Capabilities Overview

13 JUL 2021

Cyber Workforce Development Directorate

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA 15213

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Agenda

Meeting Objectives

SEI Overview

Sample Cybersecurity Workforce Development Programs

SEI Platforms

Next Steps

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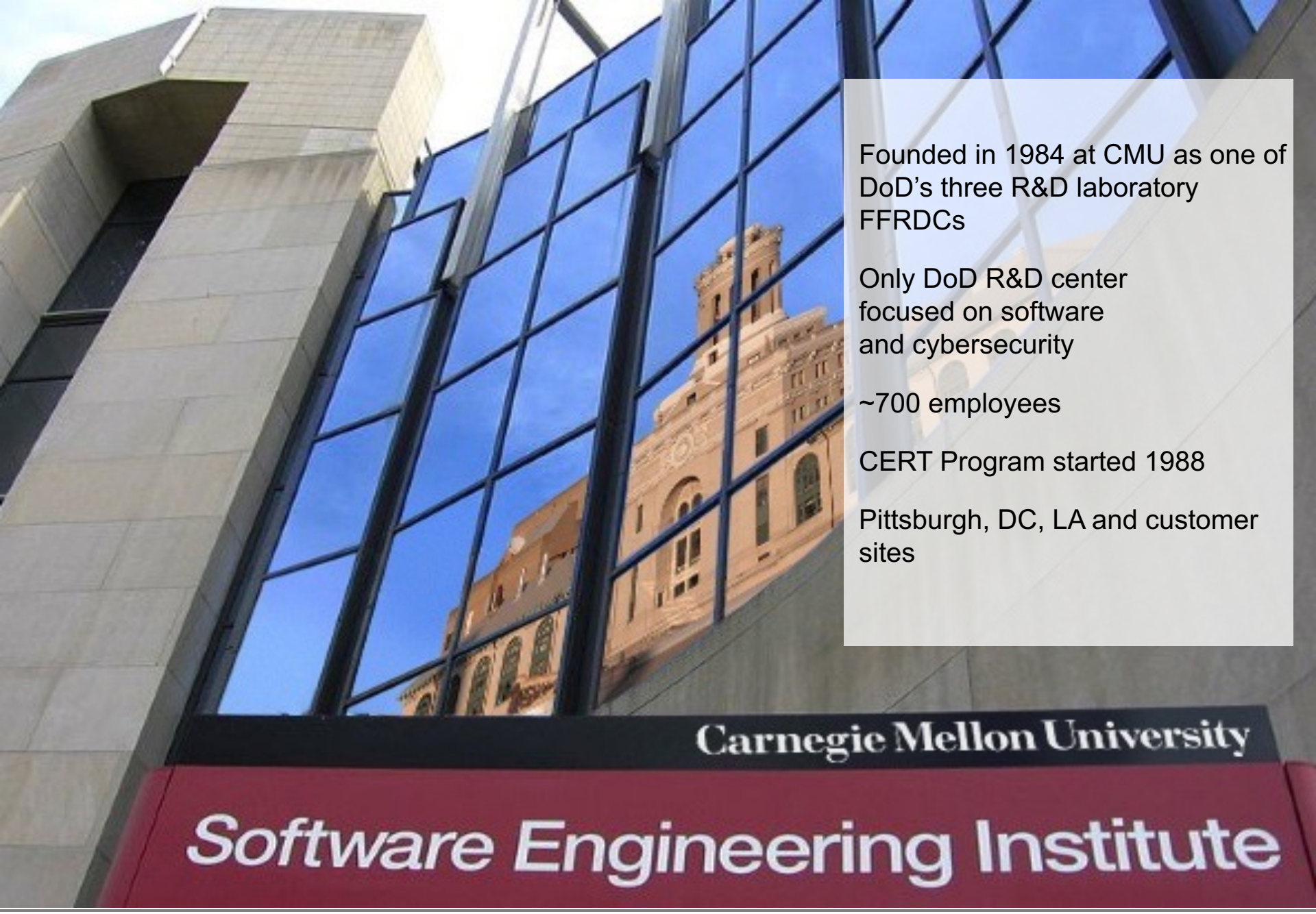

Founded in 1984 at CMU as one of DoD's three R&D laboratory FFRDCs

Only DoD R&D center focused on software and cybersecurity

~700 employees

CERT Program started 1988

Pittsburgh, DC, LA and customer sites

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Cyber Workforce Development Directorate

Mission

Provide force-multiplying solutions to rapidly grow and strengthen DoD's cybersecurity workforce--addressing the problems of **time**, **scale**, and **cost**

- We develop and transition cutting-edge **Prototypes and Content**
  - Training creation and delivery platforms
  - Joint Force level exercises
  - Modeling and simulation tools
  - Custom cybersecurity content

