Liberty Alliance & 'Touching the Browser'

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Agenda

Entrust®
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- Liberty Alliance overview
- Touching the Browser
- Liberty model
- Liberty SSO
- Extended SSO

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Identity Crisis

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Amazon.com--Earth's Biggest Selection - Netscape

Bank Of America Online Banking - Netscape

MONEY: SPECIAL OFFER - Netscape

Welcome to AOL Anywhere - Netscape

Netscape

Barclays IBank - Netscape

Joe's Fish Market.Com

Tropical, Fresh Water, Shell Fish, Lobster,Frogs, Whales, Seals, Clams

Welcome to the Hertz #1 Club Gold Reservation area.

What is Federated Identity?

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- A federated identity is one whose **scope** extends beyond the original application(s) for which it was originally created
- Existing identities can be leveraged for other applications, simplifying management for enterprises and end-users
- Mechanisms for enabling this within an enterprise already exist - new requirements for **cross-domain transactions** demand new standards for the protocols and exchange formats

Making identity 'portable'

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What is the Liberty Alliance?

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- A business alliance, formed in Sept 2001 with the goal of establishing an open standard for federated identity management
- Global membership consists of consumer-facing companies and technology vendors as well as policy and government organizations
- The only open organization working to address the technology and business issues of federated identity management

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Liberty Alliance Membership

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- More than 170 global member organizations
- Driven by end-users, government orgs and vendors

Novell
Entrust Securing the Internet
America Online
Consignia
Deloitte Touche Tohmatsu
EDS
hp invent
ERICSSON
Bank of America
Communicator Inc
Fidelity Investments
france telecom
GEMPLUS
GM
Intuit
MasterCard
NEC
NEUSTAR
NTT DoCoMo
Netegrity
NEXTEL
Schlumberger
AMERICAN EXPRESS
NOKIA
NTT Group
OPENWAVE
PingID
PRICEWATERHOUSECOOPERS
PHAOS
RSA SECURITY
SAP
SK Telecom
SONY
Sun microsystems
VeriSign The Sign of Trust on the Net
VISA
vodafone

Defining Liberty

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Liberty Alliance IS...

- a member community delivering technical specifications, business and privacy best practices
- developing an open, federated identity standard that can be built into other companies' branded products and services
- providing a venue for testing interoperability and identifying business requirements
- driving convergence of open standards

Liberty Alliance IS NOT

- a consumer-facing product or service
- developed and supported by one company
- based on a centralized model for identity

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Liberty & SAML

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- **Liberty builds heavily on SAML**
  - Security Assertions Markup Language
- **SAML is an XML-based framework for exchanging security information**
  - **XML schema and definition for security assertions**
  - **XML schema and definition for a request/response protocol**
- **An OASIS standard**
  - **Vendors and users are both involved**
  - **Codifies current system outputs rather than inventing new technology**
- **Excellent traction in the marketplace**

