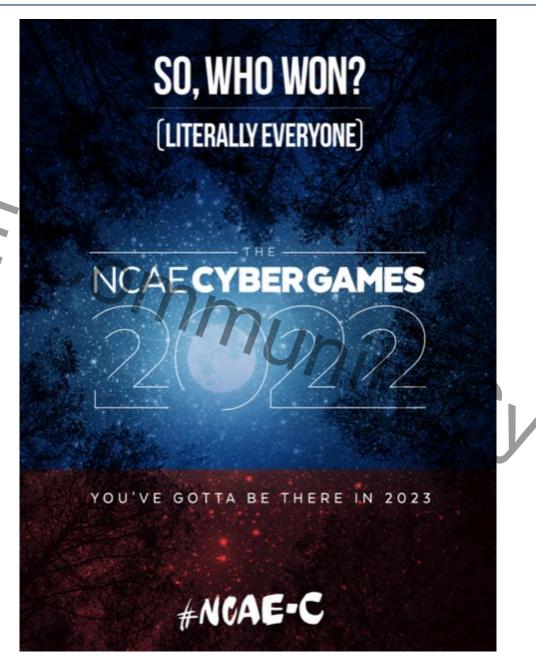




NCAE-C Strategic Plan for Cybersecurity Competitions

- Broaden the pathway into the cybersecurity competition landscape.
- Develop and implement a framework for evidencing competencies within competitions.
- Clarify the pathway through the competitions landscape for NCAE-C faculty and students.

2025 CAE







2025 Informal Results: Participation

2025 CAE CAE ...

CRarticipants: 1124

CAE Institutions: 100

Teams: 140// Symposium

YouTube Views: 27,709





First cybersecurity competition: 80%

Overall Event rating: 90% Symposium Interested in more advanced competitions: 80%

