INTERNET2®

2017 global SUMMIT

CINC UP: CYBERSECURITY RESEARCH ACCELERATION TRANSITION TO PRACTICE (TTP) WORKSHOP AND SHOWCASE (NSF #1650445)

April 26, 2017

BRINGING NETWORKS TOGETHER

gs17

CINC UP: CYBERSECURITY RESEARCH ACCELERATION TRANSITION TO PRACTICE (TTP) WORKSHOP AND SHOWCASE (NSF #1650445)
AGENDA

- Goals and Approach for Cybersecurity Research Transition to Practice Acceleration
- University CIO Perspective on Leveraging Cybersecurity Research, Bruce Maas, University of Wisconsin-Madison
- Cybersecurity Researcher Presentations
  - **Identity & Access Management and Network Security**
    - Jim Basney, University of Illinois at Urbana-Champaign
    - Roberto Perdisci, University of Georgia
    - Ted Allen, Ohio State University
    - Christian Collberg, University of Arizona
  - **Smart Grid** – Aranya Chakrabortty, North Carolina State University
  - **Cloud Security & Storage** – Radu Sion, Stony Brook University
  - **Data Analytics & Security**
    - Alex Rasin, DePaul University,
    - Raju Gottumukkala, University of Louisiana-Lafayette
  - **Internet of Things**
    - Fareena Saqib, Florida Institute of Technology
    - Michael Anderson, University of Hartford, Susan Anderson, University of Connecticut

End-to-End Trust & Security was one of the top three focal areas identified in a May 2015 Internet2 member innovation survey.

E2E Trust & Security (E2ET&S):

- TIPPSS for IoT – Trust, Identity, Privacy, Protection, Safety, Security
- NSF EAGER Cybersecurity Transition to Practice (TTP) Acceleration
- SDP (Software Defined Perimeter), Network Segmentation for IoT

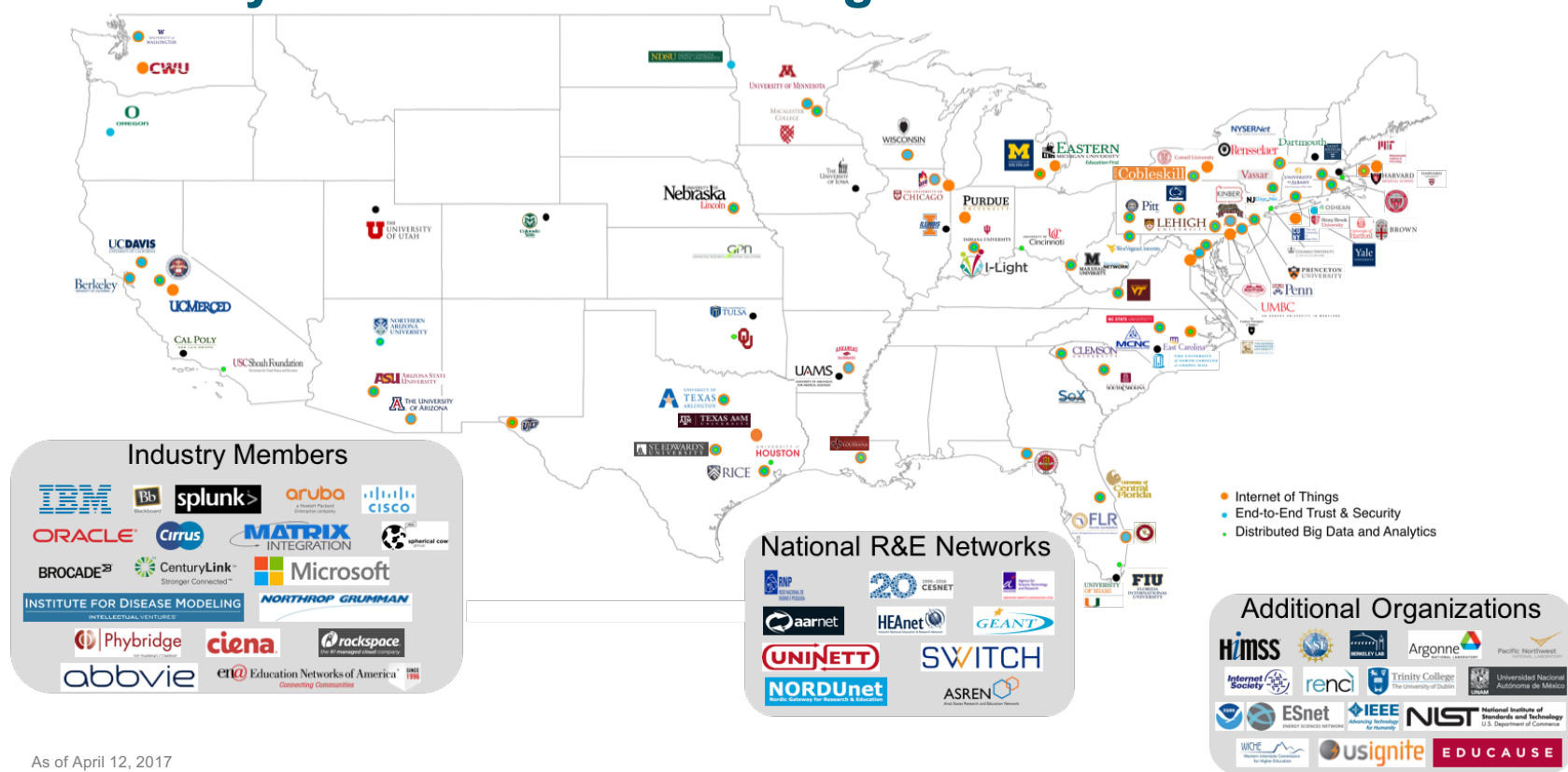**Distributed Big Data & Analytics (DBDA):**

