Demystifying Cloud Security: Unlocking Certificate-Based Authentication and PKI Best Practices

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Sprekers

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What are we going to discuss?

7 points

1. Why use Cloud PKI?
2. Cloud PKI like a Pro!
3. Demo Cloud PKI
4. Why CBA
5. CBA like a pro!
6. Demo CBA
7. Going Passwordless!
8. Questions

1. Why use Cloud PKI

Simplify certificate delivery to Intune clients

Set up a PKI in minutes instead of weeks

Improve security more easily than ever

Part of Intune Suite or Single license

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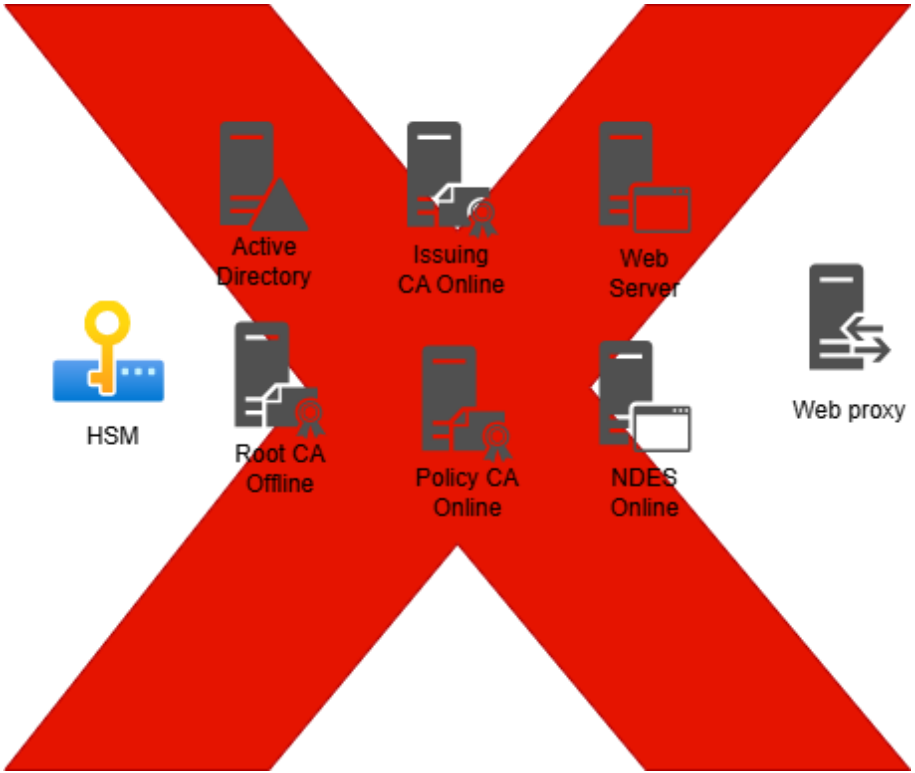
No need for on-prem PKI

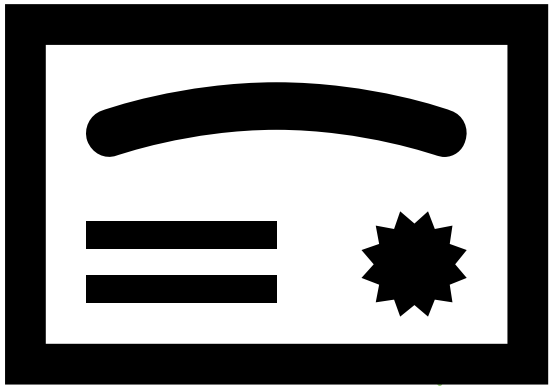
No need for on-prem servers, like:

- Root CA
- Issuing CA
- Web
- NDES
- Web proxy
- Policy CA

Also
- a dedicated HSM
- No firewall/port maintenance

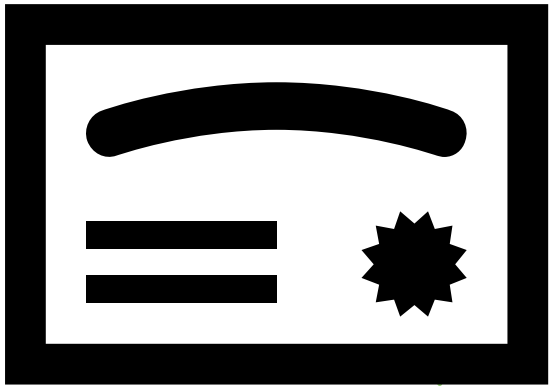


2. Cloud PKI like a Pro



- AIA (Authority Information Access)
  - For each Issuing CA
  - Endpoint can be used by relying parties to retrieve parent certificates
- CRL (Certificate Revocation List)
  - For each CA Validity period is 7 days.
  - Publishing and refresh happens every 3,5 days. After every revocation, the CRL is updated

2. Cloud PKI like a Pro



- SCEP (PKCS#7)
  - Intune only enrolled devices
  - https://{{CloudPKIFQDN}}/TrafficGateway/PassThroughRoutingService/CloudPki/CloudPkiService/Scep/9028deb3-.....

