Using the Andrew File System on *BSD

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- why another network filesystem
- 1-slide history of Andrew File System
- user view
- admin view
- OpenAFS
- Arla
- AFS on OpenBSD, FreeBSD and NetBSD

Filesharing on the Internet

- use FTP or link to HTTP
- file interface through WebDAV
- use insecure protocol over vpn

History of AFS

- 1984: developed at Carnegie Mellon

- 1989: TransArc Corperation

- 1994: over to IBM

- 1997: Arla, aimed at Linux and BSD

- 2000: IBM releases source

- 2000: foundation of OpenAFS

User view <1>

- global filesystem rooted at /afs
  - /afs/cern.ch/...
  - /afs/cmu.edu/...
  - /afs/gorlaeus.net/users/h/hugo/...

User view <2>

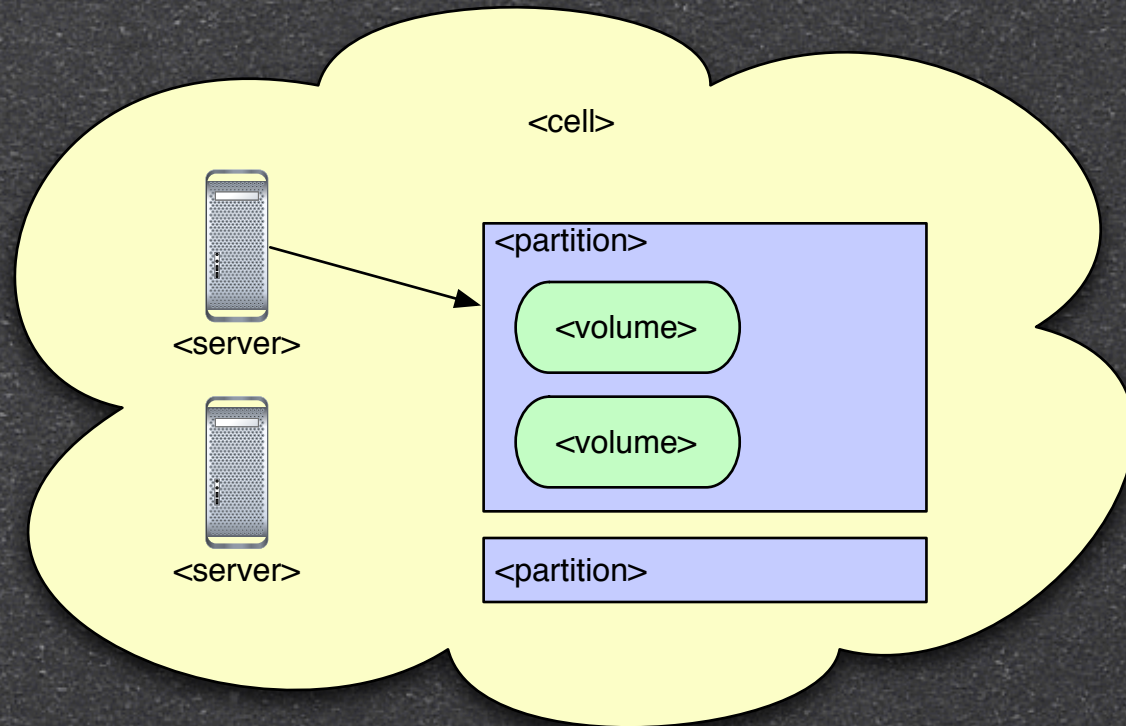- authentication through Kerberos

  - #>kinit <username>

  - obtain krbtgt/<realm>@<realm>

  - #>afslog

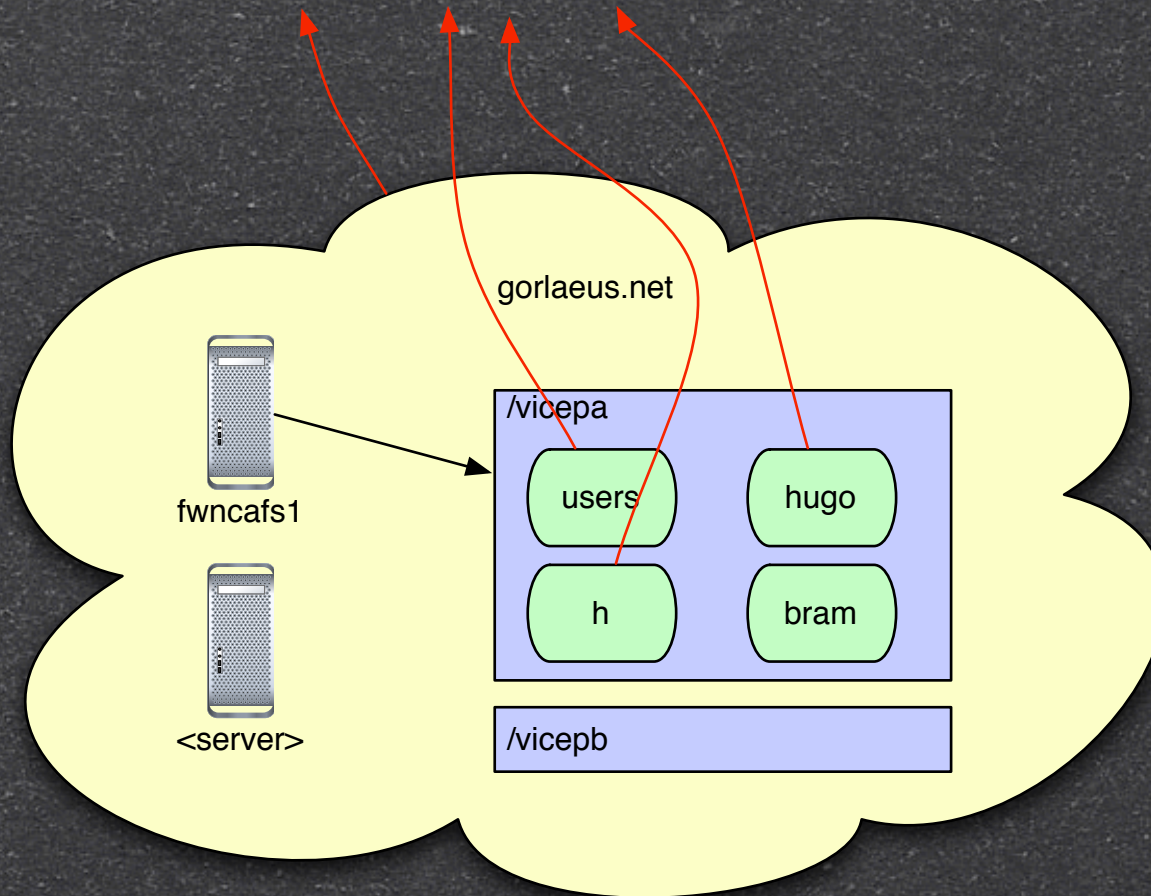 - obtain afs@<realm>

  - #>cd /afs/<cell>/users/<username>

User view <3>

- ACL (dir based) & Quota usage

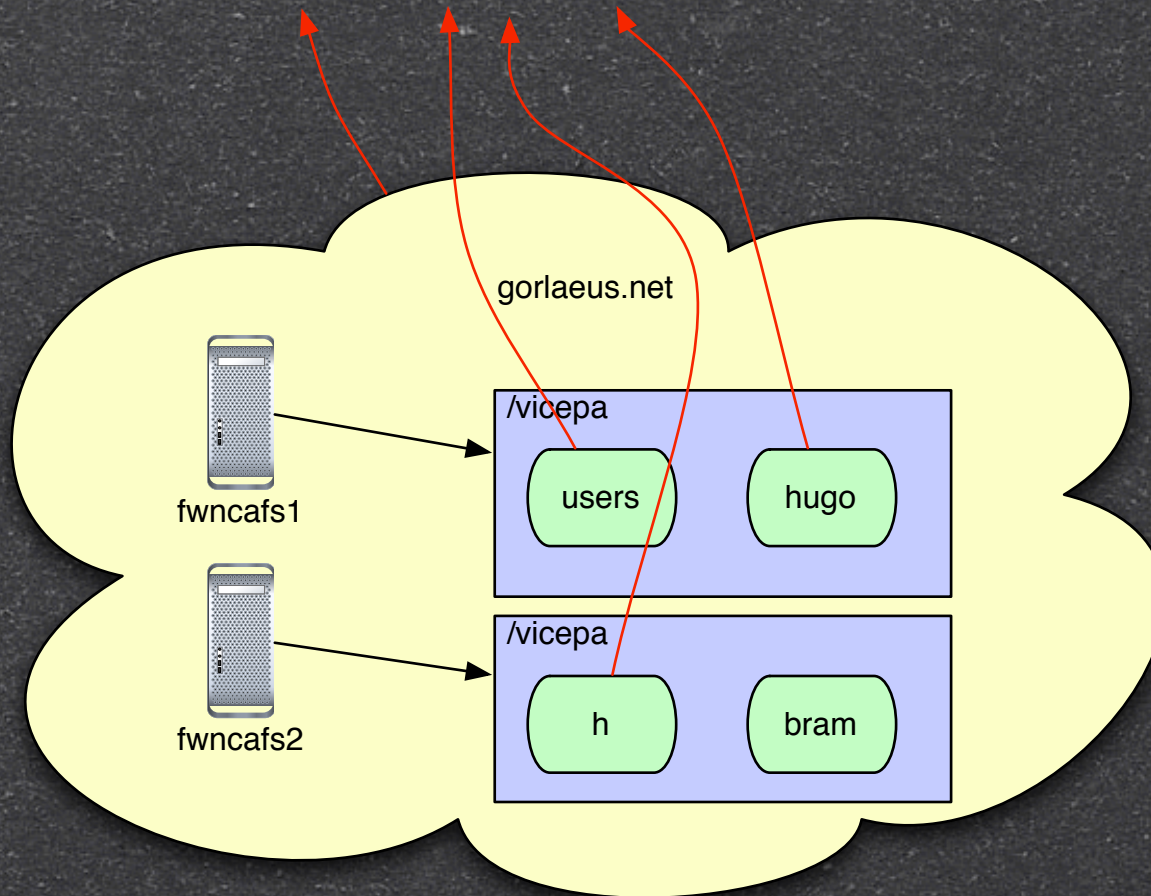- runs on Windows, OS X, Linux, Solaris ... and *BSD

