

Samba 4.2

Cebit 2015
Hannover

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2015-03-19

- ▶ SLA based support for more than 650 customers
 - ▶ firewalls, VPN, certificates, audits
 - ▶ based on open standards wherever possible
- ▶ Support for many OS: Linux, Cisco IOS, Windows etc.
- ▶ Compliant with BSI Grundschutz and ISO 27001 and other international regulations
- ▶ SerNet and Samba
 - ▶ technological leadership of SerNet worldwide
 - ▶ SerNet distributes up-to-date Samba packages
 - ▶ samba eXPerience
 - ▶ May 19-21 in Göttingen, www.sambaxp.org

Samba 4.2

- ▶ Many new features
 - ▶ 4.1 was mainly a bugfix release
- ▶ SMB2.1 leases
 - ▶ Huge performance benefit for office workloads
- ▶ Improvements for OS/X clients
 - ▶ vfs.fruit and AAPL extensions
- ▶ ctdb included
 - ▶ No separate cluster daemon build required
- ▶ Performance improvements
 - ▶ tdb optimized
 - ▶ Messaging tuned
- ▶ The end of Samba 3

End of Samba 3.x

- ▶ Regular release cycle is nine months
- ▶ Current release fully supported (4.2)
 - ▶ Bug fixes, some new features
- ▶ Previous release (4.1)
 - ▶ Only bug fixes
- ▶ Next to previous (4.0)
 - ▶ Security fixes only
- ▶ Samba 3.6 went out of security fix support with 4.2
- ▶ All code from 3.6 continues to live
 - ▶ File server, print server, NT-style DC

SMB2.1 leases

- ▶ Oplocks done right
- ▶ Huge improvement for higher latency networks
- ▶ Clients can request caching permission
 - ▶ Server will make a client correctly flush caches
 - ▶ Conflicting file access will drop caches
 - ▶ Excel is heavily stepping on its own toes
- ▶ Once an oplock is gone, no way to get it back
- ▶ Leases can be re-acquired
 - ▶ Roundtrips and server load reduced

SMB3 support

- ▶ SMB3 support since Samba 4.0
- ▶ All mandatory SMB3 features
- ▶ Improved security
- ▶ Secure negotiate
 - ▶ No downgrade attack (SMB1) possible
- ▶ AES based signing
 - ▶ Hardware acceleration (Windows client only atm)
- ▶ Transport encryption
 - ▶ smb encrypt = yes

OS/X clients

- ▶ Modern OS/X prefers SMB2 over AFP
- ▶ Ralph Böhme's netatalk is the smbd of AFP
- ▶ Netatalk maps OS/X specifics to Unix
 - ▶ OS/X special characters like "*" and "/"
 - ▶ Mac Metadata (Finder info / resource fork)
- ▶ Ralph implemented vfs_fruit
 - ▶ Samba with vfs_fruit compatible with netatalk
- ▶ AAPL extension speed up directory listing

Clustering

- ▶ Samba provides active-active SMB
 - ▶ Scale-Out SMB Export of clustered file systems
 - ▶ Gluster, Ceph, OCFS, GFS, GPFS, StoreNext, ...
- ▶ CTDB (Clustered Trivial DataBase)
 - ▶ Clustering component of Samba
 - ▶ Lock coherency, Service Monitoring, Cluster Membership
- ▶ Up to Samba 4.1 ctdb was maintained independently
- ▶ Versioning of ctdb not always coherent
- ▶ CTDB now integrated into Samba
 - ▶ Better code sharing
 - ▶ No version confusion

Performance improvements

- ▶ Samba relies on tdb key/value stores (nosql ... :-))
- ▶ tdb uses Unix file locks via fcntl for coordination
 - ▶ fcntl scales very badly on all Unixes
 - ▶ Single global locks to go through
- ▶ Multi-threading provides scalable locking: Mutexes
- ▶ Linux provides "process shared robust mutexes"
 - ▶ No global contention, better scalability, less CPU
- ▶ tdb internally fragments
 - ▶ New mechanisms for reducing fragmentation
 - ▶ Smaller databases, better cache locality

Faster Inter Process Communication

- ▶ Samba processes talk to each other
 - ▶ Hey, smbd, please give up the oplock
- ▶ Messaging based on tdb files and signals
 - ▶ tdb files have to store a lot of messages
 - ▶ Unix Signals suck
- ▶ New messaging based Unix Domain Datagram sockets
 - ▶ Less CPU overhead
 - ▶ Better scalability
- ▶ Basic infrastructure to move to different programming paradigms
 - ▶ Actor Model parallelism?
- ▶ Merge ctdb messaging with Datagrams
 - ▶ Remove load from ctddb

What's next

- ▶ SMB3 support
 - ▶ Multi-channel (prototype available)
 - ▶ Persistent file handles
 - ▶ SMBDirect (RDMA)
 - ▶ <https://wiki.samba.org/index.php/SMB3>
- ▶ Active Directory
 - ▶ Domain Trusts (available soon)
- ▶ Improved clustering
 - ▶ Make ctdb play well with other clustering components
- ▶ Performance tuning

Questions?

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`http://www.sambaxp.org/`