



RESEARCH CYBER SECURITY
GEOLOGY CHEMISTRY VIRTUAL REALITY
HIGH PERFORMANCE COMPUTING mathematics ASTRONOMY INCOMMON
eduroam IDENTITY cloud computing
ADVANCED NETWORKS physics STEM
EDUCATION CLIMATOLOGY
DISTANCE LEARNING GENOMICS
ARTS & HUMANITIES BOTANY meteorology
LOLA OCEANOGRAPHY ECOLOGY
BIG DATA
TECHNOLOGY
science BIOLOGY
ENGINEERING

Agenda

- Today's Objective
- Context
 - Internet2
 - Quick History
 - Programs and Services
 - Community
 - Drill Down – Community Needs
- The Gap
- Connection To ITANA
- Discussion

Why?

Jumping ahead...

Closing the Gap: Internet2's Connection to Architecture

- Community Landscape is Increasingly Complex
- Community Reach is Expanding
- Institutional Skills Inherently Limited
 - Demands Are Complex
 - Not All Needs Prescribe Full Time Staff
- Community Drives Community
- *Assertion:*
ITANA Is A Community of Talent Sought and Needed By Broader Community

Internet2 Context

History and Relevance to Today



Internet2: Historical Context

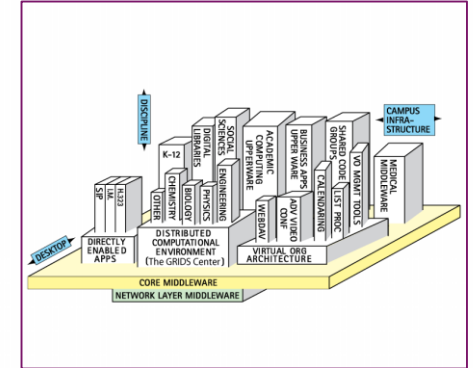


1996 – Internet2 Project is formed by 34 university leaders

80 higher education members by year's end

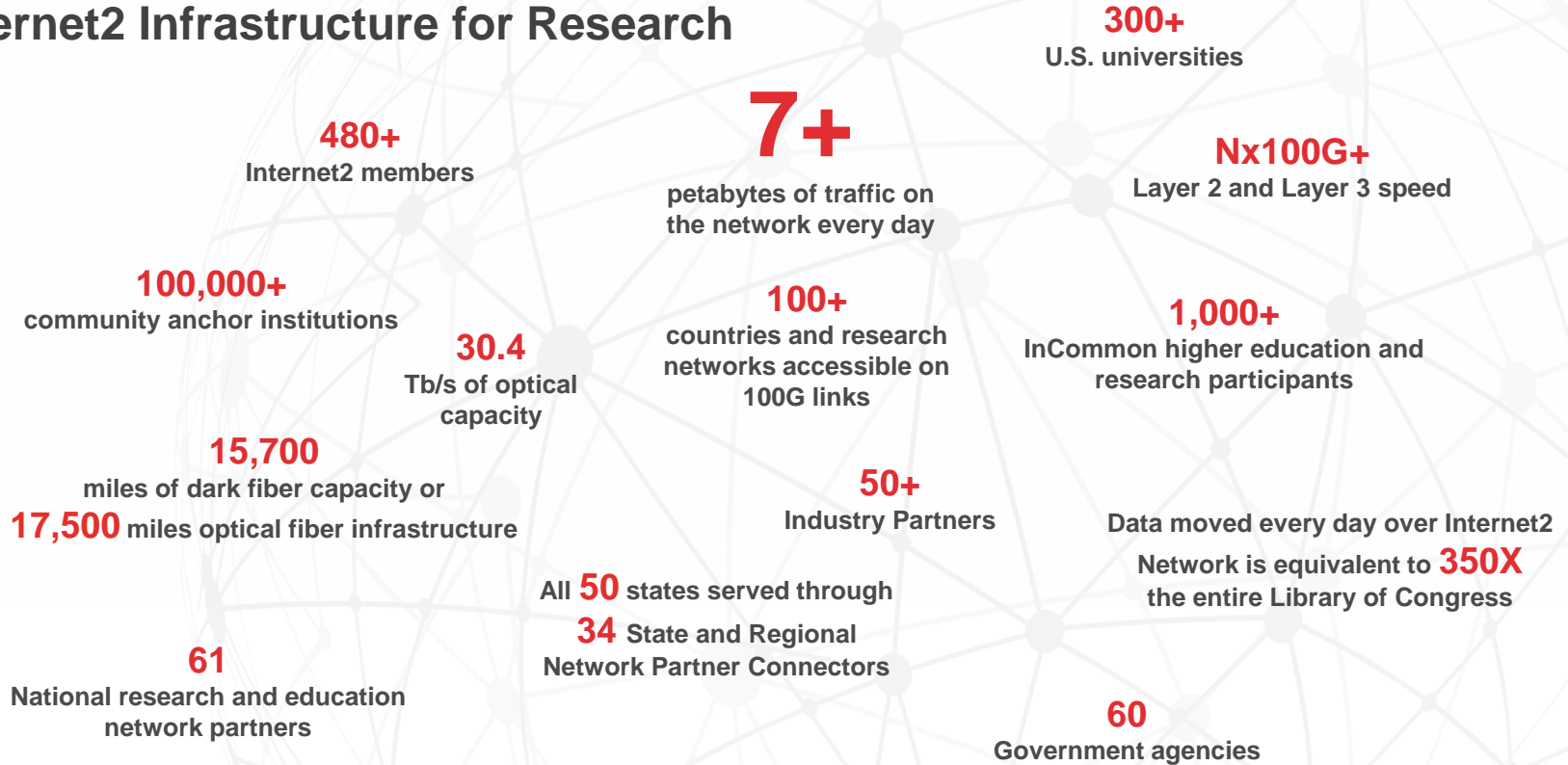


1998 – The Internet2 Abilene Network is announced at the White House with Vice President Al Gore



