



**2017**  
**TECHNOLOGY**  
exchange

SAN FRANCISCO CA OCTOBER 15-18

## CINC UP: NSF BIG DATA INNOVATION HUBS

**MEREDITH LEE**

Executive Director, West Big Data Innovation Hub

**FLORENCE HUDSON**

SVP and Chief Innovation Officer, Internet2

## CINC UP: NSF BIG DATA INNOVATION HUBS

### AGENDA

- Welcome and Introduction, Florence Hudson
- NSF Big Data Innovation Hub Program, Meredith Lee
- Closing, Florence Hudson



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# Welcome and Introduction

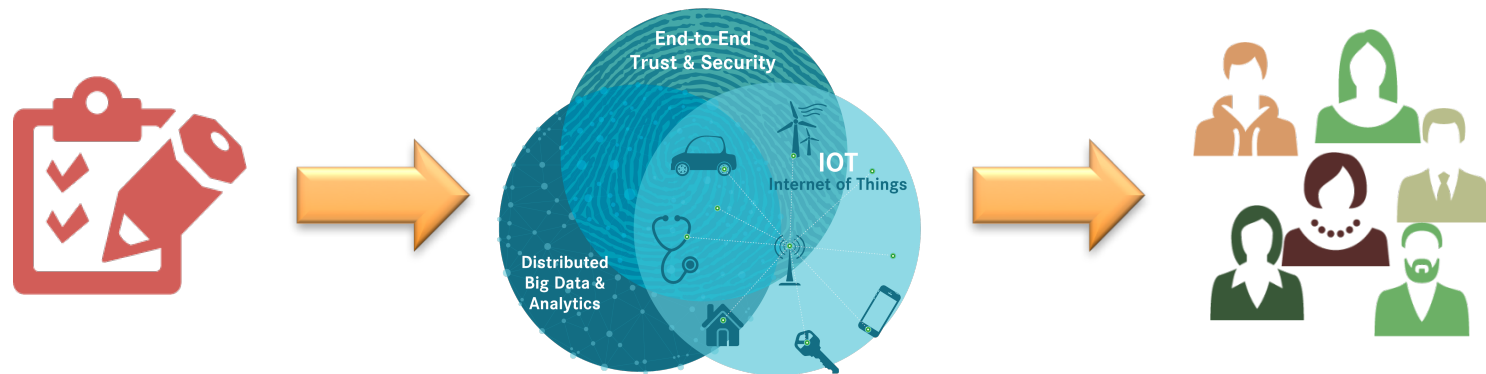
Florence Hudson

SVP and Chief Innovation Officer, Internet2



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Internet2 Collaborative Innovation Community was created in 2015 based on a member survey of 8,800 individuals identifying their top areas of interest for **open, inclusive, collaborative innovation**.



- Three Innovation Working Groups launched at Global Summit in May 2015
- Now, 400+ Collaborative Innovation Community (CINC UP) participants, representing 170+ institutions (as of October 2017)

## Internet2 CINC UP combines three member-led innovation working groups, focused on areas brought forward by members, related to our top two priorities of advanced networking plus trust & identity.

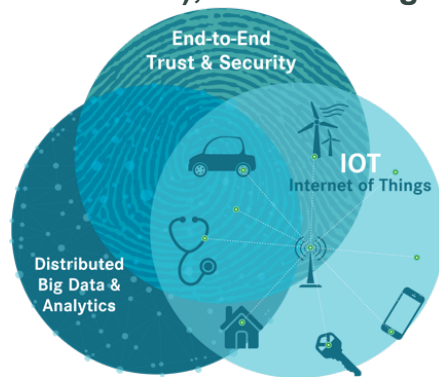
### E2E Trust & Security (E2ET&S)

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

Workshop  
Wednesday  
12:30-5:30PM

### Distributed Big Data & Analytics (DBDA)

- **NSF Big Data Hub Collaboration**
- Smart Campuses and Cities
- Health & Life Sciences / Genomics



### Internet of Things (IoT)

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

Join us! Email [CINO@Internet2.edu](mailto:CINO@Internet2.edu)

