

Samba4 Progress and Roadmap

Andrew Tridgell
tridge@osdl.org

Please ask questions during the talk!

Samba4 Progress

- Samba4 has made a lot of progress in the last year
 - now used in production by some brave soles
 - most of core infrastructure finished
 - over 50% of code now auto-generated
- But still plenty to do
 - admin tools almost completely lacking
 - no printing support
 - significant gaps in security
 - lots of features from Samba3 still missing

New Servers

- The last year has produced several new server components
 - LDAP server
 - built on top of ldb database
 - no dependency on external libraries
 - NBT server
 - fast, event driven netbios server
 - handles 20k operations/second
 - DGRAM server
 - modular architecture, IDL based
 - WINS server
 - very scalable!
 - WINS replication support nearly finished

New RPC servers

- Lots of progress in RPC servers too, building on the IDL based infrastructure
 - SAMR server
 - LSA server
 - netlogon server
 - winreg server
 - DCOM server
 - SRVSVC server
 - WKSSVC server
 - and the start of a DRSUAPI server

New Client Libraries

- Modular and complete client libraries make test suites much easier to write
 - libcli/nbt - a event driven NetBios client library
 - libcli/dgram - for mailslot services
 - libcli/ldap - our own LDAP client library
 - libcli/resolve - a generic async name resolution library
 - libcli/wins - an async WINS client library
- To combine them
 - libnet - a composite library building on the other client libs

New Infrastructure

- Lots of new infrastructure code!
 - new talloc - a huge advance in memory management
 - lib/events/ - a generic events system, making the async design possible
 - composite functions - building blocks for state machines
 - gensec - unifying the authentication problem
- Plus lots more
 - internal messaging system, greatly improved build system, modules support for ldb, NT credentials and ACLs, privileges support etc etc

New Functionality

- Many existing subsystems have been greatly expanded
 - NTVFS now has a good quality posix backend
 - RPC system now supports many new security modes, and features like multiple binds
 - ncalrpc and ncacn_unix_stream transports for librpc and rpc_server
 - NTVFS system now stackable and async
 - new credentials system unifies command line credentials handling

the rise of pidl

- Our IDL compiler, pidl, has changed a lot in the last year
 - now capable of handling a wide range of non-traditional tasks
 - support for DCOM, and increasing compatibility with Microsoft IDL
 - support for auto generating ethereal modules
- IDL is now the norm for new subsystems
 - the amount of IDL has doubled
 - more than half our code is now generated from IDL

ldb takes over from tdb

- Our “mini-LDAP” database, ldb, is now playing a central role in Samba4
 - now with a LDAP protocol server, not just LDAP-like API
 - ldb modules system for clean extensions
 - schema module for more LDAP-like checking
 - integration with new talloc makes programming much simpler
- other projects are starting to notice
 - interest from yum and dpkg developers to adopt ldb
- but still
 - we need journaling and/or transactions!

dsdb database

- We now have a SAM database (also called dsdb)
 - hooked into our authentication infrastructure
 - uses Active Directory attributes and structure
 - hooked into our LSA, SAMR and NETLOGON servers
- Samba4 as a PDC
 - WinXP sees us as a ADS domain controller
 - NT4 can also join and login
 - all user/group properties accessible via RPC, LDAP and ldb APIs

what a domain looks like

```
dn: DC=BLUDOM,DC=TRIDGELL,DC=NET
objectClass: top
objectClass: domain
objectClass: domainDNS
name: BLUDOM
realm: BLUDOM.TRIDGELL.NET
dnsDomain: bludom.tridgell.net
dc: BLUDOM
objectGUID: 35312d6b-58f1-1585-3aca-345bae202b3d
creationTime: -1
forceLogoff: 0x8000000000000000
lockoutDuration: -18000000000
lockOutObservationWindow: -18000000000
lockoutThreshold: 0
whenCreated: 20050430065540.0Z
uSNCreated: 1
uSNChanged: 1
maxPwdAge: -37108517437440
minPwdAge: 0
minPwdLength: 7
modifiedCountAtLastProm: 0
pwdProperties: 1
pwdHistoryLength: 24
objectSid: S-1-5-21-56816363-61624837-2430098
serverState: 1
nTMixedDomain: 1
msDS-Behavior-Version: 0
ridManagerReference: CN=RID Manager$,CN=System,DC=BLUDOM,DC=TRIDGELL,DC=NET
uASCompat: 1
modifiedCount: 1
objectCategory: CN=Domain-DNS,CN=Schema,CN=Configuration,DC=BLUDOM,DC=TRIDGELL ,DC=NET
isCriticalSystemObject: TRUE
subRefs: CN=Configuration,DC=BLUDOM,DC=TRIDGELL,DC=NET
subRefs: CN=Schema,CN=Configuration,DC=BLUDOM,DC=TRIDGELL,DC=NET
nextRid: 1002
whenChanged: 20050430101651.0Z
```

what a user now looks like

dn: CN=tridge,CN=Users,DC=BLUDOM,DC=TRIDGELL,DC=NETobjectClass: top
objectClass: person
objectClass: organizationalPerson
instanceType: 4
userAccountControl: 0x202
badPwdCount: 0
codePage: 0
countryCode: 0
badPasswordTime: 0
lastLogoff: 0
lastLogon: 0
pwdLastSet: 0
primaryGroupID: 513
accountExpires: -1
logonCount: 0
sAMAccountType: 0x30000000
sAMAccountName: tridge
name: tridge
objectSid: S-1-5-21-56816363-61624837-2430098-1001
objectGUID: e21ec6ac-17b7-7755-61a7-6a2dfa719f04
memberOf: CN=Domain Users,CN=Users,DC=BLUDOM,DC=TRIDGELL,DC=NET
userAccountControl: 0x10200
sAMAccountType: 0x30000000
objectClass: user
unixName: tridge

Admin Tools

- A major missing piece is admin tools
 - currently good infrastructure, difficult to administer
- extensive web interface needed
 - needs to be much more complete than SWAT
 - tab-based, pluggable structure
 - each major subsystem will be hooked for monitoring
 - using libnet for common operations
- net utility
 - similar to Samba3
 - low level admin with ldb tools
 - also based on libnet

Missing Servers

- Several more server components have yet to be started
 - CLDAP server needed for ADS compatibility
 - Winbind server needed - and it needs to scale!
 - spoolss server needed - we can't print yet!
 - browse server for network neighbourhood operations
 - RAP server for old clients
- These will take a lot of work, please be patient!

kernel LSM module

- Samba4 NTVFS layer gives us NTFS on Posix
 - not atomic
 - not seen by Posix apps
- Solution? a LSM module
 - LSM has all the right hooks
 - can coherently cache xattr contents
 - can map Posix ACLs to/from NT ACLs

What about a release?

- The main questions are?
 - When?
 - What is vital for initial release?
 - What can wait for later releases?
 - Who will do what?
- For me, these questions are largely what SambaXP-05 is about

Samba3 goes on!

- Samba3 is still our bread and butter
 - our users expect a working solution, now!
 - Samba4 is coming, but Samba3 must be maintained

**A huge thank you to the patient Samba3 maintainers
for keeping Samba3 development and maintainence going!**