Modern Identity Security Platforms

Where Identity Governance & Administration, Access Management and Privileged Access Management unite to enhance Cybersecurity

IDVKM

Agenda

1. Executive Summary
2. Basic Concepts of Cybersecurity
3. Fundamentals of Identity Management
4. IGA, AM and PAM
5. Identity Security Platform
6. Q&A

Executive Summary

WHAT IS THE PURPOSE OF THE LECTURE

The purpose of the lecture is to show you what Identity Management as a part of Cybersecurity is and how its tools and platforms enhance cybersecurity

- After the lecture you should know
  - What are the main objectives of cybersecurity
  - What are the fundamental concepts of Identity Management
  - What is Identity Governance & Administration
  - What is Access Management
  - What is Privileged Access Management
  - How an Identity Security Platform is built and what are its benefits

- With the information from the lecture, you should be able to
  - Protect better your digital identity
  - Contribute to the cybersecurity of your company (and your personal one)

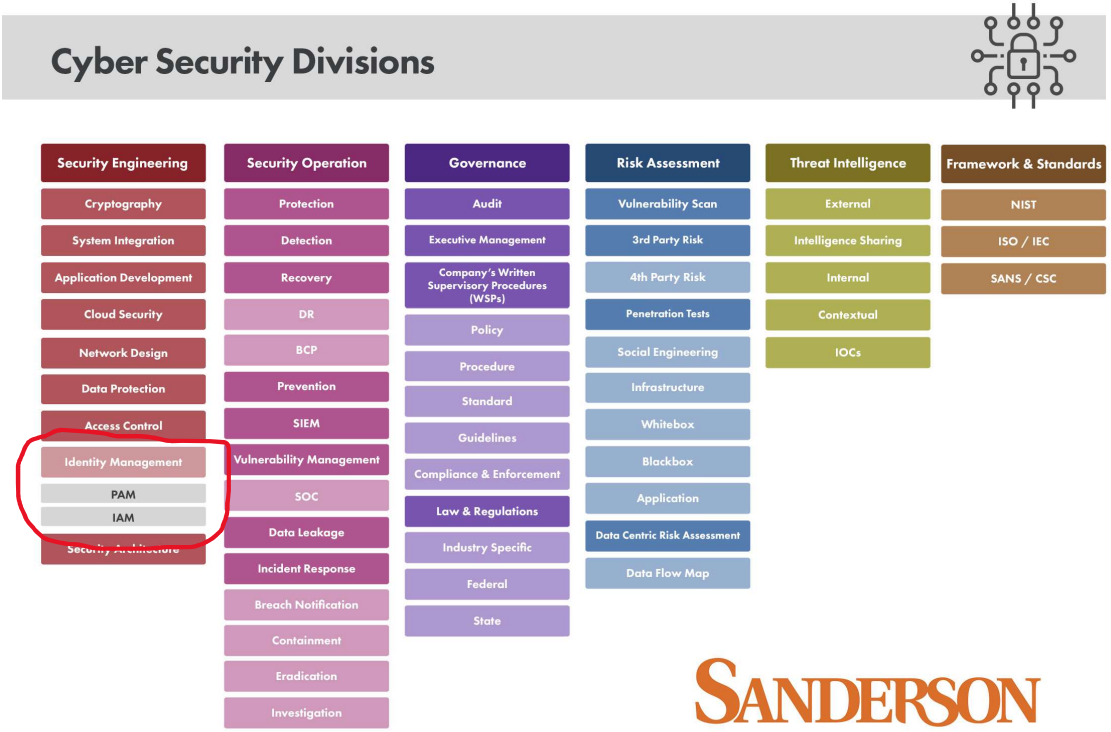
- And hopefully you would like to get more information about the topic and ask specific questions ☺
  - After the lecture
  - At the networking event

Basic Concepts of Cybersecurity

WHAT DO WE NEED TO PROTECT

The Cybersecurity domain is big and topics (and of course specialists) lurk around the corner

- The Cybersecurity domain is divided in 6 main divisions
  - Security Engineering
  - Security Operations
  - Governance
  - Risk Assessment
  - Threat Intelligence
  - Framework & Standards
- The skills required for each division and its subsets differ widely
  - System administrators
  - Developers
  - Lawyers
  - Hackers ☺
  - etc.
- Today we are going to talk about Identity Management
  - No other fields (or at least at absolute minimum)
  - The prerequisites are deliberately set to minimum in order that many people participate and get acquainted with the topic
  - If you still have questions which violate the points above:
    - Ask them after the lecture
    - Ask them at the networking event



To be sure we are doing something meaningful to enhance cybersecurity we need to be sure it fulfill its objectives

- Cybersecurity has 3 main objectives
  - We are going to find out soon what are they ☺

- Every measure from all cybersecurity divisions fulfills one or more of these objectives
  - They might be preventive, corrective or detective
  - But they fulfill the same objectives

- Have always that in mind when planning something or wanting some budget

- Чичо, дай пет пари! - каза детето и веднага засрамено си наведе и извъртя главата със захапан пръст.
Гавазинът обясни на консула, че детето иска пет пари.
- Защо ти са пет пари? - попита гавазинът по поръка на консула.
Но детето бе научено само да поиска пари, не бе му казала майката защо му са пари и затова вместо отговор то повтори:
- Чичо, дай пет пари! - и пак се засрами.

Physical security and Cybersecurity have some objectives in common

- When you take security measures at home what exactly do you want to achieve

- Primarily you don`t want anything to be stolen
  - You want to have all your possessions
  - This means that they are **available** to you

- The same concept applies with data
  - You want your data to be available to you
  - Access it 24/7 without restrictions

- **Availability** is the first objective of Cybersecurity

Physical security and Cybersecurity have yet another objective in common

- When you take security measures at home what exactly do you want to achieve (although you might not consider that as a security measure in this context)

- You also don`t want to be seen
  - You need some privacy
  - The things inside the house must remain **confidential**

- The same concept applies with data
  - You want your data to be shared only with the people you want

- **Confidentiality** is the second objective of Cybersecurity

The third objective is not associated directly with physical security

- However, in the past (and to an extent still in the present) it is very popular, especially when we buy expensive goods

- You don`t want to wear adibas or mike
  - You want to possess authentic staff

- The same concept applies with data
  - You want your data to be complete, trustworthy and not being modified or accidentally altered by an authorized user

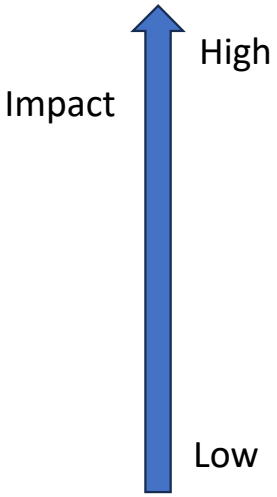
- **Integrity** is the third objective of Cybersecurity

The consequences of a cyberattacks can be very grave to an enterprise

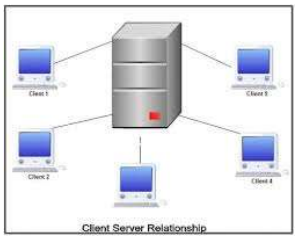
- These are some examples of what an attacker can cause

- Ransomware
  - In this attack the victim`s personal data is encrypted and unless a ransom is paid won`t be decrypted
  - All three objectives of cybersecurity have been compromised
    - Availability is compromised since the data is not available to the victim
    - Confidentiality is compromised since most probably the data was copied and made available for sale on darknet
    - Integrity is also compromised as even if we pay ransom and recover the data, we don`t know if it had been modified

- Denial of Service
  - This attack is designed to force a website, computer, or online service offline. This is accomplished by flooding the target with many requests, consuming its capacity and rendering it unable to respond to legitimate requests.
  - Here only Availability is compromised



Defending against Cybersecurity attacks is like wrestling permanently in the par terre position



In almost all cases however the attacker gains access to the system with existing (compromised) account

- This is why Identity Management is so important!
- With the components of an Identity Security Platform, we are minimizing the risk of this event occurring
- You will see later how

Fundamentals of Identity Management

Let`s get familiar with some terms before we see the real thing

We start with the first two tangible concepts user and target system

User

- The first two core elements are user and application

- User
  - This is the real physical person trying to gain access to a target system (application)
  - In some cases, however the user might not be a physical person
    - A printer has also a user
    - Back-Up Software has also some users

- Target System
  - In the language of Identity Management any application the user is trying to get access is called target system

