Beyond the Horizon

What's after Samba 3.0?

Gerald (Jerry) Carter
Hewlett-Packard
SAMBA Team

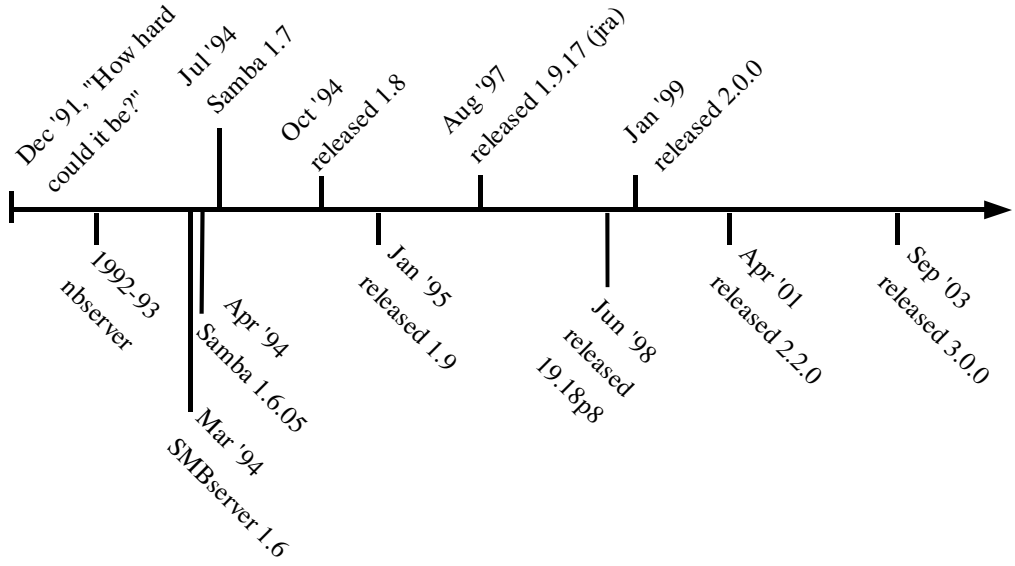
http://www.plainjoe.org/

jerry@samba.org

Outline

- History 101
- Samba Development Process
- Samba 3.0
- Samba 3.1
- Samba 4.0

Samba Timeline



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How far we've come

```
$ cd nbserver-1.5.14
$ wc -l *.[ch]
    895 client.c
     81 includes.h
     27 local.h
    641 nameserv.c
   2454 server.c
    299 smb.h
    244 sockspy.c
   1300 util.c
      1 version.h
   5942 total
```

```
$ cd samba-3.0.2rc1/source
$ wc -l configure.in */*.[ch]
   4345 configure.in
   4324 param/loadparm.c
...
 373693 total
```


jerry@samba.org

Samba's Family CVS Tree

CVS module on cvs.samba.org

samba

HEAD – – ► development tree for 3.1

SAMBA_2_2 – – ► development tree for 2.2.x

SAMBA_2_2_RELEASE – – ► snapshot of latest 2.2.x release

SAMBA_3_0 – – ► development tree for 3.0.x

SAMBA_3_0_RELEASE – – ► snapshot of latest 3.0.x release

samba4

HEAD – – ► development tree for 4.0

jerry@samba.org

Samba Development

- Samba Team
  - Membership == write access to the samba cvs repository
  - See http://www.samba.org/samba/team.html
  - Currently 10 - 15 active developers
- Most technical discussion takes place on
  - samba-technical@samba.org
  - irc.freenode.net #samba-technical
  - individual phone calls
- Project Roadmap
  - http://www.samba.org/samba/devel/
  - No further development on the 2.2 code base

jerry@samba.org

Development Challenges

- When should a local 'hack' become a supported feature?
  - non-unix accounts
  - winbind use default domain
- Backwards compatibility
  - our bane as well as Microsoft's
- Commonly used features get tested
  - little used features frequently suffer from bit rot
- Testing environments
  - Thanks to the VMware folks :-)

