Perspective on Accessible Remote Testbeds

Pramod Khargonekar
NSF Assistant Director for Engineering
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Major Research Equipment and Facilities

ALMA
Atacama Large Millimeter Array
Remote Access to Resources
Data Intensive Astronomy

Credit: ALMA
EarthCube

“EarthCube aims to create a well-connected and facile environment to share data and knowledge in an open, transparent, and inclusive manner, thus accelerating our ability to understand and predict the Earth system.”
NHERI - Natural Hazards Engineering Research Infrastructure

Experimental substructure for a hybrid simulation of earthquake at Lehigh
Credit: Lehigh

Current competition: Computational Modeling and Simulation Center

The 12-fan Wall of Wind at Florida International University
Credit: Courtesy of FIU
Infrastructure for Engineering Research

- Increasing investments by universities and funding agencies

- Examples:
  - Nanotechnology
  - Robots and autonomous vehicles
  - Materials synthesis, characterization and measurements
  - Wind tunnels
Challenges and Opportunities

- Limited tradition of sharing of research infrastructure in engineering
- Limited access to the state-of-the-art facilities
- Uncoordinated duplication of infrastructures and limited leveraging
- Talented faculty and students at institutions without facilities

What if we could eliminate these limitations and inefficiencies?
Vision

- Remote access to state-of-the-art experimental facilities in engineering
- Sharing of data, models, simulations
- Remote and real-time collaborations across institutions, faculty and students
- New communities, ideas, and breakthroughs
- Broaden participation in engineering by people from all backgrounds
Can we do it?
Thank you