CERIAS
The Center for Education and Research in Information Assurance and Security

Cyber Human Ecosystem of Engaged Security Education (CHEESE)

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Motivations

Raise public awareness of cybersecurity

Gain broader understanding of high-profile security vulnerabilities

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

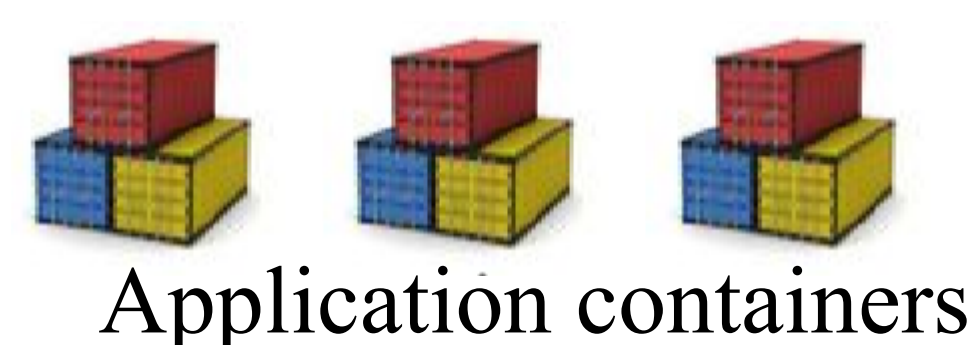Better dissemination of research results, research reproducibility

Our Approach

- ☐ Open source platform
  - ☐ Based on Try-CybSI and Labs Workbench platforms
- ☐ Open source curriculum
  - ☐ Modeled on Carpentries framework
- ☐ Community building
  - ☐ Educators, practitioners, students
- ☐ Evaluation
  - ☐ Formal studies (effect on learning)
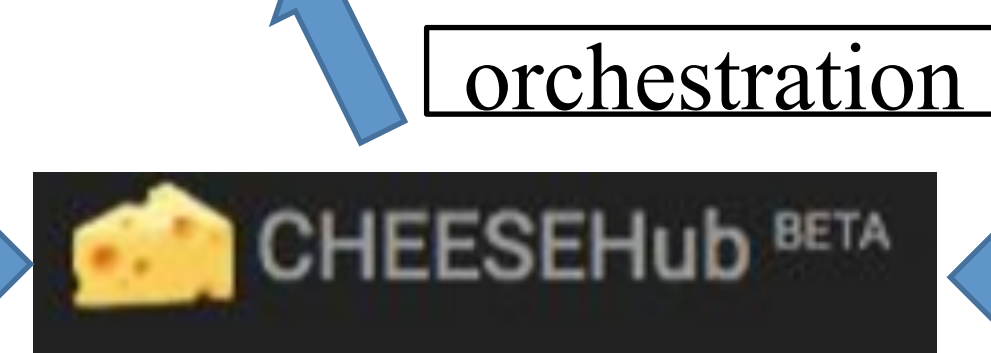 - ☐ Usability analysis t

Cloud resources → Application containers → orchestration → CHEESEHub BETA

Application Contributions → CHEESEHub BETA ← Application request

Intended Audience

Instructors
1. Supplement classroom instruction
2. Follow lesson plan

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

General public / developers
1. Find information on security vulnerabilities
2. Incorporate validation methods in own code

Architecture

NGINX ILB

Workbench
- UI
- API
- etcd

User namespace
- Jupyter — Postgres

SQL Injection

Hacker
Client — Server

Arpspoof/SSL Strip

System namespace
- Monitoring
- Logging

Kubernetes 1.1x (RBAC, Weave overlay network)

Ubuntu 18.04 VMs

OpenStack: Elastic Compute and Storage
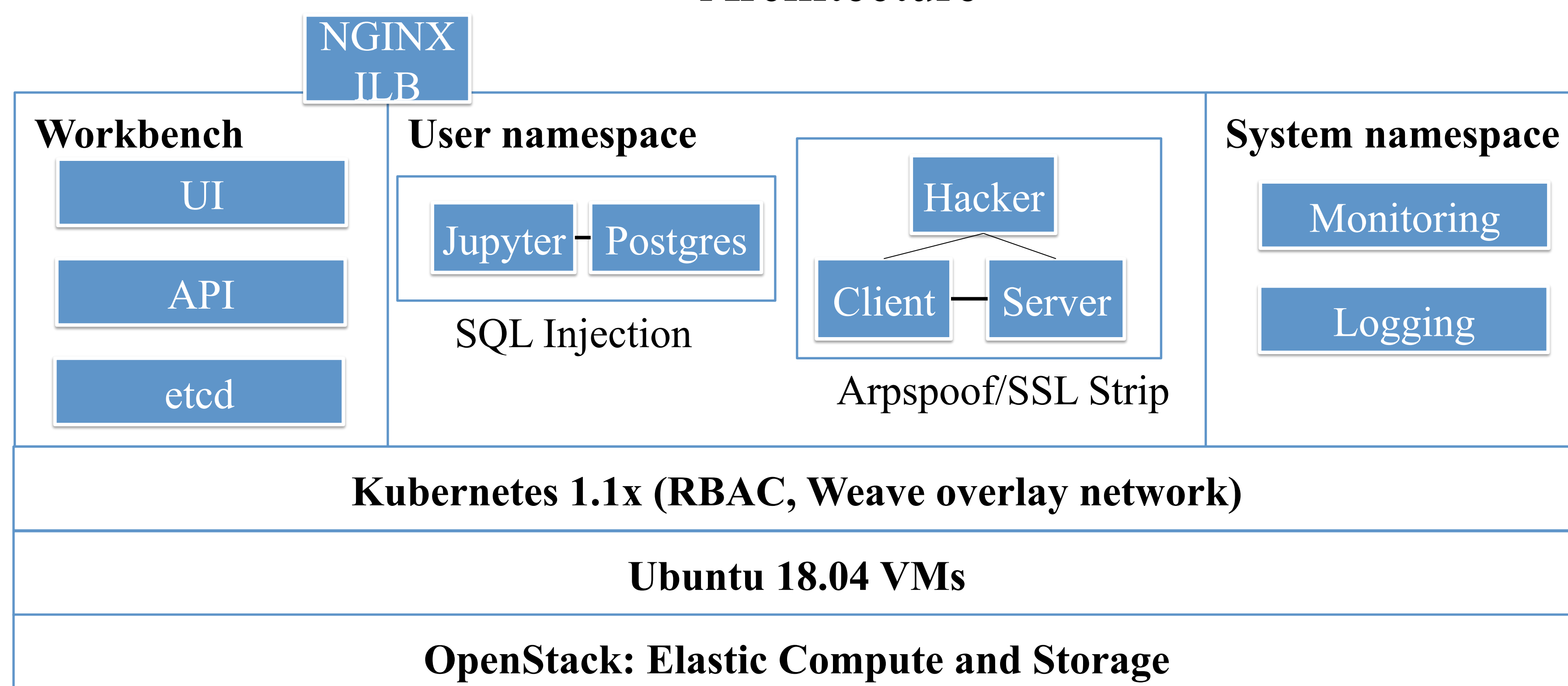
CHEESEHub