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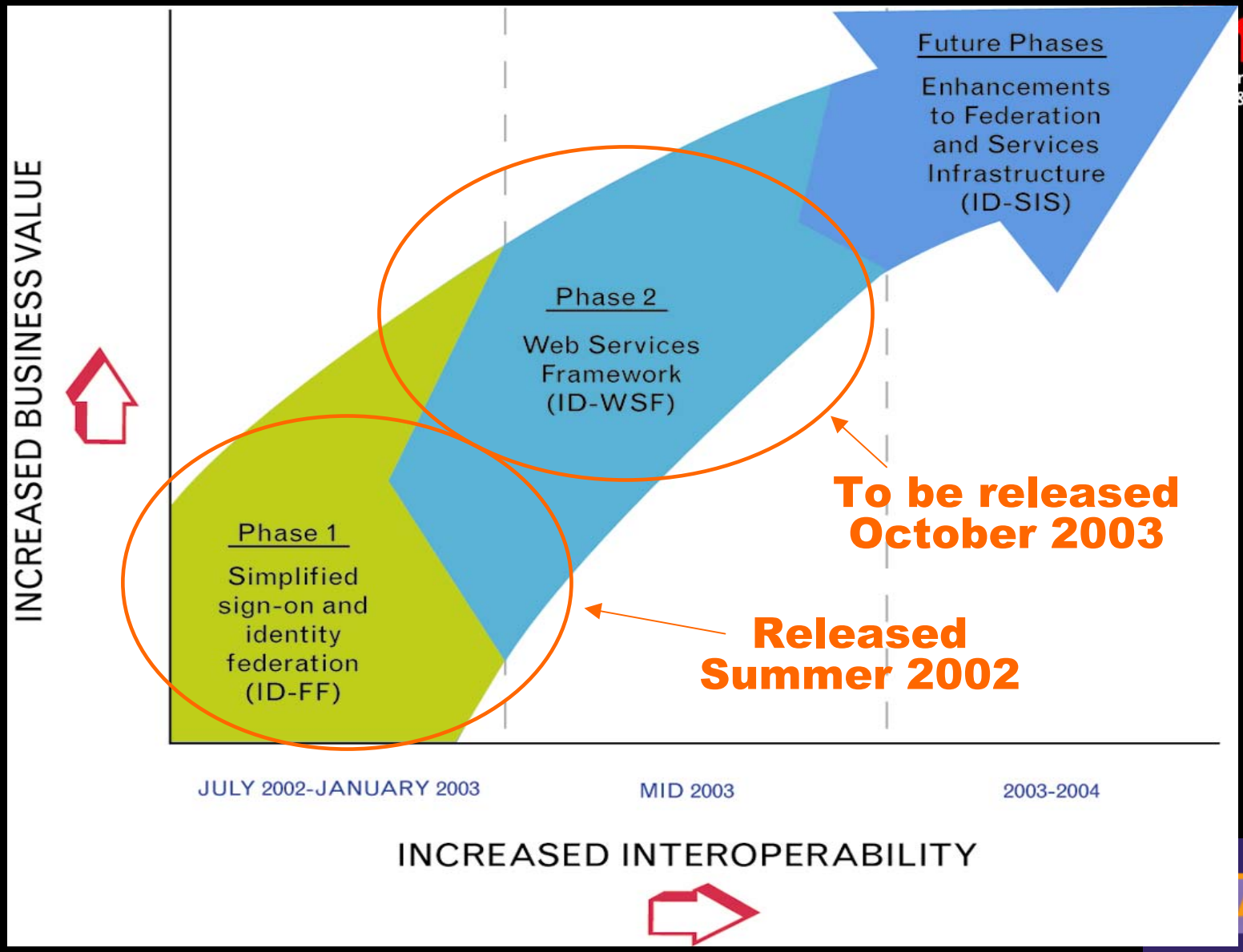
Liberty Roadmap



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Touching the Browser?

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- **A model in which User Agent's baseline capabilities can be dynamically extended**
- **Functionality downloaded as needed**
  - May be invisible to User
  - May be cached for subsequent use
- **Plug-ins, ActiveX, Java applets**
- **Contrasts with 'working with what you get'**

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Issues

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- **Locked-down user agents**
  - For security & virus protection
- **Download size**
  - Mitigated by caching
- **User aversion**
  - Dreaded ‘trust this’ query?
- **Inconsistent functionality**
  - Is Java enabled

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What might 'Touching the Browser' mean for federated identity

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Functional Areas

- **Discovery** – Can user agent facilitate determination of appropriate providers?
- **Protocols** – Can user agent play active role in messaging?
- **Attributes** – Can user agent store and release Principal's attributes?
- **Security** – Can user agent provide security protections beyond the base set?

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Liberty model

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- Liberty default model is to **'work with what you get'**
- Touching the Browser model complicated by the variety of User Agents we'd need to deal with
- Liberty does not preclude dynamic extension capabilities but **does not require** them
- Account for different User Agents in order to leverage their different capabilities

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Liberty profiles

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- **Liberty must support a variety of User Agents**
  - Old browsers, new browsers, Phones, PDAs, etc.
- **User Agents differ in the functionality and capabilities**
- **Liberty defines base protocols for enabling federated identity messaging between providers**
- **Abstract protocols are profiled for the 'real-world'**
- **The various Liberty profiles make different expectations of User Agent capabilities**

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Baseline Liberty Requirements

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- HTTP 1.0 or HTTP 1.1
- SSL 3.0 or TLS 1.0 or any subsequent protocols which are backwards compatible
  - either directly or via a proxy
- Minimum maximum URL length of 256 bytes.
- A WAP browser user agent MUST support WML 1.0,1.1, 1.2 or 1.3 in addition to the above requirements.