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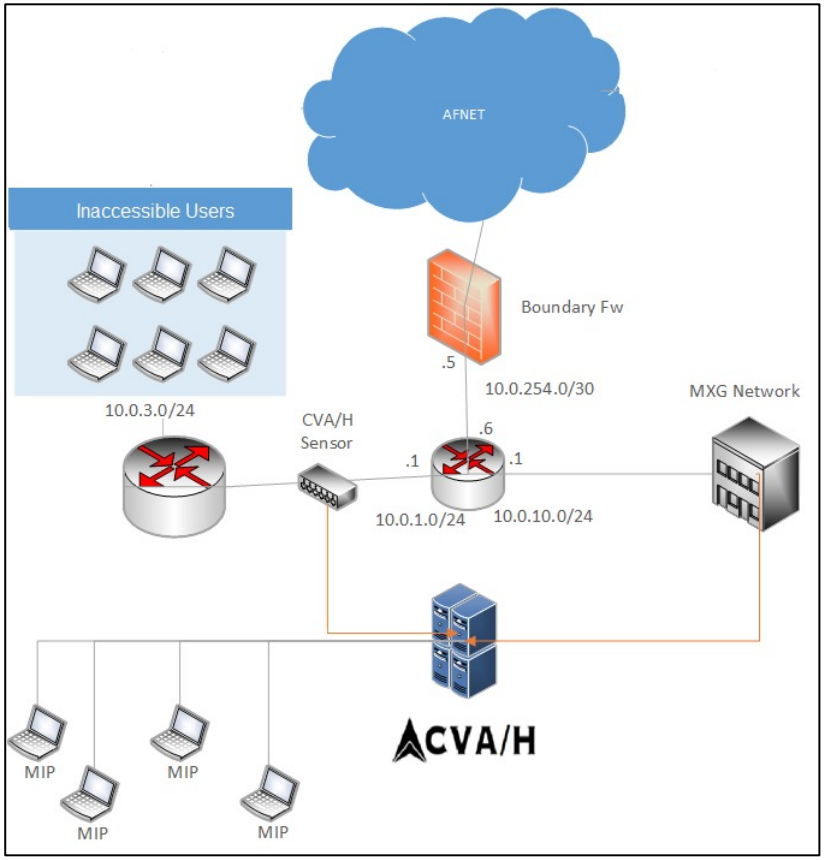
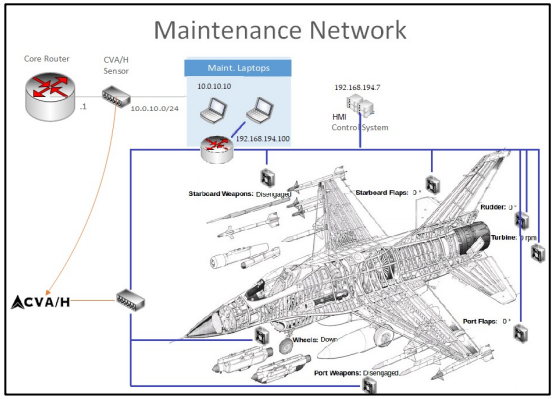
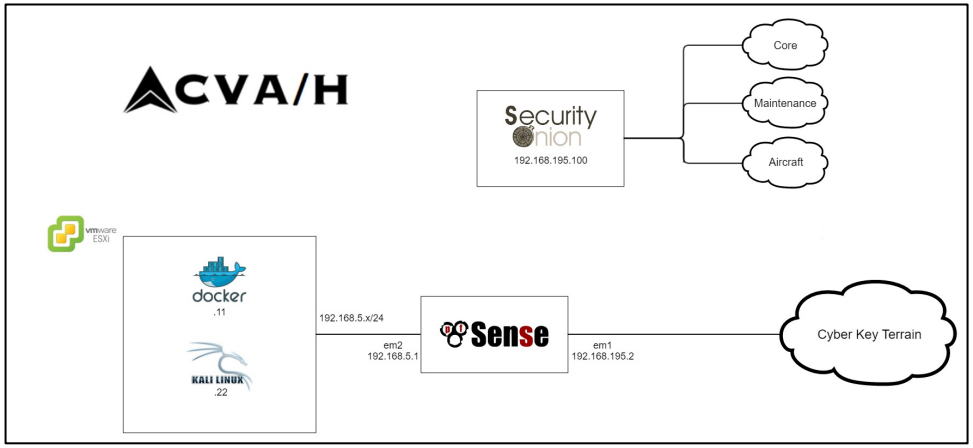
Network/System Modeling and Instrumentation







More than 39,000 hours of training delivered
to Air Force Mission Defense Teams since 2017