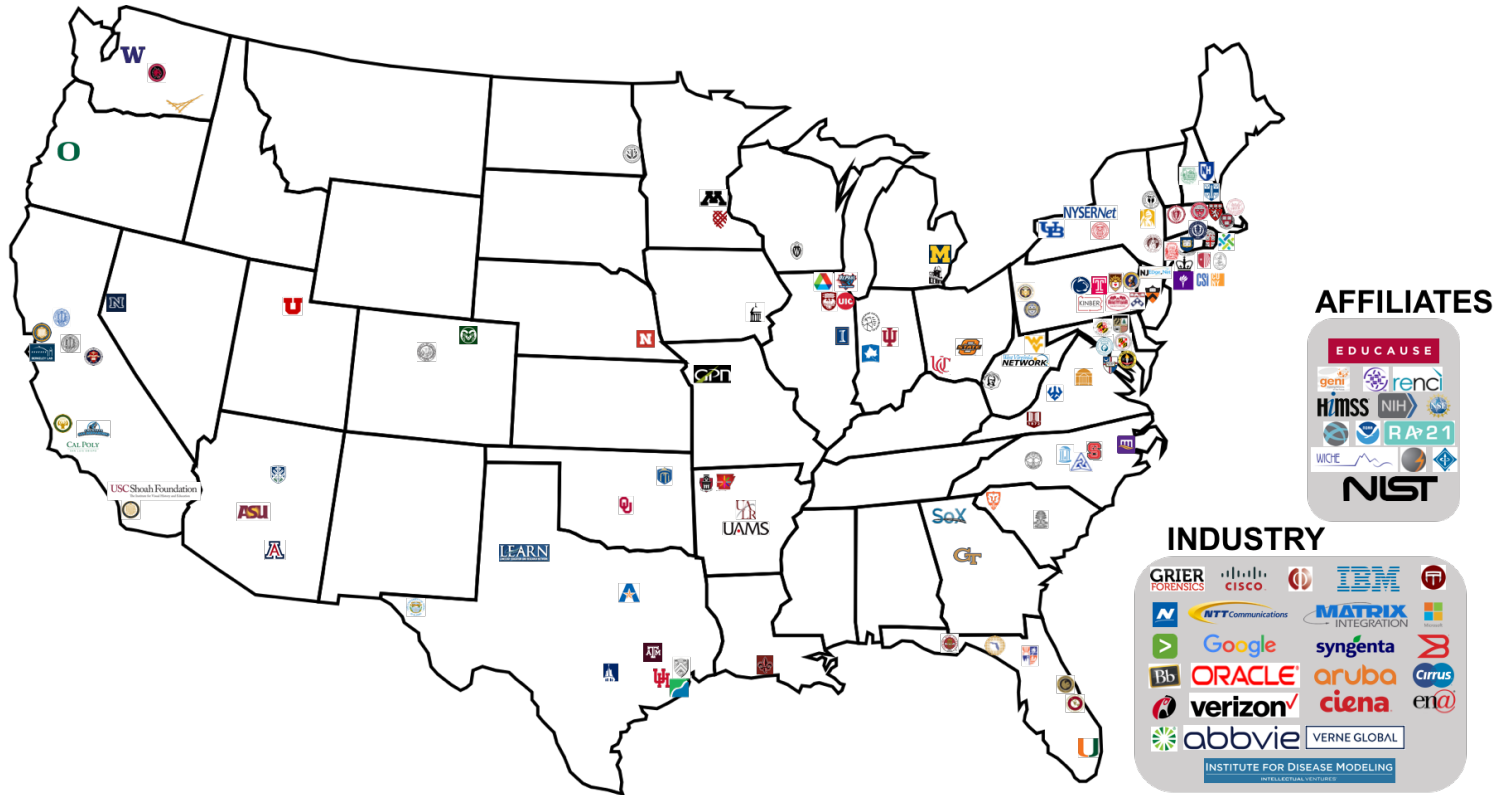


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Internet2 CINC UP in the US has grown to 380+ individuals, from 155+ organizations, representing 31% of Internet2 member institutions.

