Chain Extension Proposal

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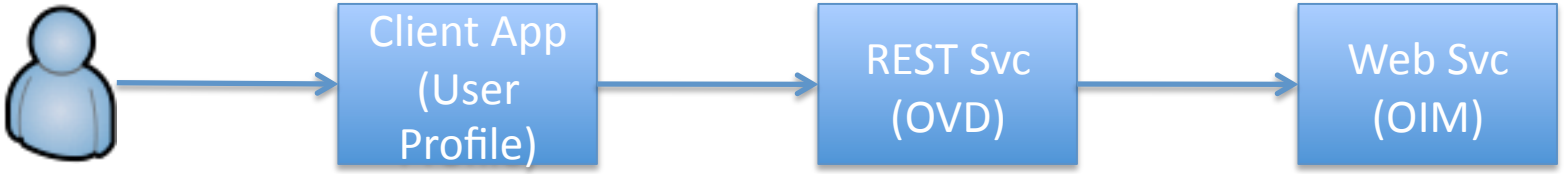
Introduction

- Some web service customers has raised the issue of passing both user credential(UC) and client app context (AC) in HTTP request/ responses
  - User --1--> Client --2-- REST ---3-> Service --4--> IAM/AAA infrastructure



Issues

- How to propagate user auth context though multiple service pairs and security domains?
- How to support HTTP level exchange of creds (as opposed to SOAP based)
- Performance – must keep lightweight
  - Support very high rate of app transactions
- Portability
  - Service providers may be in separate admin zones
  - May be multi-vendor

Chain Proposal

- Extend token endpoint to allow foreign access tokens to be exchanged for new ‘local’ tokens
- Depends on:
  - Ability of one domain token server to understand another’s access token.
    - Standard token format (e.g. some profile of JWT)
  - Pair-wise trust between domains

Terminology

- Glossary
  - Security Context – an abstract concept that refers to an established authentication state
  - Security Context Token – a representation of a security context
  - Signed Security Token – a signed security token (e.g. JWT)
  - CT – Type of signed security token representing client applications (may also be client credential)
  - UT – Type of signed security token representing users
  - AT – A type of extensible signed security token usually including at least one client security context and one user security context (aka access token)

Observations

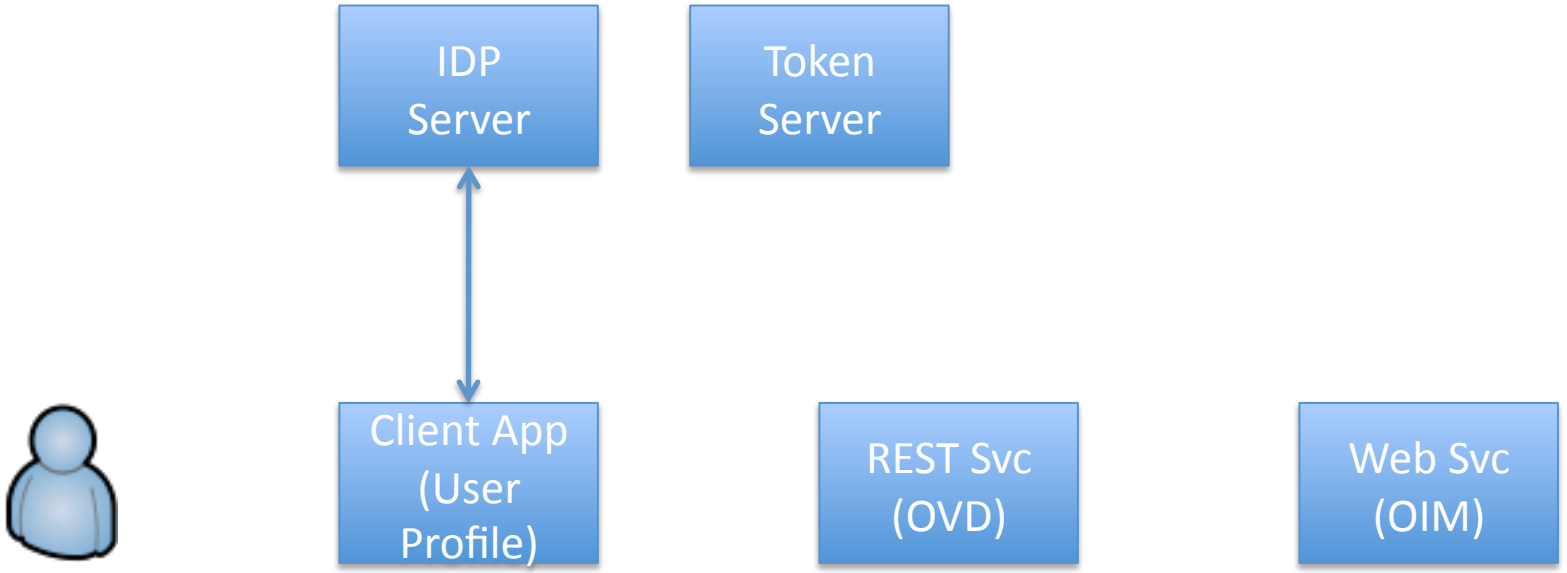
- Originating user
  - There is desire to track original user context
  - Originating client node has delegation from user
  - Subsequent nodes proceeding under own authority plus original/pair-wise authorization
- Pair-wise Trust
  - Each SP must trust previous SP node as Client
  - Signing authority
    - Client's authenticator/token service (fed model)
    - Client directly (via SP's authenticator service)

