SINE NOMINE ASSOCIATES

An OpenAFS Site Report

Code Name Sunrise

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History of AFS at Sunrise

SINE NOMINE ASSOCIATES

1999	AFS was introduced at one site in Sweden.
2000s	More sites were added.
2006	AFS read-only sites limit reached. Four **subcells** were created.
2015	CellCC deployed to support multi-cell sync.
2019	DPF deployed for volume releases over WAN.

Business View of the AFS Service

- Series of Linux/Unix based services which are vital to development and test at several sites on three continents.
- These services include Linux and Unix managed workplaces, Terminal Servers, Global Application delivery and other services which are dependent on AFS.
- The AFS file system provides a transparent mechanism to supply the application tree, environment files, Application Release Center (ARC) project environments and toolboxes to Linux/Unix services such as managed workplaces around the world.

Many people are not aware of the AFS service since it is transparent.

Managed Workplaces

Two major areas of AFS seen from Managed Workplace clients at Sunrise.

- Applications
- Environment

Application Release Center (ARC)

The Application Release Center (ARC) is a project to get a common, highly flexible and configurable UNIX environment.

Applications namespace

Application distribution for Solaris, RedHat, SuSE, Ubuntu.
Application symlink to AFS:

```
/app -> /afs/${cell}/app/
```

Environment namespace

The Environment namespace contains several important types of files used by Sunrise:

- Site files
- Licences
- Application Release Center (ARC) files

Environment symlink to AFS:

```
/env -> /afs/${CELL}/env/
```

CellCC

Scaling issues:

- Still one Cell with only 3 AFSDB-servers worldwide
- Change of mount points required in TAG-volumes (via dumpscan)
- Double storage capacity needed on TAG RW-servers

SNA was engaged in 2015 to create a product to support multi-sync for different Cells.
CellCC is now used to sync a single source-cell to four other cells on three continents.

DPF

At Sunrise we have seen performance problems with AFS releases (UDP-based) when it comes to WAN traffic.
Therefore we have implement a new mechanism developed by SNA: DPF for releases (TCP-based) This is now active since several months as default for releases.
Improvement factor: 5 - 15 times faster depending on network topology

Statistics

- 5 active AFS cells
  - 1 source cell
  - 4 target cells
- 33 AFS servers

Servers

OpenAFS fileservers.

Model	Number
ProLiant DL360 Gen9	12
ProLiant DL360p Gen8	6

Database servers are deployed on virtual machines.

Model	Number
XEN	1
VMware Virtual Platform	14

AFS-server OS usage overview

Vendor	Version	ARCH	Number
RedHat	6	x86_64	2
RedHat	7	x86_64	31

AFS Clients

Cell	Number
sero.gic	13070
seli.gic	9997
cn.ao	384
mo.ca.am	178
	23629

Clients by OS

Number of scanned systems grouped by OS:

Name	Number
RedHat	15596
SLE	7811
Ubuntu	654
Solaris	319
openSuse	7
Debian	1

Client arch

OSS	Ver	Arch	Number
RedHat	6	x86_64	7952
RedHat	7	x86_64	7559
SLE	11	x86_64	4725
SLE	12	x86_64	2961
Ubuntu	16	x86_64	553
Solaris	10	sparcv9	266
Ubuntu	18	x86_64	78
SLE	11	i686	67
RedHat	5	x86_64	62
Solaris	11	sparcv9	42
SLE	10	x86_64	29
SLE	10	i686	29

Client arch

OSS	Ver	Arch	Number
Ubuntu	14	x86_64	22
RedHat	5	i686	17
openSuse	11	i686	7
RedHat	6	i686	4
Solaris	10	amd64	4
Solaris	11	amd64	3
Solaris	9	sparcv9	2
Solaris	8	sparcv9	2
RedHat	4	i686	1
Ubuntu	12	x86_64	1
RedHat	4	x86_64	1
Debian	0	x86_64	1

AFS 1.6 Clients

AFS	Vers	Number
OpenAFS	1.6.21	12252
OpenAFS	1.6.22	4450
OpenAFS	1.6.20	3118
OpenAFS	1.6.23	1975
OpenAFS	1.6.9	957
OpenAFS	1.6.10	322
OpenAFS	1.6.5	210
OpenAFS	1.6.x	872
OpenAFS	1.4.x	112

AFS 1.8 Clients

Migration to 1.8.x underway.