Sandbox Training Environment

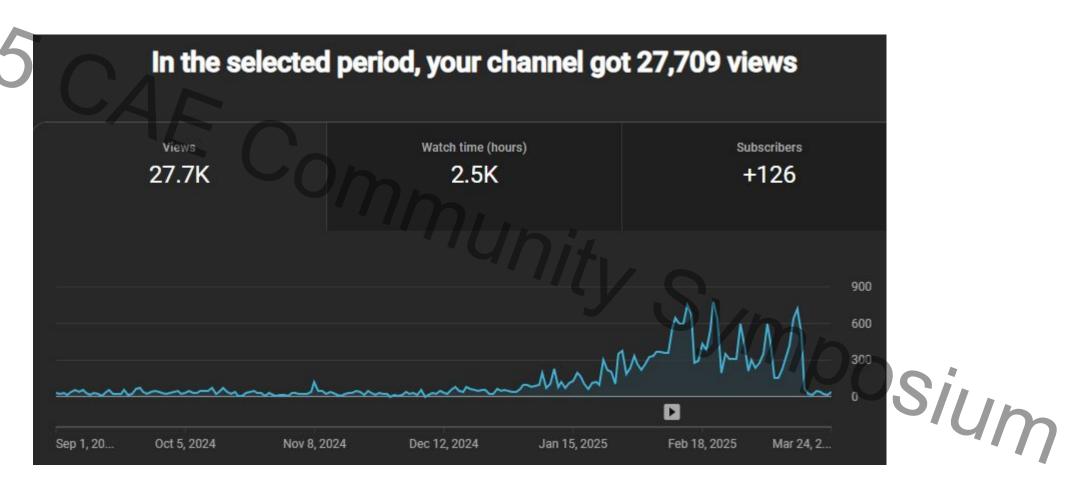
Tutorial Videos

- ☐ 13+ Hours of Video
- ☐ 44 Videos
- ☐ 362 Chapters



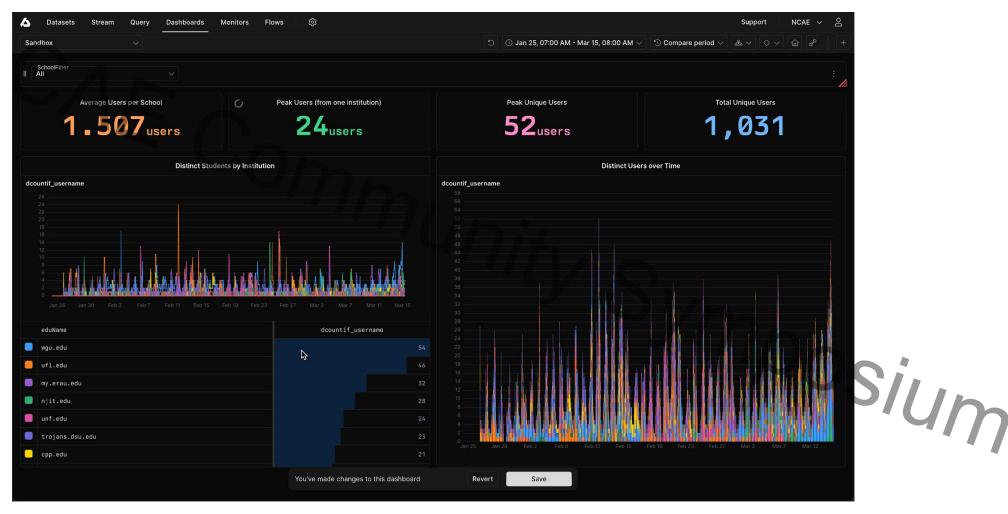


Participant Preparation 2025

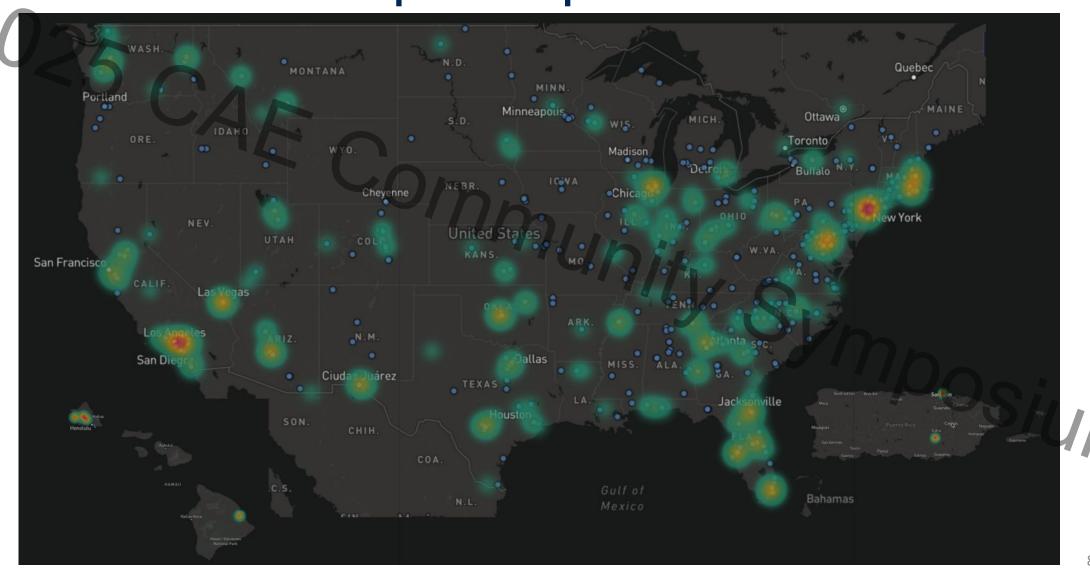




Participant Preparation 2025

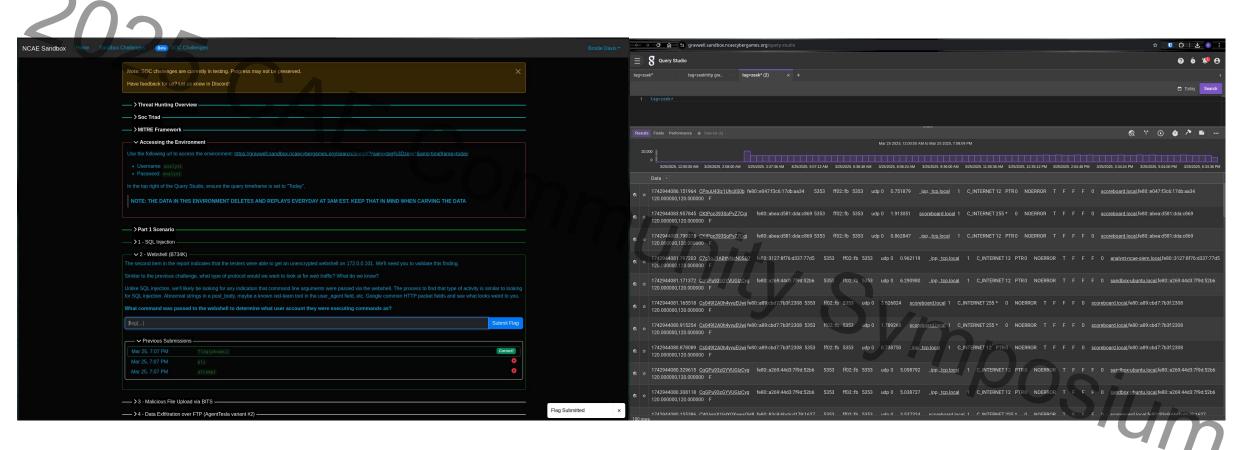


Participant Preparation 2025

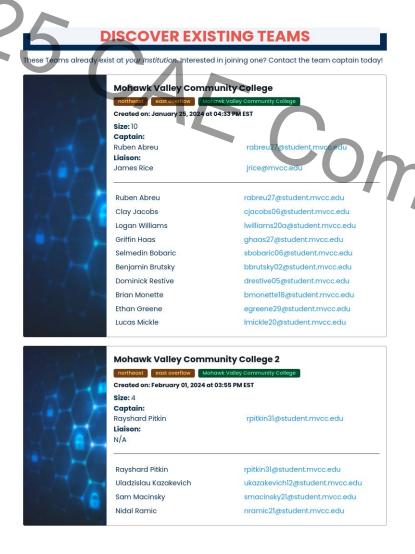




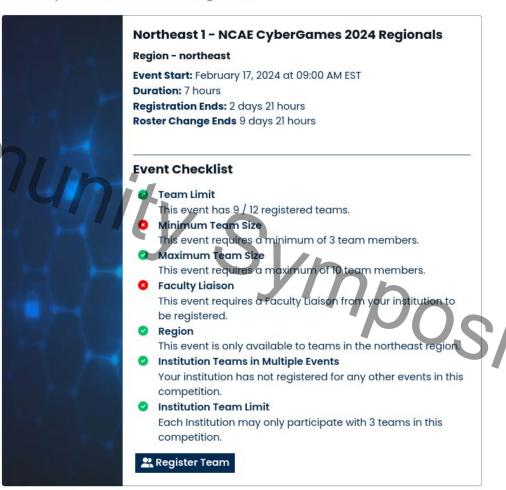
New for 2025 Sandbox: SOC Challenges



Software-Driven Registration and Tracking System



NCAE CyberGames 2024 Regionals



Special Sauce - Approaches

Manage the competitive element

Professional Red Team:

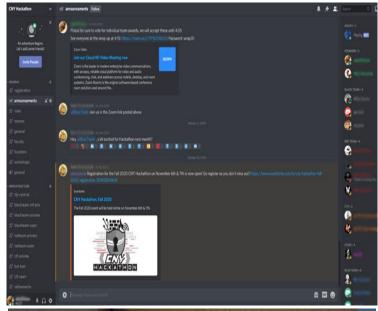
- -Incremental Exploitation
- -Backs off when teams struggle
- -Leaves bread crumbs

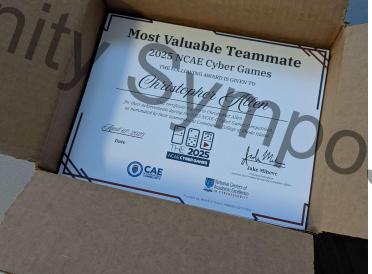
Reward the behavior you would like to encourage:

