Standards in Production Today

OAuth 2.0 and OIDC in Action

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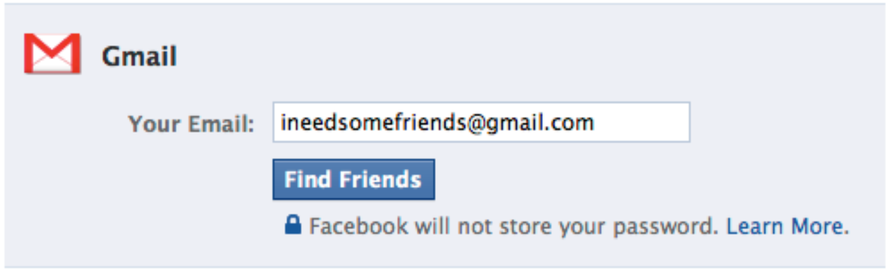
OAuth 2.0 in a nutshell

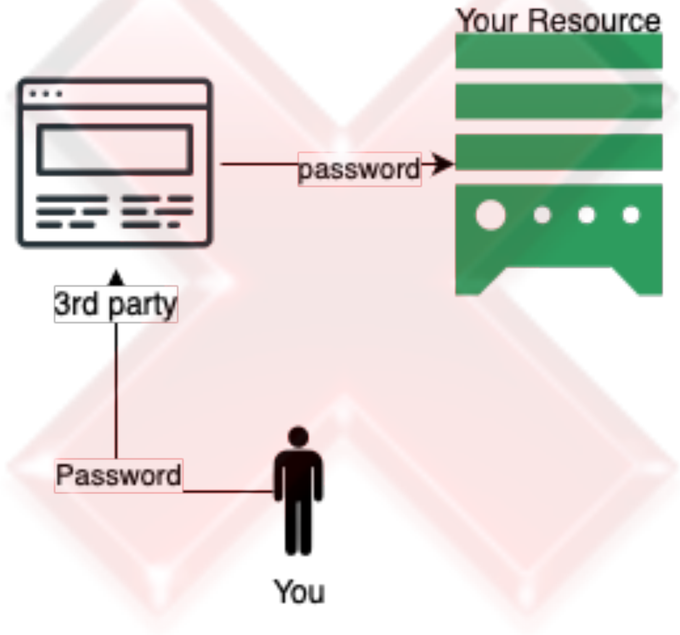
- Replacement for password-sharing pattern

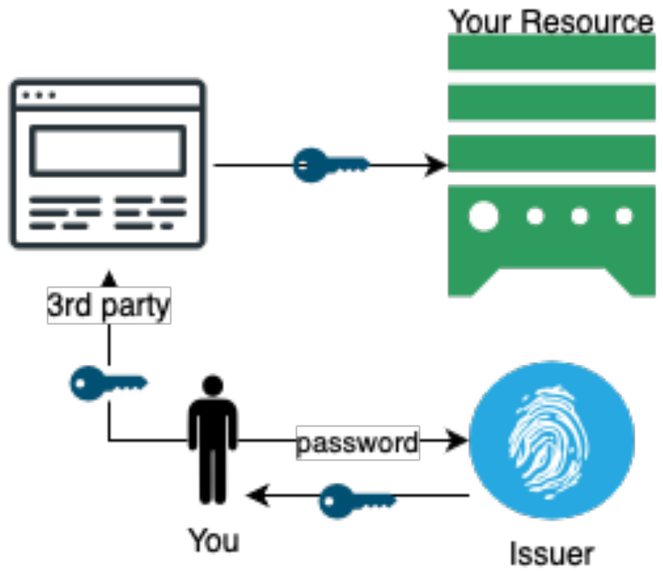


- Around 2007 engineers from Twitter, Google gathered for the need of an API access delegation protocol

OAuth 2.0 in a nutshell

- A complete replacement of OAuth 1.0
- Resource owner, resource server, client, authorization server



