

This and That

Scott Bradner – ABCD – 13 Dec. 2013

Agenda

- IAM updates since last I was here
- The Internet: past mythology & present “opportunity”

Identity and Access Management
updates since last spring

Combined Program

- New IAM strategic initiative program reports to University CIO
Senior Program Manager: Jason Snyder
combined university & HUIT IAM activities & development
IDDB, PIN, AD, University identity federation, InCommon, ...
- Vision:
Provide secure access to applications that is easy for the user, application owner, and IT administrative staff with solutions that require fewer login credentials, enable collaboration across Harvard and beyond, and improve security and auditing

Strategic Objectives

- To simplify and improve user access to applications and information
- To enhance critical business processes like onboarding, and automate where appropriate
- To facilitate interschool collaboration and encourage external partner trust
- To improve the security stature of the University with a standardized approach

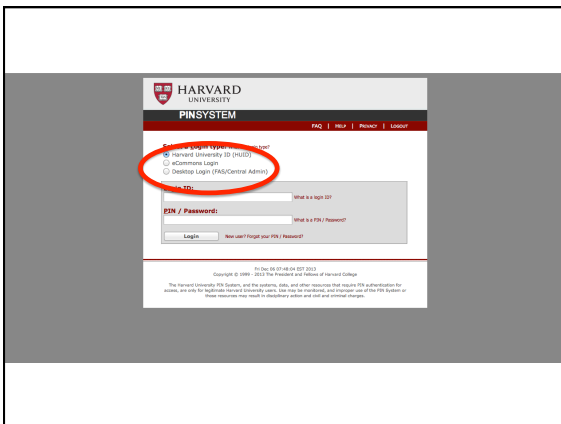


IAM Agenda

- The IAM project has an extensive agenda
- Updates on two outward visible projects

One-Way Federation

- Log into "PIN-enabled" applications with local username/password
- State: System work done, Full rollout Jan 7, 2014
- Adds login options to PIN server



