



UNIVERSITY OF UTAH
STUDENT COMPUTING LABS

Mac OS X Enterprise Directory Integration

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Presentation Overview

- Enterprise Directories
 - What are they?
 - Why do I need one?
 - Who makes them?
- Server Setup
- Client Setup
 - Apple's Directory Tools
- U of U Case Study

Enterprise Directories

- What are they?
 - A Directory is essentially a special use database designed for quick searching and retrieval of information. Think of a phone book where you look up name and get phone number, or quick reverse search by looking up phone number and getting name.

Many Directory Services

- X.500 (Original Standard)
 - Used DAP (Directory Access Protocol)
- NIS
 - Sun's Network Information Services
- Apple Netinfo
- Novell's NDS (Novell DAP)
- Note: LDAP is not a Directory
 - Access Protocol (Lightweight DAP)

Structure (Schema)

- Data is organized in Key and Value pairs.
 - What is that? Think of...
 - Key of Name - Value of Darren Davis
 - Key of Phone - Value of 801.585.9811
 - Key of EMail - Value of drdavis@scl.utah.edu
 - Key of Password - Value of (yeah like I would tell)

Enterprise Directories

- Why do I need one?
- Uses of a Directory
 - Storage of user identities
 - Authentication
 - Authorization
 - Phone Book (Searching)
 - Storing Common or Network Configuration Information
 - Network Services Discovery and Location



Enterprise Directories

- Where is it?
 - Enterprise Directories are Network resources accessed like any typical network service located on a server.

Enterprise Directories

- Who makes them?
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- Just about Everyone
 - Apple Open Directory
 - IBM
 - Microsoft Active Directory
 - Novell eDirectory
 - OpenLDAP
 - Oracle
 - Sun ONE (Formerly iPlanet)

Enterprise Directories

- How do I access them?
 - Directory Client
 - Uses standard protocol
 - X.500 had DAP (Directory Access Protocol)
 - DAP was way too heavy...
 - U of Mich. developed LDAP (Lightweight)
 - First implemented as a Gateway to DAP
 - Now becoming primary access method

