Distributed and Delegated Access Management

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“Identity and Access Management Market to Surpass USD 39.26 Billion by 2030 Driven by Increasing Reliance on Digital Platforms and Automation”

Research by SNS Insider
May 15, 2023

Overview

- A brief history of Web Access Management
- The Rise of the Cloud
- The Era of New Identity and API Security Protocols
- Migrating Legacy Web Apps to the Cloud
- Models for Modern Access Management
- Centralized vs Distributed Delegated Access Management
- Summary

A brief history of Web Access Management

- Enterprise domain access on-prem
  - For SSO and access
- Single cookie, domain/enterprise-wide
  - Course grained…
- Centralized Management
  - Change requests through IT
- Proprietary protocols and plugins
  - Agents…

In Real Life...

- Adapt your app for SSO
  - consumer enterprise SSO token
- Register your app
  - to the central IT organization
- Wait until it is onboarded
- Changes?
  - Repeat 1-2
- *Ineffective, time-consuming, waste of resources, frustrating process*

And Then There are Agents

- Proprietary code
  - Closed source
- Proprietary protocol
  - vendor-specific
- Limited application support
  - What about the rest…

So… this means:

Access control is enforced through a central component that only works for tightly coupled applications in the enterprise network.

Application access management is delegated to a “generic centralized party” that has no in-depth application knowledge or interest(!) and does not really know how to qualify specific requests.

The Rise of the Cloud and Mobile

- Adoption of SaaS
  - Apps are no longer just on-prem
- Infrastructure-as-a-Service
  - In “public”, shared datacenters
- Identity is the new perimeter
  - Enterprise network -> zero trust
  - Mobile workers (Covid)
- Mobile Apps (native)

The Era of new Protocols

- New protocol developments
  - Driven by Saas, Cloud and Mobile
  - REST/JSON vs XML/SOAP/RPC
- Password anti-pattern
  - May have worked intra-enterprise
- OAuth 2.0 and OpenID Connect
  - (delegated) tokens
  - REST/JSON/Mobile friendly

Agents? What agents?

- Open & Standards-based
- Open Source
- Wide adoption
  - all applications…
- Legacy apps supported
  - header-based

Migrating Legacy Web Apps to the Cloud

- Legacy Web Apps
  - Cannot be changed
  - No knowledge or people (anymore)
  - May rely on headers
- Externalize AuthN & AuthZ
  - To a (multi-function) gateway
  - Identiverse 2019
- Leverage modern protocols
  - Without app changes(!)

Models for Modern Access Management

- Mix Intra-domain/Cloud-hosted apps
- SSO to corporate IDP (AD, Azure AD)
- Access Management externalized
  - Gateway/Proxy Tier
- Decentralized Entitlements
  - No app groups/roles/entitlements in AD
  - No duplicated/indirect management
- Application Owners own access!

Two-Tiered Enterprise Access Management

- Tier 1 “core and course grained”
  - Centralized accounts and SSO
- Tier 2 “application specific and fine grained”
  - Application specific access control
  - Managed by application owners
- Employee and customer facing
- On-prem, hosted and SaaS

