Externalizing Identity

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Also Known As

- Decentralized Identity
- The other Identity as a Service (IDaaS)
- Application-Centric Identity Management
- Identity Services
- The Evolved Identity Management Infrastructure
The Premise

Let's think about the poor Application Developer

- User Tables, Profiles & Preferences
- Usernames & Passwords
- Complex Authorization Needs
- Roles
- Custom Authentication Schemes
- Self-Service Features
- API and Integration Layer
- LDAP

Image from http://www.objectsandpixels.com
Oh, And Another Thing...
I would love to see exactly what is going on in there
The Identity Equation

- Identity is an enterprise-wide concern that must...
  - ...be aligned with the strategic direction of the enterprise
  - ...be holistic in its coverage
  - ...help identify your “future state”
  - ...bring adaptability to your enterprise
  - ...satisfy technology, regulatory and business needs
  - ...introduce consistency and efficiency in IT infrastructure
Take 2 Aspirin and…

- We have to figure out a way to make identity mechanisms pervasive, simple and easy for developers to incorporate as part of application logic
- We need to define a framework of identity controls that gives businesses visibility and manageability of their security and compliance
- We must give power back to the owners of the identity data being used
- We must open up the infrastructure to adapt to incoming technologies
Introducing Identity Services

- The goal: to devolve all those application identity silos into a common enterprise layer
- As organizations move towards SOA, identity components and management capabilities must be made available as a service in that architecture
Identity Services provide identity in a consistent, reusable way to all applications/services
• Enables them to make identity an integral part of their business logic in a coordinated and meaningful way
It’s A Long Way Home

• IdM Vendors, Application Vendors and Customers must collaborate to define the Identity Services Layer
• Application Developers must adopt a SOA lifestyle
• Interoperability has to succeed
• Standards need to evolve
• We need to define an API model that makes development simple
First Things First

- We need to define what the identity services are and what capabilities they need to provide

- Keys to Success
  - Must satisfy concerns raised in the enterprise community as well as in the user-centric identity community
  - Balance de-centralization of identity with centralization of controls
  - Must leverage existing investment in IdM infrastructure
  - Must put the application development experience clearly in focus

*Build for Today, Architect for Tomorrow*
The Identity Services Layer

API Interfaces

Identity Services
- Authentication
- Identity Oracle
- Role Provider
- Authorization
- Provisioning
- Audit
- Others…?

Business Applications

Users

Management & Administration
Authentication

Externalize User Identification

- Service that provides the right level of assurance to the application of the identity of the interacting user
- State of the Art: SSO, E-SSO, Federation
- The API layer has evolved (JAAS) to remove a lot of the integration and tie-in problems (at least from the application developers plate)
- But…
Authentication

Externalize User Identification

- The API layer is stuck with the simplistic binary idea of authenticated/unauthenticated
- OpenID, Cardspace emerging as Internet SSO tools
- Calls for Lightweight Federation based on user-centric technologies
- Multi-token authentication support w/ STS transforms
- Risk-based Authentication Levels
- Mutual Authentication
Identity Oracle
Externalize Identity Data

• Get away from those pesky User tables
• Multiple sources of Identity Data in the Enterprise
  • HR, CRM Systems, Custom Databases/Directories
• Replication into application user tables
  • Required deployment of costly provisioning tools
Identity Oracle

Externalize Identity Data

- Solution 1.0: Centralize Identity in Directory/Meta-Directory
- All applications must *speak* LDAP
- Identity data, by its nature, is de-centralized
  - Issues with maintenance, manageability, data freshness
Identity Oracle

Externalize Identity Data

- Solution 2.0: Virtualize Identity
- Leave identity data where it belongs
  - Provide a way to create complete profile by joining data
- Still
  - Applications must speak LDAP
  - Ignores some interesting identity sources: External IdP, The user (or DBKAC)
Identity Oracle

Externalize Identity Data

- Solution 3.0: Identity Oracle (Metasystem enabled)
  - Term coined by Bob Blakely of Burton Group
- Create complete identity profile across
  - Identity Applications, Identity Stores, Cloud Identity Providers, User-Centric Identity
- Provide developer friendly API
Identity Oracle

Externalize Identity Data

- Not an Identity Provider or Identity Attribute Service
- Implements the **principle of least knowledge**
  - Support both definitive (date of birth) and derived (over 21) identity data
  - Provide a Declarative Governance Model for how identity data is provided and consumed
    - Attribute declaration
    - Usage Constraints
    - Pub/Sub Models
    - Privacy, Regulations, Compliance
- Schema Mapping
- Translation layer

