Creating an End-to-End Identity Management Architecture

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Outline of Identity and Access Management (IAM)

- **IAM Introduction**
  - Drivers
  - Approaches
- **IAM Ecosystem**
  - directories / meta-directories
  - identity management and governance
  - access management
  - federation
- **IAM Program Considerations**

Compliance: the pain chain

CFO, CEO, CRO

1 Are we properly managing user access? Will our security controls pass the next audit?

Auditors

2 Could you prove that John Smith has "*appropriate*" permissions for his job?

IT Security

3 Can you confirm that John Smith has the proper access?

4 I can tell you what access John has – I can't tell if it's appropriate

Application Managers

5 Can you confirm that John Smith has the proper entitlements?

6 I could… If I was technical enough to understand all these IT details…

Business Manager

Typical Identity Management Inefficiencies - Gaps

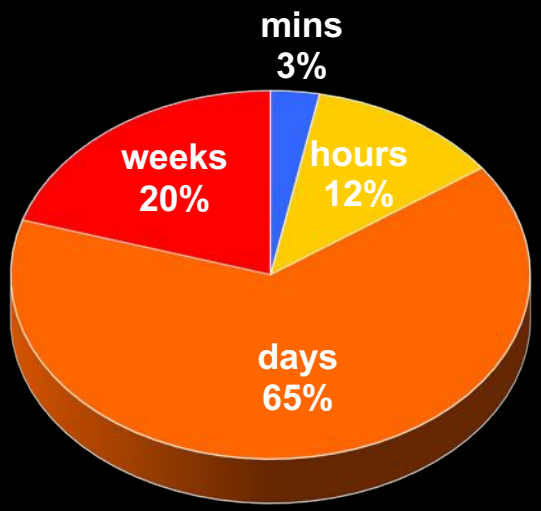
Need to automate complex, administrator intensive Identity management business processes

Provisioning New Users	**Elapsed turn-on time for users is up to 12 days**
Managing Users	**Help Desk costs $20 per call for pw resets**
De-provisioning Users	**30-60% of existing accounts are invalid**
Deploying New Initiatives	**Up to 30% of application development time Is for access control**

The Threat from Within

Improper Use of Corp Data

- 59% of workers who left their positions took confidential information with them
- 67% used their former company's confidential information to leverage a new job



