Samba as the default directory

Rethinking our Identity Infrastructure

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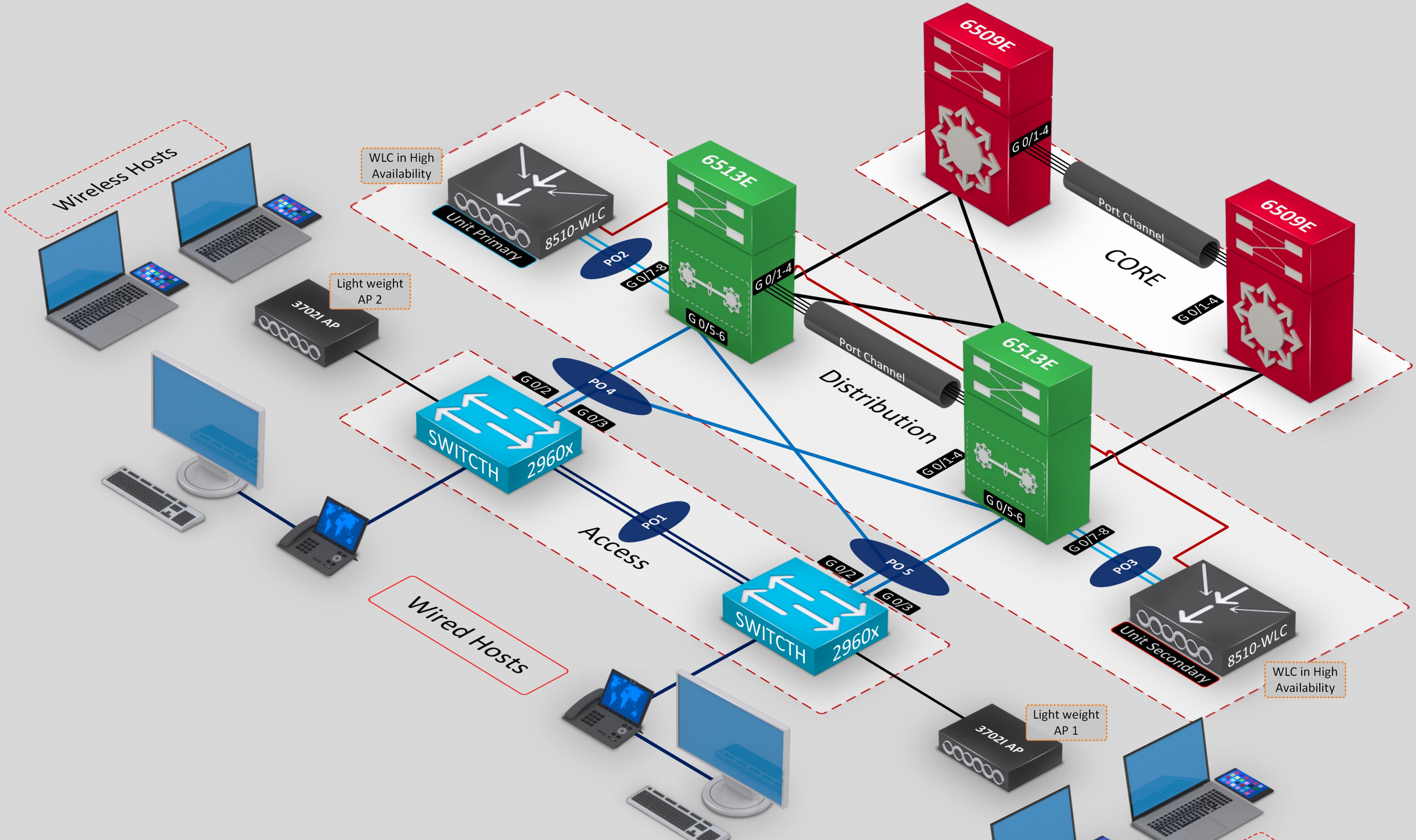
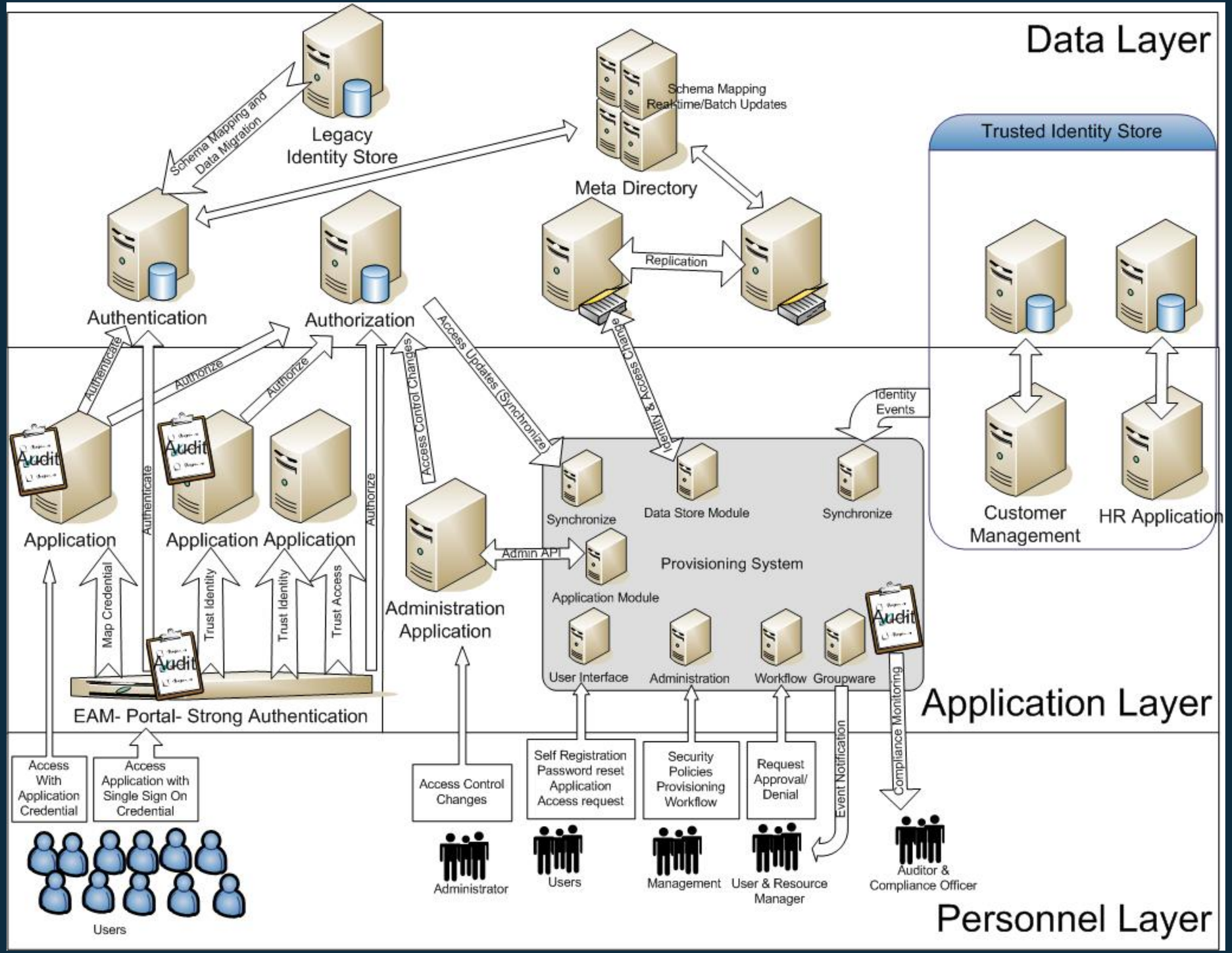
ldapwhoami -D CN=William