Most Valuable Teammate MVT

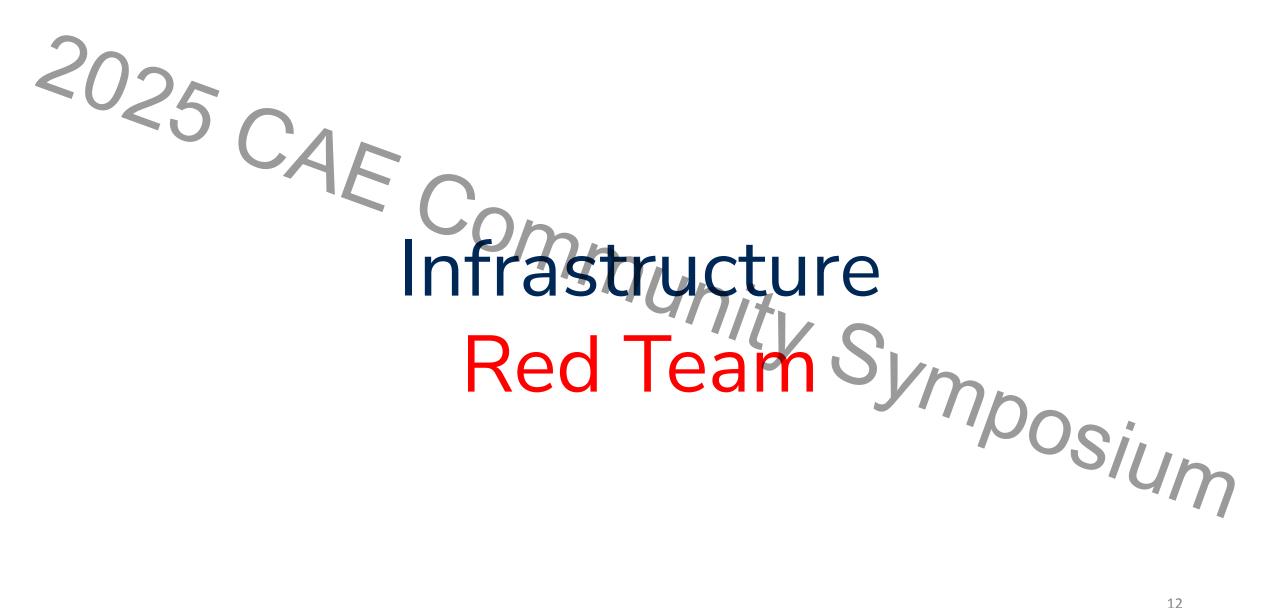
Most Improved MI

Student-centered communication: Discord



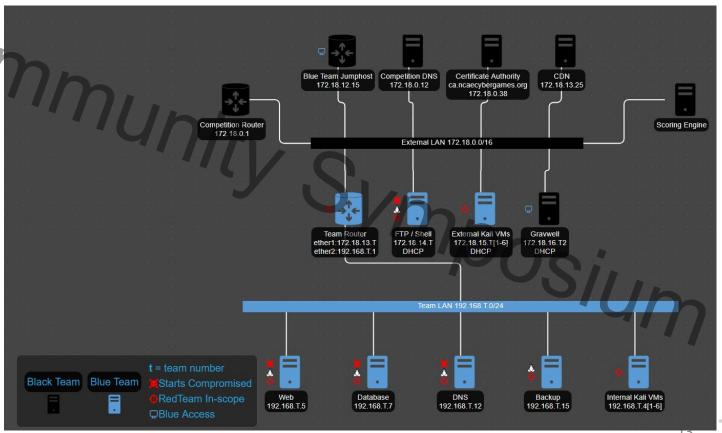




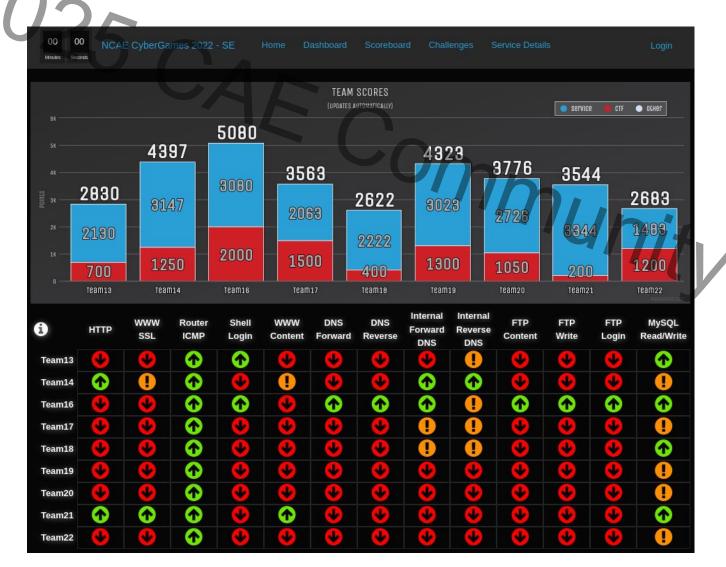


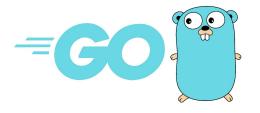
The Platform

- ☐ Competition environment is fully virtualized with the free Proxmox hypervisor
- ☐ Supported guest operating systems include:
 - ☐ Kali Linux
 - Windows
 - □ CentOS
 - ☐ Ubuntu
 - 13 Total Services
 - 5 Server Systems
 - 1 Backup Server
 - 12 Kali systems



Competition Scoreboard & Scoring Platform















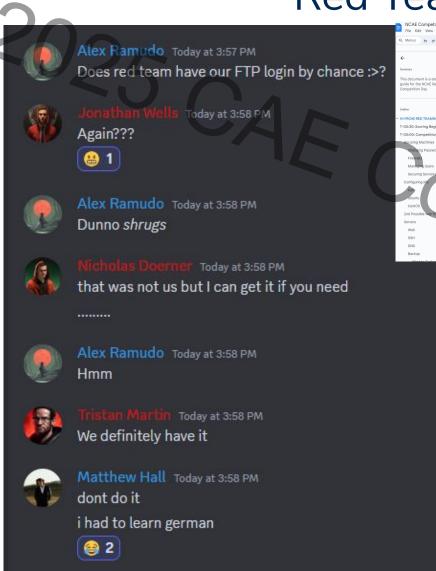
Total Service Checks, 2025 Season:
3,272,248

