Power your directory with SAMBA

Case study: Linux and SAMBA/AD in K-12 education

Ohio LinuxFest 2019
Agenda

- Why would anyone do this?
- Samba and openSUSE
- Case study environment
- Implementation
- Live “Look-in”
Why Do This At All?

- You have more time than money (CAL avoidance)
- AD is the standard for interoperability
- Simplicity/ubiquity of administration tools
- Linux is just cooler than Windows
How Samba4 delivers AD

- Several key services are consolidated into samba-ad-dc service:
  - LDAP, DNS, and Kerberos
- Single configuration tool: samba-tool
- Default kerberos server: Heimdal (MIT added in 4.7)
- DNS – samba internal or bind (requires extra configuration)
- LDAP handled by internal samba service only
- Samba recommends a separate domain controller for AD – with shares delivered on member instances
Current Limitations of Samba AD

- No PowerShell AD module
- Limited SYSVOL replication (manual, hacky)
- Directory mode maximum 2008R2
- Limited application of computer GPO’s
State of Samba4 /AD in openSUSE

- Samba 4 first arrived in openSUSE 13.1
- Release notes (2014-01-08) 5.3. Samba Version 4.1:

"Samba version 4.1 shipped with openSUSE 13.1 does not include support to operate as an Active Directory style domain controller. This functionality is currently disabled, as it lacks integration with system-wide MIT Kerberos."
State of Samba AD in openSUSE - 2019

- openSUSE Leap 15.1 - samba 4.9, currently 4.9.5+git.187
  - Tumbleweed samba 4.11, currently 4.11.0

- Several rpm packages are part of this:
  - samba
  - samba-client
  - samba-ceph
  - samba-doc
  - samba-dsdb-modules
  - **samba-ad-dc- /usr/bin/samba-tool**
  - samba-libs
  - samba-pidl
  - samba-python
  - samba-winbind
## Official Samba Releases

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<tr>
<th>series</th>
<th>git branch</th>
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<th>maintenance</th>
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Case study environment
Liberty Christian School

- Two facilities in Anderson, IN
- ~550 students K-12, 80 staff
- ~150 Windows PC’s (Windows 10 standard)
- ~575 Chromebooks
- ~1 Old sysadmin
  - Two teenage helpers
  - One part-time staff
LCS IT information

- Each facility has two clustered KVM servers
  - Storage via iSCSI on Leap 15.1
- Windows servers (2) running as appliances
- SLES was default
  - Started with 11
- Windows 10 standard
- Share server in each building
Compelling events

- 9-yr-old Samba 3/LDAP domain getting harder to support
- Windows 10 1803 – breaks domain join
- Need for better standardization, interoperability
- No budget
- Local admins know Windows
Implementation design

- Install Leap 15.1 DC VM in each facility
- "Classic Upgrade", DNS internal (ad.libertyonline.org)
- Retain old share server names, rebuild on Leap 15.1 VM's as domain members
- Reconfigure dependent services
  - PowerSchool (SIS)
  - Google G Suite (GCDS)
- Replicate in virtual world first to test
- Get Trent and Zack to help
Results – Good, Bad, Ugly

- **Good**: All users and machines with passwords imported, shares work, Windows admin tools work, accomplished over winter break in January 2019, running continuously since then.

- **Bad**: All users in one OU, groups imported but unpopulated with users, file permission changes needed, manual SYSVOL replication for policies – **all mitigated now**

- **Ugly**: MIT kerberos labeled “experimental”
  - Samba backed away
  - Bug affected it at deploy time:
    - **CVE-2018-20217**
Live “Look-in”
Have a lot of fun!
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