1998 – Internet2 launches Middleware Initiative

Internet2 Infrastructure for Research



Internet2 exists to...

facilitate collaborative effort of U.S. higher education institutions to design and provide selected mission-critical services required to advance all aspects of their academic and service missions.

Internet2 works by...

engaging mutual-interest collaboration across diverse communities to advance scholarship and accelerate discovery.

higher education

industry

regional networks

international networks

government agencies

research and cultural institutions



Internet2 Network Research Support Capacity



Built on a new 17,500-mile national optical infrastructure equipped at 30.4 Tbps



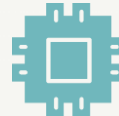
On-Demand Cloud
Connect to Amazon,
Microsoft & Google –
Others available



Flex-Grid Open Optical Line
System supporting up to
800GE Wavelengths



Software API's allow
dynamic L2/L3
networks from
application layer



62 add/drop colo facilities,
44 router nodes, 300+
Ciena 6500 optical elements

Sampling of Internet2 Member Impact

GENOMICS

Clemson University, National Library of Medicine (NLM)

Scientists deeply engaged in genomics research with two new AL2S high-speed connections, resulting in 1500% transfer improvements of DNA sequence sets to NCBI.

TELEMEDICINE

University of Missouri

In-home physical therapy treatments conducted by remote practitioners via high-definition videoconferencing technology, resulting in more frequent and effective rehabilitation and health outcomes.

HIGH-ENERGY PHYSICS

California Institute of Technology

CA's statewide R&E network, Large Hadron Collider Open Network Experiment (LHCONE), University of Florida, University of Illinois, University of Nebraska-Lincoln.

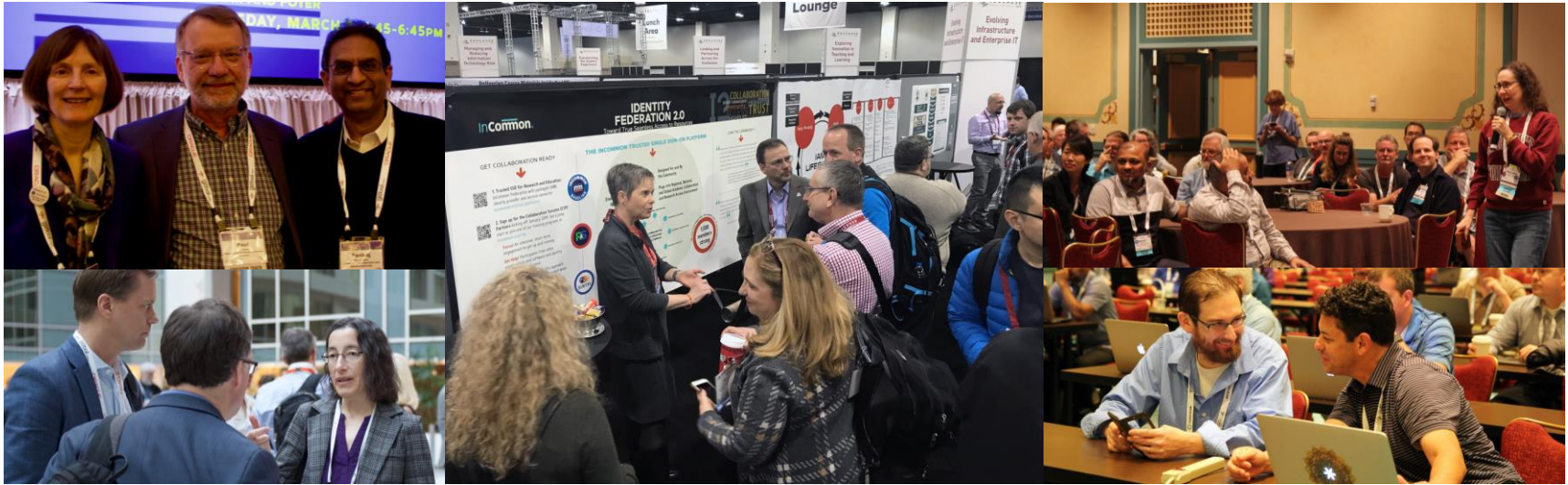
Gravitational-wave Astrophysics

LIGO Scientific Collaboration (LSC) consisting of over 1,300 collaborators at 112 institutions in 20 countries, Laser Interferometer Gravitational Wave Observatory (LIGO), California Institute of Technology, Massachusetts Institute of Technology, astronomy.org -operated by the Leonard E. Parker Center for Gravitation, Cosmology and Astrophysics at the University of Wisconsin – Milwaukee

LIGO collaborates with astronomers all over the globe who are looking at the sky at the same time, but with different types of instruments, and who need ways to share discoveries securely. It is a significant challenge to keep track of LIGO participants, their roles, and who has access to shared resources. To help with these daunting tasks, LIGO has employed many trust and identity tools created by the Internet2 community, which have become integral parts of LIGO's daily operations.