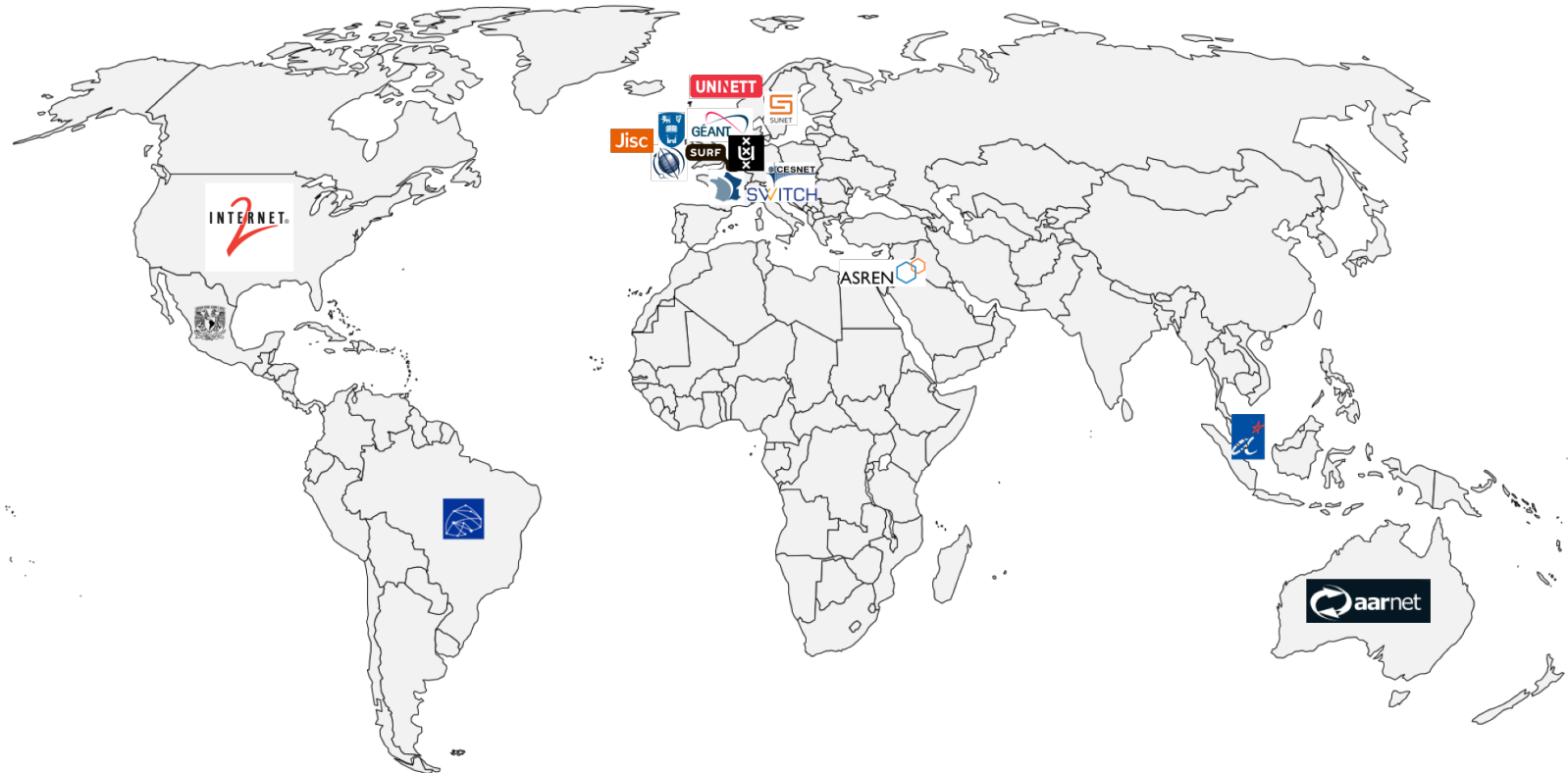


As of October 6, 2017

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Globally, the Internet2 Collaborative Innovation Community has grown to 400+ individuals, from 170+ organizations.



As of October 6, 2017



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# NSF Big Data Innovation Hub Program

Meredith Lee

Executive Director, West Big Data Innovation Hub



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## **Internet2 CINC UP: NSF Big Data Innovation Hubs**

