ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE

Login and Access Control in Angular

angular-architects.io

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- OAuth 2
- Single Sign on and OpenId Connect
- DEMO

Motivation

Access to App and Backend

Requirements for Modern Apps

- Service delegates to other services
- Cross Origin Requests
- Using existing Identity Solutions
- Loosely Coupling to Identity Solution
- Single Sign on/ out
- Protect from XSRF

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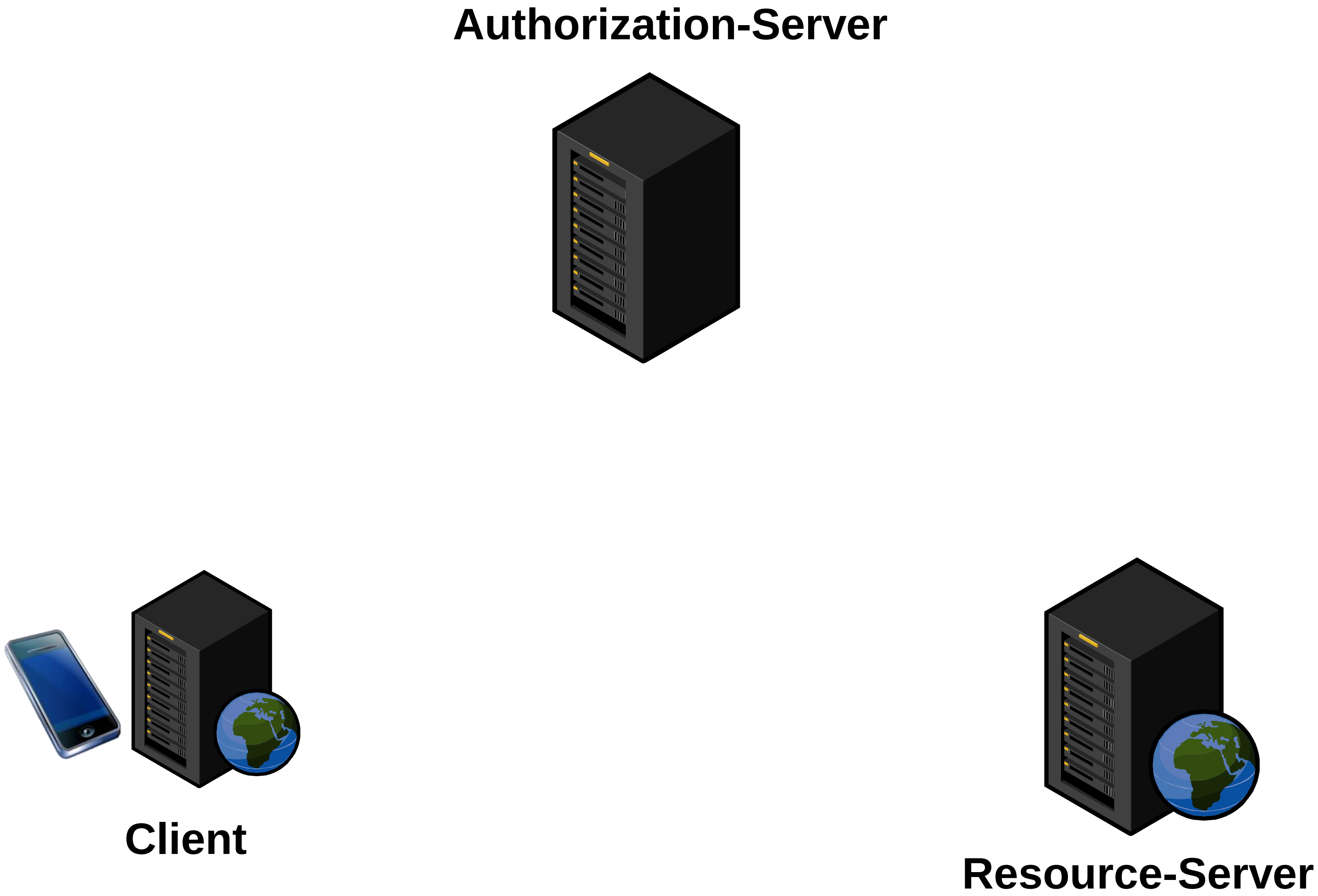
PASSPORT