Target system

In order to access a target system, the user needs an account and corresponding credentials

- The account and the corresponding credentials are the means to get access

User

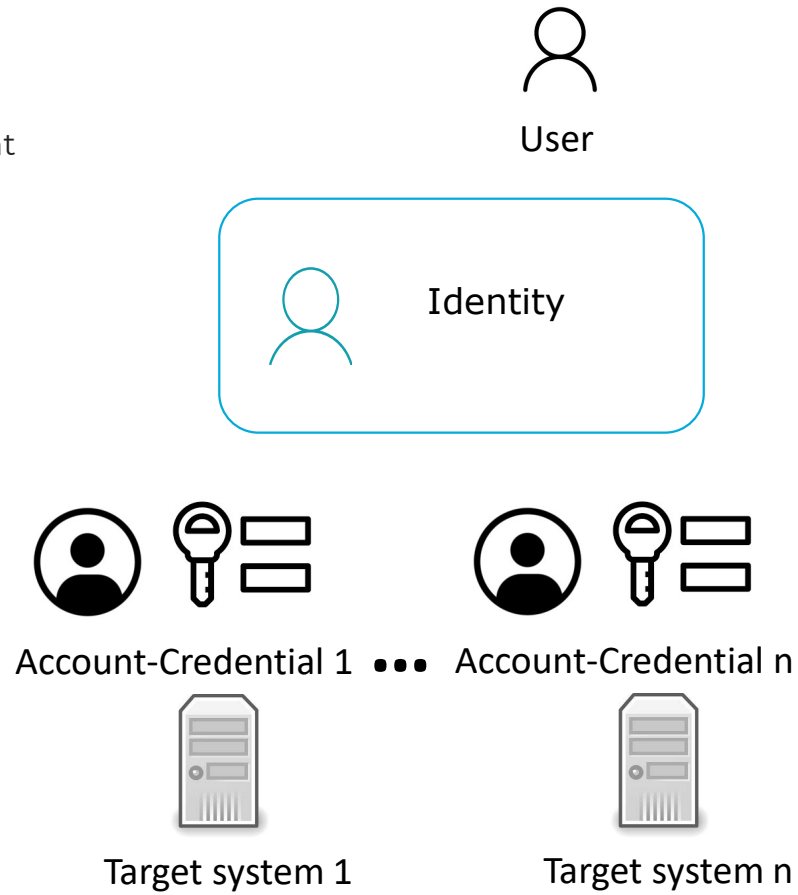
- Account
  - Accounts reference a set of permissions and privileges needed for an application or asset to connect or operate
- Credential
  - A credential is an account with an associated password, passcode, certificate, or othertypes of key.
  - Credentials can have more than one security mechanism assigned to them –this is called dual or multifactor authentication

Account-Credential

Target system

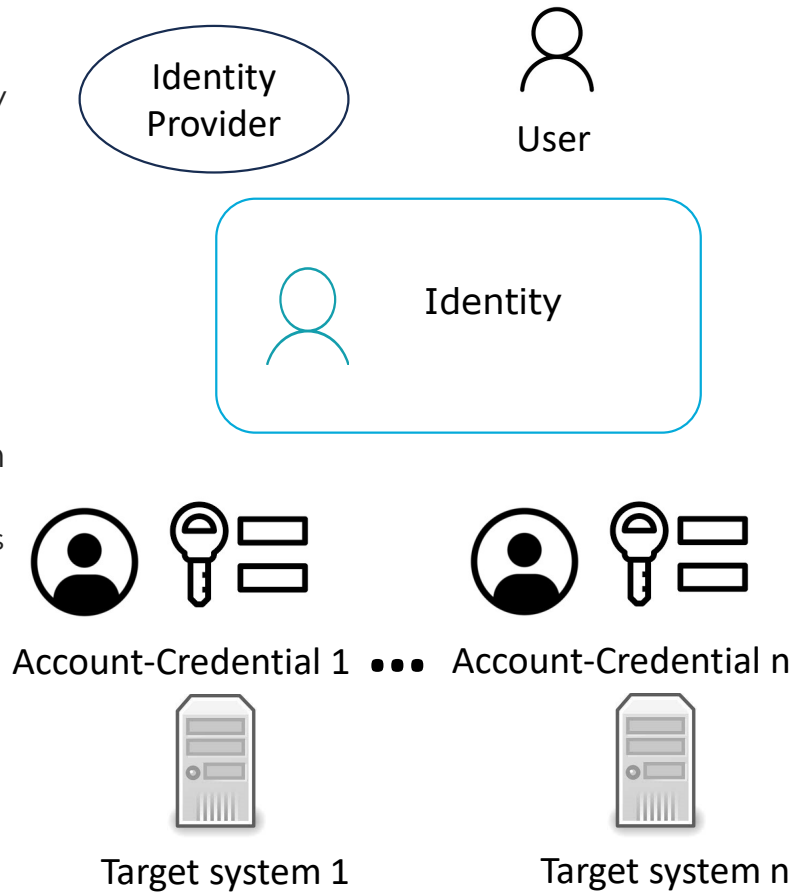
The multiple accounts and assets one user possesses are aggregated into an Identity

- Every user has only one Identity
  - Some exceptions are possible e.g. when a doctor becomes a patient in the hospital, he/she works
- It contains all accounts and assets of a user
  - Imagine the car key and the house key in your pocket
- However, two big questions remain open
  - How can do we get information about the user in the system
  - What access rights do we have in the target system



We need an Identity Provider (IdP) to provide us with information about the user

- Typically, in an enterprise, the HR system is the primary identity provider
  - It gives us the information about the employees (their type/department and other information relevant for their access rights)
- For external users, external IdPs are used
  - Strong IdPs such as Bank ID or National ID
  - Weak IdPs such as Google mail or Facebook
- Typically, a secondary identity provider exists in an enterprise in the form of directory (most common Active Directory (AD))
  - Applications get the login information from AD (there the accounts and credentials are typically stored)
  - However, the AD must get the information from somewhere (its first use is as a target system)
  - Of course, you can let HR create users directly in AD – very bad practice