- displayName: Firstyear
- o: SUSE Labs
- c: Australia
- st: Queensland
- memberOf: O=389 Directory Server
- drink: Iced Coffee
- mail: wbrown@suse.de
- preferredTimeZone: UTC+10:00


SERVER SYSTEM 5000


Wireless Hosts
WLC in High Availability
Unit Primary
8510-WLC
PO2
G 0/7-8
6513E
G 0/1-4
G 0/5-6
6509E
G 0/1-4
Port Channel
CORE
6509E
G 0/1-4
Light weight AP 2
3702I AP
Port Channel
Distribution
6513E
G 0/1-4
G 0/5-6
G 0/2
G 0/3
PO 4
SWITCTH 2960x
PO1
Access
PO 5
G 0/2
G 0/3
SWITCTH 2960x
G 0/7-8
PO3
Unit Secondary
8510-WLC
WLC in High Availability
Wired Hosts
Light weight AP 1
3702I AP



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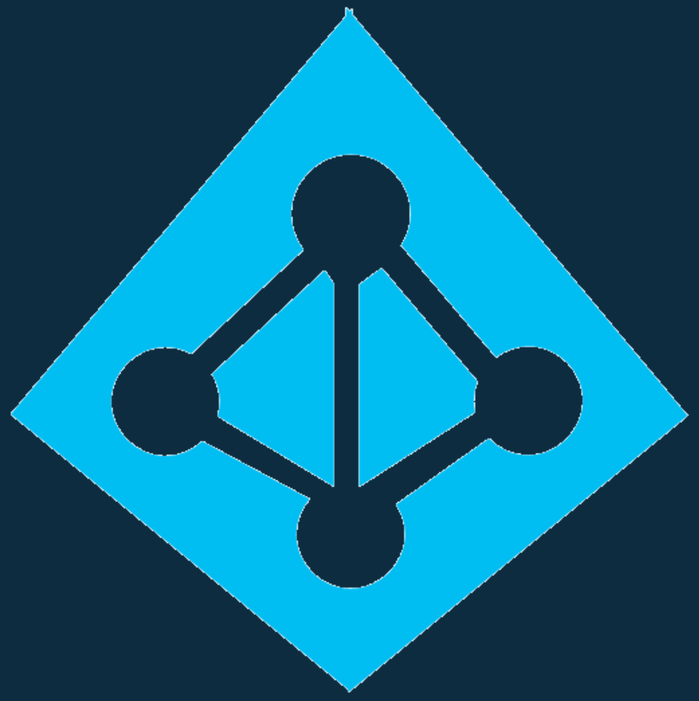
So how are people approaching this?