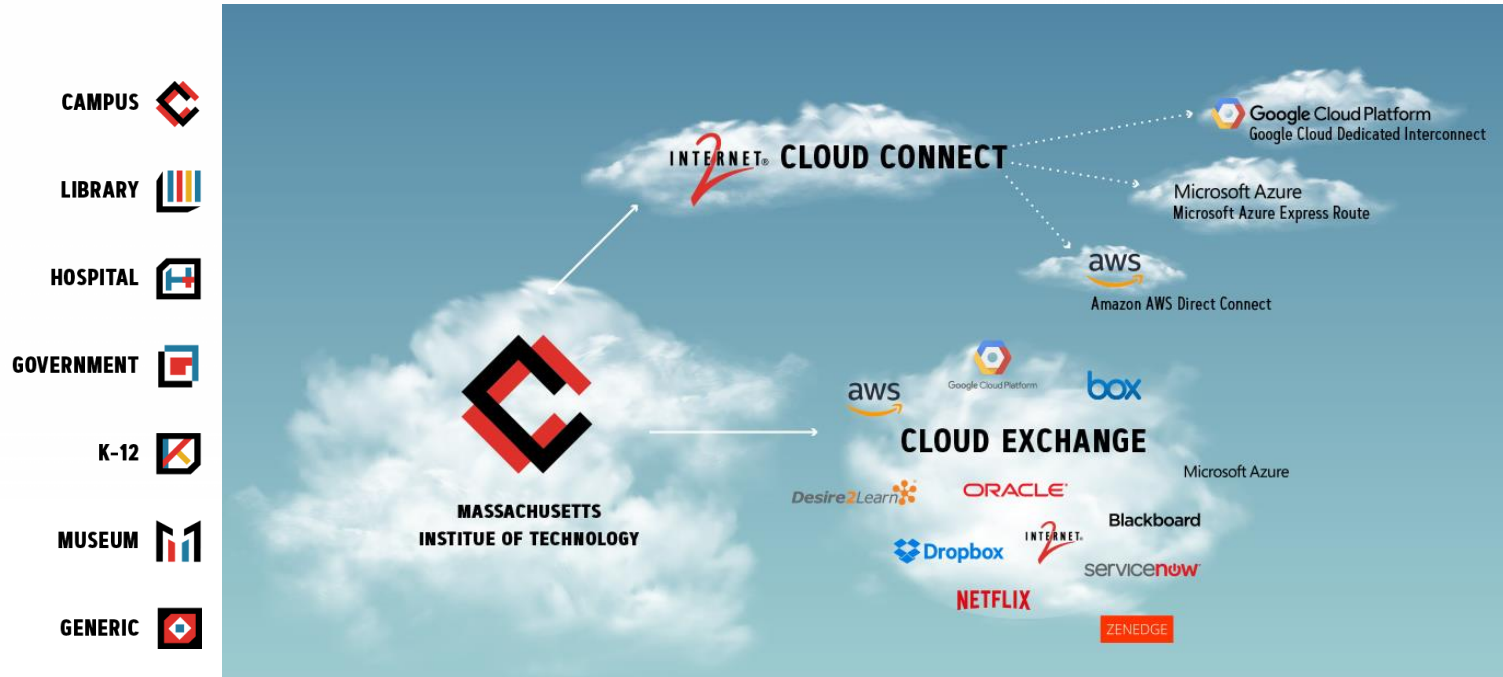


The Internet2 Community: An Unparalleled Human Network



- Nearly 500 member institutions
- 100,000+ community anchor institutions
- Initiatives, working groups, program advisory committees, and community award programs
- International partners

Cloud Services: 38 Campuses using Cloud Connect via Internet2 and Regional Networks



The Internet2 Network and Next Generation Infrastructure (NGI)

