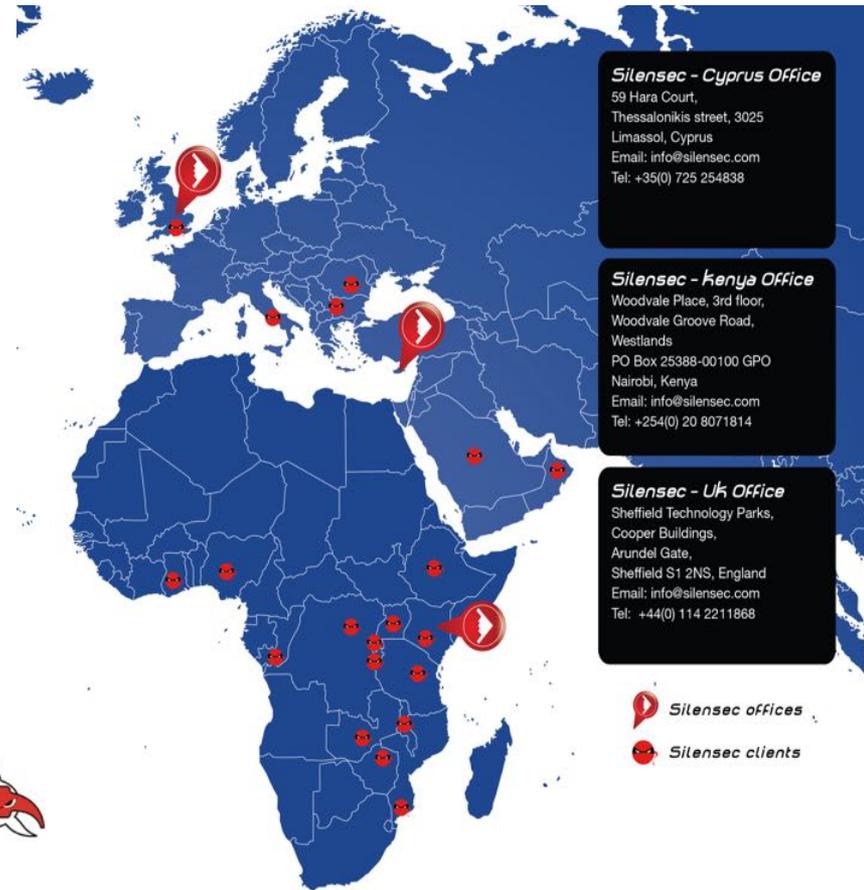


Using Gamification for Cyber Exercises and Security Competence Building

Almerindo Graziano
CEO, Silensec
al@silensec.com

About Silensec

- Information Security Management Consultancy Company (ISO27001 Certified)
 - Security compliance, Security Audits
 - Security System Integration (SIEM, DAMs, WAFs, etc.)
 - Managed Security Services
- Independent Security training provider



About Me

Almerindo Graziano

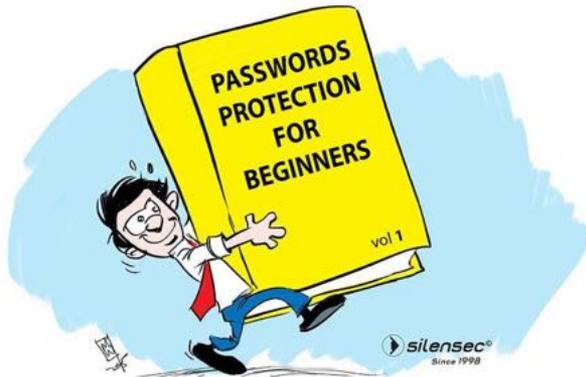
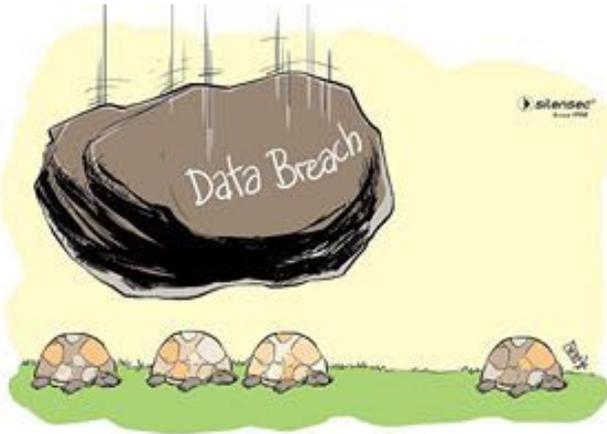