Proposed Chain Flow

Note: this flow uses a client credential based on SAML IDPs for clients and users. Normal client_id/ client_secret could also be used.

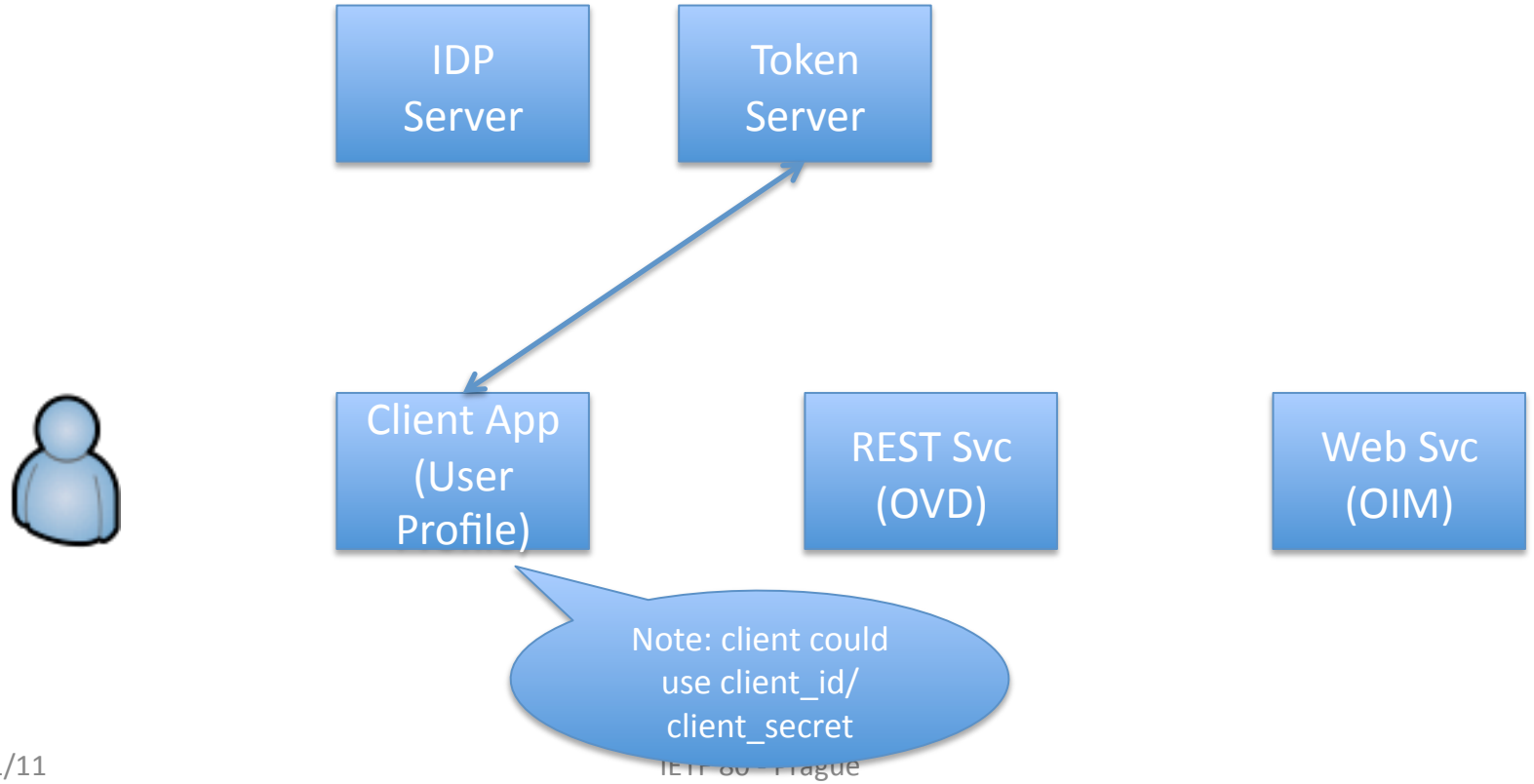
Client Obtains CT

- Client App Authenticates with IDP
