Token-based Authentication with OAuth2/OIDC

Kevin Dockx
ARCHITECT

@KevinDockx https://www.kevindockx.com

Coming Up

Token-based authentication with Blazor

OAuth2 and OpenID Connect

- Logging in
- Logging out
- Protecting the API
- Gaining long-lived access

Token-based Authentication with Blazor

The identity provider (IDP) will be responsible for providing

- Proof of authentication
- Proof of authorization

to the Blazor application

Users will prove who they are at IDP level

Token-based Authentication with Blazor

Identity token represents proof of identity

Used at client level, transformed into a cookie

Access token represents consent

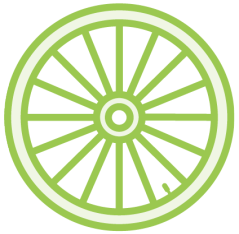
Passed from the client to the API, used at API level

Common Token Concerns

Expiration

Token signing and validation

Token format



Authentication and authorization

Securely delivering tokens to different application types

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OAuth2

OAuth2 is an open protocol to allow secure authorization in a simple and standard method from web, mobile and desktop applications

OAuth2 for Blazor Applications

OAuth2 defines how our Blazor application can securely achieve authorization

To that avail, our Blazor application can request an access token

OAuth2 for Blazor Applications

Not all applications are created equal

- For example: not all application types can safely store secrets

OAuth2 defines how different types of applications can securely get such a token from the IDP through different flows

OpenID Connect

OpenID Connect is a simple identity layer on top of the OAuth2 protocol

OpenID Connect for Blazor Applications

A client application can request an identity token (next to an access token)

That identity token is used to sign in to the client application

OpenID Connect for Blazor Applications

OpenID Connect is the superior protocol: it extends and supersedes OAuth2

Even if the client application only requires authorization to access an API, we should use OIDC instead of plain OAuth2

IdentityServer4

- http://docs.identityserver.io/

IdentityServer4 is an OpenID Connect and OAuth2 framework for ASP.NET Core

- Part of the .NET Foundation

What About Other Identity Providers?

Okta, Auth0, Azure AD, Azure AD B2C, … all of these are OIDC-implementing IDPs

- Integrating with them follows the same principles as integrating with IdentityServer4

Additional Information

Course: Securing ASP.NET Core 3 with OAuth2 and OpenID Connect (yours truly)