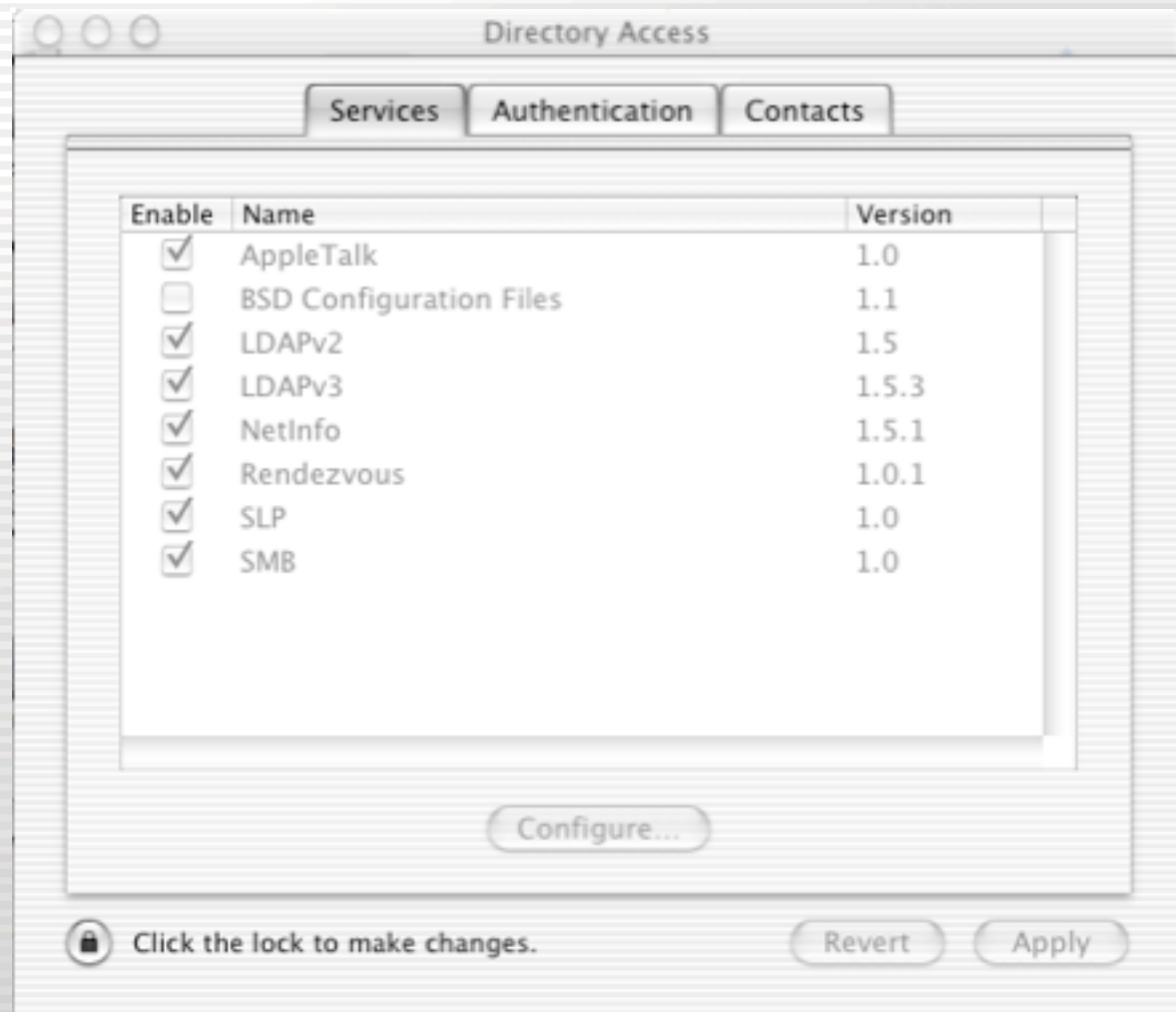
Server Setup

- Depends on who's directory you use.
 - Follow setup instructions
- OpenLDAP (Open Source Directory)
 - Apple includes as part of it's Open Directory.

Client Setup

- Use a directory client
 - Built-In to Mac OS X
 - Now built in to most UNIX Systems
 - OpenLDAP
 - Oh yeah, Windows have them to...

Apple's Directory Tools



Demonstration

- Setting Up Mac OS X Client
- Apple Directory Access
 - Located in Applications:Utilities



University of Utah Case Study



Definitions

- Authentication
 - The process of verifying the identity of a user.
- Authorization
 - Determining what the user can access.
- Kerberos
 - A network authentication protocol
- LDAP
 - A directory access protocol

University of Utah Case Study

- We use Kerberos for Authentication
- We use Active Directory for user information storage.
 - Why Active Directory?
 - Because we needed it to manage Win 2K clients. So, if we already have a directory, we should just use it.



Setting up Active Directory

- Install Win 2K Server
- Patch and Patch and Patch
 - It's Win 2K double check your patches ;)
- Setup Domain Controller
 - Starts AD
- Use AD4UNIX to extend schema
 - MKSADExtPlugins.msi
- Add users (Perl Script)