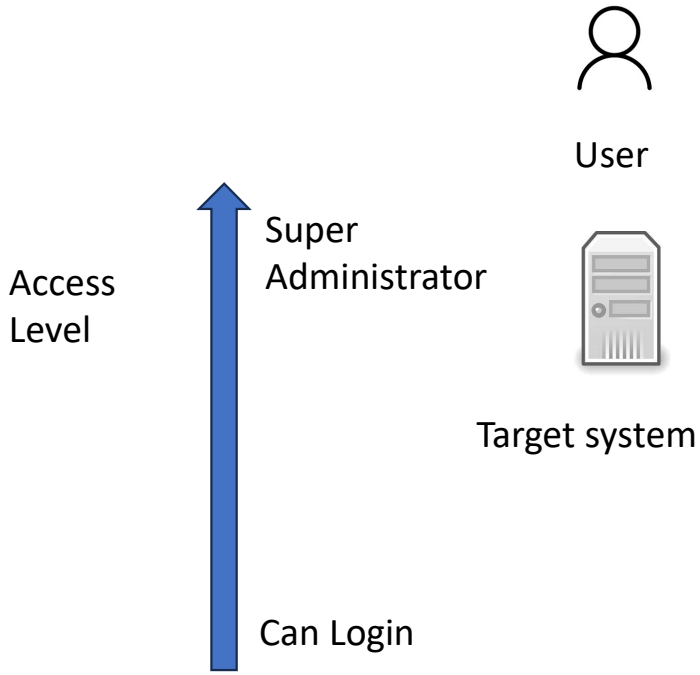


We need to determine what form of access we have for each target system

- The granularity of access can be very complex

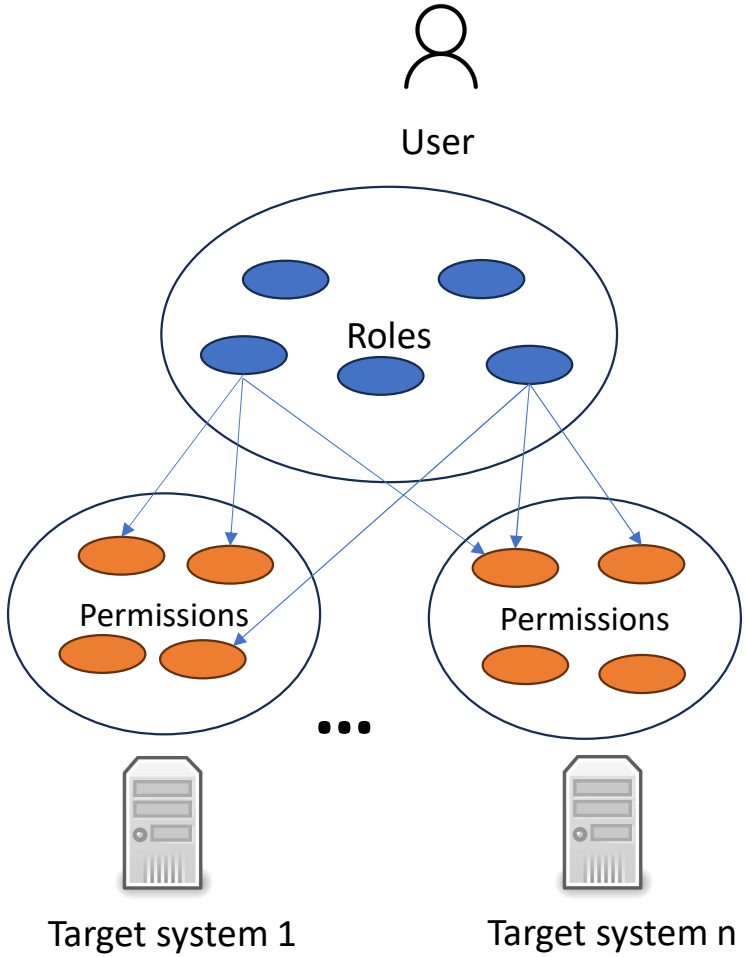
- For every little element of the application/asset following combinations could exist
  - Create – the user is allowed to create a new element
  - Read – the user is allowed to read the element
  - Update - the user is allowed to update the element
  - Delete – the user is allowed to delete the element
- Additionally, some functions could be usable/not usable

- There are also some rules to be followed
  - Least Privilege – give user the least possible privilege (access rights) to do the job
  - Need to know – provide the user only with the information they need to do their job



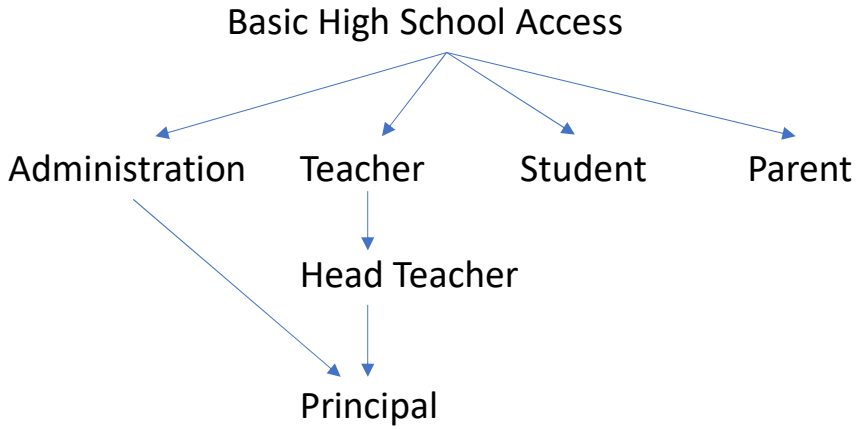
Using roles, we can define user access very granularly

- One Role contains a subset of permissions
- One user or more precisely said his identity can have multiple roles
- Most target systems have already roles defined
- So we need just to assign the roles to the identity
- The permissions specified in the role are called **entitlements**



Modelling and assigning roles is very important and has some aspects to be considered –Hierarchy and Separation of duties

- Roles have a hierarchical structure
- Every role has the entitlements of the previous one plus extra ones, e.g., a Head Teacher has all entitlements of a Teacher
- However, certain roles cannot be taken by one user at a time
  - Can a Student be a Teacher ?
  - Can a Principal be a Parent?
- Sometimes the answer it depends and then:
  - **Compliance policies** determine if having the roles is forbidden or not
  - Compliance policies can and do change all the time
  - Thus, a **violation** can occur where there was none



IGA, AM and PAM

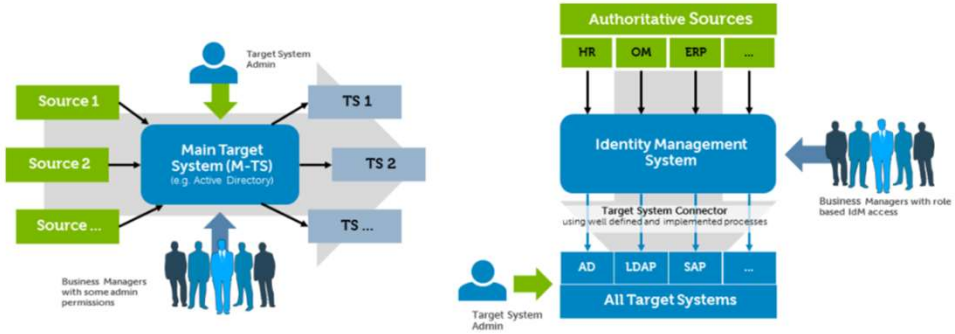
The three pillars of Identity Security

Identity Governance and Administration

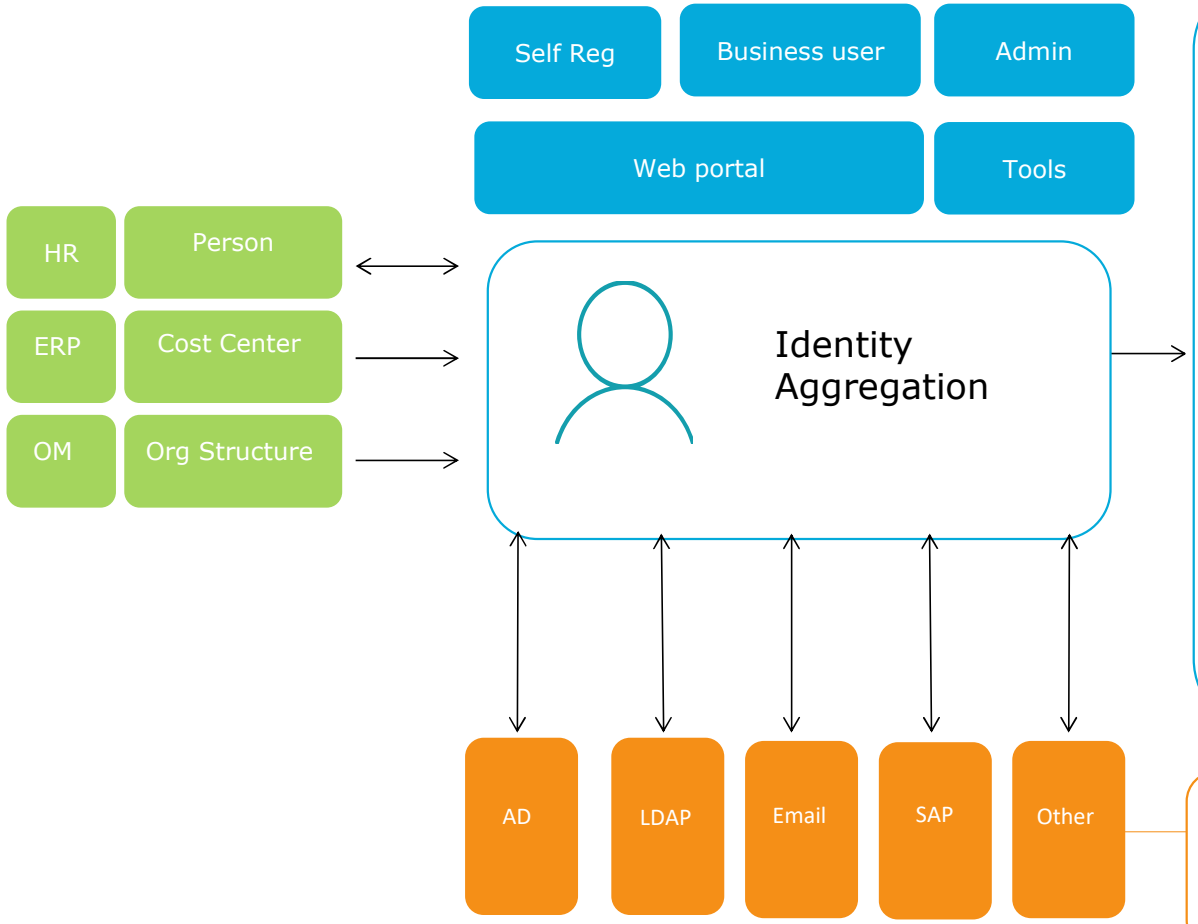
The central place for governing Identities

