Enterprise Identity Management for SaaS Applications

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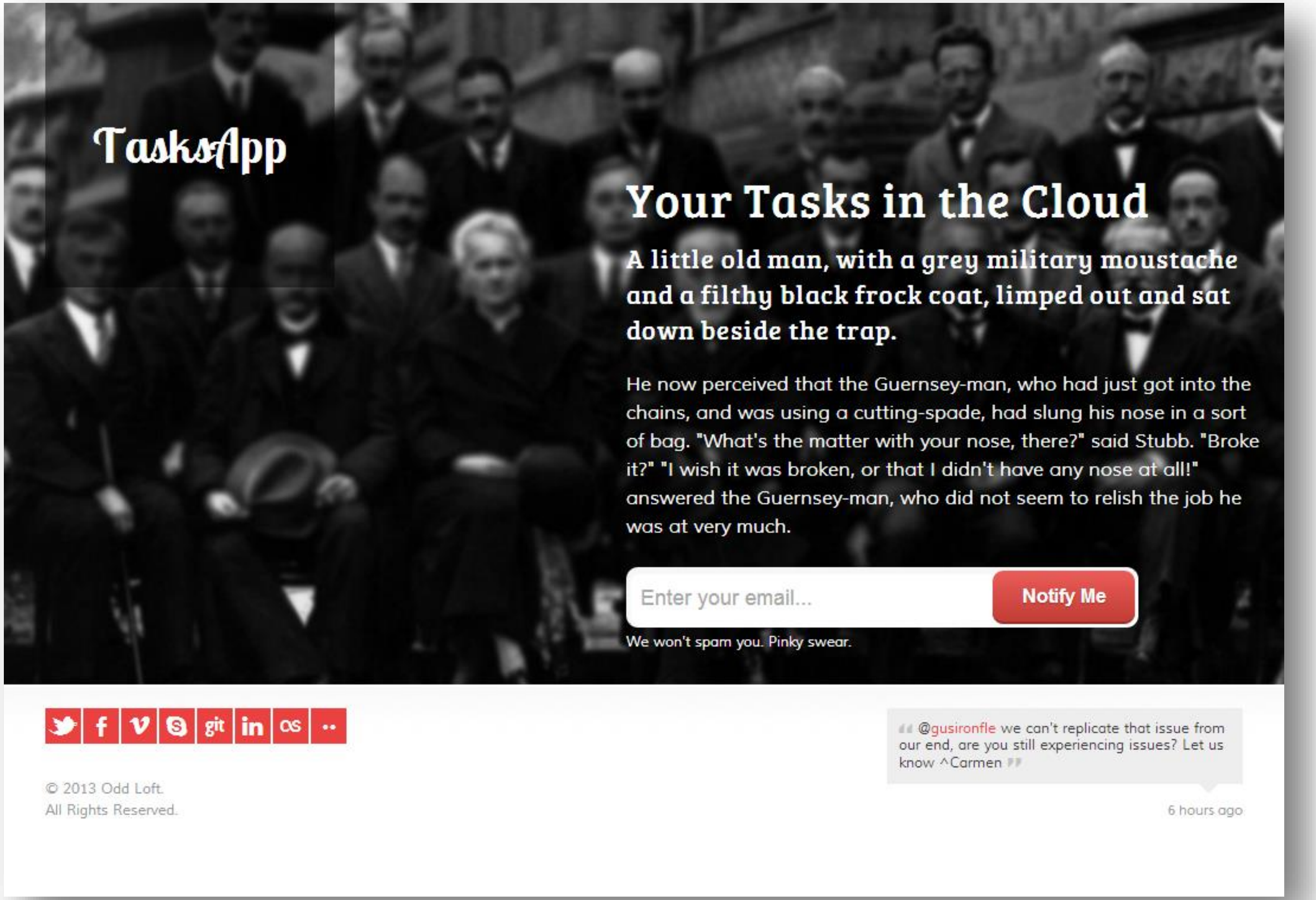
in this session…

- Understand how to play nice with corporate IT when you are ready to move beyond shadow IT
- Techniques to integrate with existing corporate identity systems
- How to move beyond federated identity to take advantage of the enterprise social graph

you’ve launched your app



TasksApp

Your Tasks in the Cloud

A little old man, with a grey military moustache and a filthy black frock coat, limped out and sat down beside the trap.

He now perceived that the Guernsey-man, who had just got into the chains, and was using a cutting-spade, had slung his nose in a sort of bag. "What's the matter with your nose, there?" said Stubb. "Broke it?" "I wish it was broken, or that I didn't have any nose at all!" answered the Guernsey-man, who did not seem to relish the job he was at very much.

We won't spam you. Pinky swear.

