



Bell University Laboratories

Security and Privacy for Internet Services

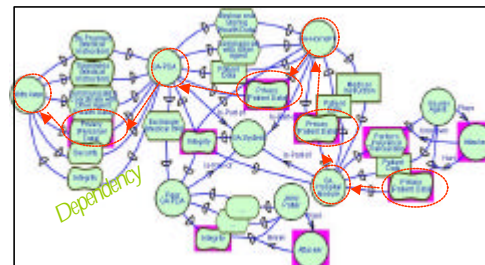
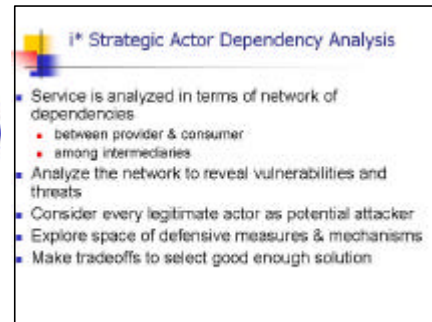
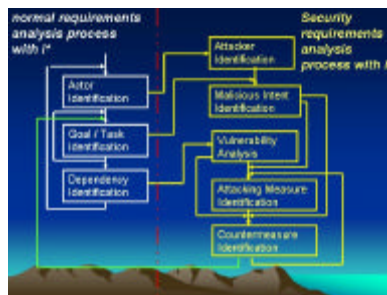
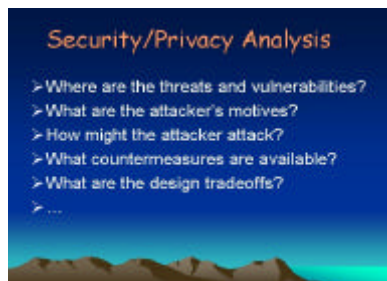


Eric Yu

John Mylopoulos

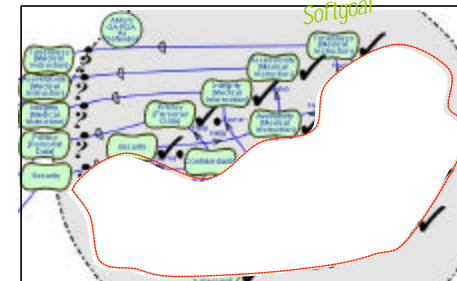
Faculty of Information Studies

Department of Computer Science



• *Depender is vulnerable to dependee, Vulnerability is transitive through dependency network.*

- ❑ i* model can be rewritten into formal specifications, e.g. *Formal Tropos*, *Alloy*
- ❑ Formal validation techniques (*Model Checking*, *Theorem Proving*) can be used to verify whether a property is satisfied, e.g.
 - ◆ Least Privilege (Minimum Privilege, need-to-know principle),
 - ◆ Separation of Duty (mutually exclusive roles principle) [RE03] L. Liu, E. Yu, J. Mylopoulos



• *Countermeasure analysis bases on general taxonomy / catalogue, and seeks to counteract attacker's motivation, capability, and system vulnerability.*



• *Attacker uses legitimate resources and capabilities to fulfill malicious goals*