Planning

Validity Period (Root CA)

- 5 Year Minimum
- 25 Year Maximum

Validity Period (Issuing CA)

- 2 Year Minimum
- 10 Year Maximum

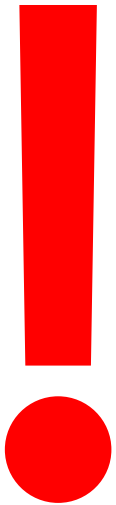
Best Practice

- Issuing CA Half Lifetime of Root CA
- Example: 20 Year Root > 10 Year Issuing

Pro Tips!

Here are some Pro-tips to take home...


WHAT DID I DO?
NETFLIX



Warning

Settings Cannot Be Changed After Deployment!

Limit access / RBAC

- Global Administrator
- Intune Administrator
- Custom Intune role

Demo Time..

- Cloud PKI Setup
- RBAC

1. Why use CBA?

Passwordless login using X.509 certificates instead of passwords

Phishing-resistant: Private keys can't be phished or guessed

Strong security: Meets high requirements mandated in government etc.

Simplified user experience: no passwords to remember or reset

Integrates with Cloud PKI

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Go for the best!

Bad: Password	**Good:** Password and...	**Better:** Password and...	**Best:** Passwordless
123456	SMS	Authenticator (Push Notifications)	Authenticator (Phone Sign-in)
qwerty	Voice	Software Tokens OTP	Window Hello
password		Hardware Tokens OTP (Preview)	FIDO2 security key
iloveyou			Certificates
Password1			

Passkeys !!!

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Password facts…

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Password facts…

Forgetting a password brings to light those negative emotions to even more people with 62% feeling stressed or annoyed as a result of forgetting their password. This was highest in the UK (69%) compared with France (65%) and the Netherlands (53%).

Even in organizations that explicitly instruct users on how to select strong passwords, many do not comply, and use weak passwords.

Password fatigue, the stress that users experience due to requirements to create, re-enter, remember and change a large number of passwords can lead to extreme stress.

The potential impact from forgetting a password can cause extreme levels of stress, and over time that can lead to breakdown or burnout.

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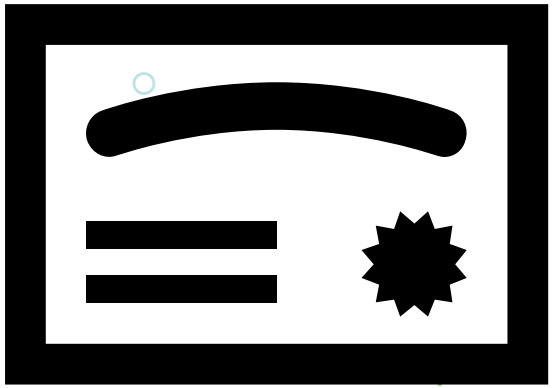
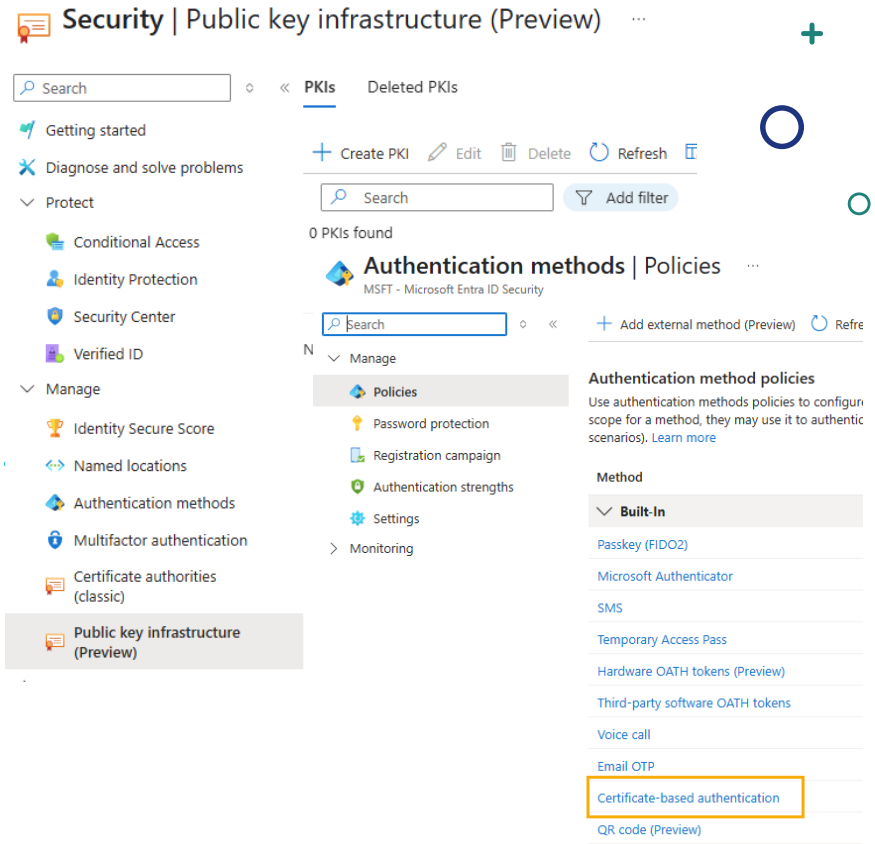
5. CBA like a Pro