Advanced network services separate from the commodity internet

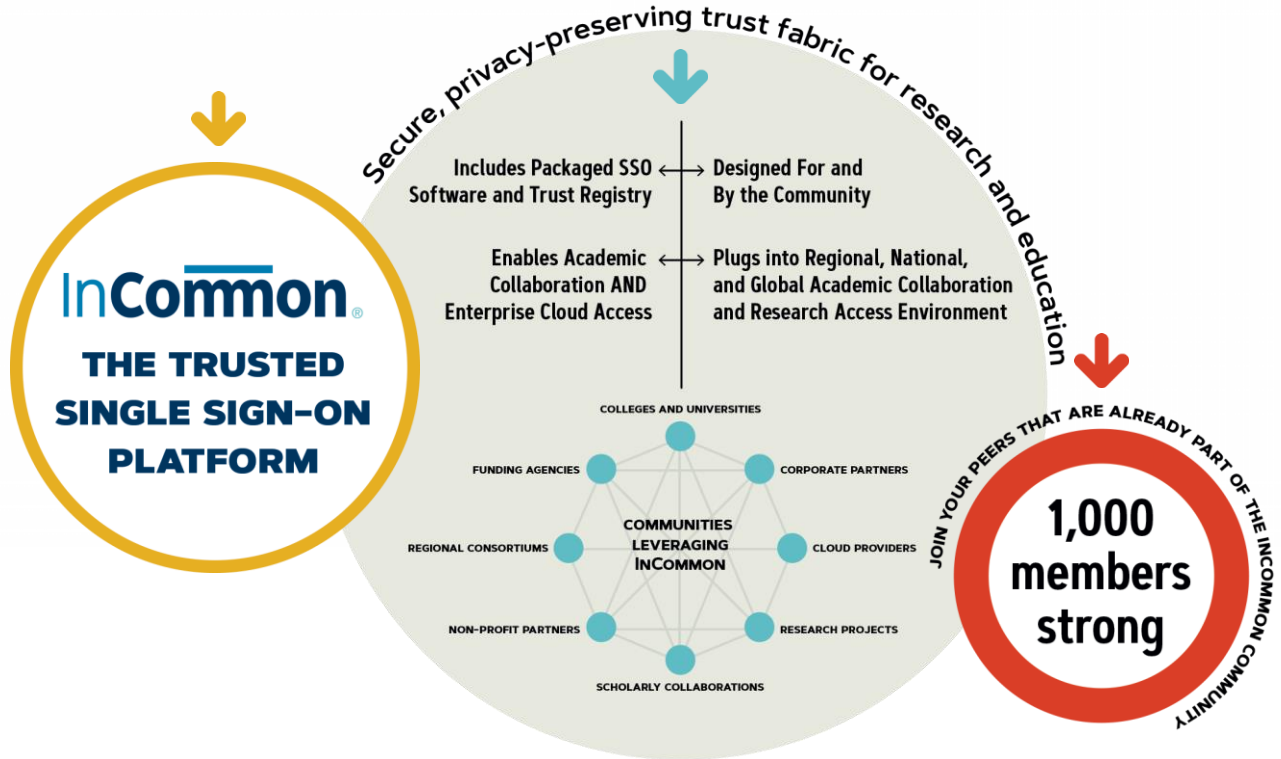


- Support for Emerging Science
- Software-Driven Infrastructure
- Automated & Programmable
- Cloud Access Services
- Embedded Security

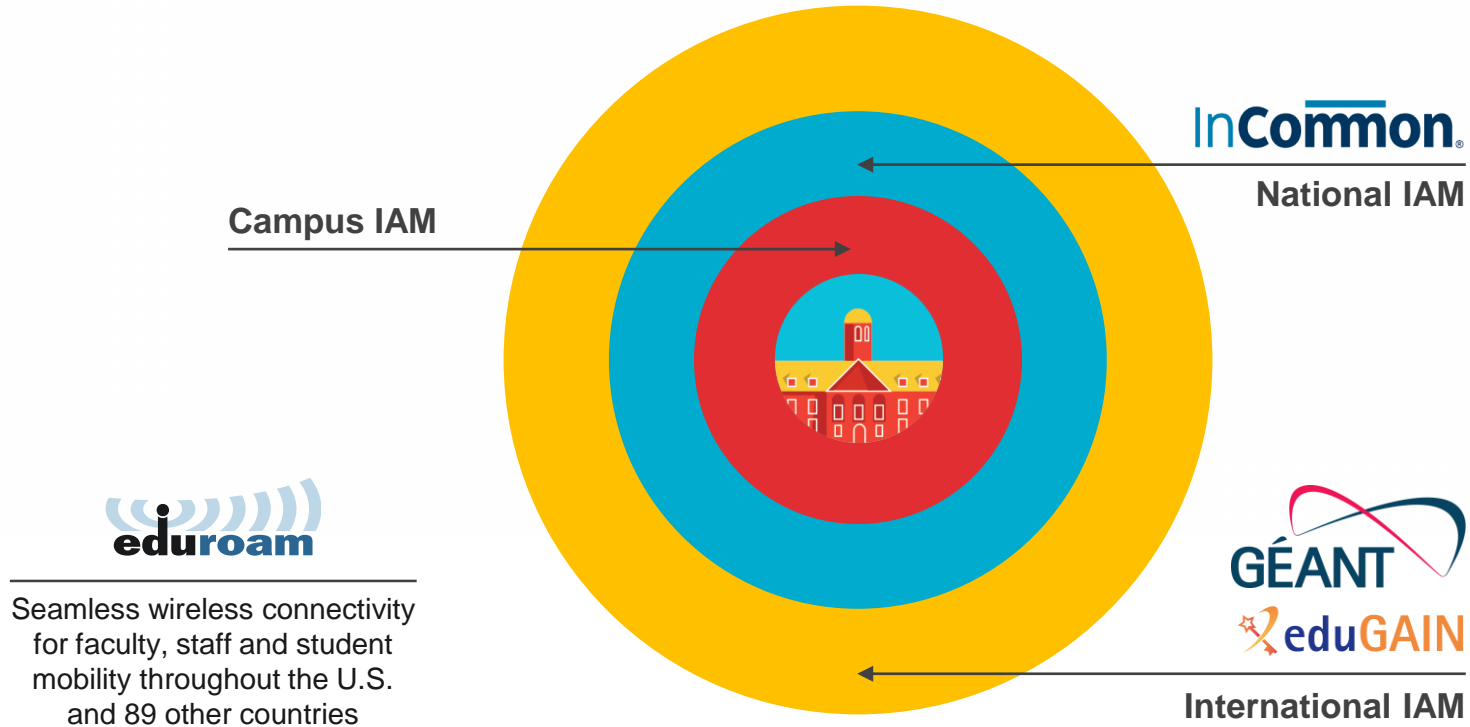
- Infrastructure Sharing
- Regional/National Integration
- Enterprise Support
- Global Reachability
- Measurement Services

