

Cybercrescendo: Interactive Cybersecurity Virtual Lab for Real-Time Attack Simulation and Hands-On Defense Training

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Abstract: *Traditional cybersecurity learning often falls short in offering realistic, hands-on experiences. Cybercrescendo: A Virtual Lab bridges this gap by recreating enterprise-level network environments using VirtualBox. It integrates systems like Windows Server with Active Directory and Ubuntu-based threat monitoring tools to simulate real-world IT infrastructures. Equipped with offensive and defensive tools like Kali Linux, Suricata, and Wazuh SIEM, the lab immerses users in real-time cyber scenarios, empowering them to explore threat hunting, incident response, and ethical hacking in a controlled, risk-free space.*

Keywords: Cybersecurity Training, Virtual Lab, Real-Time Attack Simulation, Network Defense, Ethical Hacking, Red Team Blue Team, Threat Detection, Incident Response, SIEM, IDS/IPS, Hands-on Security Learning

