OAuth2 Bound Configuration

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OAuth WG

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Introduction

- New Dynamic OAuth Cases Emerging
  - OIDC where clients discover and connect to OPs on-the-fly
  - Email – OAuth enabled email (Kitten/SASL ext)
  - Tenancy and Published Software Providers
    - What kind of automated configuration will they use?
- How do dynamic clients get correct OAuth & resource endpoints?
  - Dyn Reg, AuthZ, Token, Resource

Why is this a Problem?

- OAuth security depends upon establishing TLS to the correct endpoints
  - When RFC6749 published, most endpoints were fixed
- A hacker that can provide a client with a set of endpoints potentially insert a MITM proxy and TLS will be valid
  - Users don't see calls to Token and Resource endpoints – no-real person sees the location is suspicious

This is not Mix-Up

- This attacks clients that configure on-the-fly to talk to new servers if discovery is insecure
- It does not require multiple oAuth configs
- Attack occurs because client is convinced to talk to the wrong TLS protected endpoints

Discovery Challenges

- Wide variety of use cases – probably impractical to define resource discovery
- A resource server MAY have more than one authorization server
  - Tenancies & Other Federated Scenarios
  - UMA user delegated authz services
- The resource server can often indicate the AS, but not always
- The AS may not know about all of the resources it protects
  - Differences between "aud" and real resource endpoints
  - Often unwilling or unable to reveal list of valid endpoints

Issues With OAuth-discovery

- Draft returns configuration (Dyn Reg, AS, Token) for OAuth endpoints only
  - OIDC includes the UserInfo endpoint!
- The same MITM attack against token endpoint can be done against resource endpoint
    - Only half the problem solved!
- Only one OAuth server can be returned per ./well-known endpoint
  - Limitations in some cloud / tenancies scenarios

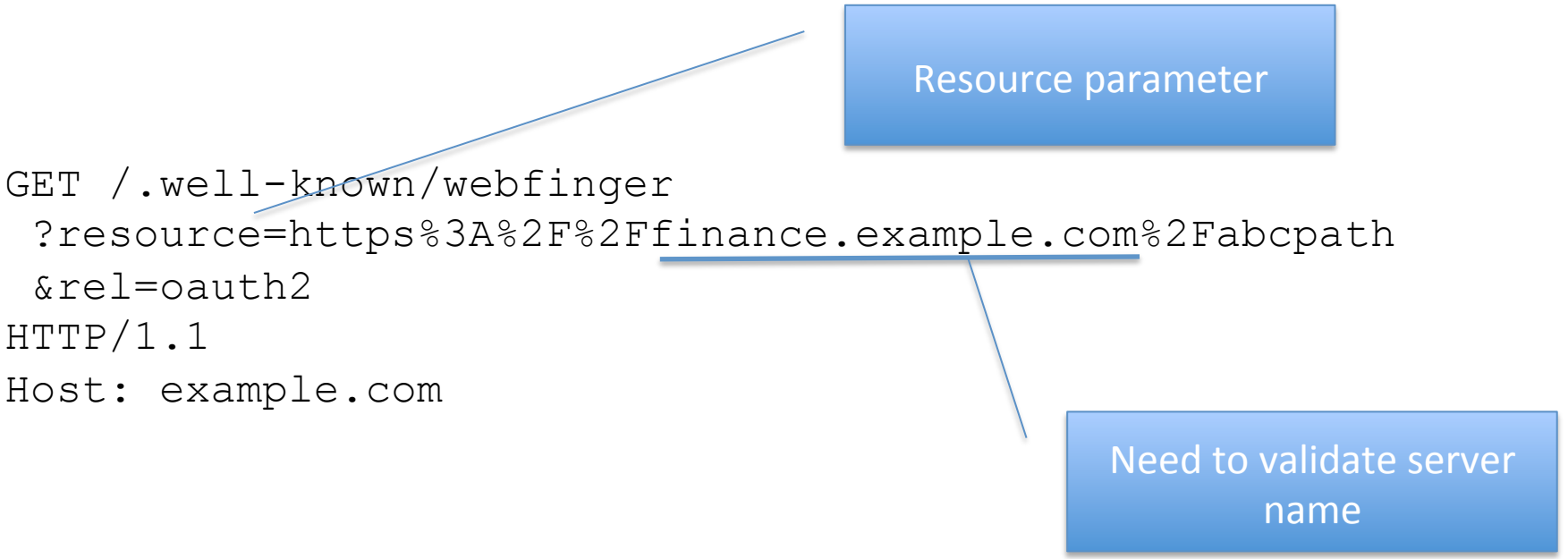
Bound Config

- Introduces a "confirm" function to the discovery request
  - Does the client have a valid resource server?
- Discovery service returns config based on the requested resource
  - Can route client to a specific assigned OAuth svc
- Different AS configs can be returned based on parameter
- Can be simple with just URL pattern filter (*.rs.example.com)!
- Can be very granular
  - based on security context or full RS urls

Bound Config & Resource Indicator

- Resource Indicator draft related but complementary/different
  - Resource indicator very good for handling cross-user or shared resource scope requests
  - Bound config simply confirms the server validity
- Bound Config is one time based on course URL matching (the root server)
- Good to ensure alignment and consistency

Example Request



- Resource parameter mainly needs the domain name or a pattern match for the server for security.
- Full path is useful if different OAuth servers are being selected based on path.

Example Response


```
{
    "subject": "https://finance.example.com",
    "links":
     [
      {
       "rel": "oauth2",
       "href": "https://server.example.com",
       "properties":
       {
         "issuer":
           "https://server.example.com",
         "authorization_endpoint":
           "https://server.example.com/oauth/authorize",
         "token_endpoint":
           "https://server.example.com/oauth/token",
         "token_endpoint_auth_methods_supported":
           ["client_secret_basic", "private_key_jwt"],
         "token_endpoint_auth_signing_alg_values_supported":
           ["RS256", "ES256"],
         "userinfo_endpoint":
           "https://server.example.com/oauth/userinfo",
         "jwks_uri":
           "https://server.example.com/jwks.json",
         "registration_endpoint":
           "https://server.example.com/oauth/register",
         "scopes_supported":
           ["openid", "profile", "email", "address",
            "phone", "offline_access"],
         "response_types_supported":
           ["code", "code token"],
         "service_documentation":
           "http://server.example.com/oauth/service_documentation.html",
         "ui_locales_supported":
           ["en-US", "en-GB", "en-CA", "fr-FR", "fr-CA"]
 }}]}
```


Same response as OAuth-Discovery

Error Response

- Use normal WebFinger signalling
- A failure to match resource returns nothing
- Hard Failure - The client developer can't proceed without passing a valid resource
  - Service provider can verify client's intent.

Is it Implemented?

- Web Finger is well implemented
- OIDC Discovery puts RS in Config
  - UserInfo is part of discovery
  - Technique won't work if many 1000s of RSs
- Proposal is to replace oauth-discovery draft
  - hold as part of an overall set of specifications targeted towards dynamic OAuth scenarios
    - Resource Indicator, Mix-up, ….
  - Get implementation started now.