InCommon

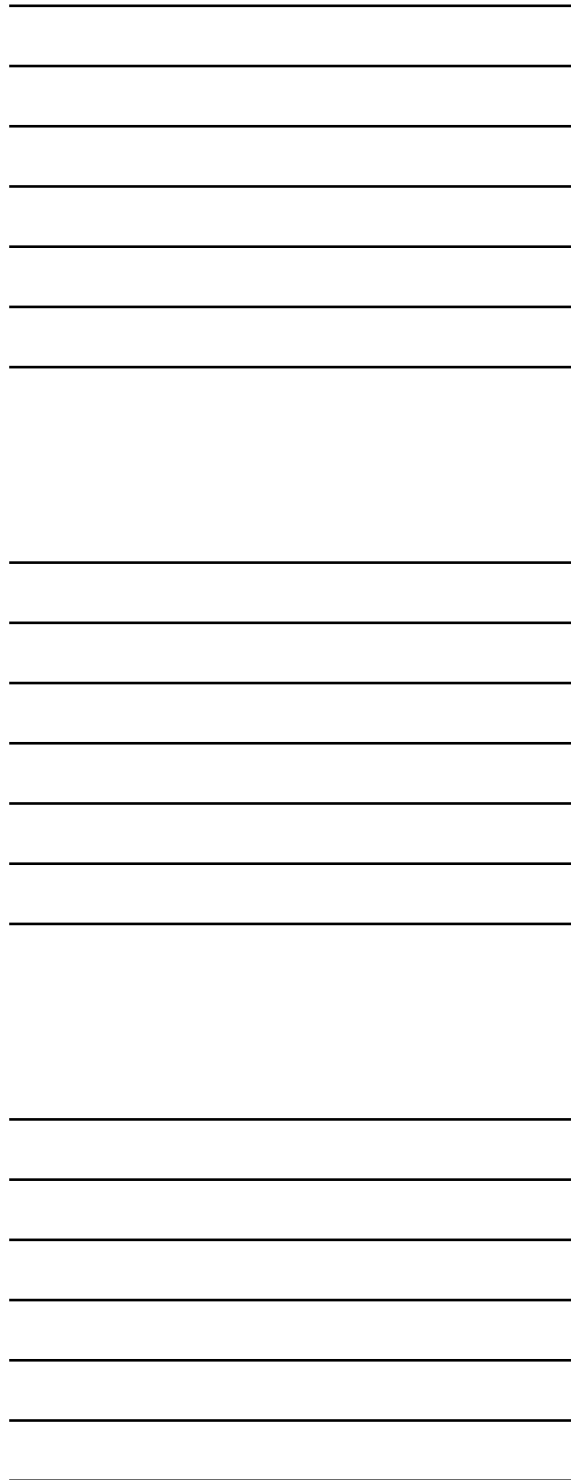
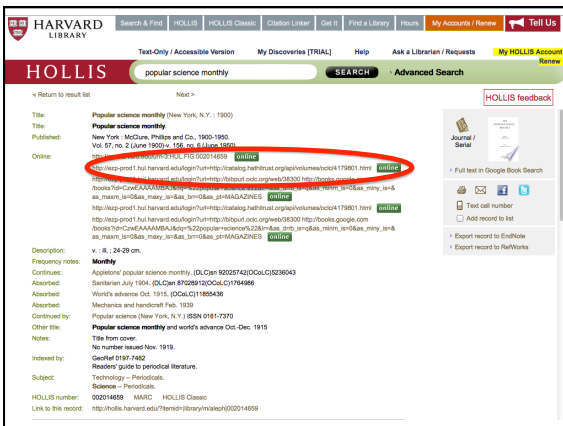
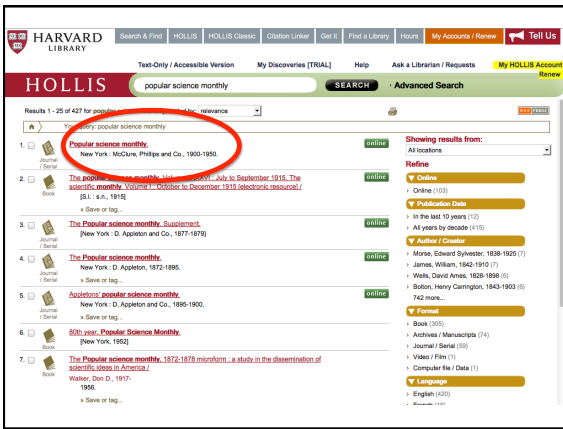
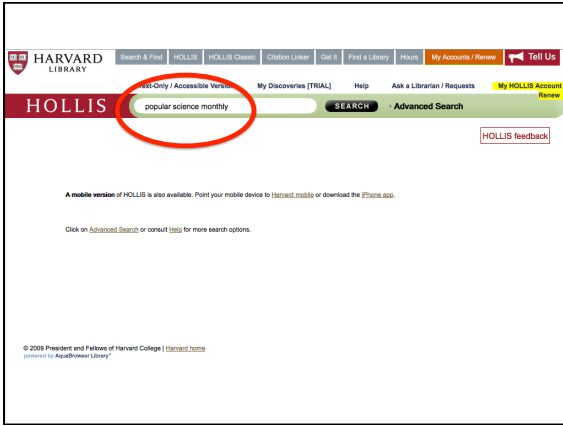
- InCommon: Internet2-based federated authentication partnership
- Permits use of Harvard logname/password pairs to authenticate to (some) non-Harvard Internet services
- State: up & running
First "live site": Hathi Trust (digital library)