The old world before Identity Management was Target-System Centric, opposed to modern IDM centric approach

- In the old world
  - Target System Administrators gave directly rights in the target system
    - Not knowing exactly what to give as entitlements
    - Perfect way to violate confidentiality as accounts are overprivileged
- In the new world
  - The information about the user comes directly from the authoritative systems
  - Business Managers can give additional access if requested but everything is tracked
  - Compliance policies in place to detect and prevent violation



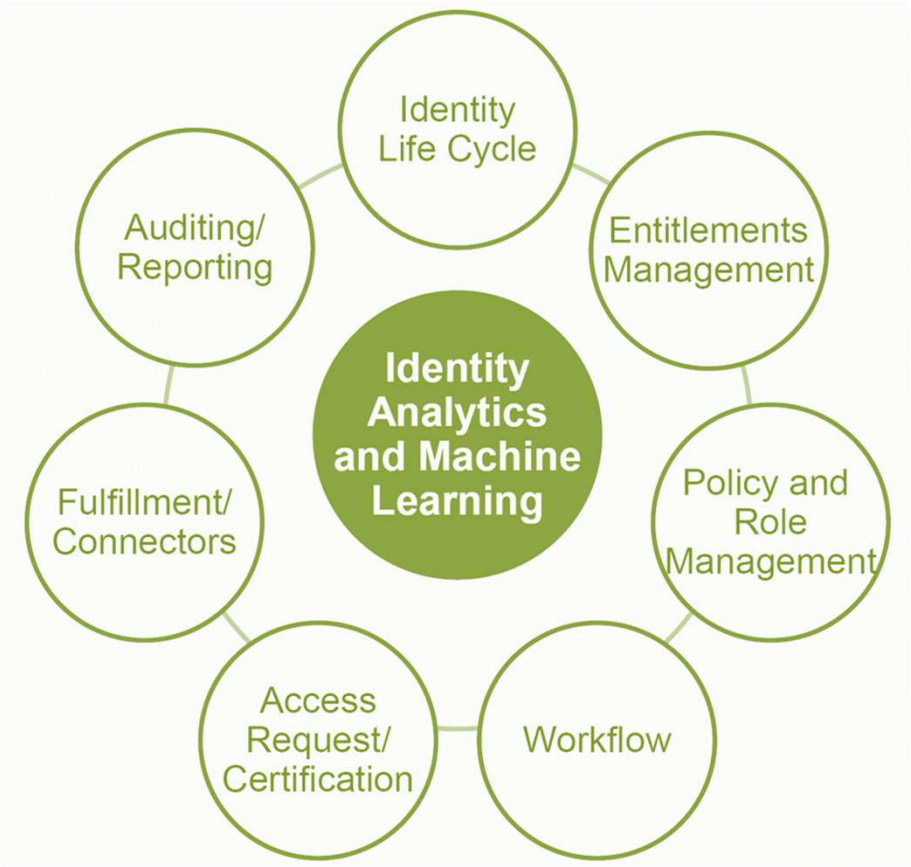
The Identity Manager aggregates the information about the identity and enables all functions for Identity Governance & Administration



- User Lifecyle
- Rules
- Provisioning
- Fulfillment Workflows
- Self-Service Requests
- Entitlements, Accounts Approval Workflows
- Delegation
- Profile Management
- Role Management
- Risk
- SoD
- History
- Workflow
- Modeling
- Attestation
- Service Catalog
- RBAC/PBAC
- Privileged Account
- Data governance
- Rules/Roles/Policy
- Dashboards/ Reporting

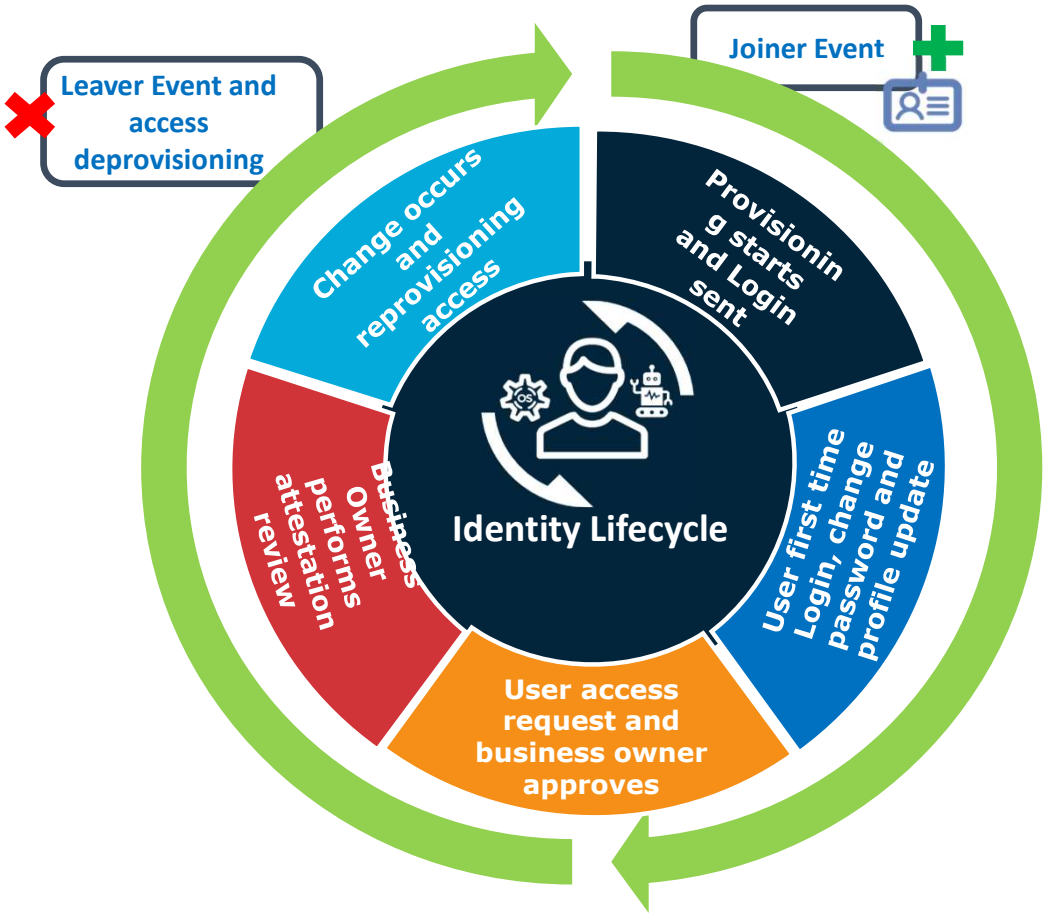
- Cloud applications
- Connected applications
- Disconnected applications
- Data warehouse