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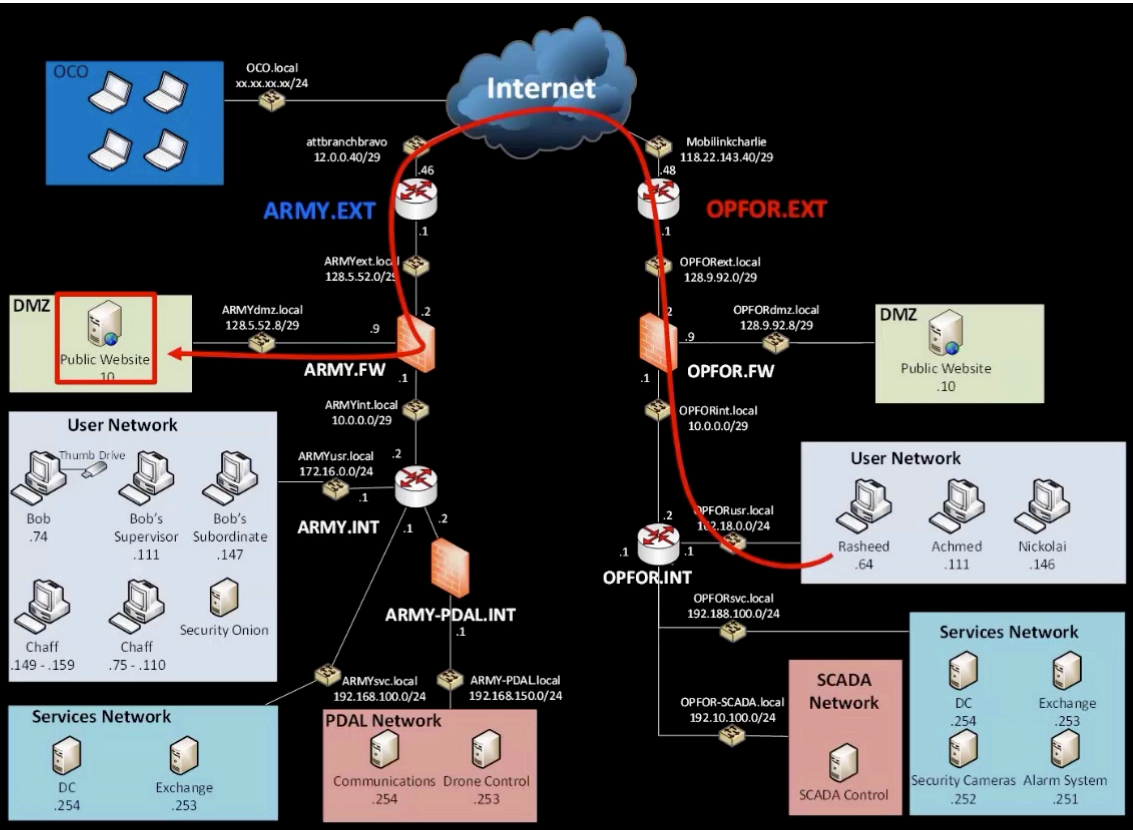
Cyber-Kinetic Effects Integration

Phase 1: Insertion



BLUE gains foothold on island..

..RED gains foothold in network

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Critical Infrastructure Scenarios and Simulators

