Samba4 Progress and Roadmap

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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 - an 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: -1800000000
lockOutObservationWindow: -1800000000
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=NET
objectClass: 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!