  - SAML Authentication Assertion returned

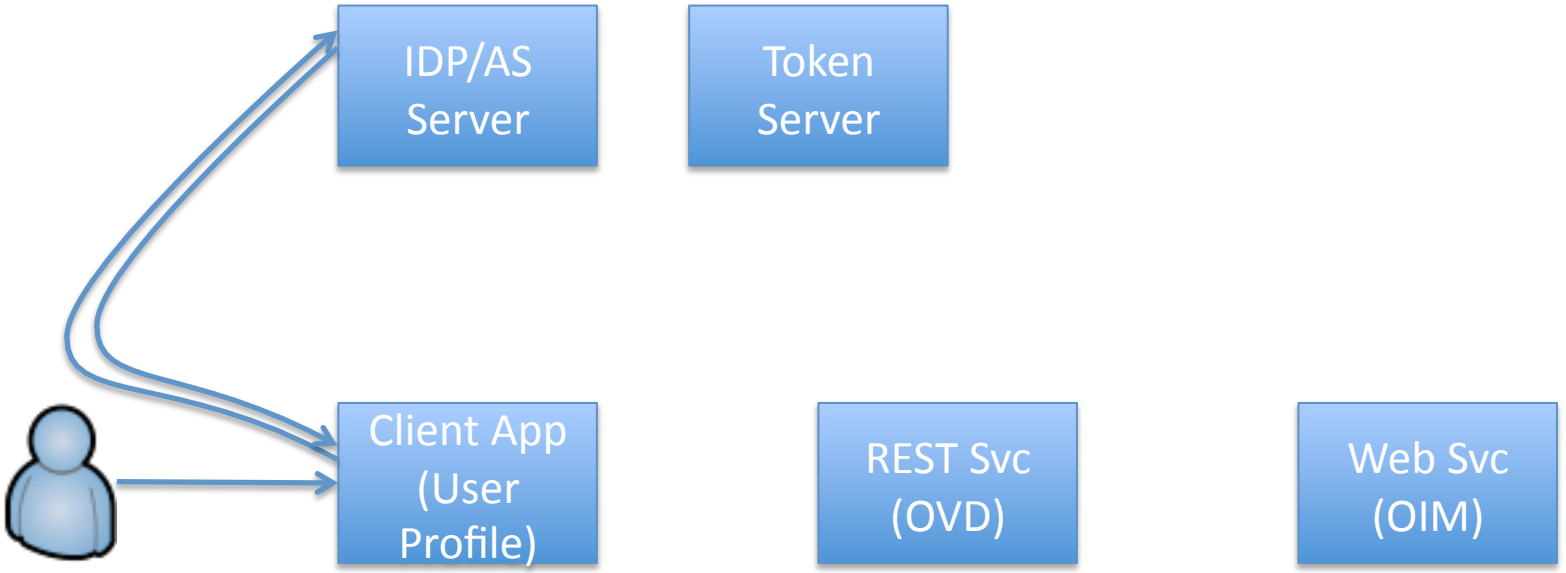


Client obtains its token

- SAML Assertion Exchanged for Token (C_1T)
  - One-time



- End-User Authenticated and AuthZ obtained
  - OAuth ‘grant code’ or SAML Bearer assertion (UA) returned