Time to terminate access

- 24% still had access to corp systems

Source: “Data Loss Risks During Downsizing”, Ponemon Institute LLC,Feb 23, 2009

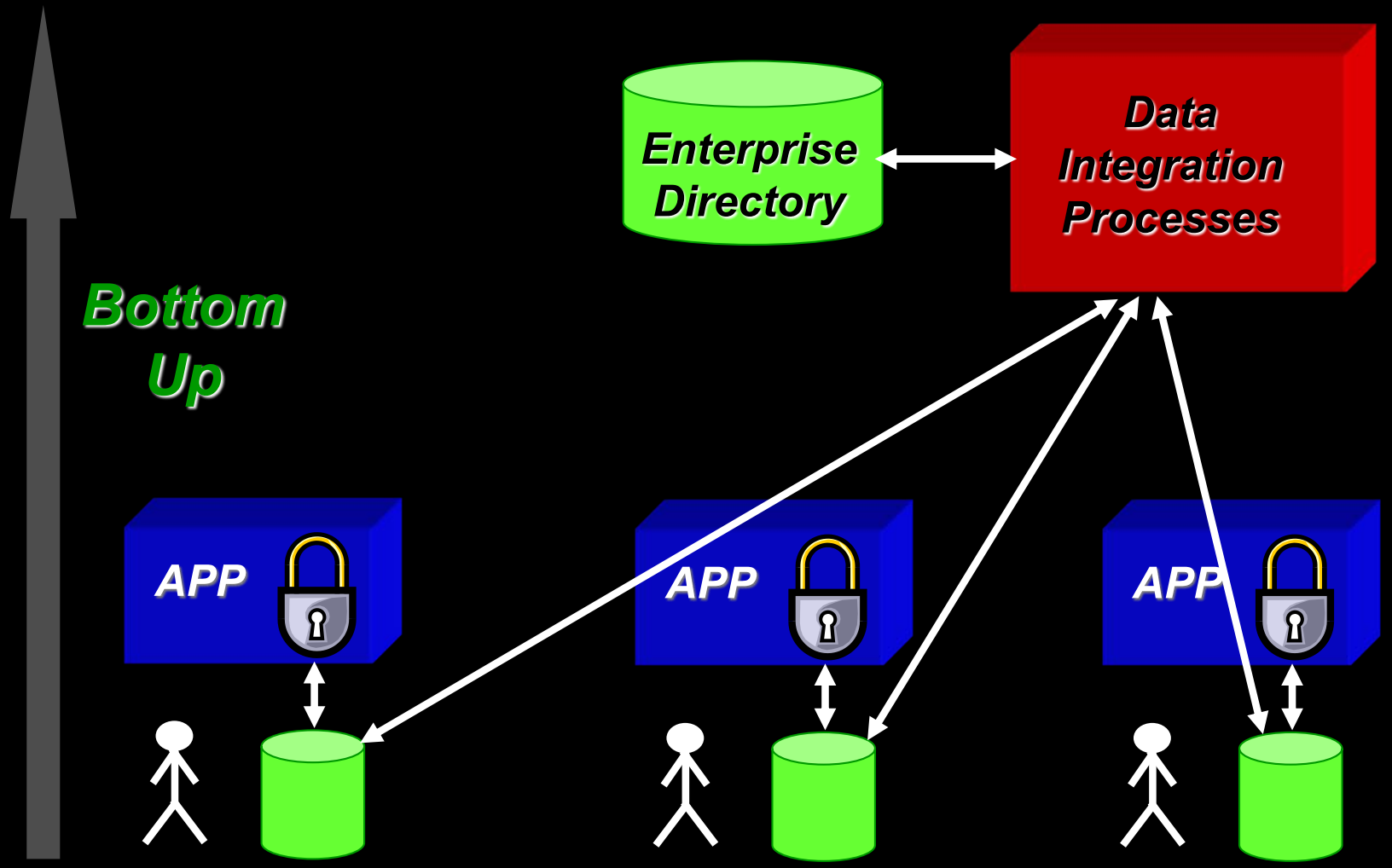
4 Core A's of IAM

- Administration
- Authentication
- Authorization
- Audit

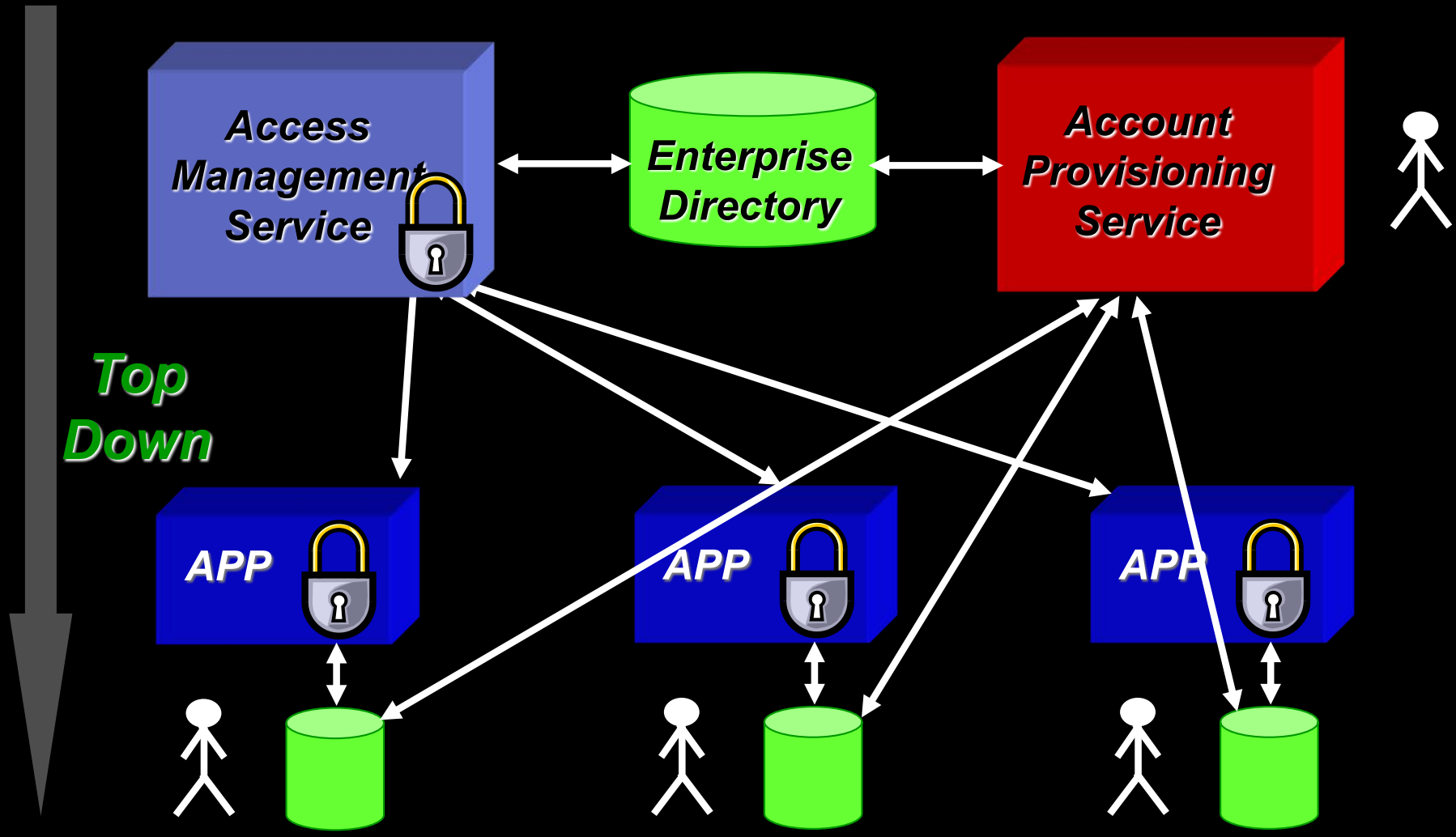
5th A

- Analytics

Integrated Decentralized Identity Management



Centralized Identity Management



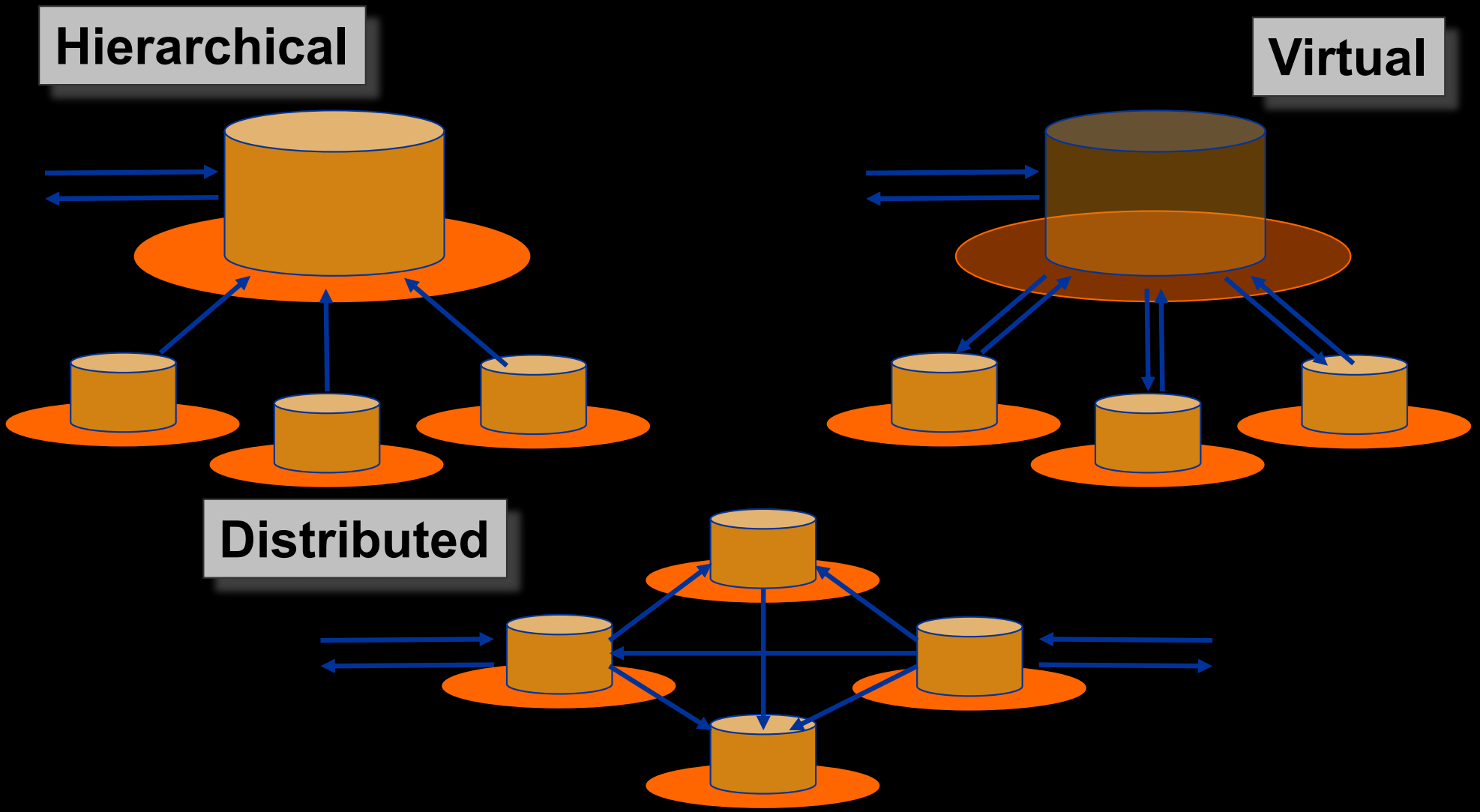
Identity and Access Mgmt