Access Management Tier 1

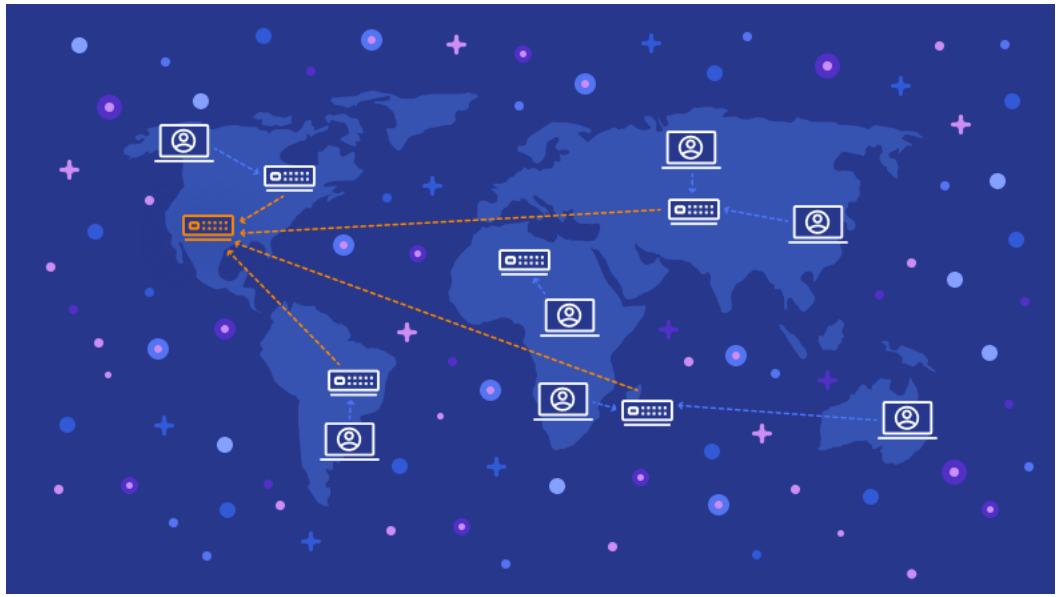
- Operated by central IT
- User account management
  - lifecycle
- Authentication Management
  - Passwords
  - 2 factor
- Identity Provider
  - SAML/OpenID Connect SSO
- Application onboarding

Access Management Portal

- Part of (central) Tier 1
- A webapp for app owners
  - manage access to their app
  - SSO into it (of course!)
- Backend integration with Tier 2
  - Push out gateway configuration
  - Config management based
- Custom/hosted, appliance, SaaS

Access Management Tier 2

- Reverse Proxy Layer
  - SSO and Access Control
  - Clustered / Segmented (app)
- Provided by central IT
  - Operational Management
- (Delegated) Configuration
  - Central IT
  - Application Owners

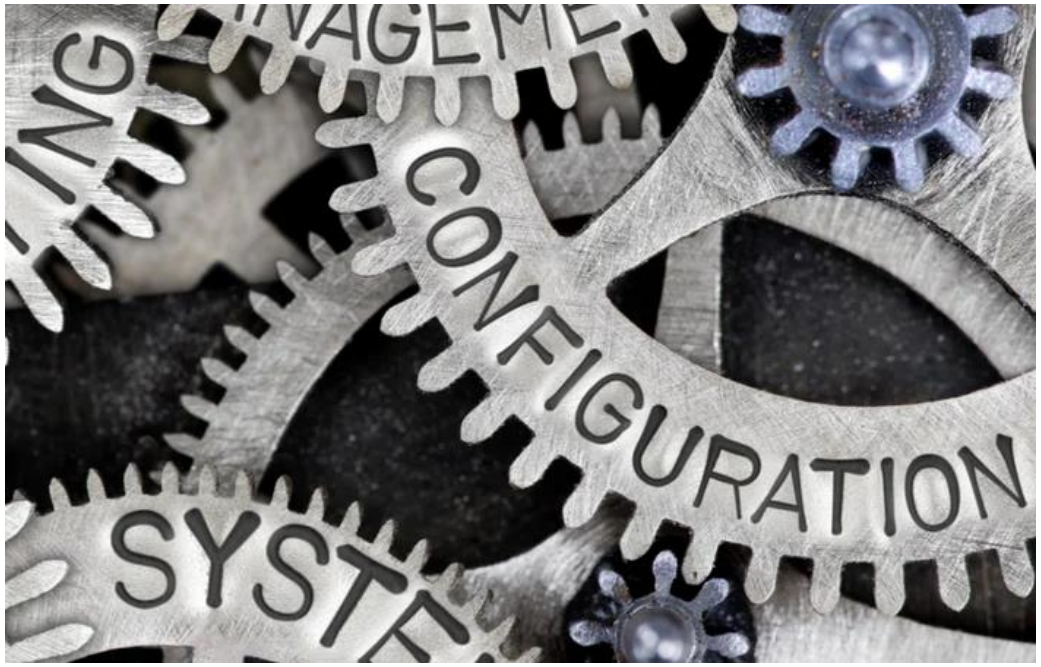


Access Management Configuration

- Central Authoritative source
- Distributed storage and enforcement
  - local database/directory, and/or embedded in the application
- Users: application specific entitlements (based on Tier 1 roles)
  - Users: application specific roles
  - Access: application specific rules