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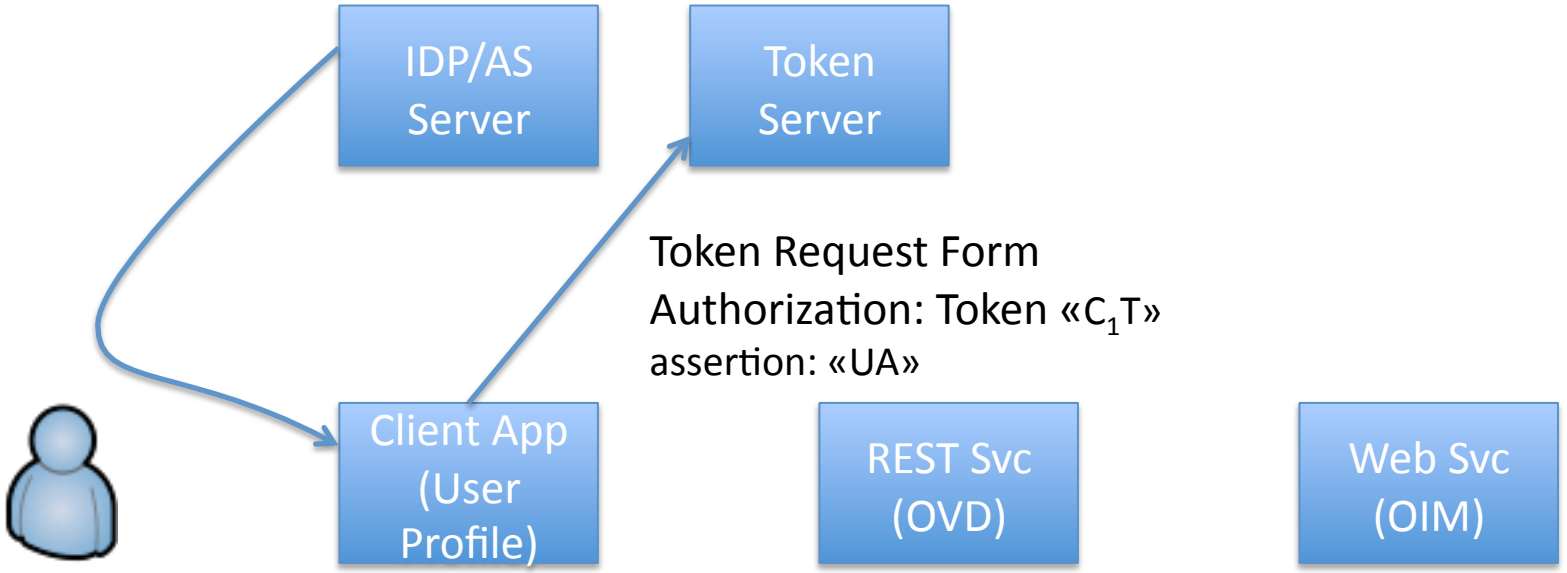
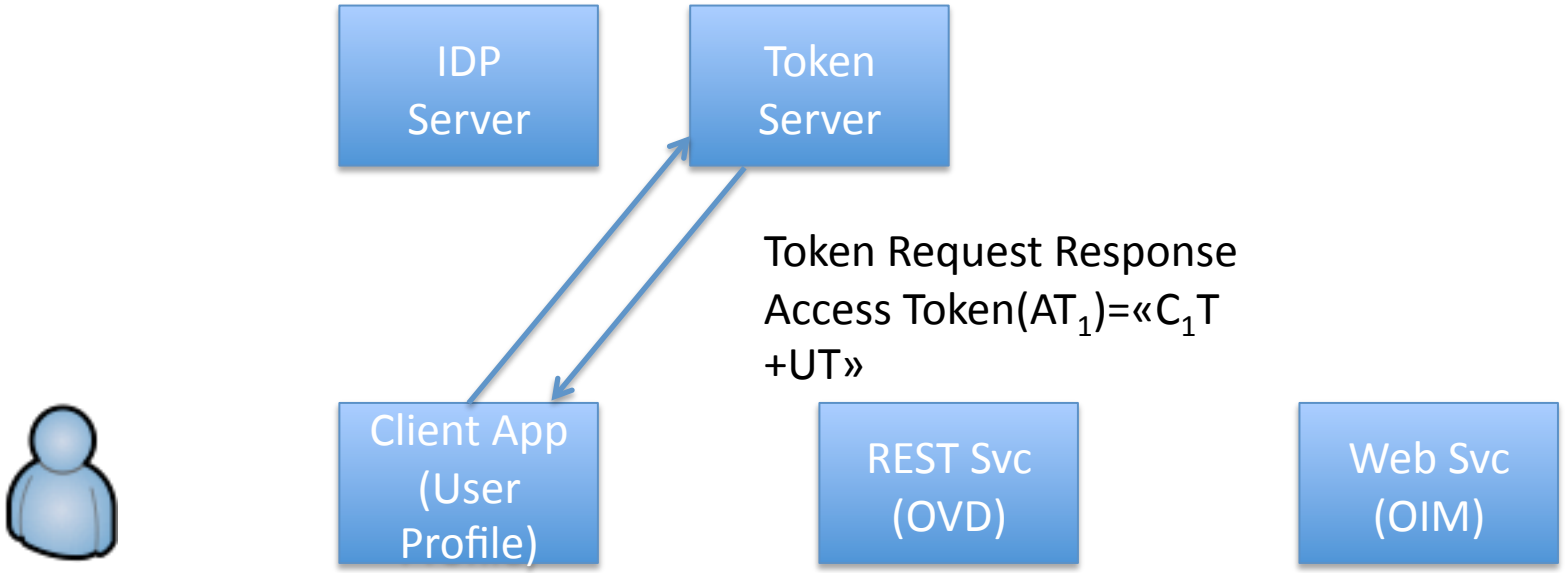