Directory Mythology

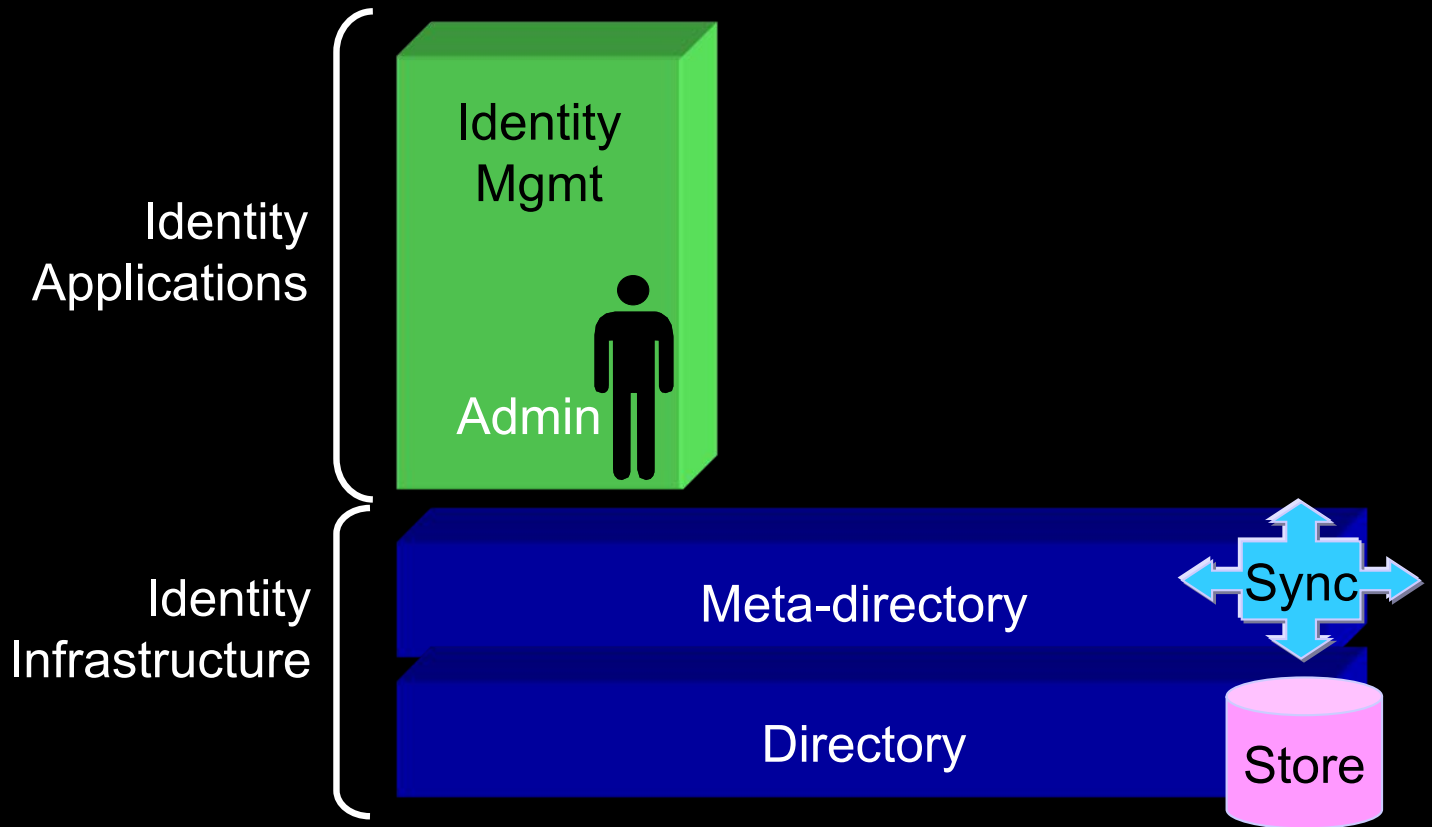
- **Myth: An enterprise directory provides SSO**
  - Truth: an enterprise directory could be the basis for SSO
- **Myth: An enterprise directory provides centralized access control**
  - Truth: only if all apps are enabled
- **Myth: An enterprise directory solves all my acct provisioning issues**
  - Truth: not all apps/OSs/dbs/etc. are enabled
  - Truth: still lacks workflow processing, end user interface, reconciliation