Auth0

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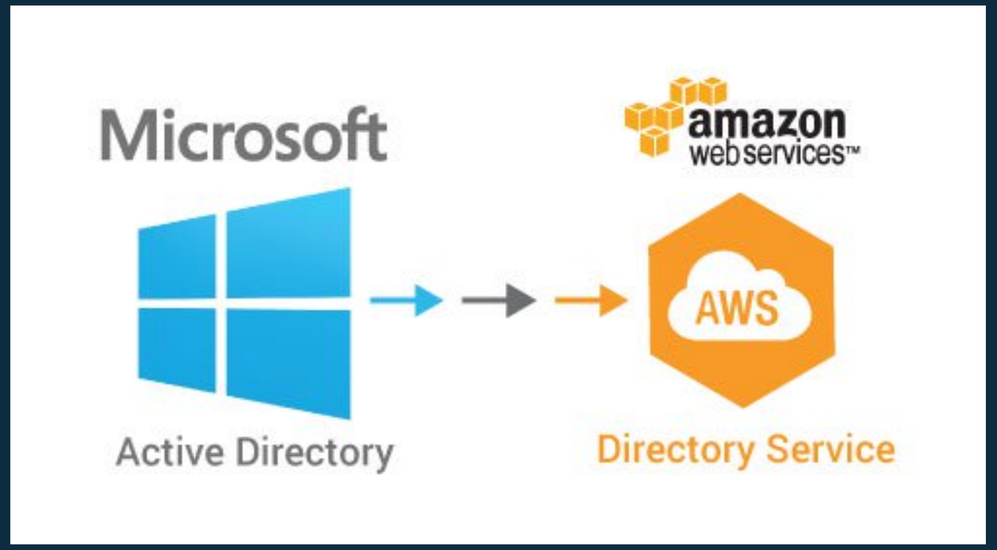
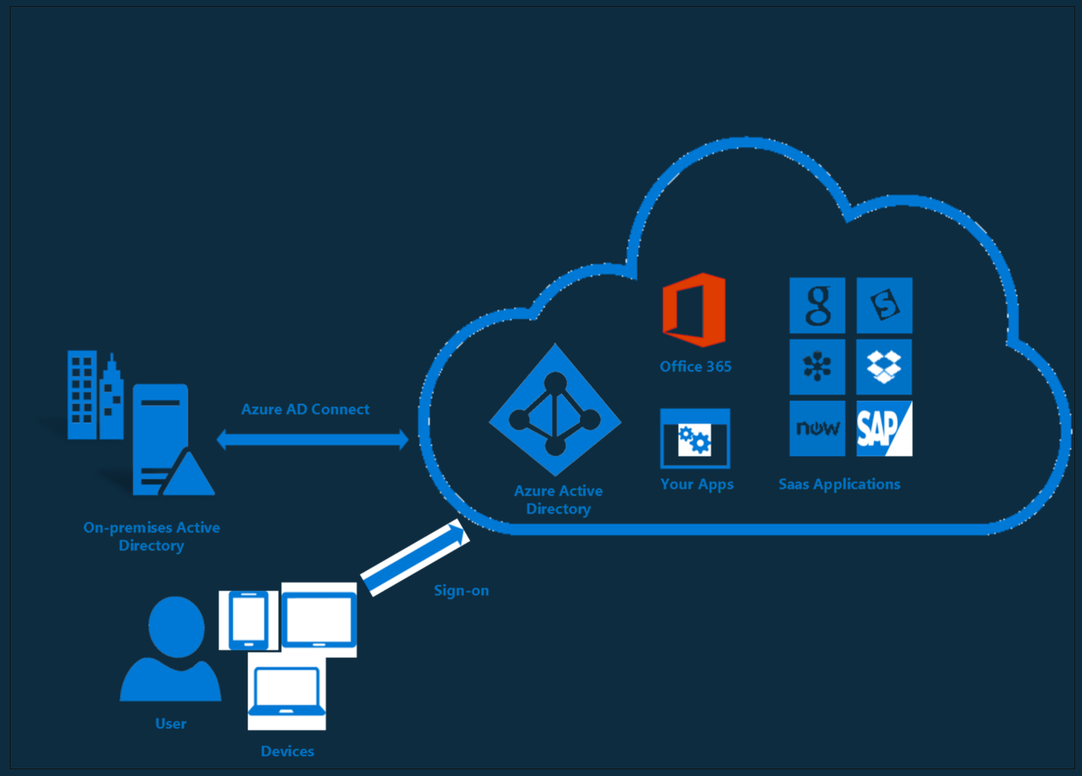
So how are people approaching this?





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So how are people approaching this?

SAML

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Where do we fit in?

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How should we think about this problem?

- Humans and people at every level
- Psychology and behaviours of people

- SSH keys are paramount
- Fits well with usability

- Applications and servers are stateless
- Automation and dynamic environments

- BYOD is popular - and sometimes required
- Return of the thin client

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How to achieve this with Samba?

- Samba contains an LDAP server - let's use it!

