# Introduction to Identity Management

## Identity Management Workshop

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# Disclaimer

This presentation is freely based on material borrowed from:
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All merits should be attributed to them, and all errors to myself.

# Overview

1 What is Identity Management (IdM)?

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2. The Identity Management Stone Age

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4. Basic IdM functions

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1. What is Identity Management (IdM)?
2. The Identity Management Stone Age
3. A better vision for IdM
4. Basic IdM functions
5. Demands on IT and how IdM helps

# IdM definition

## What is all this about?

We need to know what we will be talking about

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The Burton Group (a research firm specializing in IT infrastructure for the enterprise)

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- Identity Management, in this sense, is often called "Identity and Access Management" (IAM)

# IdM Frequent Terms

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- Digital Id

### Digital Identity

The collection of bits of identity information about you in all the relevant IT systems at your institution.
The identity must be unique inside a given domain.

# IdM Frequent Terms

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- AuthN
- Digital Id

**Authentication**

The process that allows to verify the identity of a principal, by any means,
be them electronic or physical.
This proof of identity is also known as credentials.

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- AuthR
- AuthN
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**Authorisation**

The process that validates the user's rights on a given resource, and, usually, enforces them. Also seen in the wild as AuthS (British spelling) or AuthZ (American spelling).

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- AAI
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**Authentication and Authorisation Infrastructure**

A coordinated set of systems that allows institutions
to collaborate in exchanging identity data
to control the access to services
by their respective members.

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## What do this *buzz* words mean?

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- IdP
- AAI
- AuthR
- AuthN
- Digital Id

### Identity Provider

A.K.A. identity source.
The institution that holds
all the necesary information for
identifying a principal,
be it a person, a system or a service.

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- SP
- IdP
- AAI
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**Service Provider**

A.K.A. identity consumer.
Someone that needs to know the identity of
a principal and, probably,
some associated information,
in order to grant access to a resource.

# IdM Frequent Terms

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- SoR
- SP
- IdP
- AAI
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### System of Record

Those systems that collect data about indviduals
i.e., through which individuals enter
the organization.
For example: student registration or
Human Resources.

# IdM by example

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Let's see Lisa interacting with some University systems

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  she's not supposed to do)

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Some needs for Alice before she is in the payroll.

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Some needs for Alice before she is in the payroll.

- The Department Head wants her to
  have an e-mail account to give her a running start.
- How does she get into our system and get set up with the accounts and services appropriate to faculty?

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## to several IdM scenarios

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- Are they a member of our campus community?
- Have they been given permission?
- Is their privacy being protected?

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We can feel the smell of policy and process issues lurking nearby.

# The basic IdM functions

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There are three functions a system should provide

- AuthN: Verify the identity of principals seeking access to a service or resource
- AuthR: Validate that the principal has the rights to accomplish the intended operation
- Log: Track access to services / resources

# In the stone age

## tribes were issolated

In an organization that has not dawned to IdM

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- Every application for itself performs the IdM functions
- User list, credentials, if you're on the list, you're in AuthN *IS* AuthR
- Some identifiers are assigned nationally with uncertain value locally

# A better vision of IdM

## a cure to the yellow stickers syndrome

IAM as a middleware layer at the service of any number of applications,
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- Reflect: Track changes to institutional data from changes in SoR and other IdM components
- Join: Establish & maintain person identity across SoR
- Credential: issue digital credentials to people in the community

# Identity fragmentation

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- For any given person in the community,
  do we know which entry in each system's data store carry bits of their identity?
- How many systems can create a "person record"?
  more than one $=>$ identity fragmentation

# The Join

## we have a cure for cancer (in IdM)

The number one cure for identity fragmentation is

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The number one cure for identity fragmentation is: *The Join*
For it, we have to use bussiness logic to

- Establish which records correspond to the same person
- Maintain that identity join in the face of changes to data in collected systems

# Identity Information Access

## Implementig The Join

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- Some direct from the Enterprise Directory via reflection from SoR
- Some other bits, reached through identifier crosswalks

| Registry ID | Sys A ID | Sys B ID | Sys C ID | Sys D ID |
|---|---|---|---|---|
| 3a104e59 | fsmith32 | 86443 | freds | 864164 |
| 8c2f916d | abecker1 | 45209 | amyb | 752731 |

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- To authenticate and pass authorization-related information to service providers or resource hosts
- Via institution-to-provider agreements
- Facilitated by common membership in a federation

# Expand the basic functions set

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- Provision: Push IAM info out to systems and services as required
- Relay: Make access control / authorization information available to services and resources at run time
- AuthR: Make the allow deny decision independent of AuthN

# Managing privileges and roles

## Who does what

Role-Based Access Control (*RBAC*) model

# Managing privileges and roles

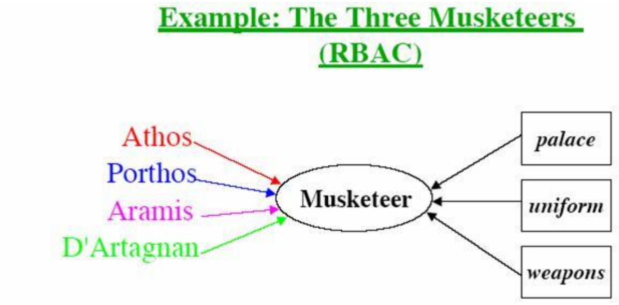
## Who does what

Role-Based Access Control (*RBAC*) model

- Users are placed into groups
- Privileges are assigned to groups
- Groups can be arranged into hierarchies to effectively bestow privileges

# Managing privileges and roles

## A nice example



Example: The Three Musketeers (RBAC)

# Provisioning

## Getting identity information where it needs to be

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Change happens, so this is an ongoing process

# Application/IdM integration

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- For applications with attitude included:
  Meet them more than halfway by provisioning

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## should we use it as the Entreprise Directory?

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- How does the system score when confronted to the basic IdM functions?

# Some policy issues

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On the life cycle of digital identities

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- When to reassign?Never, except . . .
- Who can handle them?

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- More requests for new services and new combinations of services
- Increased interest in eBusiness

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## Requirements
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And there is an Identity Management aspect to each and every one of these items

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## IdM rescues haired IT profesionals

How full IdM layer helps

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- Functional specialization
  Application developers can concentrate on application-specific functionality

# Evolution of IdM

## from construction to integration

The way of doing things is changing

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The way of doing things is changing

- Construction
  Raw materials into systems
- Integration
  - Subsystems into whole systems
  - Multiple systems into ecosystems
- We are all moving from construction to integration

# IdM Functions

## the extended set

| | |
|---|---|
| *Reflect* | data of interest |
| *Join* | identity across SoR |
| *Credential* | NetID, other |
| *Manage Affil/Groups* | AuthR info |
| *Manage Privileges* | more AuthR info |
| *Provision* | Get AuthNR info into app space |
| *Relay* | AuthR info to app on request |
| *Authenticate* | identity claim |
| *Authorise* | access decision (allow / deny) |
| *Log* | for audit, accounting, diagnose, . . . |

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And finally . . .

- Your IdM infrastructure (existing or planned) may be different from mine
- But somewhere, somehow the set of IdM functions is getting done
- We can compare our solutions by looking at the various packagings of the IdM functions