- **Myth: An enterprise directory can replace all other directories**
  - Truth: z/OS→RACF, Windows→AD, etc.

Identity and Access Mgmt

Meta-Directory Fashion



Identity and Access Mgmt



Automating the Identity Lifecycle

Identity change (add/del/mod)

Access policy evaluated

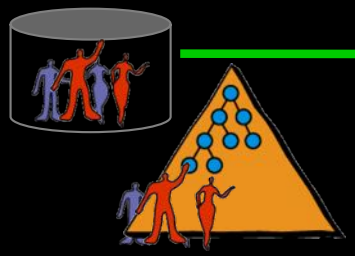
Approvals gathered

Accounts updated

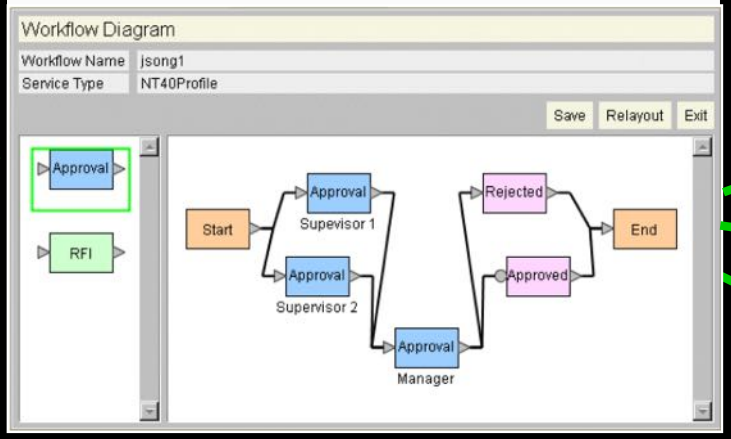
Automatically detect and correct local privilege settings

