

# Joint Research Centre

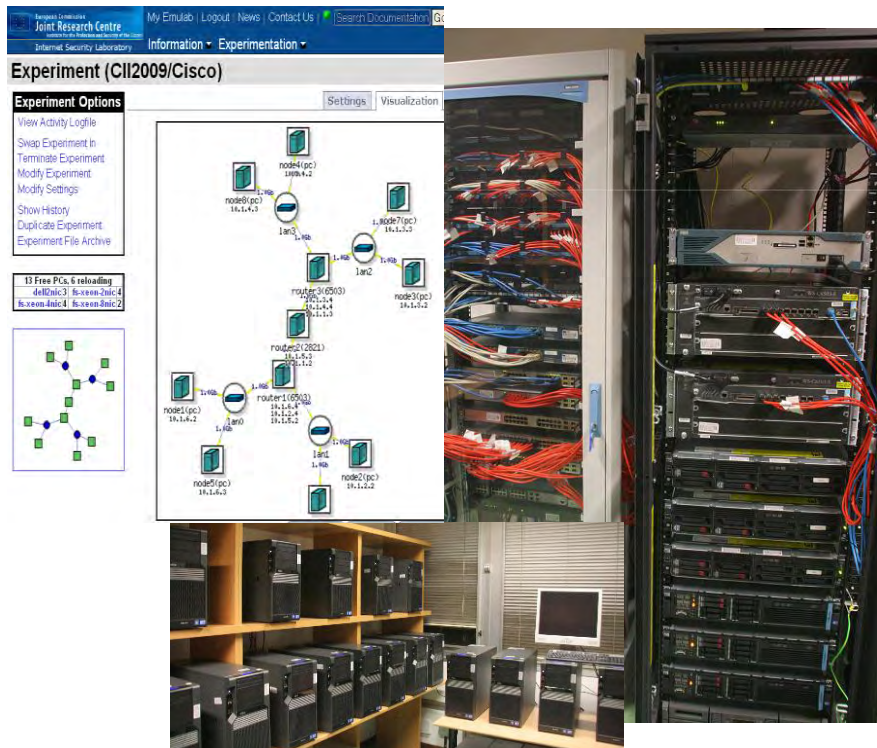
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# Cyber-security and Critical Information Infrastructure Protection R&D challenges



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## CIIP and Cyber Security main challenges – the JRC perspective

### Currently

- Critical Infrastructures (CI) evolve rapidly through the use of IP networks
- Few data points about real conditions (near misses unreported)
- Man-made threats as operational concern (human errors/malicious acts)

### Why do we need more research ?

- Limited situation awareness capabilities (measurement, monitoring)
- Limited understanding of precursors of disruptions (early warning)
- Limited network management capabilities (e.g. response automation)
- Limited understanding of interdependencies
- Limited capabilities to estimate the consequences of a disruption
- Lack of security metrics for network infrastructures

## CIIP and Cyber Security main challenges – the JRC perspective

Two directions:

- need for experimental platforms (testbeds + repositories) as scientific instruments for security analysis
- need for training and preparedness activities through hands-on exercises (part of a general curriculum)

Challenges

- Conform to scientific method (repeatable experiments, credible results)
- Use real-world data to drive modeling and experiments
- Develop testbeds which can capture the complexity of real infrastructures
- Find sustainable solutions at reasonable cost

# Questions?

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