



Internet2 CINO End-to-End Trust & Security (E2ET&S) Working Group Collaborative Innovation Community Meeting

1 December 2015

Chairs:

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Meeting Objectives

- TechEx Update
 - TechEx E2ET&S Innovation Working Group Meeting Update
 - Review of E2ET&S Brainstorm
 - TechEx Collaborative Innovation Community Big Idea Hackathon Meeting & Lunch
- E2ET&S Use Cases and Plans Update
- E2ET&S for IoT Workshop Update
- Next Steps

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E2ET&S: Innovation Working Group Meeting at TechEx on October 5, 2015

Agenda

- Welcome and Introductions
 - Review of the Collaborative Innovation Community
- Status of Current Plans & Next Steps
- Other Innovations
- Closing

- *Entire presentation can be found on the Wiki, [E2ET&S homepage](http://bit.ly/1PJgRiP)*
 - <http://bit.ly/1PJgRiP>

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Brainstorm Other E2ET&S Innovations

- OSU – Cross collaboration of data sets: data obfuscation – not scalable, disparate data solutions. Solution or protocol?
 - Nick L. DHI, differentiate amongst the data sets
- Microelectromechanical Systems (MEMS)
- Virtual ID Card: Interest from OSU, UPenn, VA Tech, Princeton, UMBC
- PCI, Tokenization: data benefits AND regulatory compliance
- Working group: privacy & data flows up from HC/LS, IoT related info, beyond climatology, etc – longer term horizon, applied research
- Policy & Legal frameworks for data anonymization to maintain privacy
- As data grows from IoT, HC/LS, will need to look at privacy in conjunction with NET+ with standard language and rights on access to data
- Advanced persistence threats & how to deal with for sensitive research
 - Internet2 Working Group on Security focused on DDoS, likely to go further & look at the perimeter
 - Potential to request IBM speaker on cybersecurity pattern recognition re: insider threats
- ForgeRock (potential Industry member) doing work on Smart Grid & Smart Cities, how to align with IoT



Collaborative Innovation Community Big Idea Hackathon Meeting & Lunch at TechEx on October 6, 2015

- Agenda
 - Welcome and Introductions
 - Review of the Collaborative Innovation Community
 - Big Idea Hackathon Overview and Process
 - Big Idea Hackathon Brainstorming
 - Presentation of Big Idea Hackathon Ideas
 - Closing
- Results:
 - IoT Taxonomy recommendation
 - Humanists/Digital Humanities Focus
- ***Output can be found on the Wiki = <http://bit.ly/1Owk5c4>***

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E2ET&S Use Cases and Plans (Page 1 of 3)

Initiative/Use Case	Description	Plan
Software Defined Perimeter (SDP)	Leverage SDP (Software Defined Perimeter) against real life attack scenarios to provide the highest level of security for cloud, mobile computing, and IoT applications	<ul style="list-style-type: none"> • SDP Webinar 9/1/2015 • Opportunity to work with Cloud Security Alliance (CSA) on SDP Spec V2 • SDP discussion planned at SC15
Improved interoperability among university and hospital networks	Consider use of Security Group Tags and Cisco's TrustSec policy management framework to integrate "cyberinfrastructure islands"	<ul style="list-style-type: none"> • Identify universities with academic medical centers to discover needs and create potential solutions
Network Segmentation for IoT	Use of network segmentation to ensure additional IoT connected devices don't undermine overall network security; Cisco blog post by Scott Harrell, Cisco VP Product Management, Security Business Group in <i>The Security Ledger</i> http://bit.ly/1A1acwI	<ul style="list-style-type: none"> • Identify experts, prepare potential whitepaper or webinar • 12/1 call with Cisco's Scott Harrell re potential next steps • Increase awareness
End to End Trust & Security Open Architecture for IoT	Create a point of view and recommended next steps to develop a comprehensive End to End Trust & Security Open Architecture for the Internet of Things	<ul style="list-style-type: none"> • Workshop 1Q16 in cooperation with IEEE, NSF, and George Washington University

E2ET&S Use Cases and Plans (Page 2 of 3)

Initiative/Use Case	Description	Plan
IPsec and Identity based firewalls	Develop an 'Identity Based Firewall' technology based on the identity of authorized people rather than on the IP numbers of their devices.	<ul style="list-style-type: none"> • Steve Wallace engaging SDN/Security WG • Potential to combine with External access to "research zone" systems use case
Assign, manage, and revoke permissions on a platform to support collaborative work	Need for international cross-access permissions amongst universities, fine arts institutions, and research institutions to have a unified ID system utilizing existing secure credentials	<ul style="list-style-type: none"> • Potential to combine with IPsec and Identity Based Firewalls • InCommon is working on portions with International Federations • Opportunity to link with the Digital Humanities focus of DBDA
External access to "research zone" systems	Subset of the above. Need for international cross-access permissions amongst universities, fine arts institutions, and research institutions to have a unified ID system utilizing existing secure credentials	<ul style="list-style-type: none"> • Potential to combine with IPsec and Identity Based Firewalls • InCommon is working on portions with International Federations • Opportunity to link with the Digital Humanities focus of DBDA