- CEO of Silensec
- PhD in mobile computer security from the University of Naples, Italy.
- Founder and course Leader for the MSc in Information Systems Security at Sheffield Hallam University
- Author of numerous security training courses
- Cyber security expert for International Telecommunication Union (ITU)
- Airmiles collector

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Grand-Bassam, Côte d'Ivoire

Silensec on Social Media

Free Security Awareness Resources



Follows us on our social media channels for regular security cartoons, editorials and weekly newsletter

 Silensec  Silensec  @Silensec  Silensec  @Silensec

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The Security Skills Gap

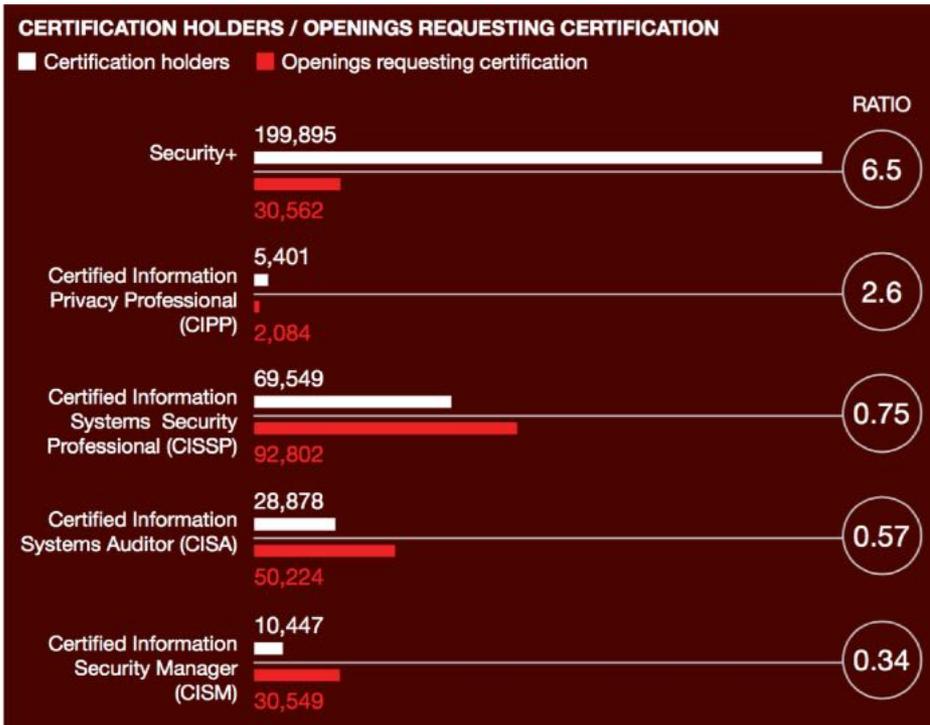
The Size of The Problem

“
At least 3.5 million
cyber security jobs will
be left vacant by 2021

“
1 in 5 organization receives fewer
than 5 candidates for each
advertised security position and
37% of the organisations lament
that fewer than 1 in 4 of the
candidates they do receive are
actually qualified for the job!