AFS	Vers	Number
OpenAFS	1.8.2	46
OpenAFS	1.8.0pre5	34
OpenAFS	1.8.3	4
OpenAFS	1.8.3pre1	1

Disk cache vs Mem cache

Cache	Number of clients
disk	24262
memory	89

Volume releases

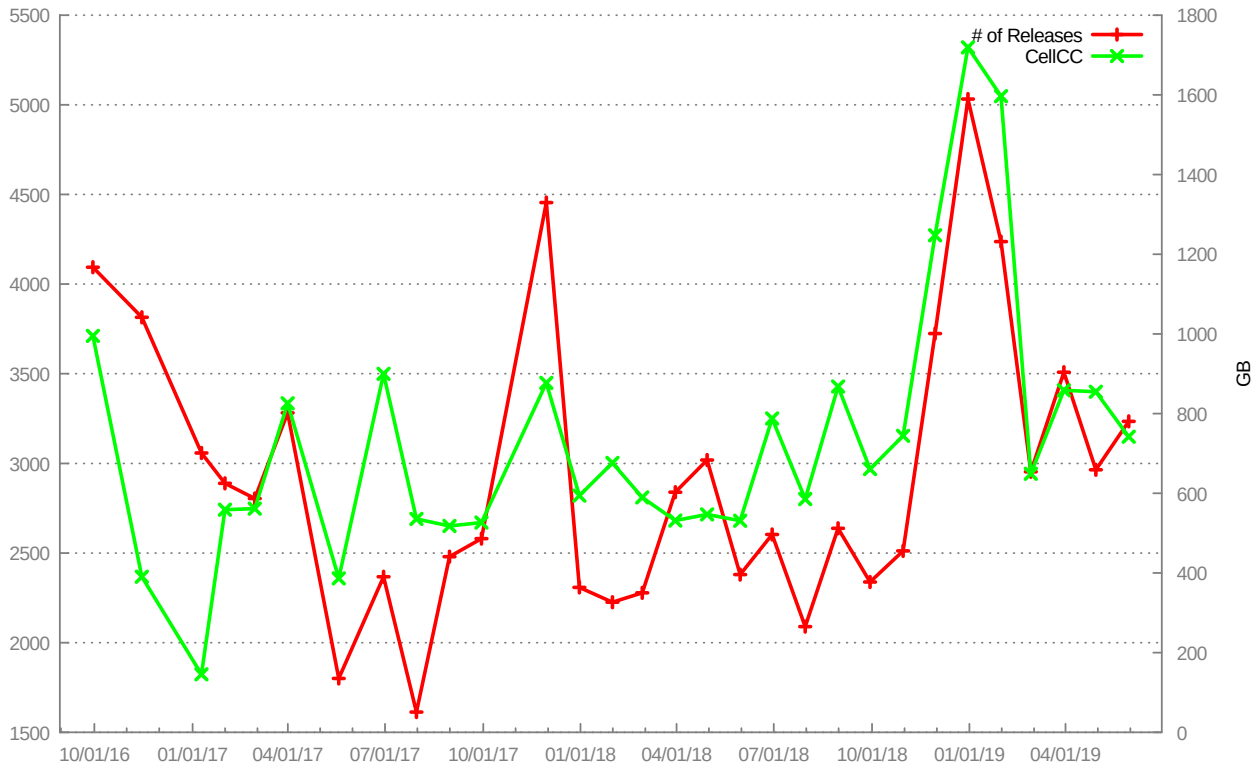

Figure 1: monthly-releases

Thank you

Questions?