The Future of the Federation
INTERFEDERATION, K-12, AND CHANGING DEMOGRAPHICS

Tuesday, December 8, 2015 - 4 pm ET

Klara Jelinkova, Vice President and CIO Rice University, Chair of InCommon Steering

Ann West, Associate Vice President for Trust & Identity, Internet2
Themes

- Changing Nature of the Federation
- InCommon is Growing!
- Increasing Your Security
- Positioning for the Future
InCommon, operated by Internet2, provides a secure and privacy-preserving trust fabric for research and higher education, and their partners, in the United States.

InCommon services to the community include:
- Identity Trust Federation
- Assurance Program
- Certificate Services (business partner: Comodo)
- eduroam (soon)
What is the InCommon Identity Federation?

A registry of trusted organizations that are ready to participate in secure online relationships.

- Business-to-business (e.g. cloud)
- Individual-to-organization (e.g. research collaboration)
Today: Building the Registry of Trust Relationships

Mapping the Physical to Online

Shared Risk

Community Driven

User and Org Run-time Environment

Transparency of Community

Community Group-specific Policies

Publish What You Do

Biz-to-Tech Mapping

Community Ethos and Policy, Legal, Org Validation
The Changing Federation
InCommon Participants Year-by-Year

- 2004: 10
- 2005: 12
- 2006: 41
- 2007: 72
- 2008: 124
- 2009: 199
- 2010: 264
- 2011: 354
- 2012: 488
- 2013: 586
- 2014: 700
- 2015: 815
Overall Demographics

**Level 1:**
- RU/VH Schools based on Carnegie Classification
- ≥1$B Revenue Companies

**Level 2:**
- RU/H Schools
- No Corporate Level 2

**Level 3:**
- Doctoral, Large Masters, Medical Schools
- $10 M > $10B Companies

**Level 4:**
- Other Carnegie Classifications
- ≤ $10M Companies

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**Percentage of InCommon Participants by Annual Fee Level - 2009 v. 2015**

2009
- Level 1: 41%
- Level 2: 13%
- Level 3: 22%
- Level 4: 25%

2015
- Level 1: 16%
- Level 2: 10%
- Level 3: 27%
- Level 4: 47%
Breakdown by Category

December 6 Statistics

Higher Education: 542

Research/ Government Agencies: 33

Sponsored Partners (Corporate Primarily): 240

Percentage of Participants by Category
2009 v. 2015

- Higher Ed
- Research Org
- Sponsored Partner

2009:
- Higher Ed: 79%
- Research Org: 3%
- Sponsored Partner: 19%

2015:
- Higher Ed: 66%
- Research Org: 4%
- Sponsored Partner: 30%
Education Participants Change

Dec. 6 Statistics: 542

**Level 1**: RU/VH Schools based on Carnegie Classification

**Level 2**: RU/H Schools

**Level 3**: Doctoral, Large Masters, Medical Schools

**Level 4**: Other Carnegie Classifications

<table>
<thead>
<tr>
<th>Year</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
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<tbody>
<tr>
<td>2009</td>
<td>47%</td>
<td>15%</td>
<td>21%</td>
<td>38%</td>
</tr>
<tr>
<td>2015</td>
<td>21%</td>
<td>28%</td>
<td>14%</td>
<td>47%</td>
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</table>
December 6 Statistics of Sponsored Partners: **240**

**Level 1:** ≥$1 B Revenue Companies

**Level 3:** $10 M > $10B Companies

**Level 4:** ≤ $10M Companies

(No Sponsored Partner Level 2)
Shining a Light…

- New Demographics
- Changing…
  - Needs?
  - Service Requirements?
  - Support Requirements?
  - Other?
We’re growing!
Expanding the Boundaries
Expanding the Boundaries

- International Interfederation
- Scaling for K-12
Nature of Global Scholarship and Research

Survey of Internet2 Members Underway
• 63+ members so far
• 400+ programs found in 600+ program locations in 68 countries

China
• 75 programs (117 sites)
• 450 NSF and NIH funded collaborations = $250 million

India
• 25 programs (46 sites)
• 400 NSF and NIH funded collaborations = $190 million

In both countries, other US agencies doing multi-year, collaborative research projects
Internet2: Access to Global Instruments and Big Science
Why eduGAIN?

