# MIT Kerberos Enhancements for Samba

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# Outline

- Samba - Kerberos integration
- Status of Samba requirements for MIT
- Design of Data Base Abstraction Layer
- Dependency on Specific Kerberos distribution
- Novell's work with MIT KDC
- Conclusion

# Samba - Kerberos integration

- Samba3
    - Own implementation of Kerberos and GSSAPI
- Samba4
    - Not viable to recreate the development effort of Kerberos and GSS API implementation
    - Proposes to have explicit dependency on Heimdal libraries and installation

# Some Kerberos improvements from Samba 3 to Samba 4

### KDC

- KDC to query the Samba user DB
- Integrate PAC support
- Handle password changes

### Kerberos Client / Server

- GSSAPI enhancements from Samba3
- Changes in SPNEGO
- Threading issues with kerberos libraries
- Support for AES encryption type

### Installation & Build

- Build samba libraries against the Kerberos libraries installed at a specified location / prefix

- Working Relationships with
- Kerberos team

# Status of Some Samba requirements with MIT KDC

| Requirements | Status | Contributed By |
|---|---|---|
| GSS API Changes | In progress | MIT |
| SPNEGO | Contributed | SUN |
| Thread safe Kerberos Libraries | Included in 1.4 | MIT |
| Database Abstraction Layer | Contributed | Novell |

# Features in MIT Kerberos 1.5

(Re*ference : http://itinfo.mit.edu/work.php?id=1078*)

This release builds on work introduced in Kerberos 1.4 and **focuses on better active directory interoperability** and support for the needs of enterprise operating systems.

**Support for the SPNEGO mechanism** will be added, allowing better Microsoft interoperability, support for evolving security protocols and dynamic selection of security mechanisms.

**Support for multiple KDC backends including LDAP will be added.** This provides for integration of Kerberos into enterprise account management and identity management solutions **as well as supporting Novell's plans to base their authentication solution on MIT Kerberos.**

**This release depends on cooperation and code contributions from Sun, Novell and Apple.**

# Database Abstraction Layer(DAL)

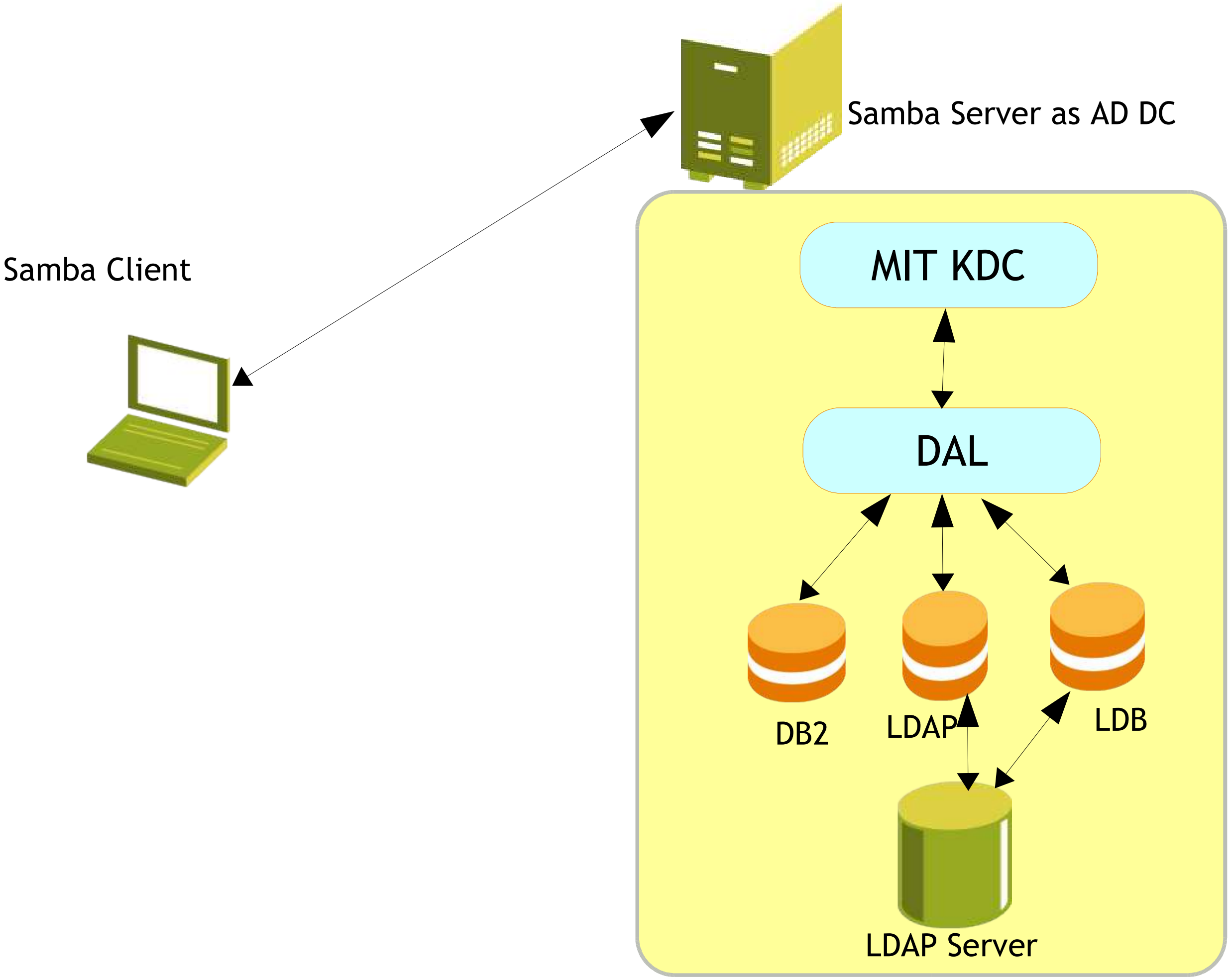
## Objective

- Support for Database plug-ability allowing use of external back-end stores

## Helps Samba because ..

- Through DAL, Samba's database (LDB) can be plugged into MIT Kerberos easily
- Small learning curve as it is similar to hdb

