

Understanding the **Power of Federations**

InCommon and eduroam

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Agenda

- What is InCommon?
- Federations Broadly
- Federation Zoom In: InCommon and eduroam
- Services Available in the InCommon Federation
- InCommon at Work - Three Real World Use Cases
 - Partnering with NIH
 - Easing NSF Changes
 - Research collaboration at three universities
 - Course Sharing
- InCommon Learning & Engagement Path
- Q&A

Introduction to InCommon @ Internet2

First, About Internet2



About

- 501(c)(3) non-profit membership organization founded in 1996 by the higher education community.
- 480+ members, including:
 - 300+ higher education members
 - 60+ industry members
 - 60 government agencies
 - 43 regional network partners
- 1,000+ InCommon Participants
- 1,600+ eduroam connectors
- 100,000+ Community Anchor Institutions

Infrastructure and Services

- Internet2 Network
 - 15,700 miles of dark fiber
 - 17.3 TB of capacity
 - 100G+ layer 2 and layer 3 speeds
- 20+ community-facilitated cloud services (NET+)
- Four components of the InCommon Trusted Access Platform
- Two access federations (InCommon Federation and eduroam)

What Does InCommon at Internet2 Do?

Help the US higher education and research community collaborate and access things via two community access frameworks:

- **InCommon Federation**
access to 6,200+ services
- **eduroam**
access to 3500+ wireless hotspots



We Have Tools & People to Help

Software - [InCommon Trusted Access Platform](#)

- Manages people and what they can access inside an organization
- Works for research projects too
- Connects with the InCommon Federation

Security Layer - [InCommon Certificate Service](#)

Professional Development and Training - [InCommon Academy](#)

Trusted Corporate Support - [InCommon Catalyst Partners](#)

Community Development and Engagement





But Did You Know...?

We're investigating

- Toolkit for **sharing courses** across consortiums
- Next generation **mobile access**
- **Toolkit for Federal Agencies** to make it easier for you to access their services

We're conducting

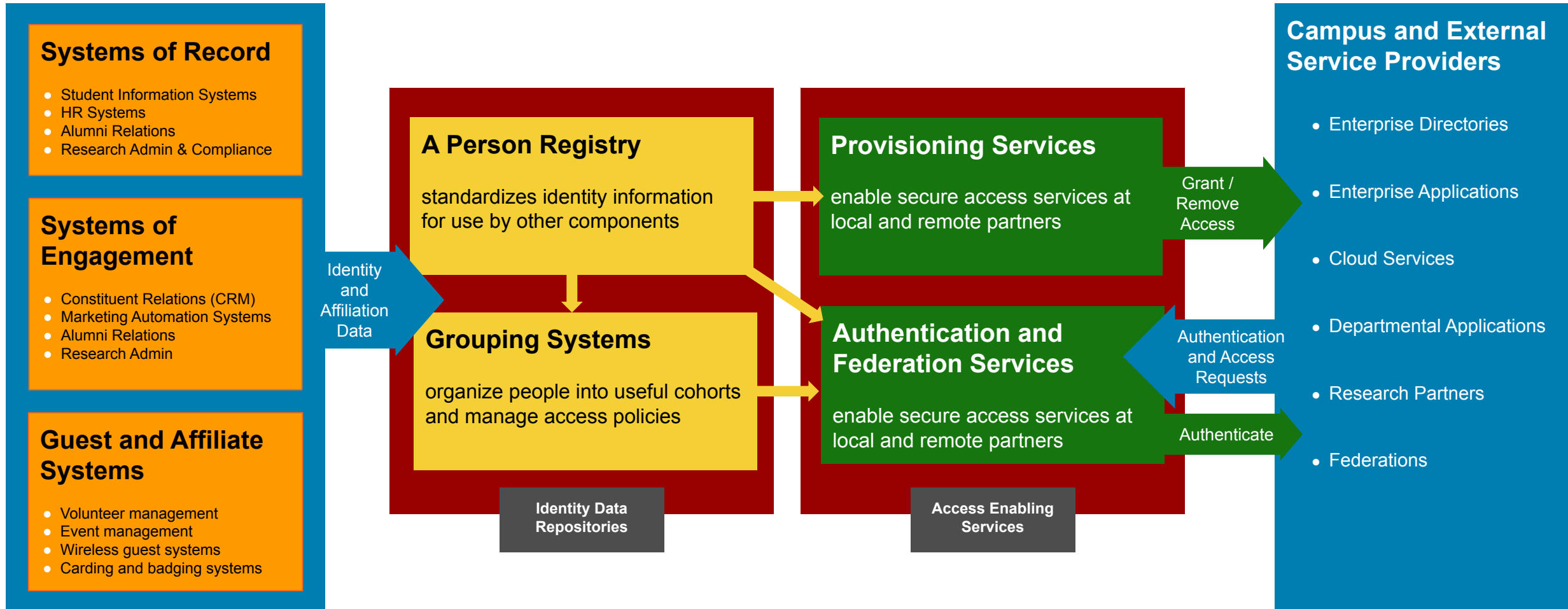
- A **community table-top exercise** to test national and international security incident response

