

Update Days MAUI

Demystifying **Authentication** for .NET **MAUI** Apps and **APIs** with **Azure B2C**: It's Easier Than You Think

Intro

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Microsoft MVP



Demystifying Authentication for .NET MAUI Apps and APIs with Azure B2C: It's Easier Than You Think



What's on the Agenda?



What are the challenges?



What is Azure AD B2C?
What is MSAL?
DEMO



What about Authorization?
DEMO



Wrap-up
Questions



How did we get here?



Apps used to store user accounts & passwords

- › Simple solution, often custom built
- › Stored roles, users and profiles inside app
- › Many accounts, password reuse, sticky's



Data became valuable

- › Security systems are interesting target for attackers
- › Demand for proper app security increases
- › Securing multiple account stores is difficult



Systems became distributed

- › Increased complexity
- › Identity needs to flow through connected systems
- › Need for standardization of identity processes



Security

Ensuring the security of sensitive information



Integration

Identity needs to flow through connected systems



User Experience

Balancing security with user experience



Complexity

Different types of authentication methods (MFA) and authorization rules



Evolving Threats

The threat landscape is constantly evolving, new security vulnerabilities are discovered





Challenges



Security

Ensuring the security of sensitive information



Integration

Identity needs to flow through connected systems



User Experience

Balancing security with user experience



Complexity

Different types of authentication methods (MFA) and authorization rules



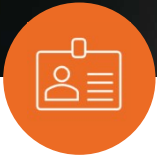
Evolving Threats

The threat landscape is constantly evolving, new security vulnerabilities are discovered



What is Azure AD B2C?

FREE! *



Identity management platform (IDP)

- › Managing and authenticating (external) user identities
- › (Almost) OAuth2 and OIDC compliant
- › Support for multi-factor authentication



Secure and Scalable

- › Handle large number of users
- › Highly available
- › Azure platform security
- › Up-to-date with new security features, patches and improvements



Customizable

- › Customizable 'standard' UserFlows
- › Fully customizable policies
- › Theme it to your own brand
- › Integrate with Social identity providers

What is MSAL?



Microsoft Authentication Library

- › Client library
- › Acquire, cache & renew security tokens from Microsoft identity platform
- › Azure AD B2C
- › Supports several user flows
- › Interactive and non-interactive authentication
- › Available for several platforms, incl .NET MAUI



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Security



● ● ● ● ●



Integration



● ● ● ● ●



User Experience



● ● ● ● ●



Complexity



● ● ● ● ●



Evolving Threats



● ● ● ● ●



Demo

Azure AD B2C & MSAL



What about Android & iOS?



Additional platform-specific setup/plumbing is needed



Usage of the MSAL code doesn't change!



Code can be found on the **GitHub repository** of this talk

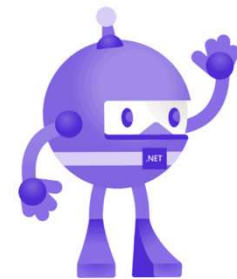


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Android Emulator - pixel_5_-_api_30:5554

11:37

Home

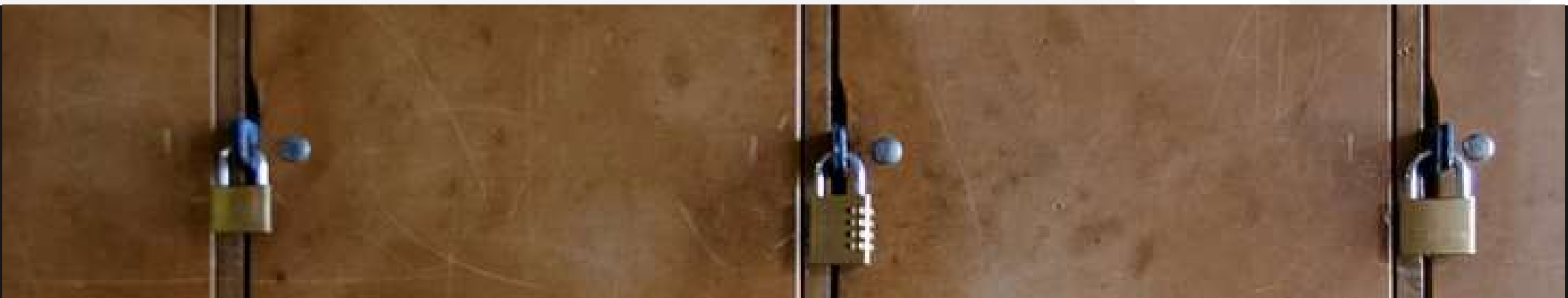


Hello, World!