The Security Skills Gap

Lack of Certified Professionals



“The security job market has big gaps with regards to security certifications

“The cost of training and certification is one of the underlying causes of the cybersecurity skills gap

“

market research shows
that the ethical hacking
domain is not the one
in the highest demand

the Cybersecurity Skills Gap

“

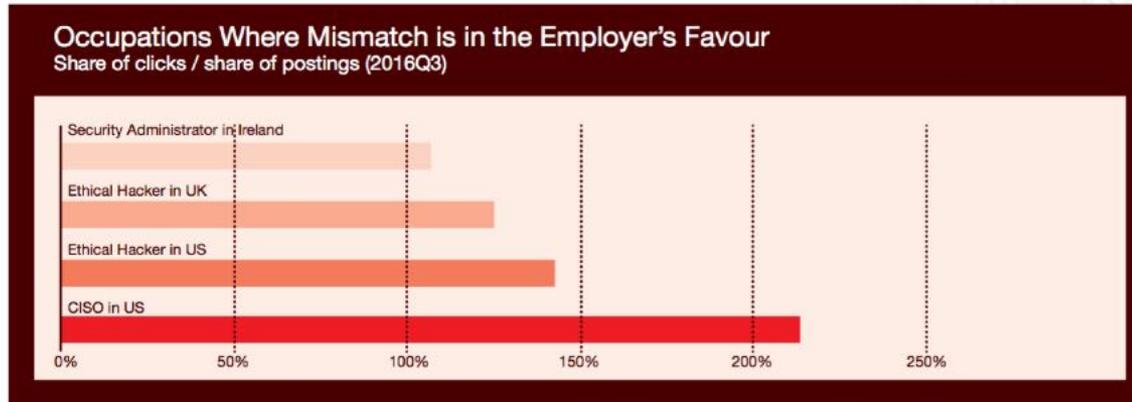
High-value skills in critically short supply

- Intrusion detection
- Secure software development
- Attack mitigation

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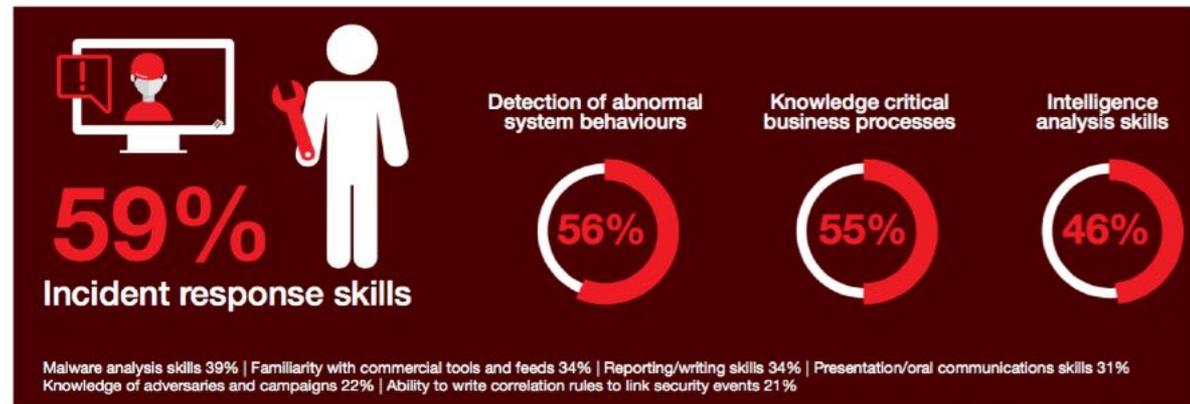
The Security Skills Gap

The Gap Between Offer And Demand



SOURCE: Indeed Spotlight: The Global Cybersecurity Skills Gap

“ Other desired skills include malware analysis skills, familiarity with commercial tools and feeds, knowledge of adversaries campaigns and the ability to write correlation rules to link security events.

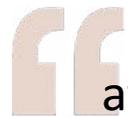


SOURCE: 2017 Cybersecurity Trends Report

The Challenges

Companies Do Not Invest Enough In Staff Training

- Companies prefer to invest in systems rather than competences
- ROI on security spending alone is difficult to justify
- Companies fear staff may leave once trained
- Training costs money, period!



after salary, opportunities for training are the second highest motivating factor in recruitment and staff retention followed by the reputation of the employer's IT department and potential for advancement.

