

The State of Samba

**(I can't dance when you step
on my feet...)**

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Outline

http://samba.org/~jerry/slides/samba_roadmap_lwsf04_slides.pdf

- Development
- History
- Samba 3.0
- Samba 3.1 & 3.2
- Samba 4.0
- Related Samba Development Projects

If your company is interested in Samba/CIFS development.....

Samba Development

- One year as release manager == 1 year of a dog's life
- Samba Team
 - Membership == write access to the code repository
 - <http://www.samba.org/samba/team.html>
 - Number of active developers varies
- Most technical discussion takes place on
 - samba-technical@samba.org
 - #samba-technical on irc.freenode.net
 - individual/conference telephone calls
- Project Roadmap
 - <http://www.samba.org/samba/devel/>
 - Samba 2.2 will be EOL'd as of October 1, 2004

Development Challenges

- When should a local 'hack' become a supported feature?
 - ❑ hard to anticipate all possible scenarios
 - ❑ non-unix accounts
 - ❑ winbind use default domain
- Backwards compatibility
 - ❑ our bane as well as Microsoft's
 - ❑ little used features frequently suffer from bit rot
- Testing environments
 - ❑ Complimentary VMware licenses from vmware.com
 - ❑ Paid MSDN subscriptions

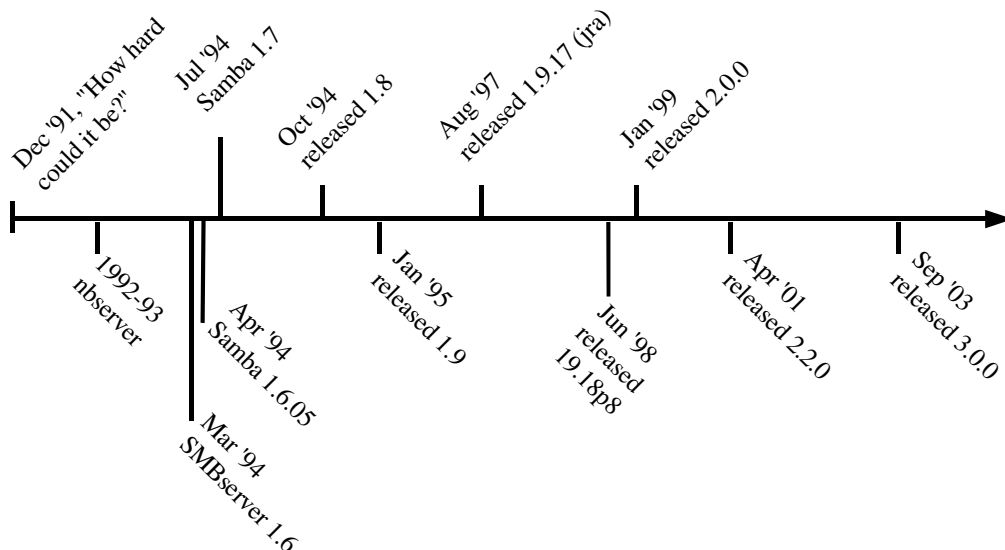
Samba Version Numbers

- Recently officially adopted an odd/even versioning scheme similar to the Linux kernel
 - ❑ major.minor.revision
 - ❑ odd minor number == development release (e.g. 3.1)
 - ❑ even minor number == stable, production release (e.g 3.2)
- Security release versioning
 - ❑ No more 'letter' revision releases such as 3.0.2a
 - ❑ security release = previous stable release + security fixes
 - ✓ 3.0.5 == 3.0.4 + fixes for CAN-2004-0600 & CAN-2004-0686
- Drop *alpha* and *beta* tags
 - ❑ left with *pre* and *rc*

Samba.org Gets a Face Lift

- Samba.org v3.0 to be launched Sunday, Aug 8
- Includes new look for
 - ❑ <http://www.samba.org/>
 - ❑ <http://buildfarm.samba.org/>
 - ❑ <http://bugzilla.samba.org/>
- Also launching <http://news.samba.org/>
 - ❑ Advocacy
 - ❑ Announcements
 - ❑ Users & Community
 - ❑ Developers
 - ❑ Releases
 - ❑ Status updates from team members

