



C S C

Expertise from Knowledge



Testing dCache and IPv6

Hepix 24.3.2015 Ulf Tigerstedt <ulf.tigerstedt@csc.fi>

Introduction

- At around dCache 2.6.0, IPv6 was untested and assumed to be mostly broken except for the parts that were assumed to be working. Noone had really tested.
- Someone needed to test it, I was stupid enough to agree to it.
- Testing started within the HEPIX IPv6 WG, around Nov 2013, with a prerelease dCache 2.7.0 since it was promised to have better IPv6 support than then current 2.6.

Protocol support for IPv6 at the beginning

- SRM: Was working
- HTTP/HTTPS/HTTPG/webdav: Was working, but noone used it.
- Dcap: Broken
- NFS4.1: Broken
- GSIFTP/FTP: Mostly broken.
- XrootD: protocol IPv4 only at that time.
- Admin interface: broken.

Issues in the beginning

- IPv6 support had to be manually enabled with parameters to java.
- No net unit for IPv6, so no traffic allowed

GridFTP and FTP

- Some support in 2.8.x, mostly as IPv6 FTP extensions and transfer proxied via the door
- In 2.9.x, gsiftp was made compatible with globus-url-copy and the DPM gsiftpd daemon, ignoring the specification. This enabled non-proxied connections over IPv6 (delayed passive).

Xrootd

- Since dCache 2.9.4 xrootd is fully supported for IPv4 and IPv6 using the xrootd4 protocol.

Going IPv6 only in early 2015

- A new system was installed and taken into use as an IPv6 only test system.
- dCache 2.11 installed, it broke down immediately.. since it turned out dCache was IPv4-only internally when selecting pools.
- DCache 2.12 fixed that, but showed new bugs in how FTS3 interacted.
- Clients were really unhappy, mostly srmcp.
- FTS3 was verified to work with dualstack->ipv6 only during previous session

Other bugs found related to IPv6 usability

- Globus. Enough said?
- fetch-crl requires special tweaks in IPv6 only environments (inet6glue)
- dCache client (srmcp)