- Research Data Services
- Resiliency
- Operational Economics & Scalability
- Secure Management

InCommon: Services and Software



Identity Management Locally, Nationally and Internationally



InCommon Trusted Access Platform

Proven R&E identity standard and academic enterprise can trust

InCommon[®]
FEDERATION

Simplified access to global scholarly
and scientific cloud and collaboration services

InCommon[®]
CERTIFICATES

Web security with reduced operational
complexity and higher efficiency—
designed for the academic enterprise.



eduroam

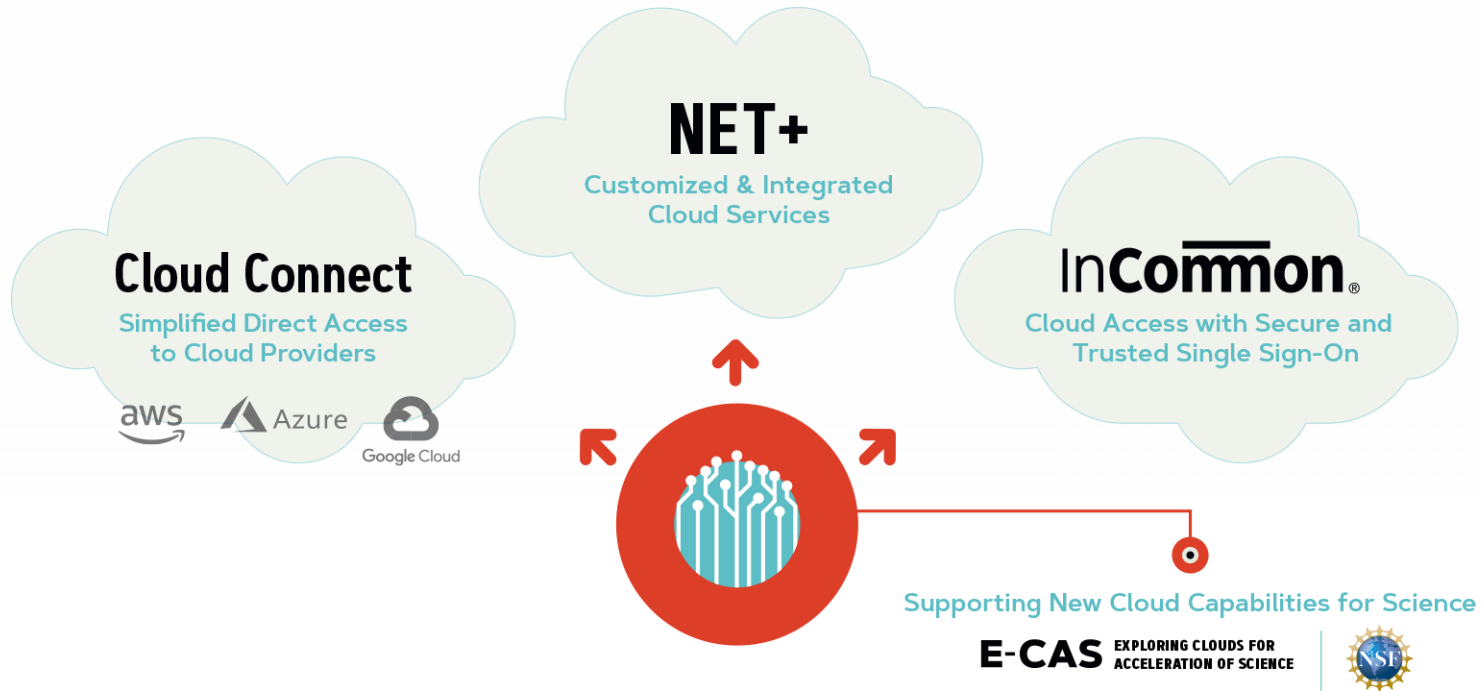
Wi-fi anywhere in the world, with
your home institution's credentials.
No additional logins!

InCommon[®]
**TRUSTED ACCESS
PLATFORM**

Easy-to-install identity and access management
software suite, developed by and for research and education.

Internet2 Cloud Initiatives

Tailored Cloud capabilities for research and education



NET+ Cloud Service: Key Elements



Developed through a community led Service Validation Process

Reviewing services to ensure they meet higher education needs in areas such as functional, technical, security and compliance, business and legal, and other areas of importance.