- Covers securing ASP.NET Core in depth

We're focusing on specifics related to Blazor Server applications

Demo

Inspecting IdentityServer

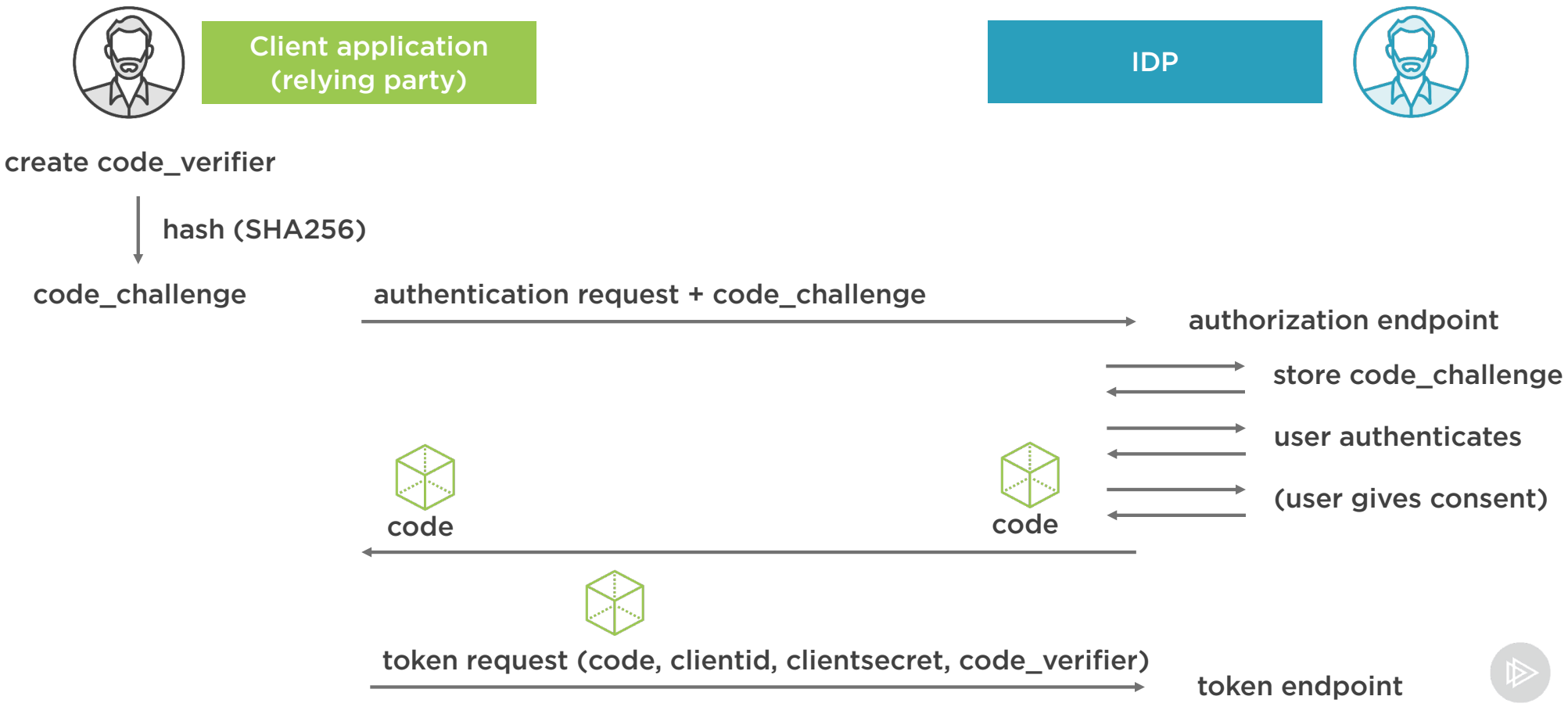
Authentication with an Identity Token

