

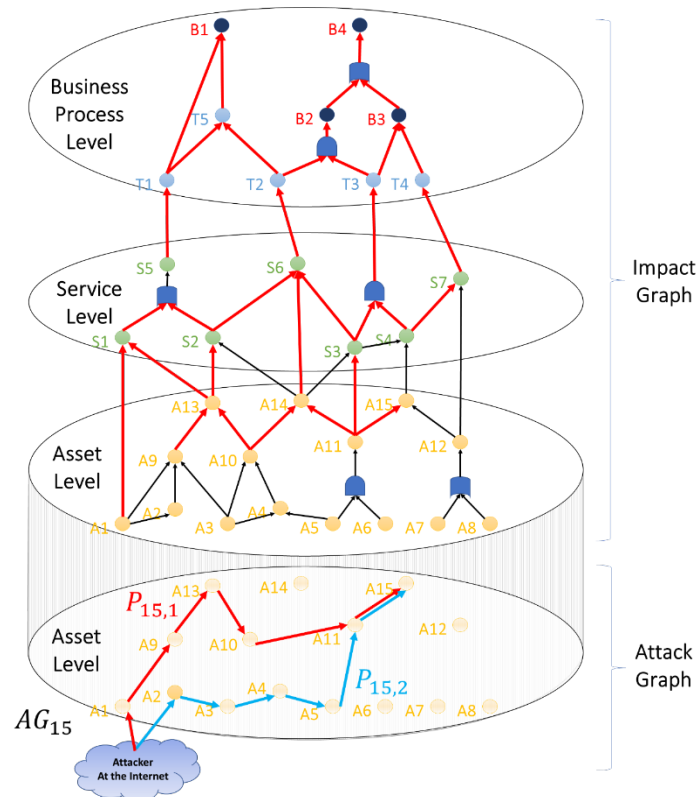
CRII: SaTC: Graph-based Probabilistic Cyber Risk Modeling

Challenge:

- Lack of a realistic asset targeting modeling from an attacker's perspective
- Cyber risks, being considered as a technical problem rather than a part of Enterprise Risk Management
- Lack of a cyber risk analysis model that can be tailored to any organizational environment

Solution:

- Build a probabilistic quantitative cybersecurity risk analysis model to relate asset-level risk to organizational-level risk and supply chain level risk.
- Consider the cascading impacts through internal and external dependencies of an organization.



Scientific Impact:

- Extend the existing attack graph methodology and created an impact propagation methodology and integrating these two approaches to provide a holistic method for cyber risk management.
- Consider the inter and intra level dependencies among the assets, services, and business processes.

Broader Impact:

- Creation of a common language between senior level decision makers and technical experts, and eventually a more effective risk communication
- Increased economic competitiveness with well-informed cybersecurity investments
- Curriculum development and outreach
- 15 grad and undergrad students contributed to 13 publications and presentations