jerry@samba.org

Samba 3.0 Major Server Features

- Use of Kerberos 5 and LDAP when joined to an Active Directory Domain
- UNICODE support
- Better MS-RPC printing support
- Support for migrating users and groups from a WinNT4 domain
- Support for WinNT4 trust relationships as a PDC
- Layered Virtual File System layer
- Flexible authentication and account storage options
- Improved Winbind
- Support for 32-bit NT Status return codes

jerry@samba.org

Samba 3.1

- Interim release between 3.0 and Samba 4.0
  - Possibly the first of several 3.x releases
- Target release date -- end of 2004
- Features
  - Full Windows NT ACL compatibility
  - Full SAM replication with Windows NT 4.0 BDCs
  - libregistry API
  - More internalization work
  - Utilize LDAP Directories services for configuration
  - Continued integration of features and patches from vendors and the community

jerry@samba.org

Samba 4.0

- Research project to address the aging architectural deficiencies in Samba 3
- Ambitious goals
  - protocol completeness (not just what is seen from clients)
  - extreme testability (deep, automated testing suite)
  - non-posix storage backends (full NT acls)
  - fully asynchronous internal architecture
  - flexible process models

jerry@samba.org

Samba 4.0 - Testing

- Samba 3 (and earlier) included
  - smbtorture
  - rpctorture
- Tools were built on Samba's client API
  - no access to raw flags in packets
  - difficult to perform wide testing of the CIFS protocol
- Samba 4.0 includes a raw client library
  - enumerate over all possible (and logical) flag values
- gentest
  - dual server, dual instance

jerry@samba.org

Samba 4.0's non-posix storage

- The VFS layer includes entry points for CIFS operations as well as posix file operations
- Much useful information obtained by using Samba 4.0 as a proxy CIFS server between a Windows client another CIFS server
- Allow the backend file system to support full NTFS semantics
  - 8.3 file name tunneling
  - ACLs
  - storing user SIDs with files

jerry@samba.org

Samba 4.0 & MS-RPC

- Samba 4.0 uses an IDL compiler for generating the RPC marshalling and unmarshalling code
  - pidl (written in perl)
- Faster development time
- More stable RPC implementation
- We have asked Microsoft for their IDL files in the past and been refused or ignored
- IDL files will be available for other projects
  - e.g. wine

jerry@samba.org

Samba 4.0's Process Model

- Samba 3.0
  - smbd fork on connect
  - nmbd uses a single threaded process
    - ✔ uses a child process to prevent blocking DNS lookups
- Samba 4.0 provides 3 process models selectable at startup
  - Single, non-threaded process for all requests
  - Fork on connect (identical to Samba 3)
  - One pthread per client connection

jerry@samba.org

Status of Samba 4.0

- Things that are finished
  - raw client library
  - test suite
  - NTVFS storage backend
  - CIFS storage backend
  - TANK storage backend
- In progress
  - MS-RPC

jerry@samba.org

Samba 4.0 - TODO

- posix storage backend
  - this has to be done to get any wide spread testing from the community
- oplocks
- Lanman RAP calls
- nmbd
- etc....

jerry@samba.org

CIFS for UNIX

- IBM has funded development of the cifsvfs file system for the Linux 2.6 kernel
- Possibility of real non-Microsoft CIFS clients
  - HP's unix extensions for CIFS
  - 'unix extensions' smb.conf
  - We now have both a strong, modern client and a strong server
- Longhorn ?
  - Microsoft wants to do away with CIFS

jerry@samba.org

Active Directory DC?

- When will Samba be able to replace Active Directory?
  - Cross project
    - ✔ Kerberos 5
    - ✔ LDAP
    - ✔ DDNS
    - ✔ CIFS
- Work has begun but has a long way to go
  - MS-CLDAP
  - New RPCs
  - .....

jerry@samba.org

Conclusion

...Thanks :^)

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