Welcome to .NET Multi-platform App UI

Click me

What about Authorization?

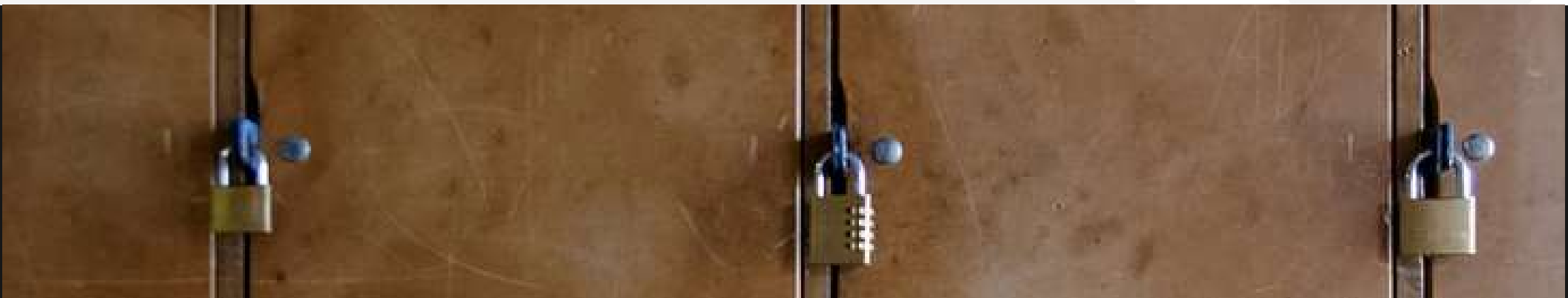


SEPARATE



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What about Authorization?

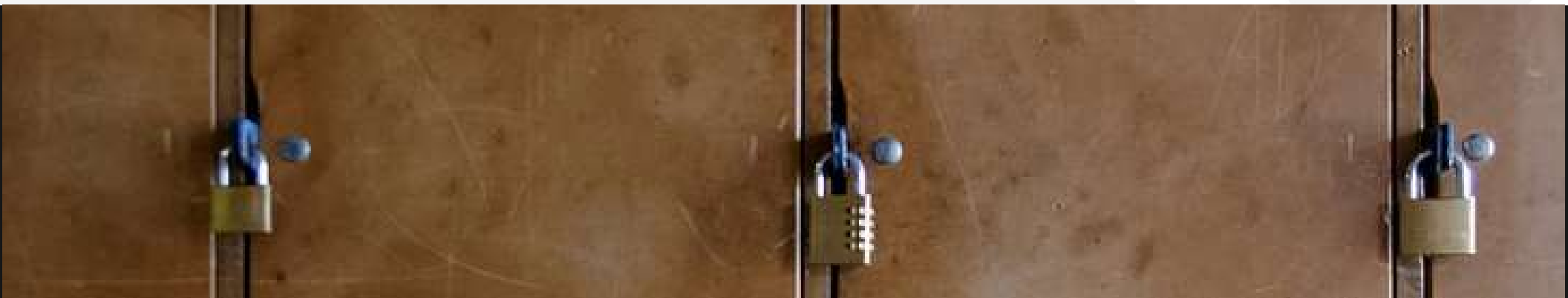


APPLICATION RIGHTS



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What about Authorization?