Roles

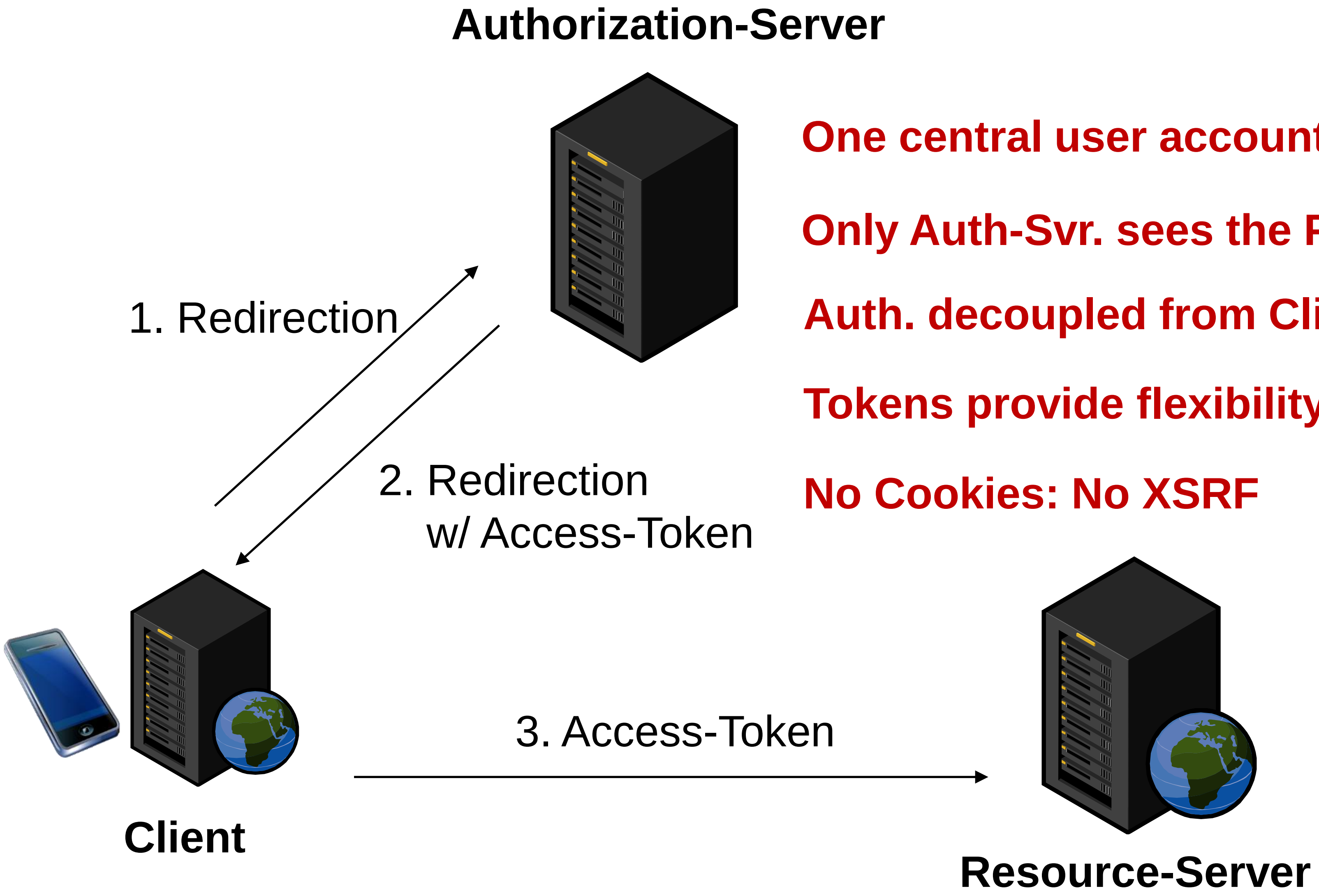


Authorization-Server

Client

Resource-Server

Flow



Authorization-Server

1. Redirection

2. Redirection
w/ Access-Token

3. Access-Token

Client

Resource-Server

One central user account

Only Auth-Svr. sees the Password

Auth. decoupled from Client

Tokens provide flexibility

No Cookies: No XSRF

Lots of Auth Server out there ...

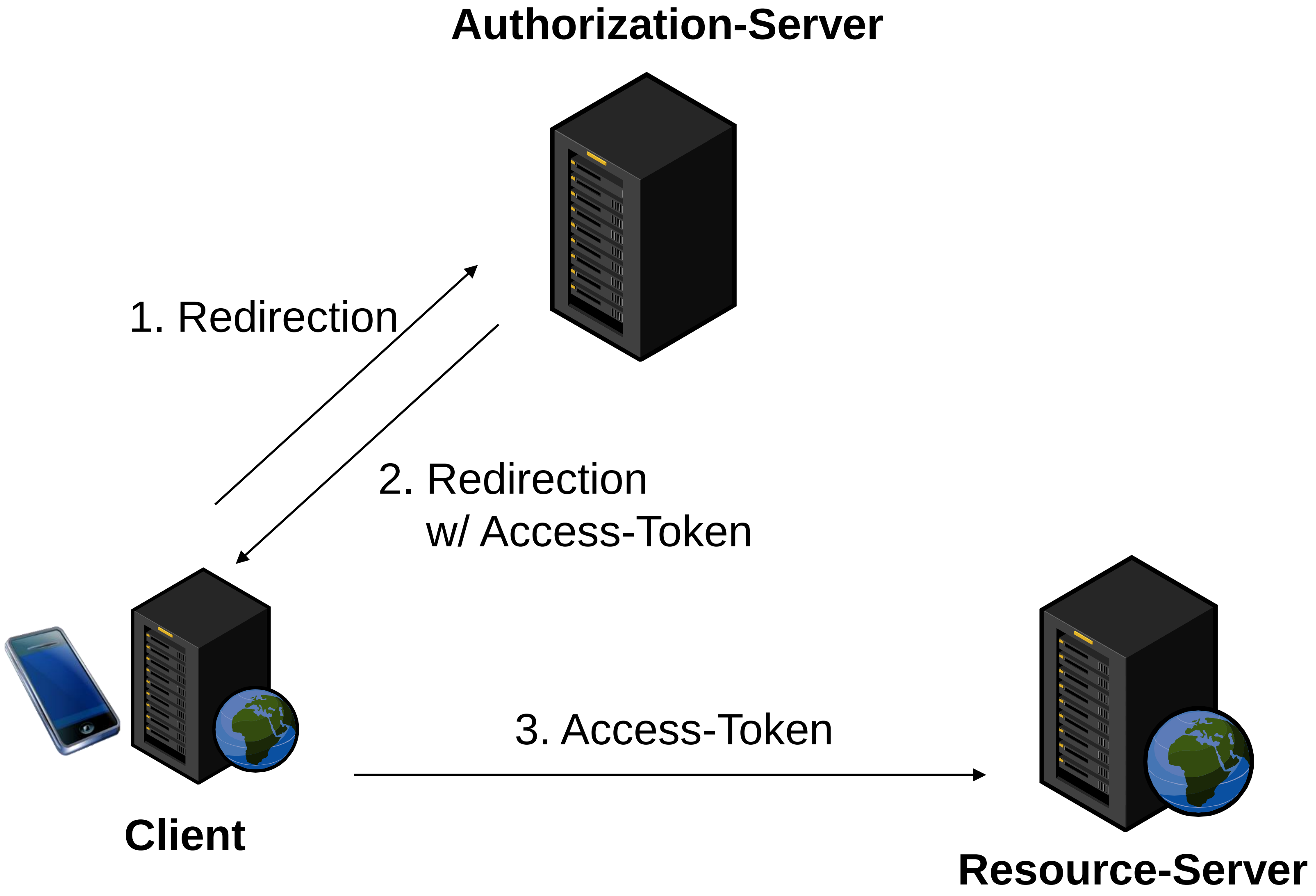
- Active Directory Federation Services
- Identity Server (.NET)
- Redhat Keycloak (Java)
- Okta
- Auth0
- Firebase
- Azure Active Directory
- ...