- **Prerequisites PKI;**
  - Didn't we talk about Cloud PKI?
  - Configure at least one certificate authority (CA) and any intermediate CAs in Microsoft Entra ID.
  - User certificates are issued from the PKI
  - An internet accessible Certificate Revocation List (CRL) for each CA

5. CBA like a Pro



- **Prerequisites Entra ID;**
  - Authentication Methods: Enable Certificate-based Authentication
  - Configure Public key Infrastructure (Preview)

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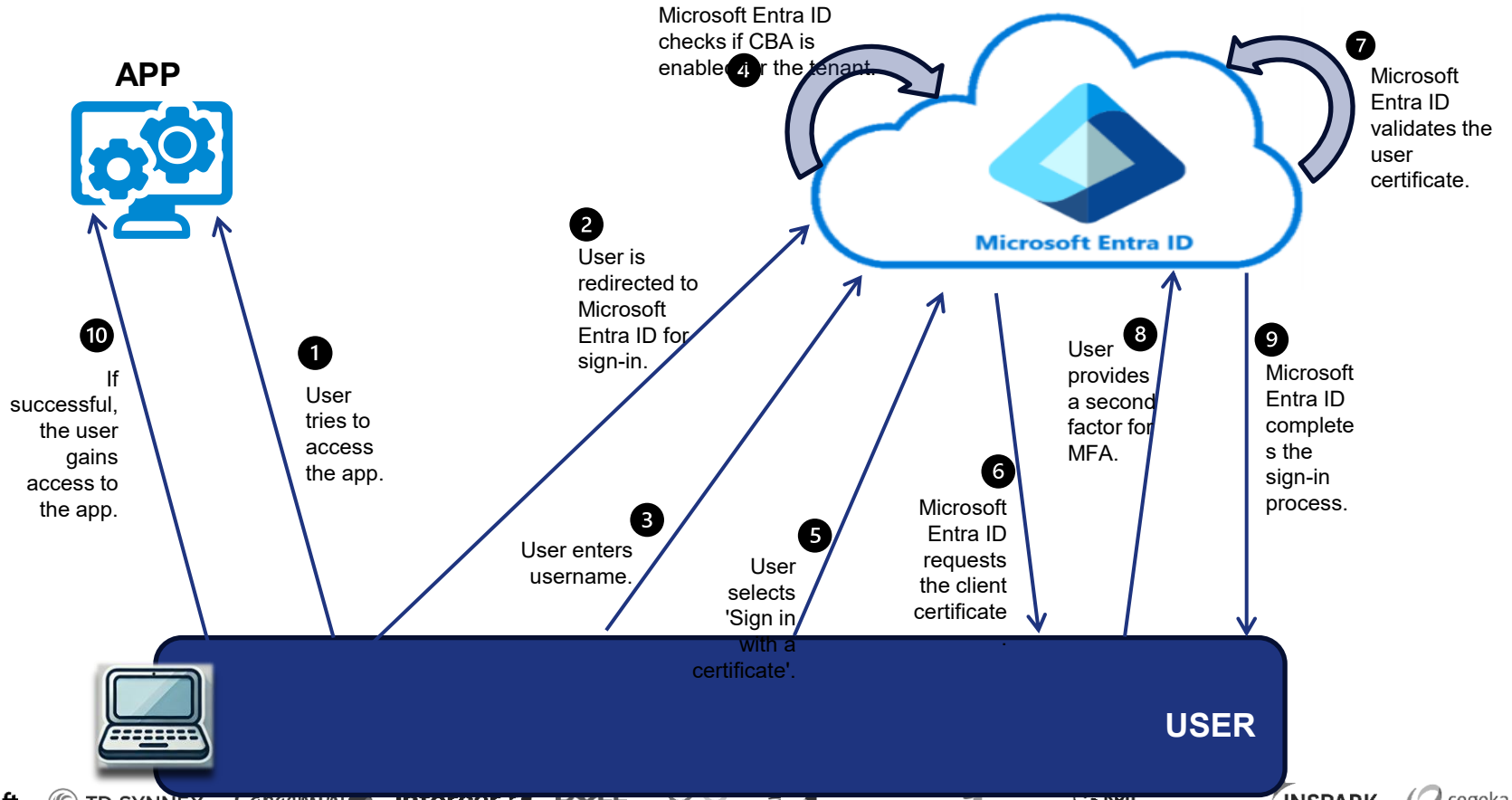
Technical Deep-Dive