Accounts on different types of systems managed -- plus, in-house systems & portals

HR Systems/ Identity Stores



Integrated Web Console



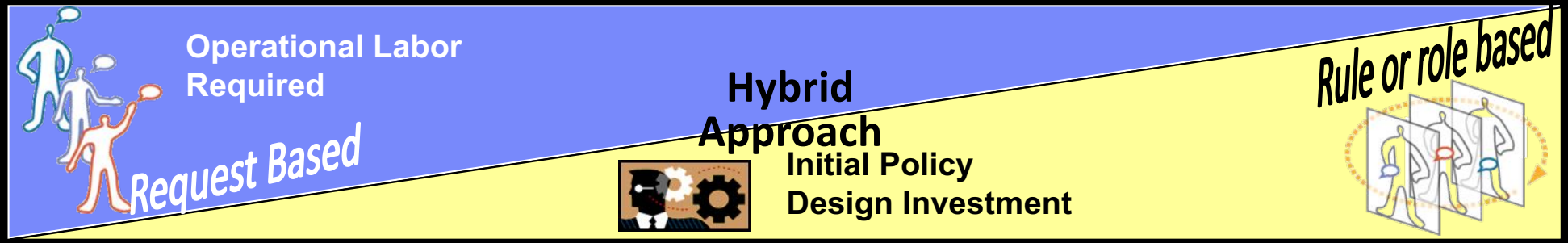
Operating Systems

Databases

Applications

Identity Management Flexibility: Request-based and Automated

The user provisioning approach a company uses is an evolving process



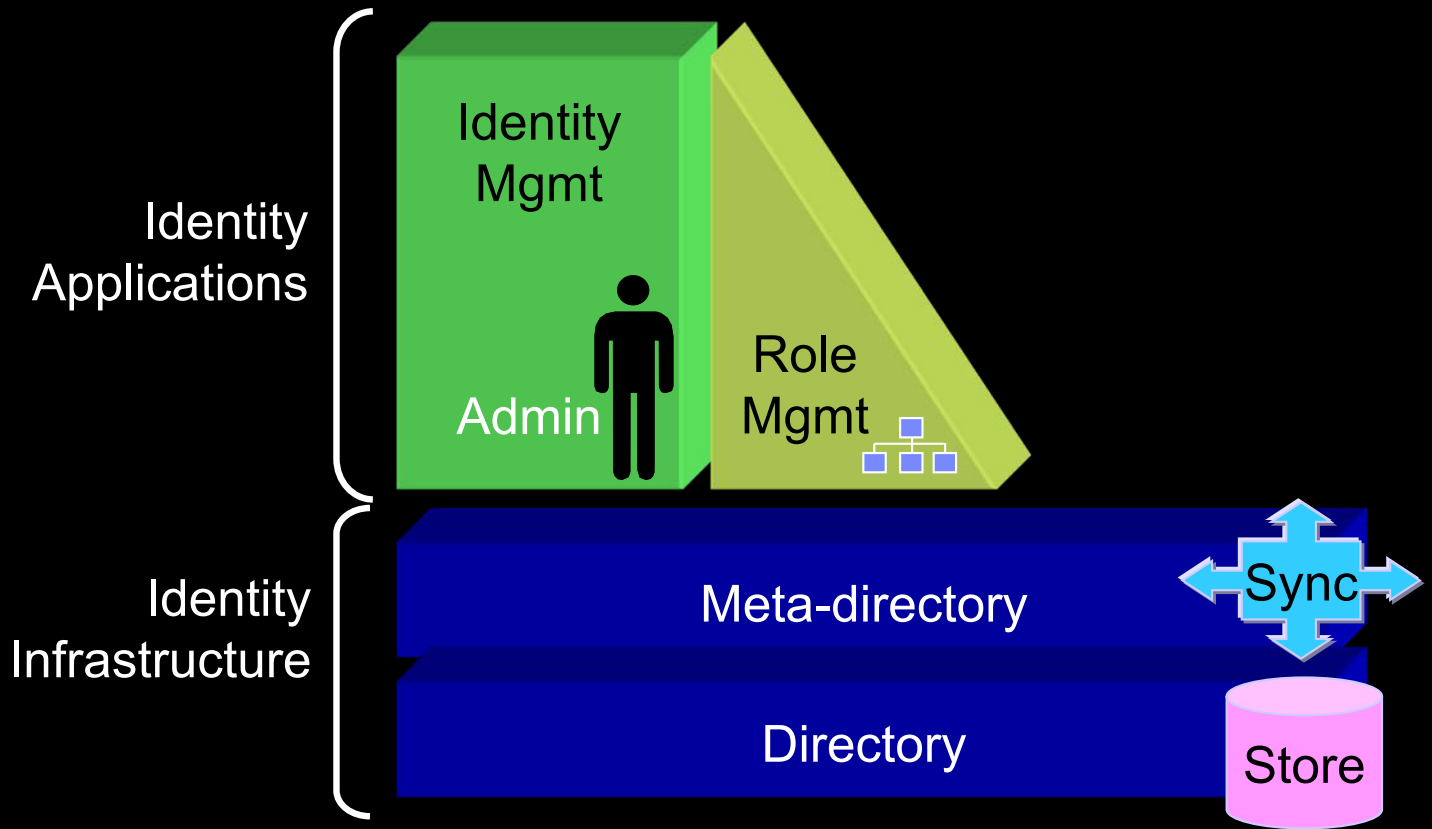
Identity Mgmt System

Admin GUI or custom front-end

Lifecycle Changes

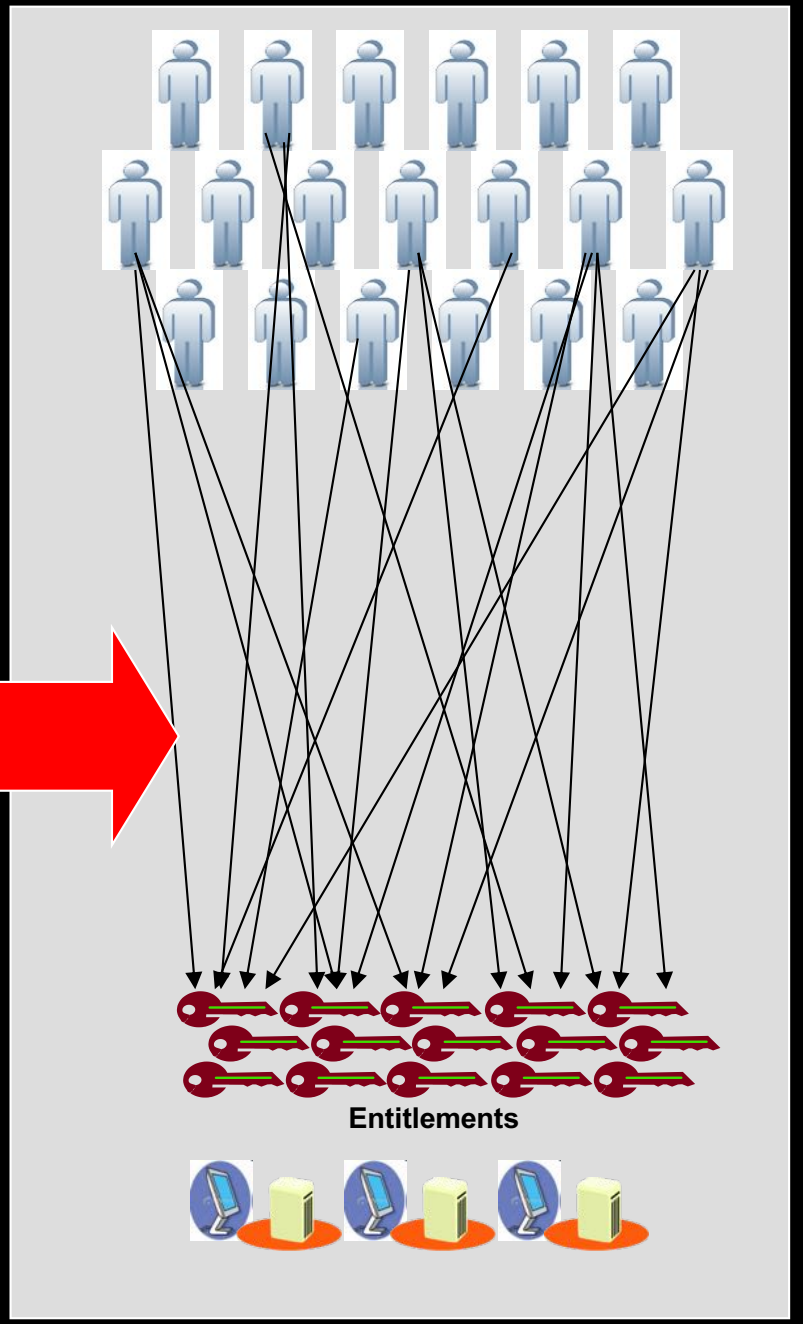
Role Management

Identity and Access Mgmt



Without Roles: Typical Practice

- **User**:
  - the entity requesting access to a resource
  - Ex: John Smith, AppXYZ
- **Resource**:
  - Ex: app, data base, table, etc.
- **Entitlement**:
  - a permission to access a particular resource
  - Ex: open table, read record, write record



