

# Supporting Advanced Wireless Research



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# Why CISE Mid-scale Research Infrastructure?

- Among Foundation's 10 Big Ideas
- Supports large-scale systems research and diverse experimental investigations
- Supports 'at scale' research experiments
- Common environments stimulate sharing
- Less costly, less effort than DIY
- Outreach to underserved faculty

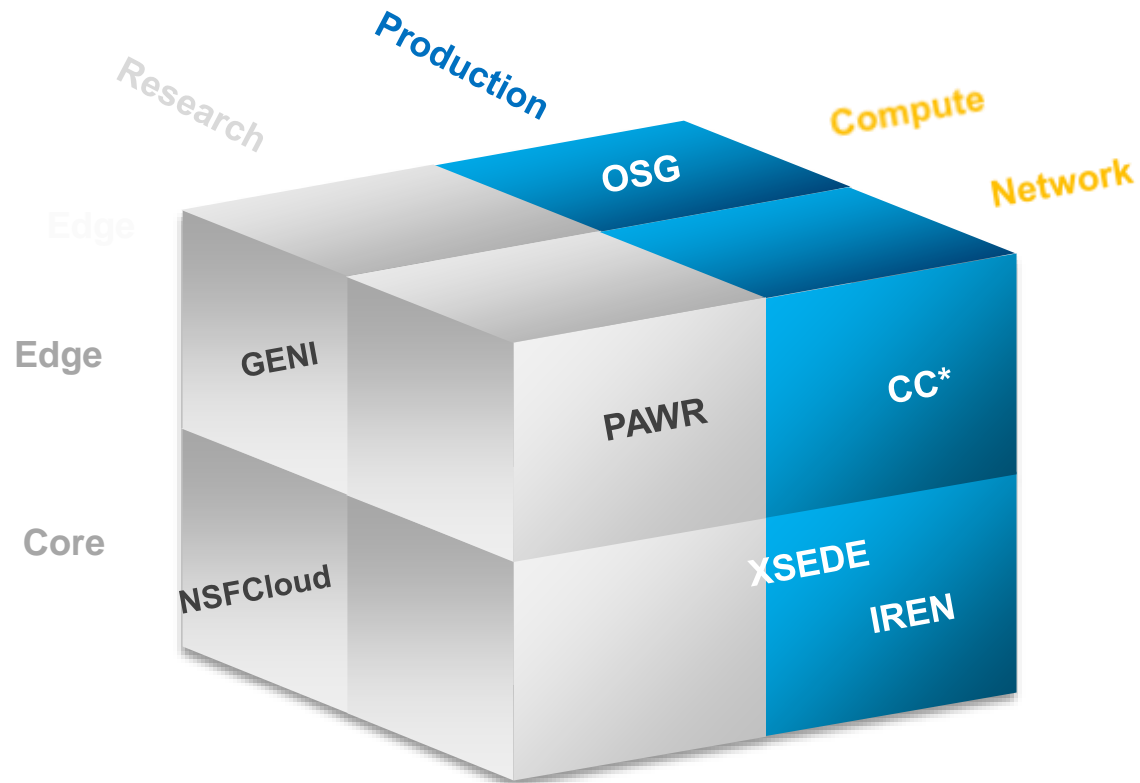
# CISE Mid-scale Research Infrastructure

- Portfolio view of systems – each is uniquely & independently valuable
- Support interoperability
  - Federation is key
  - Open to entire community with single sign-on
- Multi-purposing – GENI Racks as smart city `hubs`
- Challenge: Different infrastructure can have radically different models of user interaction



