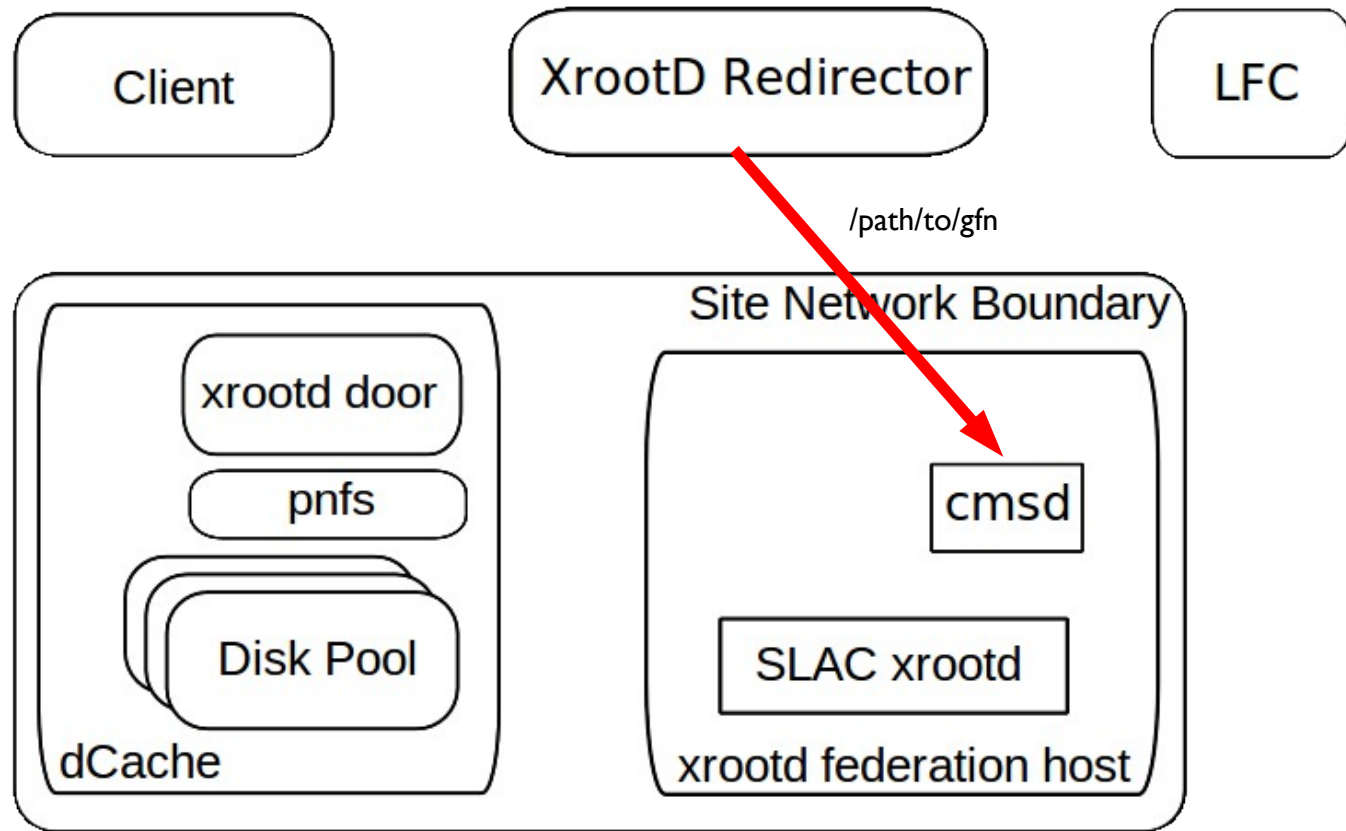
# Using the FAX Name-to-Name Plugin



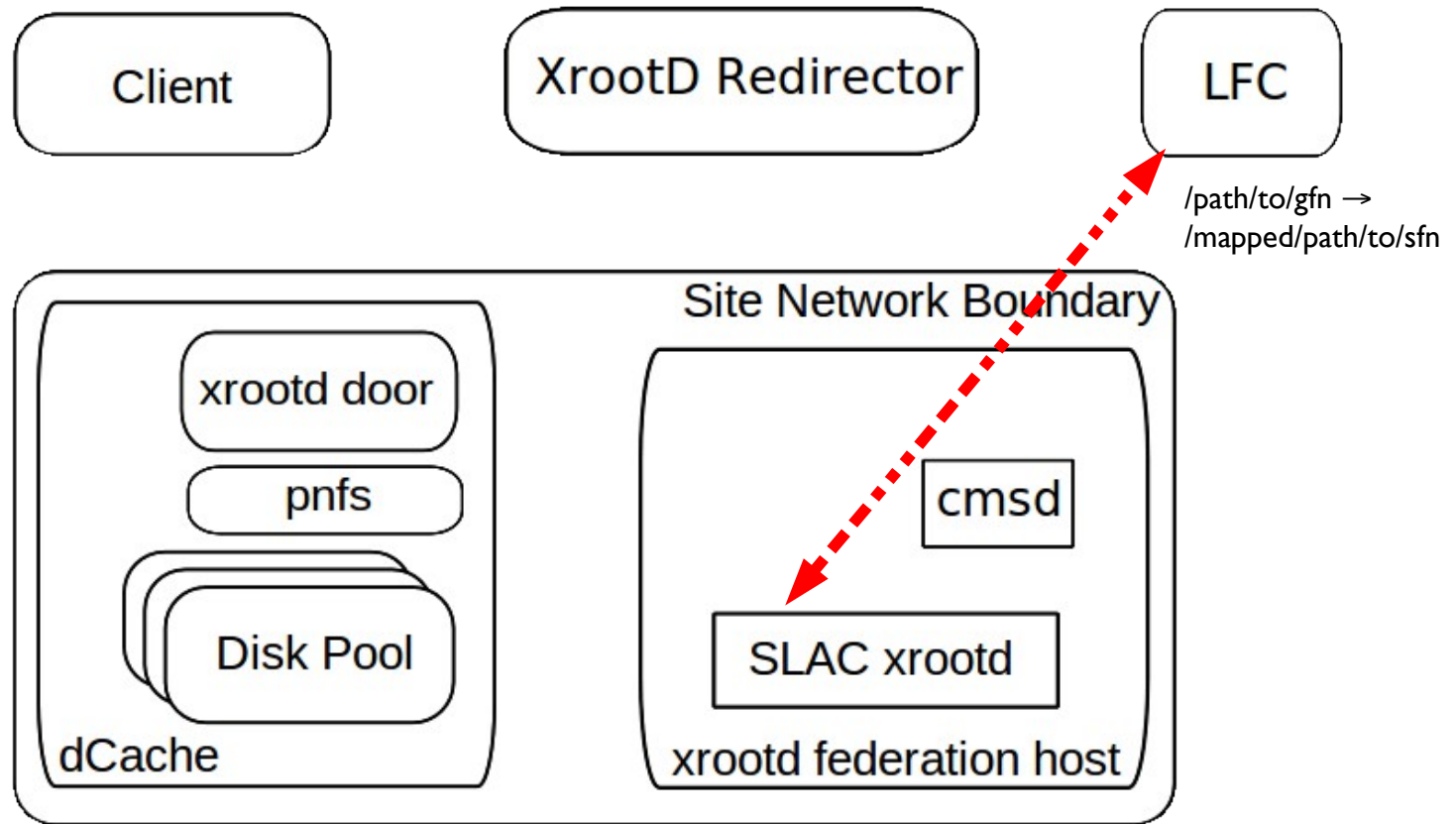