The Market Solution

The Commoditization of Security Training

MASTER IN **CYBER SECURITY** IN 1 BUNDLE

~~\$1578~~ **\$39**



Certified Ethical Hacking Training Course



CompTIA Security+ Training



Using Python For Offensive Pentesting



Learn WiFi Hacking & Pentesting



Hacking Android Using Kali Linux



Certified Information Systems Security Professional CISSP

The Market Solution

Welcome to Cybrary, Where Every Training is Free!

 jerry

Course **Verified**

Python for Security Professionals

This course will take you from basic concepts to advanced scripts in just over 10 hours of material, with a focus on networking and security.

- 15 CEU/CPE Hours Available
- Certificate of Completion Offered
- 11 Hours

 CYBRARY

 Polymath

Course **Verified**

Metasploit

This free Metasploit training class will teach you to utilize the deep capabilities of Metasploit for penetration testing and help you to prepare to run vulnerability assessments for

- 6 CEU/CPE Hours Available
- Certificate of Completion Offered
- 6 Hours

 CYBRARY

 gregstuart

Course **Verified**

CompTIA Linux+

Our free, self-paced online Linux+ training prepares students with the knowledge to become a certified Linux+ expert, spanning a curriculum that covers Linux maintenance tasks,

- 10 CEU/CPE Hours Available
- Certificate of Completion Offered
- 6 Hours

 CYBRARY

 **MCSA- FREE TRAINING**
018-2017

 SME Michael

Course **Verified**

MCSA (Microsoft)

Our free, self-paced online MCSA training class will teach you all you need to know for the certification exam: how to configure file and print services, how to deploy, manage and

- 20 CEU/CPE Hours Available
- Certificate of Completion Offered
- 24 Hours

 CYBRARY

CYBRARY
VIRTUALIZATION MANAGEMENT
By Dean Porpello
018-0814

 Polymath

Course **Verified**

Virtualization Management

Our free, self-paced online Virtualization Management training class focuses on installing, configuring and managing virtualization software. You'll learn how to work your way

- 20 CEU/CPE Hours Available
- Certificate of Completion Offered
- 15 Hours

 CYBRARY

CompTIA **CLOUD+ FREE TRAINING**
018-1031

 Justin Langham

Course **Verified**

CompTIA Cloud+

Our free, online Cloud+ training addresses the essential knowledge for implementing, managing and maintaining cloud technologies as securely as possible. It covers cloud

- 4 CEU/CPE Hours Available
- Certificate of Completion Offered
- 3 Hours

 CYBRARY

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After All..

Welcome To Google University – Free Admission Daily



The University of Google
NIHIL ESSET MELIOR

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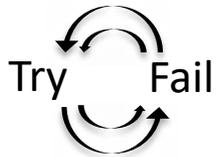


What is Really Happening?

The True Cost of Commoditization



Which certification? Which training? Where can I practice?...



Emphasis is put on the achievement and not in the acquisition of competences



Paper Certifications and Certificates of Completion!



Finding the right security professional gets harder

Security Gamification

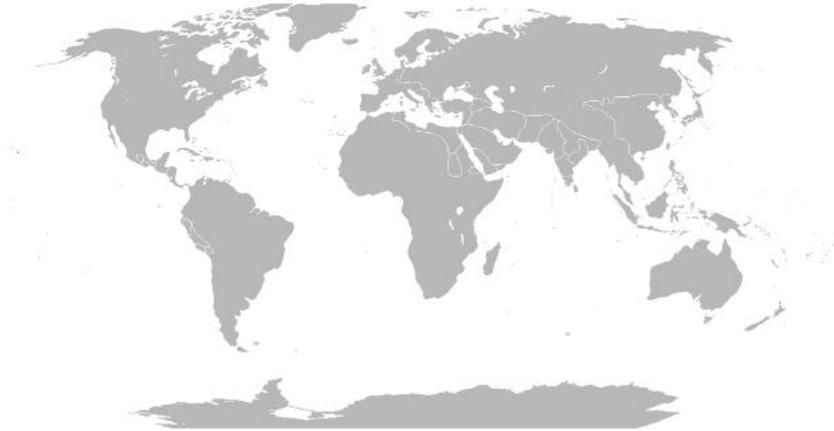
Gamification Principles

- Gameplay
- Re-playability
- Co-operation/competition between players
- Allegion
- Graphics power
- Artistic and sound aspects
- Plot