Backed by a group negotiated Facilitation Agreement

Ensuring standard and differentiated higher education contract terms and conditions, and discounting for qualified institutions.



Supported and Maintained by a Service Advisory Board and Internet2 Program Manager

Convening the community in meaningful ways around cloud services while supporting ongoing management of the service offering.

A TRUSTED ECOSYSTEM of Tailored Top-Quality Cloud Solutions

INFRASTRUCTURE
& PLATFORM



SOFTWARE
AS A SERVICE



VIDEO, VOICE &
COLLABORATION



SECURITY &
IDENTITY



ACQUIA®

powered
by **aws**

Blackboard®

 canvas

 Cisco Cloudlock

 CODE42

D2L¹

 Dropbox



DocuSign®

 Google Cloud

 labarchives
Research Notebook

LastPass...|

 CenturyLink

 Mitel

ORACLE
CLOUD INFRASTRUCTURE

 Panopto™

serviceNOW®

 SKYSYNC

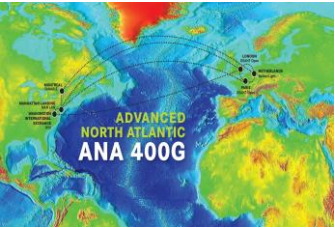
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by nyansa

zoom

Global Collaborations and Services Supporting Research

Network Infrastructure



Trust and Identity Framework



Collaboration & Participation



.....and more

Community Anchor Program



Unites 43 state and regional research and education networks, K-12 schools, public libraries, colleges and universities, health care facilities, museums, and other cultural and historic organizations—our nation's community anchor institutions—to explore how advanced broadband capabilities can serve formal and information learning, for everyone, no matter where they're located.

87,796	K-12 Schools
5,336	Public Libraries
1,532	Colleges & Universities
1,062	Community or Vocational Colleges
1,900	Health Care Organizations
3,235	Other CAIs
100,000+	CAIs connected to Internet2

Engagement in a Community of Scholars, Scientists, Industry and Government



Convening leaders from around the world to drive innovation and global discovery in research and education



A premier annual global R&E technical event redefining the R&E technology landscape

WORKSHOPS & WEBINARS

Practitioners collaborating to build innovative, better-yielding networking, trust and cloud technologies

Connecting the Community

A Deeper Dive

The InCommon Academy Philosophy

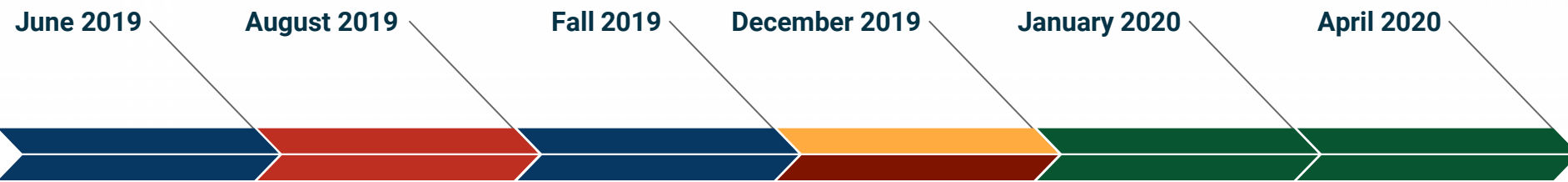
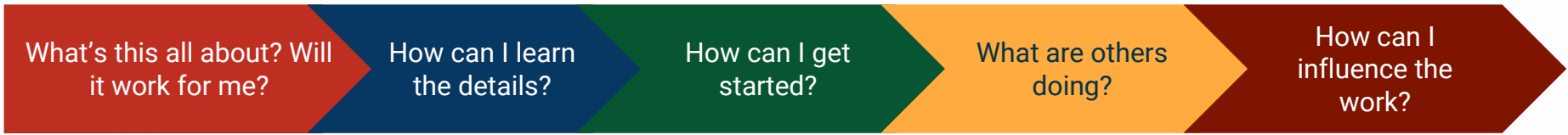
InCommon®

**TRUSTED ACCESS
PLATFORM**

Community-designed identity
and access management
services and software
connecting you to the world.

- One-stop shop: Learn IAM basics to design to implementation.
- Join in where it makes sense for you.
- Learn from on-the-ground community implementers.
- Compare notes with your peers at similar organizations.
- Know you are implementing community practices.

The InCommon Academy at a Glance



Grouper School
University of Wisconsin,
Madison

BaseCAMP
Milwaukee, WI

Component Training Workshops
Sessions for midPoint, COmanage, Grouper, and Shibboleth

CAMP Advance CAMP
Technology Exchange @ New Orleans, LA

Collaboration Success Program
Kick Off

Collaboration Success Program
Concludes and shares experiences



CAMP

Community Architecture and
Middleware Planning

Go CAMPing

Community Architecture and Middleware Planning



01

BaseCAMP

Learn the basics of identity management, InCommon Federation, and InCommon Trusted Access Platform.

02

CAMP

Apply the basics to current and emerging IAM and access to services.

03

Advance CAMP

Community sharing, problem solving, and planning for tomorrow's IAM and access to services.

BaseCAMP

Get started.

InCommon.