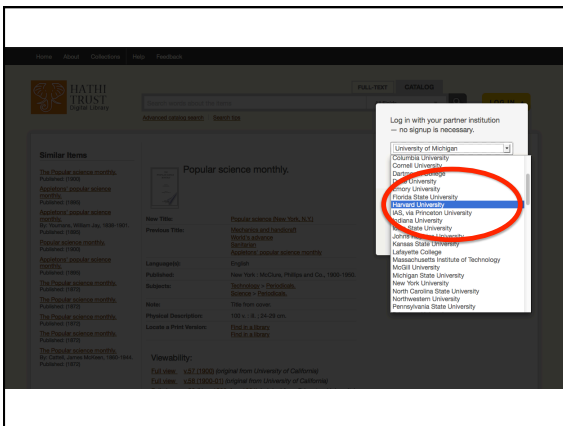
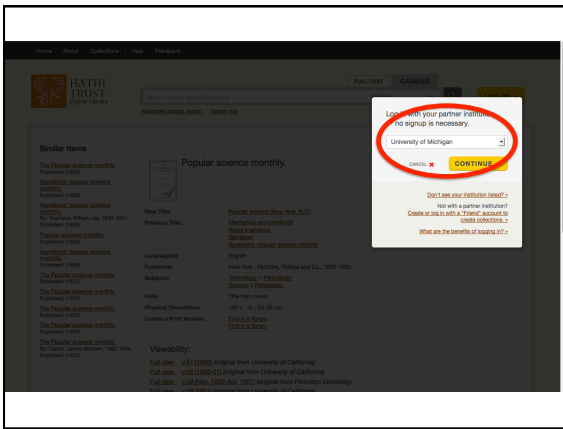
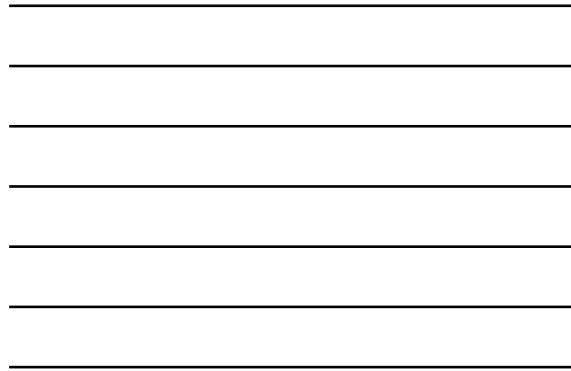
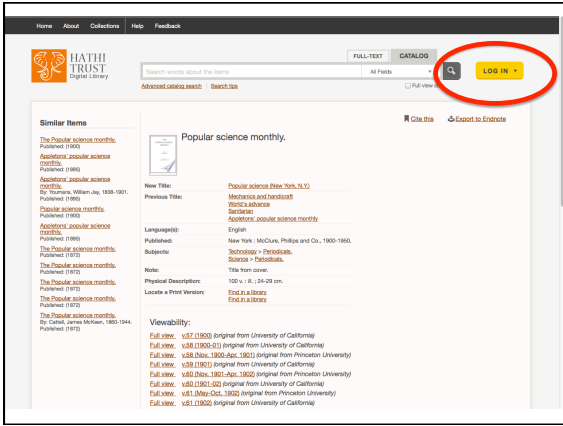


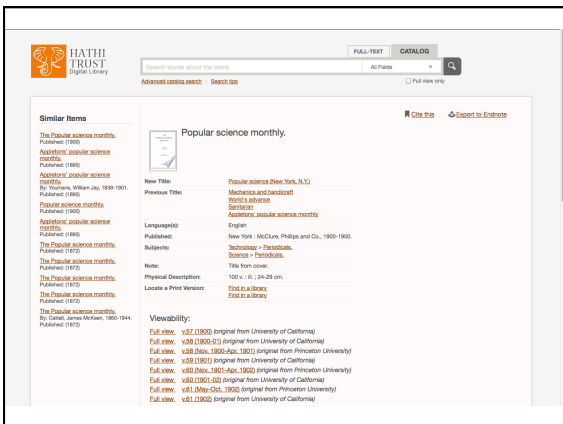
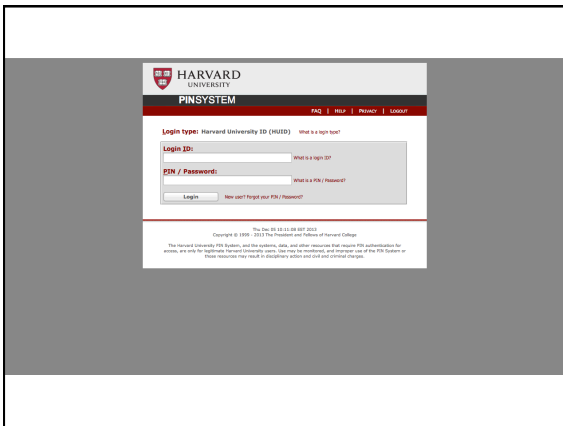
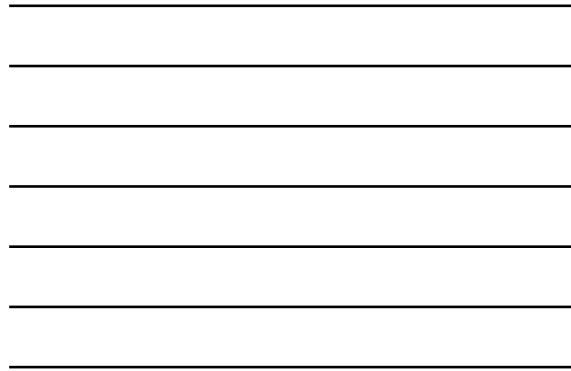
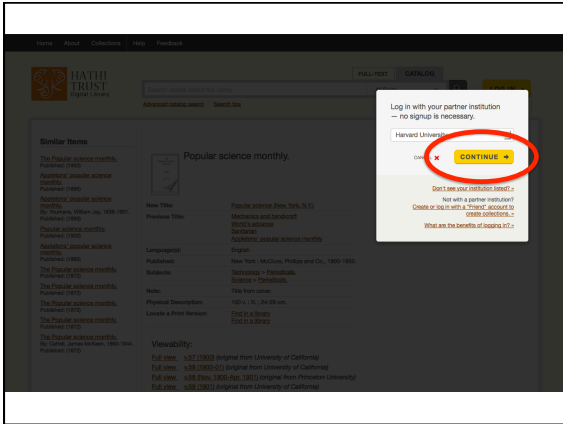
InCommon: What included?