ITU Cyberdrills Experience

Sample Activities

- Development of Cyberdrill workshops and training for Computer Emergency Response Teams
- Events run by the International Communication Union (ITU) worldwide



Past Cyberdrills

- Zambia
- Egypt
- Montenegro
- Mauritius
- Tunisia
- Ecuador
- Oman
- Qatar
- Suriname
- Tanzania
- Moldova
- Argentina



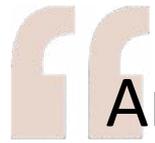
Cyber Exercise

Example

- Log Analysis and Incident Response
- Computer/Mobile forensics
- Cyber Threat Intelligence
- Ethical Hacking
- Table-top exercises

Cyber Ranges

Definition



An interactive, simulated representations of an organization's local network, system, tools, and applications that are connected to a simulated Internet level environment. National Initiative for Cyber security education (NIST)

CTF2013 THE GAME THE RULES THE SCORE THE PRIZE THE BLOG

Fortress

You are using 1 of 99 servers

Server	State	Statistics	Actions
hesz22	(ACTIVE, RUNNING)	Score	Control Launch Destroy

New Server

HackThis!!

THE HACKERS PLAYGROUND

Want to learn about hacking and network security? Discover how hacks, dumps and defacements are performed and secure your website against hackers with HackThis!!

- Challenges: Get your skills with 20... (Each test is hand-crafted with help and subtle hints.)
- Community: Join the community... (Need a hint? Want to talk about the latest cracking software tool?)
- Articles: Learn from our collection of articles covering all aspects of security and technology.

Featured articles: Website Security, One-Time Pad, Steganography/Encryption, How to hide messages in audio files, Blind SQL Injection

Login, Register, Password, Email, etc.

Hack The Box

Dashboard

24 Online Members, 73 Online Members, 70 VM Connections, 45.1s Response Time, 2288 New Members, 2277 Members

System/User Owns

Systems that got hacked by members (last 30 days)

Users that got hacked by members (last 30 days)

ENIGMA GROUP

Home Members Challenges Community Video Library (34) EnigmaOnline

Have you ever wanted to learn how to hack?

Since 2003, Enigma Group has been providing its members a legal and safe security resource where they can develop their pen-testing skills on various challenges provided by this site.

These challenges cover the exploits listed in the OWASP Top 10 Project and teach members the many other types of exploits that are found in today's applications; thus, helping them to become better programmers in the mean time.

By knowing your enemy, you can defeat your enemy.

55,928 ACTIVE MEMBERS, OVER 500 CHALLENGES, 10882 FRIENDSHIPS MADE, MONTHLY & WEEKLY CONTESTS, WEEKLY CTF CHALLENGES

190 PDF LIBRARY, OVER 200 ARTICLES, 518,569 FORUM POSTS, 37,504,204 HASH DATABASE, 28,464 EXPLOITS DATABASE

CREATE ACCOUNT: Name, Email Address, Password, Password Again, Profile Address, Timezone, Human Verification