# Samba with MIT Kerberos



# Database Abstraction Layer (cont'd)

## DAL facilitates the following

- Load and Initialization of a DB module
- Flexibility for DB module configuration
- Set up and tear-down of DB connection
- Defines what are the Mandatory functions
- Provides interface for Optional functions

# Database Abstraction Layer (cont'd)

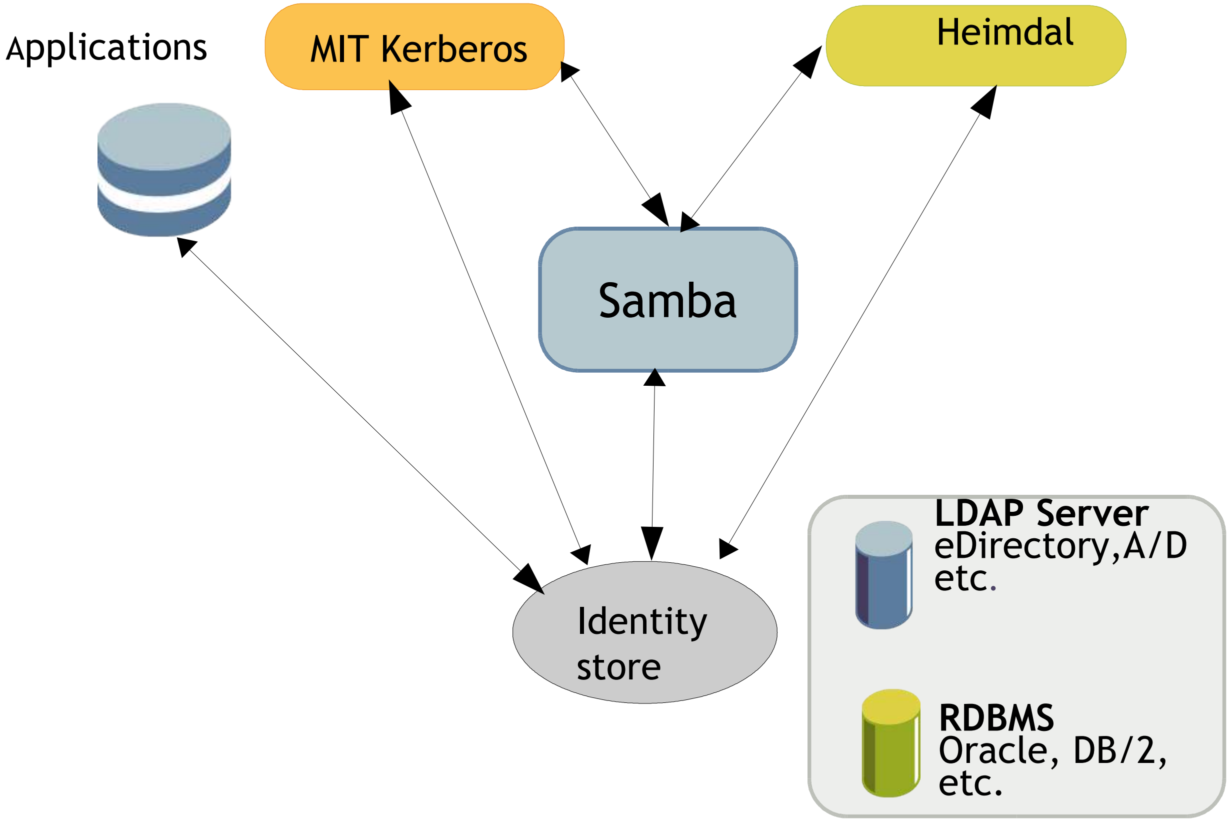
## Mandatory functions for module

- DB connection management
- Realm creation and destruction
- DB lock/unlock
- Principal management

## Optional Functions

- Realm master key management
- Policy management

# Example of an Enterprise deployment of  Samba with Kerberos



# Dependency on Specific Kerberos distribution

- Less freedom to choose the Kerberos that fits
  - Administrative nightmares
    - Two sets of Administration utilities
    - Multiple user databases
    - Co-existence issues
    - Complicating the Kerberos story further

# Novell's work with MIT KDC so far ...

## Novell's association with MIT Kerberos

- Novell is integrating Kerberos with eDirectory based on MIT Kerberos
- We made a switch from a proprietary distribution to MIT
- SuSE also made a switch from Heimdal to MIT Kerberos from SuSE 9.3

## Novell's contributions to MIT Kerberos

DAL (Database Abstraction Layer) design and implementation

- Design reviewed by members from MIT, SUN & PADL
- The code is being contributed to MIT Kerberos

- Multi threading for KDC Server(in progress)
- A crypto layer for pluggable crypto functions
- LDAP backend for replacing DB2
- Standardization of Kerberos LDAP Schema (in progress)

# Conclusion

Next steps

- More discussions to fill in the gaps in requirements
- Interactions / communications mechanisms(#samba-technical, krbdev@mit.edu)
- Convenient time for real time discussions

Questions ?

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