A Blazor Server application can safely store secrets

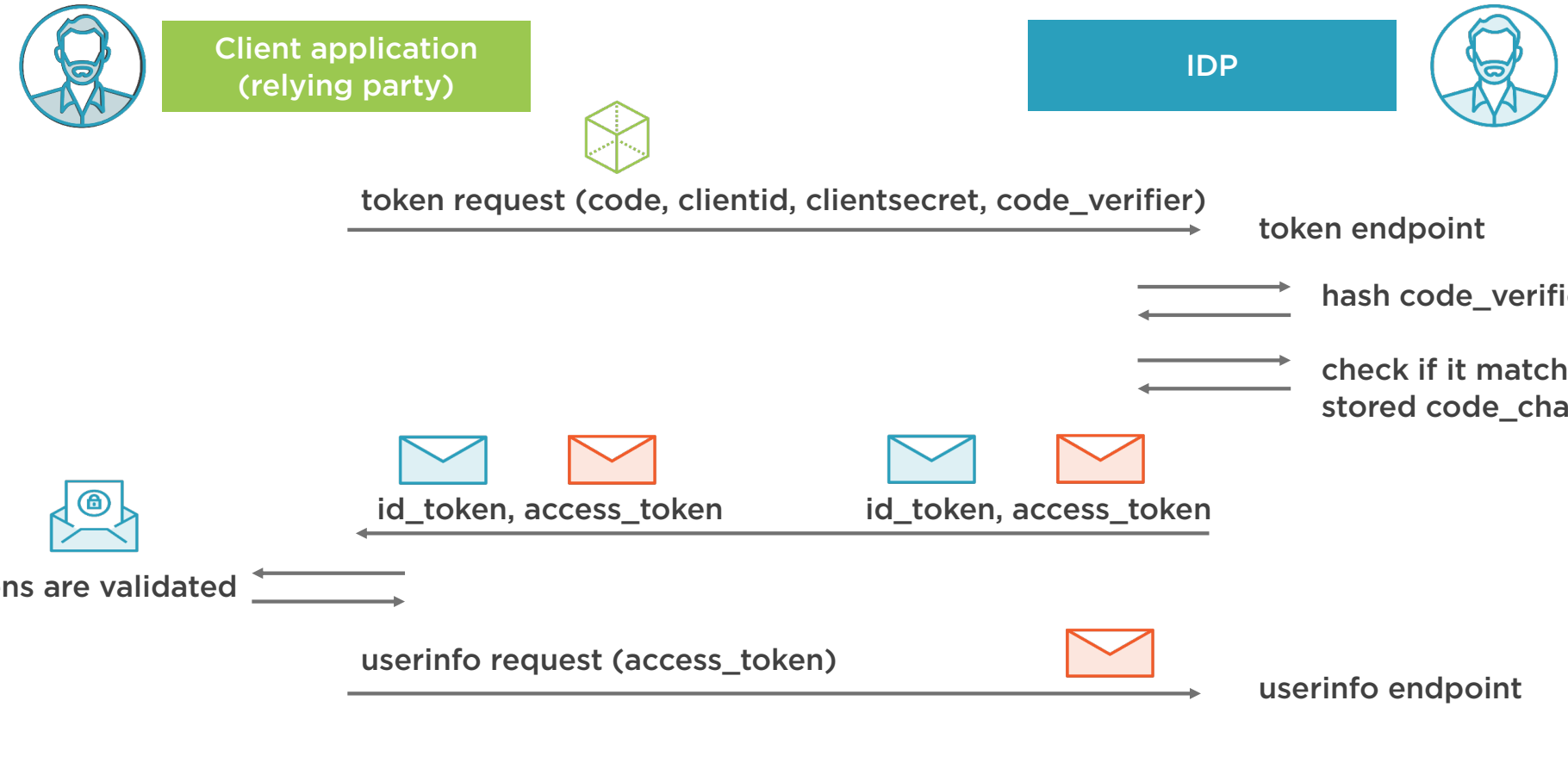
Advised flow:

- Authorization Code + PKCE
- Microsoft's OpenID Connect middleware implements the client-level parts of this flow in our Blazor app