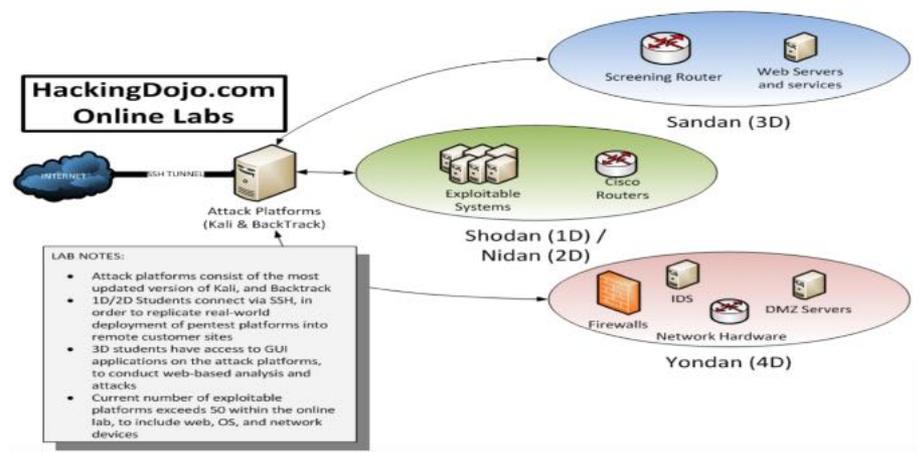
Root Me

243 visitors now

Challenges

Over two hundred hacking challenges available to train yourself.

App - Script, App - System, Cracking, Cryptanalysis, Forensic, Network, Programming, Realist



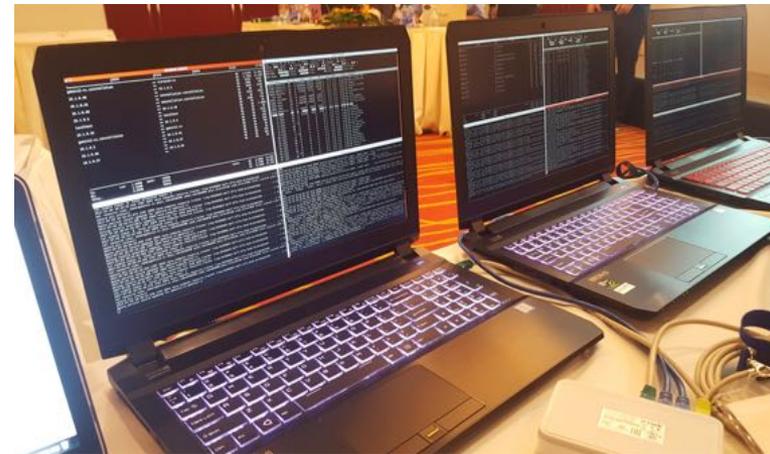
Silensec Cyber Range

Specifications



- Portable cyber range
 - 192GB Ram
 - 24 CPU cores
 - 6TB storage)
- Online cyber range
 - Scalabale to thousands of simultaneous users

www.cyberranges.com



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Silensec Cyber Range



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Online Persona

PROFILE

Demo User
Demo Account Exploration

MENU

- Home
- Battlegrounds
- Play Battles
- Team
- World Map
- Leaderboard

ADMINISTRATION PANEL

- New Scenario
- My Scenarios

TOOLS

- Settings
- Help

Select Avatar

DEAFULT MYTHOLOGY ROBOTIC (NOT AVAILABLE) ALIEN (NOT AVAILABLE) MARTIAL ARTS (NOT AVAILABLE) SPORTS (NOT AVAILABLE)

Poseidon Thor Einherjar Zeus Wukong Anubis

Nezha Valkyrie Fenrir Medusa Chaac Ares

SAVE CANCEL

silensec
Username

admin
Account Type

ch.paraskeva@gmail.com

Information Security Analyst
lvl.2 (50 / 200)

Penetration Tester
lvl.8 (700 / 8000)

Join a Team

PROFILE Demo User Demo Account Exploration

MENU

- Home
- Battlegrounds
- Play Battles
- Team
- World Map
- Leaderboard

ADMINISTRATION PANEL

- New Scenario
- My Scenarios

TOOLS

- Settings
- Help

Team

Under Development

Join a Team

Search for a team to join

Search for Teams

Team Name	Rank	Members
Demolishers	Rank: 4	Members: 37
Injectors	Rank: 3	Members: 23
Binary Guard	Rank: 2	Members: 14
CacheClear	Rank: 6	Members: 68
xXSSx	Rank: 1	Members: 9
HackFrame	Rank: 8	Members: 97
TheCull	Rank: 5	Members: 46
Demolishers	Rank: 4	Members: 37
Injectors	Rank: 3	Members: 23

Team Details

Demolishers

Description:
We are a really awesome team that like to hack things and steal valuable data. Care to join us?