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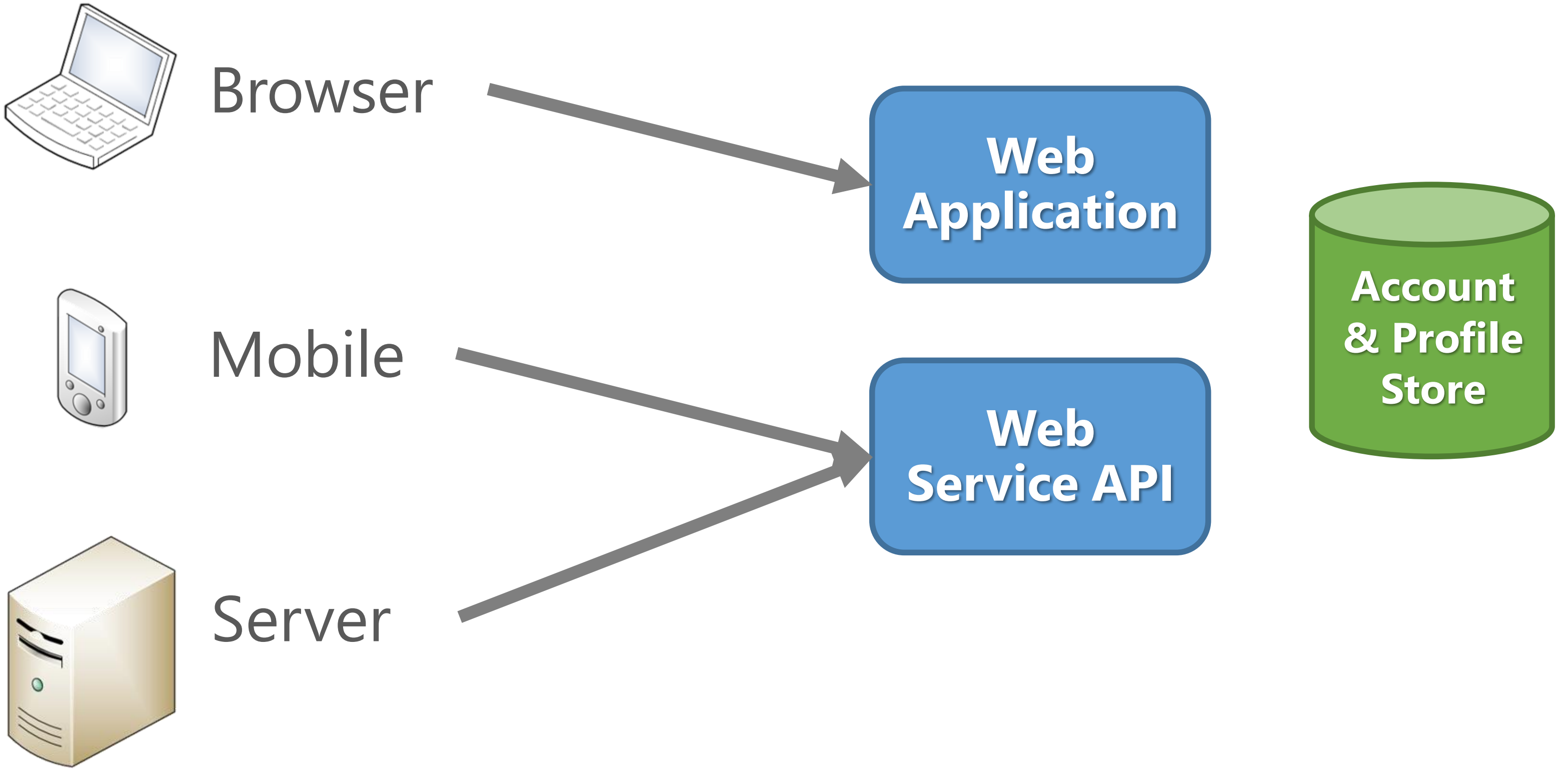
“ @gusironfle we can't replicate that issue from our end, are you still experiencing issues? Let us know ^Carmen ”

6 hours ago

it probably looks like this



you used the common identity providers

- Local Identity
  - Username and Password
- Social Identity
  - Facebook
  - Google
  - Microsoft
  - Twitter

now go big (corporate) by offering…

Availability

- Professional Data Centers
- Load Balancing
- Multiple Region Hosting
- Data Backup and Recovery
- Service Dashboards

Customization

- Look and Feel
- Workflow
- Business Rules

Integration

- APIs
- Data Extracts
- Data Import

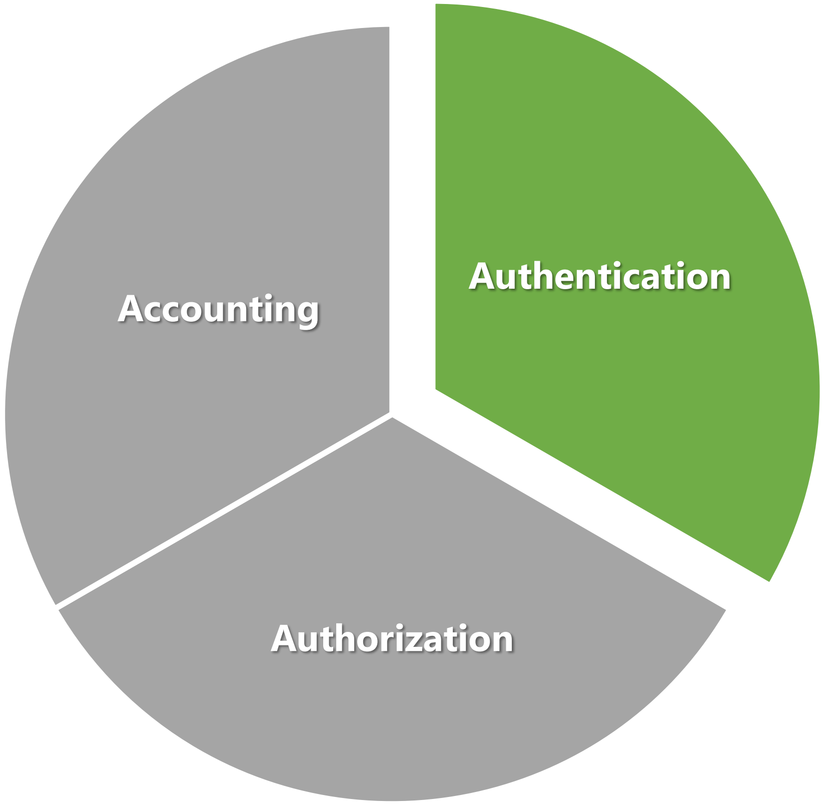
Performance

- Service Level Agreements
- Maintenance Notification Process
- Transactional Performance Metrics