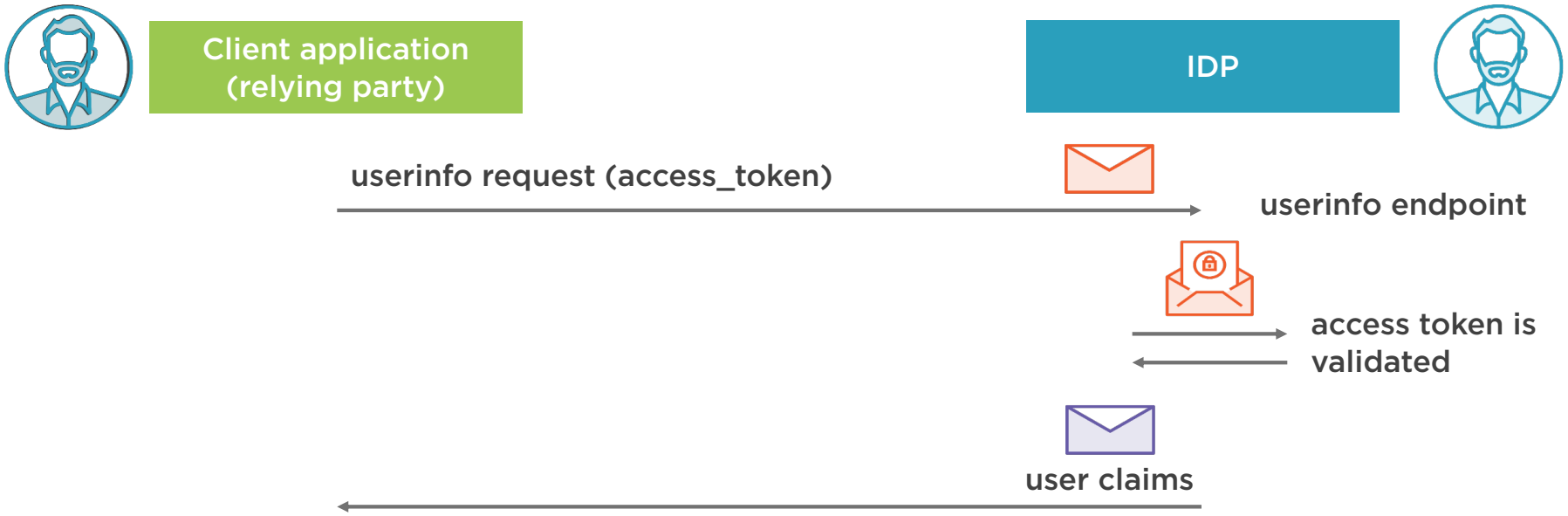
Authentication with an Identity Token



Authentication with an Identity Token



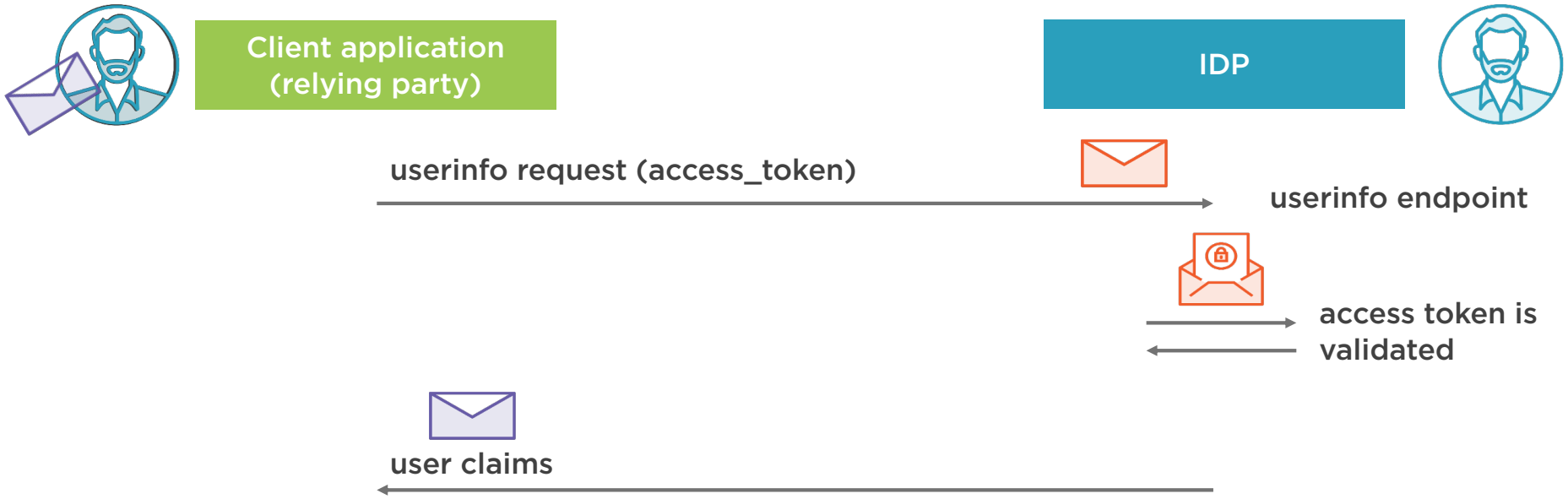
Authentication with an Identity Token



The UserInfo Endpoint

Not including the claims in the id_token keeps the token smaller, avoiding URI length restrictions