The IGA has 7 core components



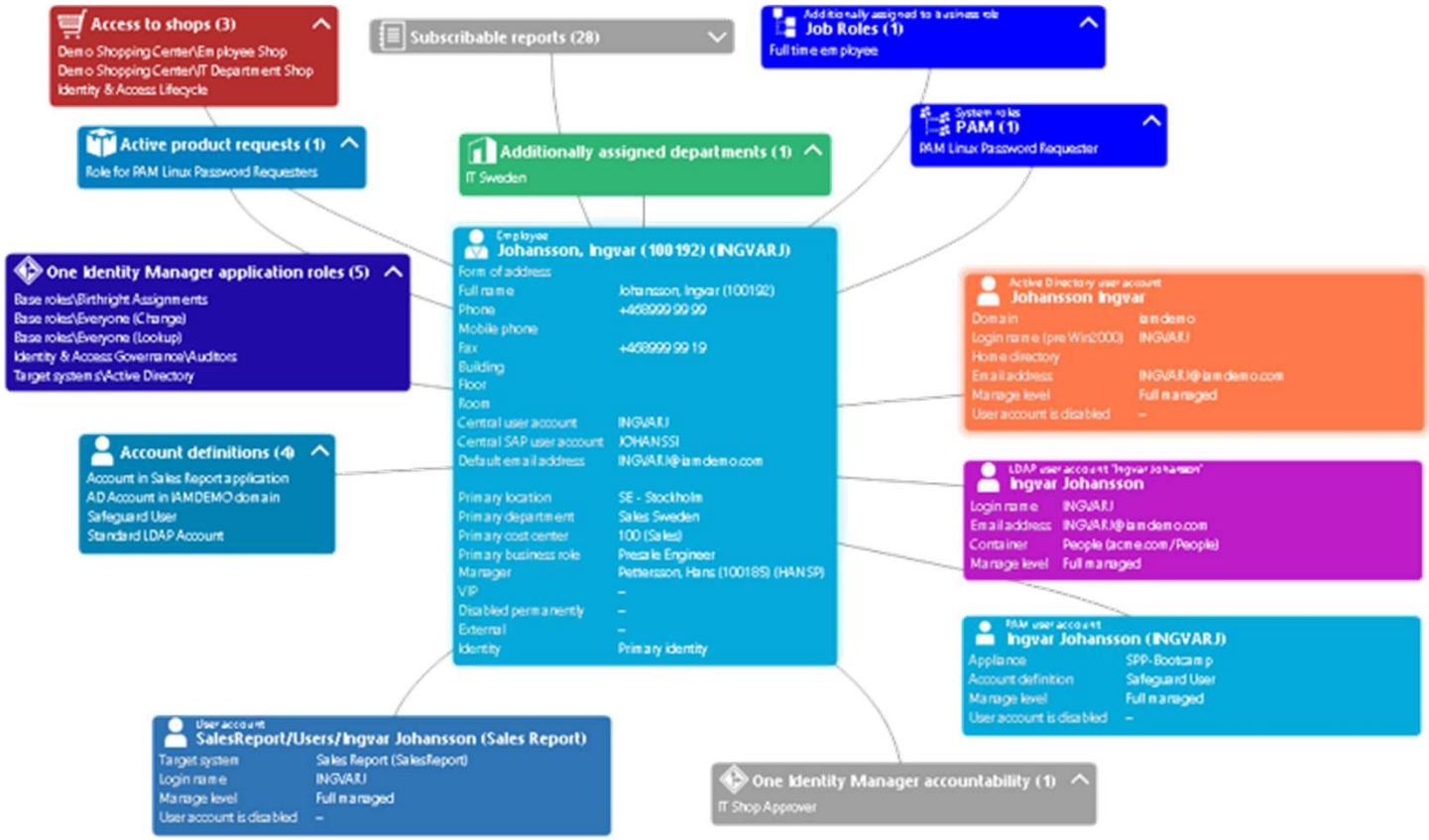
Identity Life Cycle Management makes sure we cover all type of users during their tenure at the company

- Employees
- Contractors
- Customers
- Nonhumans
  - (RPA bots, service accounts)
- Manage joiners, movers and leavers
- Support for delegation
- Self registration



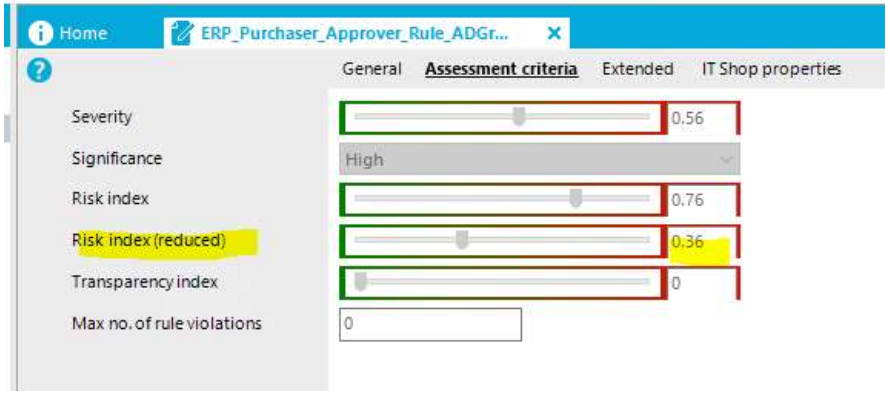
Entitlements Management maintains the link between Identities and Access Rights

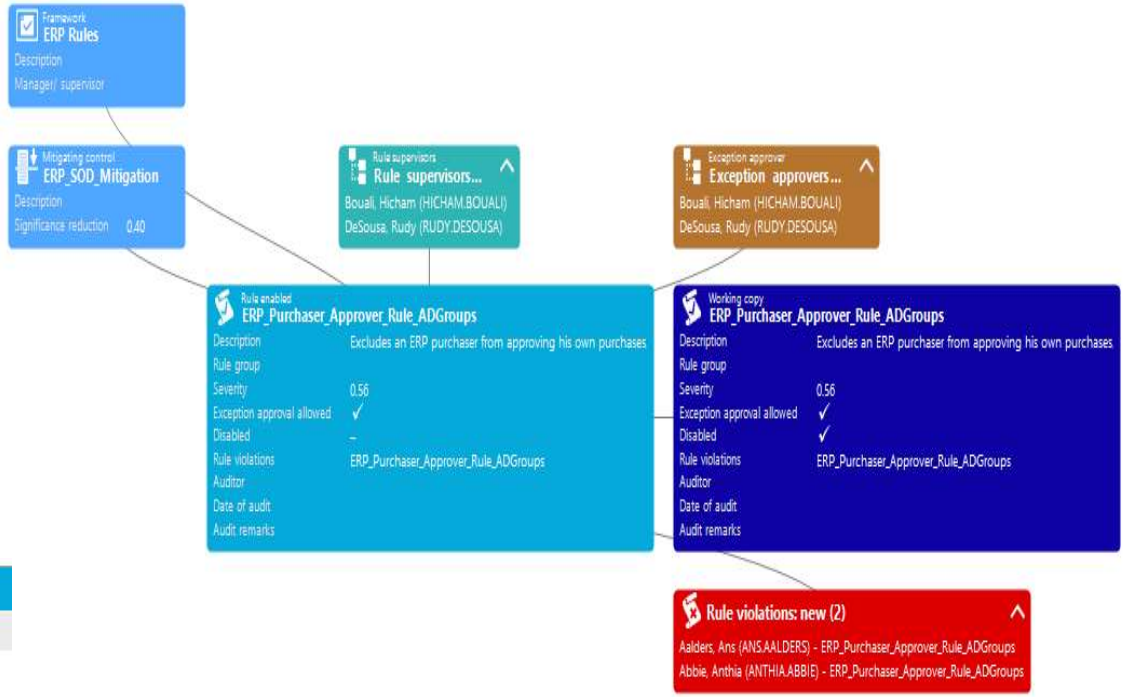
- Discovery
- Maintains the link between Identities and access rights
- Entitlement Catalogue maintenance