Security

- Third Party Certifications
- Application and Network Penetration Testing
- Data Privacy
- Access Controls

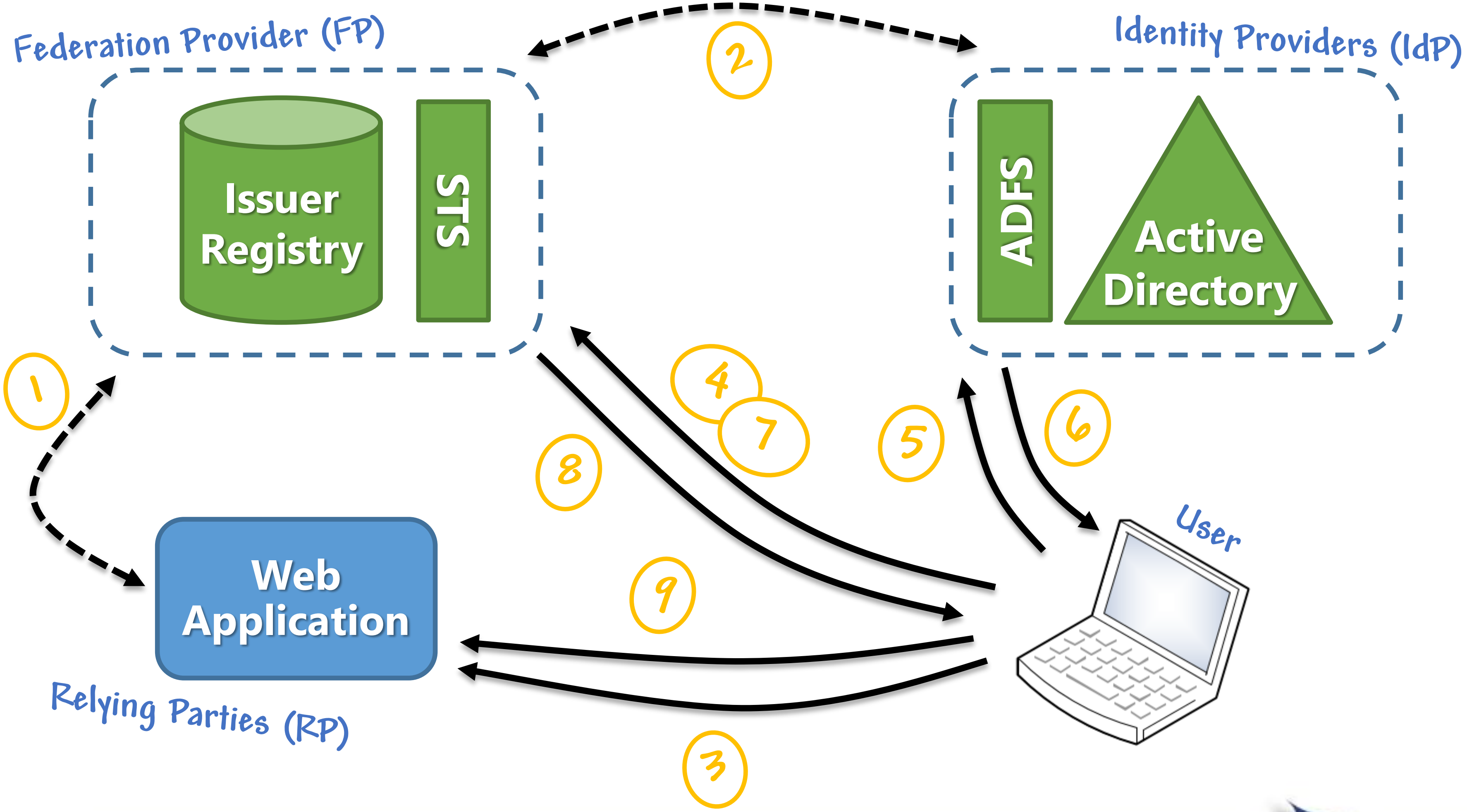
digging into enterprise class access control



corporate IT wants to know…

- What type of identity management solution is provided?
- Is Single Sign-On (SSO) provided, if so what types of SSO options are available (SAML, WS-Trust, OAuth)?
- Can your app be integrated with an existing Identity Management system?
- What type of user store is available and can it be integrated with Active Directory?
- What type of user security, authentication and authorization options are available?