Identity federations today align with national boundaries

Research, collaboration and commercial activities do not

eduGAIN enables interfederation - interoperability among federations

More Info: incommon.org/edugain
How eduGAIN Works
## Importing eduGAIN Metadata into InCommon’s Registry

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<tr>
<th>(as of 2015-10-29)</th>
<th>BEFORE</th>
<th>AFTER</th>
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<tbody>
<tr>
<td><strong>Metadata file size:</strong></td>
<td>16,402,620 bytes</td>
<td>33,130,972 bytes</td>
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<tr>
<td><strong>Number of registrars:</strong></td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td><strong>Number of organizations:</strong></td>
<td>582</td>
<td>2,135</td>
</tr>
<tr>
<td><strong>Number of SAML entities:</strong></td>
<td>3,018</td>
<td>5,364</td>
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</table>
What Does Interfederation Mean to You?

Touches All the Trust Model:
- Federation Policy and Legal Scope
- Participant site changes
- End-user opportunities

- User and Org Run-time Environment
- Transparency of Community
- Community Group-specific Policies
- Publish What You Do
- Biz-to-Tech Mapping
- Community Ethos and Policy, Legal, Org Validation
Scaling Federation to Community Colleges and K-12

Opportunities and benefits for these organizations including state departments of instruction are huge.

Challenge - InCommon business/support model does not scale easily for K12.
Scaling Federation to Community Colleges and K-12

Solution
State and regional non-profit network providers (aka Regionals) have working relationships with these organizations

Regionals provide other services “above the network”
- E.g. firewalls, content filtering, server and application hosting, and other resources

Leverage Regional reach to extend federation services to K12 and community colleges
- Avoid duplication effort
Reaching K12 and Community Colleges: MCNC Pilot

Steward Role – MCNC serves as Registration Authority
InCommon outsourcing parts of the trust model to verified Regionals

Steward Model Pilot - InCommon and MCNC
- Defined responsibilities of the Steward and InCommon
  - New participant category: Support Consortia
  - Legal and Practice/Process Requirements

Look for Trust Model Review in 2016
What Does K12 Inclusion and Scaling for it Mean to You?

Touches the following:

Transparency of Community
- Trust Model Review in 2016

Possibly Group-specific Policies

Collaboration/Service Opportunities with K12 and Community Colleges
Increasing Your Security: Raising Trust
Raising Trust and Interoperability

Opportunity

• Raising ROI
• Increasing security and ease of deployment
• Diversifying service availability
• Enabling more secure collaboration
Raising Trust and Interoperability

Challenge

• Lessons Learned from Identity Assurance
• Chickens and Eggs
• Need to Raise all Boats
Raising Trust and Interoperability

• Move from publish-what-you-do to baseline self-attested statements, optional “best practices,” and Community Group-specific Policies

• Define standard vocabulary/lightweight practice sets for expressing run-time environment (e.g. MFA)

• Provide clarity, transparency, testing and “Good Housekeeping” seal

Look for more in 2016
What Does Increasing Trust Mean to You?

Touches the following:

• Local configuration
• Community Group-specific Policies
• Federation Participation Requirements
• Increased Security and Service Offerings
Positioning For The Future
Getting Our Ducks…

• Operations Review (completed 2015)
• Participant Study: How is the Community Changing? (Look for kick off 2016)
• Strategic Planning (Look for kick off in 2016)
Connecting Campuses to the National Identity Network

Connect You to Regional, National and Global Collaborations and Services

- Gather Requirements
- Leverage Open-source
- Connect them Together
- Ease and Secure Deployments
- Sustain

Look for More in 2016
What Does Positioning for the Future Mean to You?

You Tell Us!!

- User and Org Run-time Environment
- Transparency of Community
- Community Group-specific Policies
- Publish What You Do
- Biz-to-Tech Mapping
- Community Ethos and Policy, Legal, Org Validation
More Information

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<tr>
<td>Slides from today</td>
<td><a href="https://www.incommon.org/iamonline/">https://www.incommon.org/iamonline/</a></td>
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<td>InCommon’s Interfederation plan</td>
<td><a href="http://incommon.org/edugain">http://incommon.org/edugain</a></td>
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<td>Federation Interoperability Working Group</td>
<td><a href="https://spaces.internet2.edu/x/ioRRBQ">https://spaces.internet2.edu/x/ioRRBQ</a></td>
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<tr>
<td>Internet2 Trust and Identity in Education and Research (TIER)</td>
<td><a href="http://bit.ly/1kZs59q">http://bit.ly/1kZs59q</a></td>
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Questions
IAM Online Evaluation

Please complete a short evaluation of today’s presentation

InCommon Shibboleth Installation Workshops

February 4-5, 2016 – MCNC – Durham, North Carolina
Registration is open at www.incommon.org/shibtraining

April 14-15, 2016 (tentative) – TBA

May 19-20, 2016 – University of Chicago
Registration not yet open

www.incommon.org/shibtraining
Upcoming Webinar

Policy and Legal Considerations for Interfederation

Friday, Dec. 11, 2015 – 1 pm ET

www.incommon.org/edugain