**Meredith Lee, Executive Director**  
**@mmlee | mmlee@berkeley.edu**

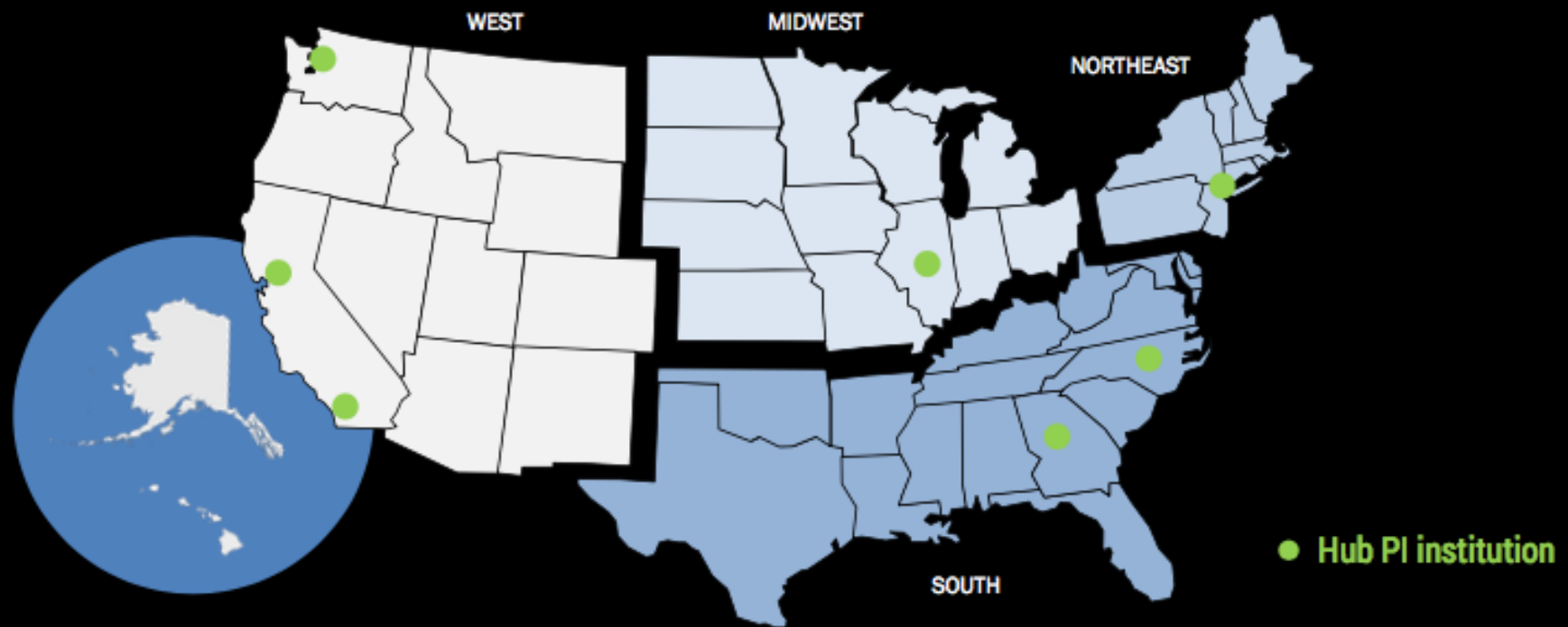
**@westbigdatahub | info@westbigdatahub.org**  
**westbigdatahub.org | #BDHubs at #TechEX17**



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INNOVATION  
HUB**

**CINC UP: Collaborative. INnovation. Community.**

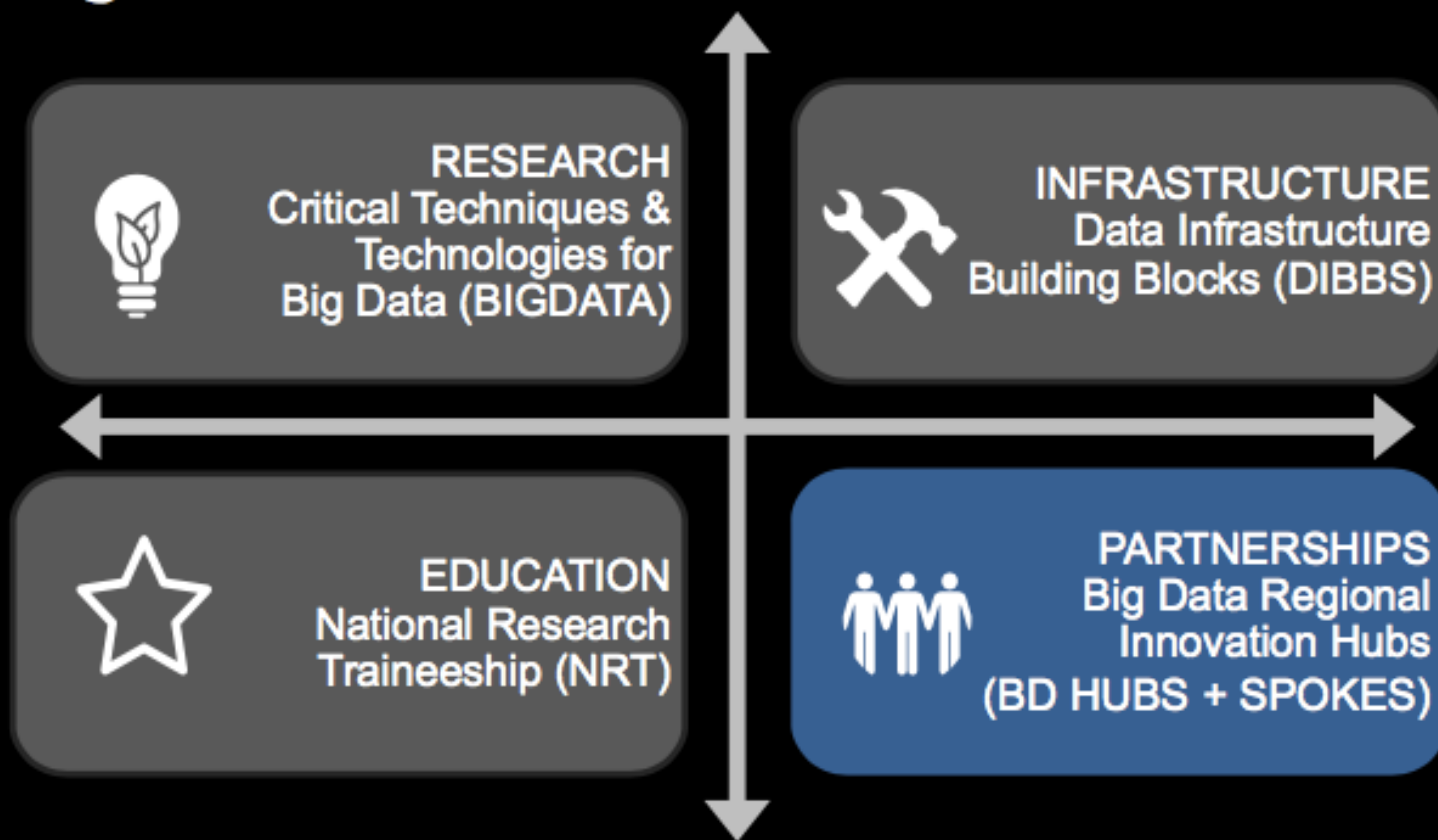
# Four hubs, one mission.