With Roles: Best Practice

- **User**:
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- **Resource**:
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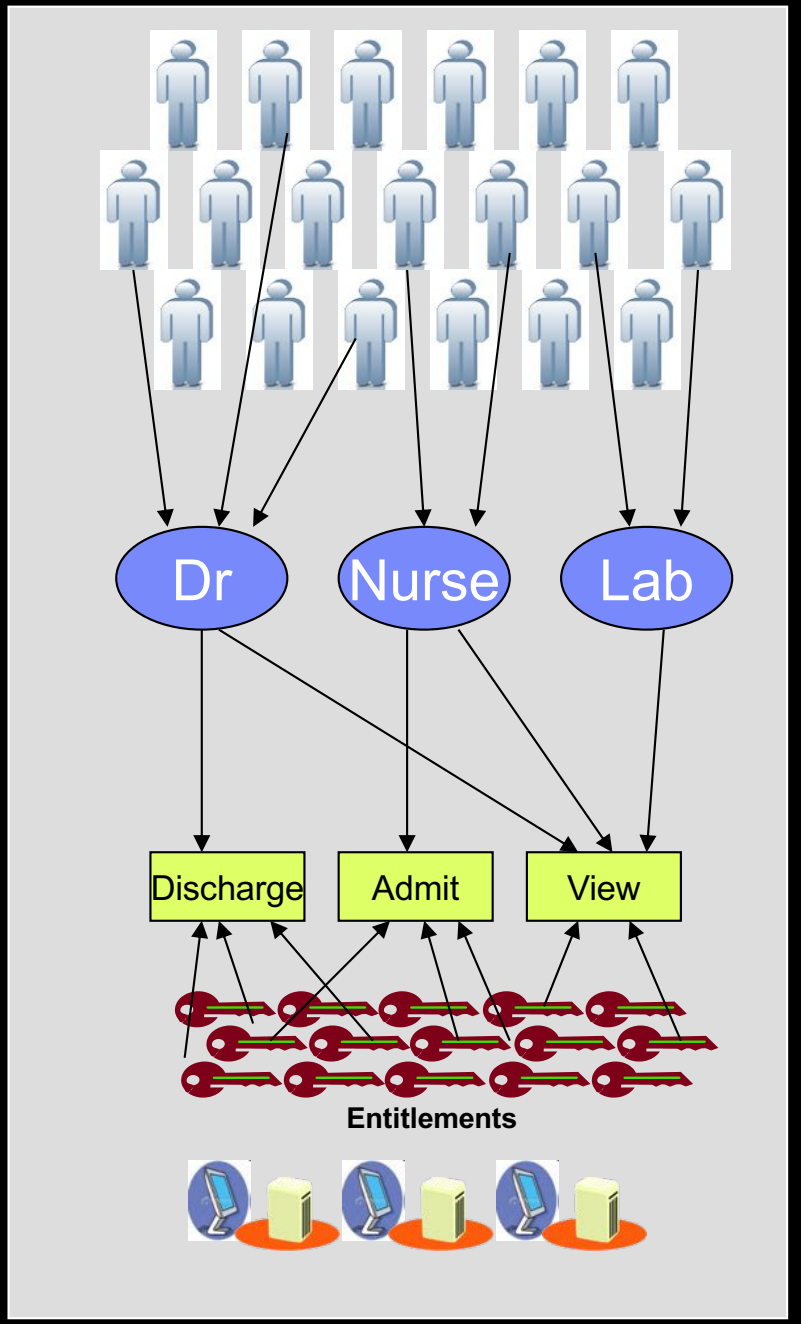
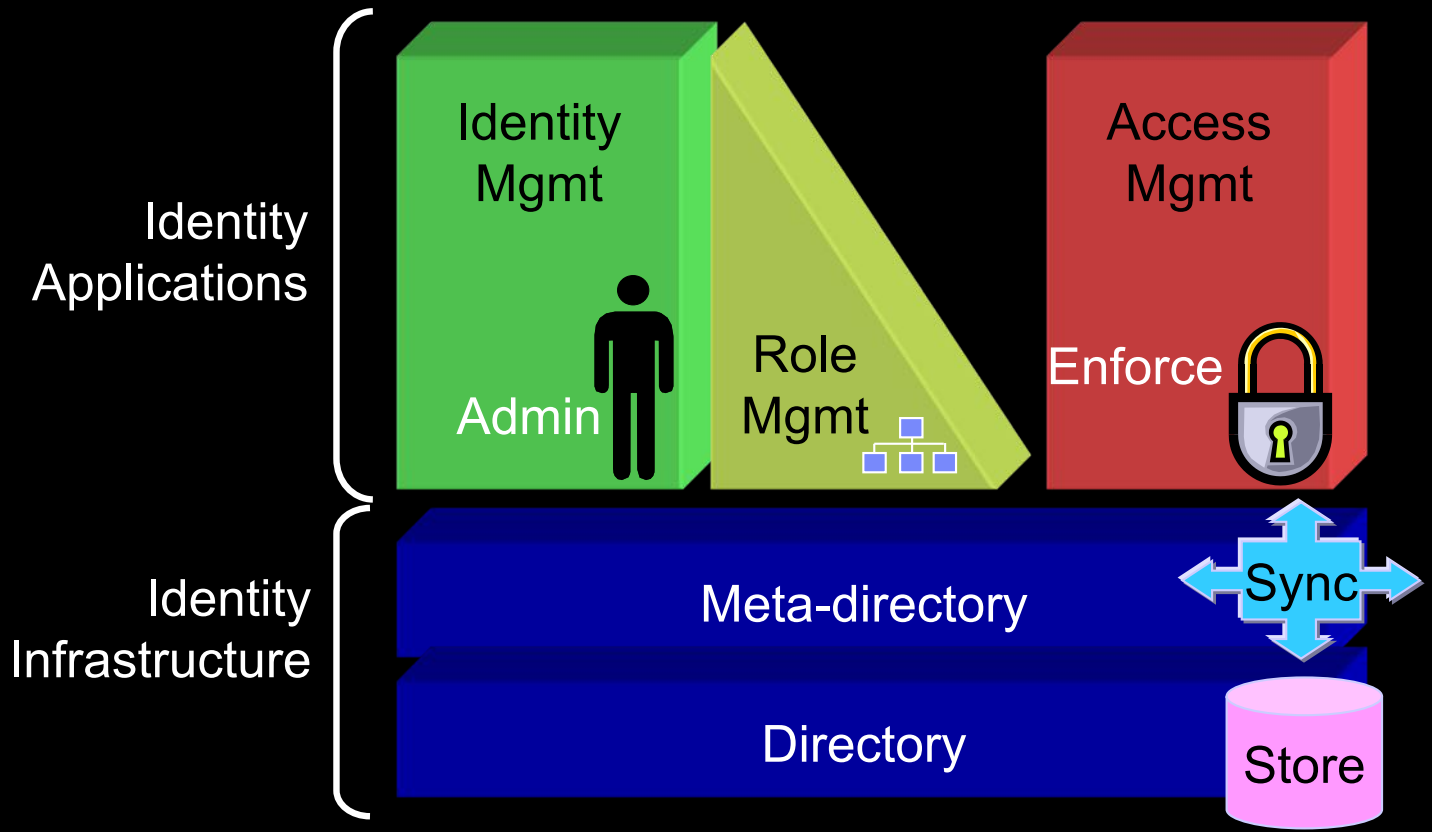
- **Entitlement**:
  - a permission to access a particular resource
  - Ex: open table, read record, write record
- **Business role**:
  - a logical collection of users performing a similar business function
  - Ex: Doctor, Nurse, Lab Tech
- **Application role**:
  - a logical collection of entitlements needed to perform a particular task
  - Ex: create patient record, discharge patient, view X-rays, etc.)

