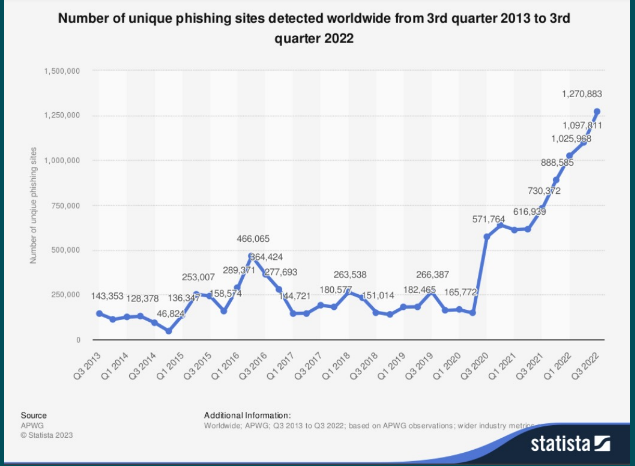
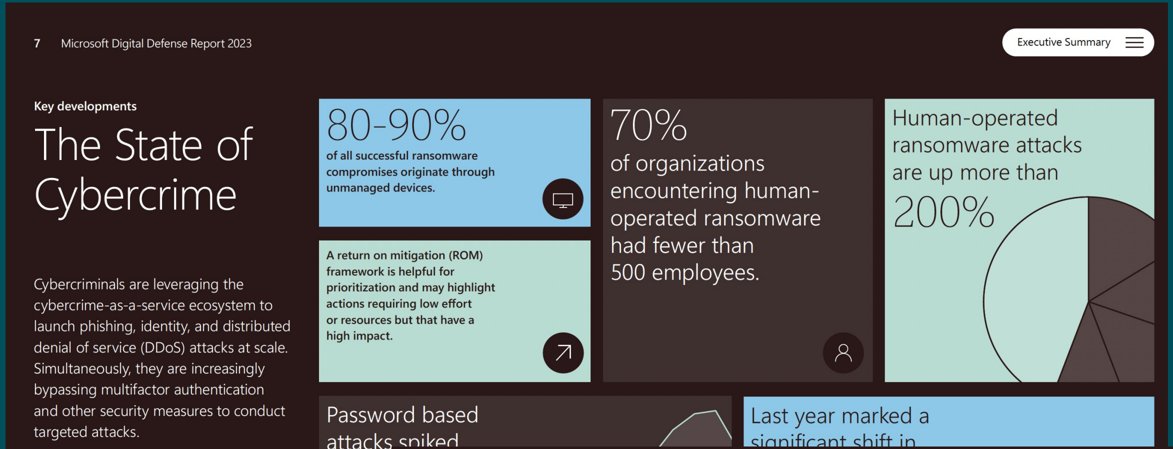
Cyber Security Operations
The Frontline of Digital Protection

Evolution on Cyber Attacks and Consumer Fraud


Number of unique phishing sites detected worldwide from 3rd quarter 2013 to 3rd quarter 2022

Source
APWG
© Statista 2023

Additional Information:
Worldwide; APWG; Q3 2013 to Q3 2022; based on APWG observations; wider industry metric


7 Microsoft Digital Defense Report 2023

Executive Summary

Key developments

The State of Cybercrime

Cybercriminals are leveraging the cybercrime-as-a-service ecosystem to launch phishing, identity, and distributed denial of service (DDoS) attacks at scale. Simultaneously, they are increasingly bypassing multifactor authentication and other security measures to conduct targeted attacks.

Ransomware operators are shifting heavily toward hands on keyboard attacks, using living-off-the-land techniques and remote encryption to conceal their tracks, and exfiltrating data to add pressure to their ransom demands. And cybercriminals are improving their ability to impersonate or compromise legitimate third parties, making it even harder for users to identify fraud until it's too late.

Find out more about The State of Cybercrime in the Microsoft Digital Defense Report 2023

80-90%
of all successful ransomware compromises originate through unmanaged devices.