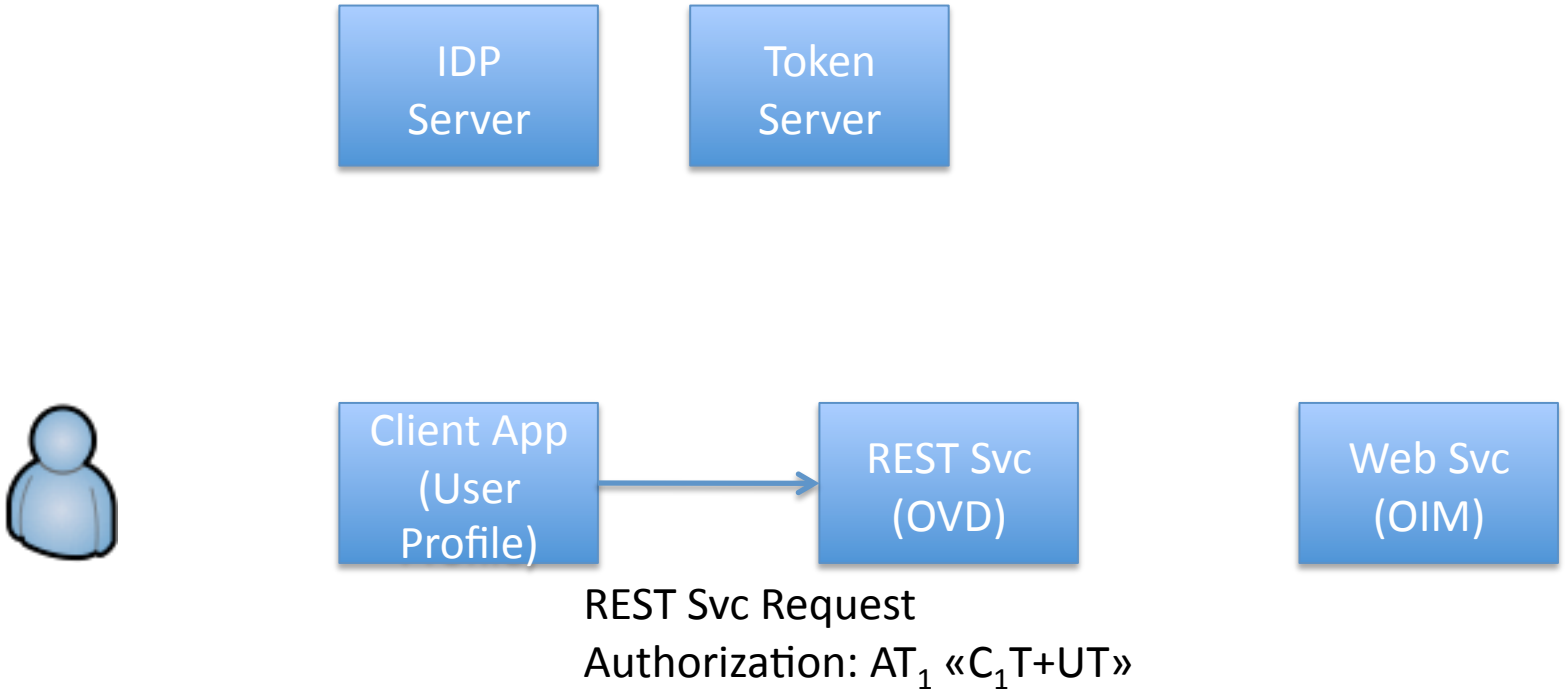
Access token combines contexts

- End-User Authenticated and AuthZ obtained
  - OAuth 'grant code' or SAML Bearer assertion (UA) returned



