

NCAE
CYBER GAMES

PLAY | LEARN | PROTECT

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Principal Investigator (PI)

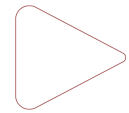
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Florida

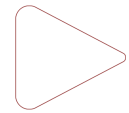




Background

- CNY Hackathon held each semester since spring 2013
- Each event an intentional trial-by-fire
- Experimentation, assessment, improvement



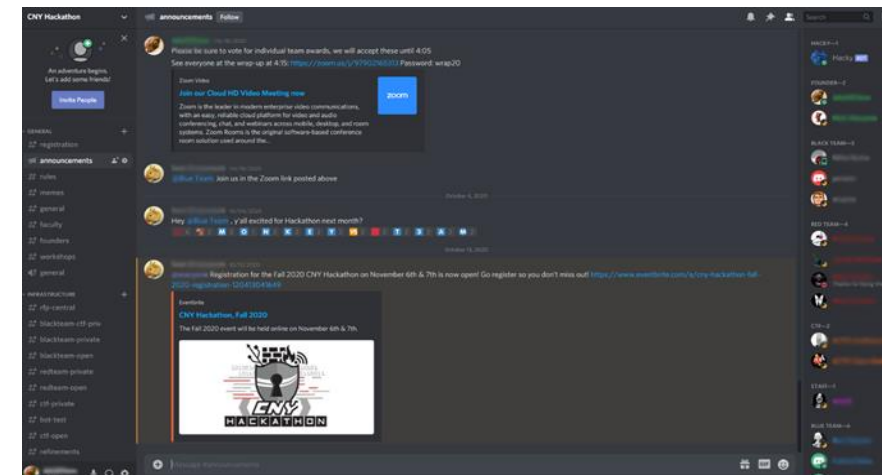
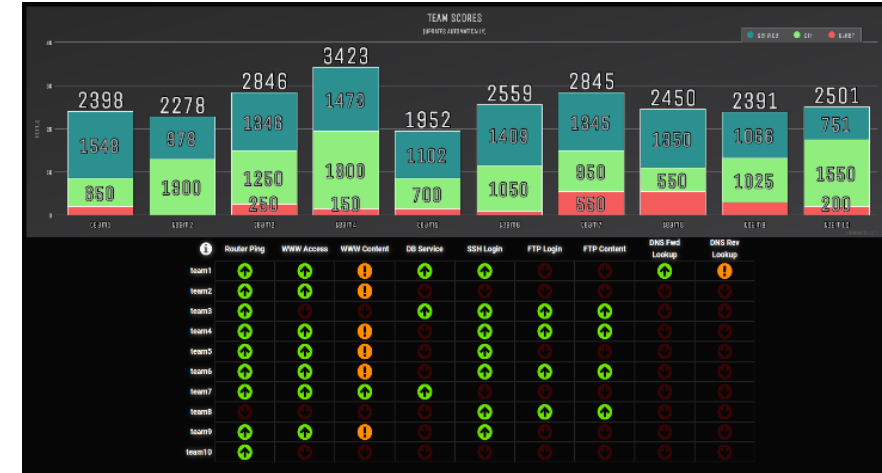


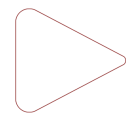
Lessons Learned

- **Dynamic Scoreboard**
 - Enables real-time monitoring of team progress across infrastructure, CTF, and other challenges
 - Manage the competitive element

- **Reward the behavior you would like to encourage (Most Valuable Teammate MVT, Most Improved MI)**
 - Professional Red Team backs off when teams struggle, leaves bread crumbs, becomes more of a test of adaptability than knowledge

