



NSF Campus Cyberinfrastructure PI and
Cybersecurity Innovation for Cyberinfrastructure PI Workshop
October 3-4 | Albuquerque, New Mexico

NSF Program (either CC or CICI): CICI

Program Area: CNS

Award Numbers: 1547380,
1547390, 1547411

PI: Raj Jain

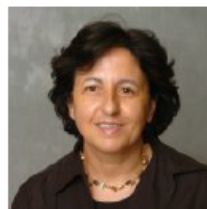
co-PIs: Elisa Bertino, Arjan Durreesi

Project Title: CICI: Secure Data Architecture: Collaborative
Research: AMDN Framework for Secure Scientific Collaboration



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Quad Chart for:

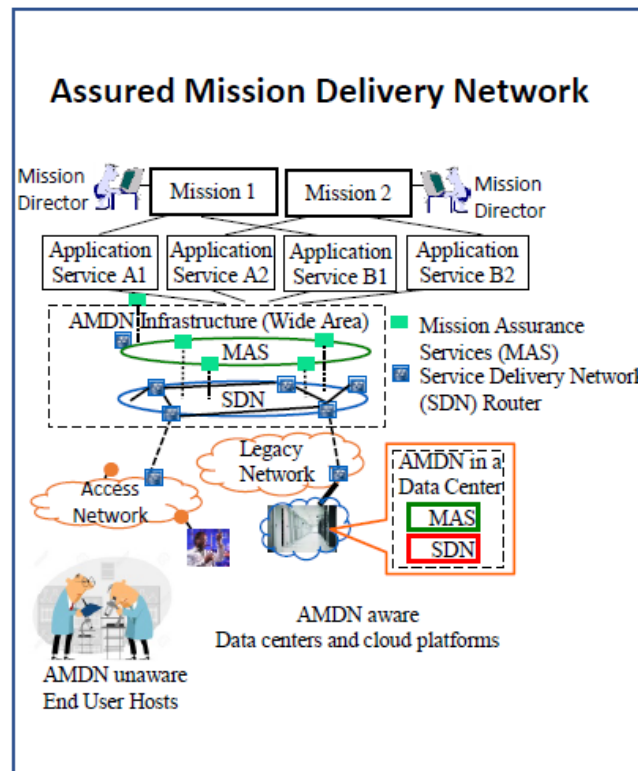
CICI: Secure Data Architecture: Collaborative Research: AMDN Framework for Secure Scientific Collaboration

Challenge:

- To design and implement **Assured Mission Delivery Network (AMDN) Architectural Framework**, tailored to support data-intensive scientific collaborations in a multi-cloud environment.
- The collaborators, users, clouds and the networks connecting them may belong to different organizations that may have differing levels of trust.

Solution:

- Each scientific collaboration group is called a mission and it may specify a set of rules for handling its traffic.
- A **rule-based delegation mechanism** allows collaborative application services to create and optimize their specific networking context.
- Certificate-Less cryptography-based secure Rule-management Protocol (CLRP) is being developed



Broader Impact:

- proof point for further conceptual and theoretical advances in the area of cybersecurity for scientific collaborations.
- Good for dual use: In addition to scientific missions, can also be used for commercial missions, such as banking.
- Critical infrastructures such as smart grid can use this technology.

Metadata tag:

- *In 2nd year of a 3 year project*
- *Five publications, more pending*
- *Project URL:*
<http://www.cse.wustl.edu/~jain/cici.htm>
- *Testbed implementation in progress*