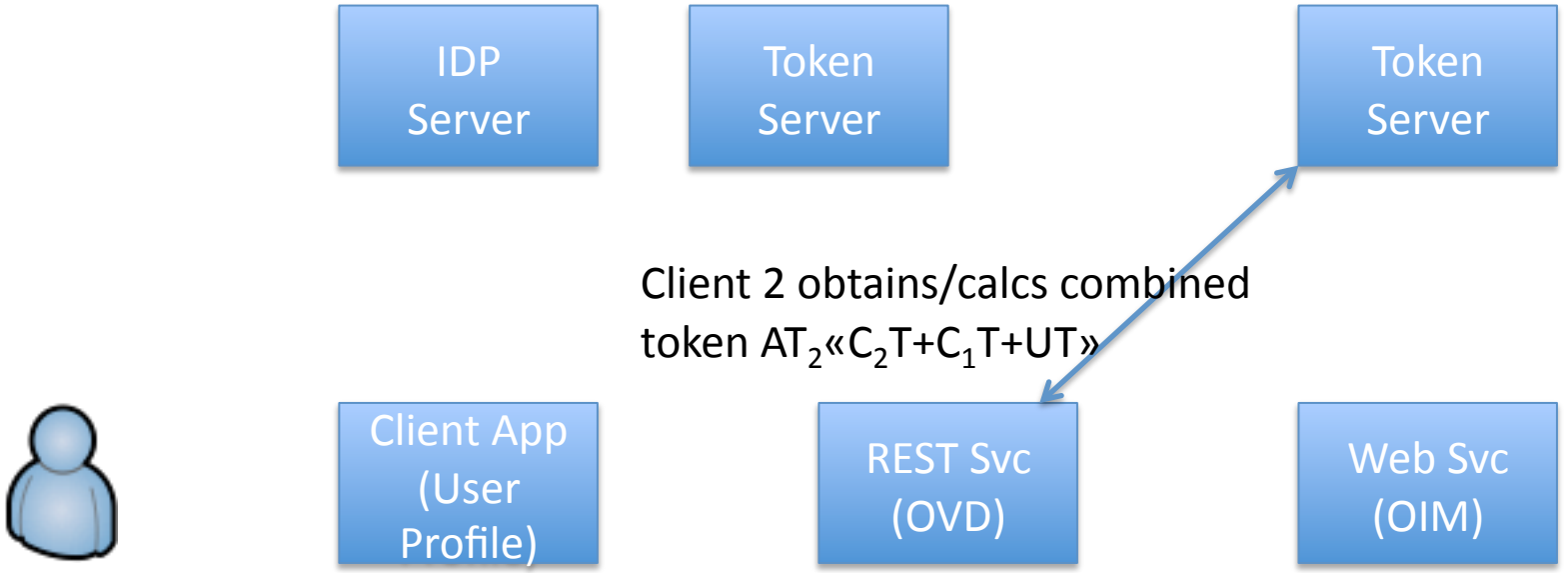
Normal OAuth Access Request

- End-User Authenticated and AuthZ obtained
  - OAuth 'grant code' or SAML Bearer assertion (UA) returned



