



SAM, GUMS, IDMAP

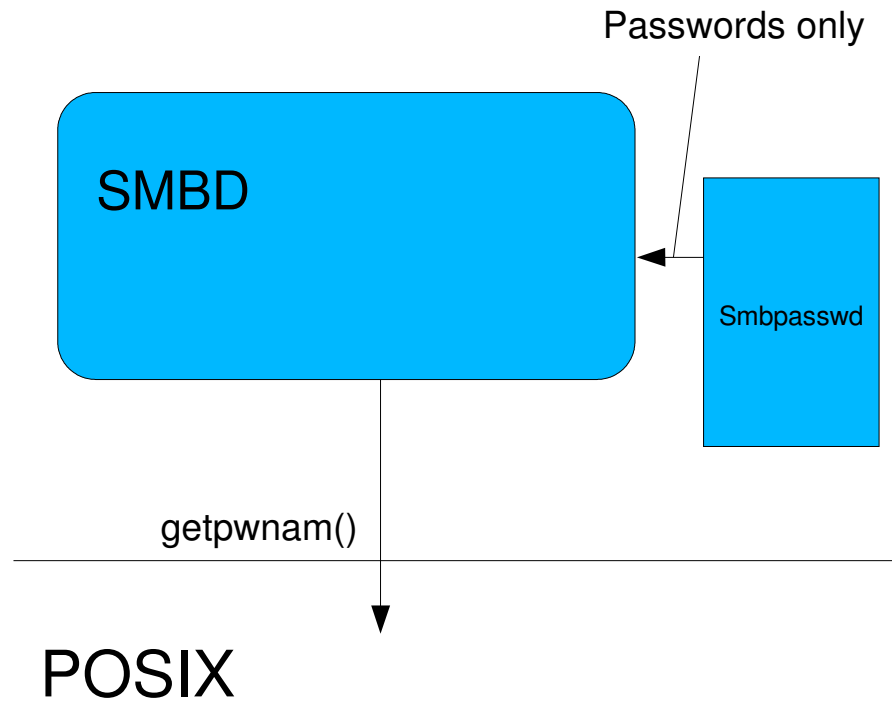
From discussion to reality

by

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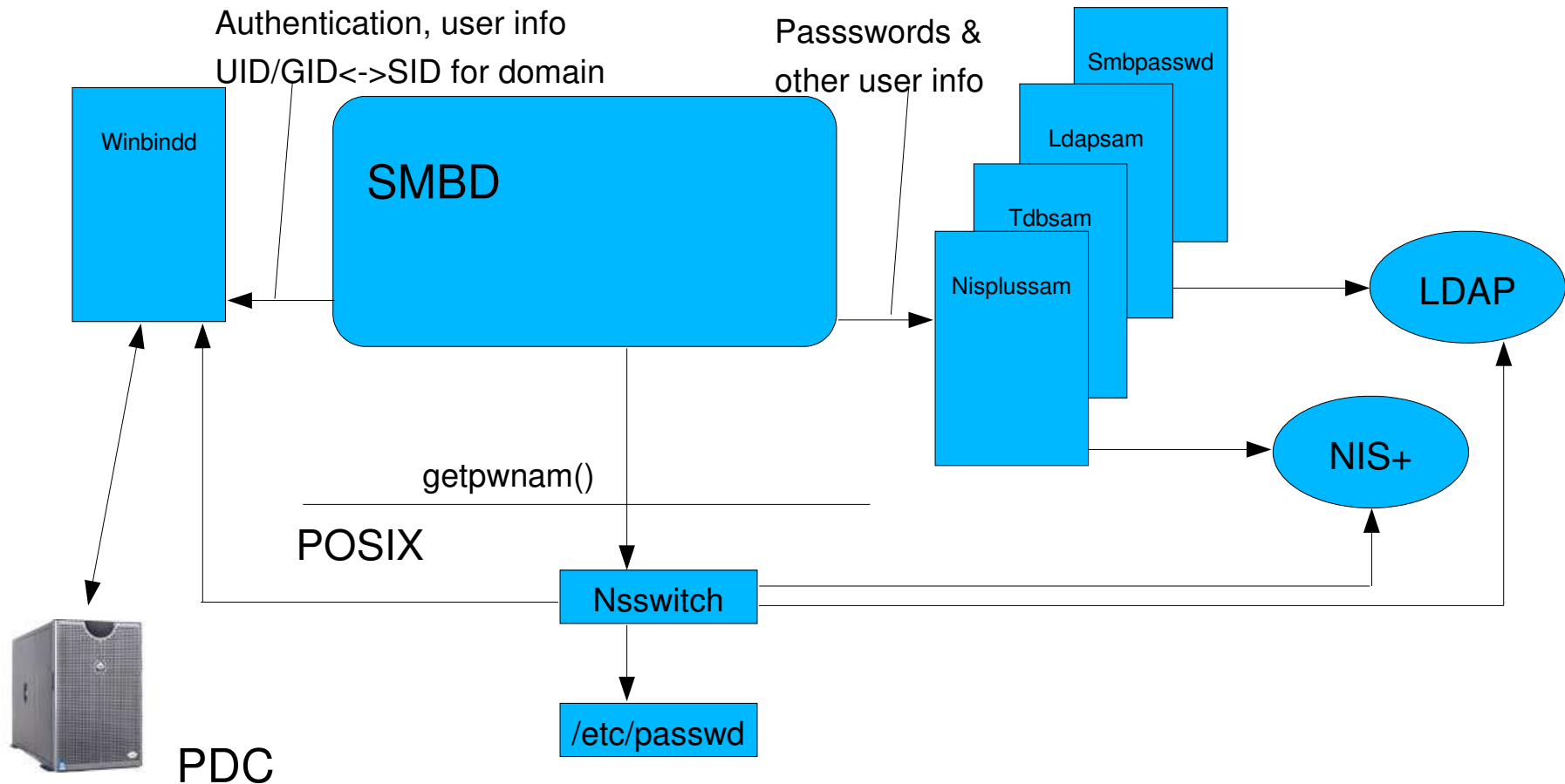
User Management in samba 2.0

- Smbpasswd is used mainly for password storage
- No other password database backend
- Smbpasswd stores the unix user name and uid