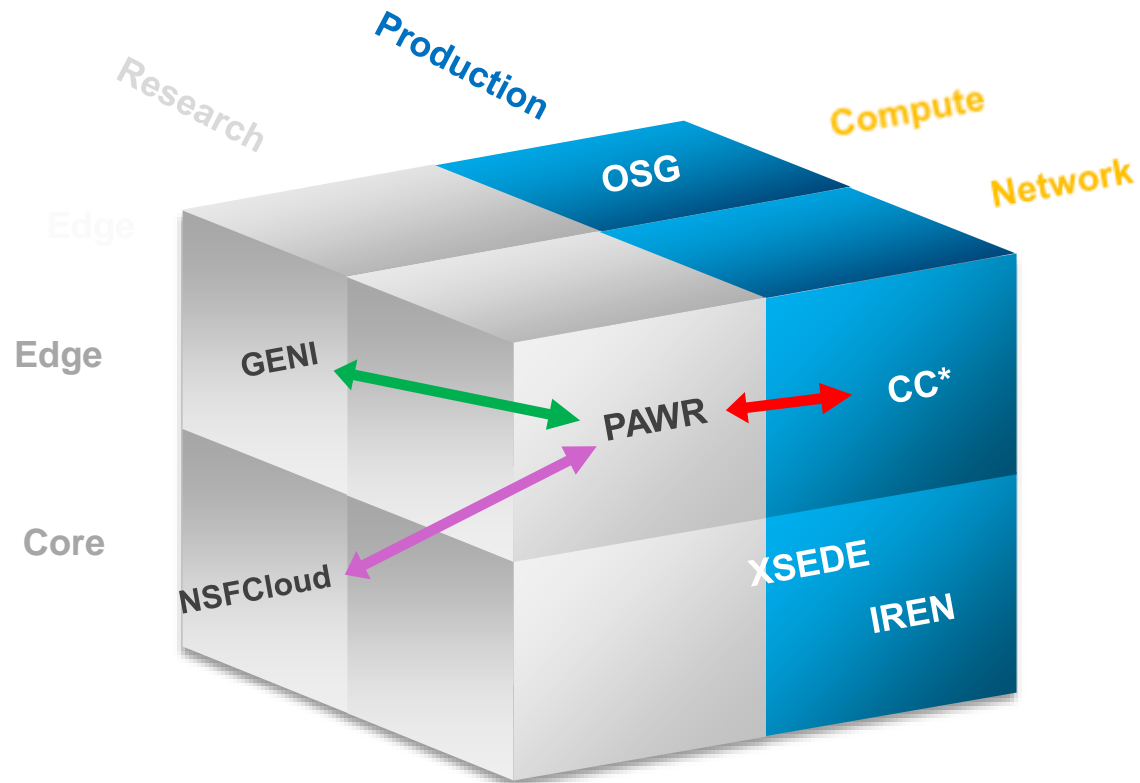
# CISE Infrastructure Investments

## Portfolio View



# Towards “SuperFacilities”

## Experiments spanning multiple infrastructures



# What will make COSMOS a great platform?

Experimenters.

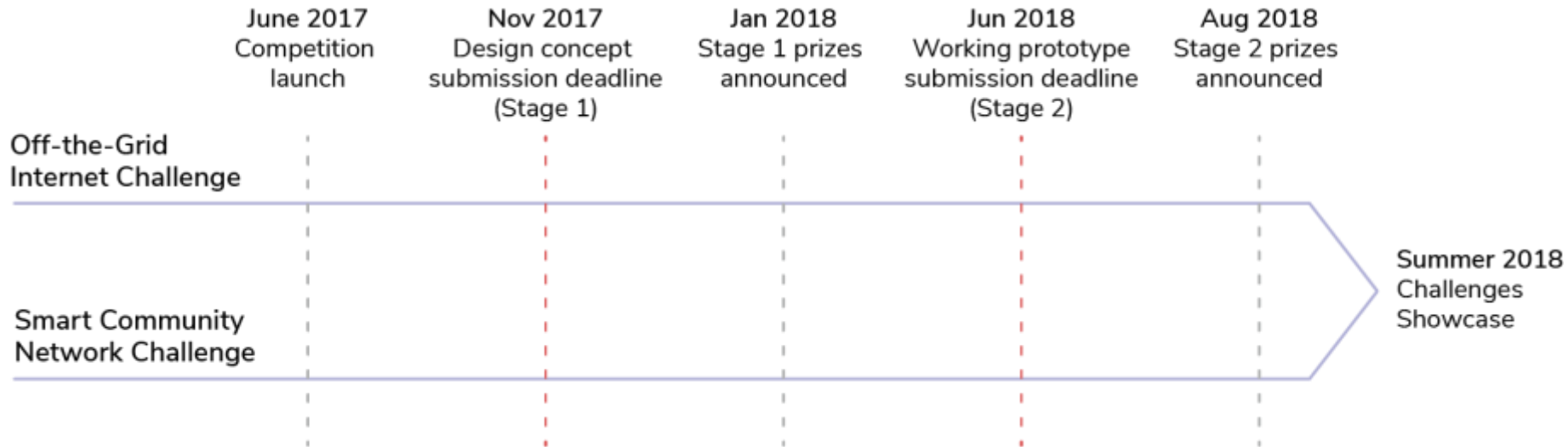
But NSF will help – here's how ...

# NSF CISE WINS Prize Competition



# WINS Prize Competitions

- Two \$1M prize competitions
- Open to individuals, teams, nonprofits and for-profits
- Timeline





# WINS Prize Competitions

## Challenge 1 (Off-the-grid Internet)

How can we leverage **wireless technology** to keep people connected to each other and to vital information sources in the **aftermath of a disaster** where Internet access is unavailable or compromised?

## Challenge 2 (Smart Communities Networks)

How can we leverage existing infrastructure to provide robust **wireless Internet** connectivity in **communities that need greater access**?

# Off-the-Grid Internet & Smart Community Networks Challenge Winners

Project Lantern | First Place (\$60k)

Project by Paper & Equator in **New York, NY**

The Next-Generation, Disaster Relief Mobile Phone Mesh Network |  
Honorable Mention (\$10k)

Project by goTenna in **Brooklyn, NY**

Wind: Off-Grid Services for Everyday People | Honorable Mention (\$10k)

By Guardian Project in **New York**

Baculus | Honorable Mention (\$10k)

Project Lead: Jonathan Dahan in **New York**

Othernent Relief Ecosystem | Honorable Mention (\$10k)

Project lead: Dhruv Mehrotra in **New York, NY**

NYC Mesh Community Network | Honorable Mention (\$10k)

Project lead by NYC Mesh, **New York City, NY**

# Wireless Research in CNS

## Fundamental wireless networking technologies (NeTS)



Dr. Monisha Ghosh,  
Program Director  
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## US-EU Internet Core & Edge - Technologies

Partnerships with EU researchers – applications & systems

Complements ICT-21-2018: EU-US Collaboration for advanced wireless platforms

Runway to Horizon Europe 2021-2027

# Next Steps for ~~PAWR~~ crunching your PAWR Data

## NSF Workshop on Enabling CISE Research and Education in the Cloud Alexandria, VA Jan. 8-9, 2018

- + Growing demand for use of commercial cloud computing
- + Can democratize computing (underserved institutions)
- + Can be cost effective over local cluster purchases
- + Can enhance data sharing, reproducibility
- Learning curve for community
- Many open questions