Chemical

Communications

Dams

DIB

Energy

Healthcare

Transportation

Water/Waste

Financial Services

Government Facilities

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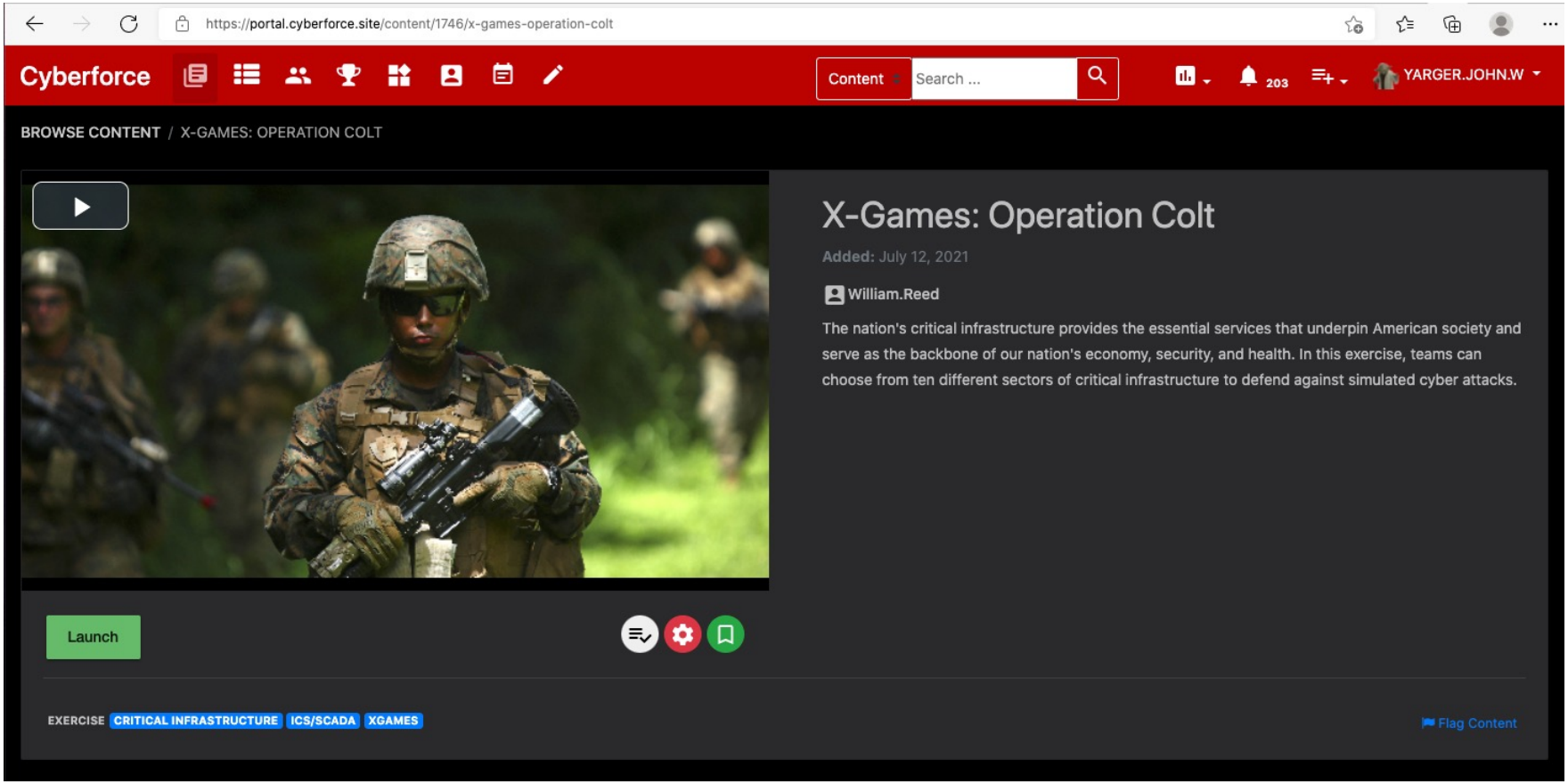
X-Games: ICS/SCADA DCO team exercises
on-demand, automated performance assessment



https://portal.cyberforce.site/content/1746/x-games-operation-colt

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Platform Options

SEI built and hosted:

https://cyberforce.site (USCYBERCOM sponsored; CAC-only)

https://gauntlet.sei.cmu.edu (PIV, CAC, +; all-Azure; INDOPACOM)

SEI built, government owned/transitioned:

https://hamilton.treasury.gov

https://presidentscup.cisa.gov/

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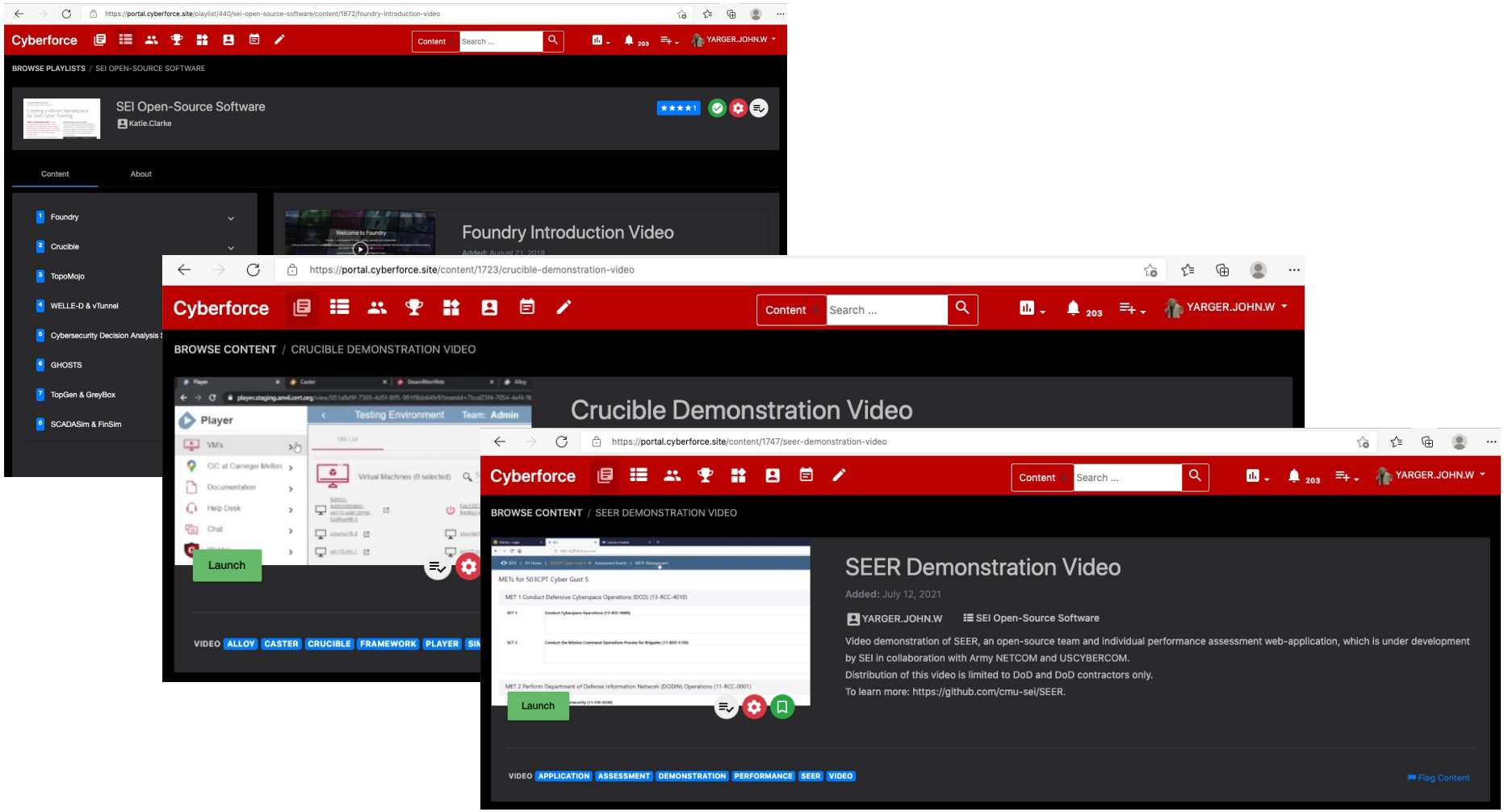
SEI Open-Source Software info playlist