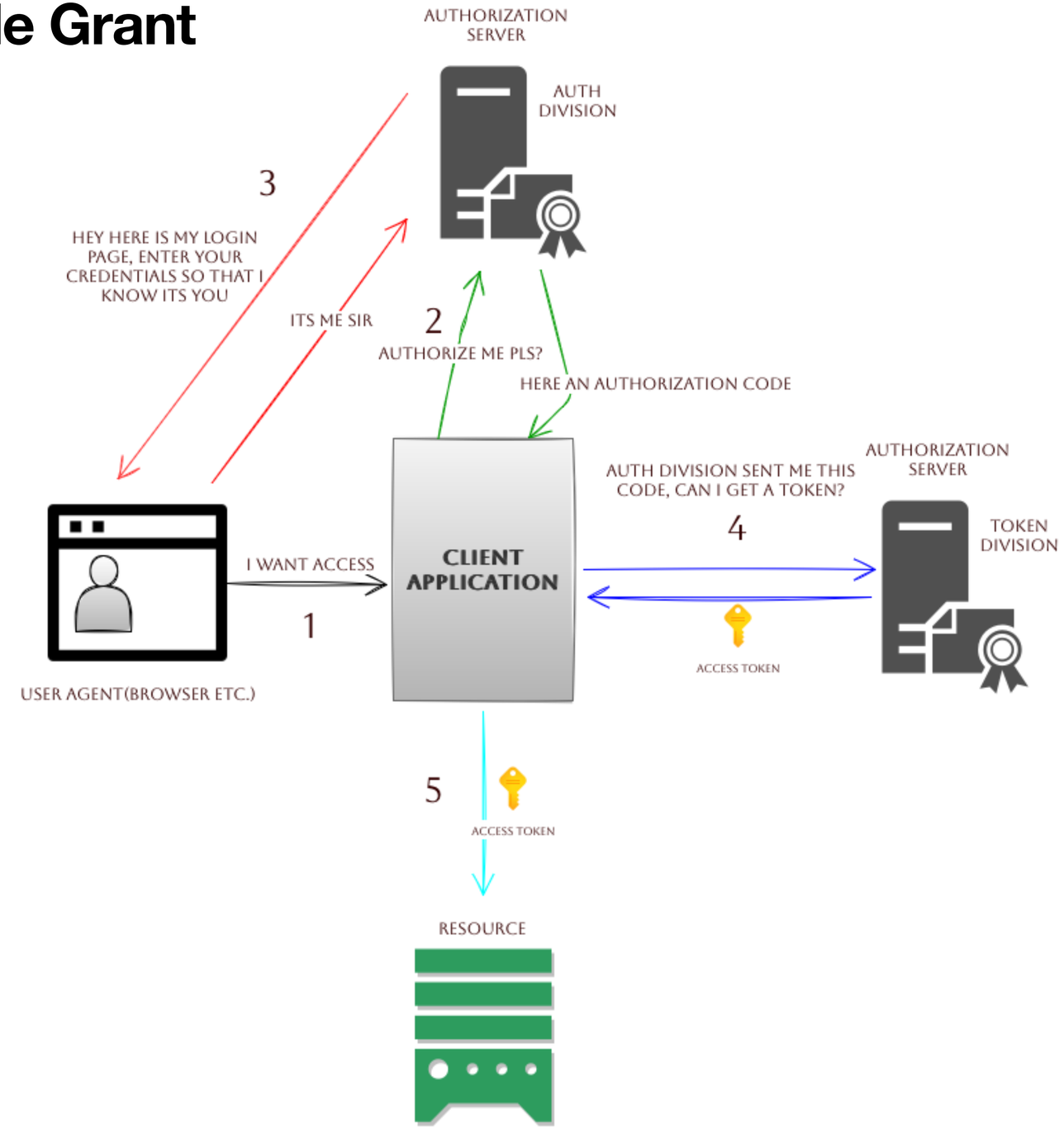


Grant Type - What is it

- The way/method to get an access token
- Access token is your “opaque” key card
- Scope, what exactly I can access with it?

- More definitions can be found in the RFC -> https://www.rfc-editor.org/rfc/rfc6749