Policy and Role Management – we want to ensure that we stay compliant☺

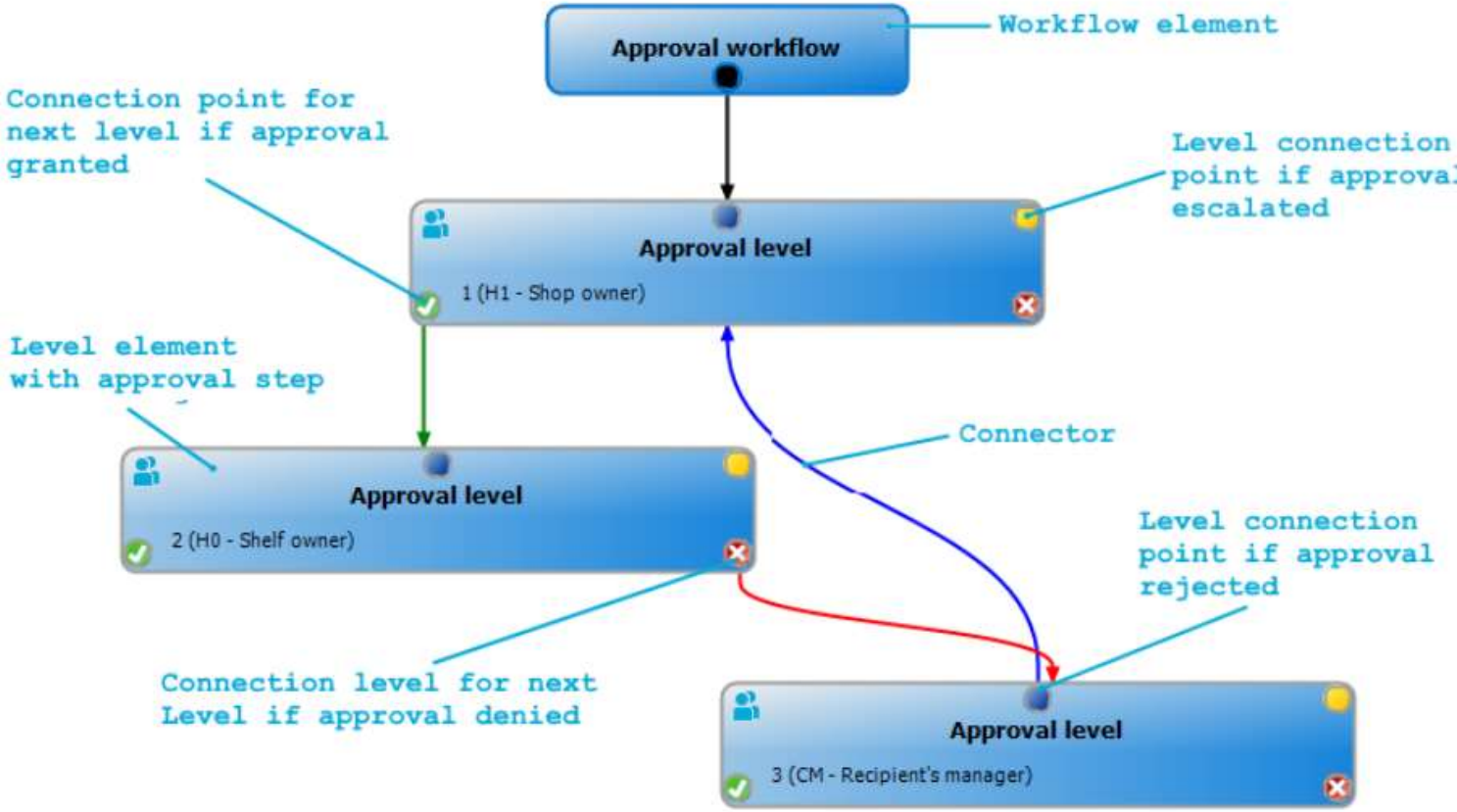
- Validity periods for nonemployees
- Grouping entitlements to form roles
- Enforcing segregation of duty (SoD)
- Connection between business to technical roles





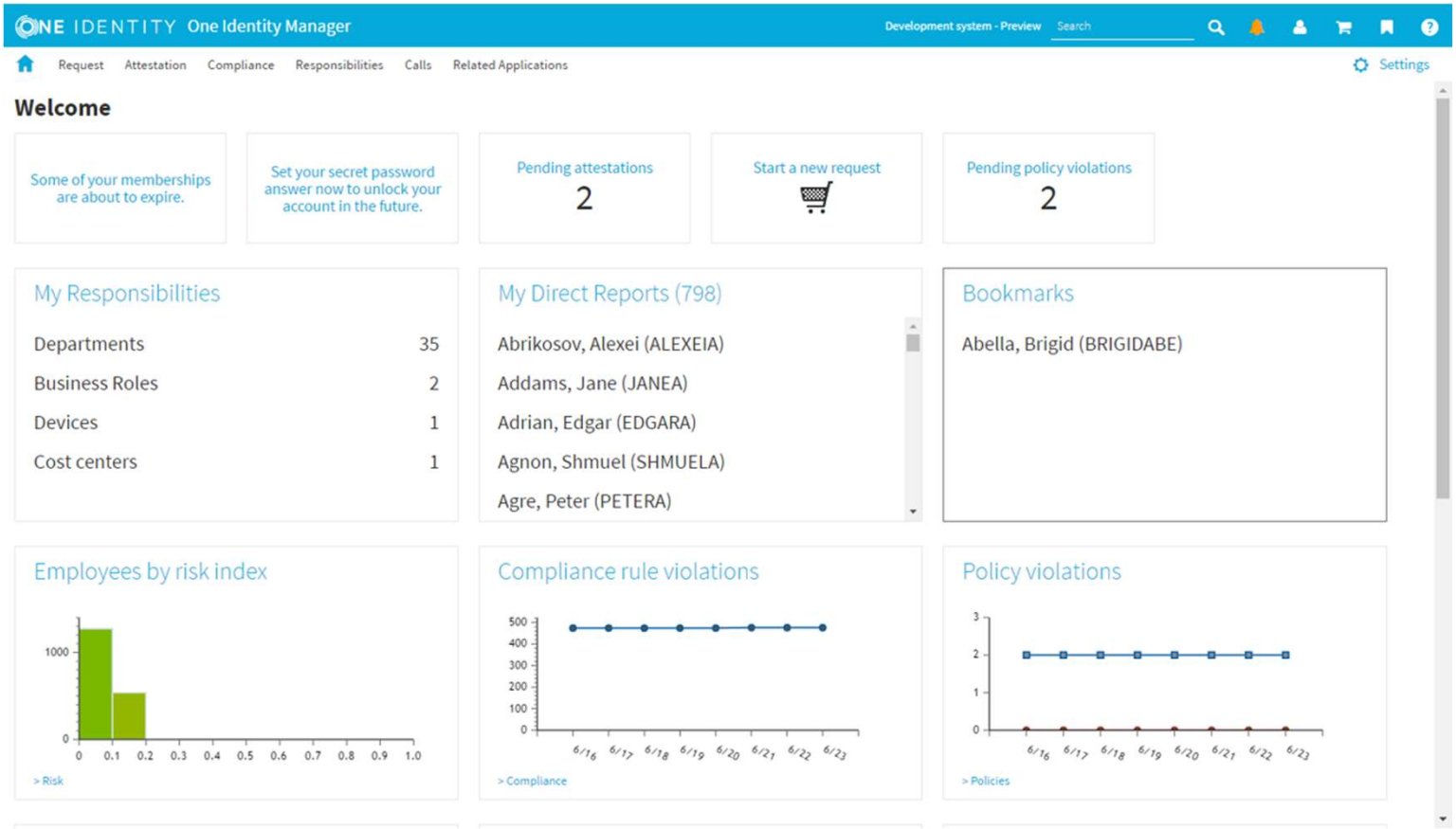
For some entitlements multiple approvals are needed – we call this workflow

- Workflows with approval steps
- Delegation and escalations
- Segregation of Duties (SoD)
- Support for electronic signatures



The User can order entitlements himself

- Self Service
- Request on behalf
- Campaign management
- Certify role composition and entitlements

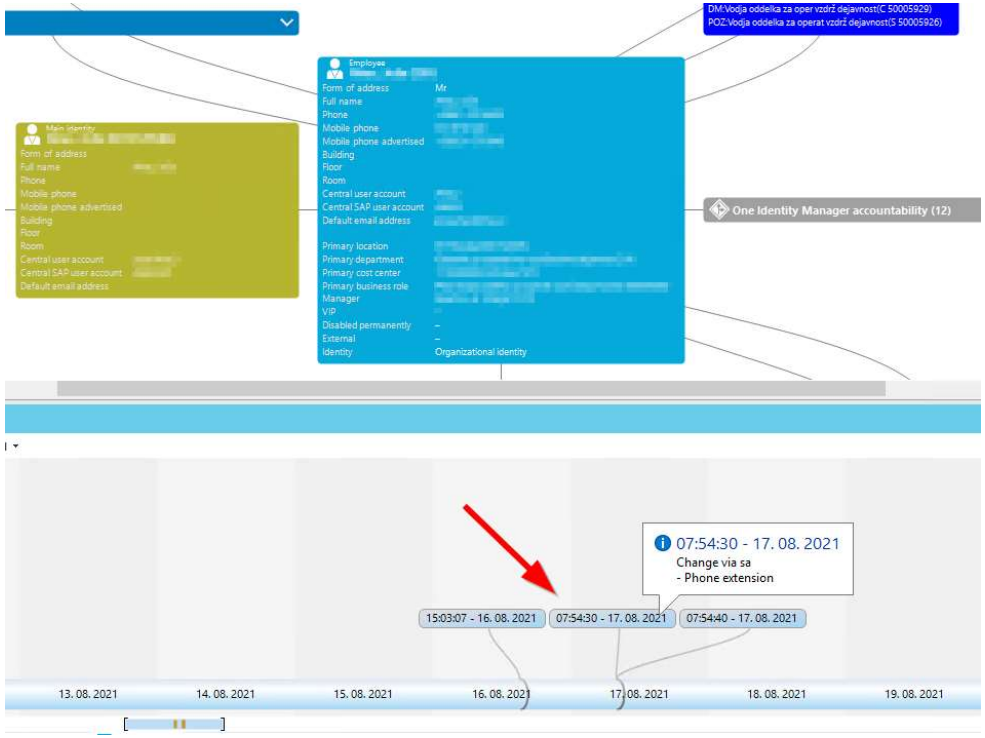


In the enterprises there are a lof of target systems- so we need connectors

- Direct provisioning with vendor provided connectors
- Service Desk fulfillment (manual)