How Microsoft CBA works



Demo Time..

- User Experience: iOS
- User Experience: macOS
- User Experience: Windows

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Demo Time..

- User Experience: iOS

Sign-in logs

Basic info | Location | **Device info** | Authentication Details | Conditional Access | Report-only | ...

Device ID	
Browser	Mobile Safari 18.1.1
Operating System	Ios 18.1.1
Compliant	No
Managed	No
Join Type	

Activity Details: Sign-ins

Basic info | Location | Device info | **Authentication Details** | Conditional Access | Report-only | ...

Session Lifetime Policies Applied

Remember multifactor authentication

Date	Authentication met...	Authentication met...	Succeeded	Result detail	Requirem
12/12/2024, 3:07:31 AM	X.509 Certificate		true		

Sign-in logs

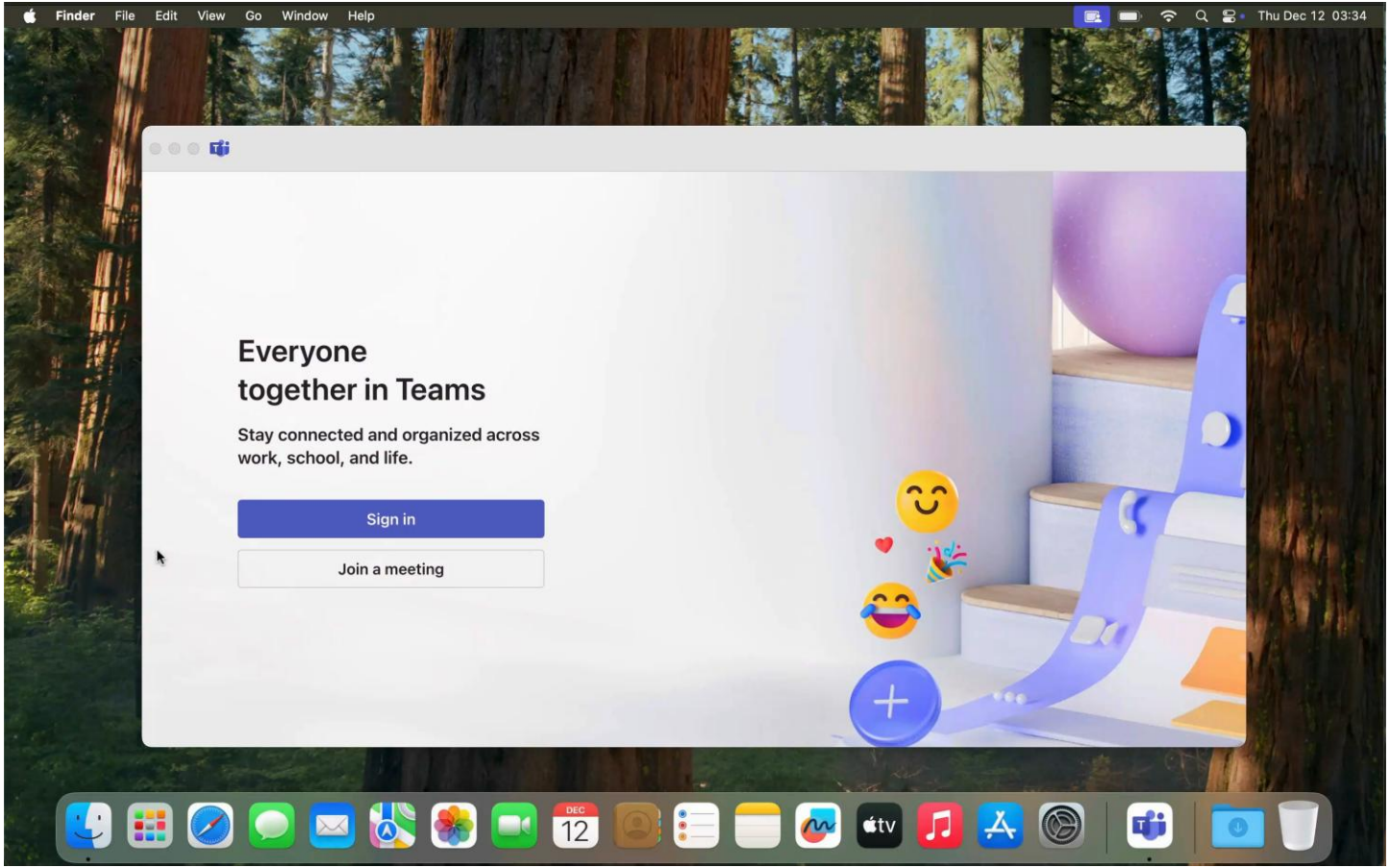
Activity Details: Sign-ins

Authentication Details | Conditional Access | Report-only | Authentication Events | **Additional Details** | ...

Domain hint present	True
Login hint present	True
User certificate subject	CN=ninja.raccoon, E=ninja.raccoon@allthingscloud.nl
User certificate issuer	CN=allthingscloud.nl, O=AllThingsCloud, C=NL
User certificate serial number	00FD58F2B5035E7FCC7687E415392E77DA
User certificate thumbprint	D03DBDFCA462BC1F62E09BCF961E78220AD50B37
User certificate valid from	12/12/2024 1:36:03AM
User certificate expiration	12/12/2025 1:46:03AM
User certificate binding identifier	ninja.raccoon@allthingscloud.nl
User certificate binding	Certificate: RFC822Name; User Attribute: userPrincipalName; Rank: 2
User certificate authentication level	multiFactorAuthentication
User certificate authentication level type	Issuer
User certificate authentication level identifier	CN=allthingscloud.nl, O=AllThingsCloud, C=NL
Issuer Hints set to filter certificates	Enabled
User certificate affinity mode	Low Affinity

Demo Time..