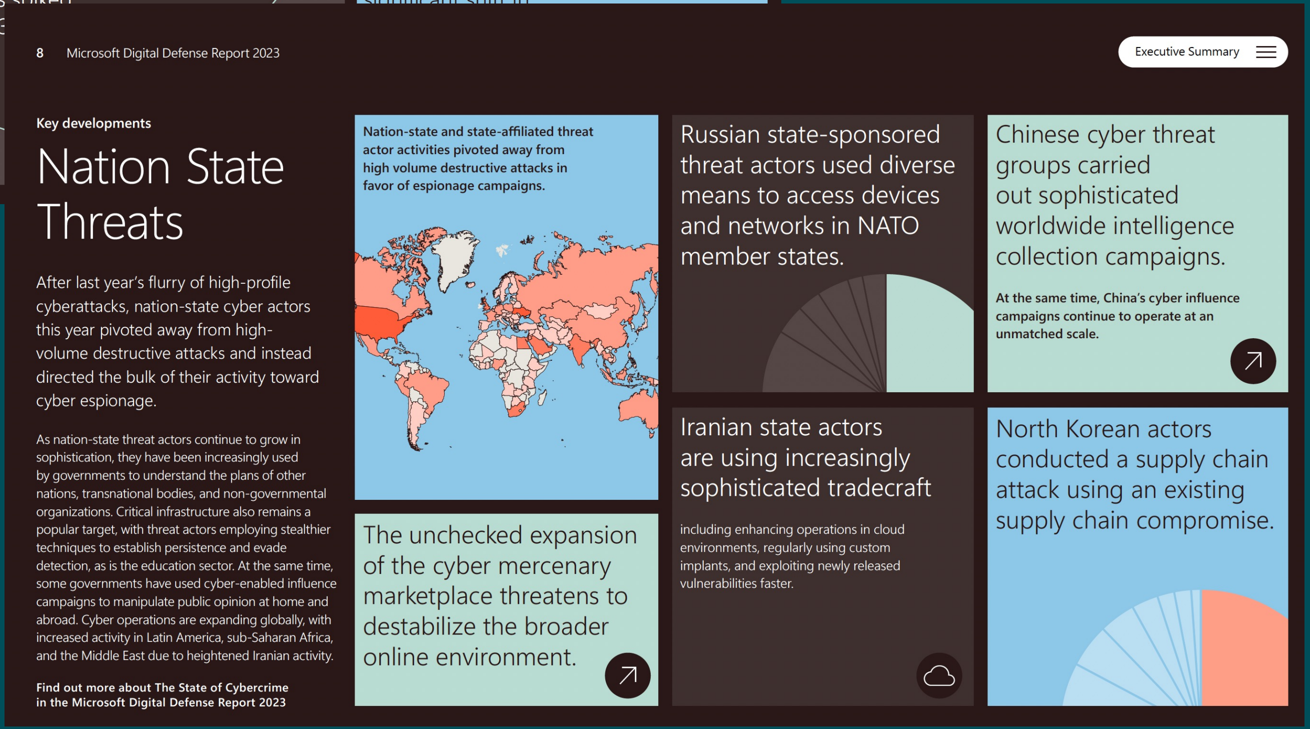
A return on mitigation (ROM) framework is helpful for prioritization and may highlight actions requiring low effort or resources but that have a high impact.

70%
of organizations encountering human-operated ransomware had fewer than 500 employees.

Human-operated ransomware attacks are up more than
200%

Password based attacks spiked in 2023

Last year marked a significant shift in


8 Microsoft Digital Defense Report 2023

Executive Summary

Key developments

Nation State Threats

After last year's flurry of high-profile cyberattacks, nation-state cyber actors this year pivoted away from high-volume destructive attacks and instead directed the bulk of their activity toward cyber espionage.

As nation-state threat actors continue to grow in sophistication, they have been increasingly used by governments to understand the plans of other nations, transnational bodies, and non-governmental organizations. Critical infrastructure also remains a popular target, with threat actors employing stealthier techniques to establish persistence and evade detection, as is the education sector. At the same time, some governments have used cyber-enabled influence campaigns to manipulate public opinion at home and abroad. Cyber operations are expanding globally, with increased activity in Latin America, sub-Saharan Africa, and the Middle East due to heightened Iranian activity.

Find out more about The State of Cybercrime in the Microsoft Digital Defense Report 2023

Nation-state and state-affiliated threat actor activities pivoted away from high volume destructive attacks in favor of espionage campaigns.

The unchecked expansion of the cyber mercenary marketplace threatens to destabilize the broader online environment.

Russian state-sponsored threat actors used diverse means to access devices and networks in NATO member states.

Iranian state actors are using increasingly sophisticated tradecraft

including enhancing operations in cloud environments, regularly using custom implants, and exploiting newly released vulnerabilities faster.

Chinese cyber threat groups carried out sophisticated worldwide intelligence collection campaigns.

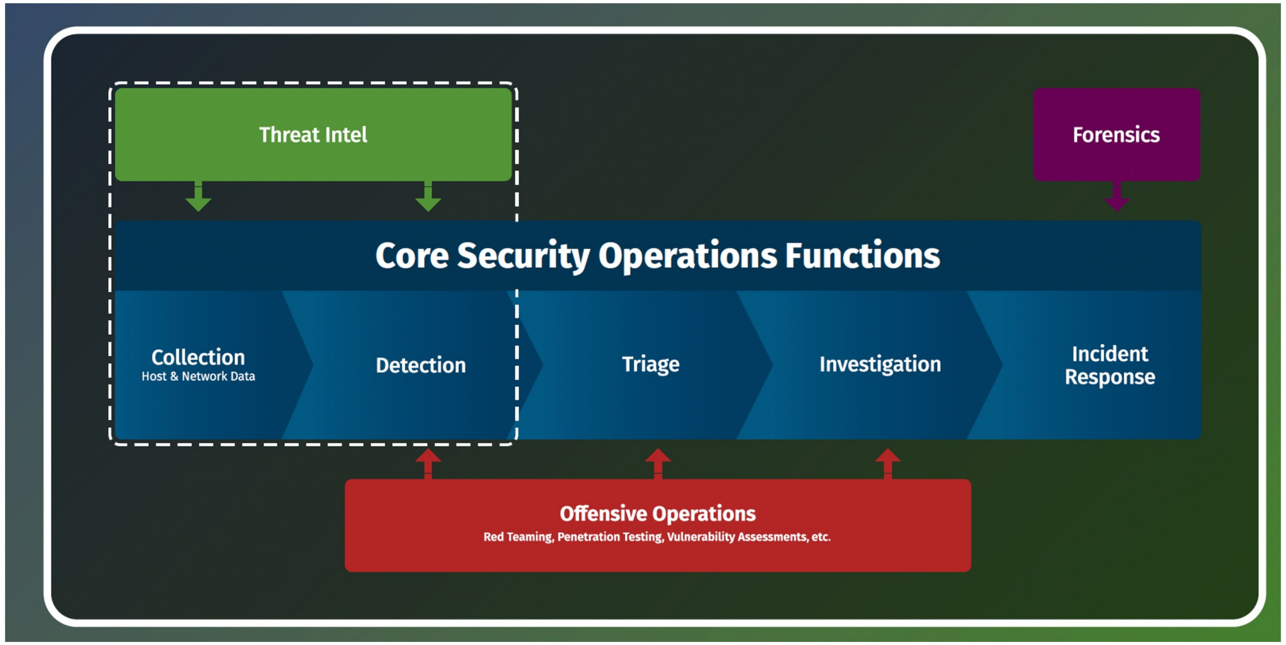
At the same time, China's cyber influence campaigns continue to operate at an unmatched scale.

