

# **Cyber Human Ecosystem of Engaged Security Education**(CHEESE)

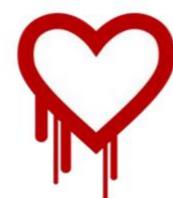
Baijian Yang<sup>1</sup>, Rajesh Kalyanam<sup>2</sup>, Sara Lambert<sup>3</sup> and Rob Kooper<sup>3</sup>

#### Motivations



Raise public awareness of cybersecurity

Gain broader understanding of high-profile security vulnerabilities

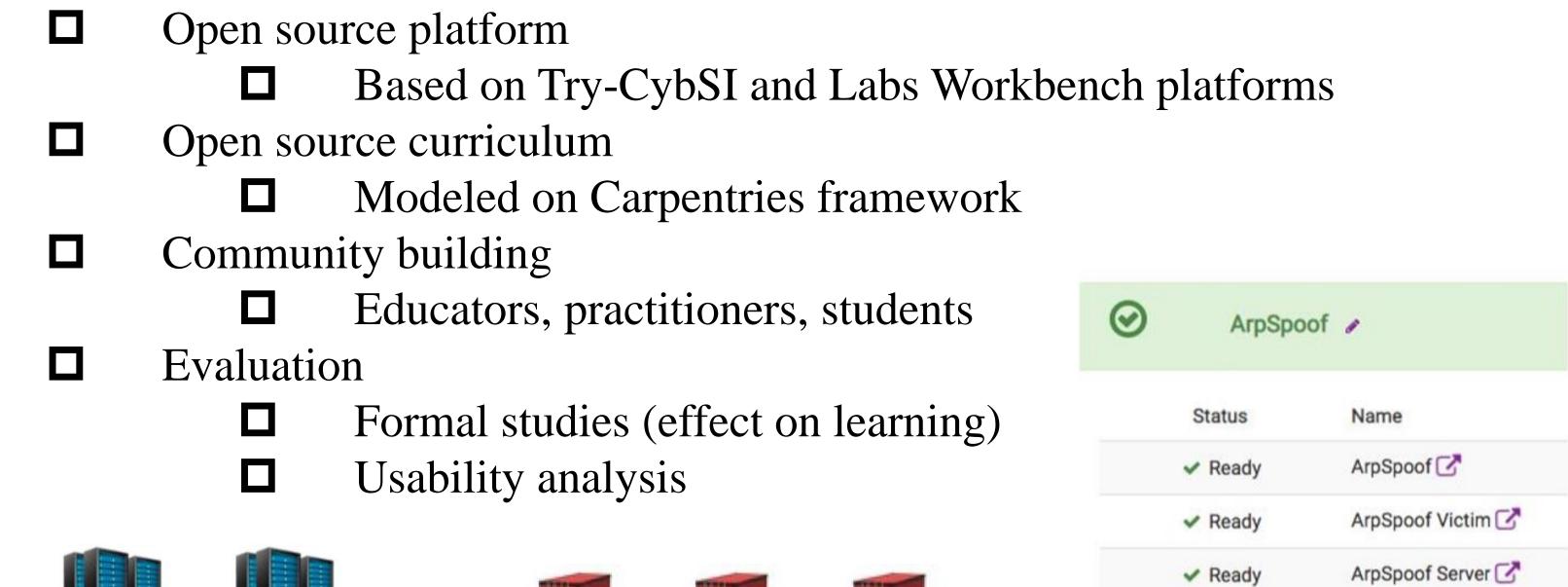




Reduce barriers to learning / "learn-by-doing"

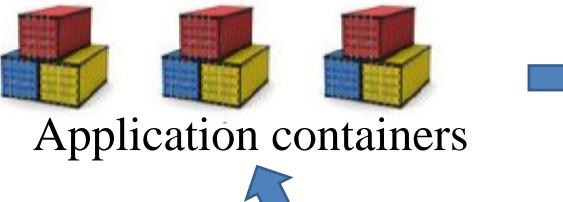
Better dissemination of research results, research reproducibility

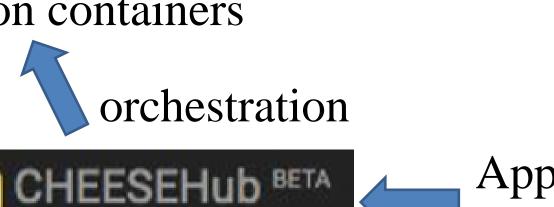




Our Approach







Application request

### Intended Audience

Application

Contributions

- 1. Supplement classroom instruction
- 2. Follow lesson plan

Instructors

- 1. Get hands-on training
- 2. Self-paced learning

**Students** 

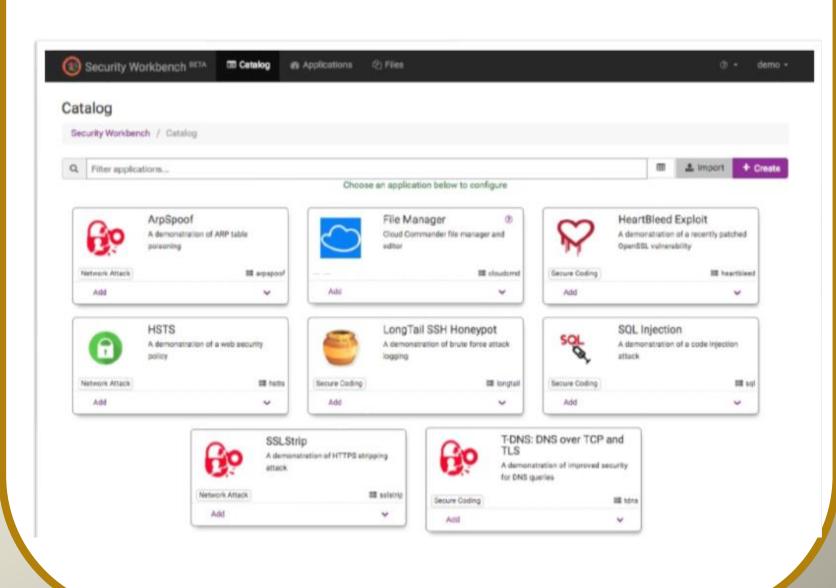
- 1. Find information on security vulnerabilities
- 2. Incorporate validation methods in own code

General public / developers

#### Architecture **NGINX** Workbench System namespace User namespace UI Hacker Monitoring Jupyter - Postgres API Server Client — Logging SQL Injection Arpspoof/SSL Strip etcd **Kubernetes 1.1x (RBAC, Weave overlay network)** Ubuntu 18.04 VMs **OpenStack: Elastic Compute and Storage**

## CHEESEHub

- 1. Community for docker sharing
- 2. Scalable, web-based platform
- 3. Catalog of scenarios
- 4. Hands-on environments for lessons



CheeseHub



**Documentation** 



**Source Code:** 



https://www.hub.cheesehub.org;

https://docs.cheesehub.org;

https://github.com/cheese-hub;