- **New** - just like its intended audience!
- **Learn the basics** of identity management, offering federated services, InCommon Federation, and Trusted Access Platform.
- Find out about **common practices** in community-lead sessions.
- Get a **Crash Course** in the Hands-on, Minds-on sessions.
- **Leave with how to learn more and how to get help.**
- Learn from a **mix of lectures, interactive, and mini-workshops to keep attendees energized and engaged.**
- **Register now** for our August workshop in Milwaukee.
 - August 13-15, 2019
 - <https://meetings.internet2.edu/2019-basecamp/>

InCommon TechEx Track: **CAMP**

InCommon.

Make Your Work Easier, Better.

- **Tracks drawn from your proposals.**
- Discover how your **production access management system** can better work for you by engaging with peers and experts from the community.
- Find out about **functionality and operations changes** slated for the next year.
- **Meet peers** with similar IAM challenges. Learn how they are solving them and share your ideas.



InCommon TechEx Track: AdvanceCAMP

Explore Broad Trends.

- Explore emerging **identity-related trends** common across research and education.
- Engage in **development topics** associated with broader community coordination.
- Collaborate to **develop common approaches** to identity challenges and open source software development.
- Learn about **international solutions**.
- Don't miss the AdvanceCAMP **on-site agenda setting**. Last year's agenda can be found here:
<https://spaces.at.internet2.edu/display/ACAMP/ACAMP+2018+Home>





InCommon Component Training

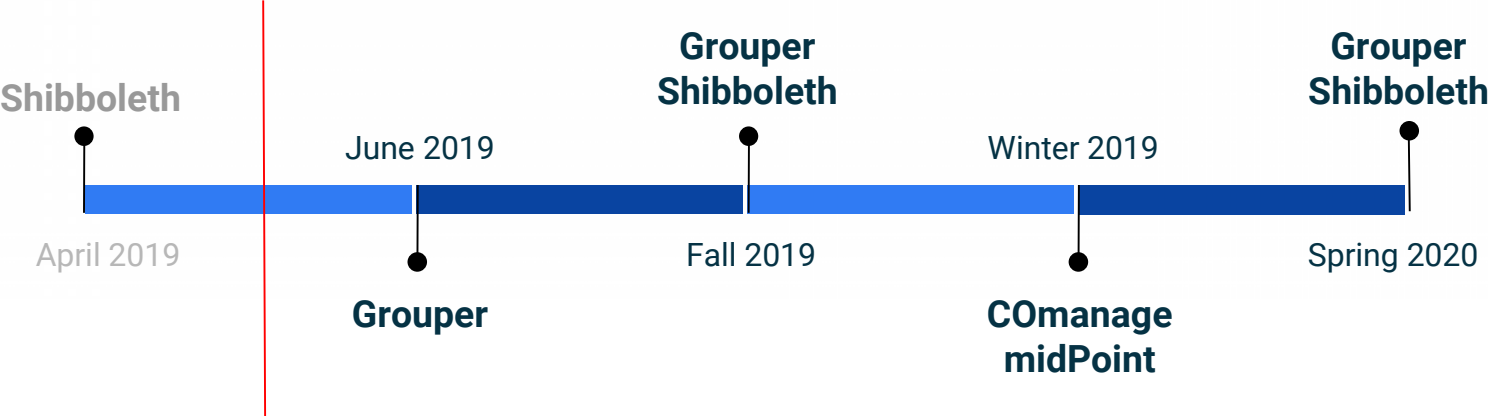
Component Training Workshops

What to expect:

- Attend two-day sessions that mix lecture with hands-on training and discussion.
- Learn about configuration, integration, and production topics.
- Get experience with Docker containers in a virtual machine (VM) environment.
- Bring your questions and ask the community and staff trainers.
- Meet new friends from organizations across the country.



Component Training Schedule



Implementation Help Collaboration Success Program



Collaboration Success: Strength in Numbers

What is the Collaboration Success Program?

A four-month intense collaborative engagement to help you implement Trusted Access Platform software and services.

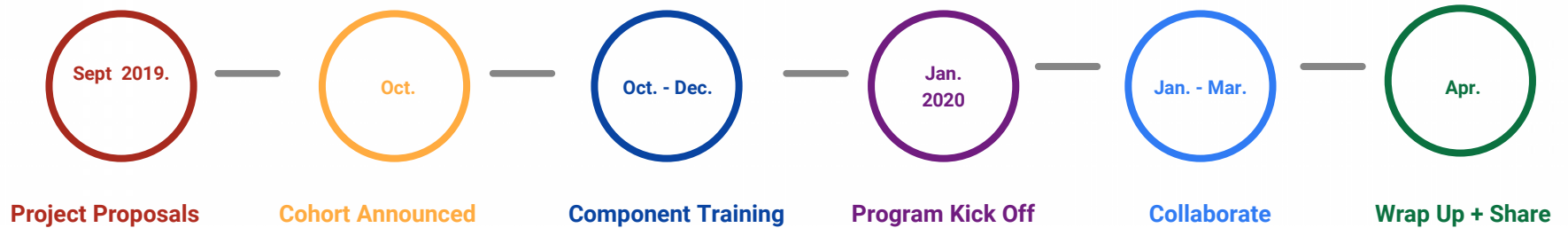
Why Join?