…if you offer federated identity



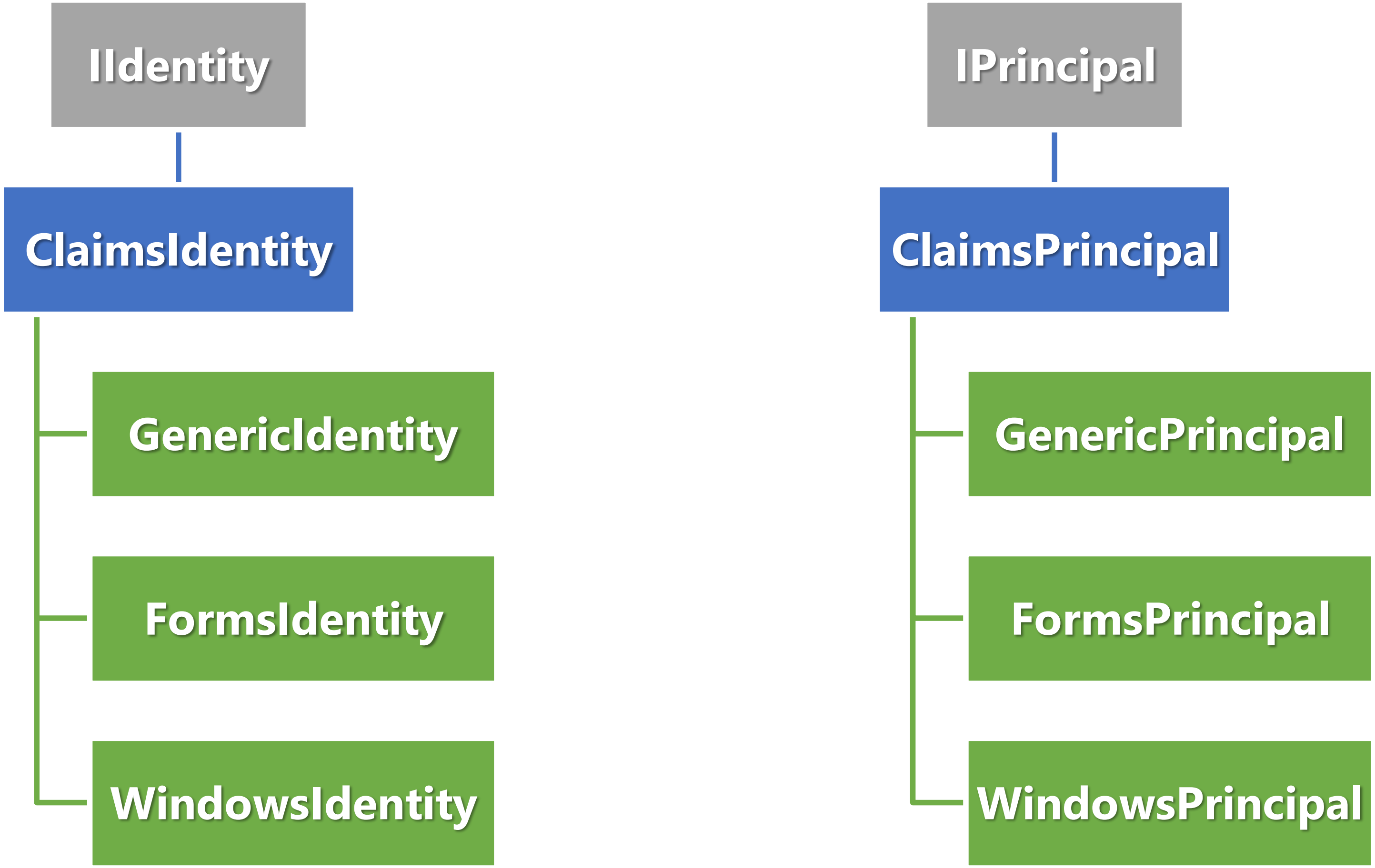
first step is to think in claims

- Claims are things that others say about you:
  - ✓ My name is Colin
  - ✓ My email is colin@bowern.com
  - ✓ I live in Canada
  - ✓ My manager is Gisele