**build and strengthen partnerships**  
across industry, academia, nonprofits, government

to address societal + scientific challenges,  
spur economic development,  
and accelerate innovation in the big data ecosystem

# NSF Big Data Portfolio



# Launching the BDHubs + Spokes

**2012:** US Federal Big Data R&D Initiative \$200M

**2014:** National Science Foundation (NSF) hosted meetings around the country to get input, issued call for proposals

**2015:** NSF awarded \$6M to launch 4 big data innovation hubs, co-funded by host universities

**2016:** NSF awarded \$11M for Big Data Spokes Projects, Planning Grants

**Additional partnerships include:**

\$1.2M with the Computing Community Consortium (CCC), \$3M with Microsoft, U.S. Department of Commerce Joint Venture Partnership + more

**build and strengthen partnerships**

**across industry, academia, nonprofits, government**

**to address societal + scientific challenges,**

**spur economic development,**

**and accelerate innovation in the big data ecosystem**

Connect. Convene.



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Curate. Communicate.





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## West Hub Priority Areas



### METRO / URBAN

Smart Cities, Transportation,  
Housing, Police Data,  
Economic Development



### PRECISION MEDICINE

Diagnostics, Treatment,  
Genomics, Environment/ Exposome



### NATURAL RESOURCES & HAZARDS

Water, energy, agriculture, disaster  
response, sustainability



### DATA-ENABLED SCIENTIFIC DISCOVERY & LEARNING

Open science & reproducibility,  
education, workforce development

### CROSS-CUTTING EFFORTS:

- Cloud Computing Task Force
- Data-Driven Storytelling / Data Literacy
- Public Policy, Ethics, Privacy, Security
- Data Hackathons Community of Practice
- Data Sharing, Infrastructure
- + more



## By the Numbers

**Over 40 in-person community engagement opportunities**

From small "fireside chats" and hands-on training to CES (184,000) and Grace Hopper (18,000, 87 countries, 1.2B online article impressions)

**Policy and Partnerships Leadership:**

Cloud computing, data storytelling + education, smart cities/transportation, natural resources and hazards + more