OAuth 2 and OpenId Connect

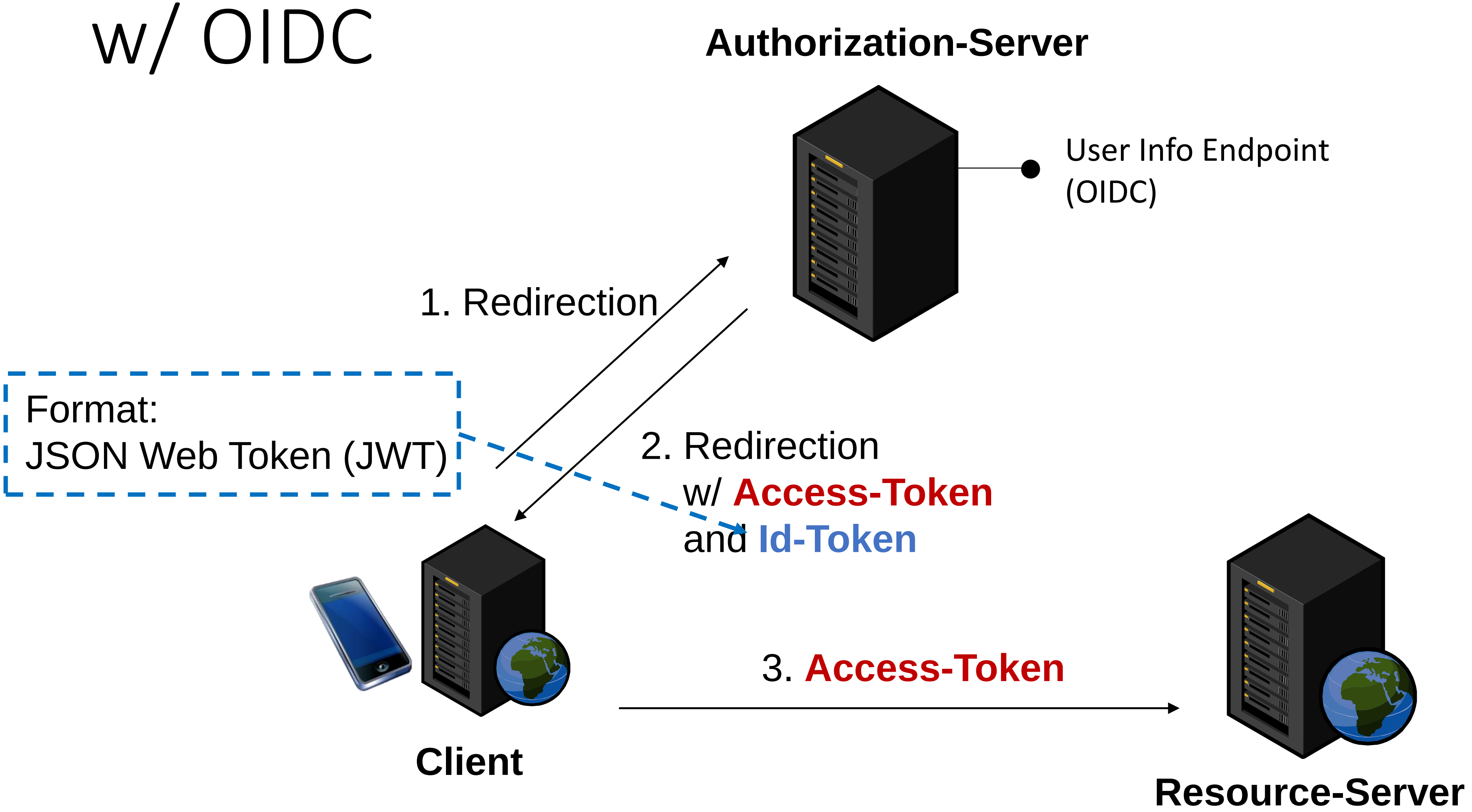
What is OAuth 2?

- Protocol to delegate restricted rights
- Used by Companies like Google, Facebook, Flickr, Microsoft, Salesforce.com or Yahoo!
- Several Flows for different use cases
- Leverages HTTPS!