Authorization Code Grant

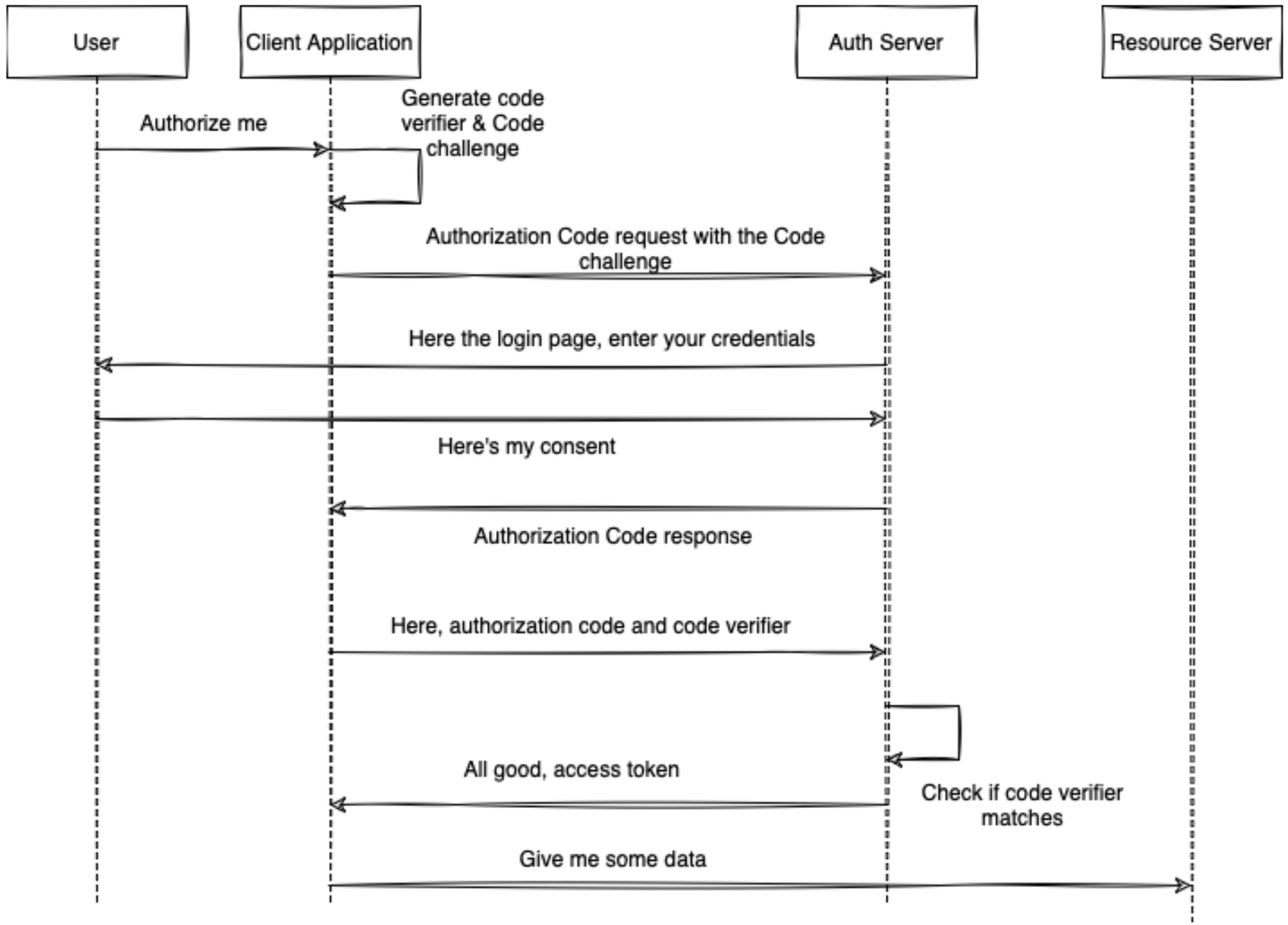


Authorization Code with PKCE

Hardened Authorization Code Grant

- Authorization code grant will be deprecated with OAuth 2.1
- Attackers can listen to network to steal the authorization code
- PKCE - Proof Key for Code Exchange

Authorization Code with PKCE



Other Grant Types

- Client Credentials
- Implicit grant
- Device code

- Playground for grant types -> https://www.oauth.com/playground/

OIDC

- Introduced by OpenID foundation
- OpenID Connect is a layer on top of OAuth
- Please welcome a companion token to the access token, ID token
- ID token is for client use only

Sample contents for both tokens

Access Token


```
{
  "sub": "05a725db-be17-4705-b7d0-48b662509850",
  "iss": "my-issuer",
  "client_id": "154ilttrkk6kmk5c87sul2vgve",
  "origin_jti": "71de7070-dbfc-42f9-8da9-9bb0c104b932",
  "event_id": "442a547a-364c-4121-ba1b-3d8684bbef8d",
  "token_use": "access",
  "scope": "get-books",
  "auth_time": 1670261383,
  "exp": 1670261983,
  "iat": 1670261387,
  "jti": "0a0996f7-fec3-4097-98c0-df446605cf93",
  "username": "05a725db-be17-4705-b7d0-48b662509850"
}
```

