

Case Study: Samba

COMP8440: FOSSD
Lecture 10



What is Samba?

- A file, print and authentication server
 - Compatible with the protocols used by MS Windows
 - Widely used for interoperability between Unix and Windows
- Who uses it?
 - Widely used by companies, government departments, universities and home users
 - Widely used in embedded form in NAS devices
- Who develops it?
 - Core team (about 15 active members)
 - Community contributors (about 40 in the last year)
 - Averages about 25 commits per day in total

Early Days

- Started with procrastinating student
 - Supposed to be writing a thesis
 - Tempted by DEC call for beta-testing WindX
 - WindX would not work with PC-NFS
 - Decided to write a DEC pathworks compatible file server
 - Initial version written in December 1991

First Announcement

Subject: Pathworks from non DEC servers

Date: Wed, 15 Jan 92 23:06:11 GMT

For those of you running the Pathworks for DOS software to mount file services on PC's, but who also have Sun's or other unix boxes you may be interested in a generic file server I have written that will allow the use of file services from many different unixes.

It is available from yaouk.anu.edu.au in the directory `pub/nbserver`

Andrew

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Early Days

- Hobby project
 - One maintainer, hosted on university servers
 - Released as a uuencoded tar ball, no binaries
 - Minimal documentation (a short README)
 - Simplistic non-profit license
 - No grand plans
 - Very poor quality code
- Why did it succeed?
 - It was immediately useful
 - The code was easy to hack on (around 2k lines of C)
 - It was free

Abandoned Early

- Itch gone
 - Our department moved to X terminals in mid 1992
 - No longer needed a PC on my desk, so no need for SMB server
 - I announced the end of my involvement, and asked for volunteers to continue maintenance
 - Nobody volunteered!
- Linux revival
 - Linux was gaining ground at about this time (late 92)
 - Needed a way to connect from PCs
 - Someone remembered by project and contacted me
 - I ended up as a Linux convert, but the project was still abandoned

Works with Lanman?

- Cheap home LAN
 - An ANU colleague was selling cheap LAN cards
 - I decided to setup a LAN at home (more procrastination?)
 - My wife ran DOS on a PC, I ran Linux
 - I had received an email saying my server worked with the free DOS Lanman client
 - I was very sceptical, but found it worked!
- New project
 - I now had a new itch to scratch – connectivity on my home LAN
 - I announced the “NetBIOS for Unix” project (Dec '93)
 - Adopted GNU GPL, in imitation of Linux and gcc
 - The project lived once more!

Project Expansion

- Quick development – 1993 and 1994
 - Patches via email
 - Active mailing list
 - New releases every few days
 - Code grew about 15x in 1 year
- Key factors
 - Fast release cycle – fast feedback
 - Careful crediting of contributions in change-log
 - Every release worked to some extent
 - Active project maintainer
 - Not so active on writing of his thesis, however!

Commercial Attention

- Letter from Syntax Corp. (April 1994)
 - Maker of proprietary SMB server
 - Claimed trademark infringement on name 'smbserver'
 - Project needed a new name, fast!
- Renamed to 'Samba'
 - Came from '^s.*m.*b' egrep of /usr/dict/words
 - 5 years later Syntax expressed regret
 - Samba was a better name :-)

Commercial Adoption

- **NAS vendors**
 - Caught the attention of NAS vendors around 1995
 - Small NAS boxes started using Samba
 - Didn't lead to many patches initially
- **Unix vendors**
 - Started getting interest from Unix vendors
 - Supplied free machines to develop and test on
 - Started shipping with Unix variants
 - Biggest interest from growing Linux community
- **Microsoft Interest**
 - Microsoft started to push SMB as 'CIFS'
 - Samba Team members invited to first CIFS conference (in 1996)

Samba Team

- Too intensive for 1 person
 - By mid-1996 Samba took up most of my time
 - Lots of contributors, very active mailing list
- Decided to form a core team
 - Created 'Samba Team' in May 1996
 - Moved to CVS for source code control
 - All team members had CVS write access
 - Public CVS read access
 - Team membership was by invitation
 - Led to even faster development
 - And also allowed me to write a bit more of my thesis

First legal scuffle

- **Discovered illegal clone in 1997**
 - Small US company, tried to sell Samba as own work
 - Very dirty tactics
 - Samba Team was very upset
- **Free legal help**
 - Help provided by Eben Moglen
 - Forced back-down by the company
- **Copyright registration**
 - Incident led to interesting copyright problem
 - Samba Team needed to register copyright
 - A major factor in current Samba copyright policy

Samba-TNG fork

- Large contribution from Luke Leighton
 - Started contributing in mid 1996
 - Initially worked on nmbd, later on domain support
 - Lots of contributions over 4 years
- Disagreements
 - Disagreements on engineering grew in 1999
 - Separate branch within CVS created in late 1999
 - Continuing disagreements led to a full fork in October 2000

Book fever

- Major milestone
 - First book on Samba by John Blair in early 1999
 - Huge success – topped Amazon IT sales for months
- Surprised publishers
 - Other publishers caught by surprise
 - Everyone wanted to do a book on Samba
 - Within a couple of years there were 20 books
 - Many were of dubious quality

Samba as a career

- Dot-com boom in 1999
 - FOSS programmers in high demand
 - Many of the Samba Team now working full time on Samba
- Visited US in May 1999
 - Gave talks at 5 well known companies
 - Offered a job by all of them
 - Started working for Linuxcare

Bug tracking

- Mailing lists
 - Started with a simple mailing list
 - Many users were also developers
- Jitterbug
 - Created new bug tracking system 'jitterbug' in late 1997
 - Jitterbug adopted by many other projects
- Moved to bugzilla
 - By 2003 jitterbug was swamped. It didn't scale well.
 - Switched to bugzilla in May 2003

Source Code Management

- 1992-1996
 - Tar balls and emailed patches
- 1996-2004
 - CVS, with public CVS access
- 2004-2008
 - subversion, with public svn access
 - Some developers used bzr or svk
- 2008-
 - git – distributed SCM
 - Full history since 1996 imported

Child projects

- **Libraries**

- tdb: trivial database
- talloc: hierarchical memory management
- ldb: light-weight LDAP database
- libsmbclient: SMB client library
- libreplace: portability layer
- tevent: event handling layer

- **Tools**

- JitterBug: bug tracking system
- pserver: public CVS module
- bzs-svn: plugin for bzs/svn compatibility
- pidl: IDL compiler
- build-farm: public build system

Related Projects

- **Management tools**
 - Dozens of Samba management tools have sprung up
 - Each is a FOSS project in its own right
- **Major projects**
 - Openchange: FOSS implementation of Exchange protocols
 - OpenNAS and FreeNAS: FOSS NAS projects
 - Heimdal: provides Kerberos support for Samba
 - smbfs/cifsfs: CIFS filesystem in Linux kernel