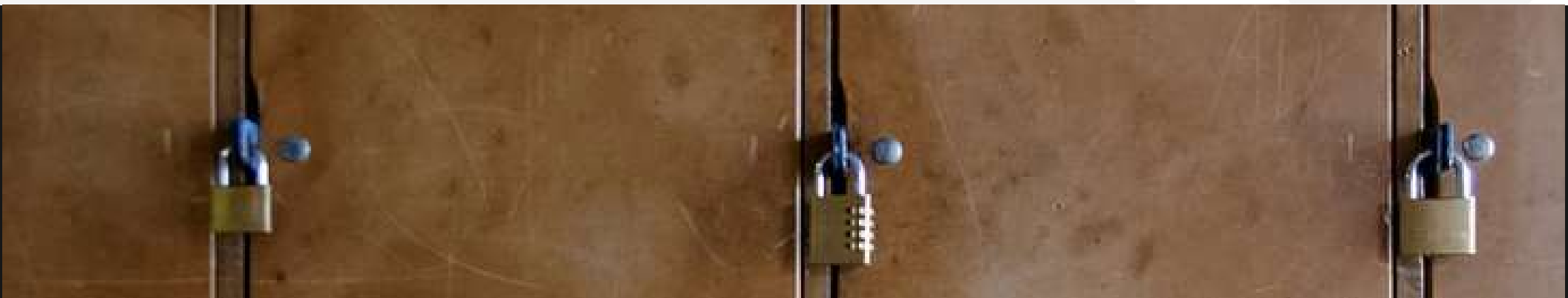


FROM



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What about Authorization?



YOUR IDP



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Flexibility

More flexibility in defining and managing authorization policies



Reusability

Reuse authorization and/or authentication layer



Maintainability

Separation of concerns



Scalability

Scale both components independently



Integration

Allows for more loosely coupled integration



Show client functionality depending on rights



Login

What are my application rights?

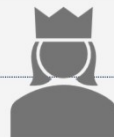


```
{
  "header": {
    "typ": "JWT",
    "alg": "RS256",
    "kid": "X5eXk4xyojNFum1kl2Ytv8dINP4-c57dO6QGTV"
  },
  "payload": {
    "iss": "https://mydemob2corg.b2clogin.com/273904f",
    "exp": 1675619287,
    "nbf": 1675615687,
    "aud": "3009eb40-440c-4c70-833a-823f5b7e2a06",
    "oid": "96f9fd1f-36ab-4ddc-8551-1fc15c97ecf8",
    "sub": "96f9fd1f-36ab-4ddc-8551-1fc15c97ecf8",
    "given_name": "Pieter Nijs",
    ...
  }
}
```

Server-side authorization



IClaimsTransformation



Endpoint

[Authorize(Policy = "editpolicy")]

```
{
  "header": {
    "typ": "JWT",
    "alg": "RS256",
    "kid": "X5eXk4xyojNFum1kl2Ytv8dINP4-c57dO6QGTVBwaNk"
  },
  "payload": {
    "iss": "https://mydemob2corg.b2clogin.com/.../",
    "exp": 1675619287,
    "nbf": 1675615687,
    "aud": "2000c510-440c-4e70-8330-83255b7e2a06",
    "oid": "96f9fd1f-36ab-4ddc-8551-1fc15c97ecf8",
    "sub": "96f9fd1f-36ab-4ddc-8551-1fc15c97ecf8",
    "given_name": "Pieter Nijs",
    ...
  }
}
```

Demo Authorization



Wrapping up...



Don't roll your own security

- › Authentication and authorization is challenging, trust on established components
- › Azure AD B2C is ideal when targeting users outside an organization
- › AD B2C is customizable (policies, branding, ...)



MSAL makes token management a breeze

- › Acquire, cache and renew tokens easily
- › Cross platform support, some platform specific config or code is needed
- › Helps in creating good User Experience



Separate authorization and authentication

- › Provides great flexibility
- › Promotes reusability
- › Better maintainability
- › Allows for more loosely couple integration



Thank you!



More information

- › Me | Pieter Nijs
- › Work | <https://www.xpirit.com/>
- › LinkedIn | www.linkedin.com/in/pieter-nijs
- › Sources | https://github.com/PieEatingNinjas/ADB2C_MAUI_Demo/tree/Demo
- › Blog | <https://blog.pieeatingninjas.be>



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