MEMBEROF

FROM BOX TO ERP

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Box

Shibboleth

Directory

Grouper

Identity Vault

ERP

BOX

- online file storage
- supports Federated Identity
- population of groups via memberOf
- groups features lacking on user side
- large groups may pose problems

PROVISIONING

- granular provisioning at TU, highly automated
- Box offers restful json api
- Oauth 2 with authorization_code grant type only
- to get token via Shibb using Postman: http://www.youtube.com/watch?v=y-6iED1UDUg
- store refresh token after each use

SHIBBOLETH

- authentication: the usual Shibb metadata exchange
- authorization: assign privileges to groups, please

ATTRIBUTE RELEASE

```
//attribute-filter.xml
<afp:AttributeFilterPolicy id="box">
  <afp:PolicyRequirementRule xsi:type="basic:AttributeRequesterString"
    value="box.net" />
  <afp:AttributeRule attributeID="ldgroup">
    <afp:PermitValueRule xsi:type="basic:ANY" />
  <afp:AttributeRule>
<afp:AttributeFilterPolicy>

//attribute-resolver.xml
<resolver:AttributeDefinition xsi:type="ad:Script" id="ldgroup">
  <resolver:Dependency ref="myLDAP" />
  <resolver:AttributeEncoder xsi:type="enc:SAML1String"
    name="urn:mace:dir:attribute-def:group" />
  <resolver:AttributeEncoder xsi:type="enc:SAML2String"
    name="urn:oid:0.9.2342.19200300.100.1.4" friendlyName="group" />
  <ad:Script><CDATA[ js-is-good-for-you! ]]><ad:Script>
<resolver:AttributeDefinition>
```

ATTRIBUTE RELEASE

```
// js-is-good-for-you!
importPackage(Packages.edu.internet2.middleware.shibboleth.common.attribu
importPackage(Packages.org.slf4j);
logger = LoggerFactory.getLogger("edu.internet2.middleware.shibboleth.res
ldgroup = new BasicAttribute("ldgroup");

if (typeof memberOf != "undefined" && memberOf != null ) {
  for ( i = 0; memberOf != null && i < memberOf.getValues().size(); i++ )
    dn = memberOf.getValues().get(i);
    if ( dn.match(/,ou=groupergroups,o=utulsa.edu$/) ) {
      parts = dn.split(",").slice(0,-2);
      for ( j=0; j < parts.length; j++ ) {
        parts[j] = parts[j].split("=")[1];
      }
      path = parts.reverse().join(":");
      ldgroup.getValues().add(path);
    }
  }
}
logger.info("LDGROUP: "+ldgroup.getValues());
```

DIRECTORY(IES)

- Run OpenLDAP and Ad in parallel at TU.
- Keep everyone in a flat ou=people.
- Want both member and memberOf (overlay in OpenLdap, 'free' in AD).

ENTRYLIB.RB

	OpenLdap	AD
Person		
Group		

ENTRYLIB.RB

```ruby
class Entry
  def self.set_particulars(particulars)
  def self.auth(dn,pw)
  def self.connect(dn,pw)
  def self.dir
  def dir
  def self.find(dn)
  def self.search(base,filter)
  def operation(attr,value=nil)
  def set(struct)
module LdapConfig
module AdConfig
class LdapEntry < Entry
  include LdapConfig
  def self.encode(pw)
class AdEntry < Entry
  include AdConfig
  def self.encode(pw)
  def operation(attr,value=nil)
```

ENTRYLIB.RB

```
module Person
  module ClassMethods
    def find(id)
    def search(filter,attrs=nil)
    def uid_to_dn(uid)
    def create(uid,did,first,last)
class PersonLdapEntry < LdapEntry
  include Person
  def self.generate_uid_number
  def add_mail_attributes
  def generate_primary_mail
  def self.lookup(id)
class PersonAdEntry < AdEntry
  include Person
```