Compliance makes us secure and saves money☺

- Policy based controls and monitoring
- Segregation of Duties (SoD) violations
- Object Life-cycle changes



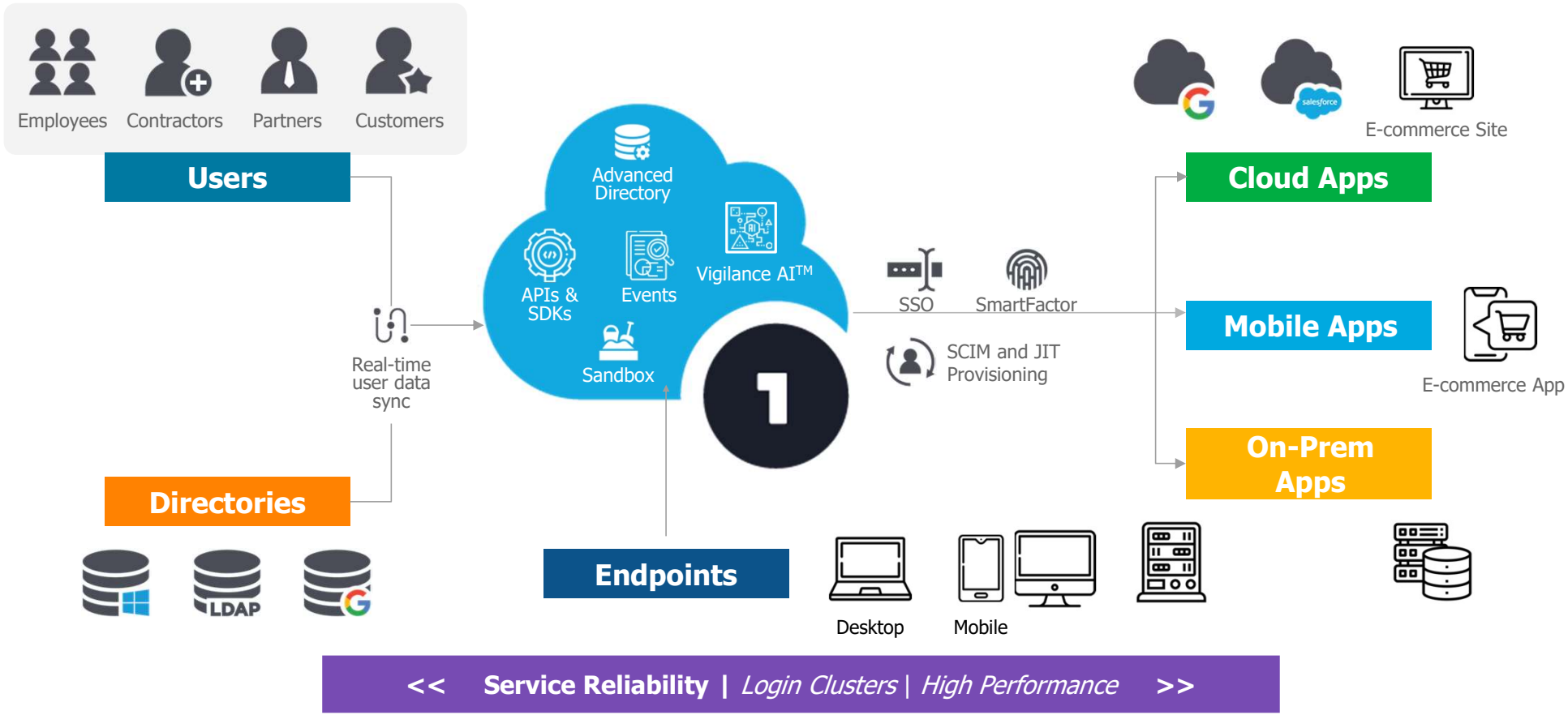
Access Management

Secure your Access

Access Management is the process of authorizing, auditing and authenticating access to applications

Why do we need Access Management

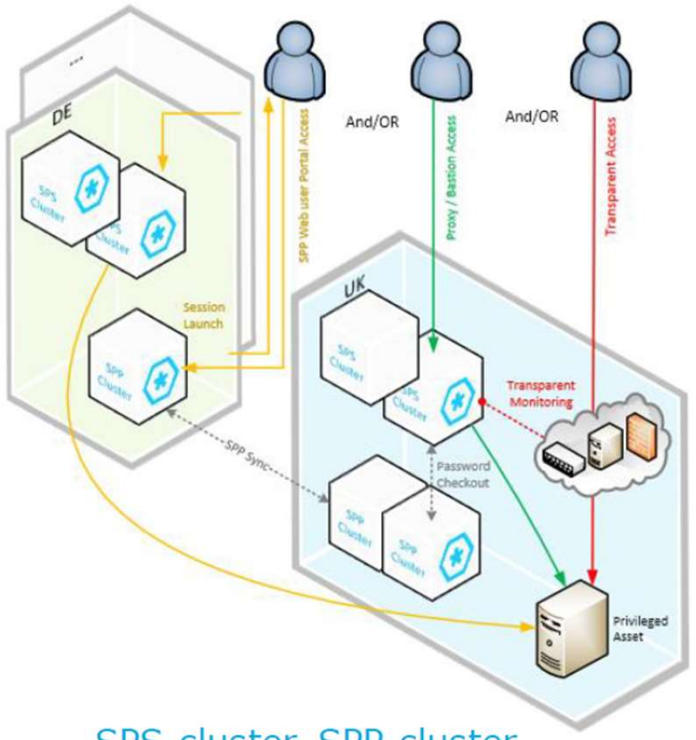
How does an Access Management Solution work



Privileged Access Management

Secure your Privileged Accounts

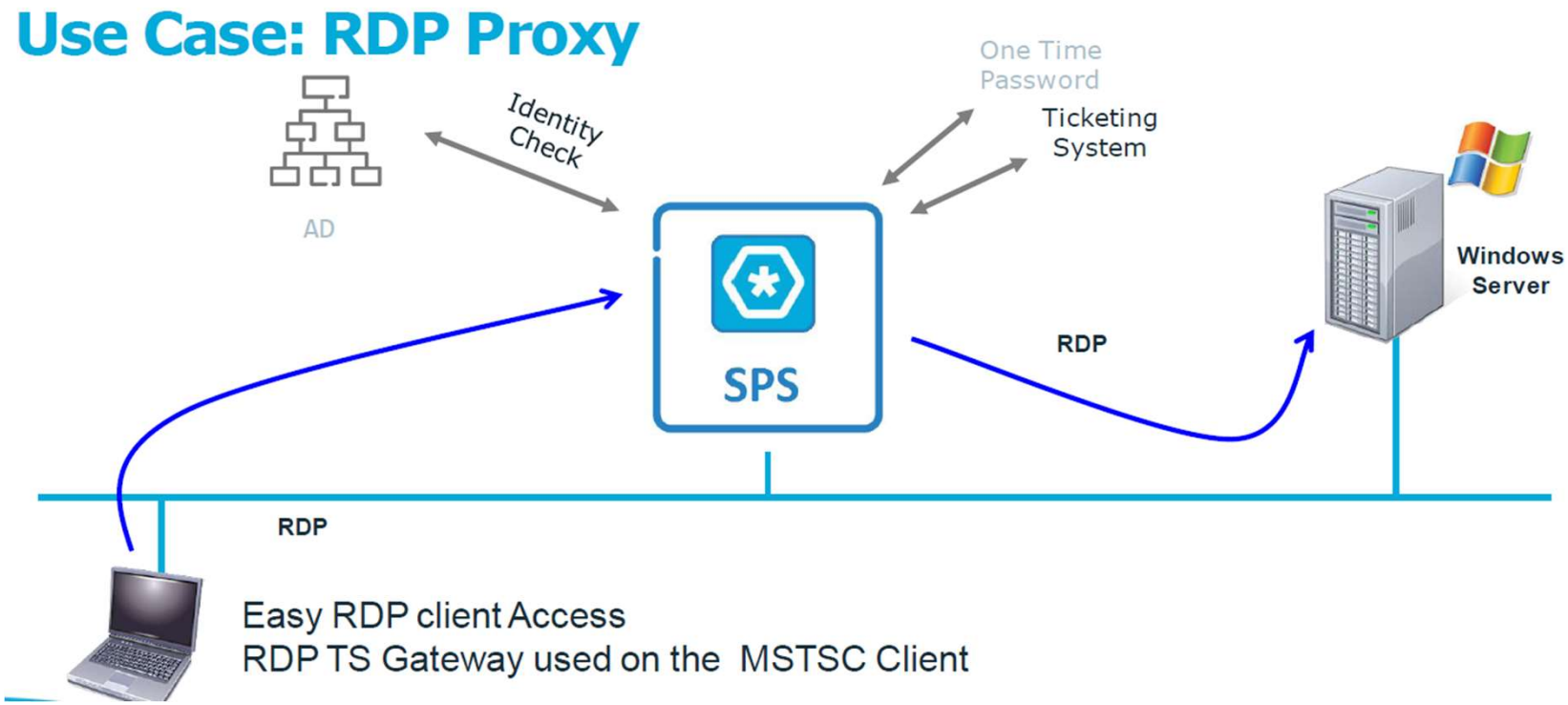
The purpose of Privileged Access Management is to have an intermediate session where users can request admin sessions to assets