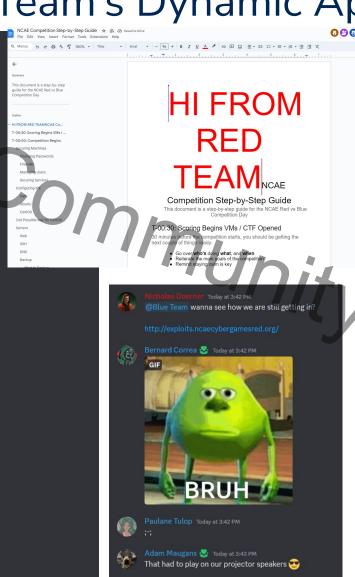
Average Service Checks/Event 211,526

Total password changes recorded: 1000

Ransom dance videos received:

Red Team's Dynamic Approach

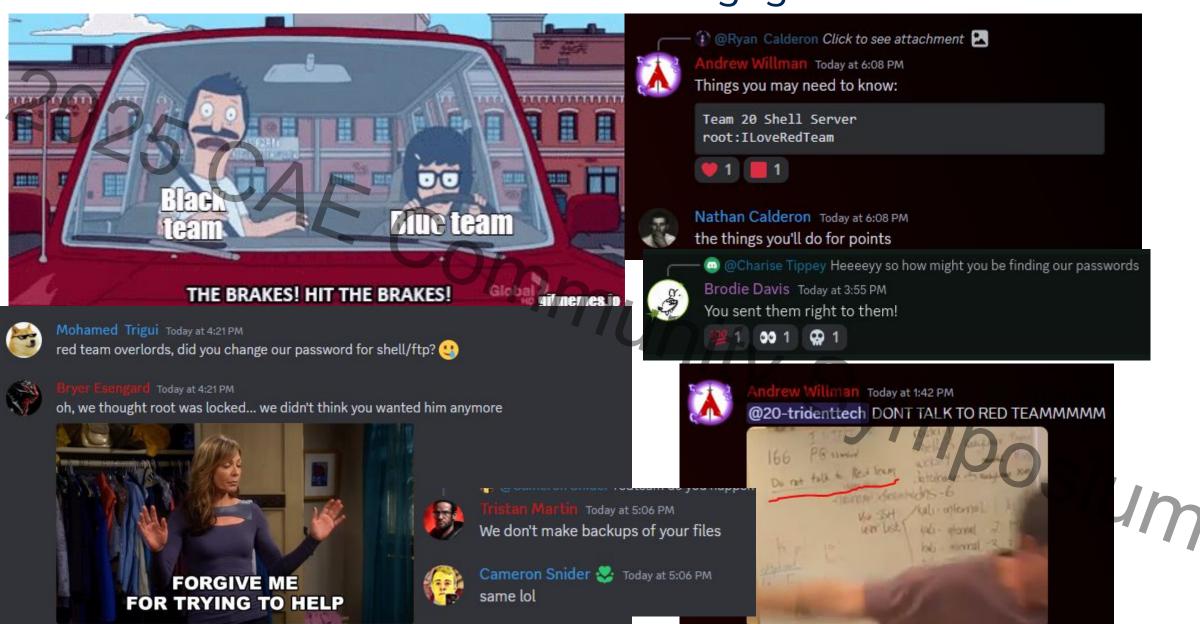




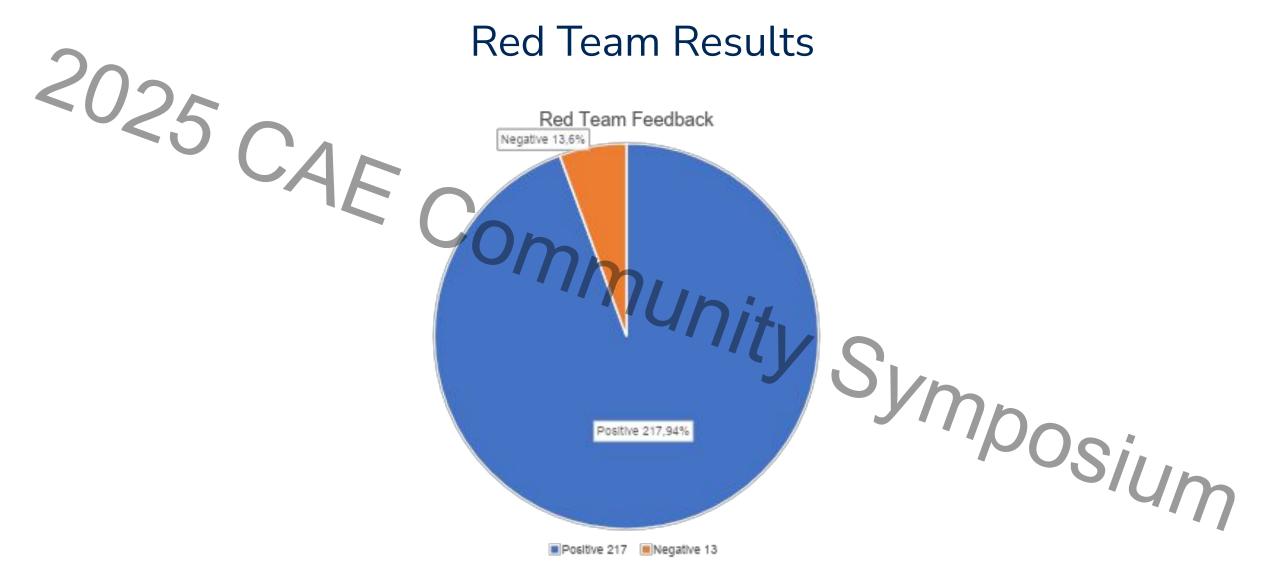




Red Team- Discord Engagement

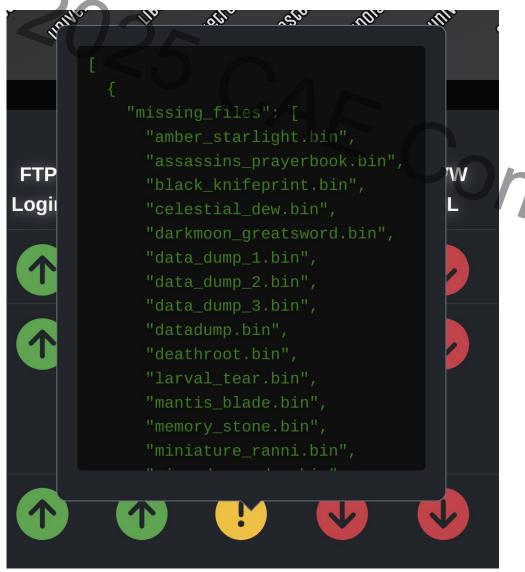


Red Team Results

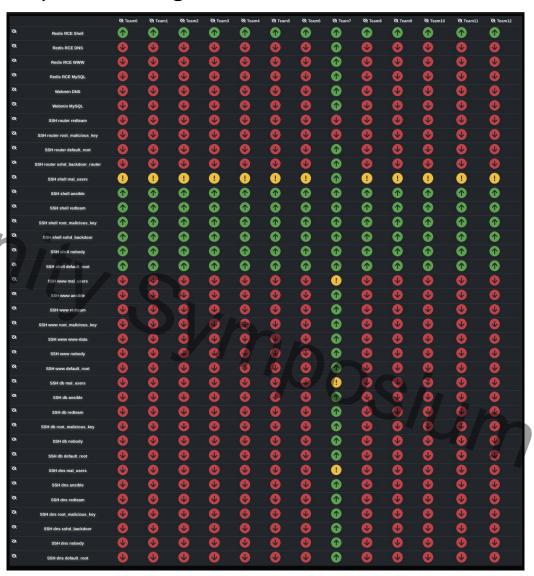


Engineering Advancements - Tracking