Admin view <1>

Admin view <2>

Admin view <2a>

/afs/gorlaeus.net/users/h/hugo/presos/afs_slides.graffle

gorlaeus.net

fwncafs1

fwncafs2

/vicepa

users

hugo

/vicepa

h

bram

Admin view <3>

- servers require KeyFile ~= keytab

- procedure differs for

  - Heimdal: ktutil copy

  - MIT: asetkey add

Admin view <4>

- entry in CellServDB
  - >gorlaeus.net #my cell name
  - 10.0.0.1   <dbserver host name>
- required on servers
- required on clients without DynRoot

Admin view <5>

- File locking

  - no databases on AFS (requires byte range locking)

- Backup

  - use acl aware tool e.g. afs-amanda

  - vos dump and your favorite tool

Alternatives

- NFSv4

- Coda, research only

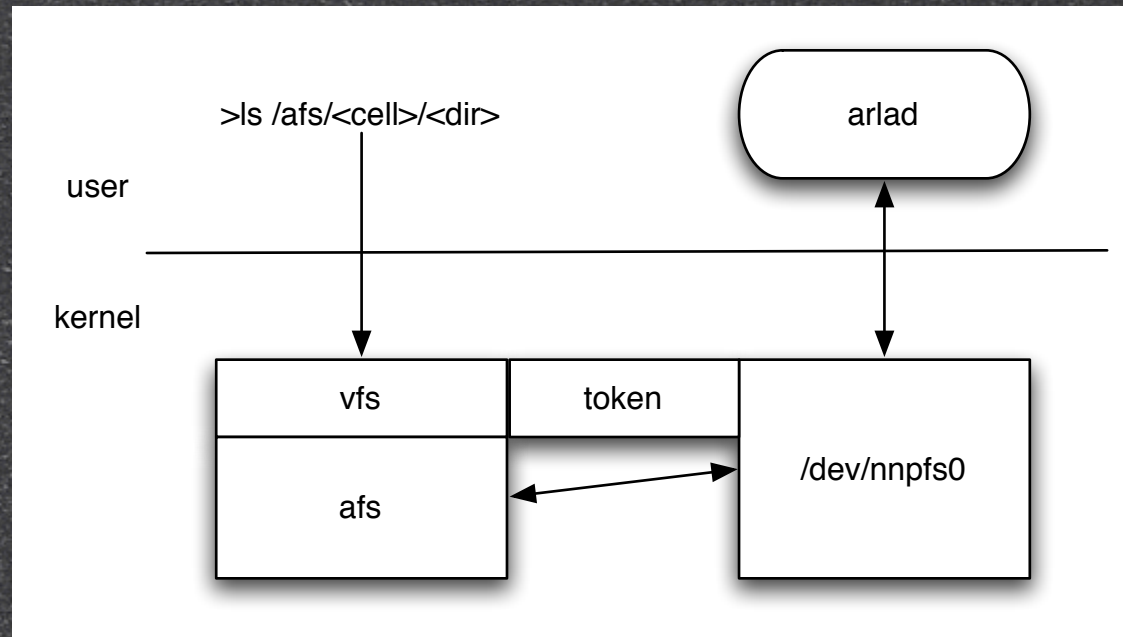- WebDAV

- Microsoft DFS, only tree view

Implementations

- OpenAFS client
  - licensed as IBM OpenSource
  - running as port on OpenBSD 3.9
- OpenAFS server
  - works on Open- Free- and NetBSD

Implementations

- Arla
- started development in 1997
- aimed for Linux and *BSD
- BSD license

Arla

OpenBSD

- Arla 0.35 in base system since 3.4
- Arla 0.42 working on 3.8 and 3.9
- OpenAFS client in ports as of 3.9

FreeBSD

- Arla 0.42 working on 5.x

- broken on 6.x due to vfs changes

NetBSD

- Arla 0.42 should work on 3.0

Future

- Arla: Fix vfs code for FreeBSD > 6.x

- OpenBSD: upgrade to latest arla code?

- FreeBSD: integrate Arla code in base?