We're developing

- **Practical information that you can use** about identity and access management

Understanding Federations

Architectural Components of an Identity and Access Management (IAM) Practice



2024: “There’s no such thing as *single vendor IAM deployment in Higher Ed*”

What is a Federation?

With a lowercase “f”

A **federation** is a group of computing or information providers agreeing upon standards of operation in a collective fashion.

Observation:

*If you have single sign-on today,
you are already using a form of federation.*

*InCommon just scales that up
in a way that works across organizations.*

Internet2 and InCommon Federations

Two Networks, One Mission: Seamless Access Everywhere

Eduroam (Internet2)

- Federated authentication service for global wireless access for the research and education community. Business model designed for campus deployments.
- Participating institutions provide access to their wireless networks to users from other eduroam connected institutions.

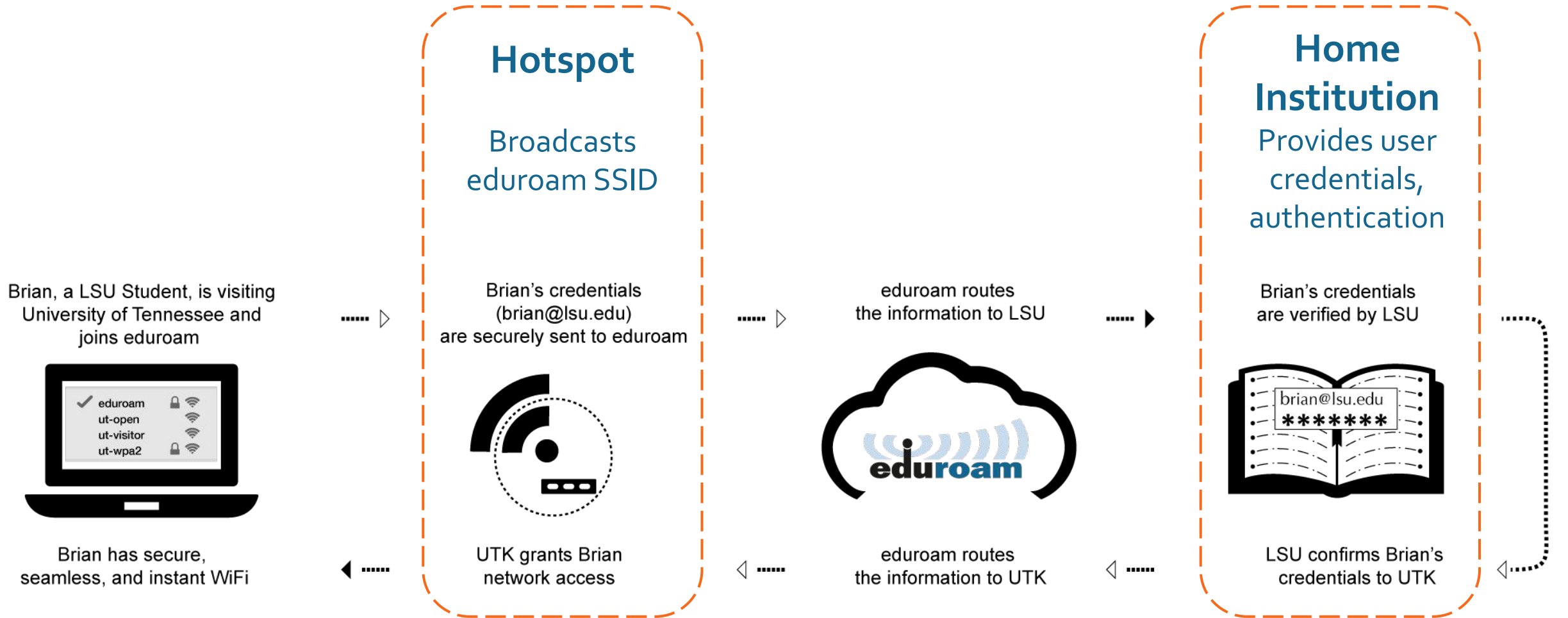


InCommon SAML (InCommon is powered by Internet2)

- Federated access to over 6,000 services for research and education.
- A trust fabric that facilitates secure and seamless access inter-institutional collaboration.