- Health & Life Sciences / Genomics
- Smart Campuses and Cities
- NSF Big Data Hub Collaboration
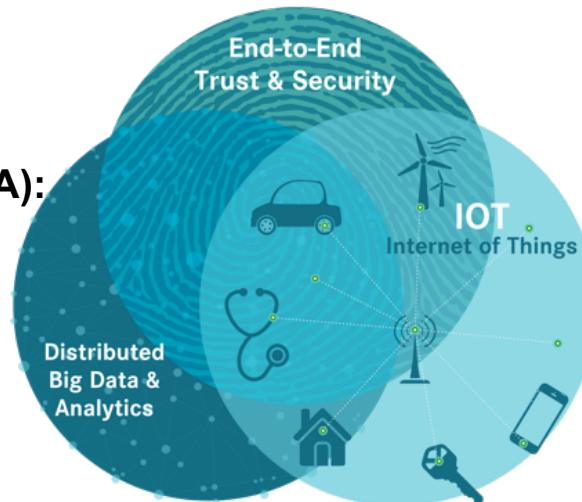
Internet of Things (IoT):

- IoT Sandbox
- Smart Campuses and Cities
- Smart Grid Testbed

Internet2 Collaborative Innovation Community has grown to 335+ individuals representing 135 institutions that can be leveraged for cybersecurity research matchmaking.

Industry Members

National R&E Networks

Additional Organizations

- Internet of Things
- End-to-End Trust & Security
- Distributed Big Data and Analytics

EAGER: Cybersecurity Transition To Practice (TTP) Acceleration

Challenge:

- Accelerate Transition To Practice (TTP) of NSF funded later stage cybersecurity research into operational Research & Education (R&E) environments through applied research pilot deployments

Solution:

- Identify & assess **inventory** of NSF cybersecurity research assets ready for applied research pilot phase
- **Interview** researchers & practitioners for needs/learnings/best practices
- **Leverage Internet2 community (300+ universities, 40+regional network) to enable "matchmaking"** between researchers and academia IT/NW operations for pilots/testing
- Deploy webinars, portal, in person **events for researcher/IT matchmaking**
- Identify cybersecurity **needs/gaps**

Cybersecurity Research Assets:
- Amico
- CILogon 2.0
- CipherLocker
- …
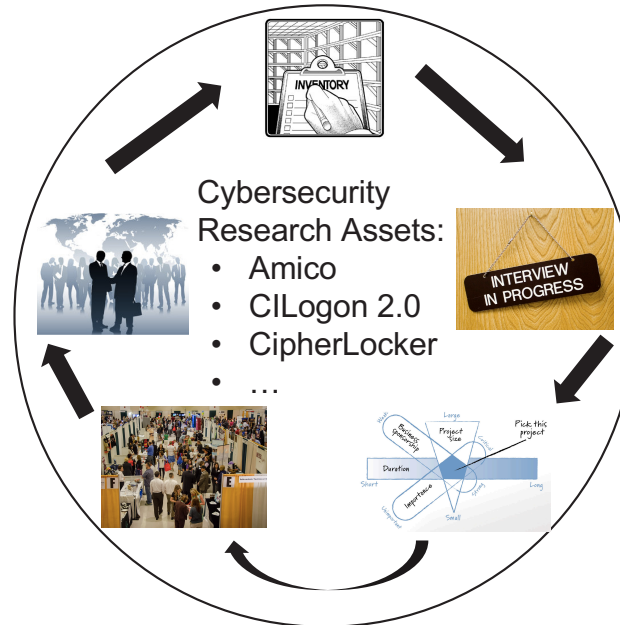
Award Number: 1650445
Internet2
PI: Florence Hudson, SVP/Chief Innovation Officer