- User Experience: macOS



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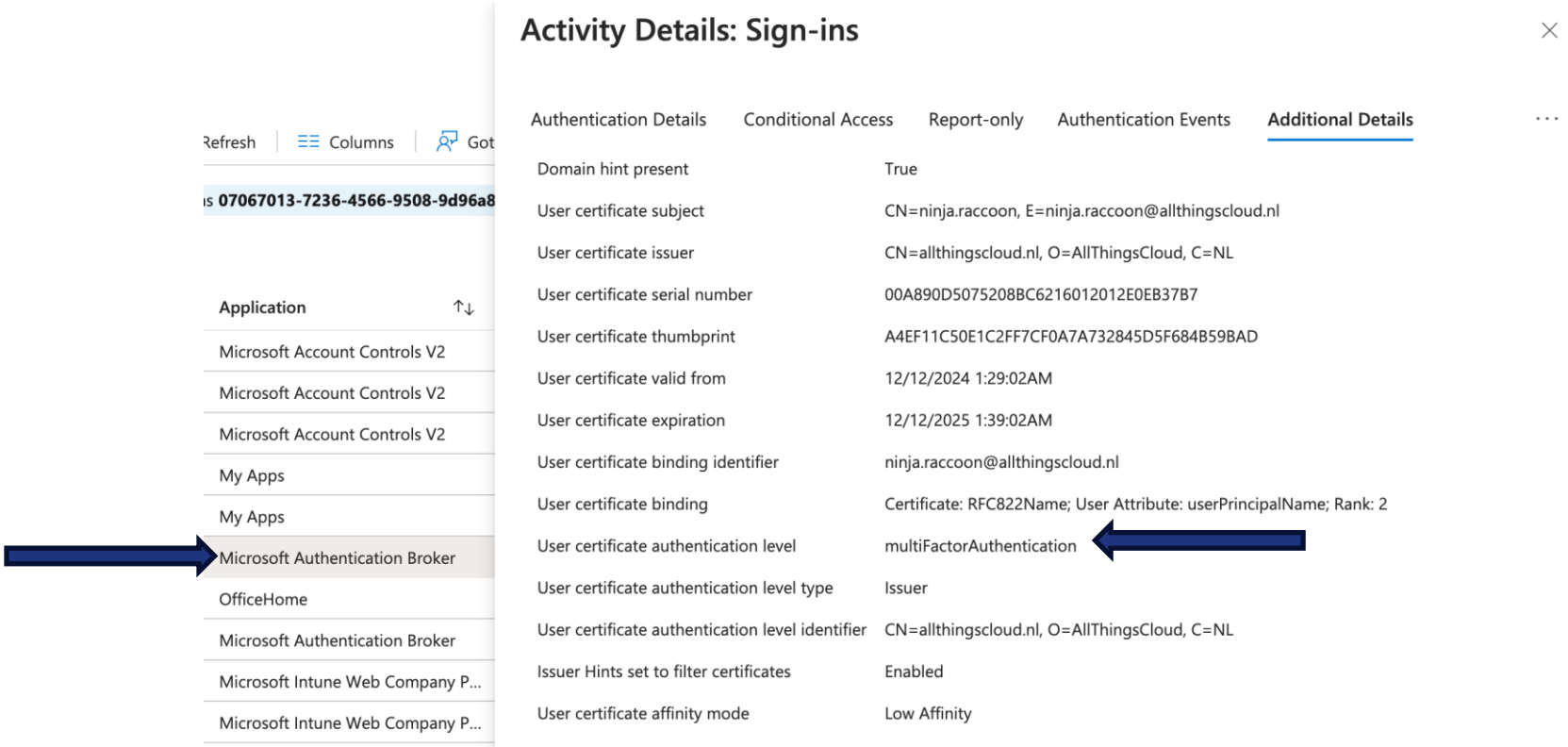
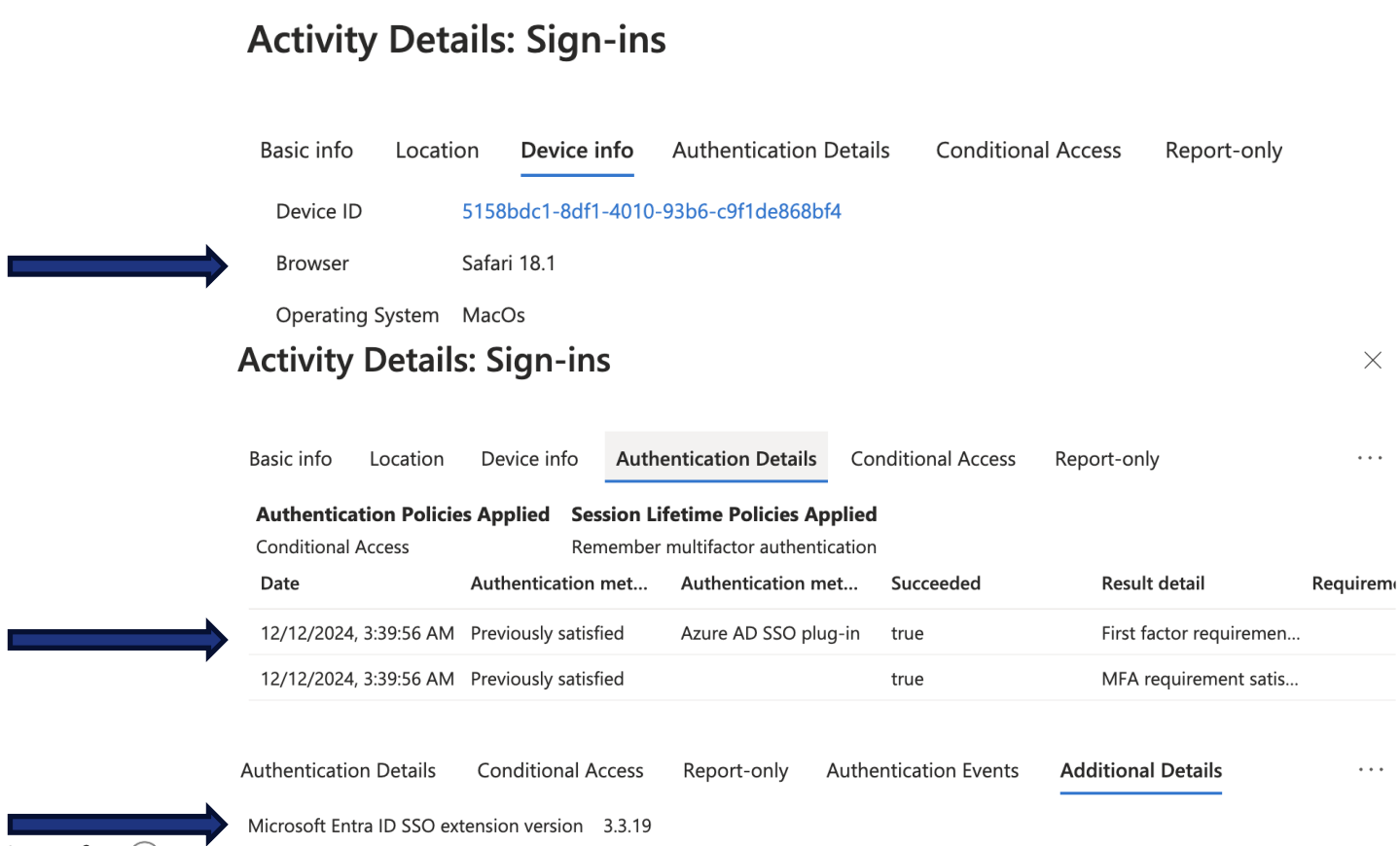