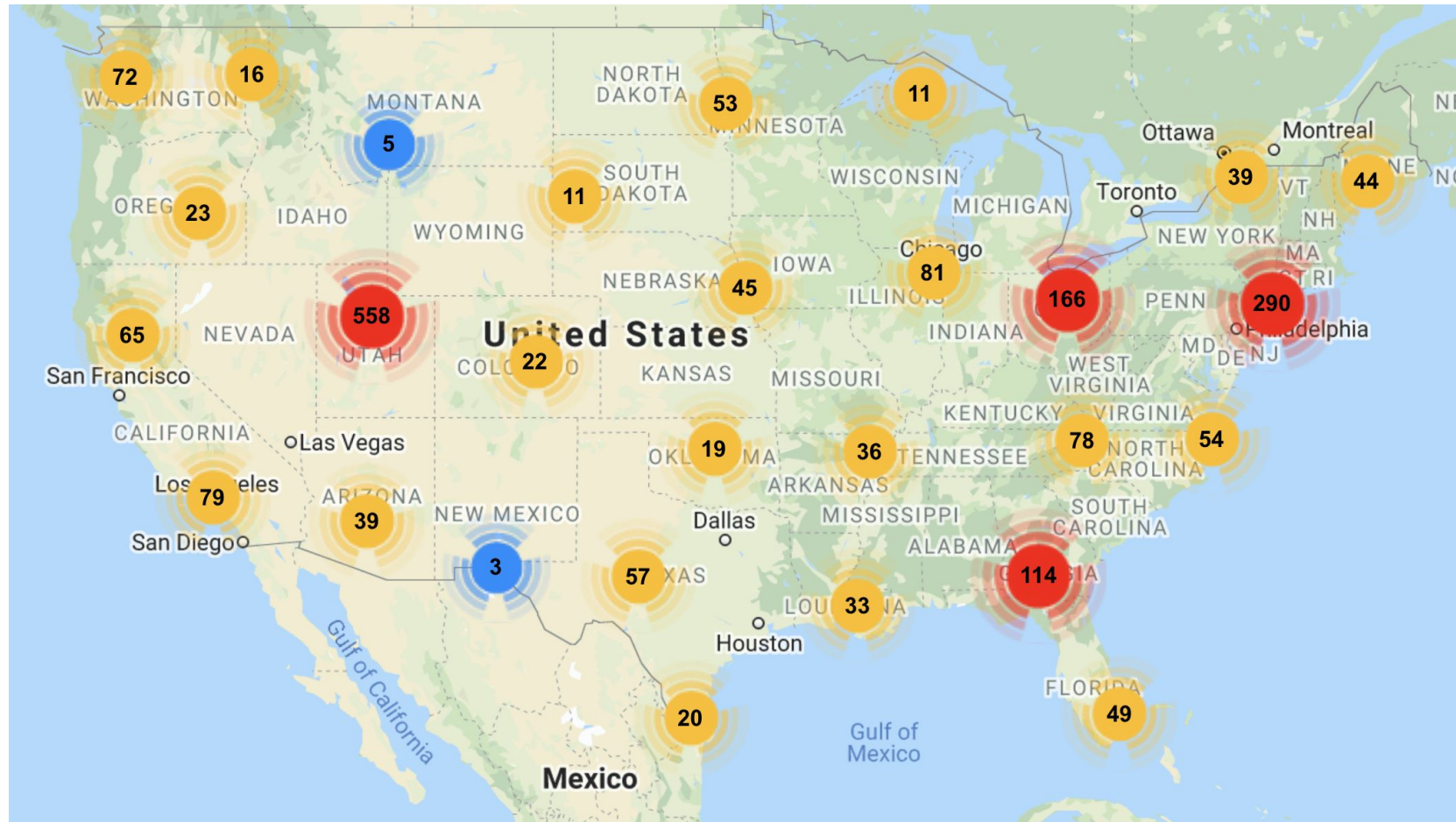


First eduroam



Where Can You Use eduroam?

...at thousands of locations in the United States



Where Can You Use eduroam?



