The Emerging JSON-Based Identity Protocol Suite

Michael B. Jones
Microsoft
May 24, 2011

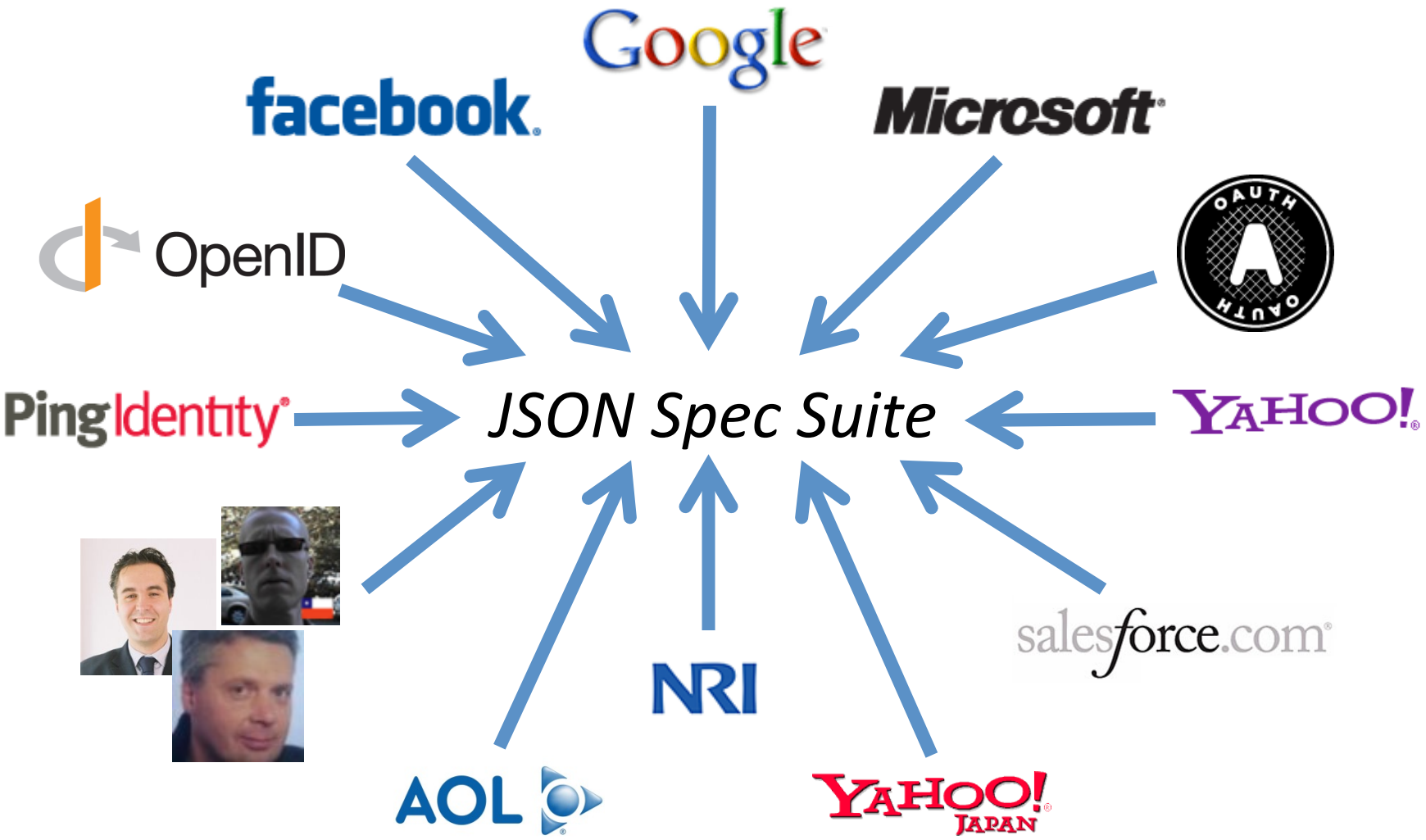
Background

- Identity interop requires agreement on data representations and protocols
  - Numerous existing standards
    - Kerberos, X.509, SAML, WS-*, OpenID 2.0, etc.
  - Using a variety of data representations
    - ASN.1, XML, custom binary formats
  - None ubiquitously adopted

Emerging JSON-Based Protocol Suite

- A new suite of identity specifications emerging
  - Using JSON data representations
  - Using REST design pattern
  - Reusing lessons learned from previous efforts
- Advantage
  - JSON ubiquitously supported in browsers and modern web development tools
    - *Can use tools developers have lying around the house*
  - Chance for much greater reach than past efforts
    - *Increasing scope of identity interop*

Broad Community Effort



JSON Web Token, Signature, Encryption, and Key Specifications

- JSON Web Token (JWT)
  - JSON representation of signed and optionally encrypted claims
- JSON Web Signature (JWS)
  - JSON-based signing representation
- JSON Web Encryption (JWE)
  - JSON-based encryption representation
- JSON Web Key (JWK)
  - JSON representation of set of public keys

Simple Web Discovery (SWD)

- Simple Web Discovery (SWD)
  - Discover location of a service for a principal
  - With just an HTTPS GET
  - Using simple JSON representation

OAuth 2.0 Specifications (Using JSON)

- OAuth 2.0 Core
  - Third party authorization protocol
- OAuth 2.0 Bearer Tokens
  - Using bearer tokens to access protected resources
- JWT Bearer Profile for OAuth 2.0
  - Using a JWT to request an access token

OpenID Connect*

- Enables simple site registration functionality
  - Like Facebook Connect with open set of providers
- Supports claims aggregation
- Works well on mobile phones
- Usable across range of security profiles
- Modular design
  - Build only the parts you need
- Underpinnings:
  - OAuth 2.0, JWT, JWS, JWE, and SWD

**Until recently, called "OpenID Artifact Binding/Connect" or "OpenID ABC"*

Resources

- IETF OAuth mailing list
  - https://www.ietf.org/mailman/listinfo/oauth
- IETF Web Object Encryption and Signing (woes) mailing list
  - https://www.ietf.org/mailman/listinfo/woes
- OpenID Artifact Binding mailing list
  - http://lists.openid.net/mailman/listinfo/openid-specs-ab
- My blog
  - http://self-issued.info/