

## Case Study:

# Intel Embraces SSO and Wide-Scale Federation

## The Organization

Intel, the world leader in silicon innovation, develops technologies, products and initiatives to continually advance how people work and live. For decades, Intel has developed technology enabling the computer and Internet revolution that has changed the world. Founded in 1968 to build semiconductor memory products, Intel introduced the world's first microprocessor in 1971. Today, Intel is the world's largest chipmaker and a leading manufacturer of computer, networking, and communications products. In 2005, Intel generated more than \$38 billion in revenue.

## Challenge

With tens of thousands of employees using hundreds of systems and applications each day, Intel faced some serious challenges around password management, security and productivity. It had become important for Intel to find a way to securely implement single sign-on using industry standards in order for the solution to be reusable across ever-changing domains and applications.

Today Intel outsources applications that all require separate user names and passwords. Intel also has a policy in place that says those user names and passwords cannot be the same. "This is a good policy from a security point of view, but all the logging in and out is not productive and people have a hard time managing so many passwords," said Mike Hatten, Enterprise Architect, Intel Information Services & Technology Group. "It's also going to continue to get uglier as we have a major push within IT to start outsourcing more and more services."

Right now the use of outsourced applications are limited to a smaller population within Intel—but that is changing quickly.

"The applications we're looking at this year are much more high-profile, like health benefits, expense reporting and training. These applications are going to be more widely used than what we've done so far, so the need for single sign-on is much greater," said John Butare, also from the Intel Information Services & Technology Group.

The Solution Details: Intel is currently looking at SAML 1.1 as a means of federating internal Microsoft identities to their outsourced vendors. Intel will then move to SAML 2.0 in order to incorporate features from Liberty Alliance's work.

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Mike Hatten,  
Enterprise Architect, Intel  
Information Services &  
Technology Group

## The Benefits of Working with the Liberty Alliance

Intel chose to work with the Liberty Alliance for the following key reasons:

- Liberty ensures that standards exist for ID federation and management.
- Liberty promotes adoption.
- Conformance testing ensures that applications meet the standards.
- Members have influence over standards development.
- When organizations work together to promote standards-based solutions, costs are reduced and integration is ultimately easier.

## HR Drives the Ideation

"The idea came to us backwards with HR coming forward and saying, 'We need this capability and here's some money. Go figure it out,'" explained Hatten.

At Intel, HR had completed several proprietary single sign-on implementations. They also saw a number of other needs on the horizon, and vendors coming at them and saying that Intel needed to support this version of the standard or that version of the standard. Intel decided to consolidate their efforts rather than doing the point solutions internally.

## Liberty Alliance and the Importance of Standards

At Intel, HR wanted to move away from proprietary solutions that were tightly coupled to vendors. "We really wanted more of a loose coupling between our internal applications and the external vendors to help drive down maintenance costs," explained Butare. "That's why we looked at standards as one of the key leveraging steps to reduce the costs and simplify the integration as we bring more and larger outsourced systems into play."

In addition, as Intel learned how to federate with their partners, they wanted to be able to: 1) easily change those partners when needed without major changes to the infrastructure, which is something Liberty Alliance supports, 2) have some expectations that new partners already know how to do this, and, 3) look for ways to put the employee in control of their identity information and enable user centric identity.

"We don't want to have to teach partners how to federate," said Mike Hatten. "It's going to be so much easier when everyone speaks SAML 2.0."

"I have to tell you this was smoke and mirrors two years ago, but federation is here now and here in a big way. We have one vendor who we had some early conversations with about federation and Liberty, and back then, they kind of looked at us with blank stares and basically made it fairly obvious that they didn't really want to go in that direction. Then they gave us a call a few months later saying, 'Okay, everybody else that we deal with wants to go there so we're going there.'"

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## Liberty and SAML 2.0

Intel gives Liberty high marks for raising the adoption bar for federation all the way around.

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As Intel moved forward with Liberty, certain surprises and new kinds of learning emerged. According to Hatten, his team quickly discovered that even though the standards exist, the platforms carry a lot of their own peculiarities.

For example, the way Company A "does" federation may be different than the way Company B does it, which is different than the way Company C does it. Intel also learned that capability differences often existed, especially around authenticating and being able to build those assertions that already exist from a Liberty standpoint. "Current federation do what they're supposed to do, but there are differences in the way authentication is accomplished," Hatten said.