1. Community for docker sharing
2. Scalable, web-based platform
3. Catalog of scenarios
4. Hands-on environments for lessons
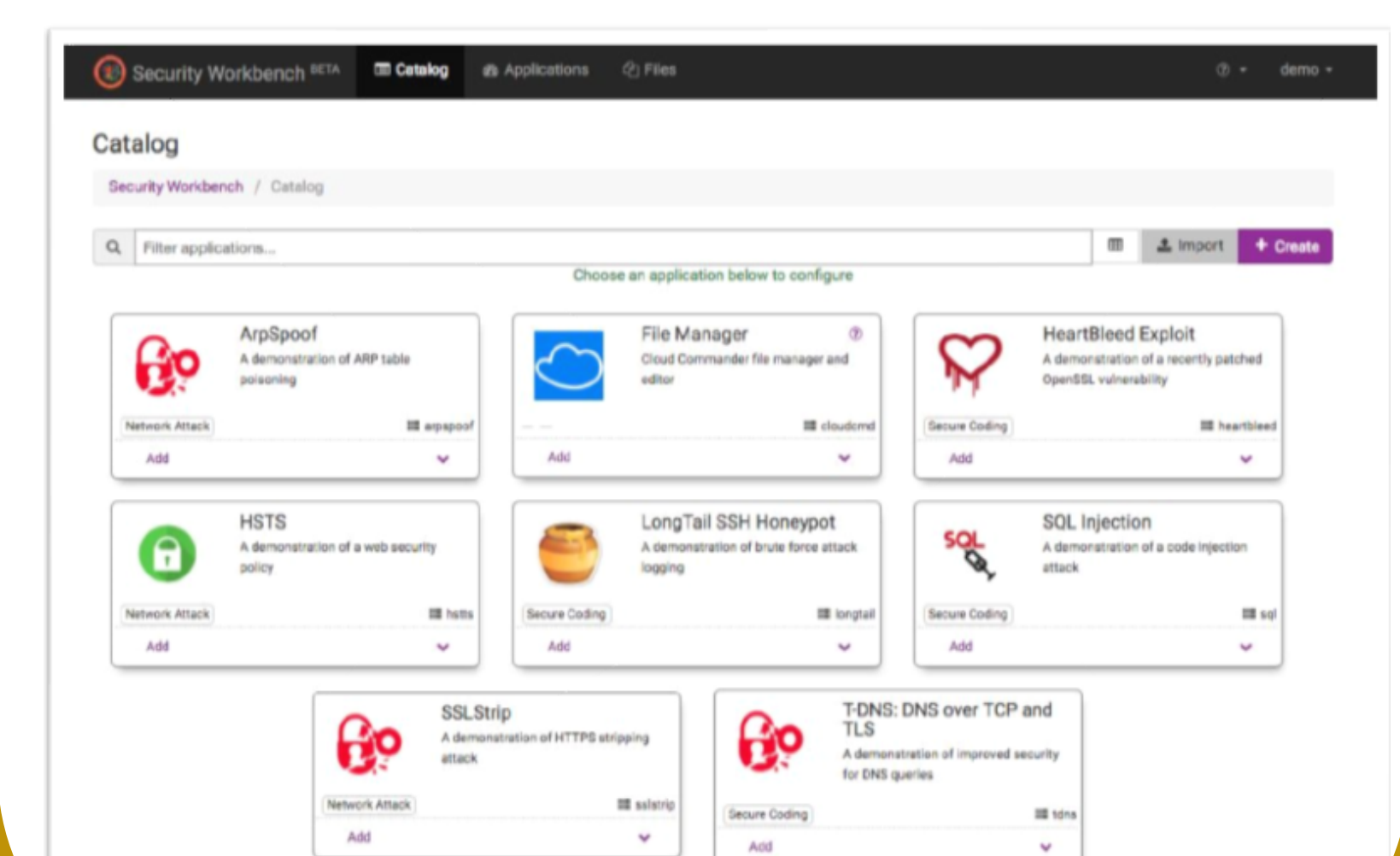
CHEESEHub: https://www.hub.cheesehub.org;   Source: https://github.com/cheese-hub;

Documentation: https://docs.cheesehub.org;

PURDUE UNIVERSITY
Discovery Park

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