Chained AT Request

- End-User Authenticated and AuthZ obtained
  - OAuth 'grant code' or SAML Bearer assertion (UA) returned



Chained Request

- End-User Authenticated and AuthZ obtained
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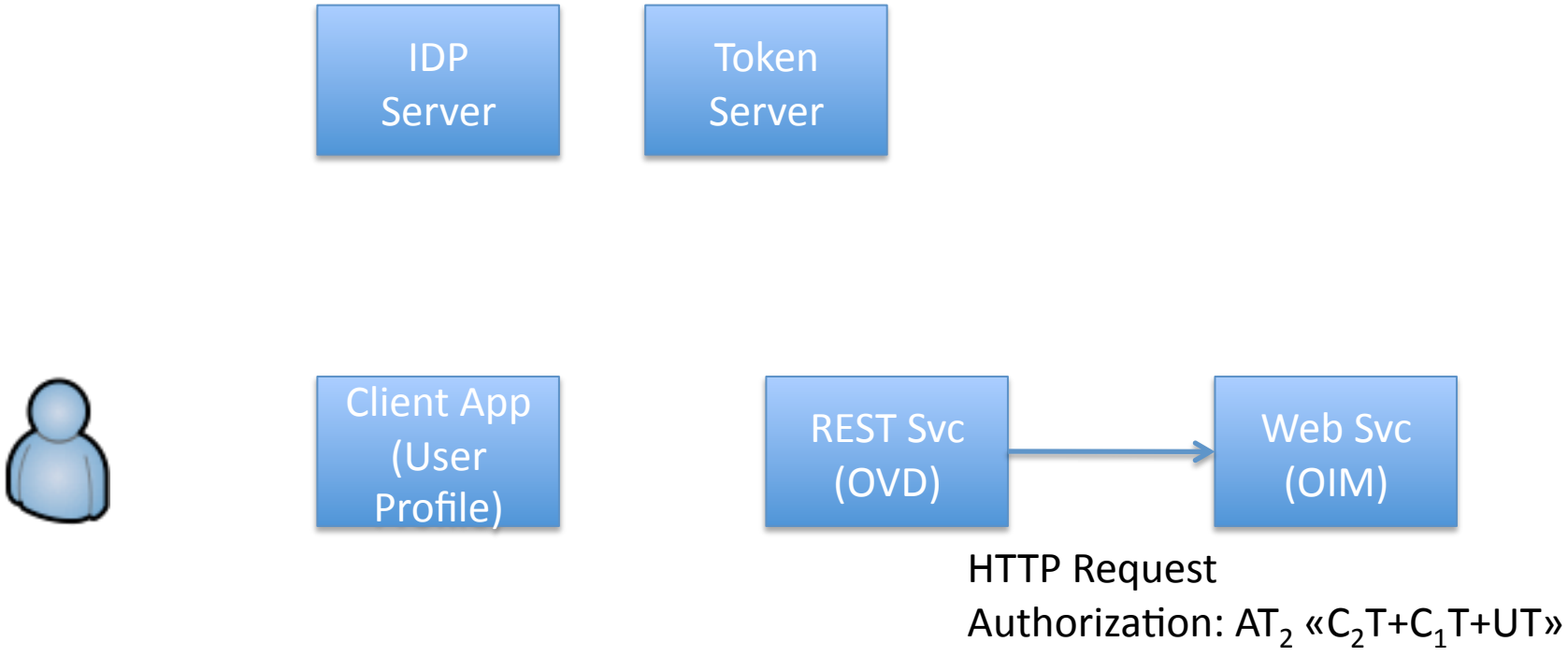

Comments

- Chaining may not be required if resources in common domain
- Does allow bridging between federated resources
- Expensive for single-operations
- Inexpensive when more then one request per client
- Does not replace functionality of WS-SecureConversation (e.g. message protection)
- Suitable for REST based, lightweight scenarios where performance is an issue.