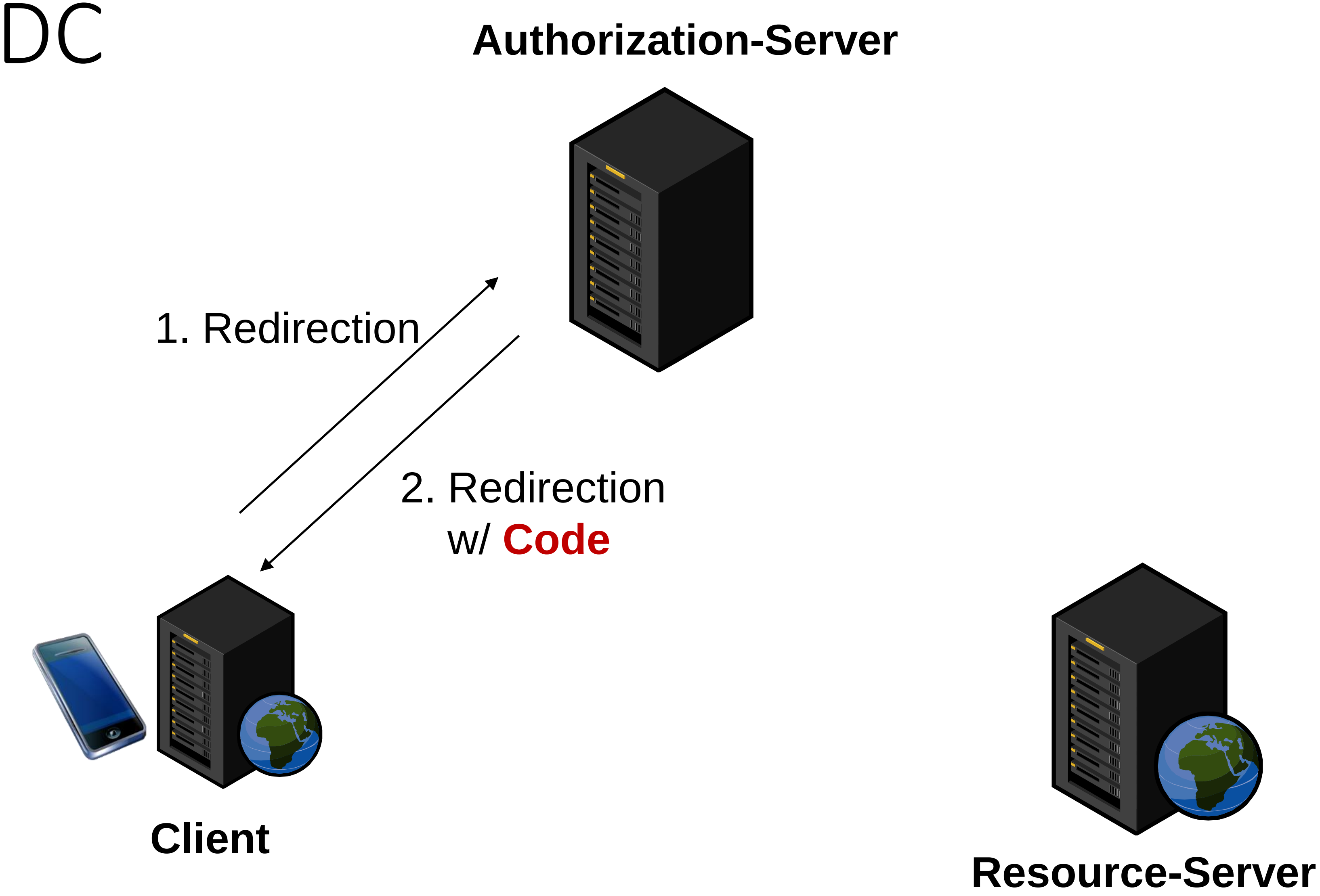
Implicit Flow for SPA



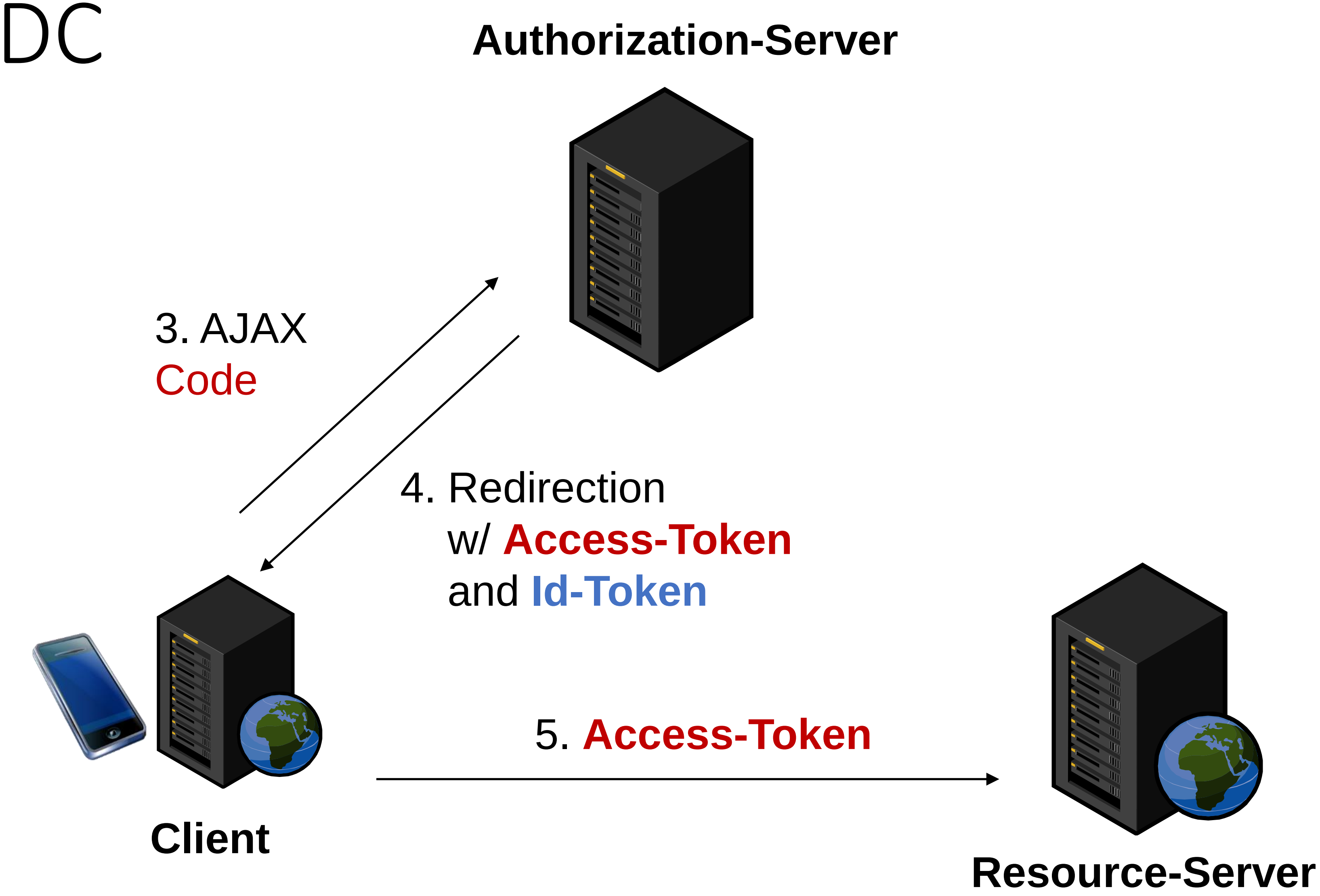
Implicit Flow w/ OIDC



Code Flow w/ OIDC



Code Flow w/ OIDC



Authorization-Server

3. AJAX
Code

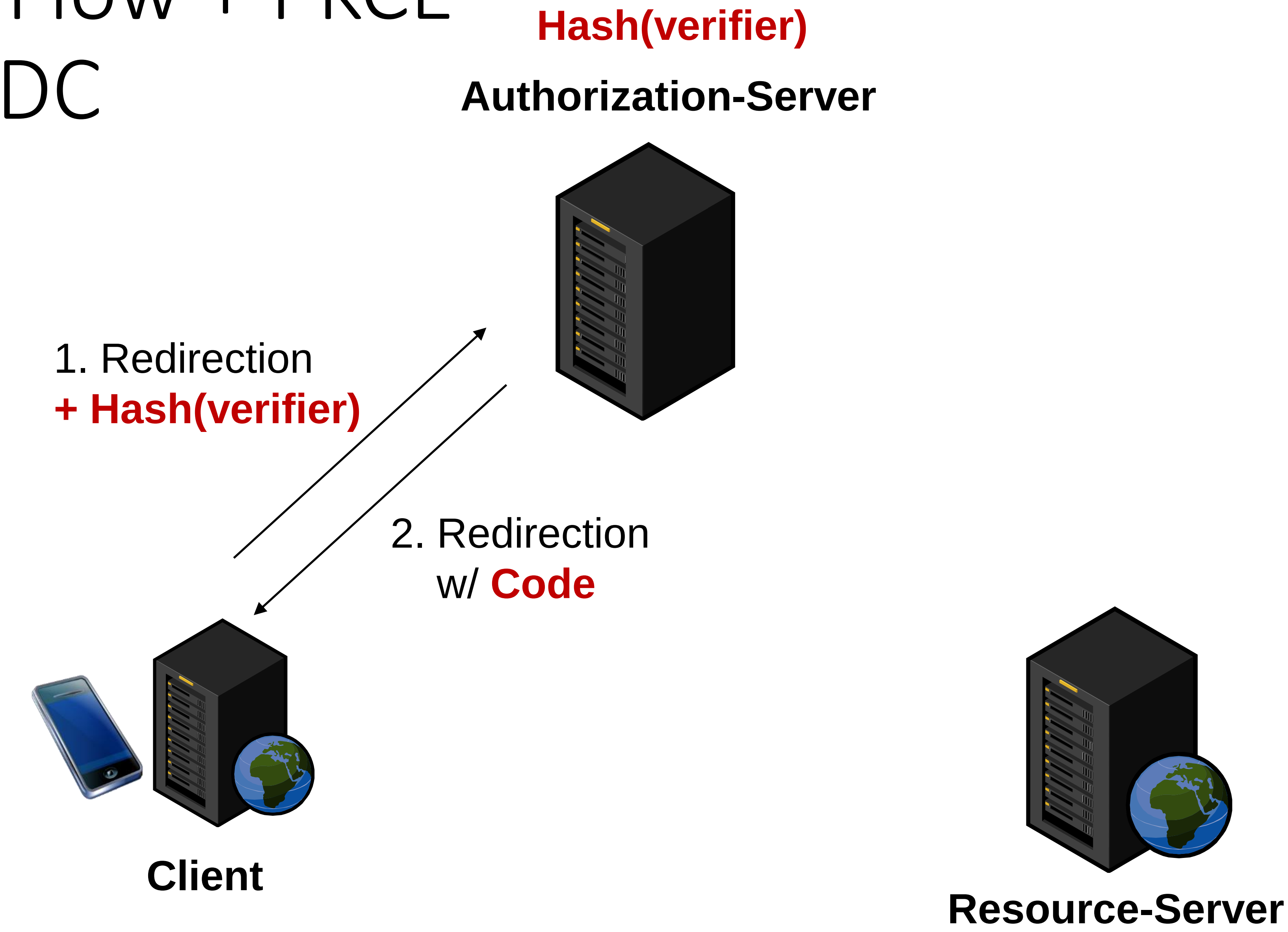