# Using the FAX Name-to-Name Plugin



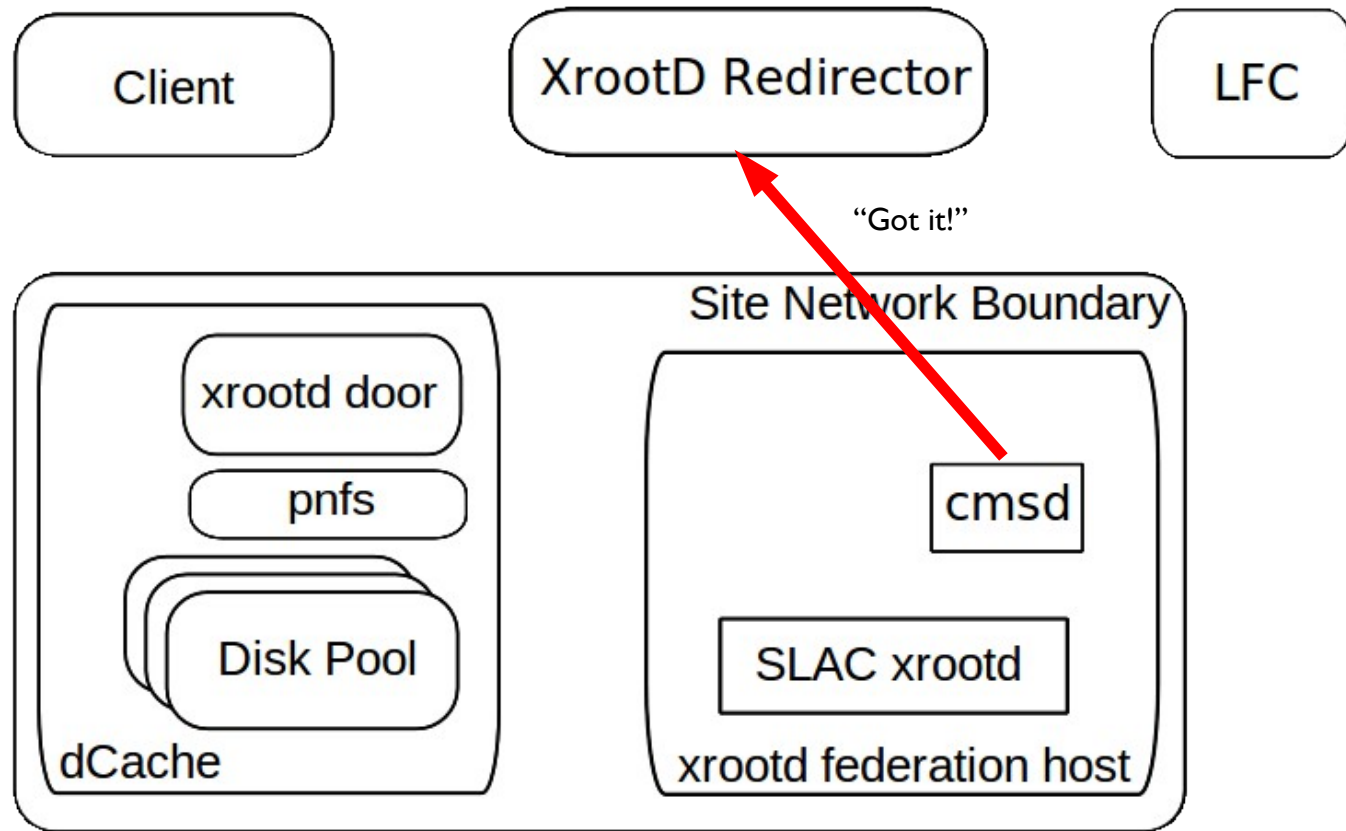
# Using the FAX