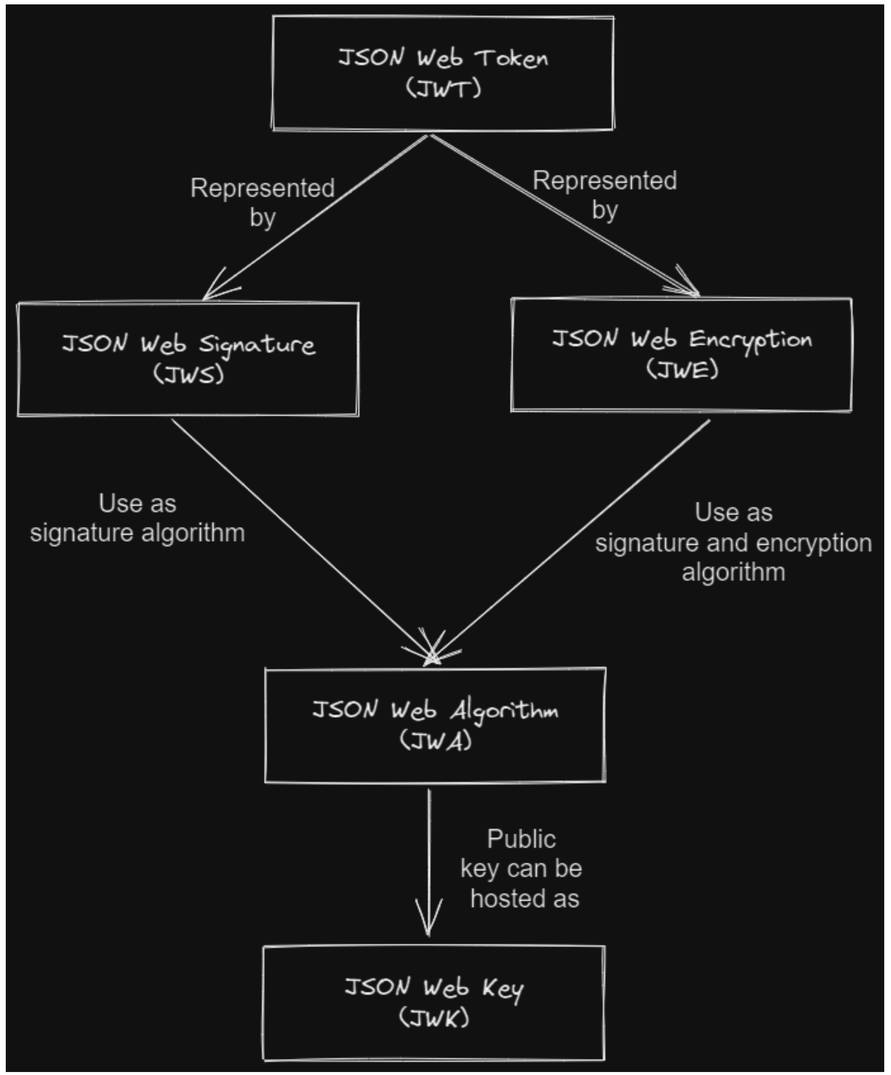

ID Token


```
{
  "sub": "05a725db-be17-4705-b7d0-48b662509850",
  "email_verified": true,
  "iss": "my-issuer",
  "phone_number_verified": true,
  "username": "05a725db-be17-4705-b7d0-48b662509850",
  "env": "TEST",
  "actorUuid": "d68bc7af-db7e-11e8-a4ce-005056b910a4",
  "origin_jti": "71de7070-dbfc-42f9-8da9-9bb0c104b932",
  "aud": "154ilttrkk6kmk5c87sul2vgve",
  "event_id": "442a547a-364c-4121-ba1b-3d8684bbef8d",
  "updated_at": 1667998236,
  "token_use": "id",
  "auth_time": 1670261383,
  "name": "d68bc7af-db7e-11e8-a4ce-005056b910a4",
  "phone_number": "+11111111111111",
  "exp": 1670261983,
  "iat": 1670261383,
  "jti": "99a70b45-5895-4cf8-937e-0ebd419454c0",
  "email": "supporter@example.com"
}
```