4. Redirection
w/ **Access-Token**
and **Id-Token**

5. **Access-Token**

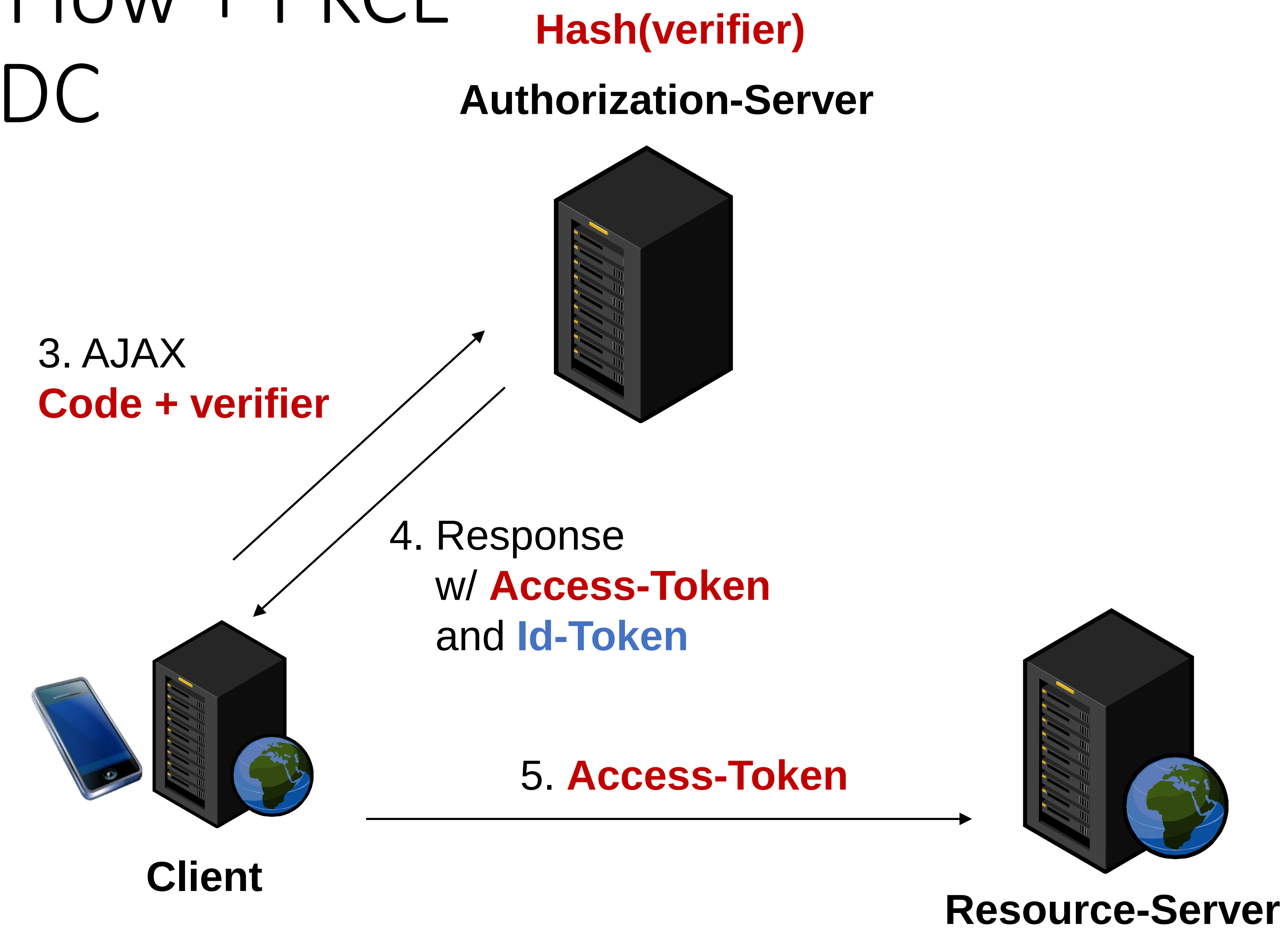
Client

Resource-Server

Code Flow + PKCE w/ OIDC



Code Flow + PKCE w/ OIDC



Hash(verifier)