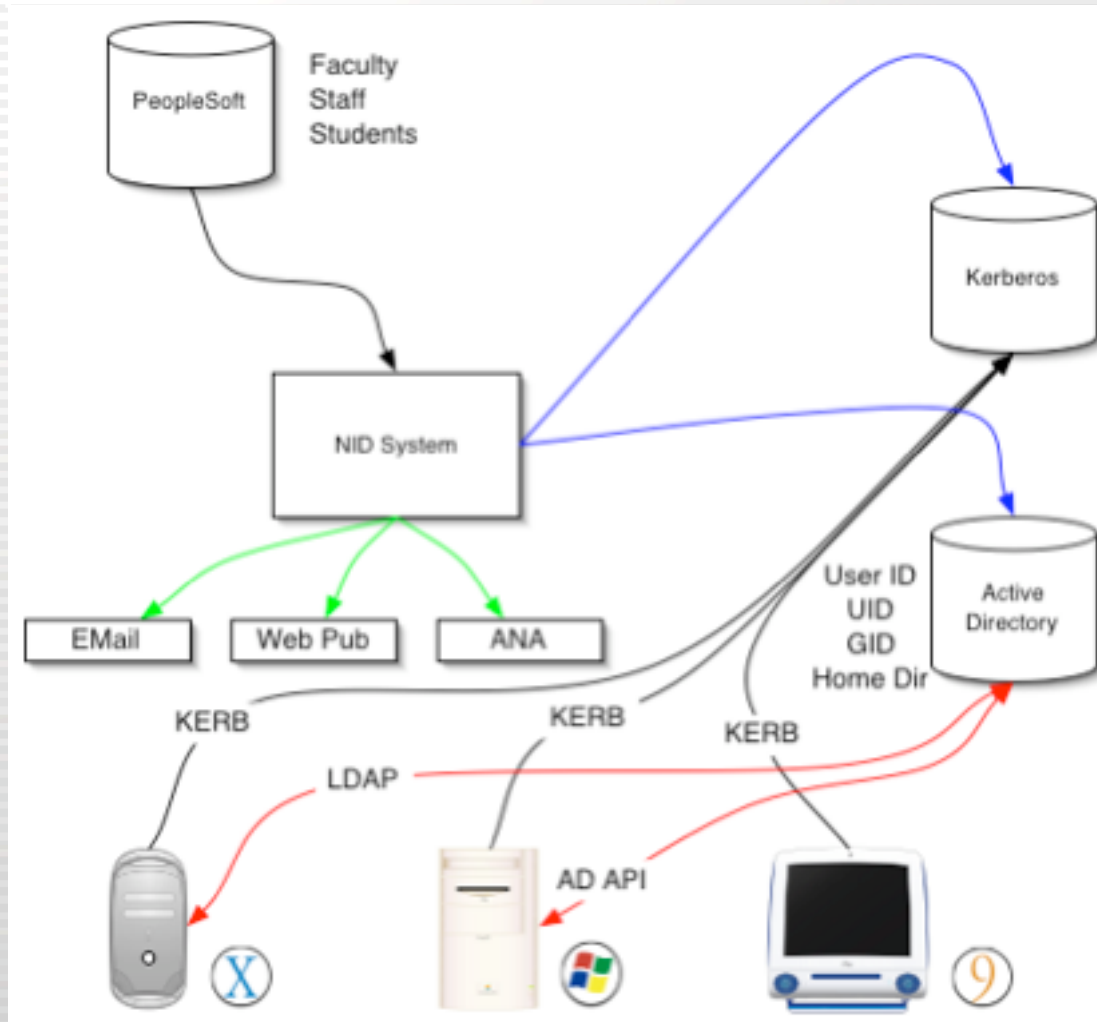
Why Extend the Schema?

- The Schema Represents the structure of the Directory.
 - So, we needed it to represent Mac OS X (basically just another UNIX) information.
 - So, we added schema information to have standard UNIX information stored in AD.

What is stored in AD?

- User ID
 - UID (UNIX ID #)
 - GID (Group ID #)
 - Home Directory
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- We DO NOT store passwords in AD

Diagram



Questions and Answers



**This Presentation is a
Work in Progress...**

**This will be finalized at the
joint Apple and U of U
seminar “Integrating Mac
OS X on Campus” on May 1st.**



Resources

- www.macoslabs.org
- web.mit.edu/kerberos/www/
- www.netcom.utah.edu
 - NID
 - ANA
- www.openldap.org