- Collaborate with a like-minded peer cohort.
- Direct access to subject matter experts for guidance.
- Program staff keep project plans in motion while removing blockers.
- Leave with knowledge and a completed project.

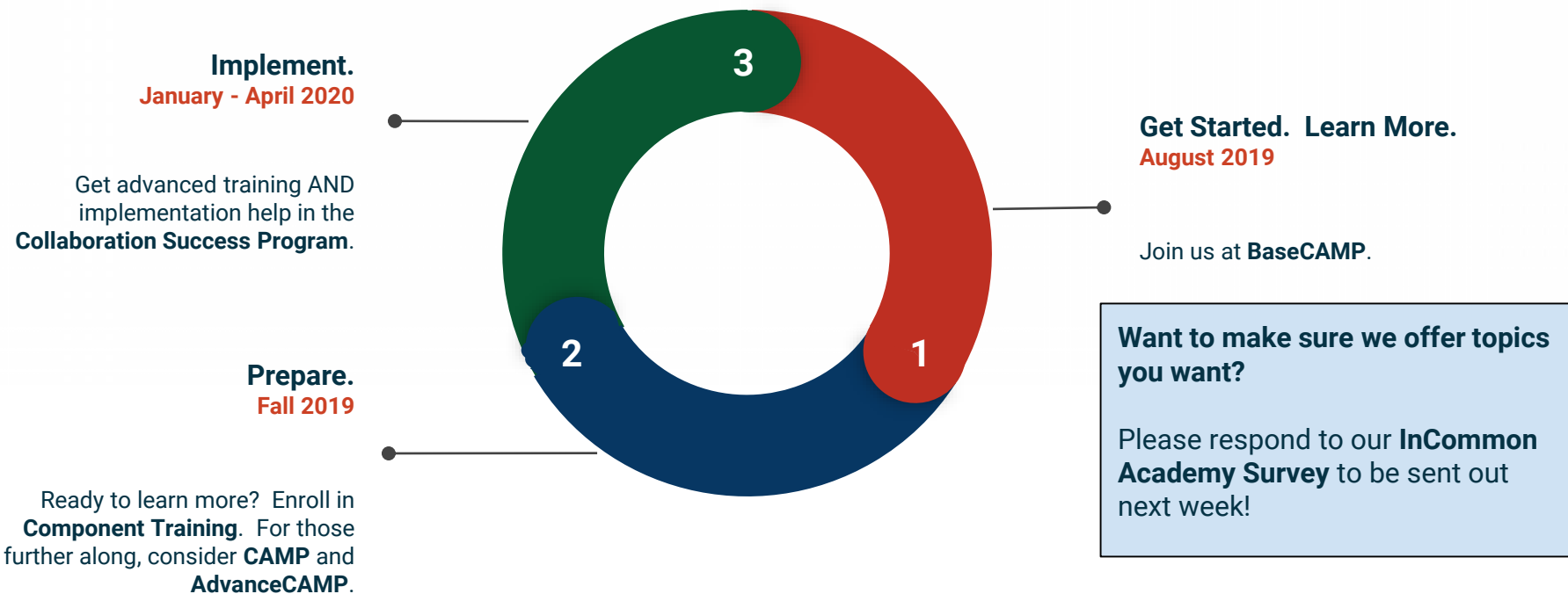


Collaboration Success 2020 Timeline

Draft



Jump in where its right for you.



Boiling It All Down



InCommon[®]
**TRUSTED ACCESS
PLATFORM**

- Continue the success and momentum established initially by NSF and accelerated and amplified by the TIER Program.
- “Make the tent bigger.”
- Lower the bar for entry.
- “Professionalize” support.
- Train and teach a community.
- Ensure that the solutions continue to meet our unique needs.

Closing the Gap: ITANA's Connection to Architecture

- Landscape is Increasingly Complex
- Community Reach is Expanding
- Institutional Skills Inherently Limited
 - Demands Are Complex
 - Not All Needs Prescribe Full Time Staff
- Community Drives Community

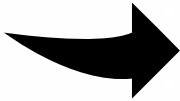
- Assertion: ITANA Is A Community of Talent Sought By Community

Exploring the Possibilities: ITANA and INTERNET2

- Idea #1: A Registry of Known Practitioners
 - Self-Asserted Skills in a “Who’s Who” Format
 - Community Members Seek, Qualify and Engage Independently As Skills Are Needed
- Idea #2: Program and Working Group Subject Matter Experts
 - Solicited by Working Groups: CACTI, TAC, BPLAAC, CSTAAC and more
 - Subject Matter Experts submit their willingness to participate in qualified Internet2 Community Working Groups and selected by WG Leaders for inclusion in Community Projects and Program Activities such as Collaboration Success Program, API and Data Structures working groups and more...
- Idea #3: A “Help Wanted” Program
 - Community members with active projects broadcast their needs

Discussion: Exploring the Possibilities


1. Present the idea to ITANA's Board
2. Present the possibilities to ITANA Community
3. Collect and Synthesize ITANA Community Response
4. Identify Next Steps and Create Opportunities





2020
global
SUMMIT

MARCH 29-APRIL 1
INDIANAPOLIS IN



See you at
GLOBAL
SUMMIT!

Thank You!

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