Authorization-Server

3. AJAX
Code + verifier

4. Response
w/ **Access-Token**
and **Id-Token**

5. **Access-Token**

Client

Resource-Server

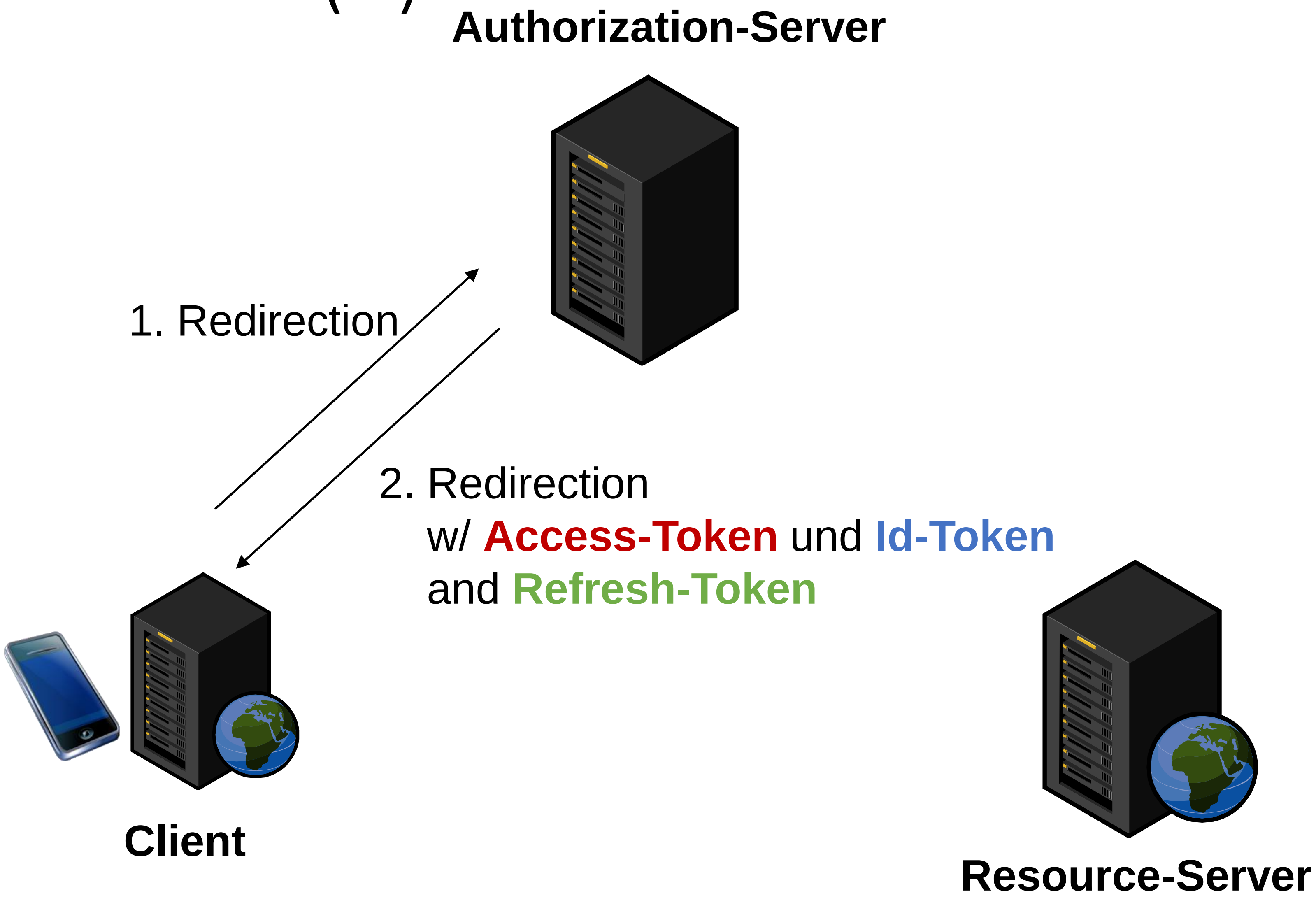
Token Refresh

Why Token Refresh?

Short living Tokens increase Security

Users don't want to login over and over again

Refresh Token (1)