Authentication with an Identity Token



Tokens and Cookie Authentication

Our Blazor application still uses cookie authentication (as it should)

- The identity token is used to transfer proof of identity from the IDP to the client application (= our Blazor application)

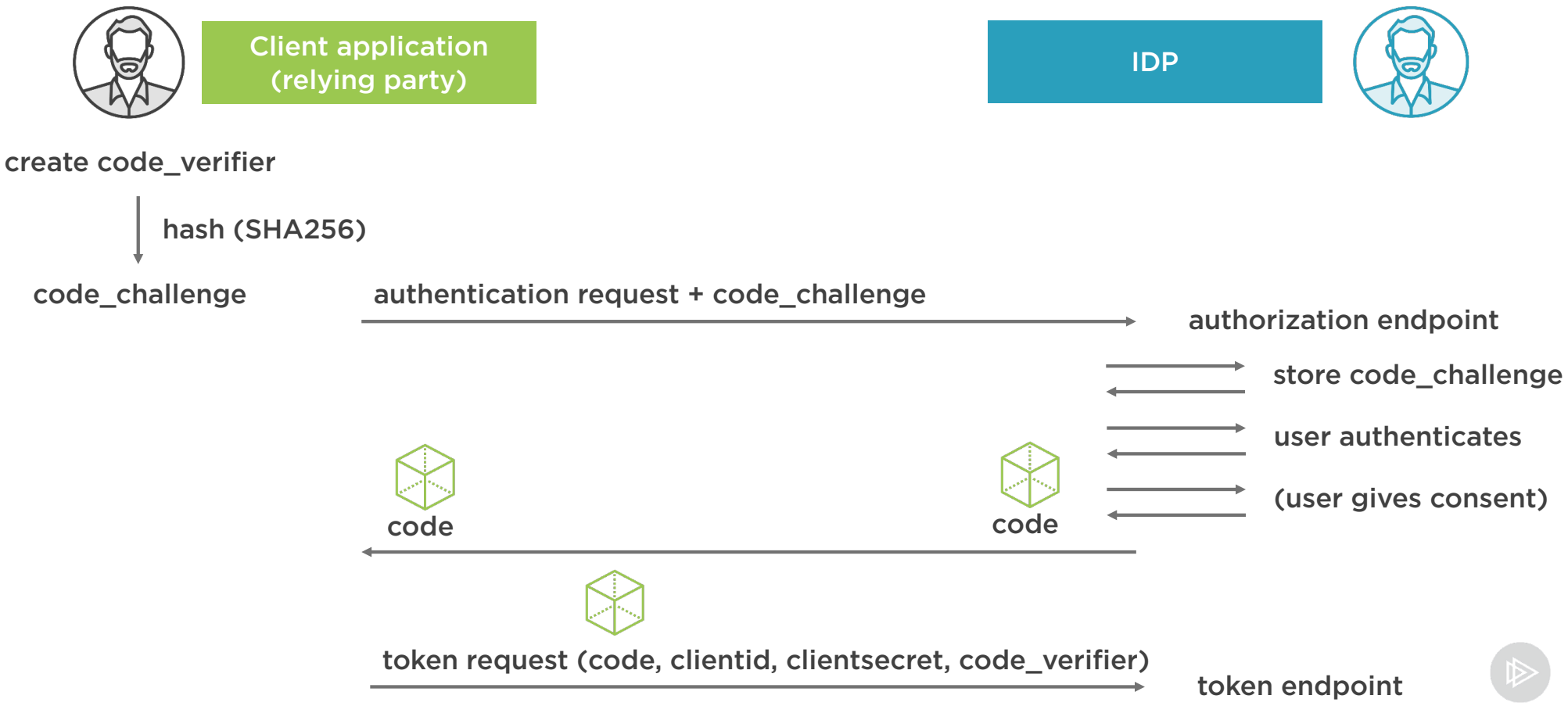
Demo

Logging in

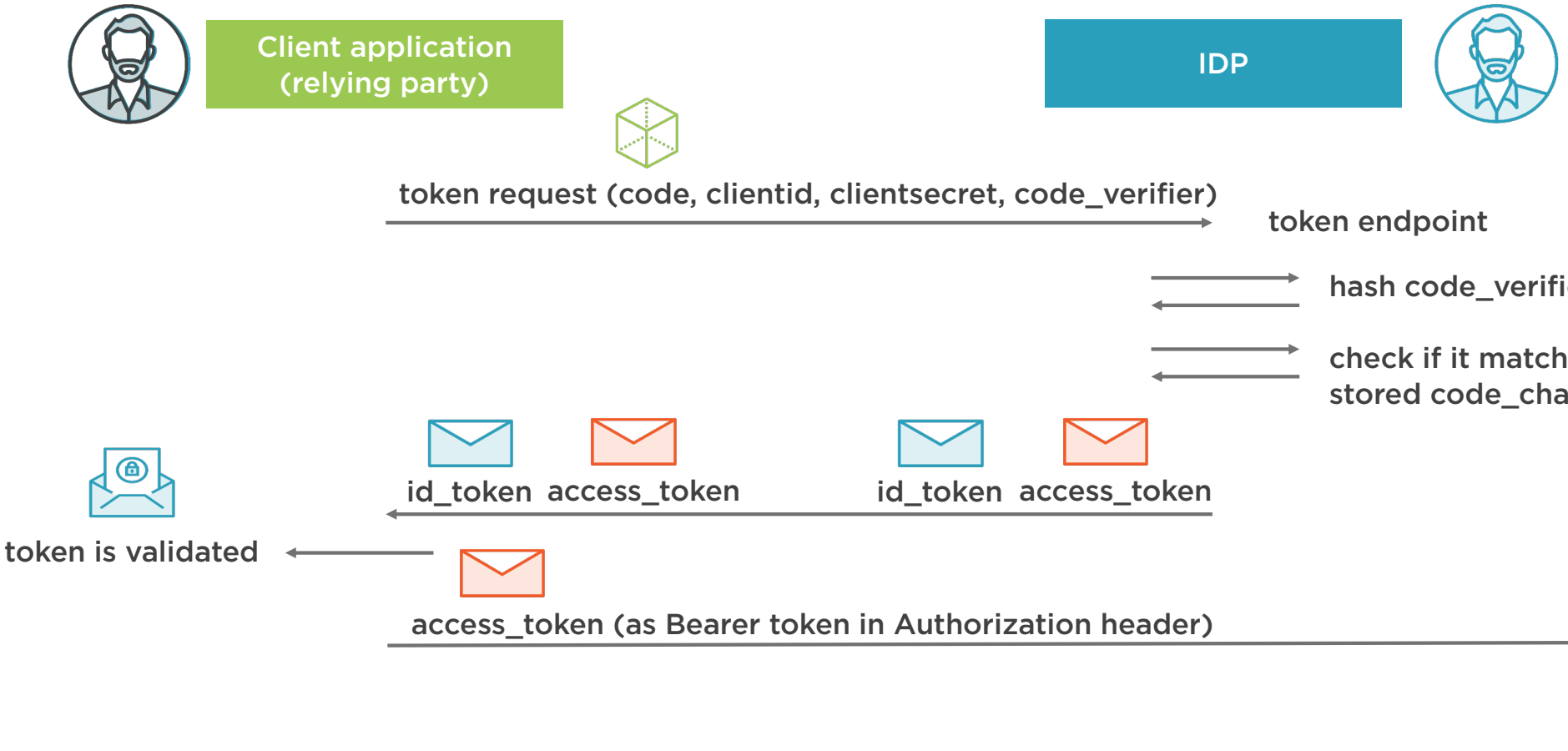
Demo

Logging out

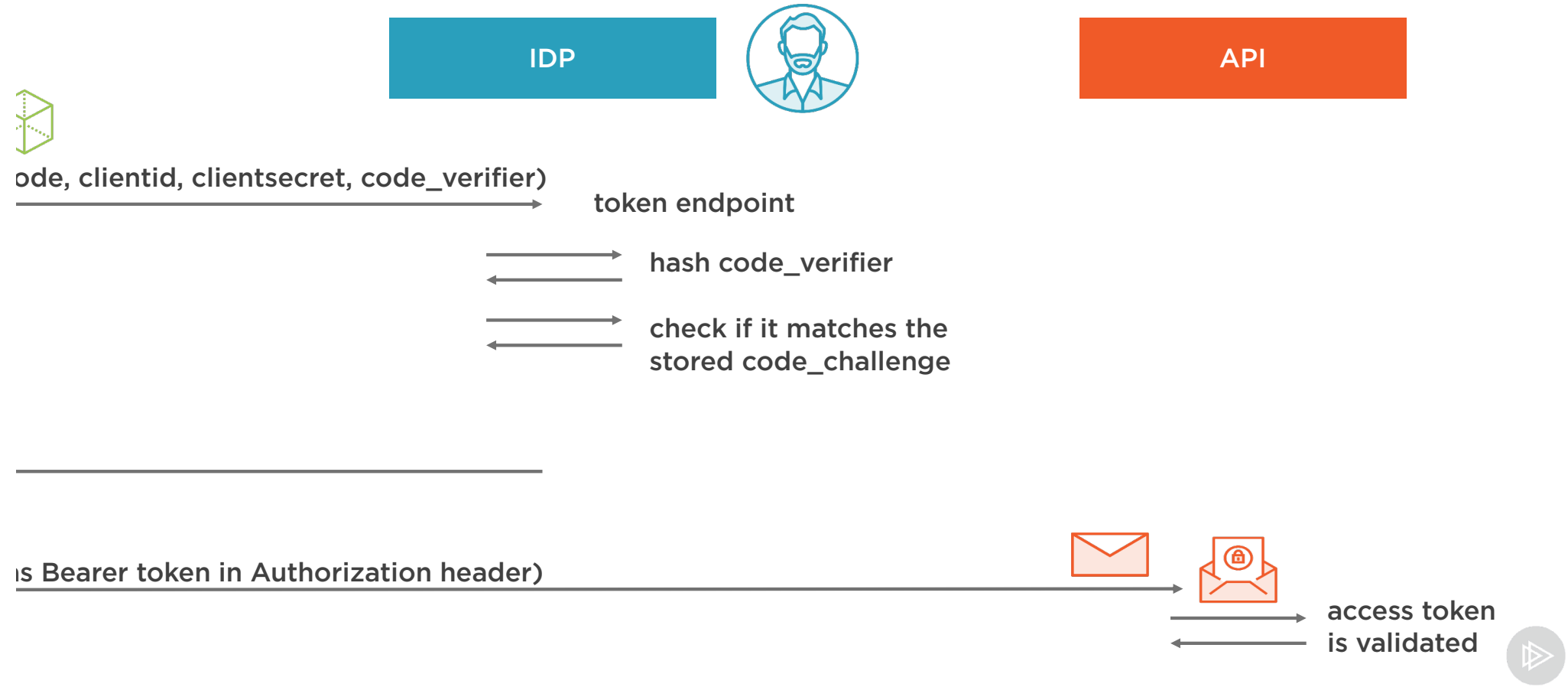
Authorization with an Access Token



Authorization with an Access Token



Authorization with an Access Token



Demo

Protecting the API

Demo