ENTRYLIB.RB

```
module Group
  module ClassMethods
    def path_to_dn(path)
    def dn_to_path(dn)
class GroupLdapEntry < LdapEntry
  include Group
  def self.groups
class GroupAdEntry < AdEntry
  include Group
  def initialize(keyvals={})
  def flatten_ranged_attribute(attribute)
  def self.membership(dn)
```

Flexible w/o duplicate code :)

GROUPER TAXONOMY

- student
  - course
  - department
- employee
  - organization
  - role
- non-affiliated
- application
- automated*
- composite*

*not synchronized to directory

AUTOMATED SUBTREE

- contains all sql defined groups

```
select tuid as SUBJECT_ID
from namevalue
where name = 'employment_status_code'
  and value = 'R'
```

- mirror of synchronized structure
- automated group is member in front group
- individial exceptions added to front group

Classic use case: CIO not in IT!

COMPOSITE SUBTREE

- intersection
- exclude

For example:

composite:law-faculty = employee:organization:law ∩ employee:faculty

employee:law-faculty = composite:law-faculty ∪ additional members

THEORY OF GROUPS

- do NOT redefine per use case
- aggregate from sensibly defined

GROUPERLIB.RB

- having good luck w/ Grouper API
- JSON support is a nice touch
- API Documentation
- sample pages are very helpful

GROUPERLIB.RB

```ruby
// a work in progress !!
def create_group(path)
  name = path.split(':').last
  req = Net::HTTP::Post.new "/grouper-ws/servicesRest/v2.0.1/groups"
  req.body = { "WsRestGroupSaveRequest" => {
    "wsGroupToSaves" => [ {
      "wsGroup" => {
        "name" => path,
        "extension" => name,
        "detail" => { "typeNames" => ["utulsaGroup"] },
      },
      "wsGroupLookup" => { "groupName" => path }
    } ]
  }}.to_json
  req.add_field 'Content-type', 'text/x-json'
  req.basic_auth @username, @password
  r = JSON.parse(@http.request(req).body)['WsGroupSaveResults']
  unless r['resultMetadata']['resultCode'] == 'SUCCESS'
    raise "cannot create group:::#{r}"
  end
end
```

GROUPERLIB.RB

To use event-driven change notification:

```
# grouper-loader.properties
changeLog.consumer.httpTestGroup.class = edu.internet2.middleware.grouper.changeLog.esb.consumer.EsbConsumer
changeLog.consumer.httpTestGroup.publisher.class = edu.internet2.middleware.grouper.changeLog.esb.consumer.EsbHttpPublisher
changeLog.consumer.httpTestGroup.publisher.url = http://server.utulsa.edu:4499/
changeLog.consumer.httpTestGroup.quartzCron = 48 * * * * ?
```

Posts JSON to the listening server

IDENTITY VAULT

- [tuid, name, value]
- noise equals power
- indexes, indexes, indexes
- emulating document db
- looking at single/multi schema

GROUPER SUBJECT VIEW

```
create view subject as select b.tuid as id,
 (select a.value from namevalue as a
  where a.name='first' and a.tuid=b.tuid) as first,
 (select a.value from namevalue as a
  where a.name='last' and a.tuid=b.tuid) as last,
 (select a.value from namevalue as a
  where a.name='uid' and a.tuid=b.tuid) as uid,
 (select a.value from namevalue as a
  where a.name='displayname' and a.tuid=b.tuid) as displayname,
 (select lower(a.value) from namevalue as a
  where a.name='displayname' and a.tuid=b.tuid) as lowername
from
 (select distinct tuid from namevalue) as b ;
```

