Evansdale 2050: A Cybersecurity-Centered Physical Model of a Personal Rapid Transit System

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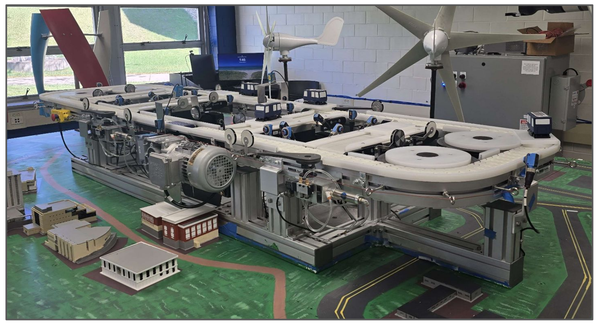
Objective

Modern implementations of the PRT system have created new security vulnerabilities. Our goal is to recognize threats and educate about them through testing, hardening, and documenting a model PRT.

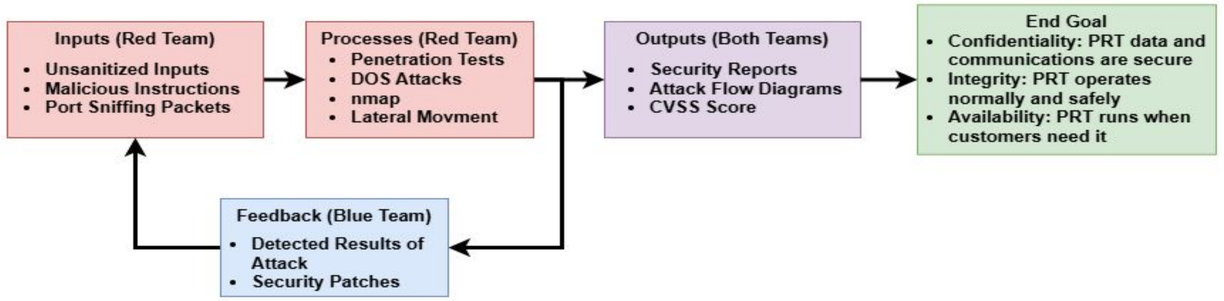
PRT Test Bench

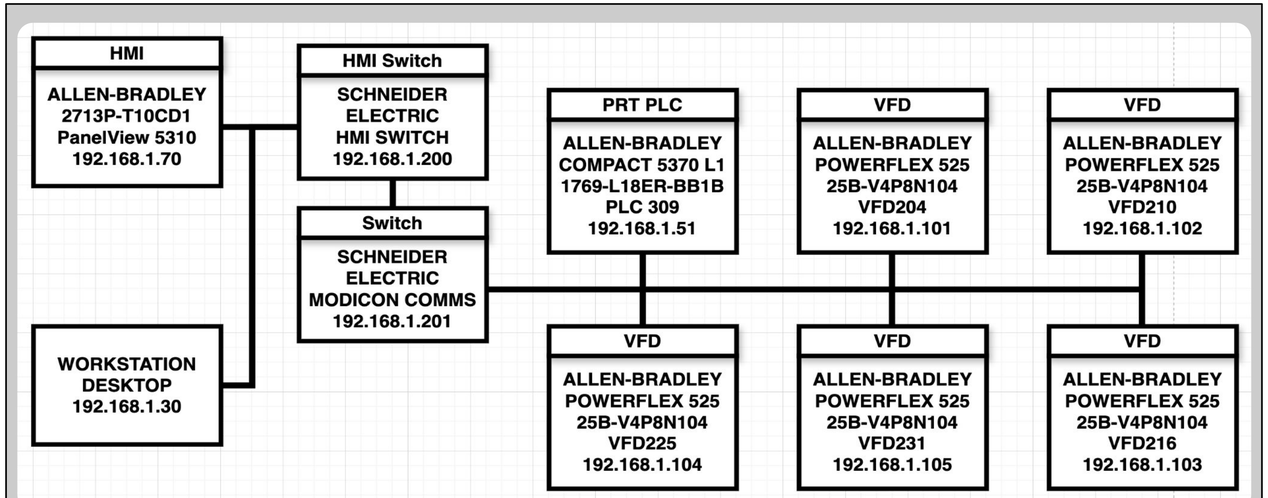


System Improvements

- Fixed system logging using MySQL
- Improved reliability through extensive bug fixes
- Refined user interface for easier understanding
- Added system documentation for future teams

Methodology





Blue Team Results

- Input Validation
- Application Whitelisting
- User Authentication
- Network Intrusion Detection
- Configuration Change Management
- User Access Control

Red Team Results

- Containerized “Target” Network
- Network Mapping
- SNMPwalk Reconnaissance
- Denial-of-Service (DoS)
- SYN Packet Flood

Security Agent

- Uses qwen2.5:7b
- Utilizes discovery tools and applies other offensive security tools to test efficacy of future PRT security.
- Generates a report of findings

Work In Progress

- “Secure” and “Vulnerable” states for the PRT Test Bench as a learning tool
- More iterations of purple team security fixes
- Incident Response Plan for future teams to fix documented issues

Scan the QR Code to See the Test Bench in Action!