Name-to-Name Plugin



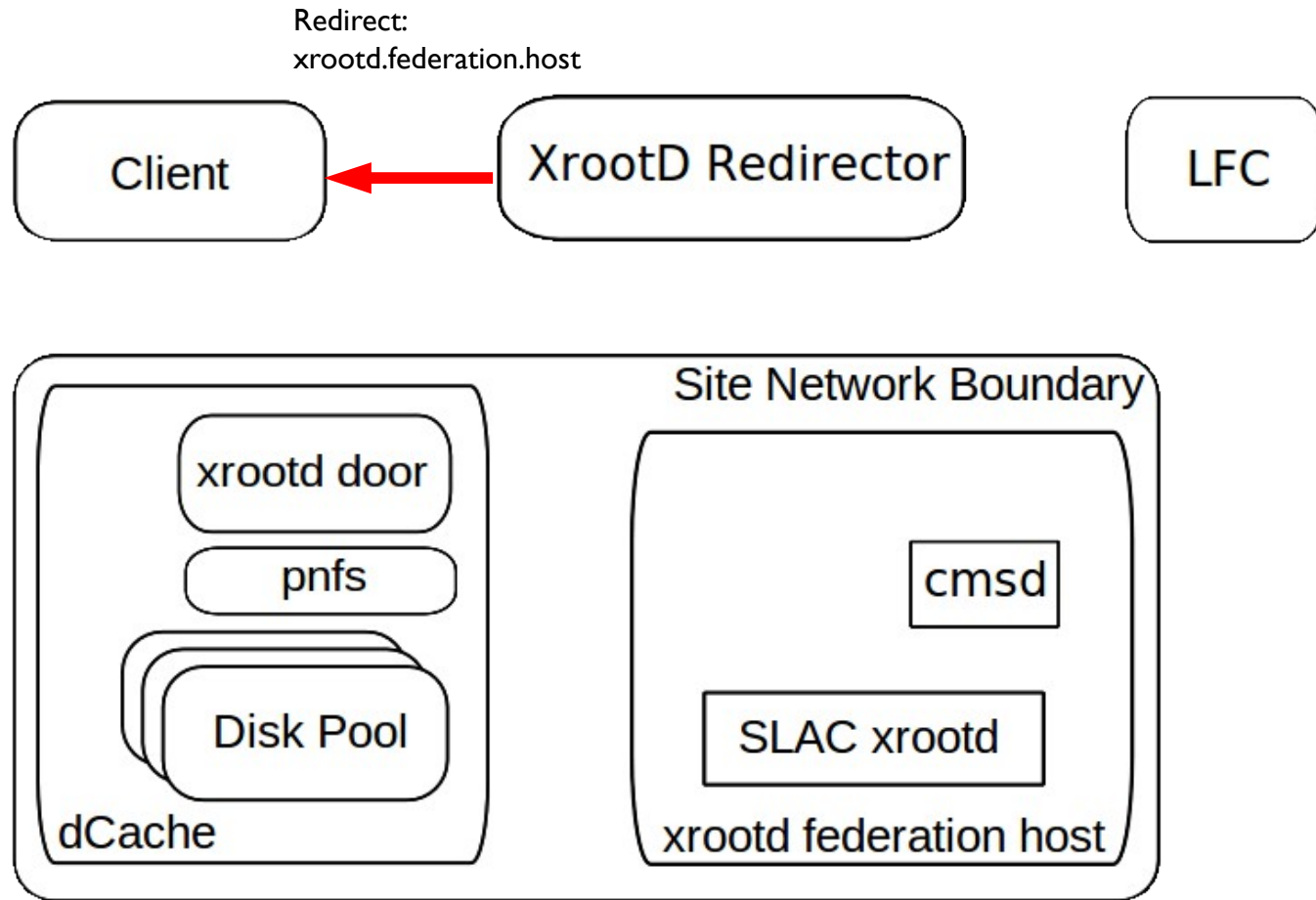
# Using the FAX Name-to-Name Plugin