Lookup within Grouper is stubbornly slow. :(

ERP

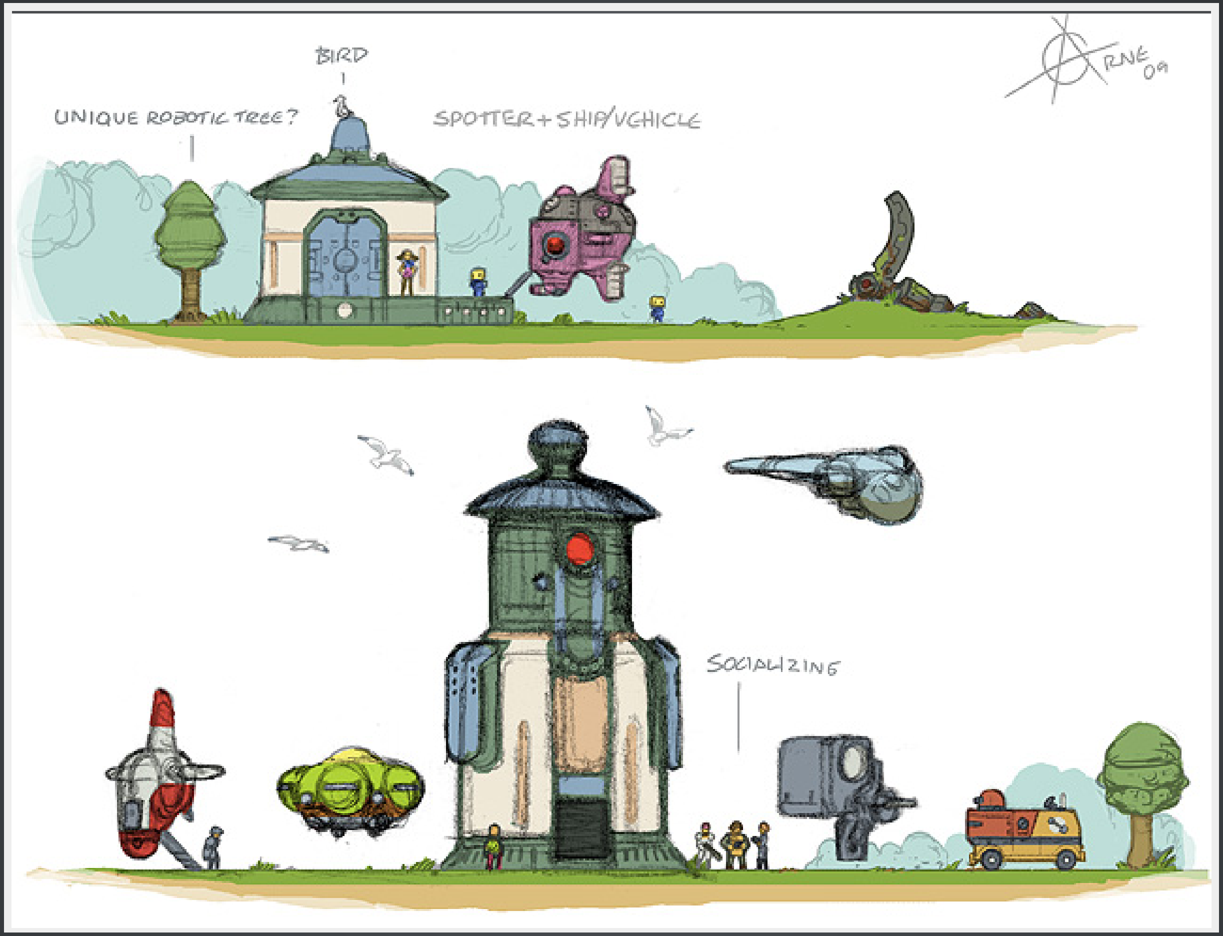
Run queries against data warehouse:

```
queries = [
  { mapper: [
      { name:'tuid', value:'HRPER_ID' },
      { name:'office_building', value:'BUILDING_DESC' },
      { name:'office_room', value:'HRP_PRI_CAMPUS_OFFICE' },
      { name:'office_extension', value:'HRP_PRI_CAMPUS_EXTENSION' },
    ],
    tables: ['dbo.ODS_HRPER'],
    where:"where HRP_EFFECT_TERM_DATE > GETDATE()" },
    ...
```

ERP

- daily batch
- moving toward a full dump
- latch and backfill
- minimize other sources

Questions?



Comments?

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