Samba Timeline



How far we've come

```
$ cd nbserver-1.5.14      $ cd samba-3.0.2rc1/source
$ wc -l *.*[ch]          $ wc -l configure.in */*.[ch]
 895 client.c             4345 configure.in
  81 includes.h           4324 param/loadparm.c
  27 local.h              ...
 641 nameserv.c          373693 total
2454 server.c
 299 smb.h
 244 sockspy.c
1300 util.c
   1 version.h
5942 total
```

Samba Family CVS Trees

CVS modules on cvs.samba.org (historical)

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

The Move to Subversion

- As of April 4, 2004, Samba is maintained in a subversion repository (svn.samba.org)
 - SAMBA_2_2[_RELEASE]
 - SAMBA_3_0[_RELEASE]
 - SAMBA_4_0
 - trunk (the source tree previously known as HEAD)
- Information on subversion
 - <http://subversion.tigris.org/>
- Information on access to Samba branches using anonymous svn
 - <http://samba.org/samba/subversion.html>
- <http://websvn.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

Samba 3.0.x

- Plans are to release Samba 3.0.6 by the mid August
 - ❑ Bugfixes
 - ❑ New Features
- New features recently added to the 3.0 branch
 - ❑ 3.0.3
 - ✓ Storing DOS attributes in Extended Attributes (EA)
 - ✓ EA support for OS/2 and Mac OS X
 - ✓ Password Lockout support on a Samba DC
 - ✓ Support for nested groups (Windows local groups)
 - ❑ 3.0.6
 - ✓ Password history support
- Samba 3.0.x where $x \geq 6$
 - ❑ More bug fixes, etc....

Samba 3.2

- Interim release between 3.0 and Samba 4.0
 - ❑ Possibly the first of several 3.x releases
 - ❑ Target release date -- end of 2004
 - ❑ 3.1.x will be development snapshot releases
 - ✓ ETA is end of the month
 - ❑ 3.2.0 – a few release candidates
- Features
 - ❑ Initially integrate low hanging fruit from Samba 4 tree
 - ✓ smb client library (smbclient, smbtorure, etc...)
 - ✓ schannel implementation
 - ✓ rpc client library based on IDL

Samba 3.2 Features (cont)

- Potential Feature List
 - ❑ Full Windows NT ACL compatibility
 - ❑ Full SAM replication with Windows NT 4.0 BDCs
 - ❑ Support for NT privileges
 - ❑ libregistry API
 - ❑ More i18n work
 - ❑ Utilize LDAP Directories services for configuration
 - ❑ Merge of rpc server infrastructure from Samba 4 (?)
 - ❑ Redesign of user and group account management
 - ❑ Continued integration of features and patches from vendors and the community

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

Samba 4.0 - Testing

- Samba 3 (and earlier) included
 - smbtorure
 - 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

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

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

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

ldb

- New multi-index database
- Currently sits as a layer on top of tdb
- LDAP-like API
 - uses LDIF for importing & exporting records
 - uses Distinguished Names for referencing entries
- Might support other data storage mechanisms in the future

Status of Samba 4.0

- Things that are finished
 - raw client library
 - test suite
 - NTVFS, CIFS, & TANK storage backends
- In progress
 - MS-RPC (client & server)
 - asynchronous support (client & server)

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....

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
 - Tridge has some ldb support for the initial AD information and has an XP box joining Samba as an AD DC
 - ✓ but cannot logon after the join
 - MS-CLDAP, addition RPCs, Kerberos PAC, etc

CIFS for UNIX

- IBM has funded development of the cifsvfs file system for the Linux 2.6 kernel
- Mac OS X has native smbfs support
- 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
 - ❑ CIFS between UNIX hosts as an alternative to NFSv4
- Longhorn ?
 - ❑ Microsoft wants to do away with CIFS

Other Team Activities

- CVS modules
 - ❑ lorikeet
 - ✓ repository for interoperability patches to other Open Source/Free Software projects
 - ✓ work on ldb backends for OpenLDAP and Heimdal Kerberos
 - ❑ sangria
 - ✓ framework to manage Samba installations and configurations
- Volunteer possibilities (aka ways to get a free t-shirt)
 - ❑ <https://bugzilla.samba.org/>
 - ❑ Coordination of testing for preview and RC snapshots
 - ❑ Package Maintenance
 - ❑ Build Farm machines
 - ❑ The ability to “Innovate”

Conclusion

...Thanks :^)

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