Scoring Feedback



Exploit Tracking



Capture The Flag (CTF)



Trivia



Exploitation



Crypto



Reverse Engineering







2025 Informal Results: CTF





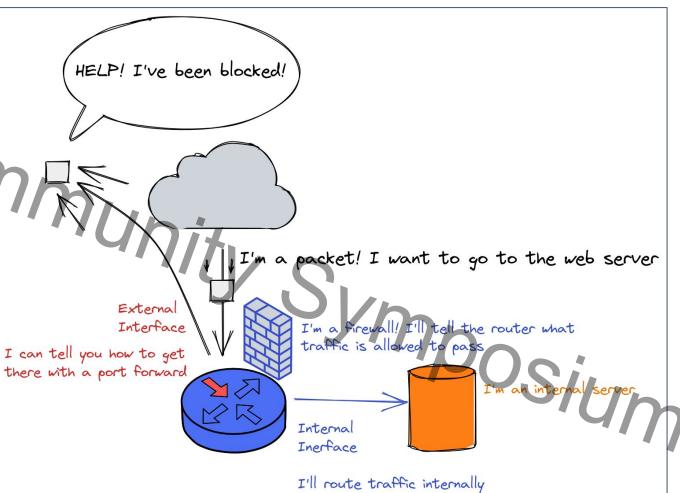
Black Team Learning Experience



DNS HINT

Hi! My name is Mr. Mustacheo! I hang around the black team a lot! Let me tell you about my favorite directory: /etc.

There is some named local conf stuff here that's fun to configure.





