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The Center for Education and Research in Information Assurance and Security

Malware Defense with Access Control Policy and Integrity Levels

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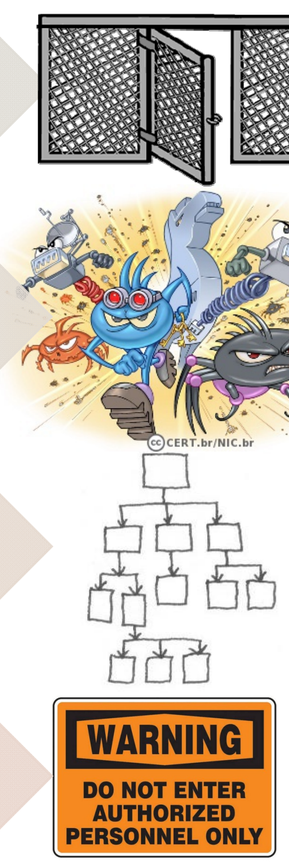
Research Question

Working under the assumption that system compromise is inevitable, what FTP server states exist such that they:

- can serve as a model of the system at large
- serve as indicators of malware infection
- can be used as inputs to define access control policy rules that allow or disallow execution of defined computational units

Integrating Multiple Fields of Study

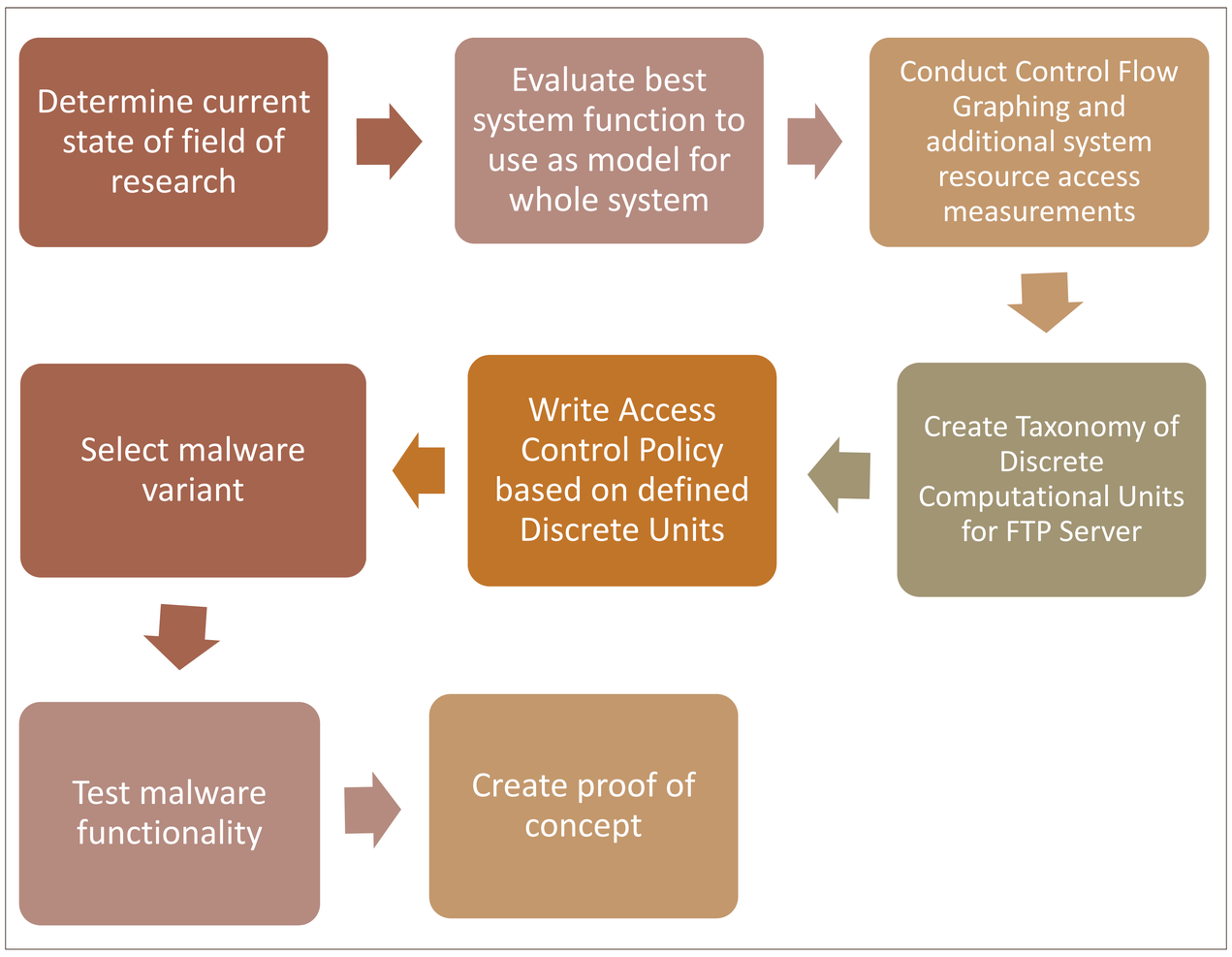
- Intrusion Detection
- Malware Mitigation
- Discrete Computational Units
- Access Control Methods



Motivation and Broader Impact

- Recognized the increasing impact of malware infection socially and economically
- Attempt to create a resilient system assuming inevitable compromise(s)
- Consider system design with analogies to the human immune system and the fight against parasites
- Represent an attempt to "step out of the box" and define a new way of addressing the malware arms race – rootkits, polymorphic malware, and as of yet undefined and unknown threats

Methods



Current Progress

- Conducted extensive literature review
- Analyzed system processes
- Selected model system
- Obtained computational resources
- Designed test environment

Next Steps

- Conduct control Flow Tracing/Graphing of FileZilla source code
- Define Taxonomy of "Discrete Computational Units"
- Validate taxonomy

Sources

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