JSON Web Tokens

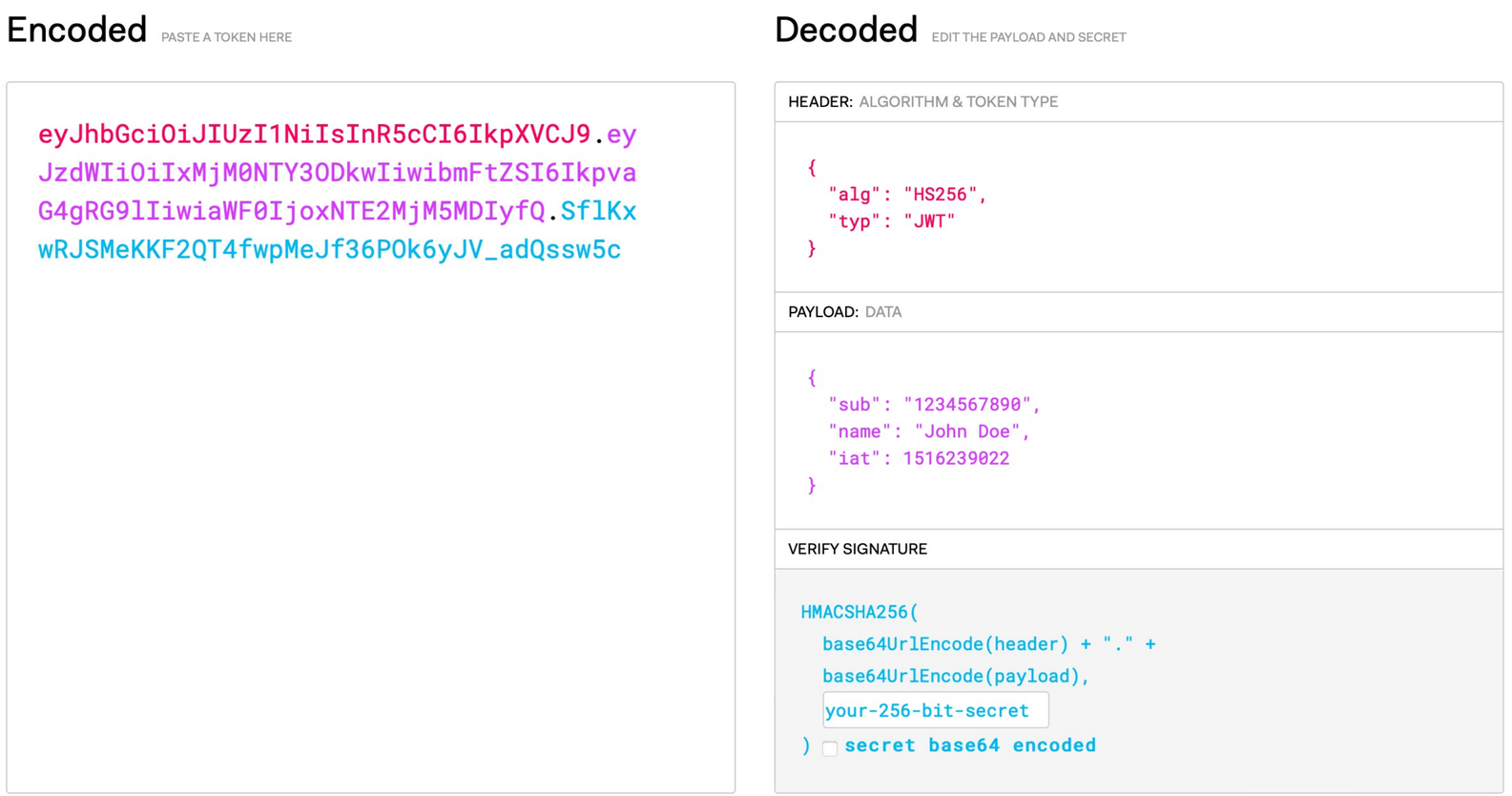
- The most common structure for Access tokens and ID tokens
- It is securely signed, mostly not encrypted
- It is not the holy way of handling authorization, comes with drawbacks

Json Web Token Terminology



Structure of JWT’s

- jwt.io is the central place if you work with JWT’s



Thank you :)