SARNET - Enhancing Cyber Resilience

Relation to NCSRA II
CYBER THREATS ARE EVOLVING...

Key trends:
- Magnitude of vulnerabilities
- Sophistication of attacks
- Degree of organisation

2010
- Stuxnet
- DDoS attack by Anonymous

2011
- Sony Playstation Network hack
- KPN hack
- Dorifel virus
- Apple iCloud hack

2012
- DDoS wave
- NL Finance
- PRISM
- Belgacom
- Heartbleed
- Shellshock
- Sony pictures

2013
- APT1
- Lektober
- Flame

2014
- Diginotar
- Sony

CYBER CRIME
- Cyber crime
- Cyber activism
- Cyber espionage
- Cyber warfare
...AS ARE RESILIENCY STRATEGIES

- **Traditional prevention**
  - put up walls and hope for the best

- **Monitoring & response construct**
  - detect (potential) attacks and limit damage

- **Threat intelligence capabilities**
  - anticipate and take proactive precautions

- **Autonomous response & recovery**
  - reduce dependency on human operation

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Automation is required to mitigate cyber threats and attacks in time.
In 2001 IBM defined Autonomic Computing with Self-Protection and Self-Healing.

Autonomic Computing Principles:
- The self-configuring, self-healing, self-optimizing, and self-protecting technologies of operating environments and systems.
- Seamless integration and distribution of resources by the operating system.
- Automatically measure and tune resources to improve performance and usage.
- Instant detection, diagnosis and reaction to system disruptions.
- Anticipate, detect, identify and protect against attacks.

Autonomous Response & Recovery
... THE IDEA IS NOT NEW


Dependability and Security by Enhanced Reconfigurability

FP6 project IST–2004–026600–DESEREC
... BUT IT IS HAPPENING NOW

The World's First All-Machine Hacking Tournament

August 2016
Cyber resilience - “The ability of an ICT system to anticipate, withstand, recover from, and evolve to improve capabilities in the face of cyber threats & attacks”

Make use of SDN and NFV technology to create cyber resilient ICT infrastructures
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NATIONAL CYBER SECURITY RESEARCH AGENDA II

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  - NWO Cyber Security
  - SBIR Cyber Security
- Produced by IIP-VV [http://www.iipvv.nl](http://www.iipvv.nl)

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http://www.dcypher.nl/
NCSRA II
Relation to SARNET

- Autonomous Response
- Self-protection & Self-healing
THANK YOU

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