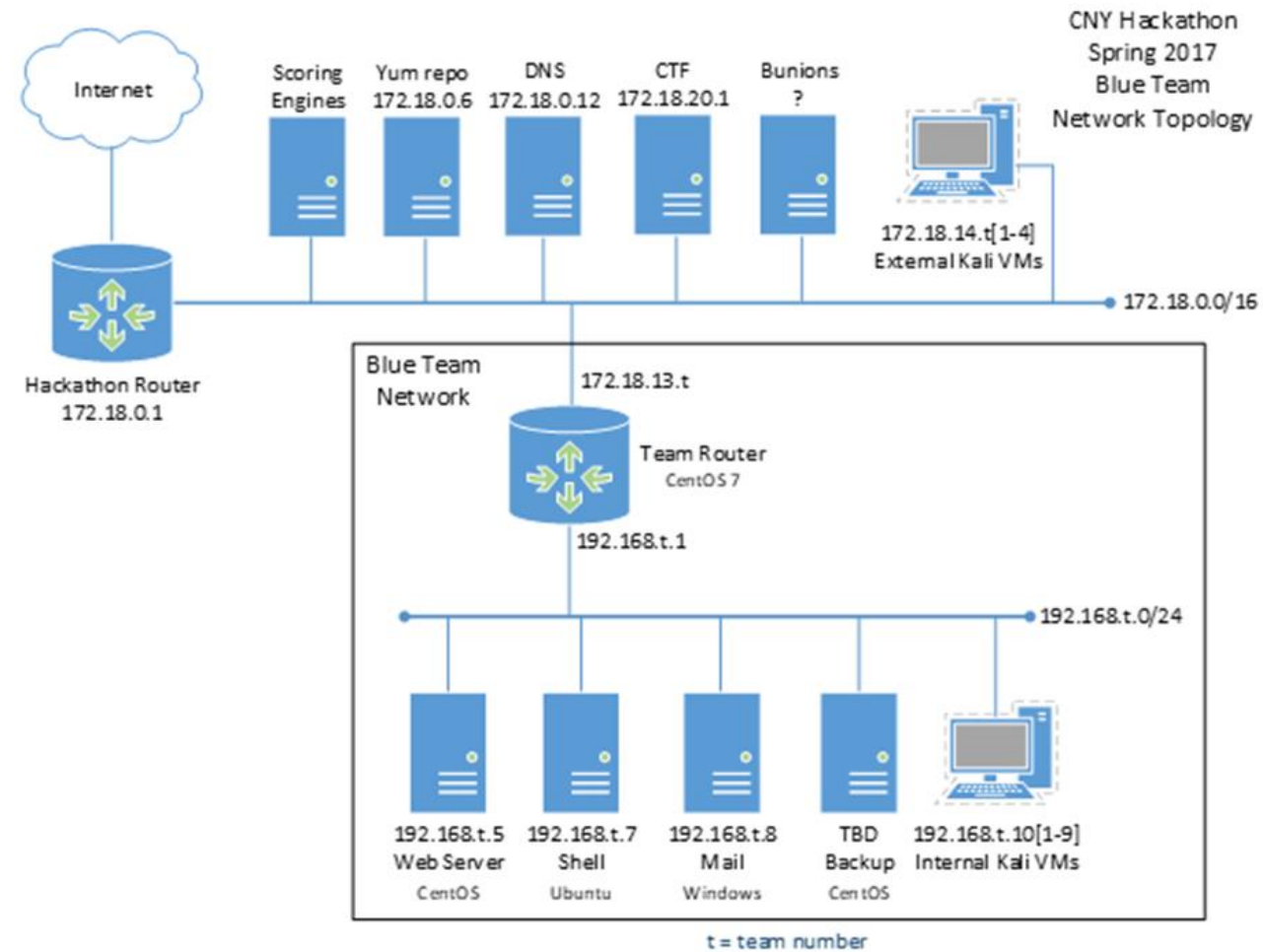
- **Discord for communication**



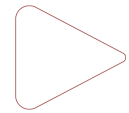


The Platform

- Proxmox is used to run the virtual environment
- Kali Linux
- Windows
- Unix
- Ubuntu
- Others