Authorization-Server

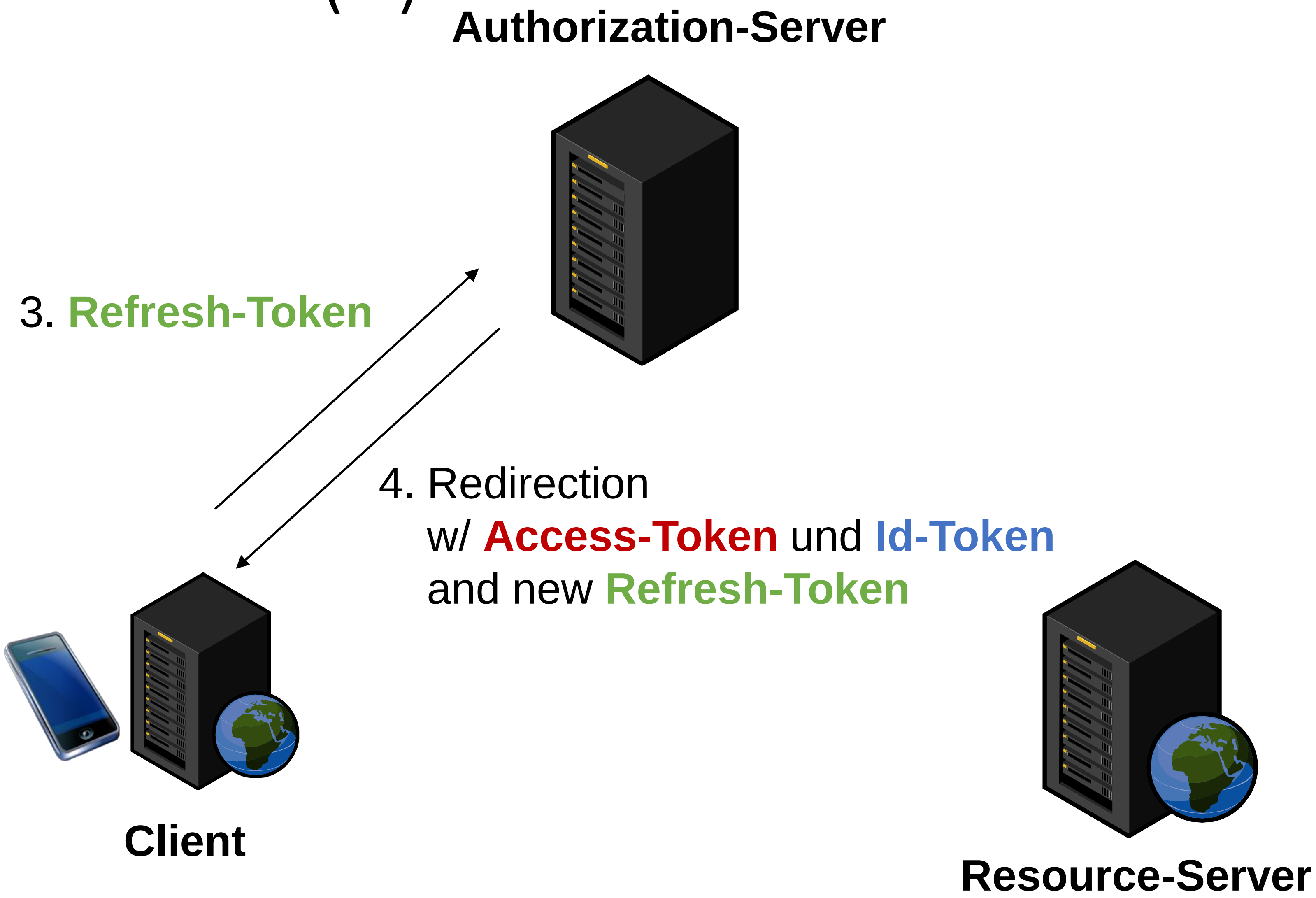
1. Redirection

2. Redirection
w/ **Access-Token** und **Id-Token**
and **Refresh-Token**

Client

Resource-Server

Refresh Token (2)