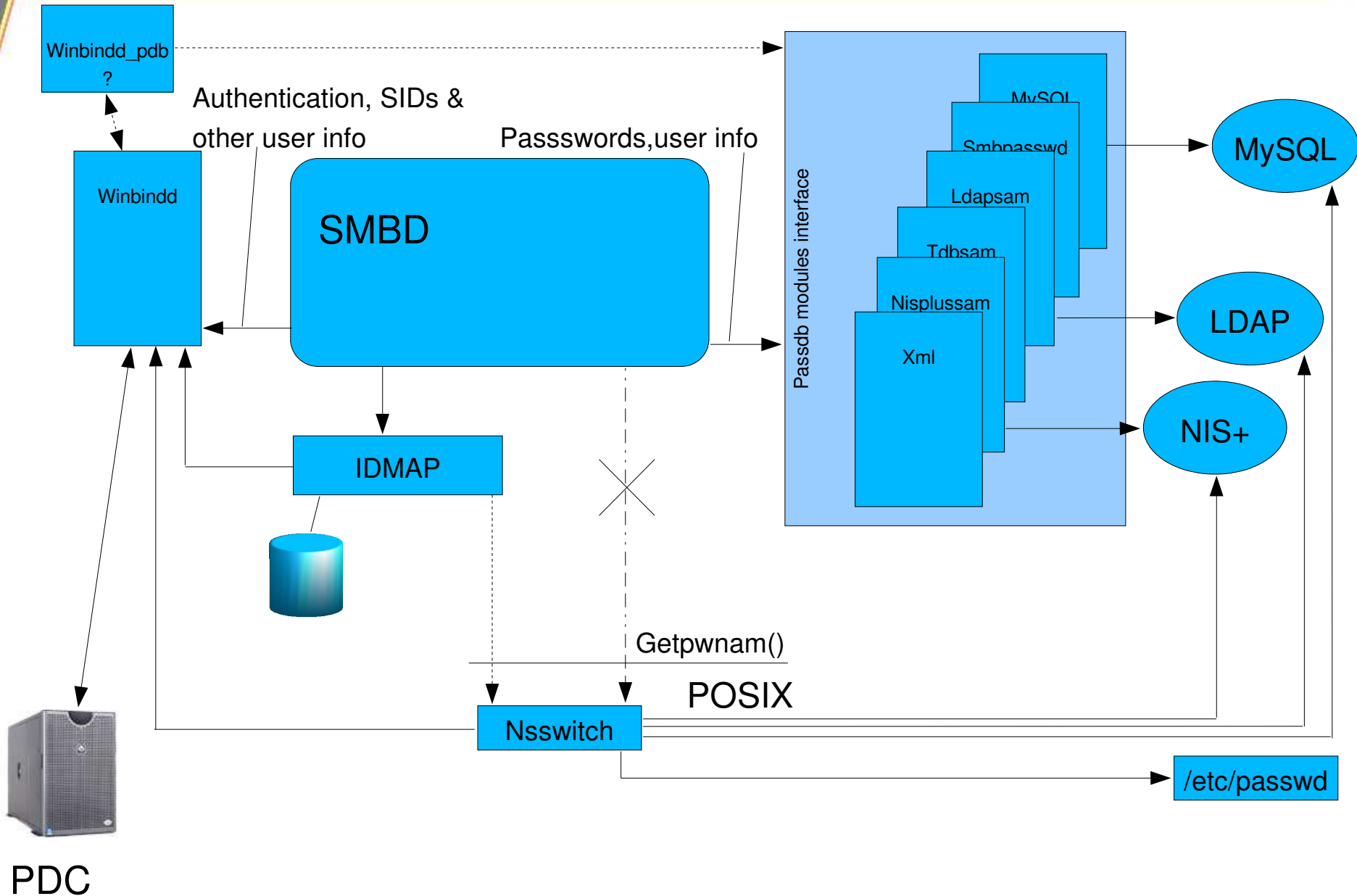


User Management in samba 2.2

- Multiple password databases
- Databases can store other Windows related user data
- The backends store the unix user name and the uid
- Domain users provided through winbindd



User Management in samba 3.0alpha





What is a 'SAM'

- Users:
 - Username
 - Full Name, Description
 - SID
 - Password
 - Home, Profile, ... locations
 - Logon restrictions
 - Hours
 - Machines
 - Expiry
 - 'Times'
 - Dialup Properties
- Machines, Trusted Domains...



Our passdb

- Loadable modules
- Weak group support
- No privileges support
- Arbitrary RID support

- Passdb
 - Smbpasswd
 - Stores only passwords
 - TdbSAM
 - Stores all the user informations as NT4 does
 - Easy to set up
 - Easy to back-up through tdbdump



Our passdb

- Ldapsam
 - Stores all the user informations as NT4 does
 - Easy Unix/Samba user information coupling
 - Easy replication over multiple servers
 - Easy multi-DC/multi-Server infrastructures
 - Not so easy to setup for non-experienced admins
 - Easy integration with other services (Mail, ...)

So where is the problem?