North Korean actors conducted a supply chain attack using an existing supply chain compromise.

- Dwell time has remained stable ~270 days
- Cycle time has gone down from 270 days to < 10 days in 2024
- Avg time from CVE disclosure to exploit <48h (impact AI!)
- Steep increase in consumer fraud

Security Operations is not an option anymore

- APT’s are scanning everybody, not just big organizations and governments
- Vulnerabilities are discovered much faster and in higher numbers
- Attacks become more sophisticated and stealthy (LOTL! – example Spider since mid 2023)
- Thousands of cyber attacks per day
- A proactive approach has become mandatory (note use of CTI in new version ISO27k!)
- MITRE, NIST CSF, CCB provide frameworks



Threat Intel

Forensics

Core Security Operations Functions

Collection
Host & Network Data

Detection

Triage

Investigation

Incident Response

Offensive Operations
Red Teaming, Penetration Testing, Vulnerability Assessments, etc.

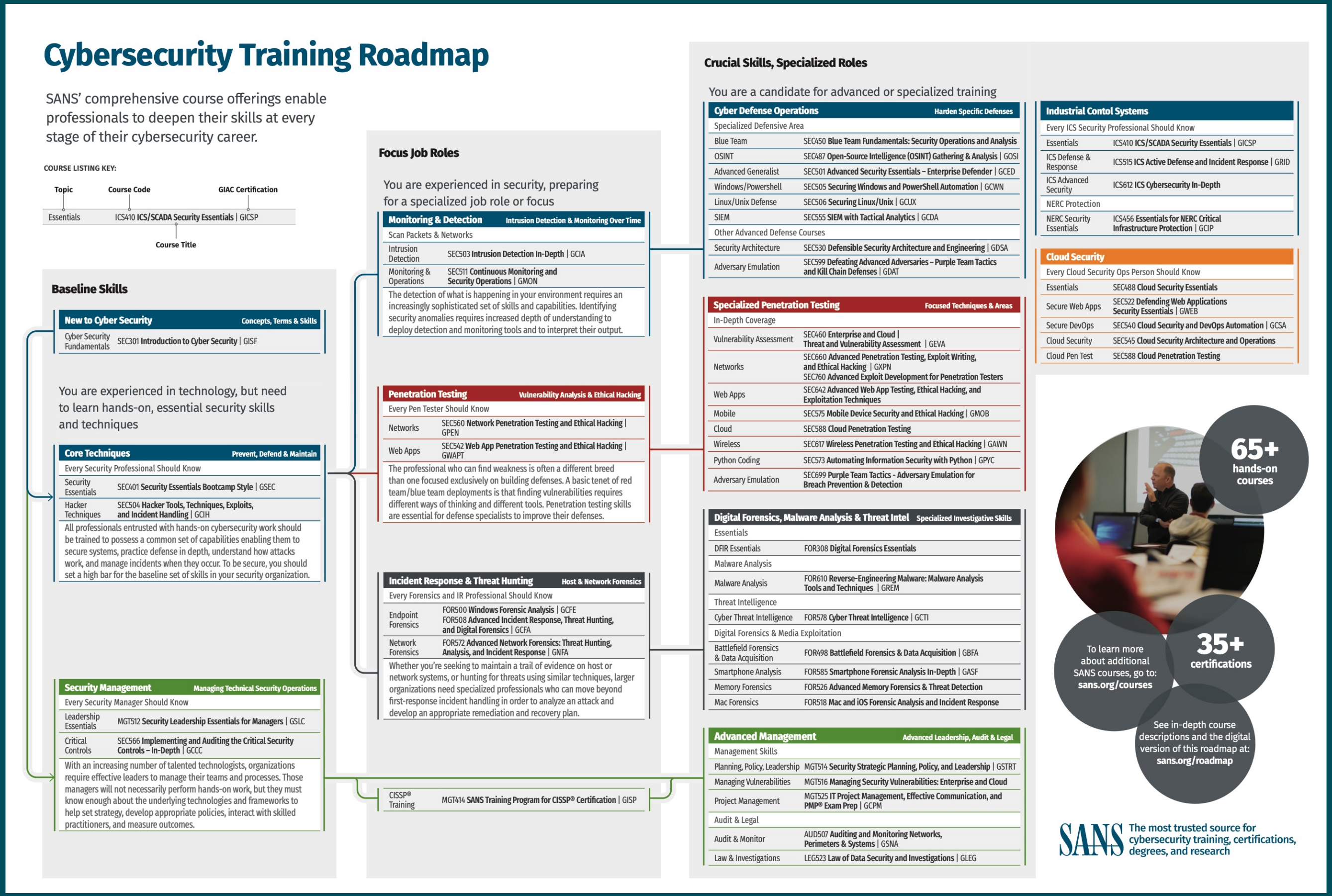
Core SOC activities (Blue Team OPS):

- **Data collection:** What’s happening on the network/devices
- **Detection:** Identify items of interest from data collected
- **Triage and investigation:** Confirming and prioritizing detected issues
- **Incident response:** Responding to and minimizing the impact of attacks

Specialty / Auxiliary Functions:

- **Threat Intelligence:** Collecting information to improve attack detection
- **Forensics:** Supporting IR with deep research and reverse engineering
- **Self-Assessment:** Vulnerability assessment, penetration testing, Red Teaming, inventory, etc…

Knowledge landscape becomes gigantic



Cybersecurity Training Roadmap

SANS' comprehensive course offerings enable professionals to deepen their skills at every stage of their cybersecurity career.