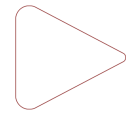


CNY Hackathon
Spring 2017
Blue Team
Network Topology



Content

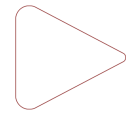
- **Existing infrastructure and CTF content acts as a baseline:**
 - Linux-oriented
 - MySQL - Maintaining Database Read and Write access
 - SMB - Maintaining Samba File Share Read and Write access -
 - FTP - Maintaining FTP server Read and Write access
 - SFTP - Maintaining SFTP server Read and Write access over SSH
 - DNS - Maintaining Forward and Reverse Lookups for the student manage infrastructure
 - SSH - Maintaining Users' Remote Access to an SSH server
 - Web Content - Maintaining functionality of databased-backed vulnerable PHP Application
 - WebSSL - Enabling valid, signed SSL certificates for Web Application



Content (Continued)

CTF: Cryptography, Exploitation, Reverse Engineering, Trivia

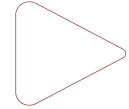
- **Crypto** challenges usually revolve around classical ciphers or custom algorithms that have weaknesses in the way they protect information.
- **Exploitation** includes publicly disclosed or custom programs or web applications that need to be researched or evaluated and then attacked.
- **Reverse Engineering** includes binaries or source code that needs to be reviewed or decompiled to identify how to solve the problem presented.



Regional Pilots

- CAE Northeast Region events in 2018 and 2019
- Very well-received by participating CAE students and faculty
- CAE's with established competition teams noted that event is perfect for newer students and encourage more



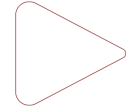


This Competition



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Example Social Media Posts

WHO SHOULD COMPETE?
 Students with a hunger for knowledge, a positive mindset, and the persistence to overcome challenges and find solutions. So, basically, *it's for you!*



NCAE CYBERGAMES
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Cyber students: want to sign up for a cyber competition but don't know where to begin? The NCAE Cyber Games is designed to help new competitors learn about hackathons & CTF competitions in an environment focused on teamwork and growing your skills. To compete, you only need a few things: a hunger for knowledge, a positive mindset, and the desire to solve problems!

Want to learn more? Visit NCAEcybergames.org

WHO SHOULD COMPETE?

it's for First-time Competitors like her

What can I do?

Curiosity is key
 Every cybersecurity challenge starts with a question. Dig deep and you'll find the answer.

On the bright side
 With a positive mindset, anything is possible. I wasn't born a cyber professional, but maybe I was born to be one.

Hungry for knowledge
 Cybersecurity is always evolving. What I learn today, I can use to help secure tomorrow.

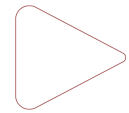
Quit? I don't think so
 The issues that you come across in cybersecurity are rarely simple. Often it takes a lot of persistence to get to the solution. I can handle that, no problem.

she's GOT skills #NCAE-C



What will YOU do?

REGISTER TODAY
NCAEcybergames.org



Student Capacity Building

Student Sandbox/Practice Environment

- Onramp to competitions
- Build necessary skills
- Introduce and provide a pathway into other events

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WHO WE ARE REGIONS FOR STUDENTS **SANDBOX** REGISTER

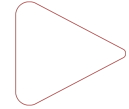
SANDBOX

Packet Man Ping

Users are challenged to play the Packet Man Ping video game to bridge the conceptual domain to the applied domain in cybersecurity. This educational video game consists of multiple levels where Packet Man Ping encounters various networking and cyber issues. The user then leaves the game and enters our virtual environment that mirrors everything encountered in the level. Users must then accomplish everything that was conceptually covered in the game in an applied manner in a VM to receive a flag.

[HOW TO PLAY](#)

[CREATE ENVIRONMENT](#)



Timeline

2021

QUALIFIERS

November 2021-
January 2022

NOVEMBER							DECEMBER							JANUARY							
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	
		1	2	3	4	5	6				1	2	3	4							1
7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8	
14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15	
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22	
28	29	30					26	27	28	29	30	31	23	24	25	26	27	28	29		
													30	31							

2022

REGIONALS

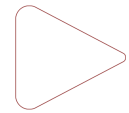
January 2021-
April 2022

FEBRUARY							MARCH								
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa		
			1	2	3	4	5				1	2	3	4	5
6	7	8	9	10	11	12	6	7	8	9	10	11	12		
13	14	15	16	17	18	19	13	14	15	16	17	18	19		
20	21	22	23	24	25	26	20	21	22	23	24	25	26		
27	28						27	28	29	30	31				