**Initial in-kind partnerships \$1M, NSF funding to Hub \$2.6M, Spokes \$2.2M**

**First publicly-elected Steering Committee and formation of Task Forces, Working Groups, Communities of Practice**

# The Science of Data-Driven Storytelling

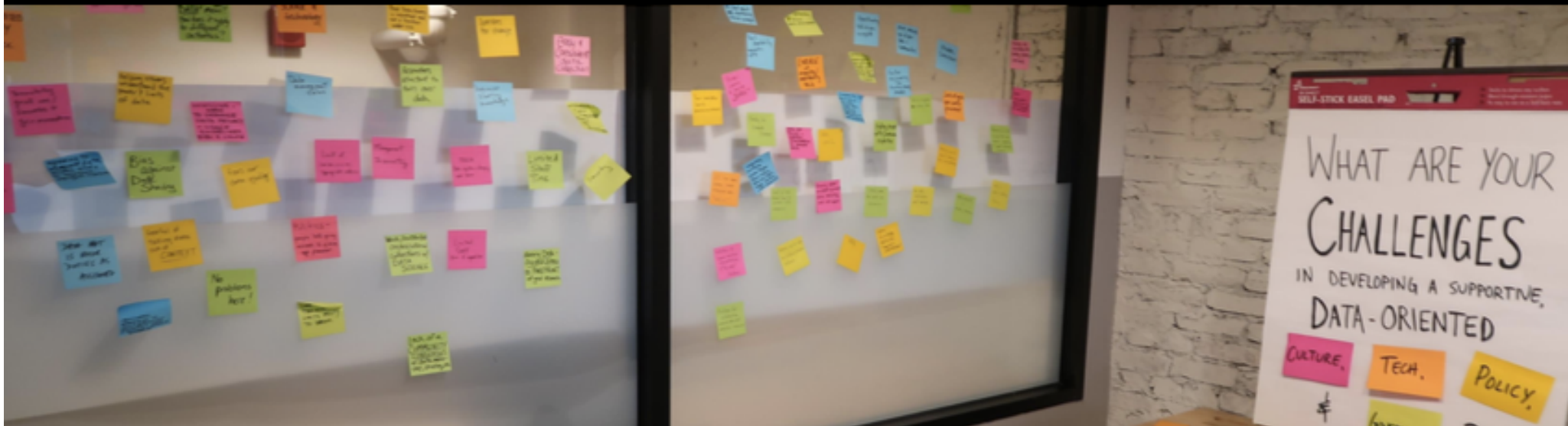


**How to develop compelling data-driven narratives to spark engagement**

- ✓ Over 700 participants for 1<sup>st</sup> workshop: 60% industry, ~38% academia. 25+ states and 15+ countries
- ✓ LA Times, NY Times, UCLA, USC, City of LA, LA DOT, Polygraph.cool
- ✓ Partnered with DataScience.com and Computing Community Consortium; AAAS, South Hub + more
- ✓ Materials available: [bit.ly/WBDIHyoutube](https://bit.ly/WBDIHyoutube), #BDHubs, #datascistories

# Bridging industry, academia, nonprofits, government

## Building Data Science Capacity: Organizational Change



Convened over 125 enthusiasts to share resources, perspectives

- ✓ White House, NSF, DHS, state/local gov, large companies, startups
- ✓ "Vote with your feet" discussion on culture, tech, policy, governance
- ✓ "Asks" and "offers" from a diverse community

