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### **National Cyber Range**

DARPA Cyber Colloquium  
Arlington, VA

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# Report Documentation Page

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# Problems in Cyber Testing

A fundamental problem faced in cyber research is that today it is too difficult to test the capabilities that we develop, in a secure and realistic environment

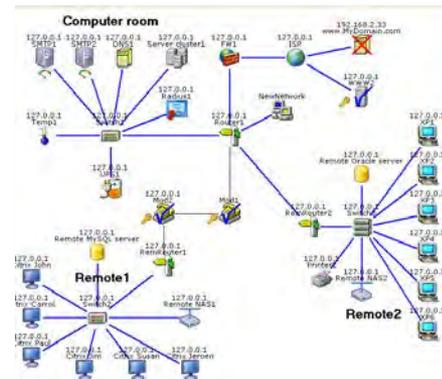
Existing test facilities limit our development, testing, and training timescales from matching the rapid evolution of real-world threats

## Our Adversaries' Test Range



Real Networks + Real Users =  
Real Results

## Our Existing Test Ranges



Approximated Networks + Artificial  
Users Behaviors = Questionable Results



# The National Cyber Range

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## Goal

- Create a secure, self-contained facility that can rapidly emulate the complexity of defense & commercial networks, allowing for cost-effective and timely validation of cyber technologies

## Current Status

- Completed the technical design and software tool sets for the NCR
- Demonstrated the architecture at scale on an operational prototype facility

## Range Features

- Simple experiment design tools
- Automated range build-out capability
- Real-time data visualization tools
- Automated range sanitization
- Supports simultaneous testing at multiple security levels



# NCR Facility

Located in Orlando, FL



## Range Operations Center

FACTR Wide Situational Awareness  
FACTR Operations  
Accreditation Maintenance

## Reconfigurable Test Suite 1

2 Operator Rooms  
1 Brief/Debrief Conf Room

## Welcome and Reception

Introductions  
Visitor Check In

## Security Office

Security Operations  
File Storage

## Range Support Center

Software Sustainment  
Community Outreach  
Resource Integration

## High Security Data Center

Asset Warehouse  
MLS Environment

## Reconfigurable Test Suite 2

2 Operator Rooms  
1 Brief/Debrief Conf Room





## Moving Forward with the NCR

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- What we currently are doing (October 2011 to October 2012)
  - One-year beta-operation phase of the prototype NCR
  - Just completed the first live experiment
    - Built out the range to emulate a 1100-node DoD network in 1-day
  - Range size will grow to allow for a 3000-node experiment by January
  - Transition the range and associated technologies to USCYBERCOM
- The NCR is available to agencies across the Government for use during this phase



## Working with the NCR

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- In-depth Government technical reviews are held quarterly
  - Limited to Government personnel and support contractors
- Next review scheduled for November 15 in Arlington, VA
- Will include a separate briefing for those interested in running experiments on the NCR
- Contact us if you are interested in attending ([Jinendra.Ranka@darpa.mil](mailto:Jinendra.Ranka@darpa.mil))