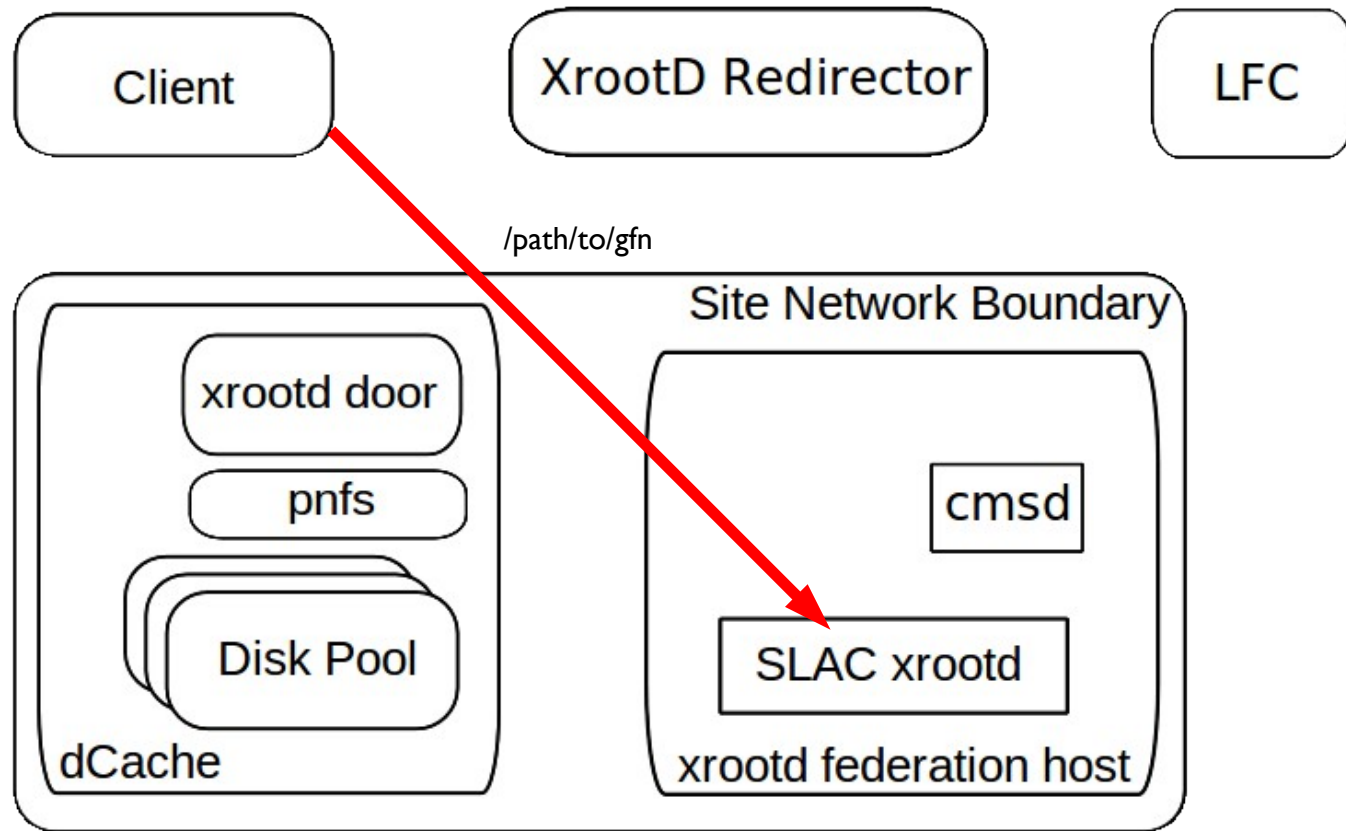
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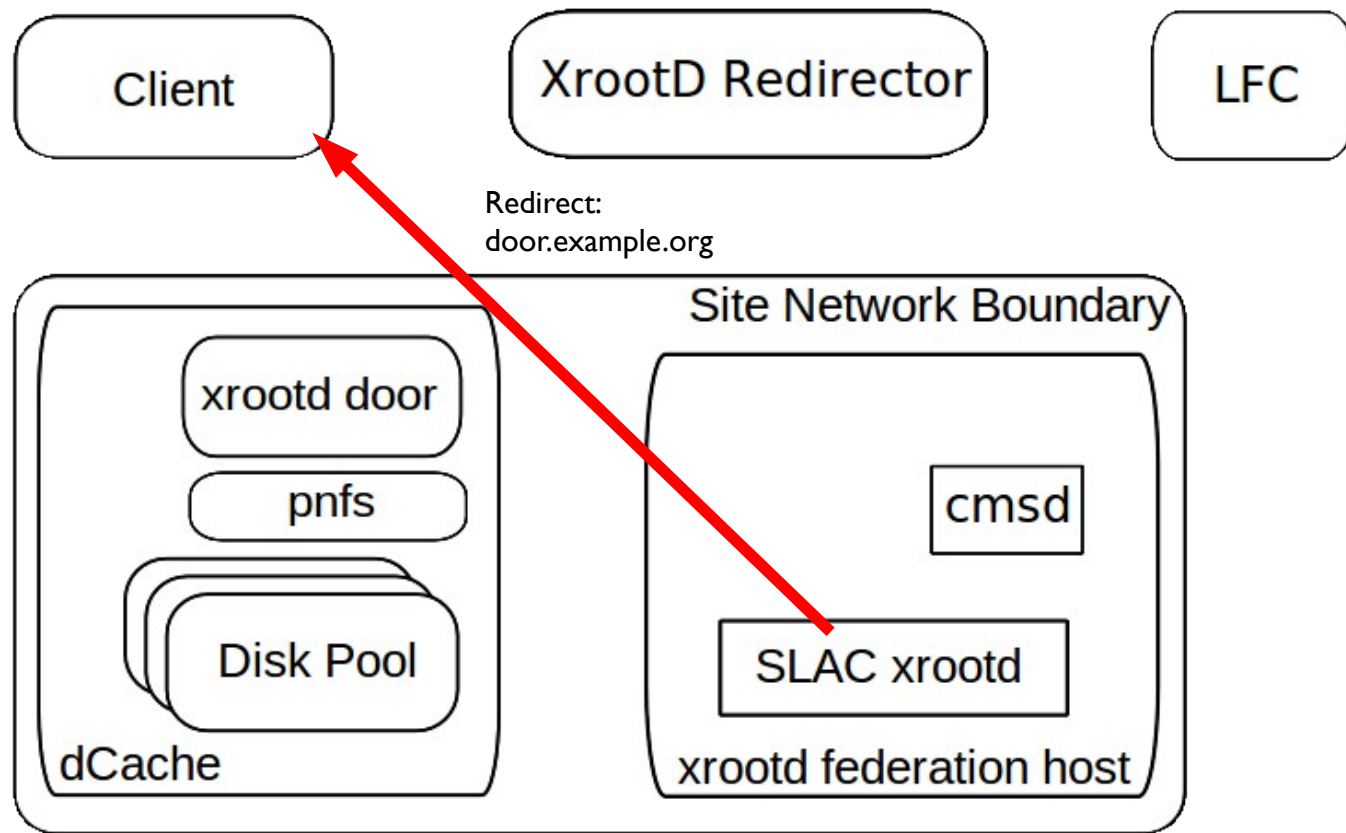