COURSE LISTING KEY:

Topic	Course Code · Course Title · GIAC Certification
Essentials	ICS410 **ICS/SCADA Security Essentials** | GICSP

Baseline Skills

New to Cyber Security	Concepts, Terms & Skills
Cyber Security Fundamentals	SEC301 **Introduction to Cyber Security** | GISF

You are experienced in technology, but need to learn hands-on, essential security skills and techniques

Core Techniques	Prevent, Defend & Maintain
Every Security Professional Should Know	
Security Essentials	SEC401 **Security Essentials Bootcamp Style** | GSEC
Hacker Techniques	SEC504 **Hacker Tools, Techniques, Exploits, and Incident Handling** | GCIH

All professionals entrusted with hands-on cybersecurity work should be trained to possess a common set of capabilities enabling them to secure systems, practice defense in depth, understand how attacks work, and manage incidents when they occur. To be secure, you should set a high bar for the baseline set of skills in your security organization.

Security Management	Managing Technical Security Operations
Every Security Manager Should Know	
Leadership Essentials	MGT512 **Security Leadership Essentials for Managers** | GSLC
Critical Controls	SEC566 **Implementing and Auditing the Critical Security Controls – In-Depth** | GCCC

With an increasing number of talented technologists, organizations require effective leaders to manage their teams and processes. Those managers will not necessarily perform hands-on work, but they must know enough about the underlying technologies and frameworks to help set strategy, develop appropriate policies, interact with skilled practitioners, and measure outcomes.

Focus Job Roles

You are experienced in security, preparing for a specialized job role or focus

Monitoring & Detection	Intrusion Detection & Monitoring Over Time
Scan Packets & Networks	
Intrusion Detection	SEC503 **Intrusion Detection In-Depth** | GCIA
Monitoring & Operations	SEC511 **Continuous Monitoring and Security Operations** | GMON

The detection of what is happening in your environment requires an increasingly sophisticated set of skills and capabilities. Identifying security anomalies requires increased depth of understanding to deploy detection and monitoring tools and to interpret their output.

Penetration Testing	Vulnerability Analysis & Ethical Hacking
Every Pen Tester Should Know	
Networks	SEC560 **Network Penetration Testing and Ethical Hacking** | GPEN
Web Apps	SEC542 **Web App Penetration Testing and Ethical Hacking** | GWAPT

The professional who can find weakness is often a different breed than one focused exclusively on building defenses. A basic tenet of red team/blue team deployments is that finding vulnerabilities requires different ways of thinking and different tools. Penetration testing skills are essential for defense specialists to improve their defenses.

Incident Response & Threat Hunting	Host & Network Forensics
Every Forensics and IR Professional Should Know	
Endpoint Forensics	FOR500 **Windows Forensic Analysis** | GCFE FOR508 **Advanced Incident Response, Threat Hunting, and Digital Forensics** | GCFA
Network Forensics	FOR572 **Advanced Network Forensics: Threat Hunting, Analysis, and Incident Response** | GNFA

Whether you're seeking to maintain a trail of evidence on host or network systems, or hunting for threats using similar techniques, larger organizations need specialized professionals who can move beyond first-response incident handling in order to analyze an attack and develop an appropriate remediation and recovery plan.

CISSP® Training	MGT414 **SANS Training Program for CISSP® Certification** | GISP

Crucial Skills, Specialized Roles

You are a candidate for advanced or specialized training

Cyber Defense Operations	Harden Specific Defenses
Specialized Defensive Area	
Blue Team	SEC450 **Blue Team Fundamentals: Security Operations and Analysis**
OSINT	SEC487 **Open-Source Intelligence (OSINT) Gathering & Analysis** | GOSI
Advanced Generalist	SEC501 **Advanced Security Essentials – Enterprise Defender** | GCED
Windows/Powershell	SEC505 **Securing Windows and PowerShell Automation** | GCWN
Linux/Unix Defense	SEC506 **Securing Linux/Unix** | GCUX
SIEM	SEC555 **SIEM with Tactical Analytics** | GCDA
Other Advanced Defense Courses	
Security Architecture	SEC530 **Defensible Security Architecture and Engineering** | GDSA
Adversary Emulation	SEC599 **Defeating Advanced Adversaries – Purple Team Tactics and Kill Chain Defenses** | GDAT

Specialized Penetration Testing	Focused Techniques & Areas
In-Depth Coverage	
Vulnerability Assessment	SEC460 **Enterprise and Cloud | Threat and Vulnerability Assessment** | GEVA
Networks	SEC660 **Advanced Penetration Testing, Exploit Writing, and Ethical Hacking** | GXPN SEC760 **Advanced Exploit Development for Penetration Testers**
Web Apps	SEC642 **Advanced Web App Testing, Ethical Hacking, and Exploitation Techniques**
Mobile	SEC575 **Mobile Device Security and Ethical Hacking** | GMOB
Cloud	SEC588 **Cloud Penetration Testing**
Wireless	SEC617 **Wireless Penetration Testing and Ethical Hacking** | GAWN
Python Coding	SEC573 **Automating Information Security with Python** | GPYC
Adversary Emulation	SEC699 **Purple Team Tactics - Adversary Emulation for Breach Prevention & Detection**