Passing an access token to our API

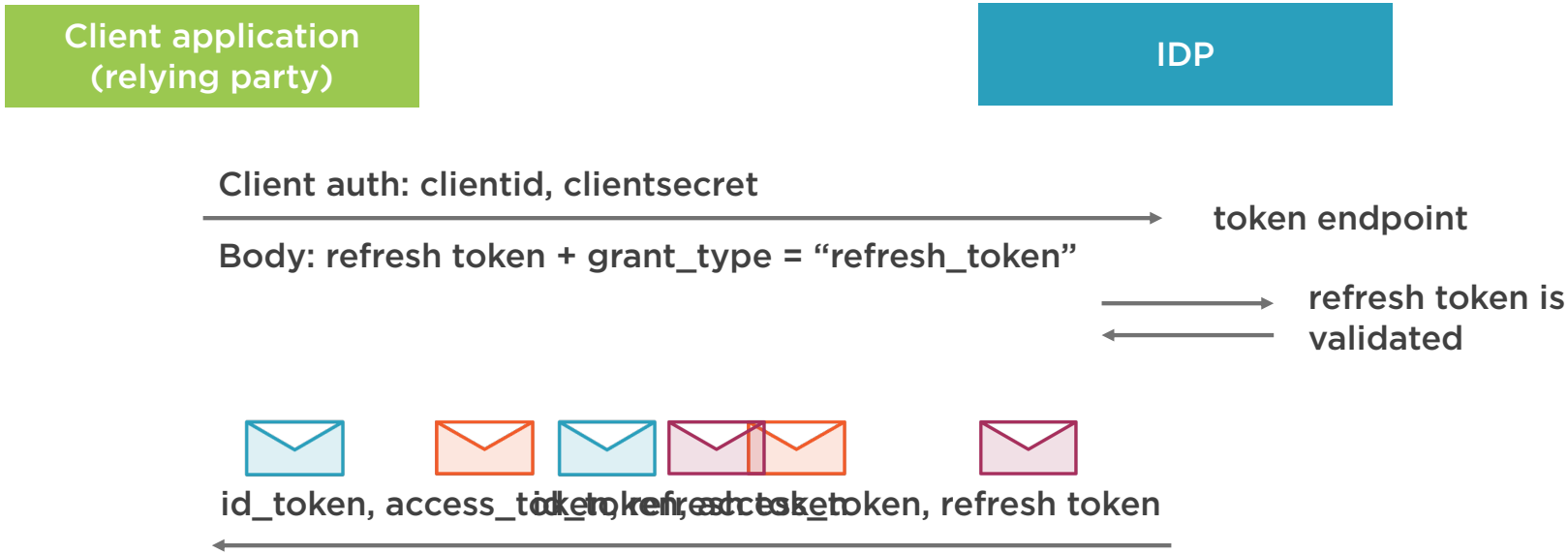
Gaining Long-lived Access with Refresh Tokens

When a token expires, the flow can be triggered again to get a new one

Confidential clients can use refresh tokens to get new tokens via the back channel

- A refresh token is a credential to get new tokens

Refresh Token Flow



Gaining Long-lived Access with Refresh Tokens

Scope: “offline_access”

- "Access to your applications and resources, even when you are offline“
- Offline in this context means the user is not logged in to the IDP

Demo

Gaining long-lived access with refresh tokens

What's Next?

Additional concerns

- Integrating ASP.NET Core Identity at level of the IDP
- Working with Windows Authentication
- Dealing with Authorization and Authorization Policies

Course: Securing Blazor Client-side Applications

Summary

Use the code flow with PKCE protection for Blazor Server applications

- Implement at client-level using Microsoft's OpenID Connect middleware
- The validated identity token is converted to a ClaimsIdentity, which is in turn stored in a cookie

Summary

The claims are returned from the UserInfo endpoint, as this keeps the identity token smaller which avoids URL length restrictions

Summary

Call ChallengeAsync on the HttpContext to challenge a scheme and start a flow

- Authentication-related calls are handled via Razor pages

Don't forget to sign out of the IDP when signing out of the Blazor application

Summary

Use IdentityServer's AccessTokenValidation middleware to validate access tokens at API level

Pass access tokens from client to API as Bearer tokens on each request to the API

Use refresh tokens for long-lived access


you are ready
to be Awesome !!!
@kevinDockx