## The Importance of Liberty's Conformance Testing Program Underscored

The Liberty Alliance runs a conformance program which requires that each participating company successfully completes tests against scripts and scenarios published by the Liberty Alliance. As part of the testing, companies must demonstrate interoperability with at least two other randomly selected participants. The program requires repeated operation of the Liberty specification's core features in many combinations and sequences, and in different roles and contexts common

to real-world deployments. Testing reviews identity federation, authentication context, session management and privacy protections.([http://www.projectliberty.org/activities/conformant\\_products.php](http://www.projectliberty.org/activities/conformant_products.php))

At Intel, the first couple of products that were tested had not been through the conformance program. "We ran into several issues during integration testing that we probably wouldn't have run into had the products been through the program," said Hatten. "We plan to encourage potential vendors to participate in the program, and may consider a product's conformance status as part of our decision process moving forward."

## Vendors Clamor for Federation

A few short years ago, the jury was still out on federation. But that's not the case any more, particularly among the vendors that Intel does business with.

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Intel's IT division echoes that same experience and perspective.

"I'm really surprised that federation in general is coming into the mainstream as quickly as it is," said Hatten. "I was kind of pessimistic a couple of years ago. I would say to myself, 'Federation? Oh yes, that's way out there on the horizon.' But now we get a message from our vendors saying, 'Hey we federate.' We're getting that message a lot, by at least half the vendors out there, and that's a big factor."

## A Mid-2006 Rollout

Intel is targeting a mid-2006 production deployment with a first customer. The solution will be available to all Intel employees. The initial release will utilize SAML 1.1. Subsequent releases are targeting SAML 2.0.

## Federation in 2007: New Projects

In 2007, Intel's plans include having three browser-based federation projects unified. The first one involves Intel employees federating out. This is the ID hub. The second one involves single sign-on from suppliers and vendors who represent external facing applications. This is a service provider hub. The third one involves federation giving Intel vendors and suppliers access to outsourced applications. In this case, Intel would end up being a third-party identity provider.

For example, Intel is looking at outsourcing training---first, employee training, and then perhaps customer training. "What if we want to use the same outsourced applications for customer training that we use for our own employees?" said Butare. "We have to have the customers get an identity from us to get the training supplied by us, but all we've really supplied is the identity."

In late 2007, Intel will also be testing a federation alias capability where an employee might have another identity that he is able to federate through his network identity and then access applications that way.

Looking further out into 2008, Intel plans to start incorporating clients that support provisioning and strong authentication for an end-to-end solution.

## Definition of Terms

**Circle of Trust** (n) 1. a trusted group of identity and service providers who share linked identities and have pertinent agreements in place  
2. where an individual or a business inputs a password once and minimal necessary credentials are shared among the Circle of Trust's members  
3. a step strongly linked to federation, where multiple entities are involved, and there are business, policy and technical relationships in place  
4. also known as "trust circle"

**Federation** (n) 1. an association comprising of any number of service providers or organizations  
2. a model based upon trust in which user identities and security are individually managed and distributed by the service providers or member organizations  
3. where the individual organization is responsible for vouching for the identity of its own users and the users are able to transparently interact with other trusted partners based on this first authentication  
4. resembles the credit card model in that vendors accept an individual's ability to pay and then that ability is authenticated/verified through a single location

**Identity** (n) 1. the most basic element in a high value relationship  
2. the individual characteristics by which a person, business, business partner, government agency or other entity is recognized or known

**Identity Provider (IdP)** (n) 1. a service that authenticates identity; often a trusted party such as a bank, mobile operator, or an Internet Service Provider (ISP)

**Service Provider (SP)** (n) 1. a federation partner that provides services to an end user; service providers typically do not authenticate users but instead request authentication decisions from an identity provider

**Single Sign-on** (n) 1. having the capability of accessing an online system once and having that authentication honored by other system entities, often service providers  
2. sometimes called SSO

## The Benefits of Federated Single Sign-On

**Improved Productivity:**

Less time spent typing passwords, remembering passwords, and doing password reset.

**Lower Support Costs:**

Elimination of vendor charges for password reset.

**Established Standards:**

Easier new partner integration.

**Increased Security:**

Control of credentials is maintained, passwords are not passed to 3rd parties, passwords are not stored outside of the Intel facility. The risk of credentials falling into the wrong hands is reduced.

**Lower Management Costs:**

Single point of revocation/changes when status of employee changes is easily enabled.

## About the Liberty Alliance

The Liberty Alliance Project ([www.projectliberty.org](http://www.projectliberty.org)) is a global alliance of companies, nonprofit and government organizations developing open standards and business, policy, and privacy guidelines for federated network identity. Federated identity offers businesses, governments, employees and consumers a more convenient and secure way to control identity information, and is a key component in driving the use of e-commerce, personalized data services and identity-based Web services. Liberty specifications are deployed worldwide by organizations that include American Express, AOL, BIPAC, General Motors, Fidelity Investments, France Telecom, Nokia, NTT, and Sun Microsystems. Membership is open to all commercial and noncommercial organizations. A full list of Liberty Alliance members, as well as information about how to become a member, is available at [www.projectliberty.org/membership](http://www.projectliberty.org/membership).