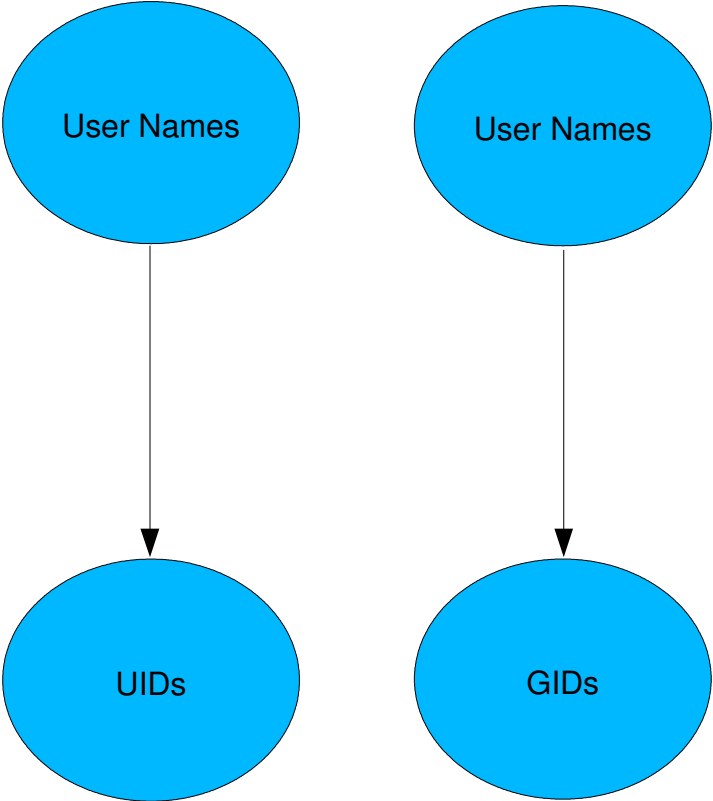


- Windows uses Security IDs (SID), not UIDs or GIDs.
- A SID can identify more things than merely users or groups
 - World (S-1-1-0)
 - Local System (S-1-5-18)
 - A domain (S-1-5-21-1721414241-570541885-638950510)
 - All authenticated users (S-1-5-11)
 - ...
- Windows have a unified case-insensitive name space.
- NT Local Groups can contain groups and users
- Posix groups can contain only users.