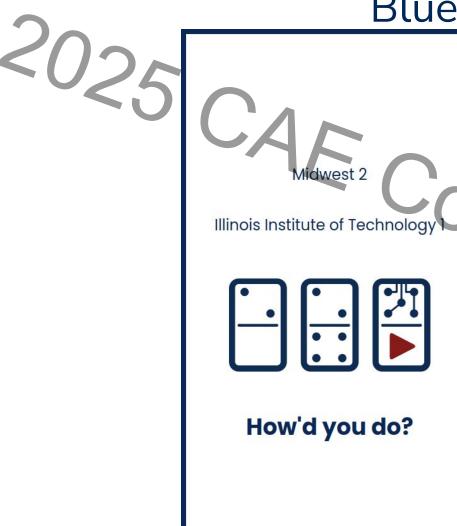


Black Team Learning Experience

Vimeline

Service	Hint Drop Time	Assistance Time	9am Example	11am Example
Router	+00:30	+01:00	09:30/10:00	11:30/12:00
FTP/SSH	+01:00	+01:30	10:00/10:30	12:00/12:30
WWW/DB Server	+01:30	+02:00	10:30/11:00	12:30/13:00
Red Team Survival Guide	+02:45		11:45	13:45
Break for Lunch	+03:00 to +04:00		12:00 to 13:00	14:00 to 15:00
DNS	+04:30	+05:00	13:30/14:00	15:30/16:00
SSL x509	+05:30	+06:00	14:30/15:00	16:30/17:00

Blue Team Assessments





Blue Team Assessments

What did our team have to say about yours?

How well did your team work together?

From what I could tell, they separated duties well and worked evenly on several paths.

- Black Team

What skills should this team work on?

They had some difficulties early on, knocking out a service that was already configured and just needed to be turned on. I think some more time ought to have been spent checking their surroundings before moving forward. That said, they did put in the time to reconfigure and set up the service again, which was great to see.

- Black Team

How well did your team solve CTFs?

Great job on the hunting, web, IoT, and reversing! You all really did a bit of everything today.

- Orange Team

How well did your team defend services?

Heroically beat back red team by kicking us out of the FTP server!

- Red Team

Overall, your team did fairly well defending services. You have an interesting technique of having the service down to secure it. We could not even touch you DNS server so kudos to you.

- Red Team

The DNS server was locked down the moment it came online, granting a lot of points.

- Red Team

What could you improve?

Consider spreading that level of attention on more servers and services!

- Red Team



2025 C45 C

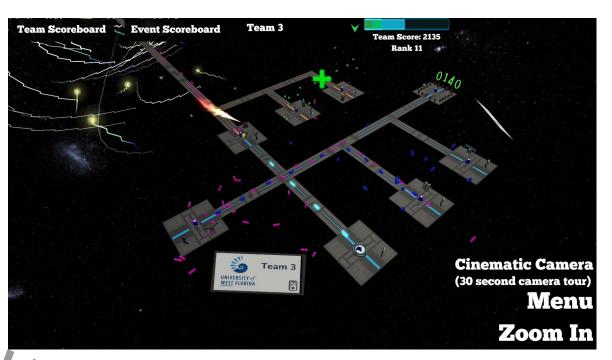


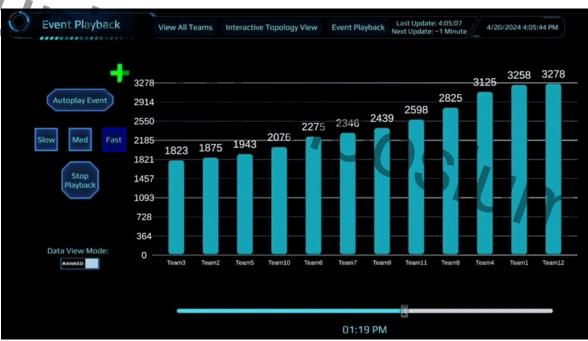


PLAY | LEARN | PROTECT



















CAE Cyber Competitions Atlas- Map View





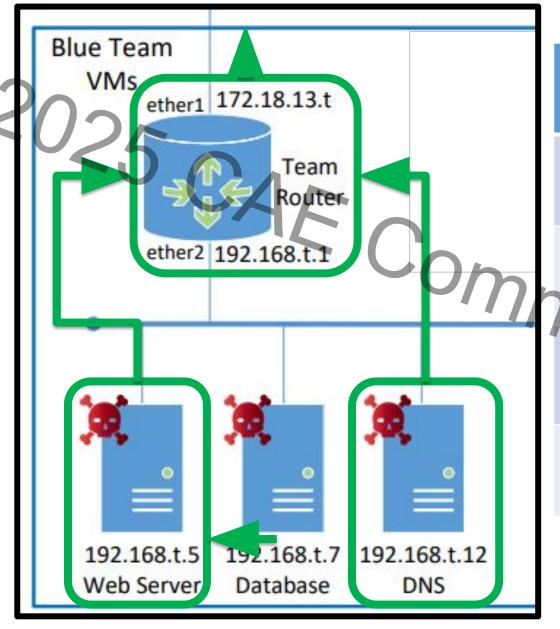
Measuring Competency with the Cyber Games

Goal: Identify trackable competency milestones of value within the NCAE Competition.