https://portal.cyberforce.site/playlist/440/sei-open-source-software/

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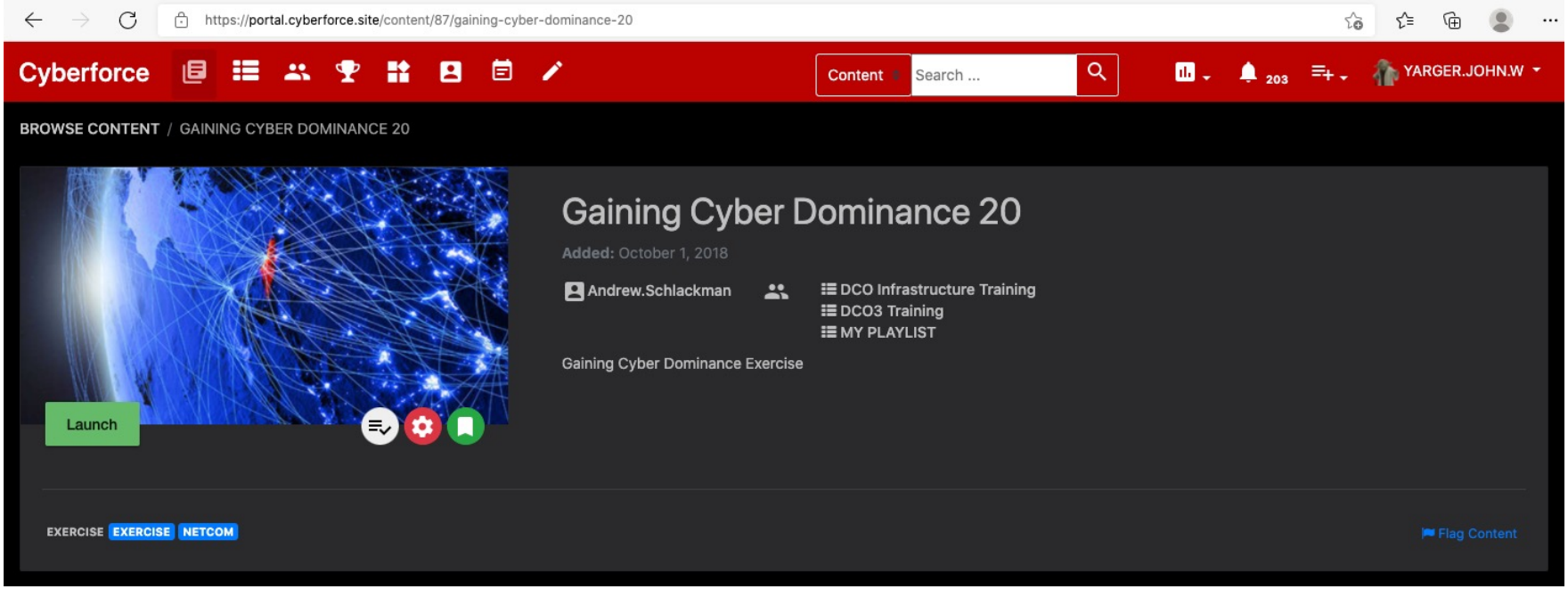
GCD: Regional Cyber Center exercise series
annual, persistent, facilitated