- Claim are made up of:
  1. Issuer
  2. Type
  3. Value

- Claim validity depends on whether you trust the issuer

.net 4.5 bakes claims into the core



IIdentity

ClaimsIdentity

GenericIdentity

FormsIdentity

WindowsIdentity

IPrincipal

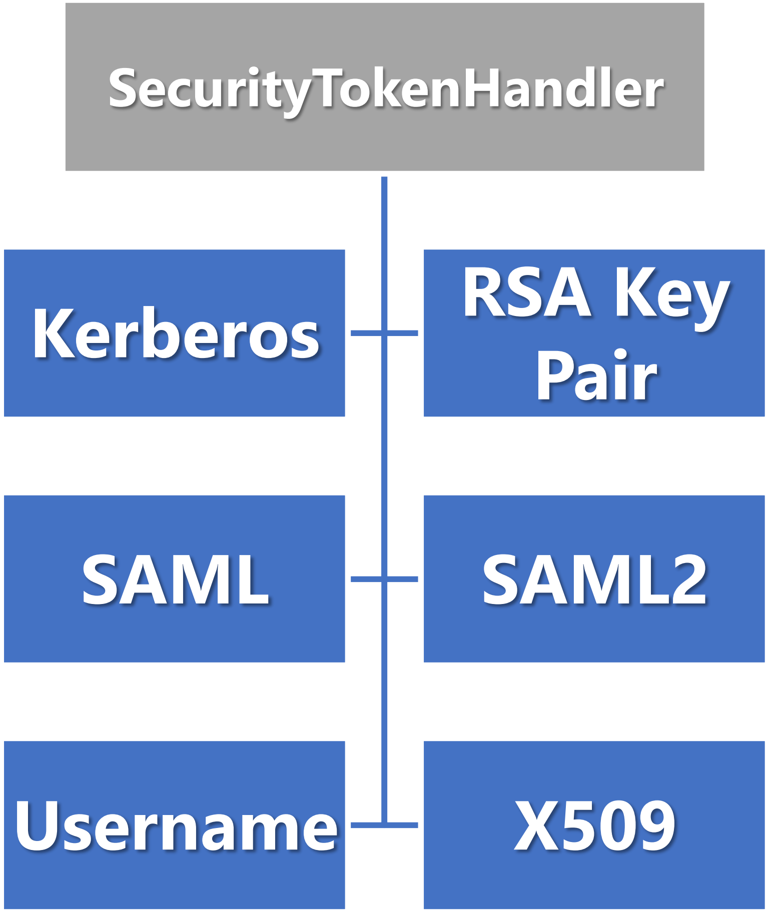
ClaimsPrincipal

GenericPrincipal

FormsPrincipal

WindowsPrincipal

claims are passed around in a token



SecurityTokenHandler

Kerberos

RSA Key Pair

SAML

SAML2

Username

X509

New to the party:
JSON Web Token
Simple Web Token

tokens are issued by identity providers

Your Own

- Windows Identity Foundation
- Identity Server
- …

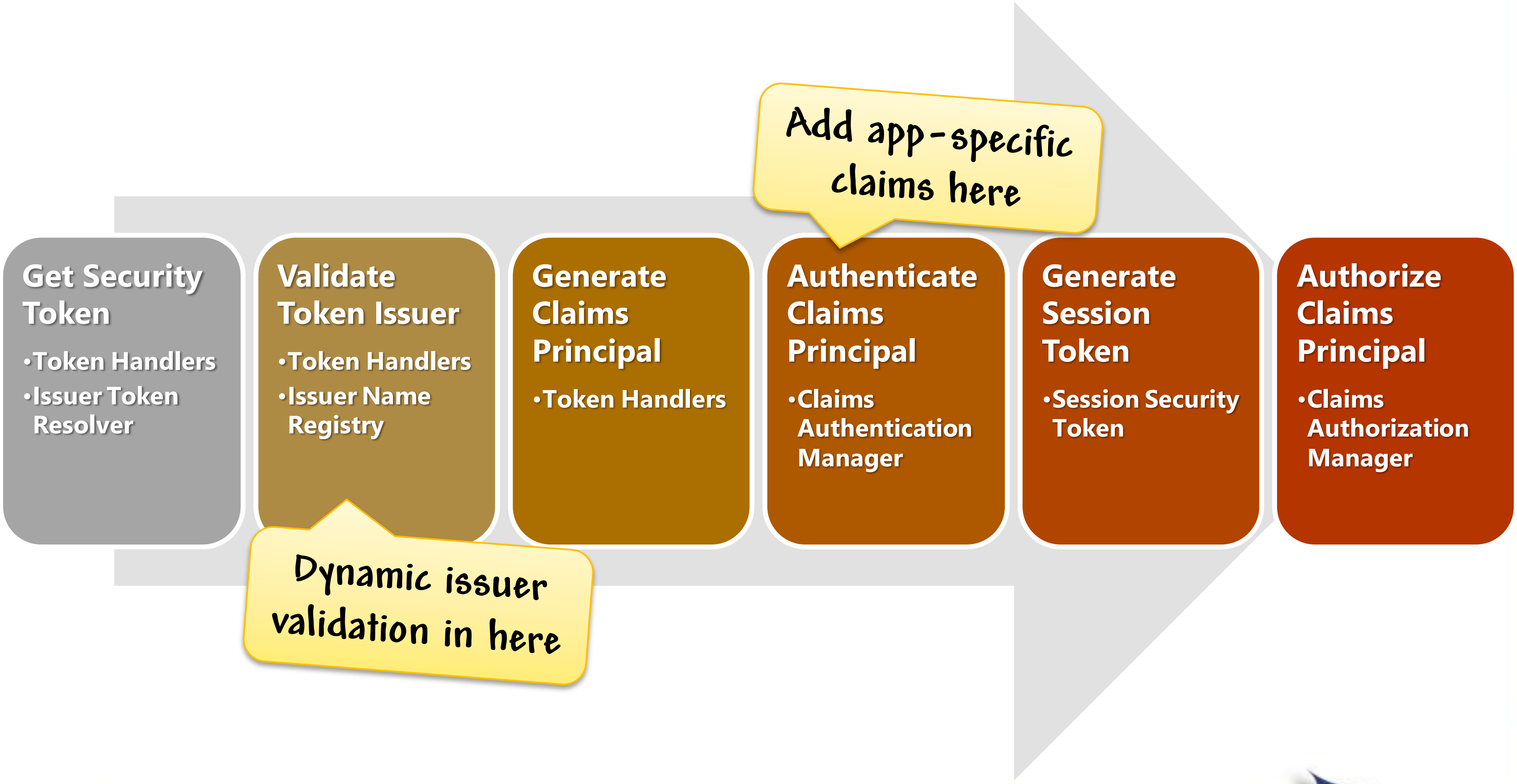
Social

- Facebook
- Twitter
- Microsoft
- Google
- Open ID
- …

Corporate

- Active Directory Federation Services
- Azure Active Directory
- OneLogin
- Ping Federate
- SiteMinder Federation
- …