Rank: 4

JOIN

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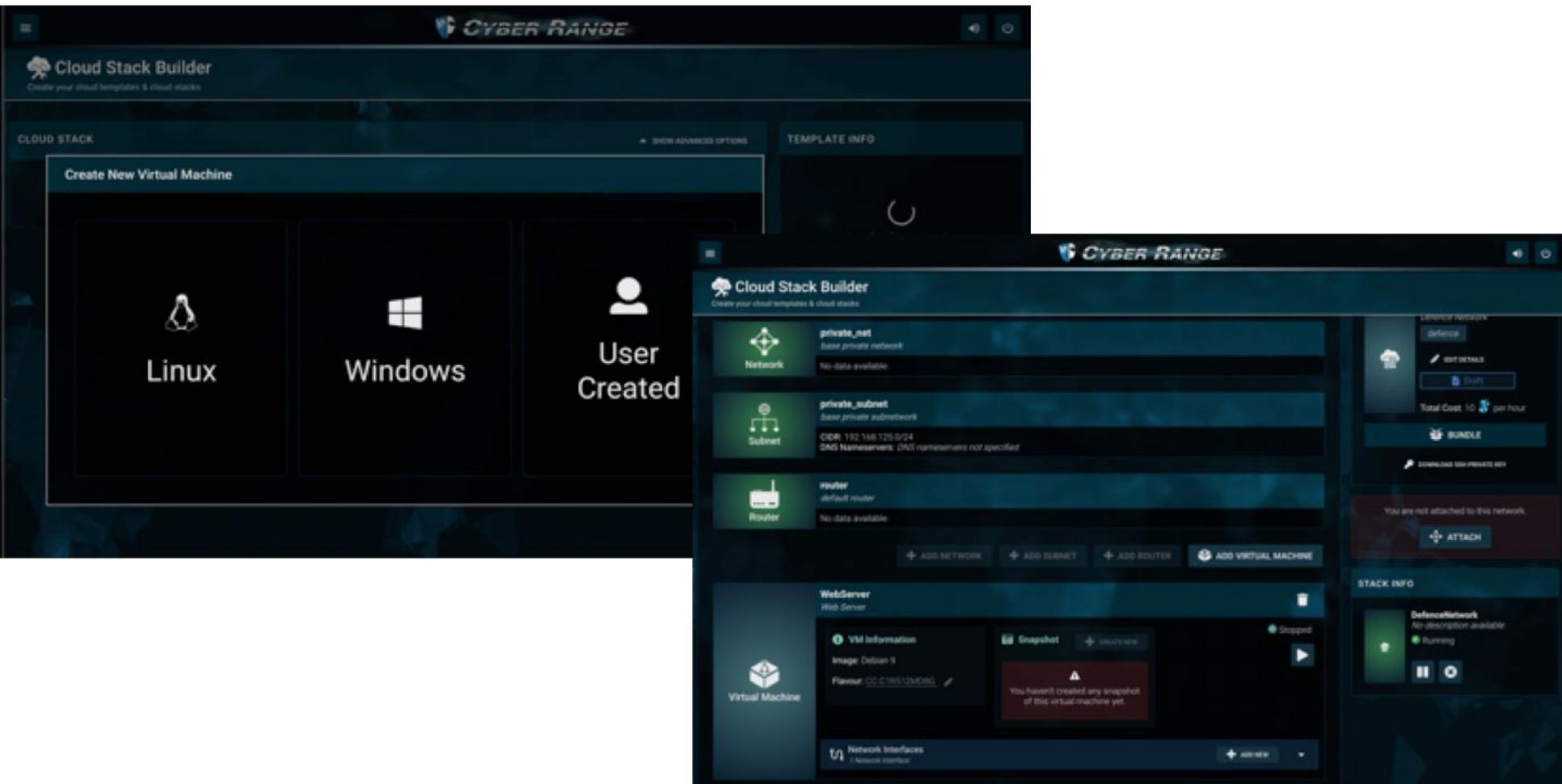
Cooperation