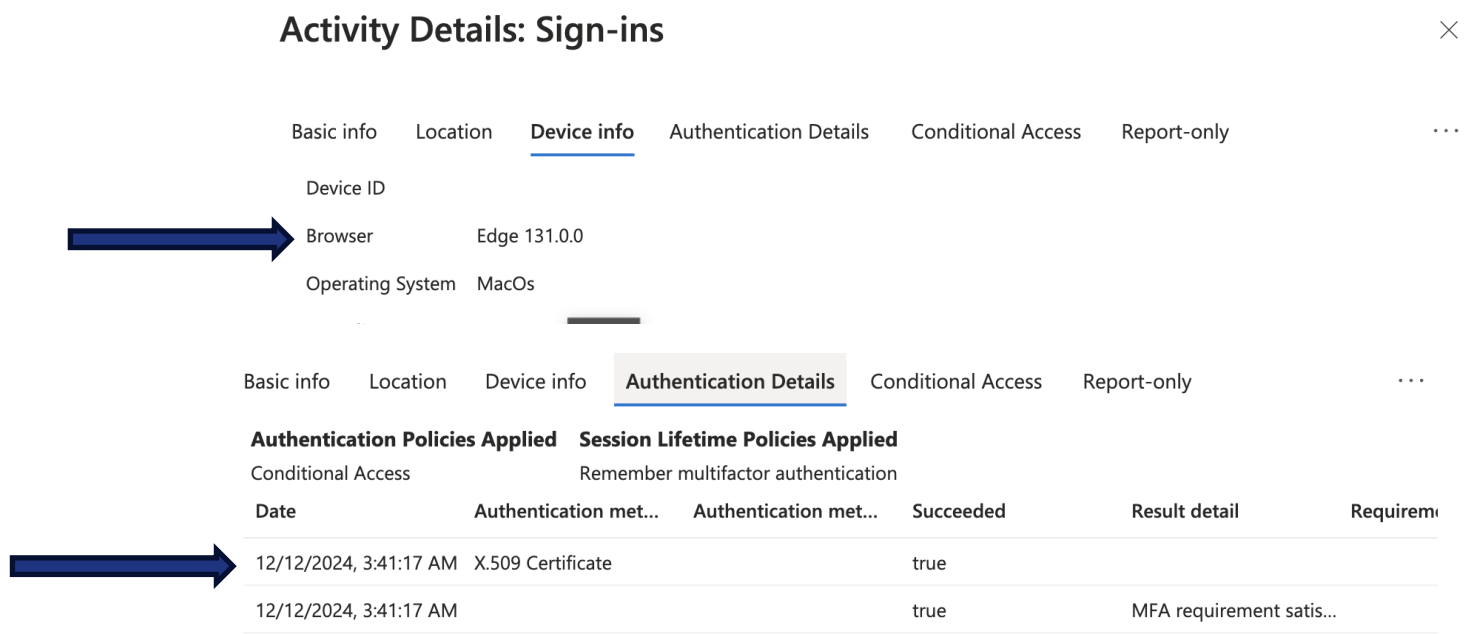
Sign-in logs: PSSO registration