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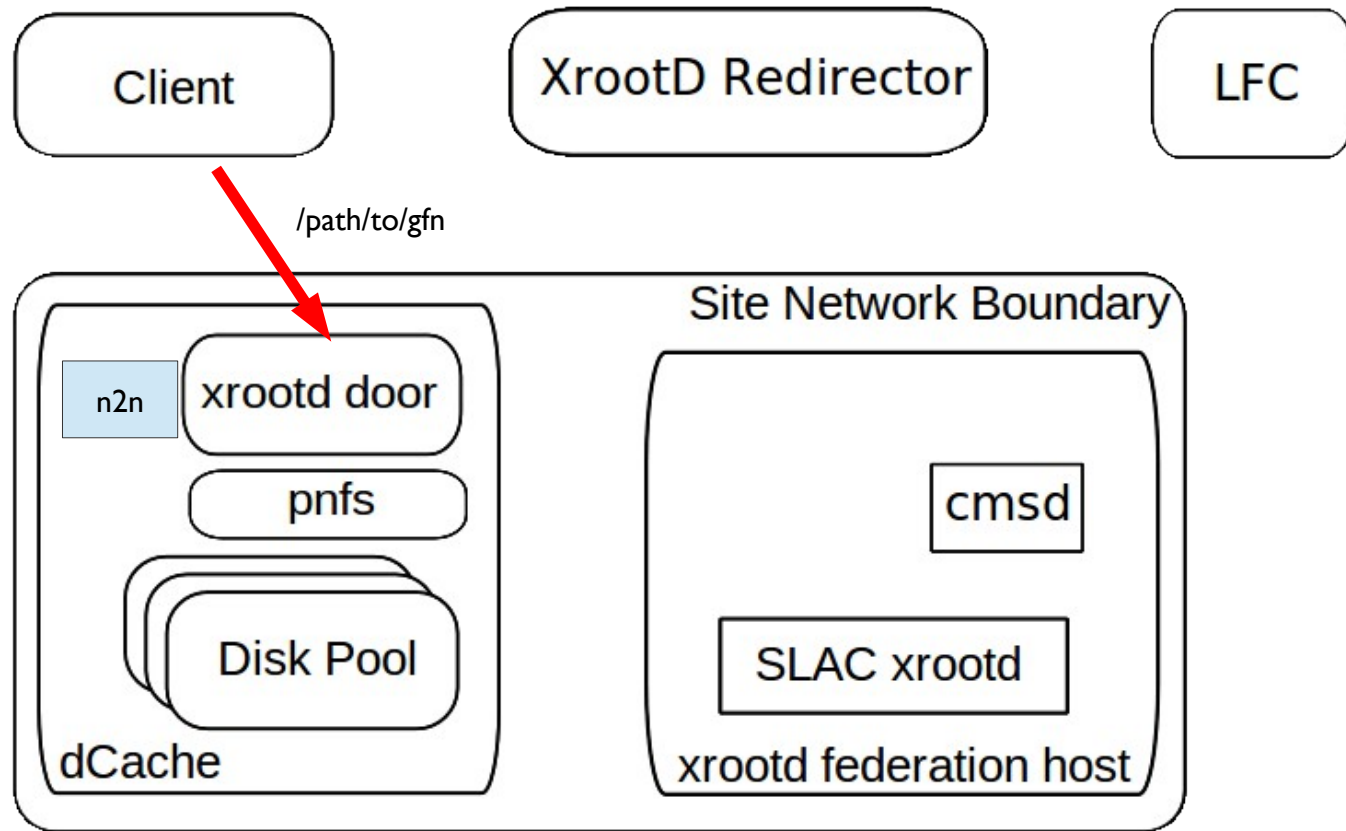