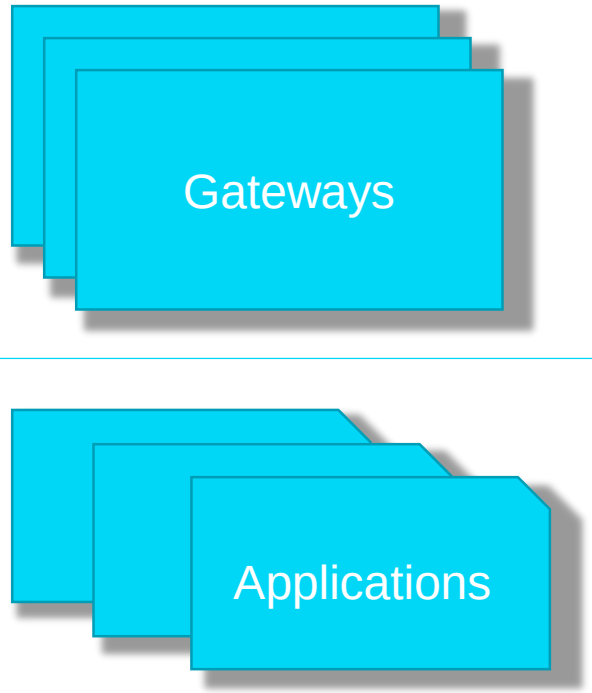
Access Gateway Configuration

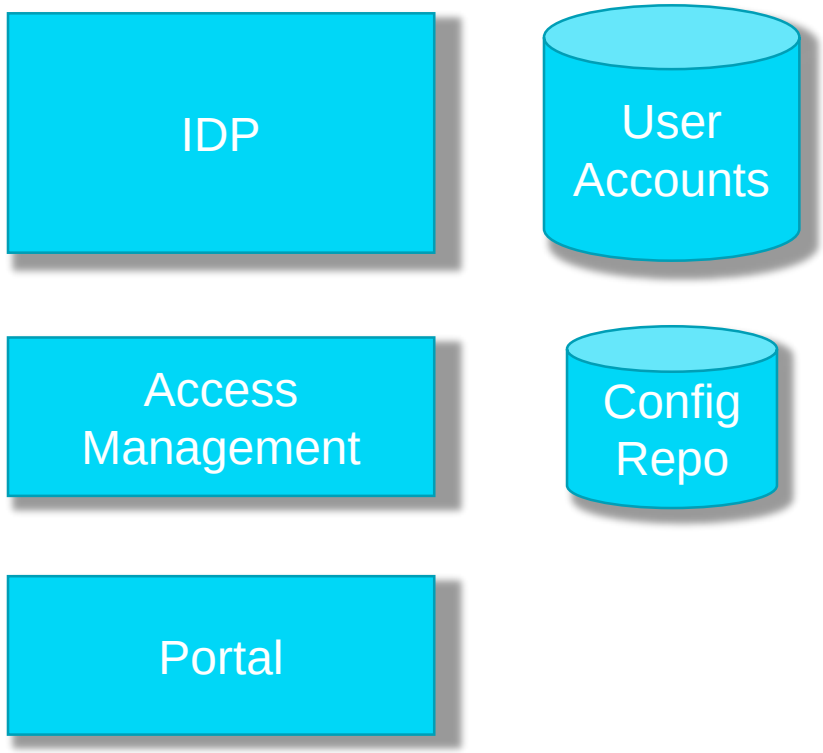
- Puppet/Ansible based
- Central storage of config files
  - Version management
- Pushed out to gateways
  - Dynamic scaling
- Manual is an option
  - Small scale start/fallback



Tier 2 (Gateway/App)