Scientific Impact:

- Increase awareness of cybersecurity research & capabilities
- Accelerate cybersecurity transition to practice in the near to mid term to make cyberspace safer
- Identify cybersecurity needs to inform future NSF solicitations

Broader Impact:

- Enable partnership for NSF TTP with other Federal agency programs, including DHS, SBIR, etc. to accelerate and streamline the TTP pipeline
- Enable a more diverse research and education pipeline partnering with Society of Women Engineers and others

Cybersecurity TTP Acceleration Project Plan
Start Date August 2016

Step	Project Activities	1Q	2Q	3Q	4Q	5Q	6Q	7Q	8Q
1	Project team in place	■							
2	Develop NSF Research Asset Inventory	■							
3	Interview NSF, researchers, practitioners, universities, industry, labs, DHS, other agencies	■							
4	Develop researcher/practitioner match-making showcase -online, events		■						
5	Develop TTP R&D showcase and technical workshops			■					
6	Deploy workshops				#1	#2	#3	#4	
7	Design, develop NSF TTP Portal		■	■					
8	Develop materials for NSF TTP Portal		■	■	■				
9	Deploy NSF TTP Portal					■	■	■	
10	Assess TTP program and develop recommendations								■

SME Interview insights regarding TTP acceleration

Cybersecurity Researchers

- Key needs for TTP identified: Funding from NSF and others, early user feedback
- User feedback from pilot deployments critical to accelerate TTP
- Opportunity for acceleration of the TTP process at multiple steps
- Researchers like opportunity to leverage NSF TTP, DHS TTP, I-CORPS multiple agency support
- NSF TTP dollars sometimes perceived as small & cumbersome to capture, prefer working with VCs
- TTP not a priority for some researchers – looking to solve complex problems, not start a business

Practitioners for Pilot Deployments

- Practitioners need to know operational requirements for pilot use of TTP assets
- All size universities and regional networks interested in potential to test out / pilot cyber research early
- Smaller universities requested to participate in TTP as they have simpler approval processes
- Some universities unwilling to deploy unproven, non-production tested cybersecurity code

Agencies

- Interested in cross-agency collaboration opportunities for NSF and DHS to accelerate cyber TTP

CYBERSECURITY RESEARCHER PRESENTATIONS

- **Identity & Access Management and Network Security**
  - Jim Basney, University of Illinois at Urbana-Champaign
  - Roberto Perdisci, University of Georgia
  - Ted Allen, Ohio State University
  - Christian Collberg, University of Arizona
- **Smart Grid** – Aranya Chakrabortty, North Carolina State University
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- **Internet of Things**
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  - Michael Anderson, University of Hartford, Susan Anderson, University of Connecticut

CINO Sponsored Schedule of Events at GS17

- **Sunday, April 23, 4:15-5:30pm: CINC UP: CINO Program Advisory Group Meeting (Open), Meeting Room 15**
- **Tuesday, April 25, 8-10am: CINC UP: Collaborative Innovation Community Meeting: IoT, E2ET&S, Smart Campus, Renaissance Ballroom West B**
  - Collaborative Innovation Community & Innovation Working Groups Update: IoT, E2ET&S, DBDA
    - Smart Campus Initiatives Update and invitation to participate
    - Smart Campus: IoT Systems Risk Management Task Force Update. Shodan & Censys.io demonstrations 4/24 & 4/25
    - TIPPSS for IoT: ITANA Collaboration and White Paper
  - Smart Campus-themed Cybersecurity Transition to Practice Researcher Presentations
  - IoT Pedagogy
- **Wednesday, April 26, 7:30-8:30am: CINC UP: NSF Big Data Innovation Hubs, Meeting Room 10/11**
  - NSF Big Data Hubs and Spokes Overview by Fen Zhao, NSF, and René Bastón Northeast Big Data Innovation Hub ED
  - How to get involved, connections for researchers, regional networks, and IT
- **Wednesday, April 26, 12:30-5:30pm: CINC UP: Cybersecurity Research Acceleration Transition To Practice (TTP) Workshop and Showcase (NSF #1650445), Meeting Room 8/9**
  - Join us for an interactive discussion to determine how – working together – we can accelerate Transition To Practice (TTP) of cybersecurity research into operational environments. Regional networks, IT, industry, labs, students: everyone is invited.
  - University CIO Perspective on Leveraging Cybersecurity Research
  - 12 Researcher Presentations on Identity & Access Management, Network Security, Smart Grid, Cloud Security & Storage, Data Analytics & Security, and IoT
  - Discussion, Pilot Opportunities, and Feedback, tell us what cybersecurity assets you need
  - Poster Session & Networking at breaks. Additional poster sessions on Monday and Tuesday: breakfast, lunch, breaks.

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