tokens are transformed into claims principals



Get Security Token
- Token Handlers
- Issuer Token Resolver

Validate Token Issuer
- Token Handlers
- Issuer Name Registry

Generate Claims Principal
- Token Handlers

Authenticate Claims Principal
- Claims Authentication Manager

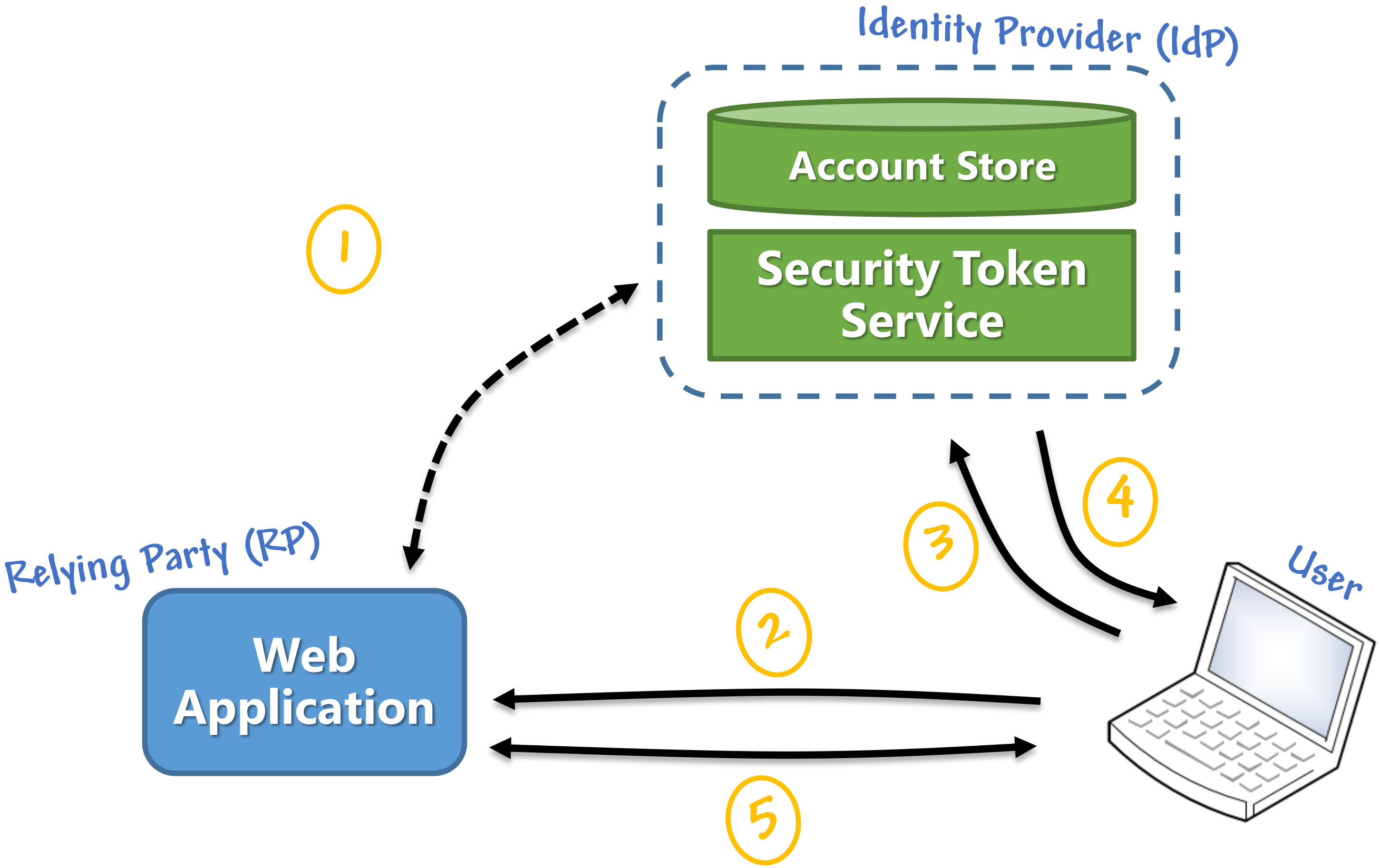
Generate Session Token
- Session Security Token

Authorize Claims Principal
- Claims Authorization Manager

Add app-specific claims here

Dynamic issuer validation in here

putting it all together



DEMO

OUTSOURCING IDENTITY

technologies at play

- Web Services Federation (WS-Federation)
  - Negotiate and exchange security tokens
  - Supports conversations between relying parties and security token services
  - Builds upon WS-Security, WS-Trust, WS-MetadataExchange, …

- Security Assertion Markup Language (SAML) Tokens
  - XML message for claims and security-related data (signatures, token issuer)
  - SAML 2.0 goes beyond tokens to provide a protocol (SAML-P) with functionality similar to WS-Federation