Digital Forensics, Malware Analysis & Threat Intel	Specialized Investigative Skills
Essentials	
DFIR Essentials	FOR308 **Digital Forensics Essentials**
Malware Analysis	
Malware Analysis	FOR610 **Reverse-Engineering Malware: Malware Analysis Tools and Techniques** | GREM
Threat Intelligence	
Cyber Threat Intelligence	FOR578 **Cyber Threat Intelligence** | GCTI
Digital Forensics & Media Exploitation	
Battlefield Forensics & Data Acquisition	FOR498 **Battlefield Forensics & Data Acquisition** | GBFA
Smartphone Analysis	FOR585 **Smartphone Forensic Analysis In-Depth** | GASF
Memory Forensics	FOR526 **Advanced Memory Forensics & Threat Detection**
Mac Forensics	FOR518 **Mac and iOS Forensic Analysis and Incident Response**

Advanced Management	Advanced Leadership, Audit & Legal
Management Skills	
Planning, Policy, Leadership	MGT514 **Security Strategic Planning, Policy, and Leadership** | GSTRT
Managing Vulnerabilities	MGT516 **Managing Security Vulnerabilities: Enterprise and Cloud**
Project Management	MGT525 **IT Project Management, Effective Communication, and PMP® Exam Prep** | GCPM
Audit & Legal	
Audit & Monitor	AUD507 **Auditing and Monitoring Networks, Perimeters & Systems** | GSNA
Law & Investigations	LEG523 **Law of Data Security and Investigations** | GLEG

Industrial Contol Systems	
Every ICS Security Professional Should Know	
Essentials	ICS410 **ICS/SCADA Security Essentials** | GICSP
ICS Defense & Response	ICS515 **ICS Active Defense and Incident Response** | GRID
ICS Advanced Security	ICS612 **ICS Cybersecurity In-Depth**
NERC Protection	
NERC Security Essentials	ICS456 **Essentials for NERC Critical Infrastructure Protection** | GCIP

Cloud Security	
Every Cloud Security Ops Person Should Know	
Essentials	SEC488 **Cloud Security Essentials**
Secure Web Apps	SEC522 **Defending Web Applications Security Essentials** | GWEB
Secure DevOps	SEC540 **Cloud Security and DevOps Automation** | GCSA
Cloud Security	SEC545 **Cloud Security Architecture and Operations**
Cloud Pen Test	SEC588 **Cloud Penetration Testing**

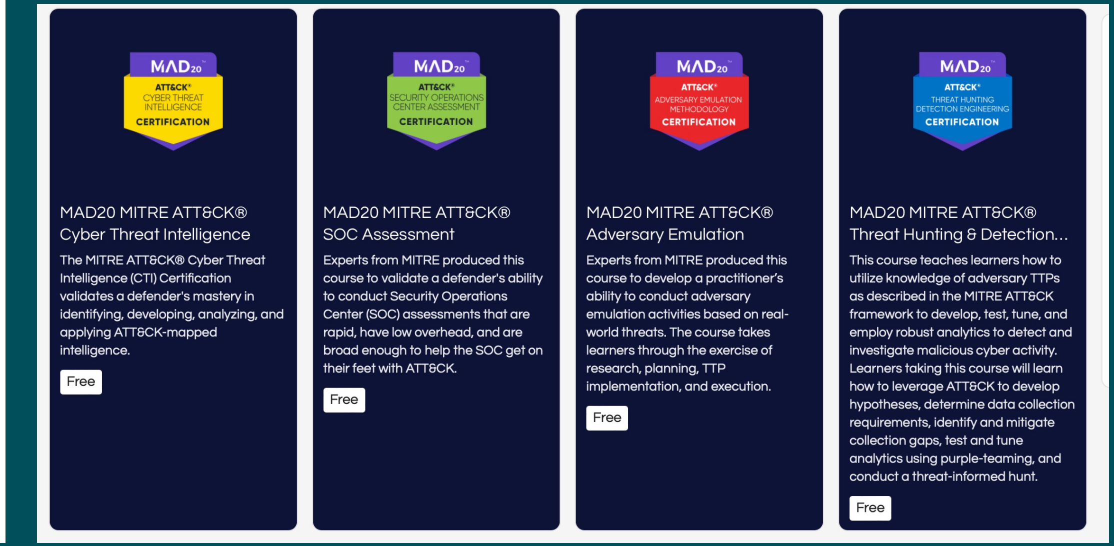
65+ hands-on courses

35+ certifications

To learn more about additional SANS courses, go to: **sans.org/courses**

See in-depth course descriptions and the digital version of this roadmap at: **sans.org/roadmap**

SANS The most trusted source for cybersecurity training, certifications, degrees, and research


MAD20
ATT&CK®
CYBER THREAT INTELLIGENCE
CERTIFICATION
MAD20
ATT&CK®
SECURITY OPERATIONS CENTER ASSESSMENT
CERTIFICATION
MAD20
ATT&CK®
ADVERSARY EMULATION METHODOLOGY
CERTIFICATION
MAD20
ATT&CK®
THREAT HUNTING DETECTION ENGINEERING
CERTIFICATION
Free
Free
Free
Free

MAD20 MITRE ATT&CK® Cyber Threat Intelligence

The MITRE ATT&CK® Cyber Threat Intelligence (CTI) Certification validates a defender's mastery in identifying, developing, analyzing, and applying ATT&CK-mapped intelligence.

