# *Samba in Enterprise Environments*

## eXPeriences and problems encountered

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# *Agenda*

- **Overview over some customers**

- **A customer in detail**

- **Features requested**

- **Discussion: Samba in large enterprise enviroments**

# *Some customers*

- **German power supplier:**
  - ► 110 servers, ~40,000 user IDs via Winbind, 3.5 TB data

- **German parliament:**
  - ► ~1.500 Clients, about 100 decentralized server

- **German insurance company:**
  - ► ~1.000 servers

- **Danish bank:**
  - ► ~600 servers

- **US insurance company:**
  - ► 12 servers, 3.6 TB data

# *A customer in detail - ongoing Proof of concept*

- **German power supplier:**
  - ► currently using Windows NT servers and clients
  - ► 110 file servers in main location
  - ► in summary ~3.5 TB data on these servers; SCSI disks
  - ► ~30.000 active clients

- **now evaluating**
  - ► Fileserving with Samba on Linux for S/390 vs. W2k/WinXP

- **future**
  - ► Active Directory infrastructure
  - ► Samba/390 *and/or* W2k/Windows XP based file servers
  - ► Windows XP clients

# *Summary experiences*

- **easy administration of repetetive tasks**

- **large user databases drive winbind requirements**

- **large storage requirements and clustering issues**

- **high failure costs drive need for redundancy and replication in all major components**

- **large enterprises need to lower admin costs, especially in heterogenious enviroment - (Active) Directory coexistence/integration**

- **Enterprise wide security via addition of Kerberos**

- **large enterprises are multi-national - internationalization requirement**

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# *Features needed - Access Control*

- **migrations from non-UNIX to UNIX**
  - ▶ from OS/2, Novell Netware and Windows based servers
  - ▶ to Samba on Linux (UNIX)

- **ACL support to match "old" access controls**
  - ▶ journaling filesystem required
    - ◆ possible with XFS or ext3 with ACL patches
    - ◆ JFS ACL support planned
    - ◆ not official supported yet (kernel 2.4.x nor any current distributions)
  - ▶ POSIX ACLs are slightly different to Windows implementation
    - ◆ missing "append only" and "write/edit but not delete"
    - ◆ Solution: EA based access control vs. Samba-internal ACL database?
  - ▶ Problem
    - ◆ different access paths: Samba or via UNIX shell
    - ◆ ACL performance for backup/recovery?

# *Features needed*

- ■ **Winbind mapping is not unique**
  - ► today dynamic allocated
  - ► Backup is done for Unix ID, how to map correctly to NT RID in case of restore?
  - ► missing import/export; ASCII, xml?
  - ► unique mapping also needed for
    - ◆ replication/mirroring for high availability
    - ◆ scalability via clustering and loadbalancing

- ■ **Backup**
  - ► backup tools need to backup all necessary data
    - ◆ ACL information
    - ◆ winbind mappings

- ■ **Virus scanner integration**

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# *Features needed - Auditing and Control*

- ■ **expectations**
  - ► customers w/ WindowsNT servers using (and expecting) auditing features
  - ► n:1 migration (integration) of file servers requires detailed accounting

- ■ **Logging, Auditing and Accounting**
  - ► functions to support logging and auditing of user activity
  - ► accounting
    - ◆ Samba process runs under security of user, therefore process accounting may be used
  - ► no text logfiles please :) - API layer prefered

# Features needed - UserAdmin for LDAP

- **challenge: German Parliament decided use OpenSource on all servers; not to use Active Directory but instead native LDAP!**
  - large, decentralized Samba environment on Intel based servers
  - native LDAP directory
  - Windows XP clients

- **problem: How to administer, create and delete users?**
  - use of NT tool "Domain Administration for Domains"
    - how to assign UNIX UID to new LDAP (sambaAccount) user?
  - have a samba account admin frontend w/ LDAP support
  - ...

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# *Features needed - High Availability*

- **High Availability and Scaleability needs**
  - ► support for shared (or replicated) file systems
    - ◆ not only VFS support
    - ◆ maybe cluster filesystem (GFS, GPFS, ...)
    - ◆ use of OpenAFS filesystem across many file servers (i.e. for load balancing)

- **unique Winbindd - NT username to UNIX uid mapping required**
  - ► two or more nodes of failover cluster / high availability
  - ► two or more nodes of load balancing cluster / more than one path to file

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# (Known) Limitations

■ **User ID's**
  - ► currently only ~65000 userids /groupids possible

■ **Sockets: TCP/IP stack limitations per Linux instance**
  - ► solution: "Samba farm" w/ shared filesystem?!
  - ► inside Samba server box, additional sockets needed too (LDAP connects)

■ **Processes / Linux box limited**
  - ► Linux process scheduler scalability
  - ► multiprocess / multithreaded approach like Apache 2.x?

■ **Memory limitations**
  - ► solution: 64bit support

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# *Discussion*

- **Feel free to comment...**