⌛ Watch for Open ID Connect

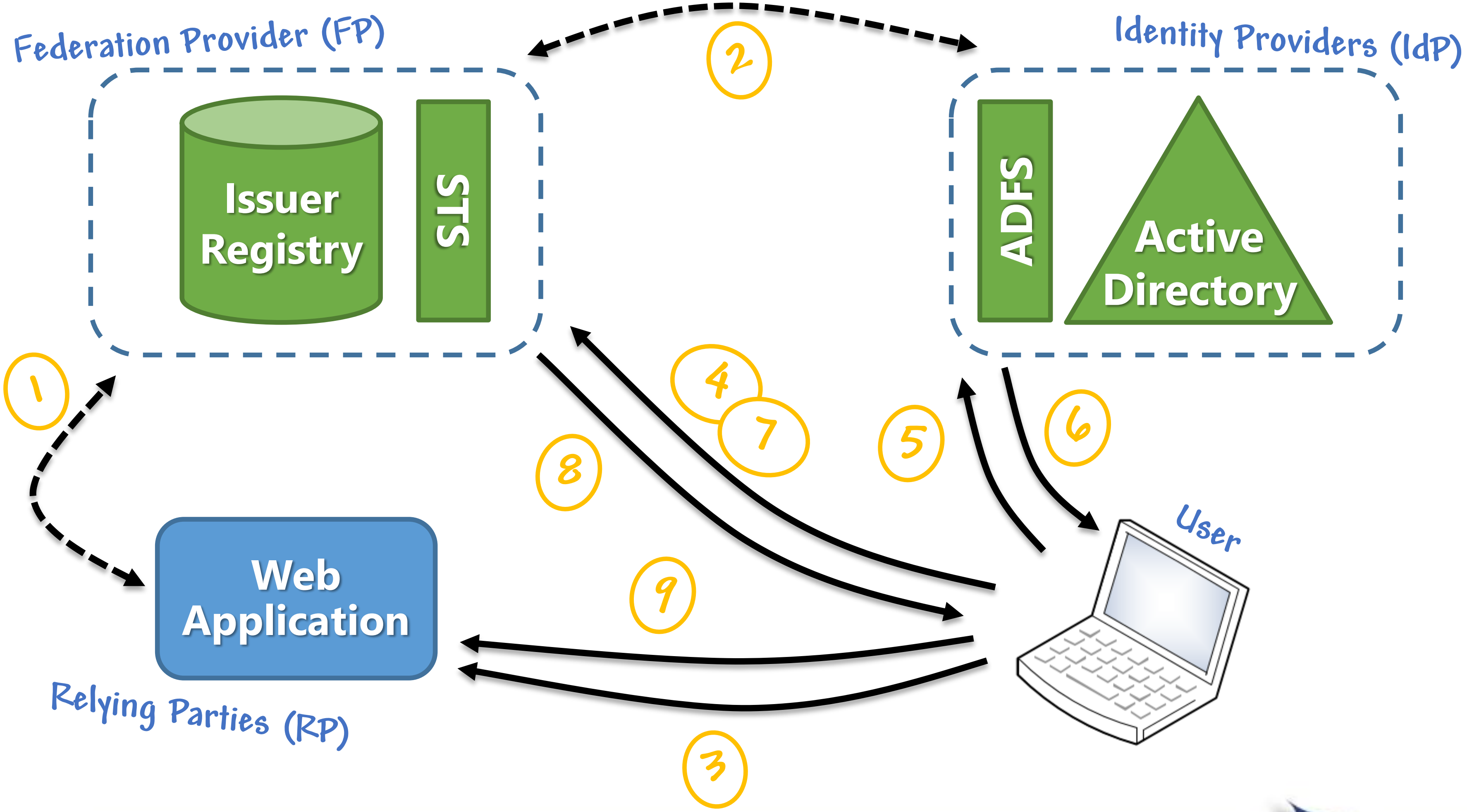
  - Built on OAuth 2 with JSON/REST-based interfaces

need help explaining claims for identity?