This is the 'what we get'

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Optional ‘requirements’

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- **Cookies**
  - Enables Identity Provider discovery
  - Prevents the ‘Who is your IDP question?’
- **Javascript**
  - Streamlines the Form POST profile by automatically submitting forms
  - Prevents the Principal from having to click on Submit/Continue buttons
- **SOAP**
  - LEC profile stipulates that User Agent actively sends SOAP messages

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Single Sign-On

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- Simplest aspect of federated identity
- An individual is able to access a remote service based on an authentication event that occurred elsewhere
- Liberty ID-Federation Framework builds on SAML SSO protocols and messages
- Authentication Web site (Identity Provider) communicates a SAML assertion to that effect to the relying Web site (Service Provider)

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User Experience

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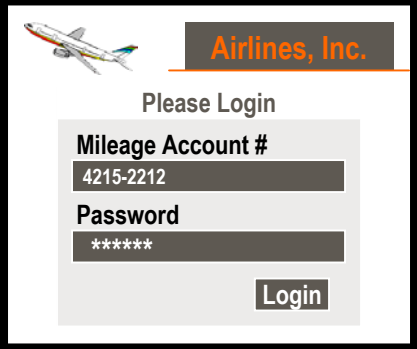
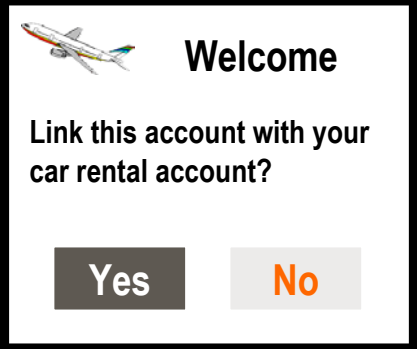
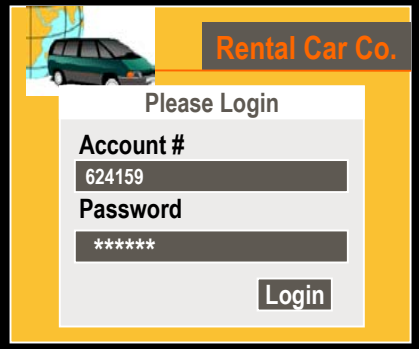
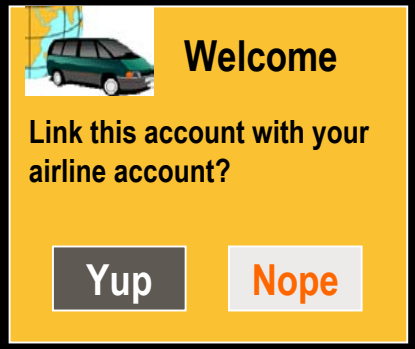
Step 1: Federate (link) Accounts

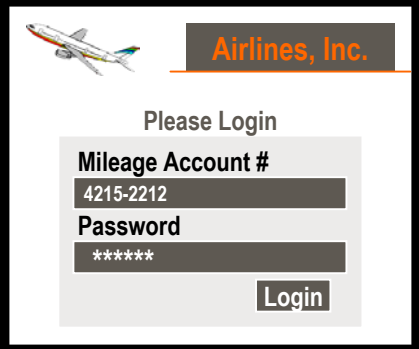


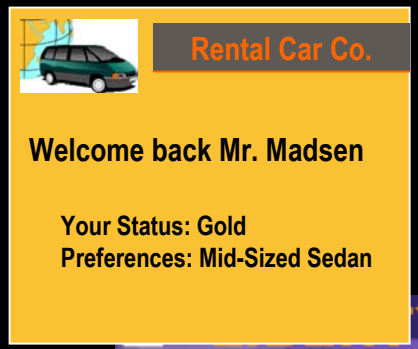






Step 2: Single sign-on





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Pseudonyms

- SSO requires that sites *talk* about the User
- Privacy concerns rule out a global identifier
- Liberty defines mechanism for opaque identifiers