Tier 1 (IDP/SSO)



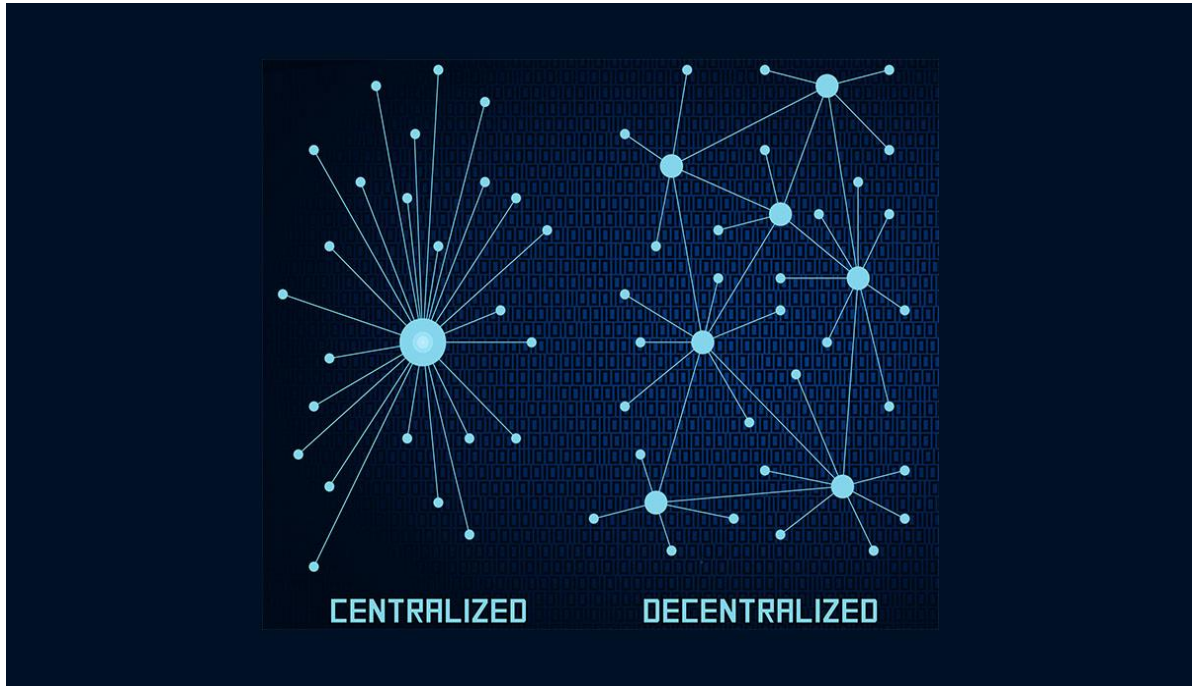


Centralized vs Delegated Access Management

- Access Management config
  - left to app owners in-app, or:
  - done by centralized IT
- Allow shifting…
  - Based on org/responsibilities
  - App type
  - Infrastructure requirements
  - Knowledge

Centralized vs Distributed Access Enforcement

- Distributed Access Control
  - Externalize configuration and enforcement
  - Outsourcing to a dedicated component
  - Good for app (see 2019)
  - Allowing shifting…
- Cloud ready
  - Independent of callbacks to central server