FINALS

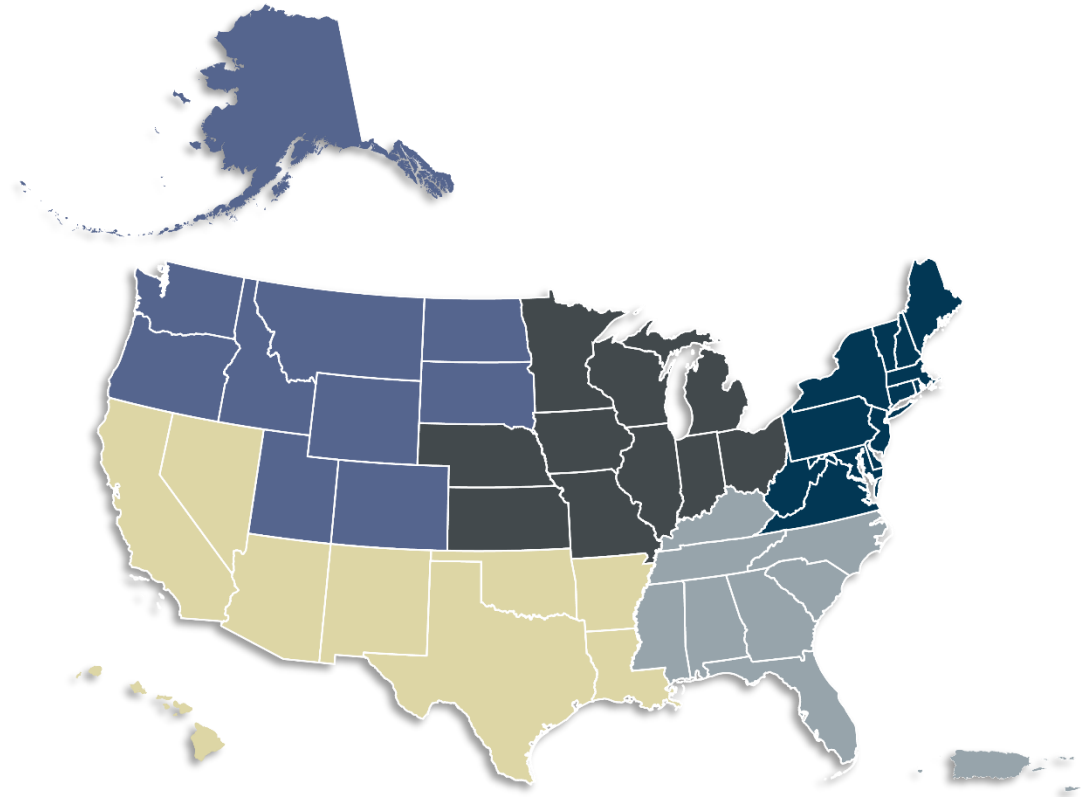
April 9, 2022

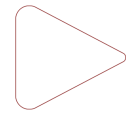
APRIL						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30



Regional Event Structure

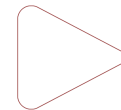
- Each region has a competition lead
- Build-out from baseline event structure and content to customize by region
- Achieve a balance between local customization and national consistency
- Competition slots for up to 165 CAE institutions and capacity to expand.





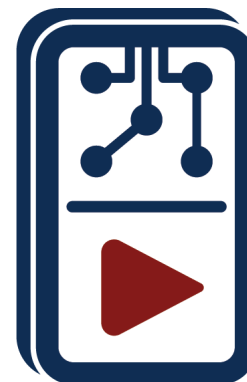
Targeted Outcomes

- **1,500 CAE students participate in their first competition**
- **Prizes issued for "winners," Most Valuable Teammate, Most Improved, shape how students experience future competitions**
-
- **CAE-C Faculty contribute challenges and leverage challenge library in the classroom and student clubs**



Registration is open!

ncaecybergames.org



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