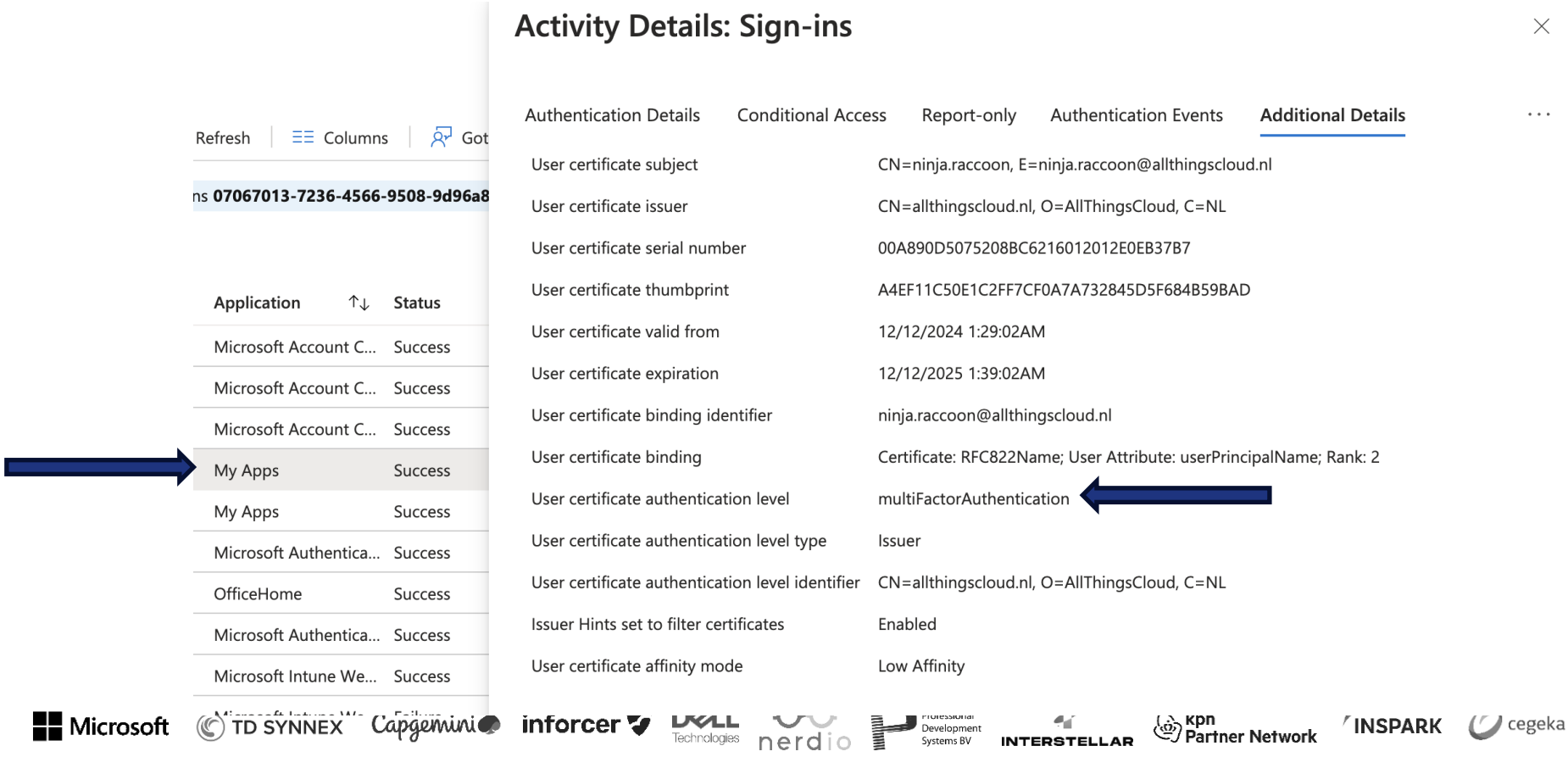
Sign-in logs: myapps with Safari



Sign-in logs: myapps with Edge



Sign-in logs: myapps with Edge



Demo Time..

- User Experience: Windows

Notes from the field

- Microsoft Entra CBA is a free feature. Play with it in a test tenant
- Other licensing requirements might be in place (Cloud PKI, MFA, M365, Intune)
- Password as an authentication method can't be disabled
- You need to setup a PKI for creating client certificates.
- Sign-in to device is only supported on Windows (using smartcard/fido)
- If CBA is enabled on the tenant, all users see the link to Use a certificate or smart card on the password page.
- Play with Conditional Access and Authentication strength.
- Play with certificates on FIDO2 keys (PIV capable=smartcard)

What's next: Windows Smartcard login

Next sessions 09:00 – 09:45

Security Keynote in Event Hall I & II

AI Keynote in Grand Hall

Next session 10:10 – 11:00

Multi-Tenant Organization (MTO) in Microsoft 365

Please evaluate this session in the App.

THANK YOU

Are there any questions?