MAD20 MITRE ATT&CK® SOC Assessment

Experts from MITRE produced this course to validate a defender's ability to conduct Security Operations Center (SOC) assessments that are rapid, have low overhead, and are broad enough to help the SOC get on their feet with ATT&CK.

MAD20 MITRE ATT&CK® Adversary Emulation

Experts from MITRE produced this course to develop a practitioner's ability to conduct adversary emulation activities based on real-world threats. The course takes learners through the exercise of research, planning, TTP implementation, and execution.

MAD20 MITRE ATT&CK® Threat Hunting & Detection...

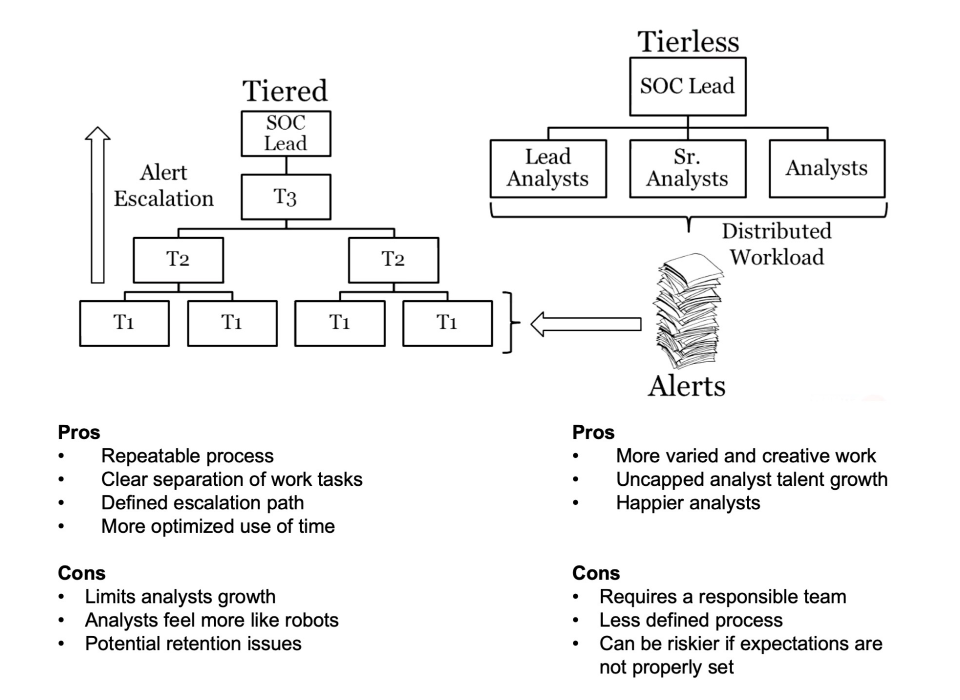
This course teaches learners how to utilize knowledge of adversary TTPs as described in the MITRE ATT&CK framework to develop, test, tune, and employ robust analytics to detect and investigate malicious cyber activity. Learners taking this course will learn how to leverage ATT&CK to develop hypotheses, determine data collection requirements, identify and mitigate collection gaps, test and tune analytics using purple-teaming, and conduct a threat-informed hunt.

Operational models

In house

Hybrid

Outsourced



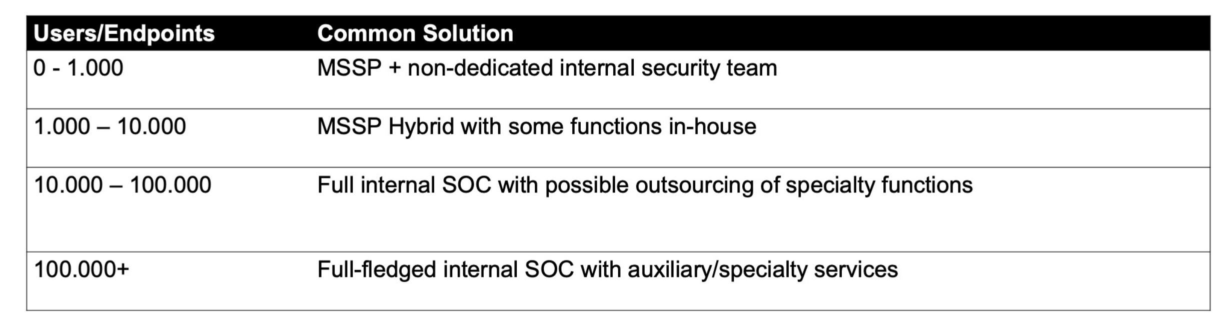
Pros
- Repeatable process
- Clear separation of work tasks
- Defined escalation path
- More optimized use of time

Cons
- Limits analysts growth
- Analysts feel more like robots
- Potential retention issues

Pros
- More varied and creative work
- Uncapped analyst talent growth
- Happier analysts

Cons
- Requires a responsible team
- Less defined process
- Can be riskier if expectations are not properly set