**Participate:**  
[bit.ly/datahubs](https://bit.ly/datahubs)

# PyData Meetup: Open Street Mapping for Puerto Rico

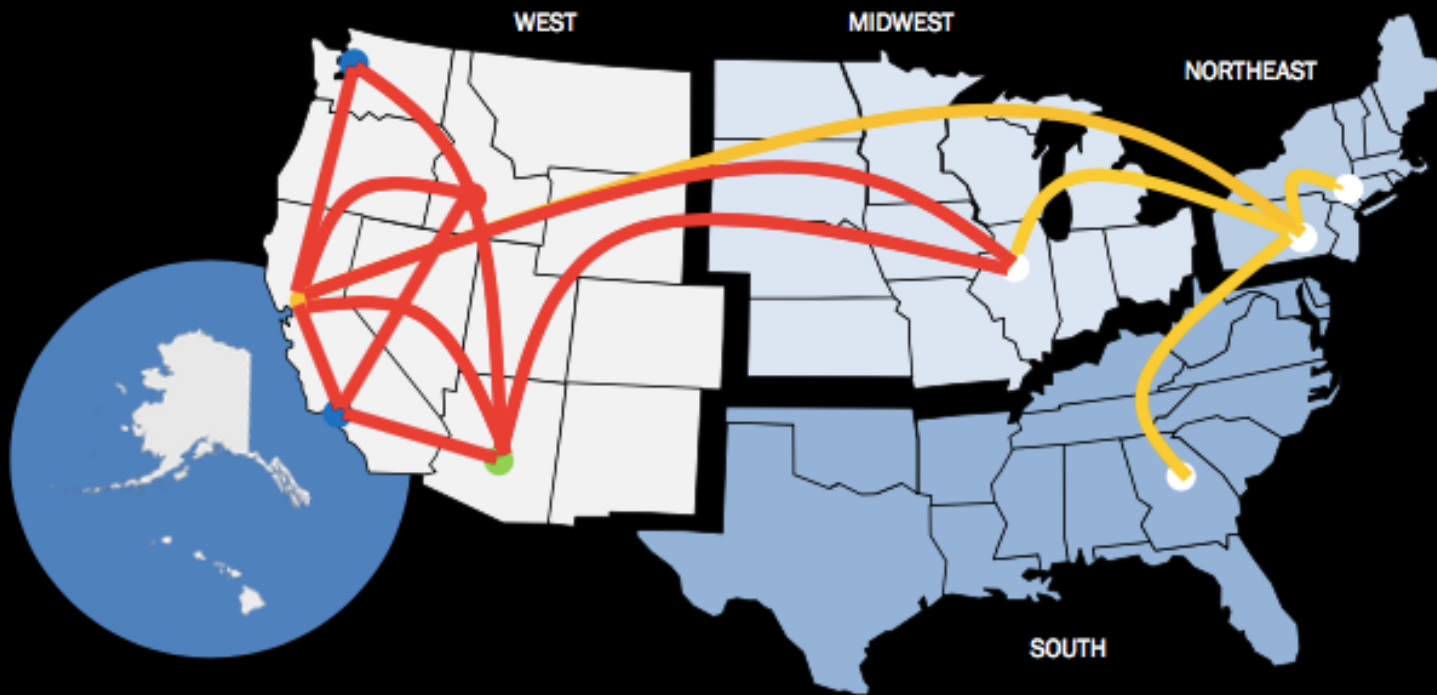
Oct. 12, 2017



**Hands-on contributions from over 40 mappers**

- ✓ Grass roots, community-led evening work sessions
- ✓ 46,000 PyData members globally, 33 countries
- ✓ Continued sharing of resources, project progress through slack + local events

# Example: Enabling data sharing for social impact.



# NATIONAL TRANSPORTATION DATA CHALLENGE

HOW MIGHT WE REDUCE TRAFFIC FATALITIES?

Hosted by the Regional Big Data Innovation Hubs #BDHubs



Over the last two years, traffic deaths across the United States increased 14%. In 2016, nearly 6,000 pedestrians died - the highest number in more than two decades

JOIN US to share your ideas + contributions through a series of community problem-solving sessions, roundtables, hackathons + demos (in person + online)!



Resources + more info: <https://bigdatahubs.io>

# Join us: National Transportation Data Challenge Summit

Nov. 9, 2017 in DC



**Highlighting innovative projects, commitments, + results from our 6-month sprint**

- ✓ Series of community hackathons, roundtables, demonstrations/tutorials
- ✓ Seattle, Boulder, Ann Arbor, Austin, New York City, Lincoln, Los Angeles, DC + more
- ✓ In-person and livestream → RSVP at [bit.ly/NTDCNov9Summit](http://bit.ly/NTDCNov9Summit)