IDP account

John123@idp

Federation info

Domain: SP_1.com
Name: dTvliRcMlpCqV6xX

Domain: SP_2.com
Alias: xyrVdSxg0/pzSgx
Name: pfk9uzUN9JcWmk4RF

SP1 account

John_s@sp1

Federation info

Domain: IDP_A.com
Name: dTvliRcMlpCqV6xX

SP2 account

John_0811@sp2

Federation info

Domain: IDP_A.com
Alias: pfk9uzUN9JcWmk4RF
Name: xyrVdSxg0/pzSgx

Liberty SSO Protocol Flow

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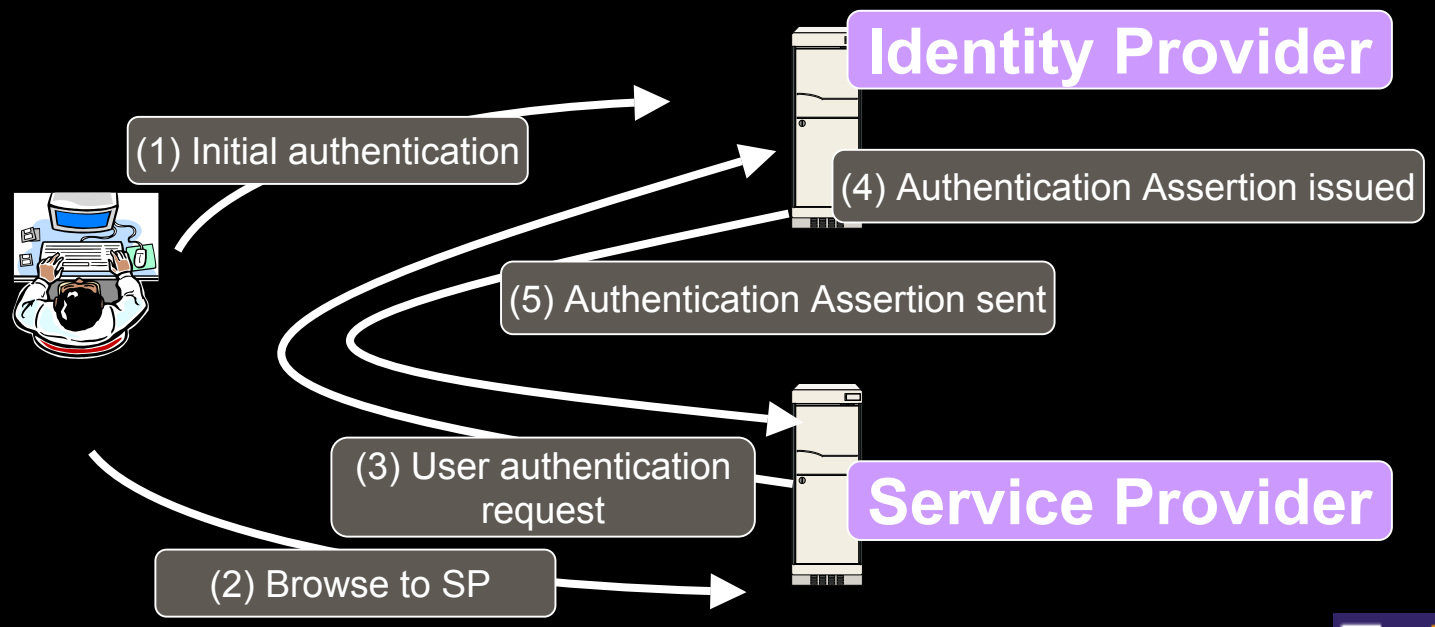
- **Instead of the SP directly authenticating the user the SP queries the IdP and the IdP issues an authentication assertion**
- **SP must 'trust' the IDP**



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Authentication Assertion

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- Assertion ID
- Issuer
- Issue Instant (timestamp)
- Validity time limit
- Audience Restriction
- Authentication Statement
  - Authentication Method
  - Authentication Instant
- User account info (IdP pseudonym)
- User account info (SP pseudonym)
- Digital Signature of assertion