# Using the FAX Name-to-Name Plugin

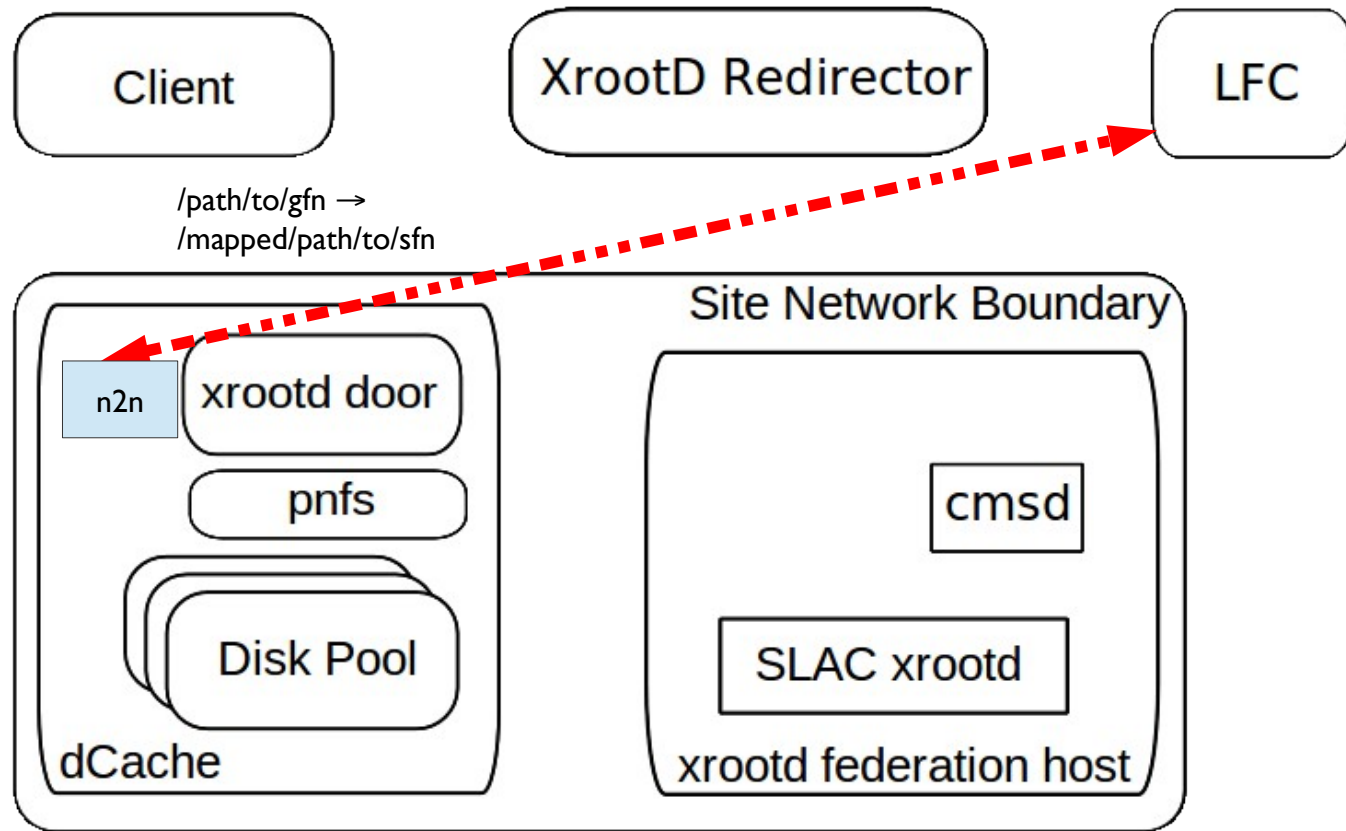




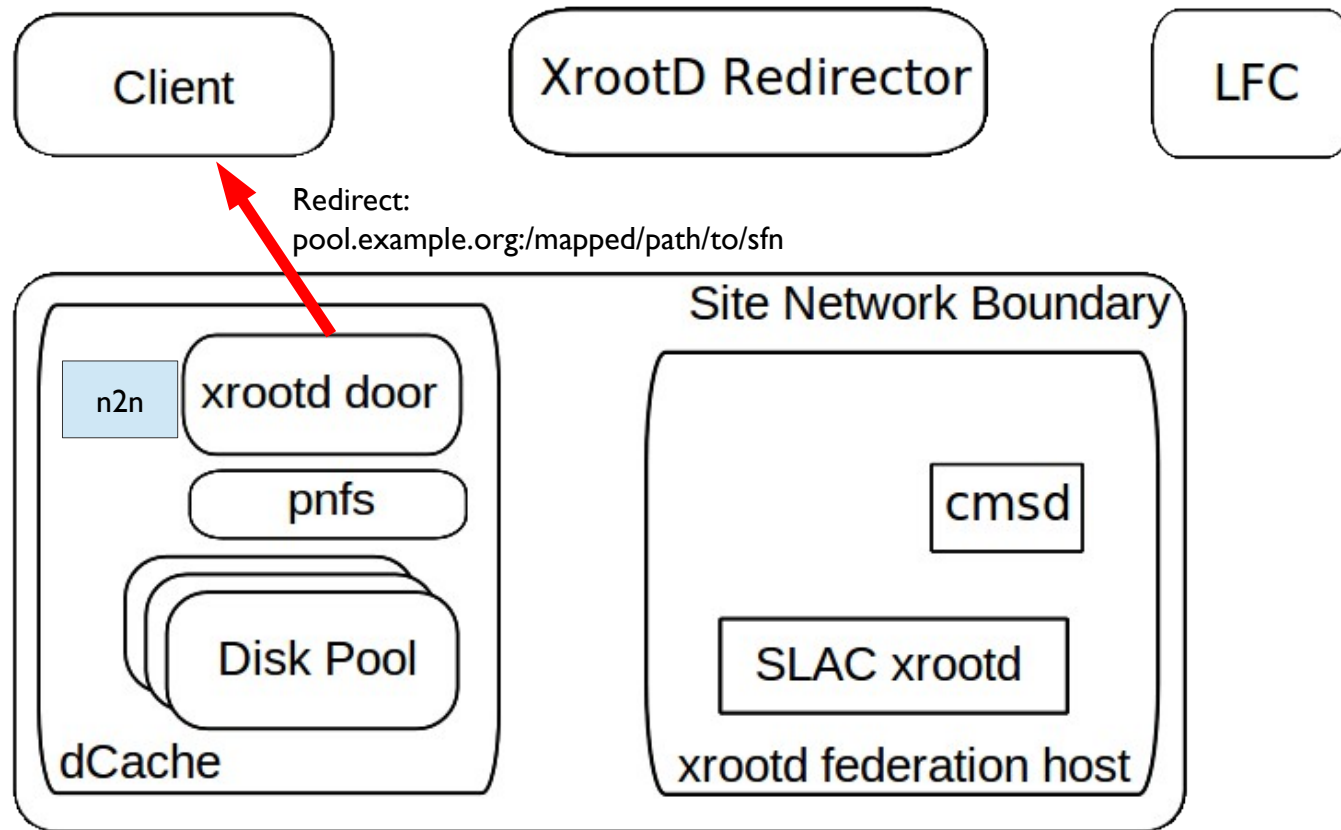
# Using the FAX Name-to-Name Plugin