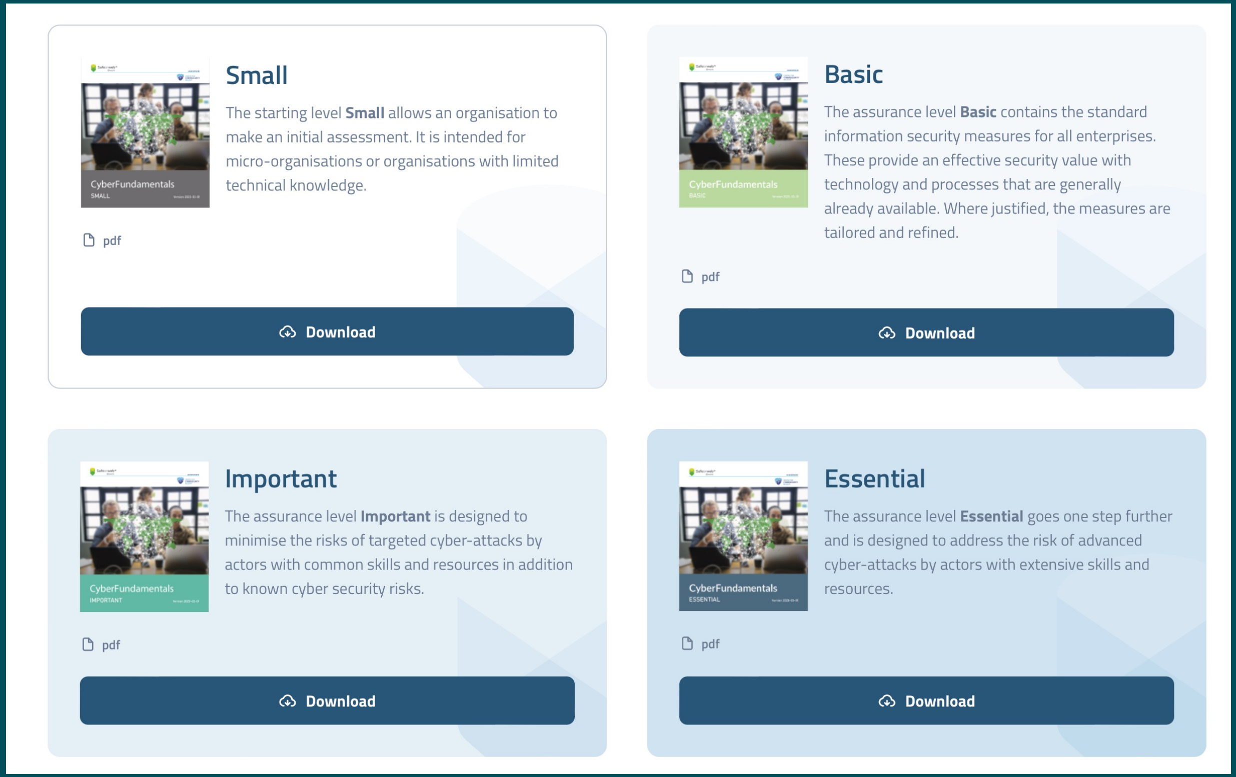
MSSP



Users/Endpoints	Common Solution
0 - 1.000	MSSP + non-dedicated internal security team
1.000 – 10.000	MSSP Hybrid with some functions in-house
10.000 – 100.000	Full internal SOC with possible outsourcing of specialty functions
100.000+	Full-fledged internal SOC with auxiliary/specialty services

Public Private collaboration to strengthen our cyber resilience

- Collaboration with regulators, law enforcements, national security agencies leverages on the different expertise and capabilities of each
- Examples: Cyber Security Coalition, AUSTRAC , GASA, …
- CCB Cyber Fundamentals, BAPS, Safe On Web



Small

The starting level **Small** allows an organisation to make an initial assessment. It is intended for micro-organisations or organisations with limited technical knowledge.

pdf

Download

Basic

The assurance level **Basic** contains the standard information security measures for all enterprises. These provide an effective security value with technology and processes that are generally already available. Where justified, the measures are tailored and refined.

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Important

The assurance level **Important** is designed to minimise the risks of targeted cyber-attacks by actors with common skills and resources in addition to known cyber security risks.

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Essential

The assurance level **Essential** goes one step further and is designed to address the risk of advanced cyber-attacks by actors with extensive skills and resources.

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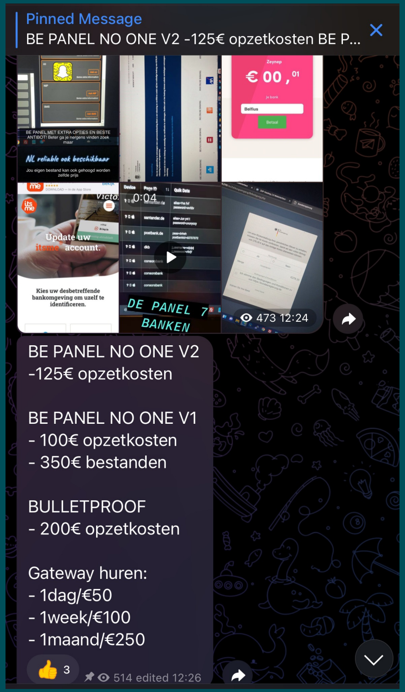
Download

Some examples from itsme® collaboration

- Phishing
- Risk Warning System

Phishing as a service as one of the main drivers

- ~70% of worldwide phishing campaigns are using the UAdmin phishing kit
- The creator sold his kit via TOR and added bank templates and automated features in 2019 making it very easy to use for non-technical criminals
- Criminals are now renting phishing kit and SMS gateways via Telegram as a service, per day/week/month making it even more easy


Pinned Message

BE PANEL NO ONE V2 -125€ opzetkosten BE P...