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Issues

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- **User will access SP resources based on their authentication to the IDP**
  - The strength of this authentication is critical
  - Liberty defined a syntax by which SP can indicate its preferences and by which the IDP can assert the details
  - Liberty doesn't stipulate but likely default mechanism will be Password
- **Browser gap between SSL sessions**
  - Liberty makes extensive use of HTTP redirects
  - Liberty stipulates SSL but there will be two separate sessions
- **Not Liberty issues per se but they're there nonetheless**

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Extended SSO

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- **Certificate-based authentication to IDP would address weak password issue**
  - Client-auth SSL theoretically possible but key management & roaming limitations make impractical
- **Message signing capability in browser would address SSL gap issue**
  - XML Signature support in the browser?
- **Extend the browser with certificate-based authentication and message signing capabilities**

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Entrust TruePass™

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- Entrust TruePass is a Web based client/server solution
- TruePass Client is a small Java applet (~150kb) that gets downloaded in a hidden frame of the HTML page
- Digital Certificate based strong authentication; leverages server authenticated SSL session
- Digital Signature Support
- All digital ID lifecycle management operations are transparent to the user

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Entrust TruePass authentication

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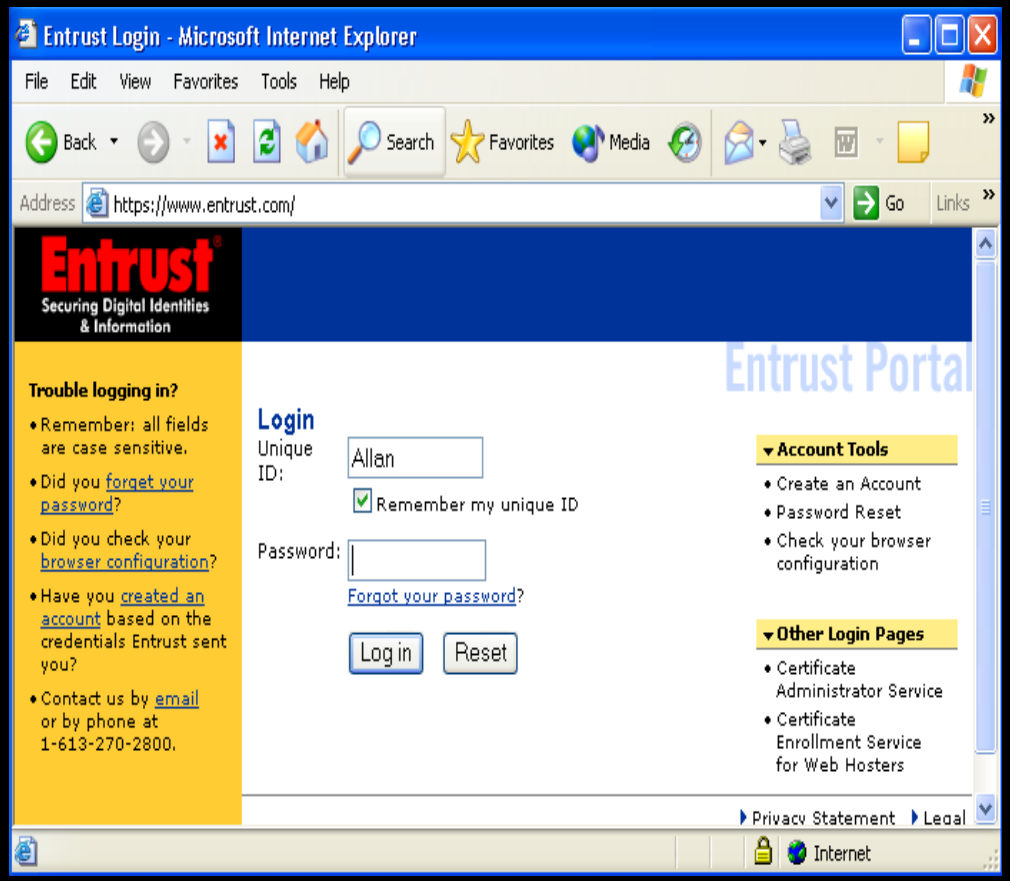
- Applet downloaded to browser
- User signs in (to applet) with strong password
- Applet signs challenge string with user's private key.
- User is authenticated to server