Army Network Enterprise Technology Command

https://portal.cyberforce.site/content/87/gaining-cyber-dominance-20

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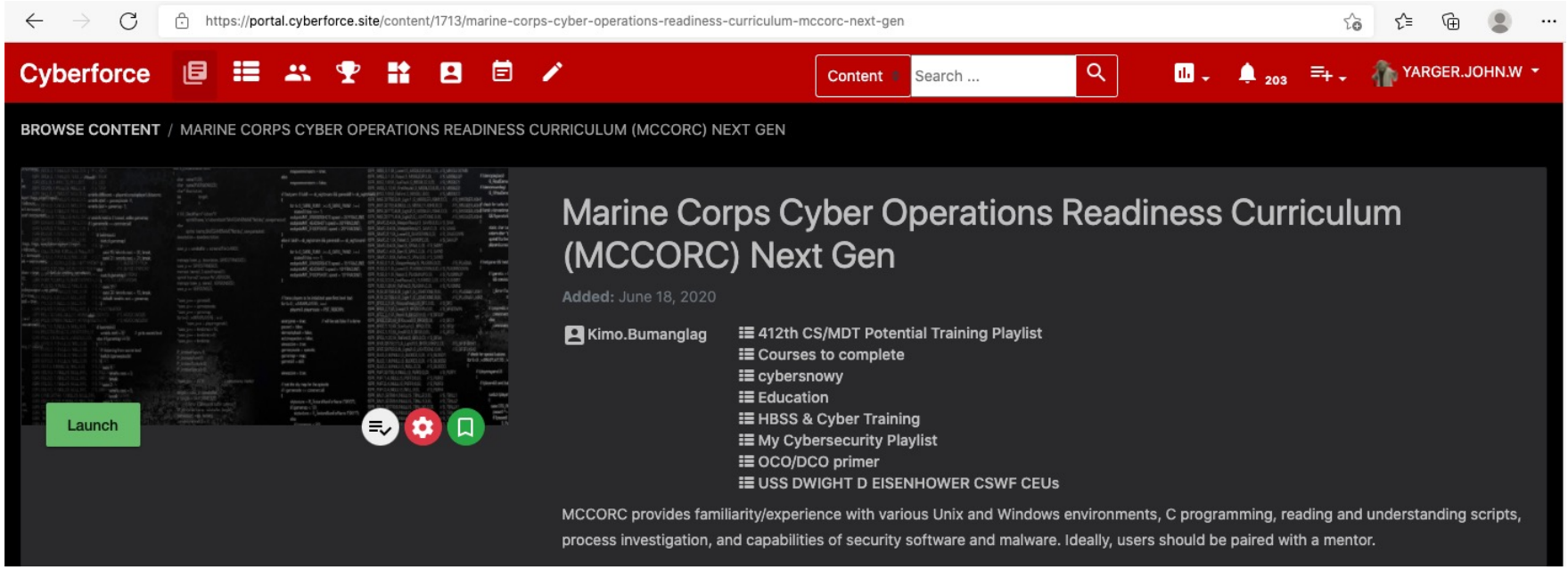
MCCORC: pre-RIOT ION training
5-wk, hand-on Linux/Windows content



Marine Corps Forces Cyberspace Command

https://portal.cyberforce.site/content/1713/marine-corps-cyber-operations-readiness-curriculum-mccorc-next-gen

