Securing Enterprise: Employability and HR
Federation and XACML as Security and Access Control Layer

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Employability and HR Vertical

- Multiple Players - Excellent case for federation
  - Consumer / Employee, getting his identity from a number of sources
  - Enterprise players
  - Service Provider Players
- Web Application front ends
- Fat clients: Web Services
- SOA: Web Services
- A lot of policy around what can be accessed by whom - XACML
Privacy Sensitive Data, Compelling Need to Share

- You do not play if you do not share
- Strong consciousness about implications of sharing
  - Filter depending on who asks
  - Policy enforcement
- Pseudonymous identity, but real data
- Authorativeness of data: Entitlements, Professional Certifications
Multiple Organizations Consuming and Offering Services

User Placement Consultant ePortfolio WebApp Placement WebApp IdP ePortfolio and HR Repository Diploma Authority Discovery Applicant Search HR GUI Vetting Agency Web Services SSO Delegate
Requirements

• Players
  - User
  - Placement Consultant
  - Placement Agency
  - Diploma Authority (e.g. Educational Institution granting degrees)
  - Employer HR
  - Vetting Agency

• Policies
  - System-wide
  - Per service
  - Per Data
  - Per user
Need for Control

Diagram showing the flow of user placement consultant with ePortfolio WebApp, IdP, Discovery, HR GUI, Applicant Search, Diploma Authority, Vetting Agency, Web Services, ePortfolio and HR Repository.
Which PDP Dilemma

- ePortfolio, Entitlement Authority, and Vetting Agency all have very privacy sensitive information
- All are operated by different organization: can they use one PDP?
- Entitlement based system is well suited
  - Information from SSO layer
  - Information from Diploma Authority
  - Information from Vetting Agency
  - All information describes to what category a person belongs to
  - Rules can then be applied to decide whether access is granted
- Rules will be owned by organization releasing data
- Per user rules are also possible
- Overall network may also have rules, available from global CoT PDP
PDP Solutions

- Local PDP for rules owned by local organization
  - Can also hold per user rules
- Global CoT-wide PDP for the "house rules"
- PIP uses web services to further query job certifications and reputation
- PDP Broker realization
  - ePortfolio repository only has one PEP - minimal modification to application
  - PDP Broker is flexible component that allows for future evolution of the architecture
- Two PEPs in cascade solution
  - First PEP checks global policy
  - Second PEP checks house rules and per user policy
- Other arrangements, such as PDP Broker direct to Diploma Authority
Experiences

- Granularity - scalability problem
  - Every request making full XACML request is expensive
  - PDP Broker caches decisions to reduce load
- System workable for about 25 requests per second on normal PC server hardware
- XACML rule debugging pretty tough: better keep simple
- Test battery vital for ensuring the rules stay right when there are changes
Technology

- Symlabs IdP (and Discovery)
- Symlabs PDP Broker
- Apache with `mod_auth_saml` SP, PEP
- ZXID.org ID-HR-XML WSC and WSP
- ELfEL ePortfolio system
Thank You

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Acronym Expansion

PEP  Policy Enforcement Point
PDP  Policy Decision Point
PIP  Policy Information Point
IdP  Identity Provider (SAML role, asserting party, credential authority)
SP   Service Provider (e.g. web site) (SAML role, relying party)
WSC  Web Services Client
WSP  Web Services Provider
DS   Discovery Service
SAML 2.0 for SSO, Liberty ID-WSF for SOAP

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Figure 1: Single Sign-On (2,3), Discovery (4), and call to WSP (5). The blue ball represents discovery bootstrap.
Liberty ID-WSF (Web Services Framework)

- Focuses on passing identity on SOAP calls (just what SOA needs)
- Secures the SOAP call
  - WS-Security header
  - SAML token conveying authenticated user present and consented
  - Digital signature
- Helps locate SOAP services
  - Bootstrap
  - Discovery
- Calling other user’s web services: People Service
- User consent querying: Interaction Service
ID-WSF Services

- Personal Profile
- ID-DAP (ID Directory Access)
- ID-HR-XML
- Contact Book
- Presence
- GeoLocation
- ID Messaging (email, MMS)
- Your own service