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Extended SSO

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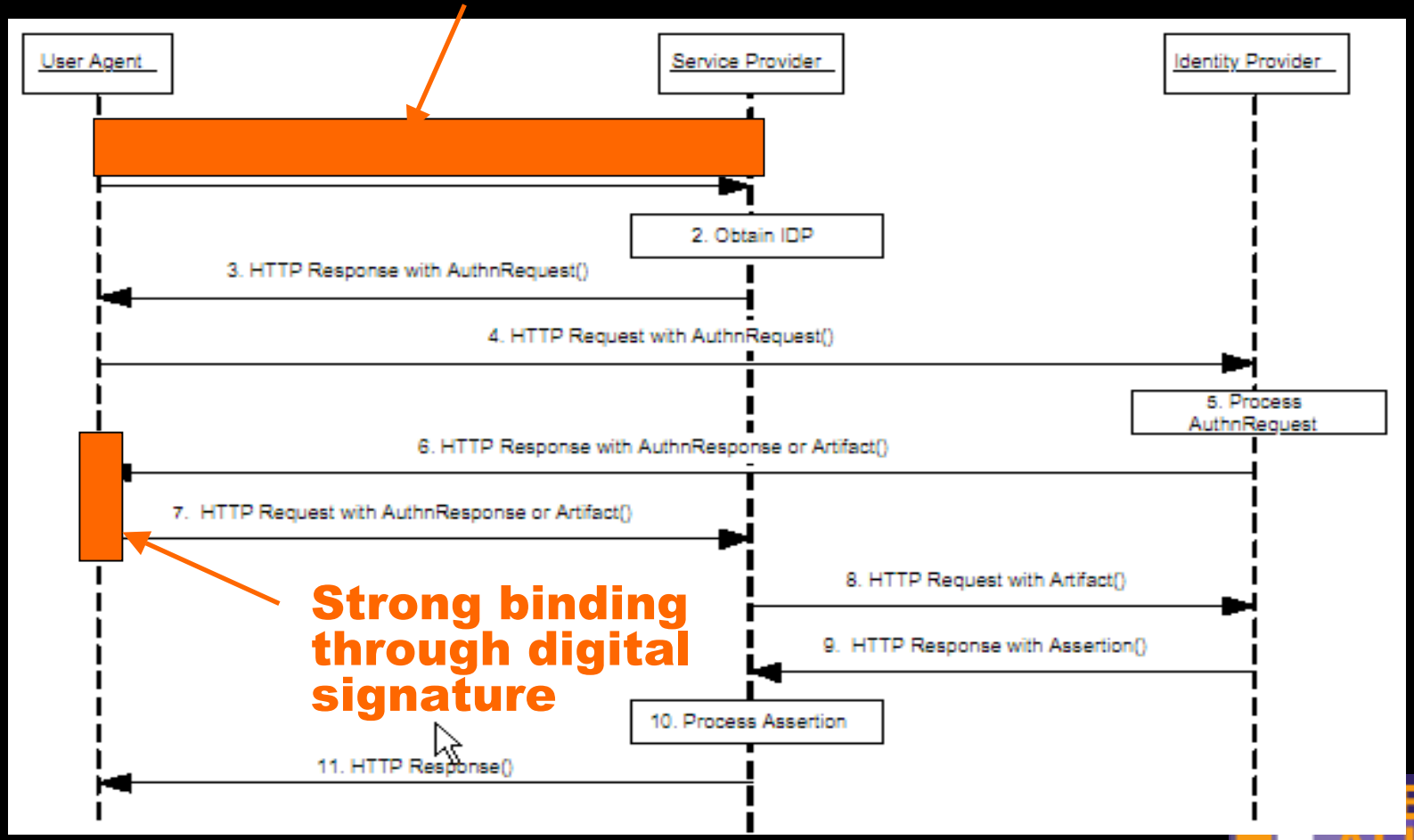

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Summary

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- Liberty does not stipulate mechanisms that would require 'touching the browser'.
- Liberty chose the 'work with what you get' model.
- However, Liberty does not preclude extending the browser's capabilities
- An extended User Agent can coexist with Liberty specifications – optimizing baseline capabilities as appropriate.

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