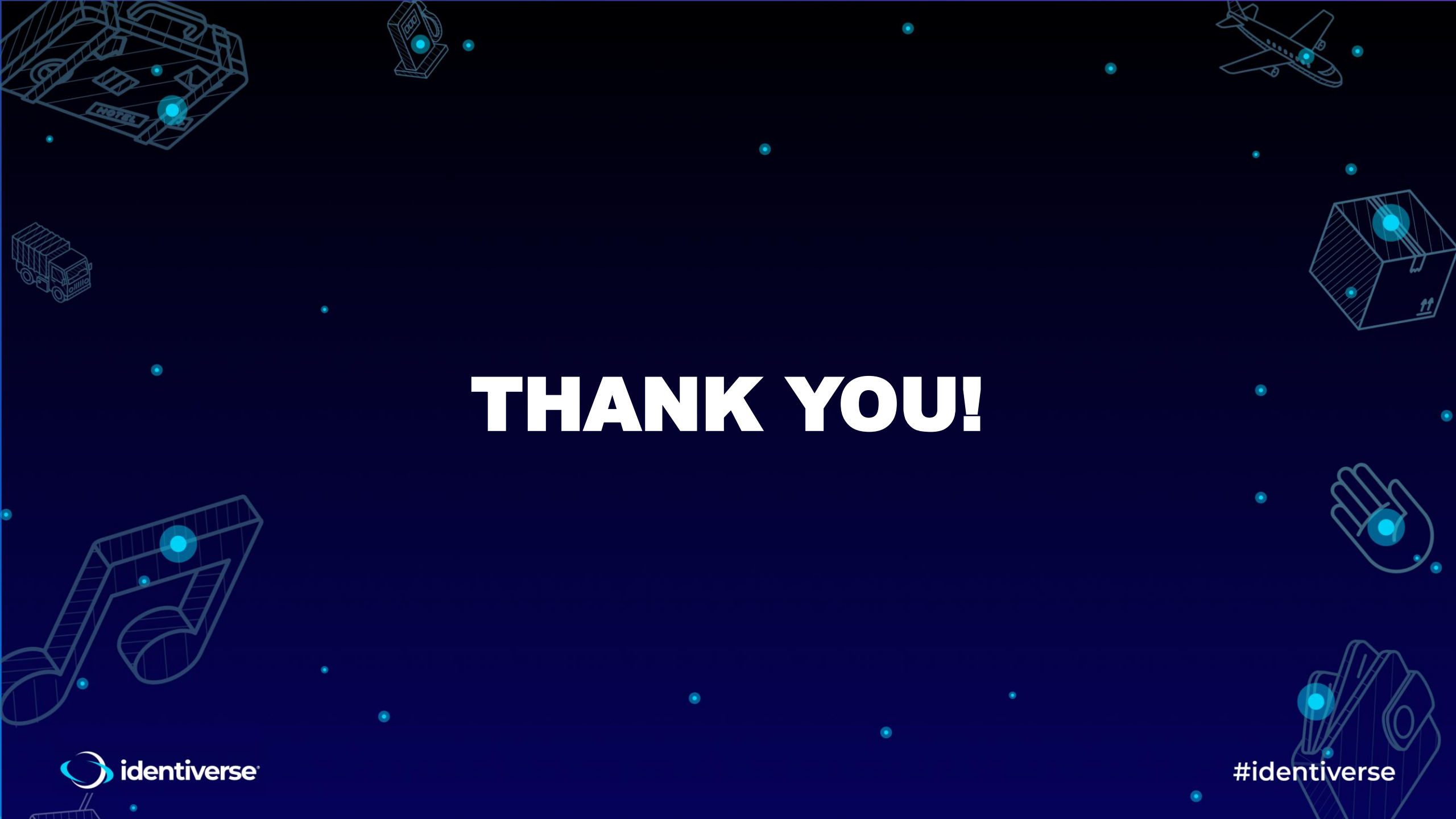


Conclusions / Takeaways

- Modern Access Management for Distributed applications across Cloud and On-Premises can be handled through a dedicated access gateway
- Configuration of distributed Access Management can be achieved through **container configuration management**
- Shifting between **delegated** and **centralized** access management is possible by delegating the container configuration
  - Through a web portal and/or (developer/access) APIs

Questions

- Are you (your company) providing this?
  - No, (apart from a simple gateway) this is the description of an approach, a way of thinking to plan for the future
  - It is likely that you already do a part(s) of this yourself today…
- Do we need to build this ourselves?
  - Possibly, some have already, it depends on your specific needs
  - In the end, doing this (i.e. access config management) through a person/team is also an implementation (no code, no GUI and no backend) but would effectively be similar to classic WAM with the same challenges
- Can we purchase this from another company?
  - Possibly, parts for sure, Amazon ALB APIs, PingCentral Portal, DataWiza SaaS Proxy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