  - It’s a replicated user and group database
  - Trust is based on CA (LDAPS)
  - SSSD + LDAPS for SSH keys distribution
  - OAuth for web application integration
  - Still integrates with RADIUS + enterprise applications
  - Doesn't change our existing static integrations

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Lets have some examples!

```
/usr/local/samba/bin/samba-tool domain provision
  --server-role=dc
  --use-rfc2307
  --dns-backend=SAMBA_INTERNAL
  --realm=SAMDOM.EXAMPLE.COM
  --domain=SAMDOM
  --adminpass=Passw0rd
```

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Setup anonymous binding

```
/usr/local/samba/bin/samba-tool
  forest directory_service
  dsheuristics 0000002
   --H ldaps://ldapkdc.example.com
   --simple-bind-dn='administrator@samdom.example.com'
```

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Setup anonymous reads

```
/usr/local/samba/bin/samba-tool
  dsacl set
  --objectdn=DC=samdom,DC=example,DC=com
  --sddl='(A;;RPLCLORC;;;AN)'
  --simple-bind-dn="administrator@samdom.example.com"
  --password=Passw0rd
```

Repeat with:

```
  --objectdn=CN=Users,DC=samdom,DC=example,DC=com
  --sddl='(A;CI;RPLCLORC;;;AN)'
```

```
  --objectdn=CN=Builtin,DC=samdom,DC=example,DC=com
  --sddl='(A;CI;RPLCLORC;;;AN)'
```

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Configure LDAPS

Configure the files in /var/lib/samba/private and restart

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Configure Schema

```
/usr/local/samba/bin/samba-tool fsmo show
  -H ldaps://ldapkdc.example.com
  --simple-bind-dn='administrator@samdom.example.com'
  --password=Password1

SchemaMasterRole owner: CN=NTDS
Settings,CN=LDAPKDC,CN=Servers,CN=Default-First-Site-
Name,CN=Sites,CN=Configuration,DC=example,DC=com
```

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Configure Schema

```
[global]
    dsdb:schema update allowed = yes
```

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Add Schema

```
dn: CN=sshPublicKey,CN=Schema,CN=Configuration,DC=adt,DC=blackhats,DC=net,DC=au
changetype: add
objectClass: top
objectClass: attributeSchema
attributeID: 1.3.6.1.4.1.24552.500.1.1.1.13
cn: sshPublicKey
name: sshPublicKey
lDAPDisplayName: sshPublicKey
description: MANDATORY: OpenSSH Public key
attributeSyntax: 2.5.5.10
oMSyntax: 4
isSingleValued: FALSE
searchFlags: 8

dn: CN=ldapPublicKey,CN=Schema,CN=Configuration,DC=adt,DC=blackhats,DC=net,DC=au
changetype: add
objectClass: top
objectClass: classSchema
governsID: 1.3.6.1.4.1.24552.500.1.1.2.0
cn: ldapPublicKey
name: ldapPublicKey
description: MANDATORY: OpenSSH LPK objectclass
lDAPDisplayName: ldapPublicKey
subClassOf: top
objectClassCategory: 3
defaultObjectCategory: CN=ldapPublicKey,CN=Schema,CN=Configuration,DC=adt,DC=blackhats,DC=net,DC=au
mayContain: sshPublicKey

dn: CN=User,CN=Schema,CN=Configuration,DC=adt,DC=blackhats,DC=net,DC=au
changetype: modify
replace: auxiliaryClass
auxiliaryClass: ldapPublicKey
```

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Add SSH keys

```
/usr/local/samba/bin/samba-tool
  user edit william
   -H ldaps://ldapkdc.example.com
   --simple-bind-dn='administrator@samdom.example.com'
```

```
objectClass: ldapPublicKey
sshPublicKey: ecdsa-sha2-nistp521 AAAA.....
```

