Pacific Northwest
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CyberNET Testbed

CHALLENGE

The cybersecurity domain lacks the fundamental scientific understanding to enable engineered solutions with predictable results. This has led to the current insecure cyber landscape. To resolve this deficit, rigorous exploration of the cybersecurity domain must occur. However, the field currently lacks the capability to enable controlled and repeatable experiments.

APPROACH

The CyberNET testbed was developed to improve and enhance cyber security research. CyberNET is a unique capability that provides the ability to emulate enterprise network environments to enable controlled experimentation that wouldn't be possible in operational environments.

CyberNET offers a sterile and dynamic playground that is easily configurable and customizable where researchers can build, test, evaluate, or otherwise conduct their research in an enterprise-like environment.

- CyberNET leverages cloud technology to offer a configurable and controllable cyber environment where realistic models can be executed using real software
- CyberNET is based on OpenStack with scientific modifications, uses Xen and KVM hypervisors, and uses the Cyber Range toolkit from MIT Lincoln Labs

Experiment as a service

- CyberNET offers a scientific instrument where models can be generated, data can be collected for analysis, and the environment can be documented for repeatable and reproducible results

CyberNET USES

- Experimentation
- Testing and evaluation
- Training
- Prototyping
- Technology demonstration

IMPACT

CyberNET will accelerate the research of scientists and engineers while reducing costs, time, and redundancies across the cybersecurity domain. Enhanced modeling and simulation, supported by real world datasets, will increase realism in models, leading to more relevant research.

The primary benefits offered by CyberNET include:

- Cost-effective
- Scalable
- Repeatable and reproducible research
- Remotely accessible
- Quick and dynamic configurations
- Expert support available

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