- User attributes supplied to service as part of authentication process
- Common attributes include opaque ID, name, email address & relationship to Harvard
- Service provider decides who qualifies for service based on attributes
e.g., Hathi Trust wants "member of community"
facility, staff & students
definition from InCommon – implementation by us

Problem: find an online copy of
an old issue of Popular Science
Monthly







The Internet, once not,
but now, of this world?

Telecommunications in the 1950s



- Nation-state-based telephone companies
- One predominate service: voice (+ some “wires”)
- One quality: ‘toll-quality voice’
- Highly regulated – much revenue for country
- Interconnection via ITU rules

ITU rules, 1st set – ITC (1865)

- ITU decisions made by country representatives
- Set pattern for future telephone rules

tariffs & settlements

technical standards

complaint process

protect state & morality

be able to stop messages that “*may appear dangerous to the safety of the State or which would be contrary to the laws of the country, public order or morality*”

Meanwhile, in the 1960s

- Len Kleinrock: packet-based networks work
- JC Licklider: global data networks imaginable
- Larry Roberts: need to share scarce computers
- Paul Baran: best effort networks can be reliable



A rider not a builder

- The ARPANET, and the follow on Internet, rode on the telephone network
But were not services offered by the telephone companies
Internet service providers (ISPs) bought “wires” from telephone companies
- ISP routers interconnected these wires
ISPs not limited to a single telephone carrier or to a single country

1980s

- Growing connectivity (hosts)
1969:4, 1984: 1,000, 1987: 10,000, 1989: 100,000
- Ethernet (1980) & TCP/IP (1983)
- Companies connect – driven by student experience at universities (post 1983)
- Dial-up connections common

Inconceivable relevance

- Existing telecommunications world did not believe
 - E.g., IBM no-bid ARPANET router
 - no future in packet-based networks
 - Conventional wisdom: best effort useless
 - Guaranteed QoS required
 - Most connections low speed (dial-up)
 - No threat seen to telephone companies
- Thus, totally ignored by regulators
 - including the ITU



1990s

- 1991: WWW
Permissionless innovation
- Growing connectivity
Hosts: 1991: 376 K, 1999: 56 M
Countries: 1990: 31, 1997: 171
Users: 2000: 260 M
- “Always on” growing
- Still mostly ignored by regulators as “useless”
- The US did try to regulate Internet speech
The Computer Decency Act of 1996

The importance of occasional chaos

- *“What achieved success was the very chaos that the Internet is. The strength of the Internet is that chaos. It's the ability to have the forum to innovate” S. Bradner, witness, CDA trial, 3/96*
- *“Just as the strength of the Internet is chaos, so the strength of our liberty depends upon the chaos and cacophony of the unfettered speech the First Amendment protects.” Judge Dalzel, 6/97*

Relative importance?

“The invention of the [...] is the greatest event in history. It is the mother of revolution.”

“In its [...] form, thought is more imperishable than ever; it is volatile, irresistible, indestructible. It is mingled with the air. ... Now it converts itself into a flock of birds, scatters itself to the four winds, and occupies all points of air and space at once.”