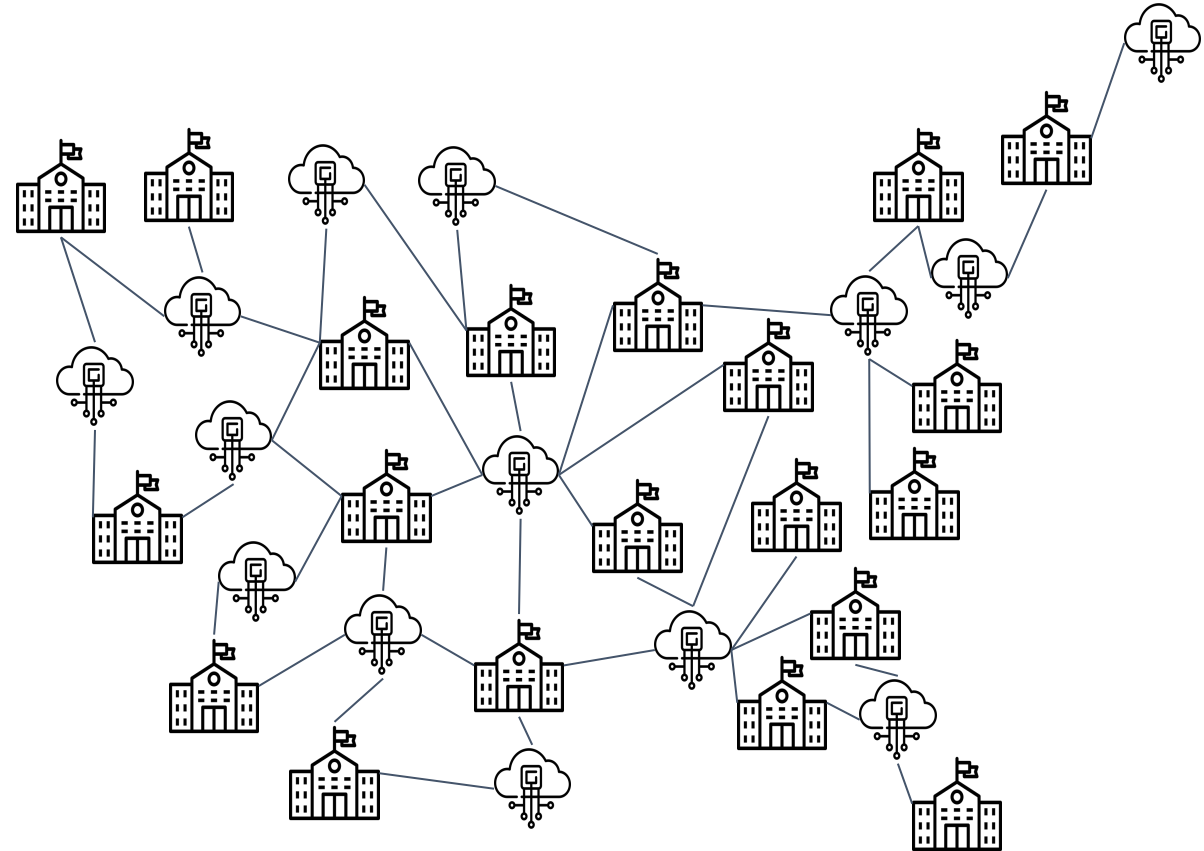
**...and all over
the world**

Now the InCommon Federation

Yes, a capital “F”

InCommon Federation is a **community of organizations** made up of higher education institutions, research organizations, commercial and government entities.

InCommon Participants ***agree to adopt community-curated identity management practices and standards*** to enable seamless academic collaborations.



The InCommon Federation Creates Trust

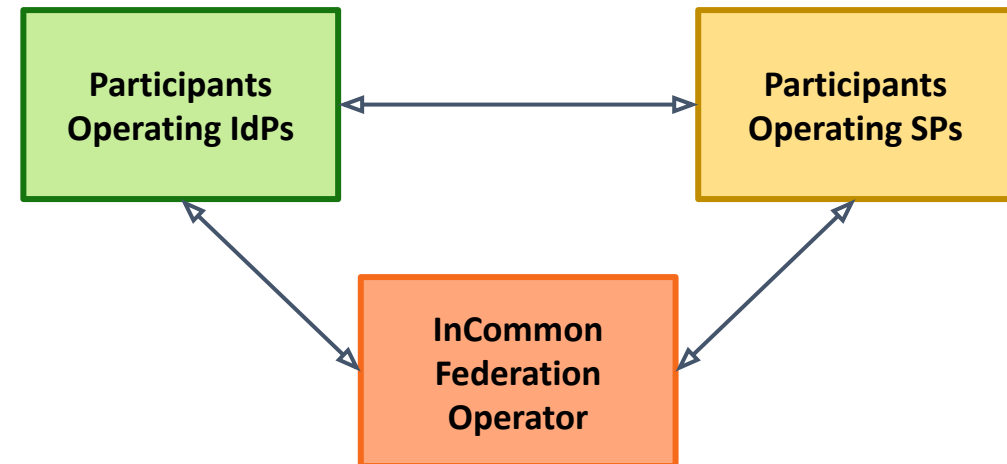
Trust at Scale: The Three-Way Handshake

The InCommon Federation creates multilateral trust among all federation Participants to exchange identity information in a secure manner.

Adherence to interoperability profiles scale that trust to thousands of participating organizations with millions of users.

Service Providers trust Identity Providers to securely authenticate users and provide accurate user information.

Identity Providers trust Service Providers to respect user privacy and to not misuse the information they receive.



The Federation Operator provides services to broker and facilitate this multilateral trust.

Federations at Work for You

InCommon Federation

Service Provider Categories

Contract Required

Service providers who require a separate contract.

Often commercial providers providing essential campus-side services.

Out-of-the-Box

Service providers offering access that an institution can use without an additional contract.

(e.g., “out-of-the-box” solutions)

Paywall for Content

Organizations that provide access immediately just by joining the federation, but have a paywall for content.