The screenshot shows a 'Create Team' dialog box overlaid on a game interface. The dialog box has a title bar 'Create Team' with a close button (X) in the top right corner. Below the title bar, there is a subtitle 'create your own team and invite others to join'. The main content area is divided into two columns. The left column contains 'Team Details' with a pencil icon and the instruction 'Select the details of your team'. It includes a 'Team Name' field with the text 'AwesomeDevs' and a note 'Enter team name (10 characters maximum)'. Below that is a 'Team Description' field with the text 'Our team is the best in cyber security application development. Join us, watch and learn!'. The right column contains 'Team Settings' with a '2' in a circle and the instruction 'Design your team's banner'. It includes a 'Member join method' section with a toggle switch set to 'Open (Anyone is free to join your team)'. Below that is a 'Team location' section with a dropdown menu set to 'Cyprus'. At the bottom right of the dialog box, there are 'BACK' and 'NEXT' buttons. The background interface shows a 'Team' header, a 'MENU' on the left with options like Home, Battlegrounds, Play Battles, Team, World Map, and Leaderboard, and an 'ADMINISTRATION PANEL' with 'New Scenario' and 'My Scenarios' options. A 'Demo User' profile is visible in the top left corner.

Game Mode

The screenshot displays the 'CYBER RANGE' Scenarios menu. The left sidebar contains navigation options: PROFILE (Demo User), MENU (Home, Battlegrounds, Play Battles, Team, World Map, Leaderboard), ADMINISTRATION PANEL (New Scenario, My Scenarios), and TOOLS (Settings, Help). The main content area is titled 'Scenarios' and 'Select Battle Mode'. It features two primary options: 'Single Player' (Play versus virtual machines or AI) and 'Multiplayer' (Play versus or co-op with other players against virtual machines and AI). Navigation buttons for 'BACK' and 'NEXT' are visible at the bottom right of the selection area. The background is a dark blue geometric pattern.

Creating the Game/Scenario



Starting The Game

The screenshot shows the Cyber Range game lobby. At the top, the 'CYBER RANGE' logo is visible. The main area features a 'Scenarios' section with a search bar and a list of scenarios. The 'BEST RATED' section is highlighted, showing 'Card Fraud at the Olympic Games' as the top scenario. Below this, there are buttons for 'MORE INFO' and 'CREATE GAME'. To the right, there are buttons for 'CREATE GAME', 'FIND A GAME', and 'VIEW LOBBY LIST'. Below these are sections for 'FIND A SCENARIO' with a search bar, and 'RECENTLY PLAYED' showing two scenarios: 'Card Fraud at the Olympic Games' and 'Multihide II'. At the bottom, there is a 'LOBBIES' table with columns for Name, Scenario, Available Slots, Host, Duration, Starting At, and Actions.

Name	Scenario	Available Slots	Host	Duration	Starting At	Actions
Card Fraud At the Olympic (TU)	Card Fraud at the Olympic Games	13/50	blnsec	1 Hour(s) 30 Minute(s)	2 hours ago	

Scoring

The screenshot shows the Cyber Range interface with a scoreboard window open. The scoreboard displays the following data:

User	Team	Score	Performance
 Athos B	TheAvengers	2500	<div style="width: 25%;"></div>
 George N	TheAvengers	9001	<div style="width: 90%;"></div>
 George S	TheAvengers	3500	<div style="width: 35%;"></div>
 Annihilator X	Conquerors	1500	<div style="width: 15%;"></div>
 Devastator V	Conquerors	9	<div style="width: 1%;"></div>
 Assasin Z	Conquerors	4210	<div style="width: 42%;"></div>

Cyber Range Use Today

National Cybersecurity Competitions – www.cyberstars.pro



COMING SOON TO YOUR COUNTRY

Arab Regional Cyberstars Threat Hunter Edition



[Home](#) | [The Competition](#) | [Rules](#) | [Preparation](#) | [Code of Ethics](#) | [Gallery](#) | [CyberRange](#) | [Register](#) | [Login](#)

in partnership with



المركز العربي الإقليمي للأمن السيبراني
ITU - ARAB REGIONAL CYBERSECURITY CENTER



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Thank you