SPS cluster, SPP cluster

Privileged Access Management blocks unwanted access

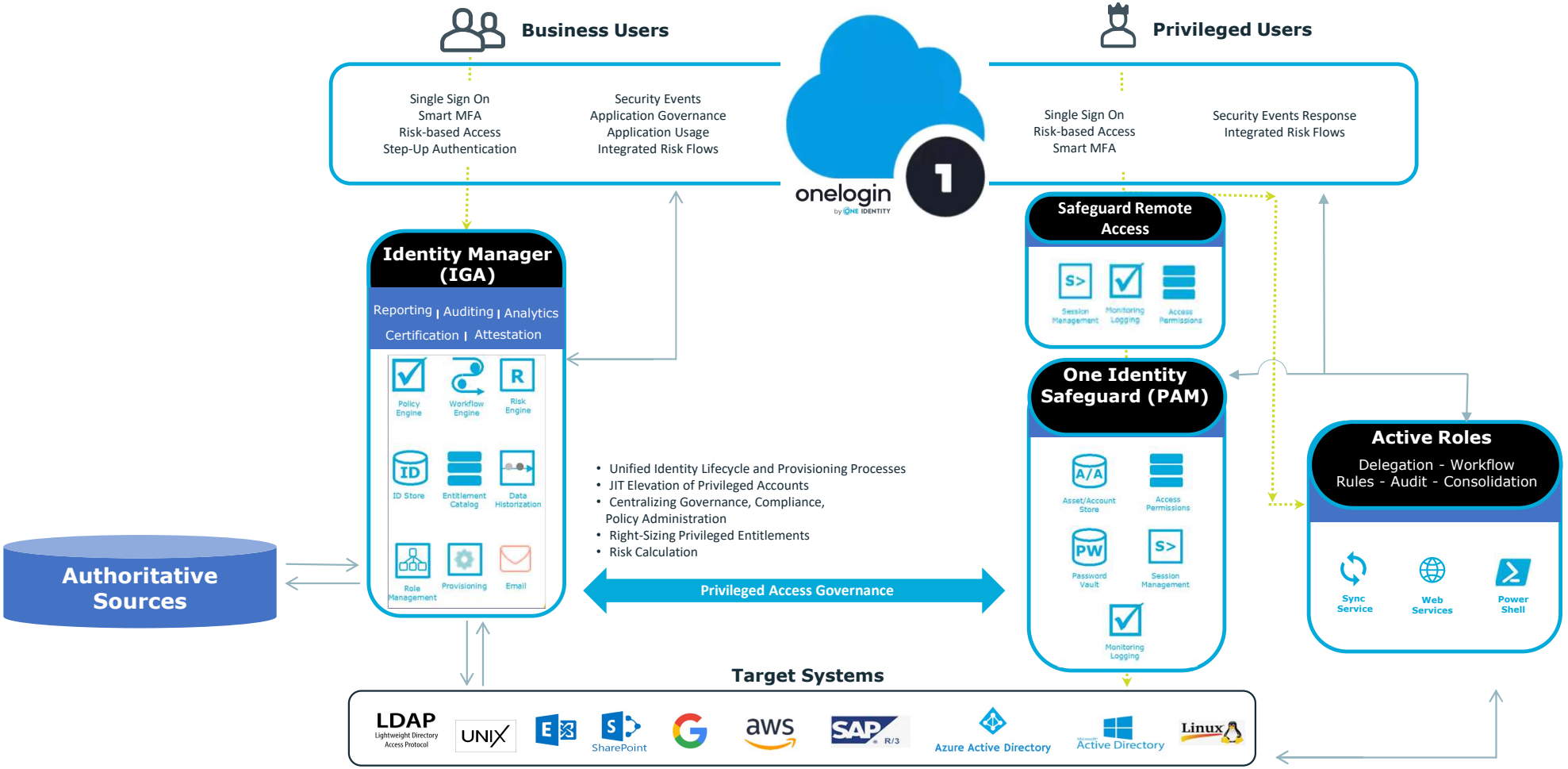
To get a session, the PAM solution checks the identity and gives one time password if the request is approved



Identity Security Platform

How do they work together

This is a sample workflow of IGA, AM and PAM working together based on the One Identity Security Platform

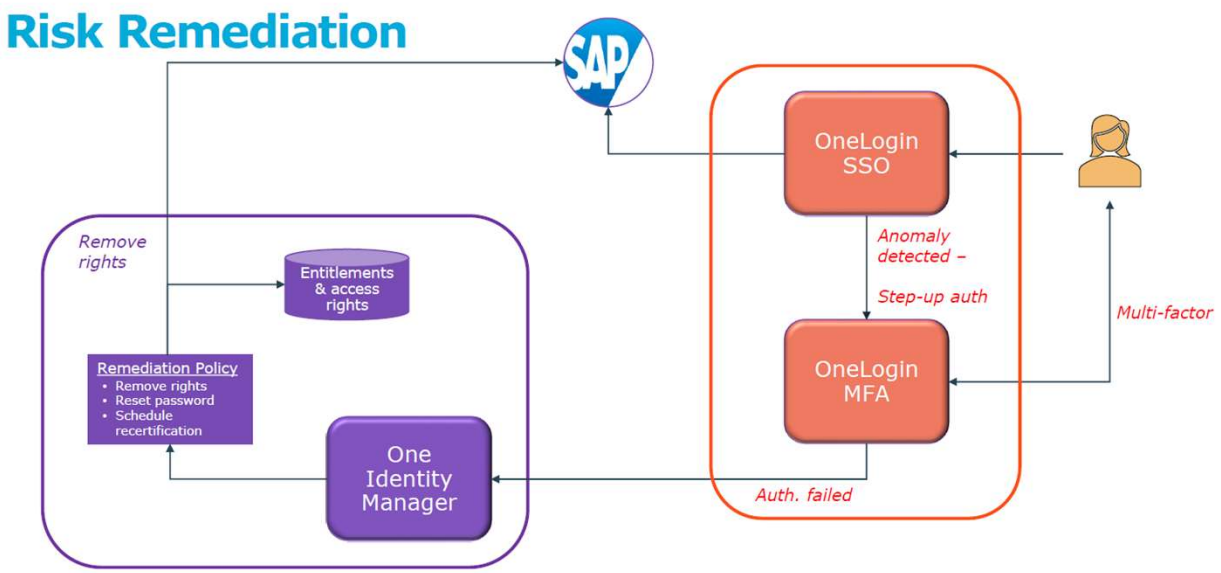


Now we are going to see some use cases how the platform gives benefit

- Hint: Gives security and saves money ☺

Use Case 1 : Deprovision entitlements from compromised accounts

- The combination between AM and IGA can fast remove rights from a compromised account



Use Case 2 : Enforce Least Privileged Principle

- Entitlements which are not used are obviously not needed ☺
- Good input for recertification ☺

Use Case 3 : Save money removing unused licences

- In some cases, there are a lot of licenses which are not used
- These entitlements can be removed and the licenses cancelled
- Money saved ☺

Thank you very much for your attention

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