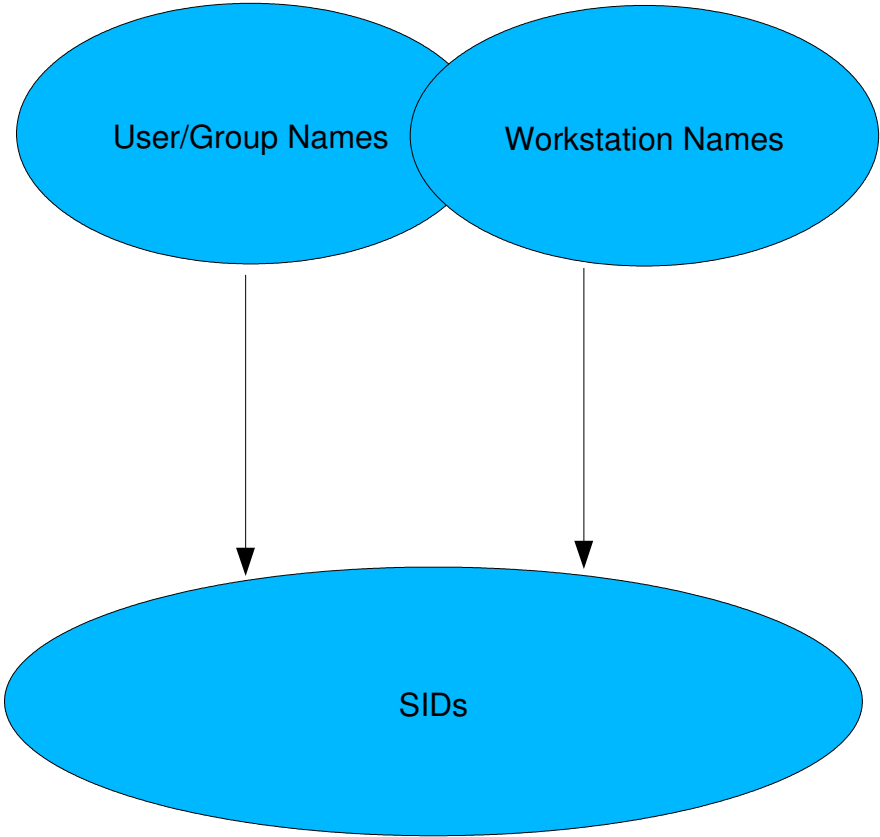
Names and ID spaces



POSIX



Win32

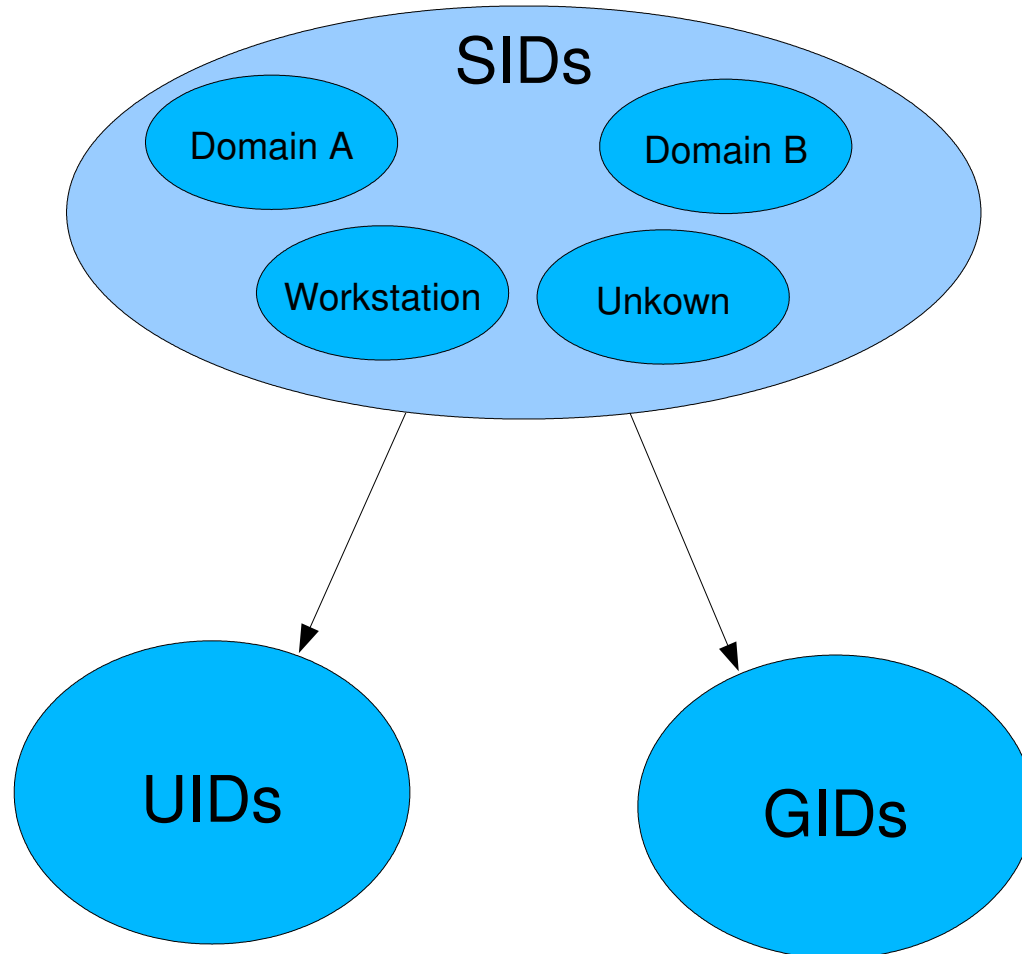




The Ideal SAM

- Only SIDs no UID/GIDs
- Unified case-insensitive name space
- Never check unix users
- Trust the idmap system
- Possibly users are provided back to the underlying system through winbindd

