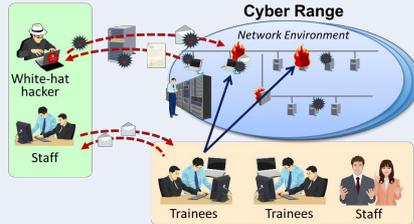


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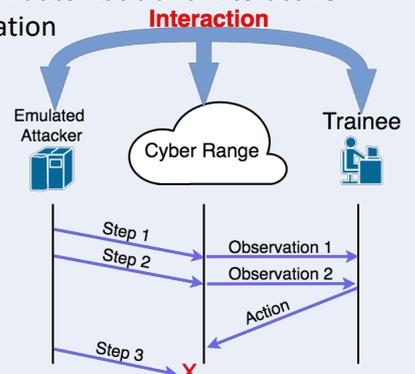
Motivation

- **Cybersecurity training** receives attention from organizations as it improves the **readiness** for protecting data, user privacy and maintaining organization operation
- Preparing a cybersecurity training environment is time-consuming and tedious
- To demonstrate an attack, white-hat hackers and experts are required to do it by themselves



Goals

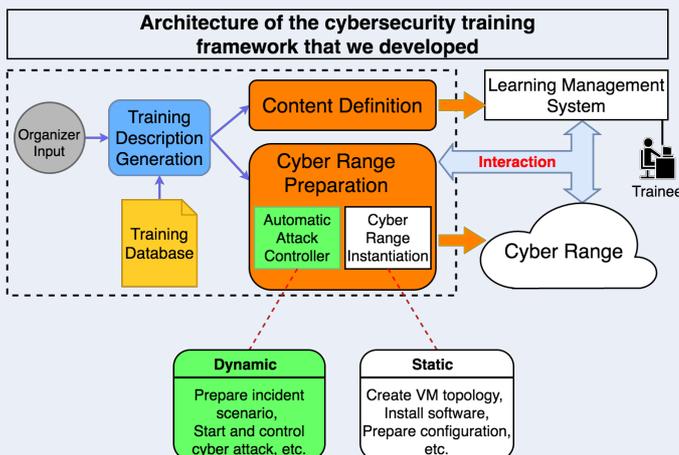
- Focus on making an automatic and interactive cyber-attack emulation
- **Automatic:** Create a cybersecurity incident for training purpose
- **Interactive:** Based on users' behavior, create an appropriate instantiation; get system state to inform users about their progress



Approach

CyTrONE Framework

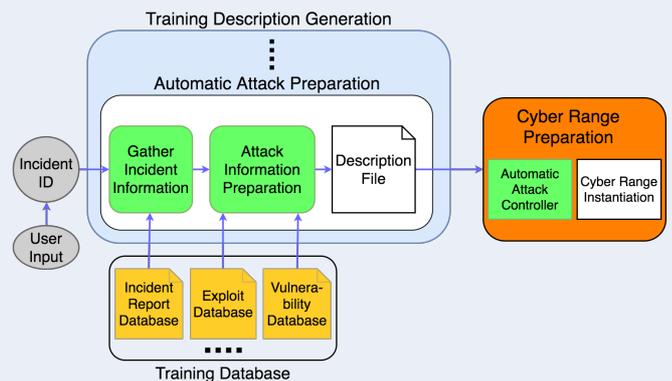
- Cybersecurity Training and Operation Network Environment (**CyTrONE**) is a framework we developed for creating training environments automatically



- **Cyber Range Instantiation System (CyRIS):** Automatically prepare a cyber range from a security training description
 - This is the **static part** of the system
- Currently working on implementing the **dynamic part** of the system for automatic attacks
 - This function can replace the role of white-hat hackers as attackers in a training system

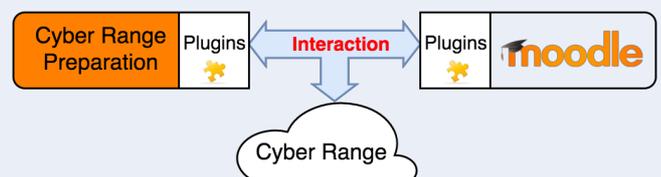
Automatic Attack Preparation

- **Method:** Automate a security incident or vulnerability exploit following a timeline
 - Apply in incident response trainings and cyber attack demonstrations



Interactive

- Develop plugins on the Cyber Range Preparation block and a Learning Management System (LMS)
- Use Moodle – an Open-source platform



- Allow trainees to control and interact with real-time activities for cybersecurity training