“A [...] is so soon made, costs so little, and can go so far! How can it surprise us that all human thought flows in this channel?”

Who said this about what?

Victor Hugo: Hunchback

*“The invention of the **printing press** is the greatest event in history. **It is the mother of revolution.**”*

*“In its **printed** form, thought is more imperishable than ever; it is volatile, irresistible, indestructible. It is mingled with the air. ... Now it converts itself into a flock of birds, scatters itself to the four winds, and occupies all points of air and space at once.”*

*“A **book** is so soon made, costs so little, and can go so far! How can it surprise us that all human thought flows in this channel?”*

The Internet in the 1990s

- Doubling annually
- Exploding in mindshare
- But still no meaningful regulation
 - FCC explicitly declined to regulate
- From inside the net you could not see national borders
 - i.e., it was **cyberspace**, and looked like it was not of this world

Managing cyberspace in the 1990s

- Internet technology did not require centralized management
- Bilateral agreements between ISPs defined connectivity & architecture
- Services rode on top of Internet
Like Internet rode on top of telephone networks
- Two exceptions: IP addresses & domain names

IP Addresses

- Blocks of addresses assigned to independent regional Internet registries (RIRs) by IANA
Internet assigned numbers authority
i.e. Jon Postel
- RIRs independently developed assignment policies
Community-based policy development process
IETF approved global policies
No government involvement



Domain Names

- IANA, under US government contract, delegated operation of top level domains (TLDs)
E.g., .com, .net, .us, .jp
- Commercial TLD delegations directed by US
- Country code delegations done by IANA alone
Generally first come, first got
- IANA also managed "root zone"
List of TLD delegations in a US government-run root zone server ("the A root")
12 other Root name servers retrieve zone from the A root

“Shine perishing republic”

- The brief reign of the republic of cyberspace
- *A Declaration of the Independence of Cyberspace* – John Perry Barlow – 1996
“Your legal concepts of property, expression, identity, movement, and context do not apply to us. They are all based on matter, and there is no matter here..”
- *‘the Internet will get rid of countries’* – participant, *International Forum on the White Paper (IFWP)* – 1998

Cautionary Vignette

- NET '97 - Kuala Lumpur
- ISOC Developing Country Workshop



The beginning of the end

- Jan 1998 – Jon Postel “redirected the root”
 Asked the root server operators to retrieve zone from his server (instead of the government run one)
 - and 10 did



“The Internet”

VS.



VS. “The Government”

Aftermath

- Ira Magaziner threatened to send in the Marines (literally)
- Jon relented after a short while & ICANN was formed soon after
With strong "guidance" from the US Government
- ITU redoubled efforts to gain control



Illusionary interregnum

- Cyberspacers were filling a regulatory vacuum with imaginary structures
- There are still cyberspacers out there
- But so are the ITU, national regulators & the copyright industry
- And users, money, the Arab Spring, "confused citizens" and the NSA

2.4 B users – 1/3 of world population 3.4% of GDP of 13 developed countries



The Internet is now far too important to leave it to the people that know how it actually works

The party is over (for most it never started)
Update: maybe and maybe not . . .

I* meeting

- ISOC, ICANN, RIRs, IAB, IETF & W3C CEOs & chairs
- Met in Montevideo the week of Sept 30, 2013
 - *“expressed strong concern over the undermining of the trust and confidence of Internet users globally due to recent revelations of pervasive monitoring and surveillance”*
 - . . .
 - *“called for accelerating the globalization of ICANN and IANA functions, towards an environment in which all stakeholders, including all governments, participate on an equal footing”*

Brazil

- Brazil announced it would hold an Internet governance meeting in March 2014
After the President met with the ICANN CEO
- Specifically, a multistakeholder meeting



Brazil President Dilma Rousseff




ICANN CEO Fadi Chehade

Today (literally)


- *High-Level Panel on Internet Governance* meeting in London
Vint Cerf, ICANN CEO, ISOC CEO, ex IAB chair, Wikipedia founder, VP Walt Disney, UAE telco regulator, President of Estonia, human rights lawyer, ex FCC commissioner, head China language lab, ...
- Input to March Brazil meeting

The elephant in the background


- It is a Post Snowden World
- US no longer has moral authority to “run the Internet”
- Embolden ITU
- Countries disconnect
- Future == past?



The Guardian



or



or a mixture?