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Configure SSSD - Part 1

```
[domain/samdom.example.com]
ignore_group_members = False

cache_credentials = True
id_provider = ldap
auth_provider = ldap
access_provider = ldap
chpass_provider = ldap
ldap_search_base = dc=example,dc=com

# This prevents an infinite referral loop.
ldap_referrals = False

# Enable AD UUID -> Uid mapping
ldap_id_mapping = True
ldap_schema = ad
```

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Configure SSSD - Episode 2

```
# Rather that being in domain users group, create a user private group
# automatically on login.
# This is very important as a security setting on unix!!!
# See this bug if it doesn't work correctly.
# https://pagure.io/SSSD/sssd/issue/3723
auto_private_groups = true

ldap_uri = ldaps://ldapkdc.example.com
ldap_tls_reqcert = demand
ldap_tls_cacert = /etc/pki/tls/certs/ad_ldap.crt

# Workstation access
ldap_access_filter = (memberOf=CN=Workstation Users,CN=Users,DC=example,DC=com)
```

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Configure SSSD - The Finale

```
ldap_user_member_of = memberof
ldap_user_gecos = cn
ldap_user_uuid = objectGUID
ldap_group_uuid = objectGUID
# This is really important as it allows SSSD to respect AD account locking
ldap_account_expire_policy = ad
ldap_access_order = filter, expire
# Setup for ssh keys
ldap_user_ssh_public_key = sshPublicKey
# This is required for the homeDirectory to be looked up in the sssd schema
ldap_user_home_directory = homeDirectory

[sssd]
services = nss, pam, ssh, sudo
config_file_version = 2

domains = example.com
[nss]
homedir_substring = /home
```

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Configure SSH

```
/etc/ssh/sshd_config

  AuthorizedKeysCommand /usr/bin/sss_ssh_authorizedkeys
  AuthorizedKeysCommandUser nobody


test:
  /usr/bin/sss_ssh_authorizedkeys <username>
```

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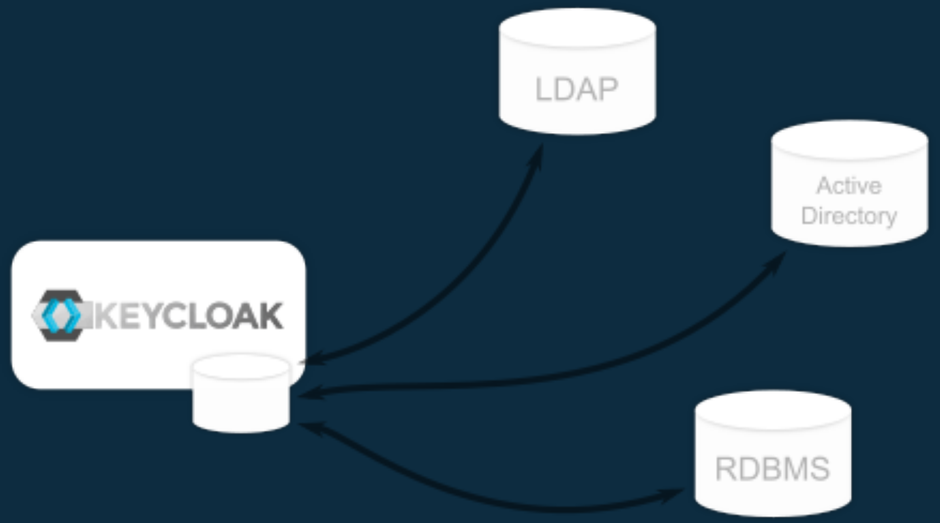
Keycloak / Ipsilon



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What really underpins all of this?

- Simple and generic will always win
- Psychology and human interaction design principles
- Empathy for our users and admins

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Future?

