

Challenges in dependability evaluation of Networked Information Systems (NIS)

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- **Comprehension of the complex, evolutionary and boundless nature of NIS**
 - emergent properties and vulnerabilities of such systems, composed of heterogeneous nodes communicating by, even multi hop, mobile and public networks;
 - interdependencies with the external environment;
 - new dependability indicators (i.e. reaction of the system to attacks, user perceived quality of service, in presence of fault degradation);
- **Unequivocal decomposition and recomposition of NIS**
 - interfaces among layered subsystems and multi hop networks;
 - dependencies among layered subsystems and multi hop networks;
 - interdependencies with the external environment;
- **Formulating new theories and tools functional to dependability evaluation of NIS**
 - exporting knowledge from modelling methods, proved to be effective, for dependability evaluation of simpler systems to deal with the new scale and complexity
 - investigating compositions of heterogeneous modelling methods which implement different modelling paradigms (stochastic and deterministic, continuous and discrete, simulation and exhaustive exploration);
 - considering the impact of security crashing on the other dependability attributes;
 - gaining cross-fertilization from different fields (i.e. Science of Complexity, Theory of Chaos, System Biology).