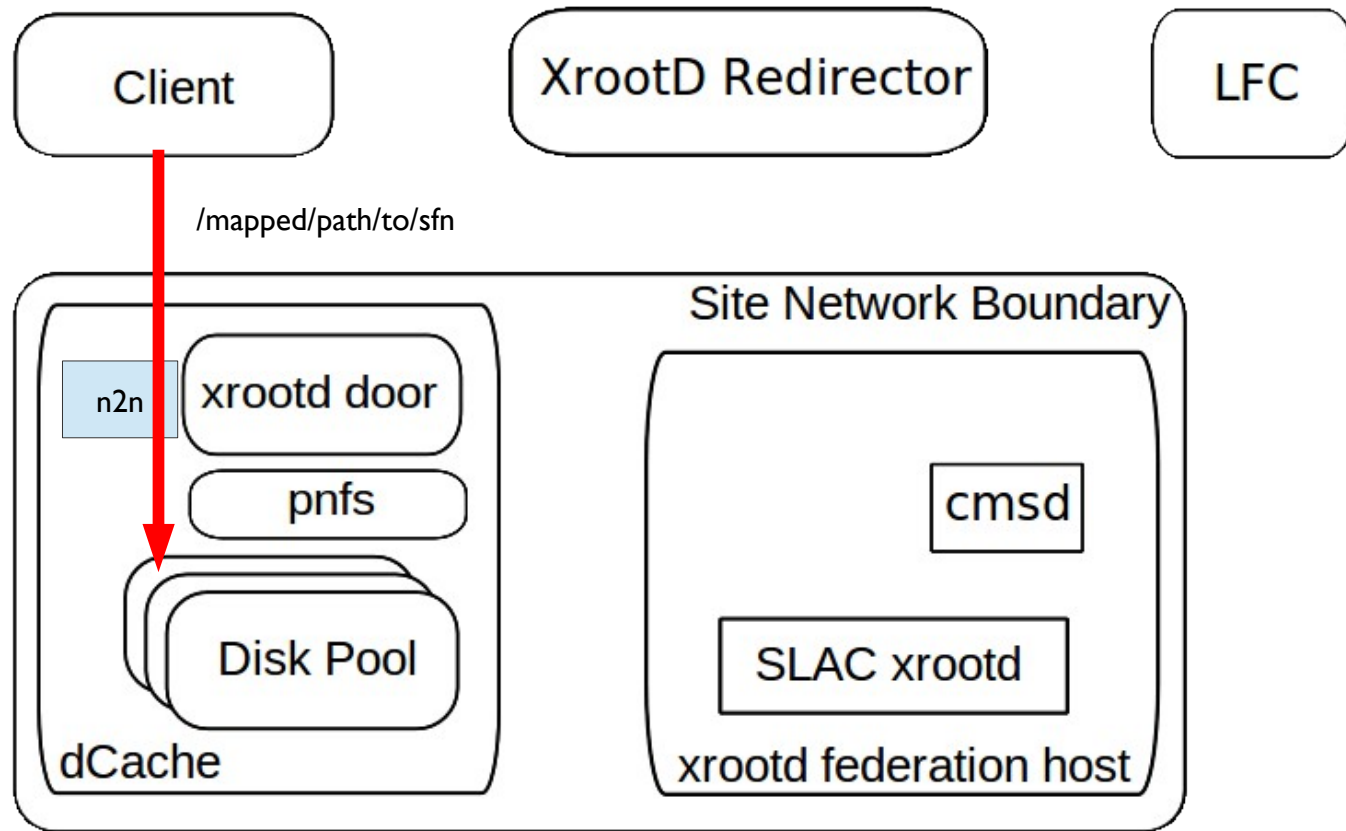
# Using the FAX Name-to-Name Plugin



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# Using the FAX Name-to-Name Plugin