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Future

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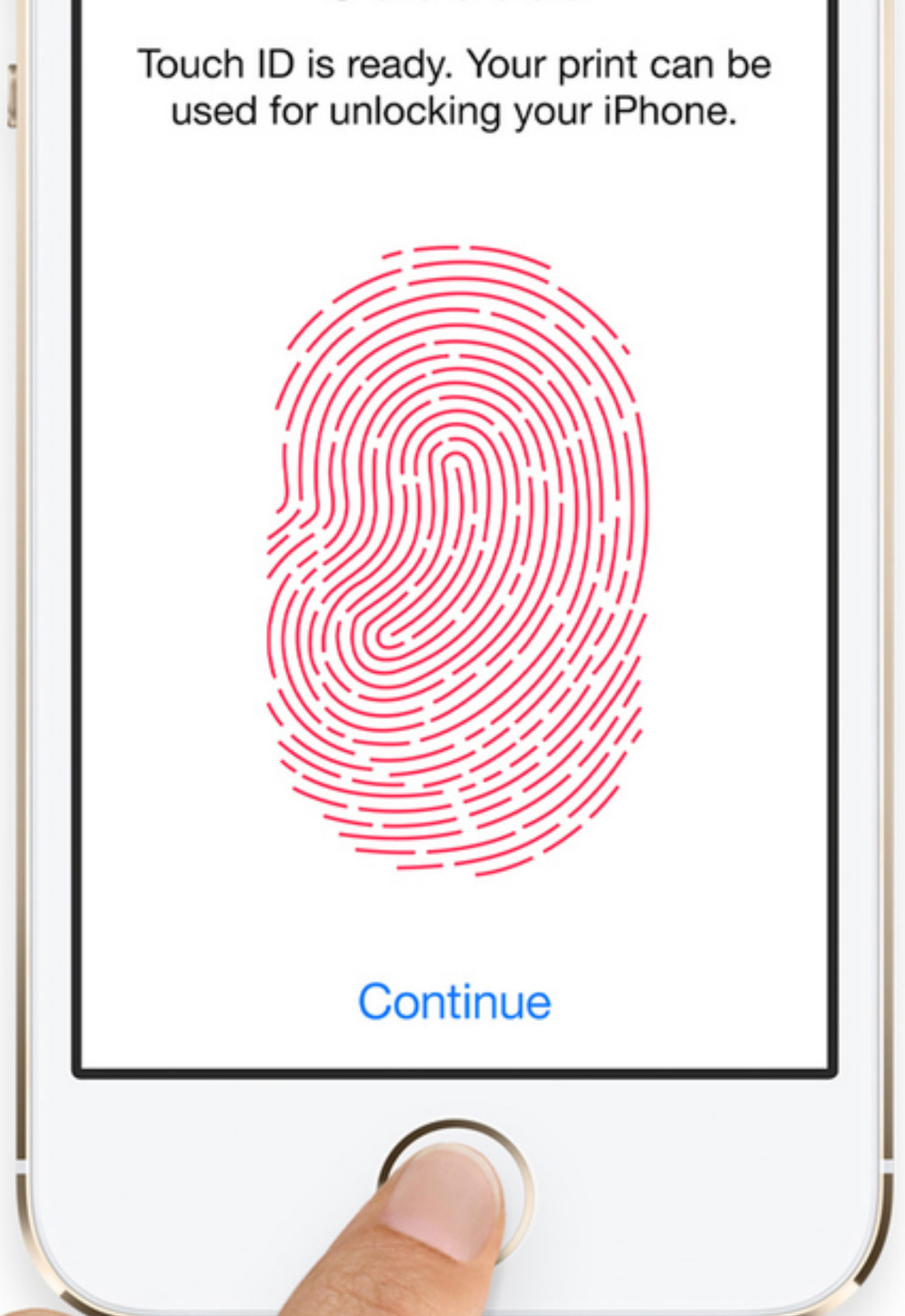
Touch ID is ready. Your print can be used for unlocking your iPhone.
Continue

What is next for OpenSource IDM?

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