IDMAP





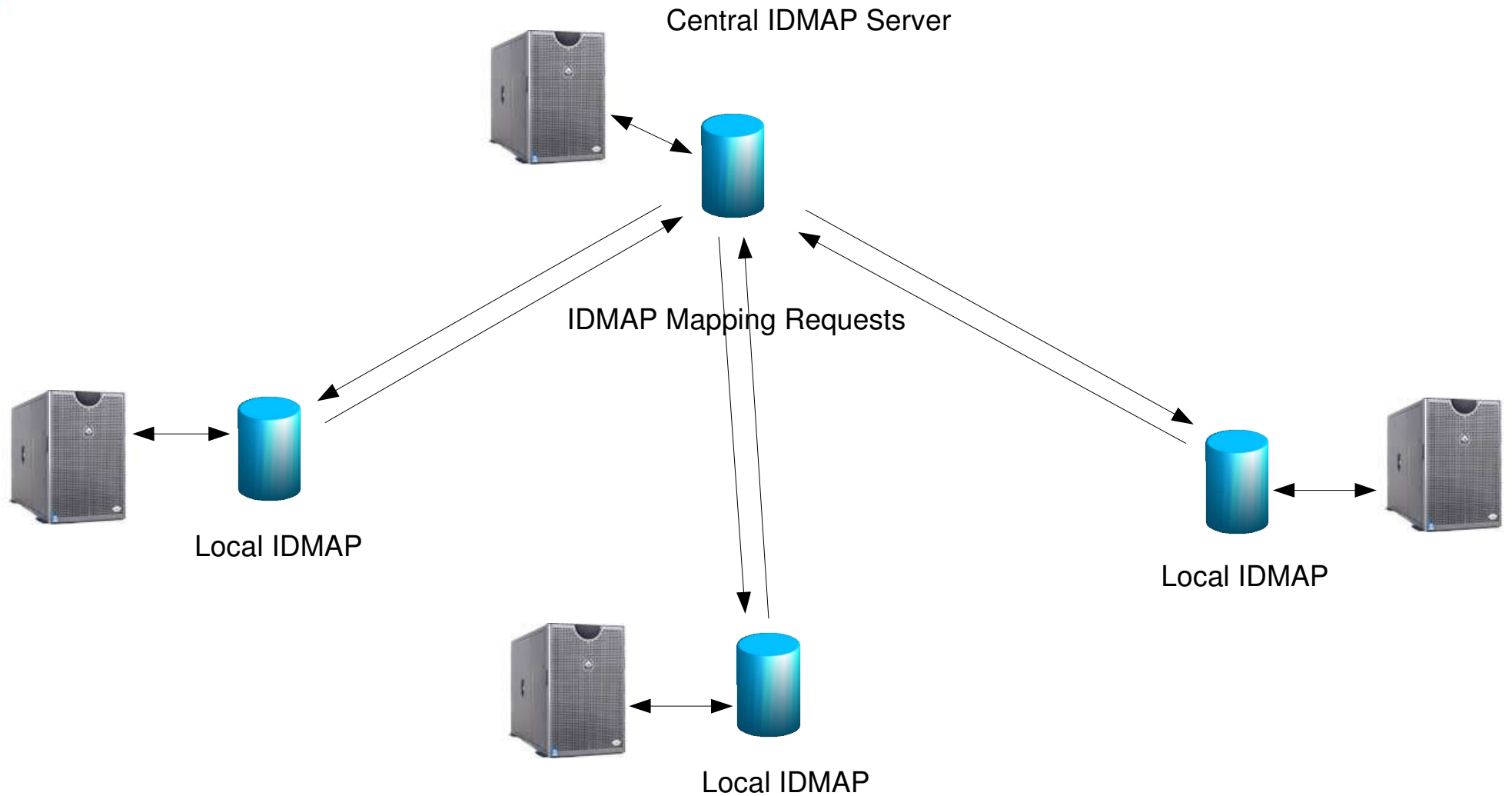
IDMAP

SID \leftrightarrow [u,g]ID MAPping

- Only map SIDs to UID/GIDs, nothing else
- It is a “persistent cache”
- SID \leftrightarrow [U,G]ID mapped when(if) needed



IDMAP with multiple servers





IDMAP with multiple servers

- UIDs,GIDs allocate randomly
- All kept consistent by a central server
- The central server handle all the mappings
- Peripheral servers keep a “permanent cache”



[U,G]ID Exhaustion

- SID space is a lot bigger than UID/GID space
- changing a mapping can be a security issue
- Changes will be an admin responsibility
- A notification mechanism based on sequence numbers will be implemented



SAM vs GUMS

- A brief history of the internal fork
 - Passdb
 - SAM
 - GUMS
- Dead paths
 - Multiple domain support
 - Multiple backends active at same time
- What we wanted:
 - The perfect SAM (accounts, privs, ecc..)
 - The perfect IDMAP
 - Winbind on PDC



How to Proceed

- Real needs:
 - A system that is good enough

Samba 3.0 Out!

- What will be into 3.0?
 - IDMAP
 - A possibly improved passdb
 - Winbind on PDC (?)