Mutual Services

Institutions offering services to each other.

Funding Agencies

Funding agencies who provide access to researchers and administrators to manage grants.

InCommon Federation

Service Providers by Type: **Contract Required**

- Vendors that are heavily used at institutions.
- Generally require licensing for participation.
- Likely to be commercial partners and federating would provide high value to end users.



InCommon Federation

Service Providers by Type - Out of the Box

- Organizations that provide access immediately just by joining the Federation
- “Out of the Box” with membership



InCommon Federation

Service Providers by Type: Paywall for Content

- Organizations that provide access immediately just by joining the federation, but have a contractual agreement requirement for content access.



InCommon Federation

Service Providers by Type: Mutual Services

Institutions providing services to one another:

- Innovative Digital Education Alliance (IDEA)
- Clinical and Translational Science Awards (CTSA)
- Related institutions providing service or sharing resources to others within the affiliation. Very common in state systems.



InCommon Federation

Service Providers by Type

- Funding agencies that provide free access to researchers and administrators, but have compliance requirements that must be met and proven before federated access can be granted.



National Institutes
of Health



InCommon @ Work
Real World Use Cases

Real World | NIH

Background: In the Fall of 2020, the National Institutes of Health (NIH) announced that they were making changes to increase the security of many of their services to better protect the sensitive data shared with researchers.

Requirements:

- **Release Necessary User Information** – Release the user information defined in the REFEDS Research & Scholarship (R&S) entity category.
- **Multi-factor Authentication** – Implement multi-factor authentication (MFA) request and response signaling using the REFEDS MFA Profile and perform MFA for a user when requested.
- **Share identity assurance information** – Signal user identity assurance information using the REFEDS Assurance Framework

Measures Taken: The NIH worked closely with InCommon to implement the enhanced measures.



National Institutes
of Health

Real World | NSF MFA Changes

Background: In November 2024, National Science Foundation (NSF) announces requirement for MFA

Requirement:

- Immediately - multi-factor authentication (MFA)
- Future - “Phishing Resistant” MFA

Measure Taken:

- Use of the InCommon federation allowed uninterrupted access to NSF administrative information if the institution had not previously signaled MFA
- Collaborating with the InCommon community to define “phishing resistant”



Quiz for you

Not graded, no worries

How many of you would say you know everything about your most prolific Principal Investigators and how they are accomplishing their work from a technology perspective?

How many would say they have great communication with the research enterprise?

Now the same questions now for your academic side eg Deans, Distance Learning, enrollment management

Real World | Multi-University Collaboration

Background: NIH awards a multi million dollar grant on mental health to three R1 institutions.

Requirement: Use GDrive for data storage.

Issue: At least one school is 100% Microsoft with minimal Google presence.

What would you do?

Real World | Multi-University Collaboration

Background: NIH awards a multi million dollar grant on mental health to three R1 institutions.

Requirement: Use GDrive for data storage.

Issue: At least one school is 100% Microsoft with minimal Google presence.

Their solution: The MS school created out of band Google provisioning with no lifecycle automation for de-provisioning or potential role changes.

Another solution: Use the InCommon Federation to allow home credential access using the provisioning and deprovisioning process the MS school already has in place. This would require one of the google schools to work with central IT

Real World | IDEA Course Sharing

InCommon, with the staff of IDEA, explored one small aspect of course sharing between 20 institutions - Access to the course Management System

Learned that there are many other areas on campus that could benefit

- Sharing library resources across institutions
- Facilitating dual-enrollment and bridge program partnerships
- And other creative efforts to open up access beyond university walls

Creating a toolkit to offer assistance in the areas identified in the exploration

- IT prioritization
- Communication with stakeholders
- Security
- SSO via the InCommon Federation









Why InCommon Federation?