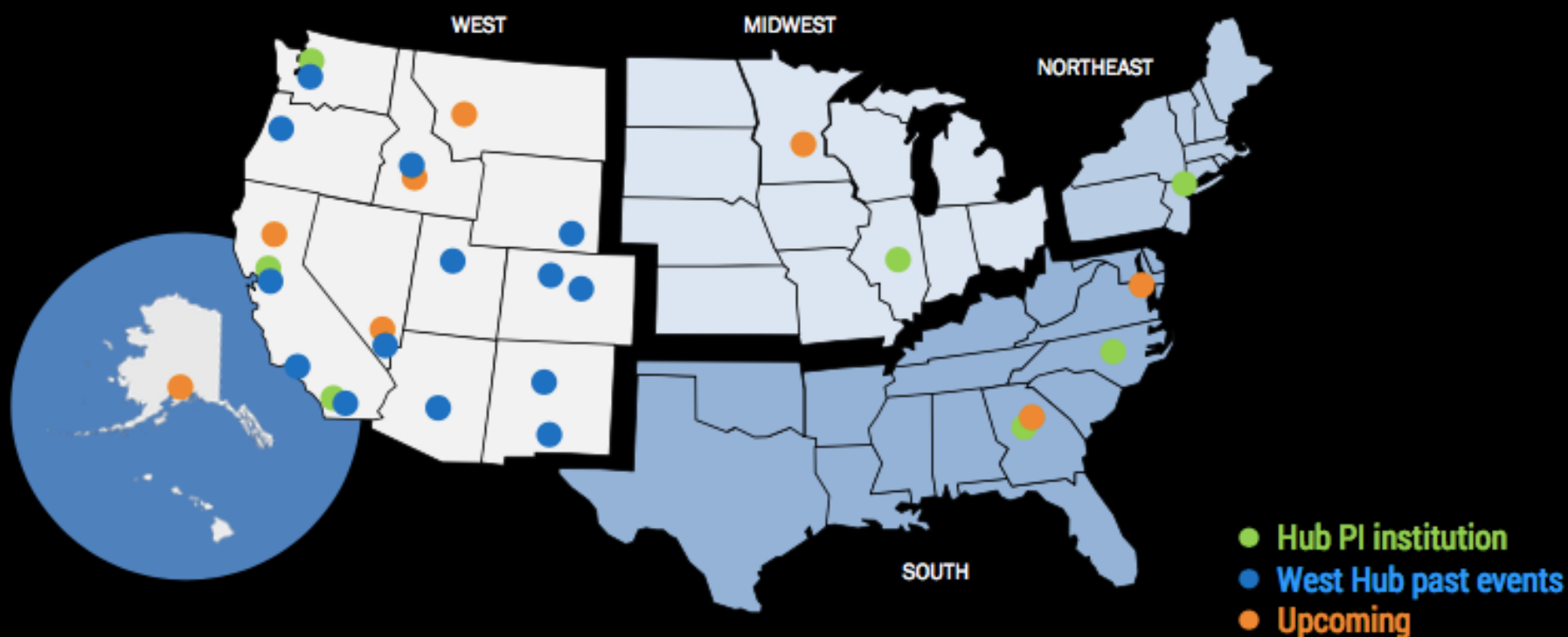


# How might we...



Design smarter cities | Improve healthcare | Manage natural resources  
Scale our successes | Spark sustainable partnerships

Stay updated: Hub Newsletters, [bit.ly/BDHubsCal](http://bit.ly/BDHubsCal), [bigdatahubs.io](http://bigdatahubs.io)  
#BDHubs



[midwestbigdatahub.org](http://midwestbigdatahub.org)  
[nebigdatahub.org](http://nebigdatahub.org)  
[southbigdatahub.org](http://southbigdatahub.org)  
[westbigdatahub.org](http://westbigdatahub.org)



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## **Internet2 CINC UP: NSF Big Data Innovation Hubs**

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# Closing

Florence Hudson

SVP and Chief Innovation Officer, Internet2



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## Get involved in the Internet2 Collaborative Innovation Community!

- Join CINC UP Innovation Working Groups on Internet of Things, Distributed Big Data & Analytics, and End-to-End Trust & Security. Or, Special Interest Groups:
  - Cybersecurity Research Transition to Practice (TTP)
  - Health & Life Sciences / Genomics
  - IoT Ethics
  - Smart Campus
  - Smart Grid
  - TIPPSS (Trust, Identity, Privacy, Protection, Safety & Security) for IoT
- Join bi-monthly CINC UP calls on a variety of topics
- Participate in Internet2 hosted events like TechEx and Global Summit
- Email us! [CINO@Internet2.edu](mailto:CINO@Internet2.edu)



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## CINO Sponsored Schedule of Events at TechEx 2017

- **Monday, October 16, 1:30-2:20PM; Seacliff B: [CINC UP: NSF Big Data Innovation Hubs](#)**
  - Join Meredith Lee, the Executive Director of the [@WestBigDataHub](#), as she discusses what the NSF sponsored Big Data Innovation Hub community is doing, from the hubs to the spokes, existing projects and collaboration, future opportunities, and how you can get involved
- **Monday, October 16, 2:30-3:20PM: [CINC UP: Collaborative Innovation Community Open House and On-Demand Lightning Talks](#); Seacliff B**
  - Join CINC UP Open House to learn about how you can engage in the CINC UP community, the topics discussed in our monthly CINC UP webinars, and peruse the deliverables and activities accomplished and planned
  - Bring an On-Demand Lightning Talk to share your own new ideas for collaborative innovation
- **Tuesday, October 17, 2:30-3:20PM: [CINC UP: Internet of Things Innovation Working Group and Smart Campus Initiative](#); Seacliff B**
  - Join this open session of the Internet of Things Innovation Working Group and Smart Campus Initiative to learn about key activities and deliverables available and planned to enhance your ability to lead your smart campus and IoT journey
  - Learn about the February 2017 Microsoft Campus Connections Summit initiatives
  - And share Smart Campus case studies like this one from [Georgia Tech](#)
- **Wednesday, October 18, 12:30-5:30PM: [CINC UP: Cyber Security Research Acceleration Workshop and Showcase](#); Pacific E**
  - *Separate registration is encouraged, but feel free to drop in*
  - 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
  - Cybersecurity Researcher Presentations on Network Security, Cybersecurity Learning, Identity & Access Management, and IoT



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