E2ET&S Use Cases and Plans (Page 3 of 3)

Initiative/Use Case	Description	Plan
Security for web-based mobile applications	Adding support for OpenID Connect to Shibboleth IdPv3 would allow secure authentication for mobile applications, and enhance end to end security	<ul style="list-style-type: none"> • Connect with the University of Chicago's project currently underway • Engage the TIER community for additional support
Preserving student privacy while enabling use of InCommon federated services	Allow students to access InCommon federated identity services while preserving student confidentiality and privacy	<ul style="list-style-type: none"> • Dependent upon University Policy, and relationships between services & institutions • Engage InCommon community for additional support
Easily provision strong credentials in the form of a virtual campus ID card backed by a set of high-assurance personal X.509 certs	Mobile device as central access to all aspects of a campus – physical and digital. Multi-layered security required for a secure environment: biometric, PIN, device encryption. Applied at all levels within a campus: student, faculty, and administration. Has the potential to be applied in the commercial world: hospitality, retail, benefits, etc.	<ul style="list-style-type: none"> • Identified campuses interested in capability while at TechEx • Engage interested campuses to determine requirements for solution • Agree actions, maybe engage vendors? • Identify testbed campuses • Opportunity to integrate with Smarter Cities / Campus initiative



E2ET&S for IoT Workshop Overview

- Full DRAFT proposal available on the [IoT Wiki](http://bit.ly/1KDleHu) (<http://bit.ly/1KDleHu>)
- **Goal:** For researchers, IT architects and security professionals from industry, government and academia to discuss and agree the scope of an end to end trust and security open architecture for IoT, resulting in a report out and point of view with recommended next steps.
- **Target audience is 100 to 150 attendees representing:**
 - Universities including researchers, IT, IoT, CISO
 - Agencies including NSF, NIST, DHS, DOE, OSTP
 - IoT related Standards Organizations including IEEE and IIC
 - U.S. Regional Research & Education Networks (e.g., NYSERNET)
 - Industry Players such as IBM, Cisco, ARM, Intel, STMicro, Medtronic (not just members)
 - Internet2 staff and Collaborative Innovation Community (E2ET&S, IoT, DBDA WG's)
- **Pre-work:** There will be a call for presentations to deliver during the workshop.



E2ET&S for IoT Workshop Logistics

- Planning a 2 day event in conjunction with IEEE, NSF, and George Washington University
 - Day 1 - Deep technical workshop on E2ET&S for IoT open architecture needs, viewpoints, use cases. Co-sponsored by IEEE, Internet2, NSF, GWU, perhaps more
 - Day 2 - IEEE ETAP ([Experts in Technology and Policy](#)) – IEEE Invitation Only
- Dates: February 4 & 5, 2016
- Location: George Washington University, Marvin Center, Washington, DC
- Potential for follow on workshops
 - UW-Madison potentially May 2016 timeframe
 - Marshall University
 - Global Summit 2016



Next Steps

- Sending invitations and call for presentations for E2ET&S for IoT Workshop invitees
 - Internet2 Collaborative Innovation Community – IoT, E2ET&S, DBDA WG's
 - IEEE P2413 and IEEE IoT initiative
 - Agencies – NSF, NIST, OSTP, DHS
- Virtual Campus ID Card discussion and next steps – Begin discussion 4Q15
 - Participants include Princeton, OSU, UPenn, VA Tech, UMBC
 - Others?
- E2ET&S for Healthcare and Life Science (HC/LS) – 1Q16
 - Improved interoperability among university and hospital networks
 - Identify universities with hospitals/AMCs to participate in discussion
 - Let us know if you want to be involved in this discussion
 - Internet of Medical Things



Innovation Working Group Operations Timeline: 2015 – Startup year



1Q

- Member survey on open collaborative innovation ideas

2Q

- Announce working groups based on member survey
- Attract co-chairs and members
- Working Groups Startup
- Monthly meetings
- Gather use cases

3Q

- Cross-working group discussions
- Develop plans: tactical & strategic

Tactical outcomes

- E2ET&S SDP Webinar
- IoT Sandbox

4Q

- TechEx in-person meetings to discuss recommendations
- Gather new input

Strategic Planning

- Smart grid testbed
- E2ET&S for IoT
- Healthcare/Life Sciences



Innovation Working Group Operations Timeline: 2016 – We evolve and grow

1H

- *E2ET&S for IoT workshop(s)*
- Develop Healthcare/Life Sciences (HCLS) strategy with DBDA
- Develop DBDA Digital Humanities/Humanists strategy
- Increase researcher engagement
- Smart Grid testbed planning
- Smart Campus focus group
- Expand IoT Sandbox
- Continue education & awareness for new innovation opportunities

2H

- *E2ET&S collaboration across extended community*
- Continued IoT and DBDA strategy development
- DBDA Digital Humanities strategy continuation
- Assess/extend Sandbox approach
- Smart Grid & HCLS testbeds
- Smart Campus enablement
- HCLS strategy execution
- Constant market insight gathering
- Innovation input from community

Ongoing Community Input

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Questions & Answers...
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