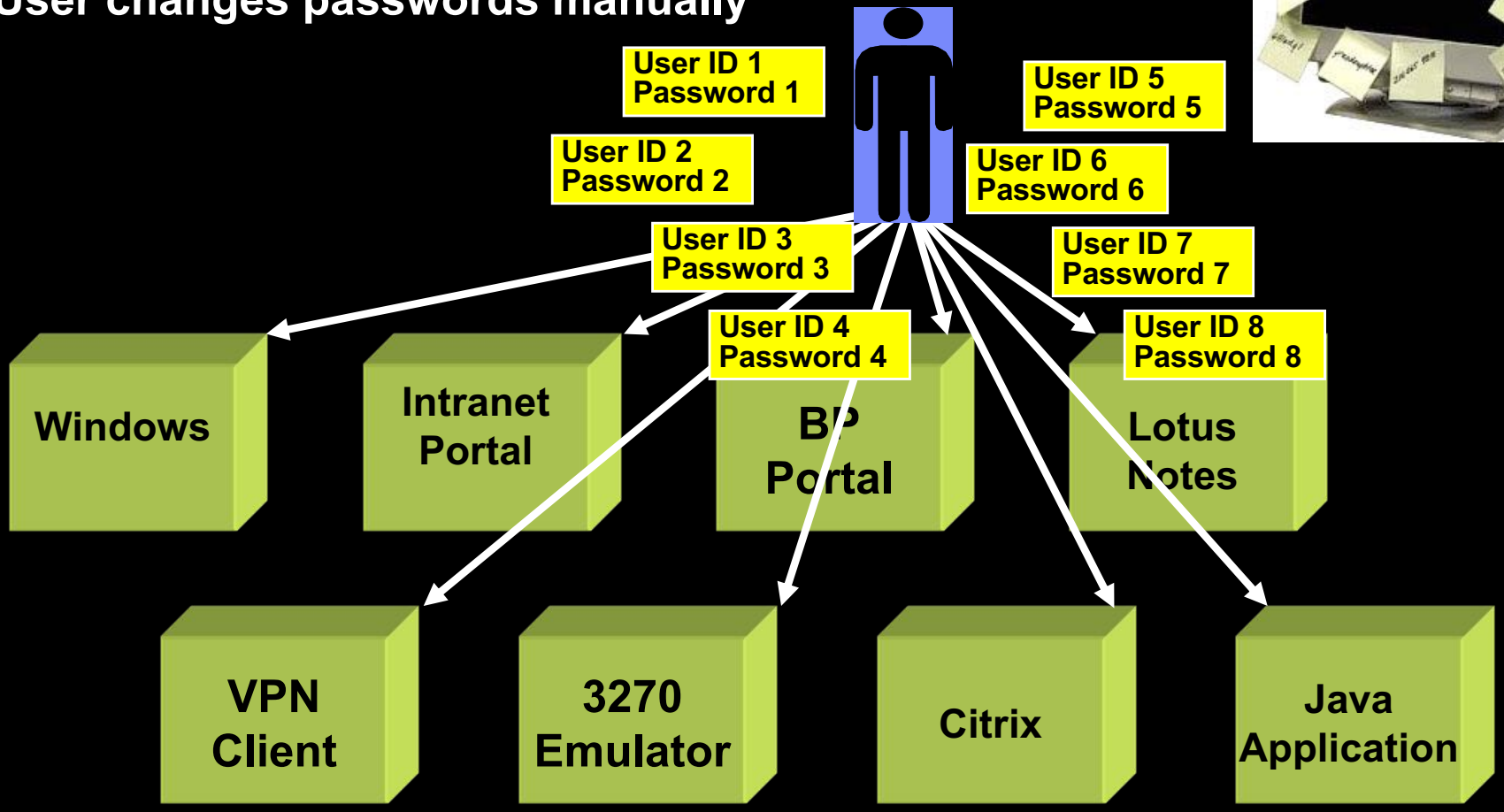


Identity and Access Mgmt



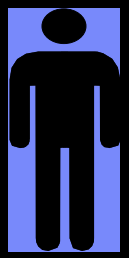
End User Authentication – Typical

- User authenticates to each application separately
- User must remember passwords
- User calls helpdesk for password reset
- User changes passwords manually



End User Authentication – Best Practice

- User authenticates to SSO manager
- All other logins automated
- Password reset by user at desktop
- Password change automated



User ID
Password

Enterprise Single Sign-On

Windows

Intranet Portal

BP Portal

Lotus Notes

VPN Client

3270 Emulator

Citrix

Java Application

Make risk-based authentication decisions – what, who, when -> how

Resource / Action:
- The resource being requested and what is being done.
- E.g. Login to view a file vs. submit payment order to existing payee vs. adding a new-payee

What?

Identity/Entity:
- Groups, roles, organization, type (person, Thing, application, bot)
- Identity assurance level (employee vs. un-verified customer vs. verified customer using state-ID)

Who?

Device:
- Device fingerprint. malware infected, Jailbroken/Rooted, device elements spoofed, RAT controlled
- Screen depth/resolution, Fonts, OS, Browser, Browser plug-in, device model & UUID

Environment:
- Geographic location, IP address / IP reputation of source, local timezone
- Location spoofing - Proxy/VPN

Behavior:
- Analytics of user historical and current resource usage.
- User activity monitoring, specific business activity monitoring (e.g. transactions monitoring)

When?

Risk Mitigation (Authentication) methods to use given certain “who”s and “when”s

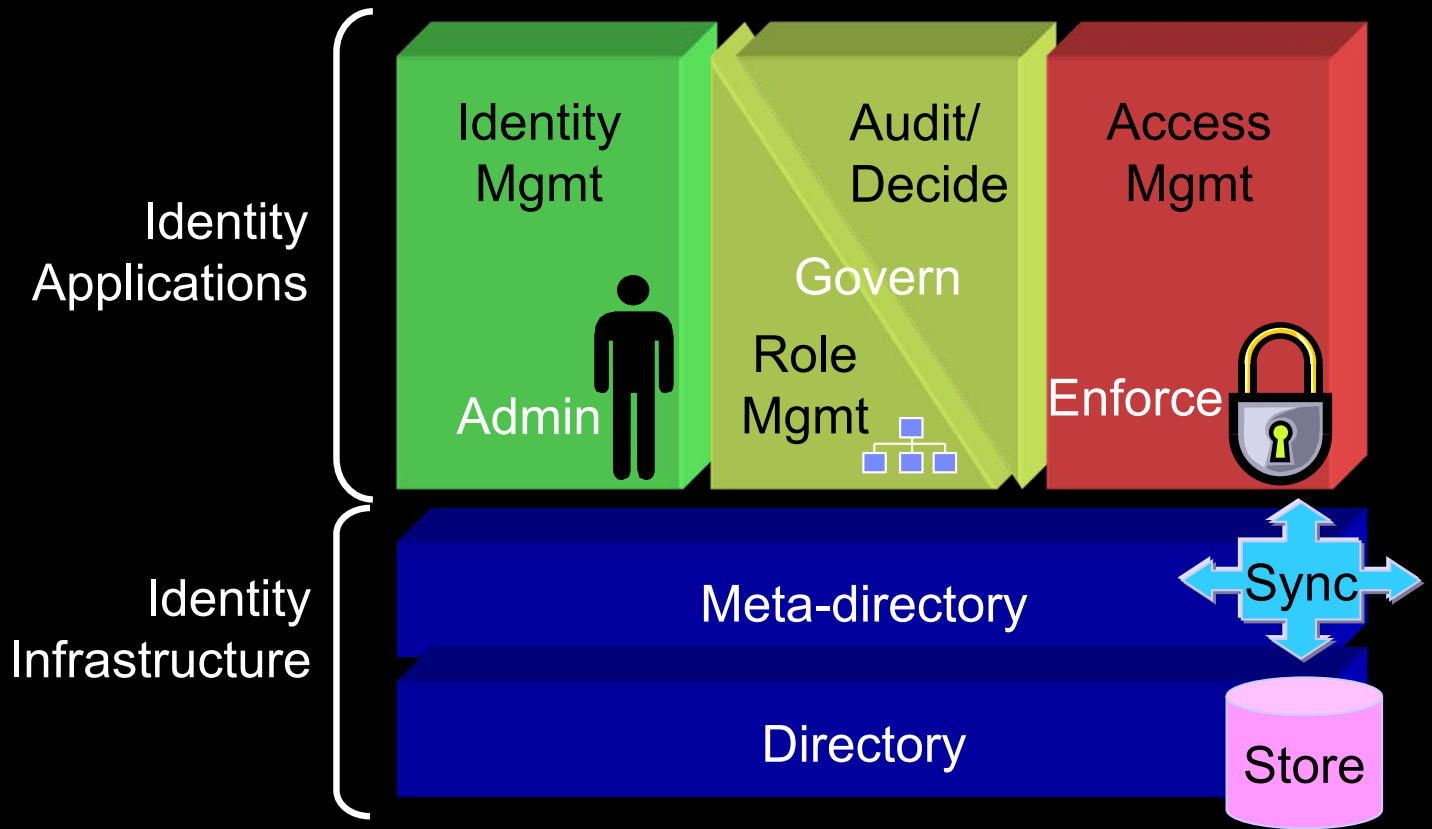
How?