Authorization-Server

3. **Refresh-Token**

4. Redirection
w/ **Access-Token** und **Id-Token**
and new **Refresh-Token**

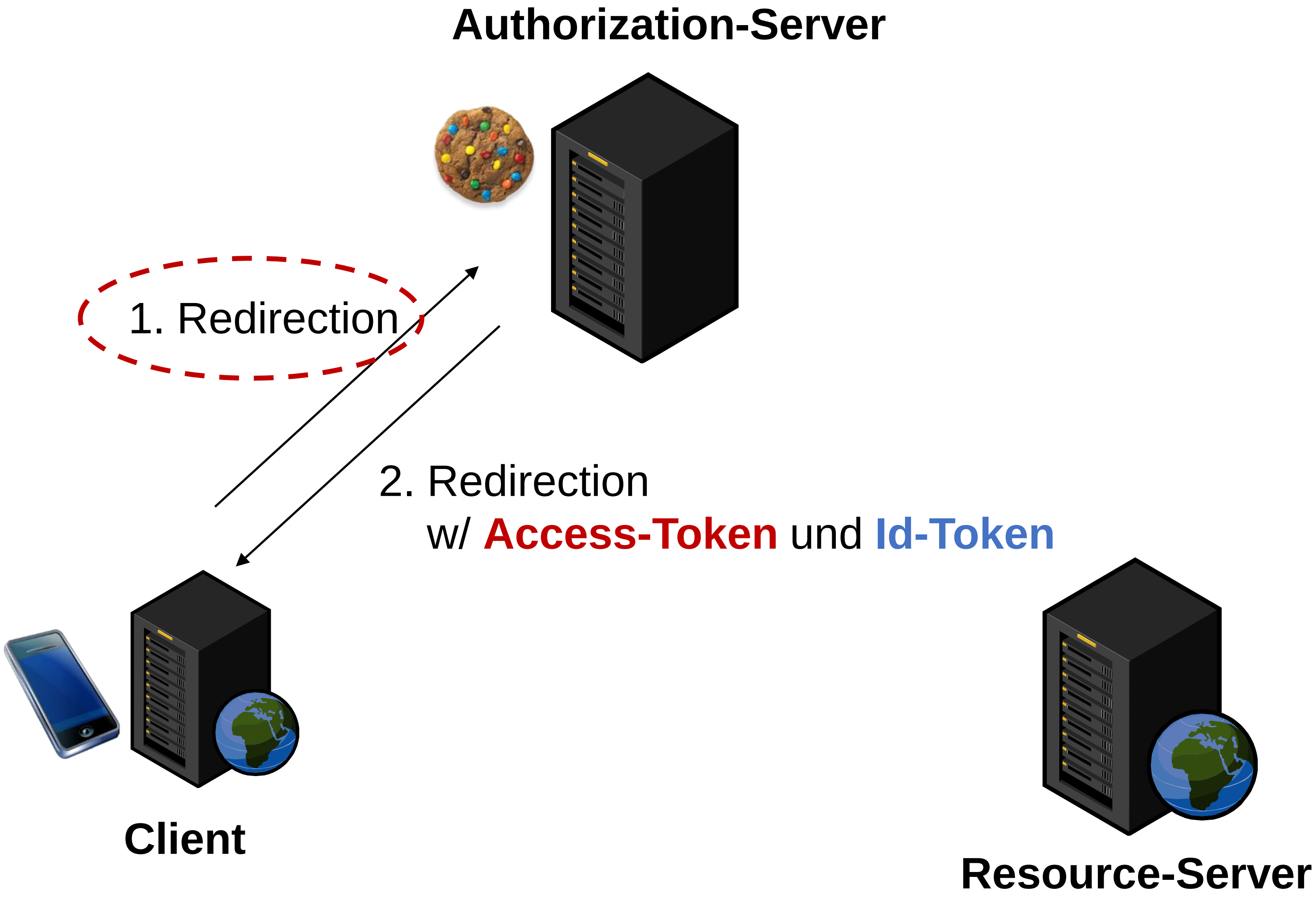
Client

Resource-Server

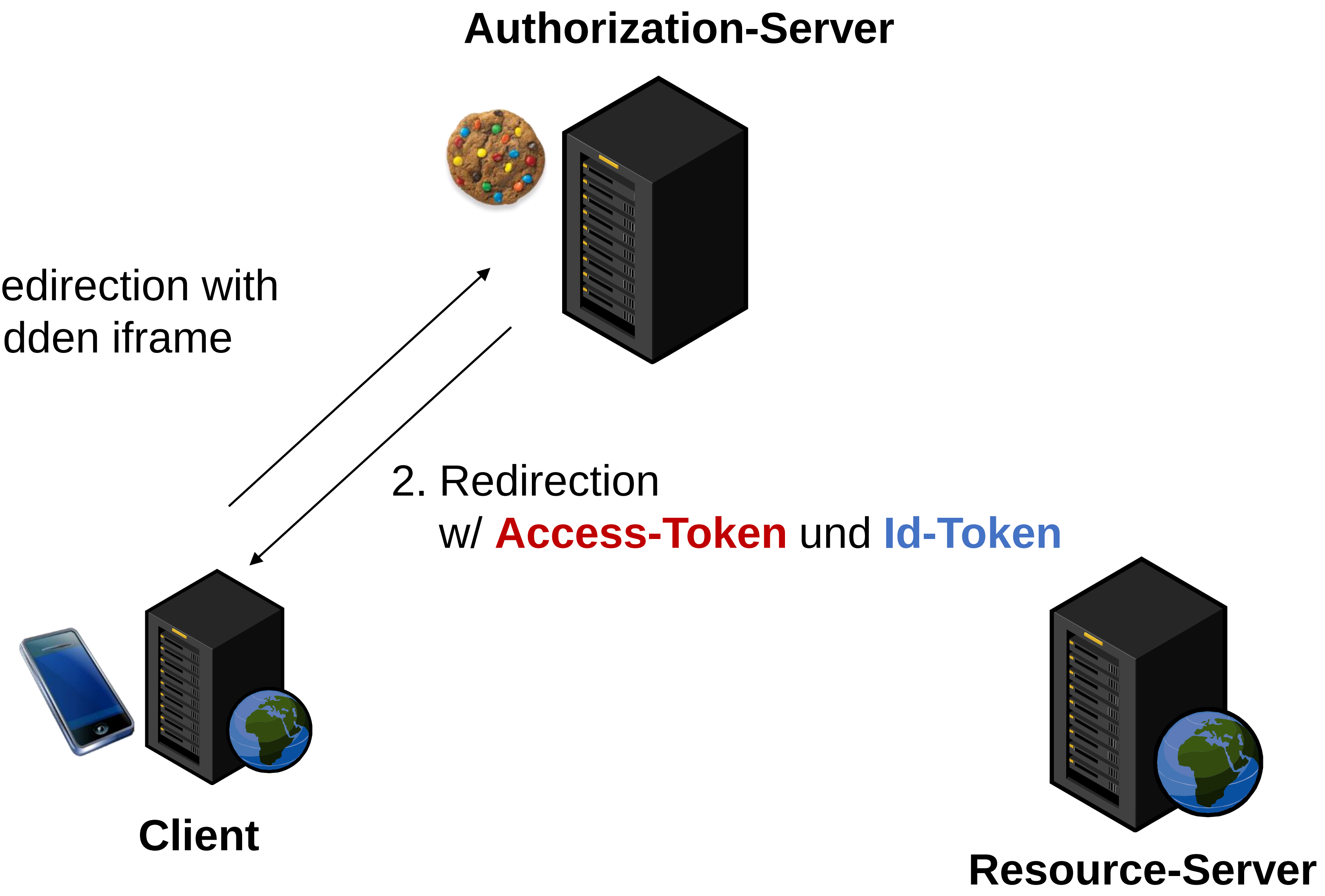
Refresh-Token and Browsers

- OAuth 2.0 Security Best Current Practice allows it under specific circumstances
- Security Audit (XSS!)
- Refresh Token needs to be one-time token
- After Refresh: Client gets new refresh token
- If used by several users: log out both

Alternative: Refresh w/ Cookie



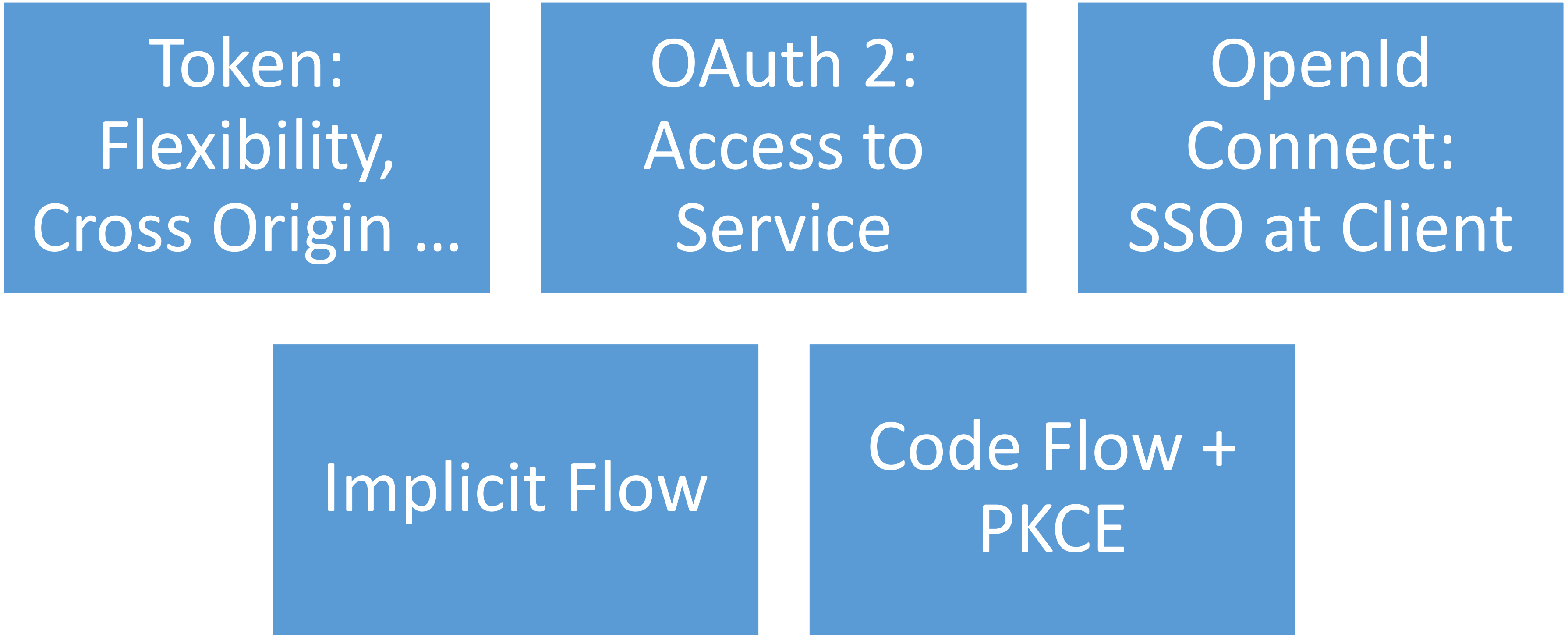
Alternative: Silent Refresh


Authorization-Server
1. Redirection with hidden iframe
2. Redirection w/ Access-Token und Id-Token
Client
Resource-Server

DEMO

LABS

Conclusion



Token: Flexibility, Cross Origin …

OAuth 2: Access to Service

OpenId Connect: SSO at Client

Implicit Flow

Code Flow + PKCE