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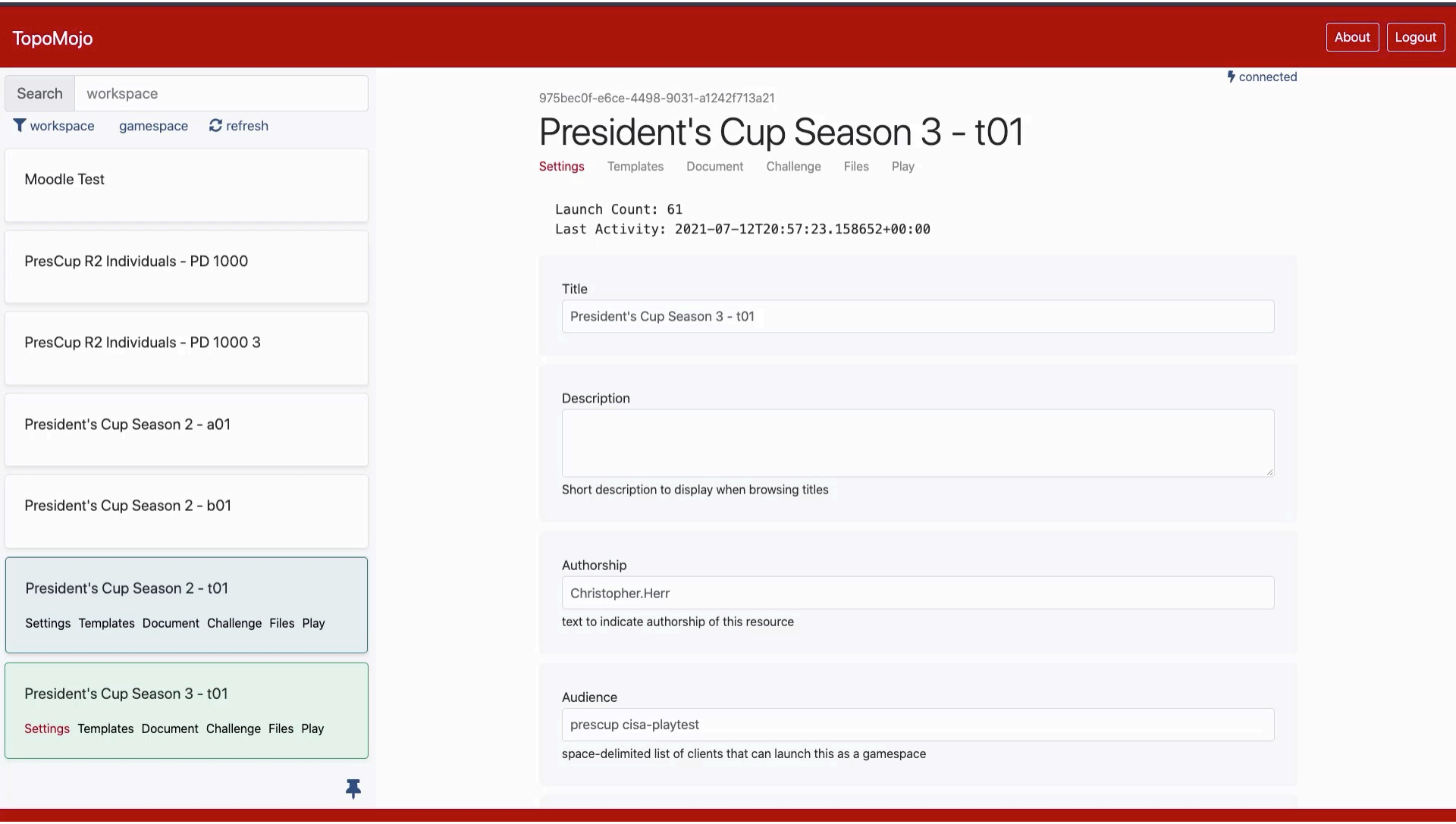

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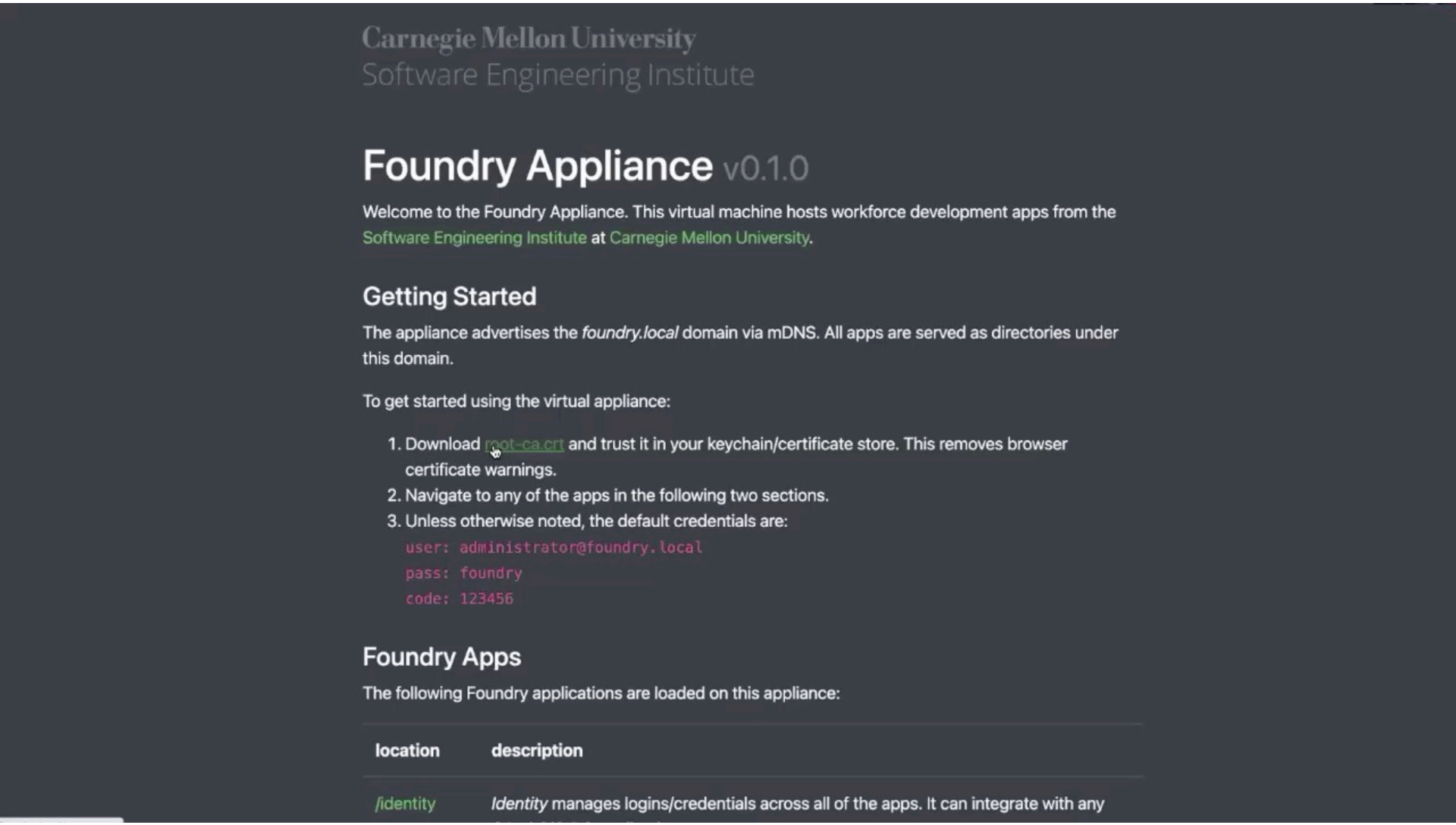