Making the case for SSO

- **400+ healthcare respondents on SSO savings:**
  - saves clinicians an average of 9.51 minutes a day (122 hours per year)
  - estimated $2,675/clinician/year
  - total annual savings of more than $2.6 million
- **51 apps using SSO on average**

- **80% of SSO users would recommend the technology to others**

Identity and Access Mgmt



Typical Audit findings – Case for Governance

✗ **Poor visibility on why access has been delivered**
- Who requested and who approved it?
- Is that access still required?

✗ **Lack of violation detection**
- Sensitive access assigned to ordinary employees
- Conflicting permissions creating SoD violations

✗ **Manual efforts to retrieve data**
- Time consuming
- 3rd party consulting fees

Seek a business-driven approach to Identity Governance

Identity and Governance Evolution

1 Administration

- Cost savings
- Automation
- User lifecycle
- Self-care / Sponsored Care

2 Governance

- Role management
- Access certification
- Business-centric
- Decision Support
- Risk-based controls

3 Analytics

- Intelligence-based control
- Deep application analysis
- Application usage
- Structured and unstructured data

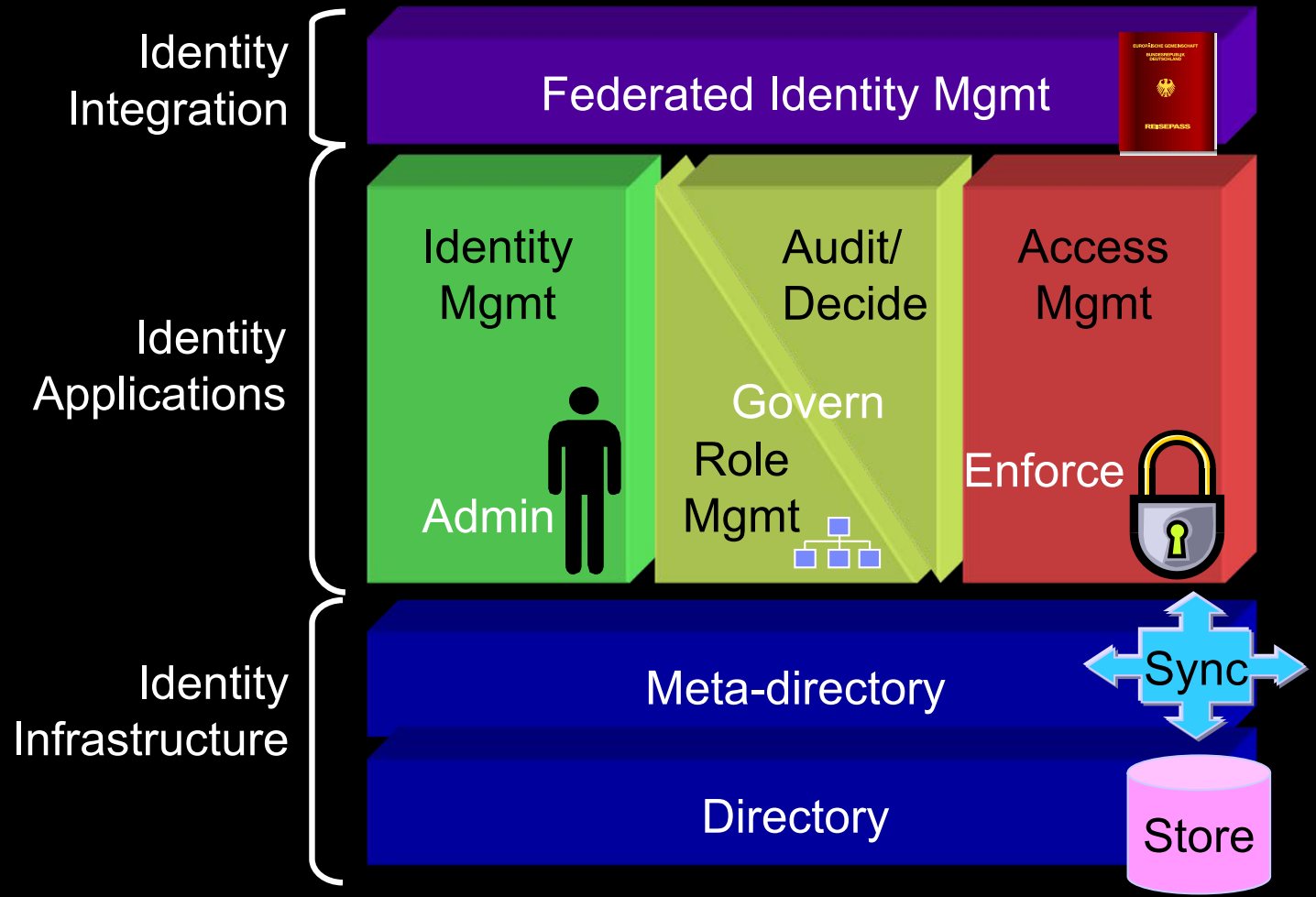
Identity Intelligence: *Collect and Analyze Identity Data*

How to gain visibility into user access?

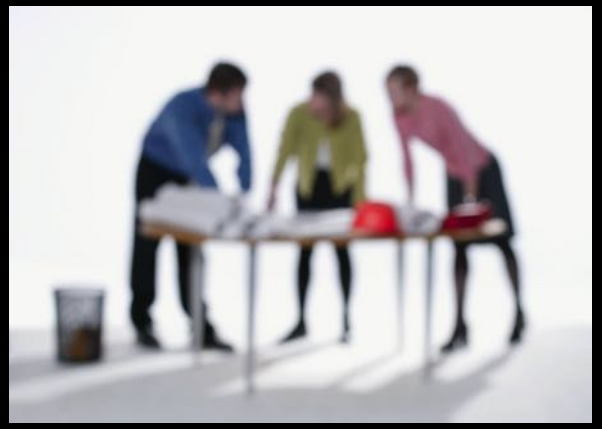
How to prioritize compliance actions?

How to make better business decisions?

Identity and Access Mgmt



IAM Program Recommendations



- **Identify and measure pain points**
- **Describe in terms of business problem**
  - Ex: helps build ROI/compliance business case
- **Develop IAM architecture**
  - Identify authoritative data sources/owners
  - Identify new a legacy components
  - Etc.
- **Develop phased implementation plan**
  - goal: early success to gain subsequent buy-in
    - don't try to "boil the ocean"
    - but don't set long terms sights too low
  - try to avoid political / control wars by choosing phase 1 systems judiciously – partner with pilot group
- **Ensure results are measurable**