Approach: Pilot leveraging Discord surveys and correlate to backend scoring infrastructure data. Focus on taking the initial steps of tracking beyond CTF and inside the contested (red-teamed) portion of the competition.

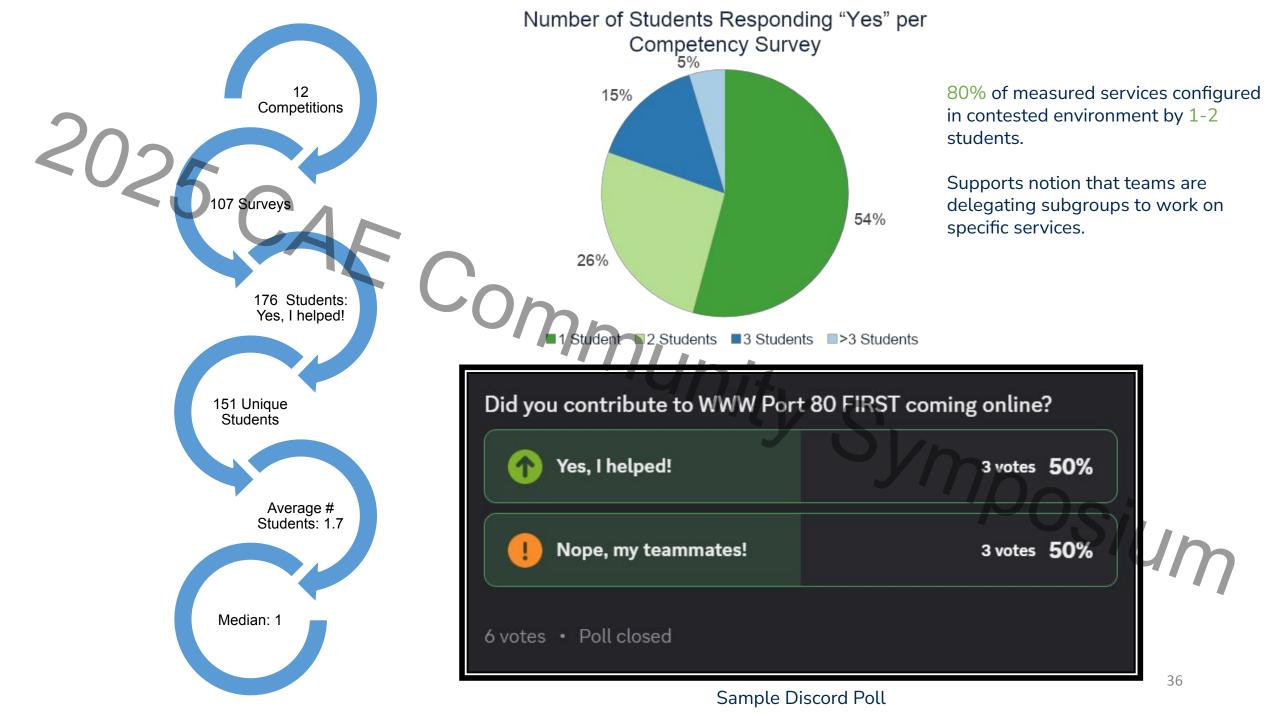
Outcomes: Successfully identified students involved in the initial configuration of a series of networking and infrastructure services.

Next Steps: Expand and refine ability to automate and further attribute student actions within the competition environment. Award milestone badges to students.



4 Contested Service Competencies

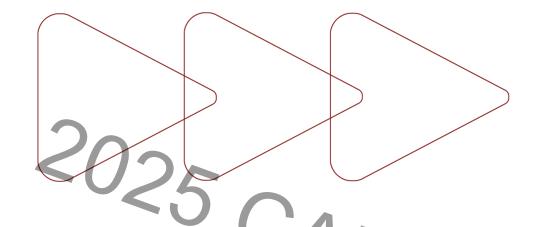
Server Name	Requirements		
Webserver Online	Webserver installed, not running, and networking is offline, requires router rules.		
Webserver Content	Requires active Webserver and intact routing, Content requires configured Database server, initially offline and lacks correct user permissions.		
Webserver HTTPS	Requires active Webserver and intact routing, HTTPS cert provided via competition certbot CA, requires troubleshooting broken packages.		
DNS Forward & Reverse	Bind installed, unconfigured zone files, requires routing rules.		
	.411		













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