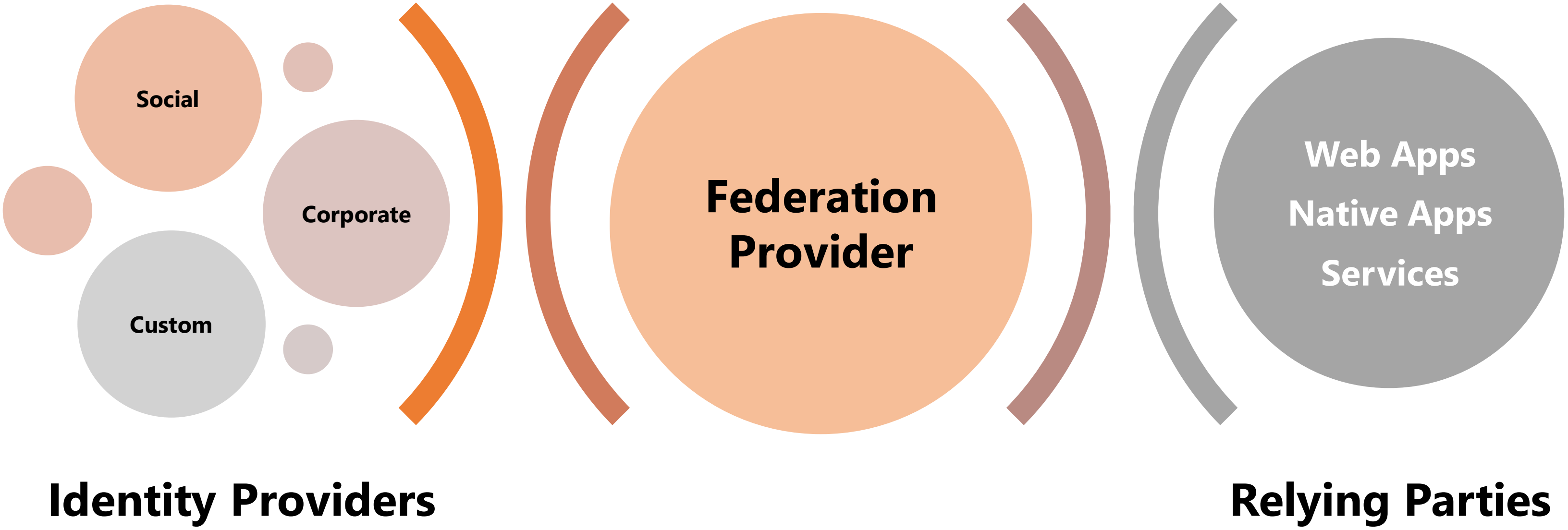
Identity 2.0

colinb.me/Identity20

handling multiple identity providers



federation providers simplify relationships



Social

Corporate

Custom

Federation Provider

Web Apps

Native Apps

Services

Identity Providers

Relying Parties

DEMO

FEDERATING WITH IDENTITY PROVIDERS

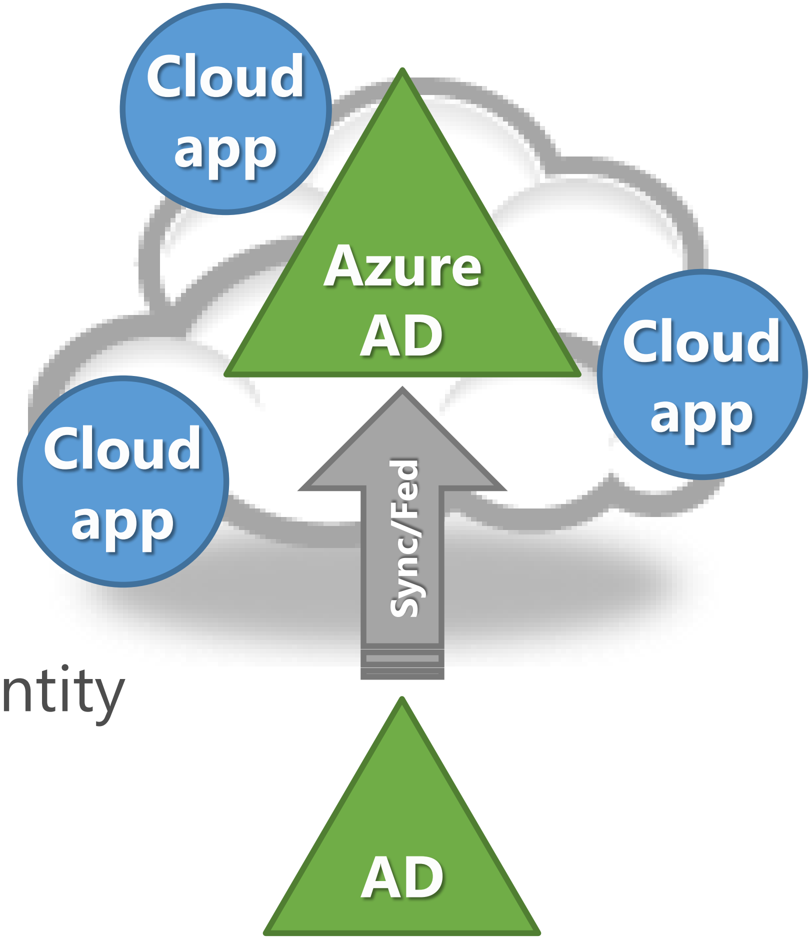
not all scenarios addressed by federation

- user provisioning / de-provisioning
- ability to view “all users” in my organization
- delegated administration

While enterprises working to consolidate identity management on premise, cloud apps are fragmenting identity… again

extending directory access to apps

- Enables federated identity and extends access to rich directory information
- Apps can read and/or write to the directory via role-based access controls
- Integrates cloud-based app identity without exposing on premise infrastructure



from a business perspective

- Enterprises extend existing AD to support cloud apps
  - Manage users, groups in AD, changes synchronized to Azure AD
  - On-premises applications use AD
  - Cloud applications use Azure AD
- Smaller businesses use Azure AD as primary identity system
  - No on-premises applications or AD
  - Use Azure AD to manage users, groups
  - Cloud application use Azure AD

under the covers Azure AD provides

- Federation provider for cloud-based applications
  - Based on Windows Azure Access Control Services
- Directory Graph API for access to directory data
  - Think LDAP, but at internet scale with REST-based API
  - Provide applications with read-only or read/write capabilities
- Broad protocol support
  - WS-Federation, SAML-P, OAuth2, Open ID Connect (future)

enables developer opportunities

- Connect with customers who have Azure AD
  - Single sign on integration instead of separate username/password
  - Query directory graph for user information, provisioning
- Use Azure AD as primary app identity system
  - Use Azure AD as local account store
  - Connect with customers using popular web identities
  - Connect with customers who have Azure AD

DEMO

LEVERAGING THE DIRECTORY

protocols used by Azure AD

Protocol	Purpose	Details
REST/HTTP	CRUD operations on directory objects, relationships	OData 3.0 compatible OAuth 2.0 authentication
OAuth 2.0	Service authentication Delegated access	JWT Token Format
Open ID Connect[†]	Web application authentication Rich client authentication	JWT Token Format
SAML 2.0	Web application authentication	SAML 2.0 Token Format
WS-Federation 1.3	Web application authentication	JWT SAML 1.1, SAML 2.0 Token Formats

[†] Currently under investigation for future release

resources

- Understanding WIF 4.5
  - colinb.me/UnderstandWIF45
- Windows Azure Active Directory
  - colinb.me/AzureAD
- Identity Server
  - thinktecture.github.io
- Vittorio Bertocci
  - cloudidentity.com
- Dominick Baier
  - leastprivilege.com
- Open ID Connect
  - openid.net/connect