Role Provider

Externalize Roles & Role Management

- Roles are necessary abstraction to make management manageable
- Service that provides information on roles and role memberships
- Enables heterogeneous RBAC adoption
- Version 1.0: LDAP Groups as Enterprise Roles
  - All applications must *speak* LDAP
  - Too simplistic
Role Provider

Externalize Roles & Role Management

• Version 2.0: Centralized Role System
  • Provide Enterprise Roles
  • Support Application Roles
  • Inheritance Hierarchies
  • Session Roles
  • Context-Sensitive Roles
  • Standards needed
Authorization

Externalize Authorization Policies

• As authorization needs got more complex, drove more identity data into the application domain
• External Authorization Service that supports entitlement modeling & fine-grained authorization
• Services focus from the beginning
  • Emerged from the XACML standard
• Aka Entitlement Management
Authorization

Externalize Authorization Policies

• Centralized control
  • Fine-grained entitlement modeling
  • Integration with Role Management System
• Distributed, real-time, high performance Policy Enforcement Points
• Support for incoming assertions
Provisioning

Externalize Identity Administration & Processes

• Service that supports administration of the IAM context
• Turns the current model inside out
  • Current provisioning tools started as pure data flow
  • Added business controls (policies, workflow) by necessity
  • Going forward: Eliminate the data flow, not the controls
• Provisioning (as we know it) will change dramatically over time
• Needed to supports the fluid, ad-hoc enterprise
Provisioning

Externalize Identity Administration & Processes

• Provides centralized policy administration and controls
  • Approval-based administration
  • Centralized policy enforcement (Auto, SoD)
  • Change notification mechanism
  • End-user empowerment
Audit Service

Externalize Identity Event Auditing

• Service that provides common audit service for all identity events
• Can hook into a centralized/distributed repository
• Provide de-normalization of audit data
• Enables: Event Correlation, Audit Trails, Activity Monitoring, Fraud Detection
API Interface
Developer Friendly Abstraction Layer

• Sits on top of standards based service providers
  • Vendor independence is key
• Provides a programmatic interface that is easy to use
• IDE integration

• Wait a minute…
• *Can the model be Claims-based?*
Other Services…

- Claims Transformer
- Relationship Service
- …?
Caution!

- All of this is very new
  - Vendors take time to shift
- Getting developers to change their style is hard
  - SOA not as prevalent as was expected
- Disruptors
  - Mobile Computing
  - Disconnected Computing
  - Regulations
Roadmap to IDaaS

• Still early stages, but a lot can be done today

• Enterprises
  • Measure your IdM maturity level (see appendix)
  • Embrace the SOA lifestyle
  • Identify identity sources and virtualize an enterprise identity profile
  • Document and put in place processes to govern management and use of identity information
  • Get involved! (see appendix)

• Vendors
  • Work on the standards needed for identity services
  • Adopt a services-focus in IAM products
  • Make the person part of the process
Peace on Earth

• Identity Services will…
  • …reduce complexity through increased ability to leverage critical identity data while removing the management and replication challenges
  • …increase security by providing centralized policy management and a controls framework that can dynamically mitigate risks
  • …create a flexible, adaptable, integrated platform on which to build applications
  • …makes new types of de-perimeterized, identity-based business functionality viable
Continue the Dialogue On My Blog

http://www.talkingidentity.com
Appendix: Get Involved!

• Project Concordia
  • [http://projectconcordia.org/index.php/Main_Page](http://projectconcordia.org/index.php/Main_Page)

• Internet Identity Workshop

• Liberty Alliance
  • [http://www.projectliberty.org/](http://www.projectliberty.org/)

• Burton Group’s Identity Services Working Group

• Jericho Forum
Appendix: Measure your IdM Maturity

Level 1
Tactical

Level 2
Process-Centric
- Web Access Management
- Enterprise Directory
- Password Management
- Meta-Directory
- Enterprise SSO
- Automated Provisioning
- Consolidated Reports
- Virtual Directory
- Enterprise Roles
- Full Regulatory Compliance
- Converged IT & Physical Security
- Identity Federation
- Risk Management

Level 3
Aligned
- Converged IT & Physical Security
- Full Regulatory Compliance
- Identity Federation
- Risk Management

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