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Next Steps

- SEI Software Prototypes, https://code.sei.cmu.edu/bitbucket/projects/CWD
- Cyberforce, https://cyberforce.site
- Project Work Plan (PWP)
  - Tech transition (e.g. CYBERCOM, MARFOR, 318th)
    - Crucible
    - Foundry Appliance for existing hardware?
      - Content?
  - Content Dev
    - Network/System Modeling
    - Threat emulation
    - Tool development and/or deployment guidelines
- Other Initiatives
  - Cloud transition
    - INDOPACOM
    - President's Cup transition to DHS managed Azure

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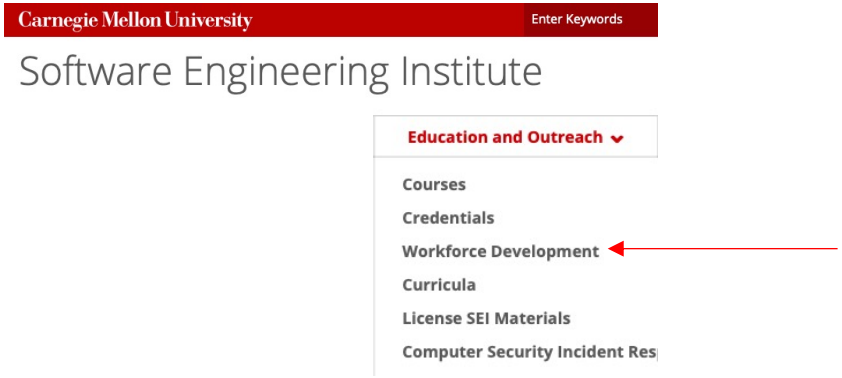
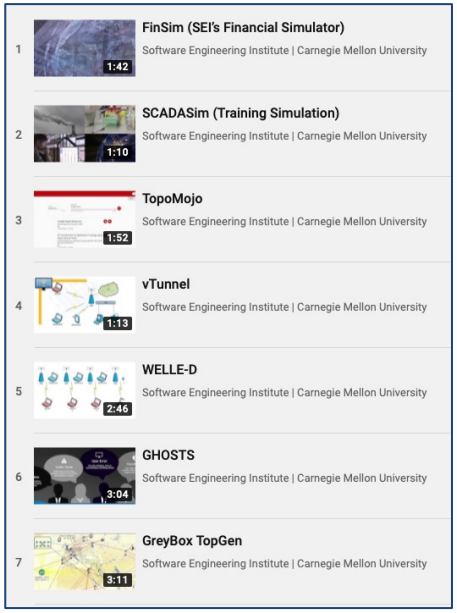
More Info

- SEI YouTube, https://www.youtube.com/user/TheSEICMU
- SEI Open-Source Mod/Sim Tools Playlist, https://portal.cyberforce.site/playlist/440/sei-open-source-mod-sim-tools/
- SEI Website, https://sei.cmu.edu





Simulation Tools Playlist, https://www.youtube.com/playlist?list=PLSNlEg26NNpzr5mxy75HYitS0QFEex4Yc

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