Benefits to the R&E Community

- ✓ **Tailored to the Research and Education Community:** A community of trust and collaboration among 1000+ academic institutions, government agencies, and related organizations.
- ✓ **Identity Assurance:** Validated institutional authenticity through our comprehensive trust framework.
- ✓ **Streamlined Access Management & Interoperability:** Standardized protocols for easy cross-institutional resource sharing.
- ✓ **Federated Single Sign-On (SSO):** One set of credentials to access multiple services through your home institution.
- ✓ **Enhanced Security:** Robust protocols protecting user privacy and data while ensuring authorized access.
- ✓ **Extensive Service Network:** Access to 6000+ validated service providers and resources.
- ✓ **Simplified Collaboration Agreements:** Streamlined collaboration agreements between member institutions.
- ✓ **Community-Driven Governance:** Policies and services shaped by and for the R&E community.
- ✓ **Training and Support:** Comprehensive training, documentation, and community resources.

Getting from Here to There

InCommon Learning & Engagement Path

Get Started	Boost Skills & Competency	Solve Challenges	Gain Insights	Share & Influence	Get Support
					
<p>5-Day Virtual Event</p> <p>Learn the basics of IAM, Federation, and InCommon.</p> <p>Get connected and grow your network of peers.</p>	<p>Virtual Trainings & Resources</p> <p>Get up to speed on participating in InCommon Federation and eduroam.</p> <p>Build or deepen your expertise in IAM with hands-on training and workshops on the InCommon Trusted Access Platform.</p>	<p>Accelerator Programs</p> <p>Dive into focused programming and peer-to-peer learning to deepen knowledge, accelerator your IAM solutions together, and strengthen cross-institution collaboration.</p>	<p>InCommon Webinars</p> <p>Gain industry insights, thought leadership, and practical know-how.</p> <p>Explore trends and innovations shaping the future of IAM.</p>	<p>Community-Driven Opportunities</p> <p>Build on your successes, learn from others' experiences, shape the conversation, and drive community solutions.</p>	<p>Support Network</p> <p>Tap into industry expertise, connect with IAM specialists. get community insights, and access real-time help.</p>

NJ Edge | InCommon Program

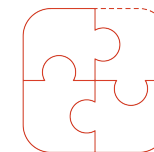
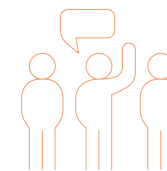
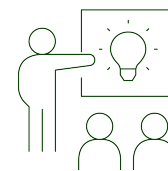
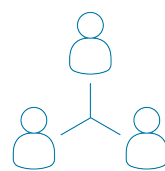
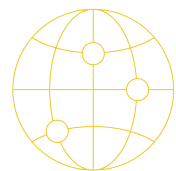
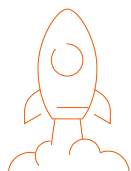
InCommon – Program Goals

CRISPIE: Enhancing Regional Connectivity Program

Our program aims to help CRISPIE participating institutions understand and leverage the InCommon Federation to enhance identity and access management (IAM) capabilities and enable federated access to your academic collaborations and shared resources.

- Gain a foundational understanding of IAM and federation concepts
- Learn how the federation works, its role in higher education and research, and its benefits within the consortium and for cross-institutional collaboration
- Get insights into optimizing IAM infrastructures to ensure technical readiness, facilitating access to services and shared tools
- Get exposure to real-life implementations and experiences from other institutions already participating in the federation
- Learn about solutions and technical resources to address their specific federation challenges, including community-supported tools and contracted services

Program Journey



Kick Off
Let's Get Started

Engagement overview, meeting participating institutions

Learn
Self-Paced

Institution discovery, self-paced learning, workshop prep

Federation 101
Workshop

Foundational concepts of Federation – what it is and why it matters

Deeper Dive
Workshop

How Federation works and the technical requirements

Showcase
Workshop

Peer learning and practical insights

Office Hours
Workshop

Ask questions, address challenges, get support

Solutions Salon
Workshop

Technical solutions and accessing industry and community support

Thank you!