# Install the Name-to-Name-Plugin

Build or download from

`https://github.com/ivukotic/plugins.git`

Unpack it in

`/usr/local/share/dcache/plugins`

# Configure the Name-to-Name Plugin

In your layout file (or dcache.conf) set

```
xrootd/xrootdPlugins=gplazma:none,authz:atlas-name-to-name-plugin
```

Configure hostname of the LFC

```
lfc_host=<lfc-host>
```

And the hostname of the dCache SRM door

```
srm_host=<srm-host>
```

# Install the Atlas Pool Monitor Plugin

Third-party plugin by Ilija Vukotic

<https://twiki.cern.ch/twiki/bin/view/Main/IlijaVukotic>

Exposes two monitoring streams:

- Summary: High-Level statistics
- Detailed: Information to each file open

*So far, mostly Atlas, but there is some activity to use this also for CMS.*

# Install the Atlas Pool Monitor Plugin

Build or download from

`https://github.com/ivukotic/plugins.git`

Unpack it in

`/usr/local/share/dcache/plugins`



# Configure the Atlas Pool Monitor Plugin

In your layout file (or dcache.conf) set

- on the Pool-Nodes:

```
pool/xrootdPlugins=gplazma:none,authz:edu.uchicago.monitor
```

Configure where to send the summarized data

```
summary=<monitor-host>:<port>:<interval[s]>
```

and where to send the detailed data

```
detailed=<details-host>:<port>:<interval[s]>
```

- on the Door-Nodes:

```
xrootd/xrootdPlugins=gplazma:none,authz:atlas-name-to-name-plugin
```

```
pool/xrootdPlugins=gplazma:none,authz:edu.uchicago.monitor
```

# Using the Alice-Token Plugin

# Using the Alice-Token Plugin

In your layout file (or dcache.conf) set

```
xrootd/xrootdPlugins=gpplazma:none,authz:alice-token
```

If you want gsi security:

```
xrootd/xrootdPlugins=gpplazma:gsi,authz:alice-token
```

Configure the path to the keystore

```
xrootdAuthzKeystore=<keystore>
```

# Version Requirements

Plugin	dCache 2.2+	dCache 2.4+	dCache 2.6+
xrootd4j-backport	supported	supported	included
Alice Authorization	Included	Included	included
CMS Federation	with xrootd4j-backport	supported	supported
Atlas Federation	with xrootd4j-backport	supported	supported
Atlas Pool Monitoring	with xrootd4j-backport	with xrootd4j-backport	supported

# XrootD-Backport

Build or download

`xrootdj-backport-2.4-SNAPSHOT.tar.gz`

Unpack it in

`/usr/local/share/dcache/plugins/`

Restart dCache to pick it up.

## Building Plugins (optional)

*Checking out source code of plugins and building them is **not necessary** for normal operation.*

*However, if you are interested you can...*

# Building Requirements

To build the plugins from source:

Git, Java 6+, Maven2 or 3 and xrootd4j from  
<https://github.com/dCache/xrootd4j.git>

Install the xrootd4j dependencies using

```
# cd xrootd4j
```

```
# mvn install -am -pl xrootd4j
```

Take the `.tar.gz` from the `target` directory.

# Build the XrootD-Backport

Check out the sources from

<https://github.com/dCache/xrootd4j-backport.git>

```
# cd xroot4j-backport
```

```
# mvn package
```

Take the `.tar.gz` from the `target` directory.

*Current version depends on `dcache-core-2.2.5`*



# Build the CMS Mapping-Plugin

Check out the sources from

<https://github.com/dCache/xrootd4j-cms-plugin>

```
# cd xrootd4j-cms-plugin
```

```
# mvn package
```

Take the `.tar.gz` from the `target` directory.

# Sources

## XrootD4J:

- <https://github.com/dCache/xrootd4j.git>

## XrootD4J-Backport:

- <https://github.com/dCache/xrootd4j-backport.git>

## CMS-Namespace-Mapping:

- <https://github.com/dCache/xrootd4j-cms-plugin.git>

## FAX-Namespace-Mapping,

## Atlas-Pool-Monitoring:

- <https://github.com/ivukotic/plugins.git>

*Currently there is no official download location for the plugins. If you want to use them, please contact us ( [support@dcache.org](mailto:support@dcache.org)) or the provider of the plugin.*

# References

- Giacinto Donvito:

"CMS evolution on data access: xrootd remote access and data federation",  
[http://www.desy.de/dvsem/WS1112/donvito\\_talk.pdf](http://www.desy.de/dvsem/WS1112/donvito_talk.pdf)

- Brian Bockelmann: "Joining a dCache-based SE to the Xrootd service.",  
<https://twiki.cern.ch/twiki/bin/view/Main/DcacheXrootd>

- Günther Duckeck: "Xrootd proxy setup for dCache to join FAX",  
<https://twiki.cern.ch/twiki/bin/view/Atlas/FAXDECloud>

- Ilija Vukotic: "Setup xrootd/FAX services with dCache Xrootd Door",  
<https://twiki.cern.ch/twiki/bin/view/Atlas/FAXdCacheN2Nstorage>

- WeiYang: "Setup xrootd/FAX services on Xrootd Storage",  
<https://twiki.cern.ch/twiki/bin/view/Atlas/FAXxrootdStorage>

- Domenico Giordano, Simone Campana: "XrootD Deployment Task Force"

Thank you!