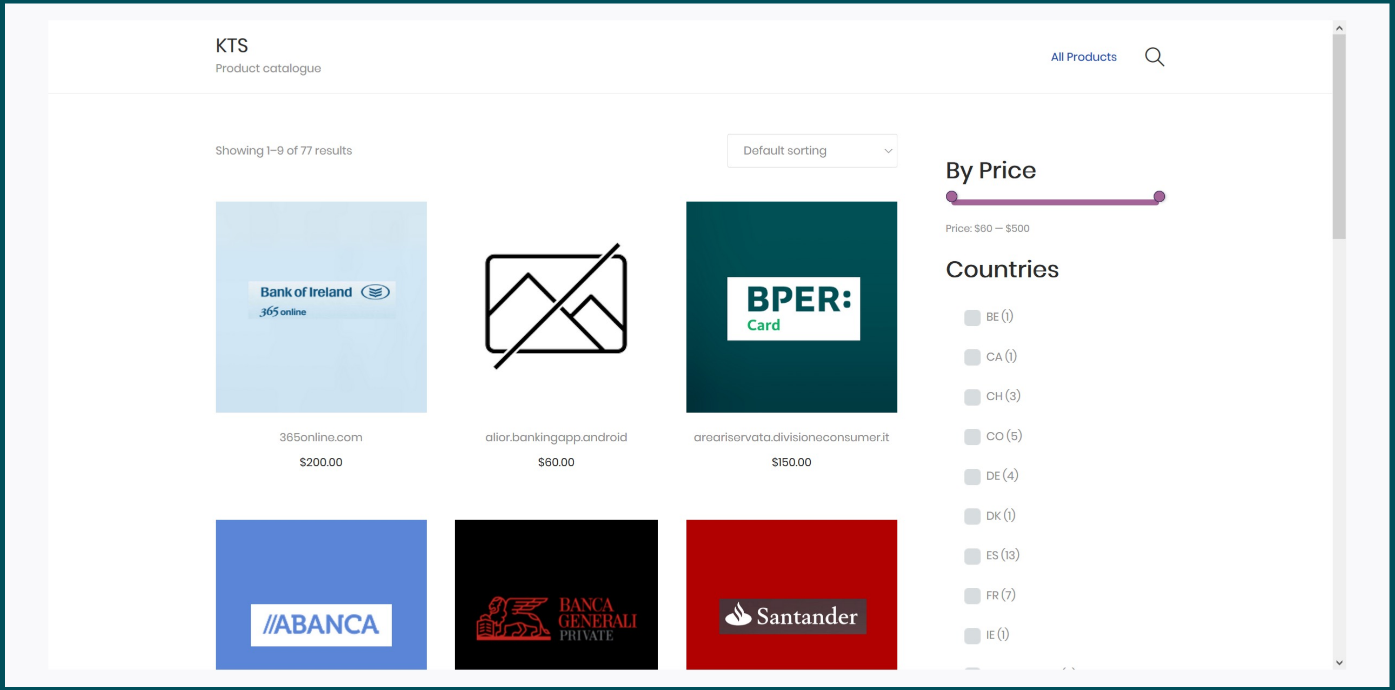
BE PANEL NO ONE V2
-125€ opzetkosten

BE PANEL NO ONE V1
- 100€ opzetkosten
- 350€ bestanden

BULLETPROOF
- 200€ opzetkosten

Gateway huren:
- 1dag/€50
- 1week/€100
- 1maand/€250

3 514 edited 12:26


KTS

Product catalogue

Showing 1–9 of 77 results

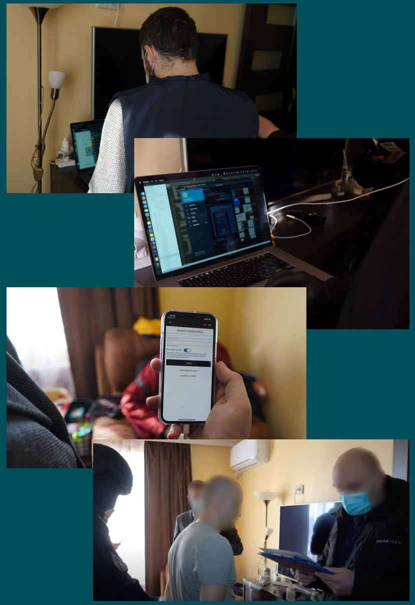
Product	Price
365online.com	$200.00
alior.bankingapp.android	$60.00
areariservata.divisioneconsumer.it	$150.00

By Price

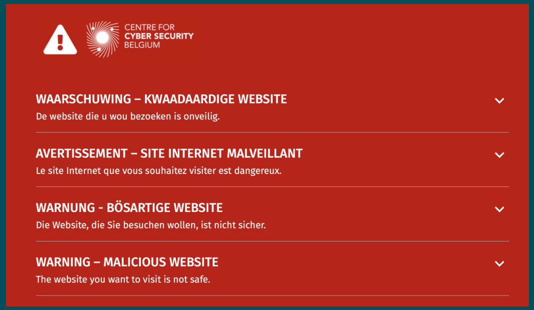
Price: $60 — $500

Countries

- □ BE (1)
- □ CA (1)
- □ CH (3)
- □ CO (5)
- □ DE (4)
- □ DK (1)
- □ ES (13)
- □ FR (7)
- □ IE (1)



Support in Phishing Scenario



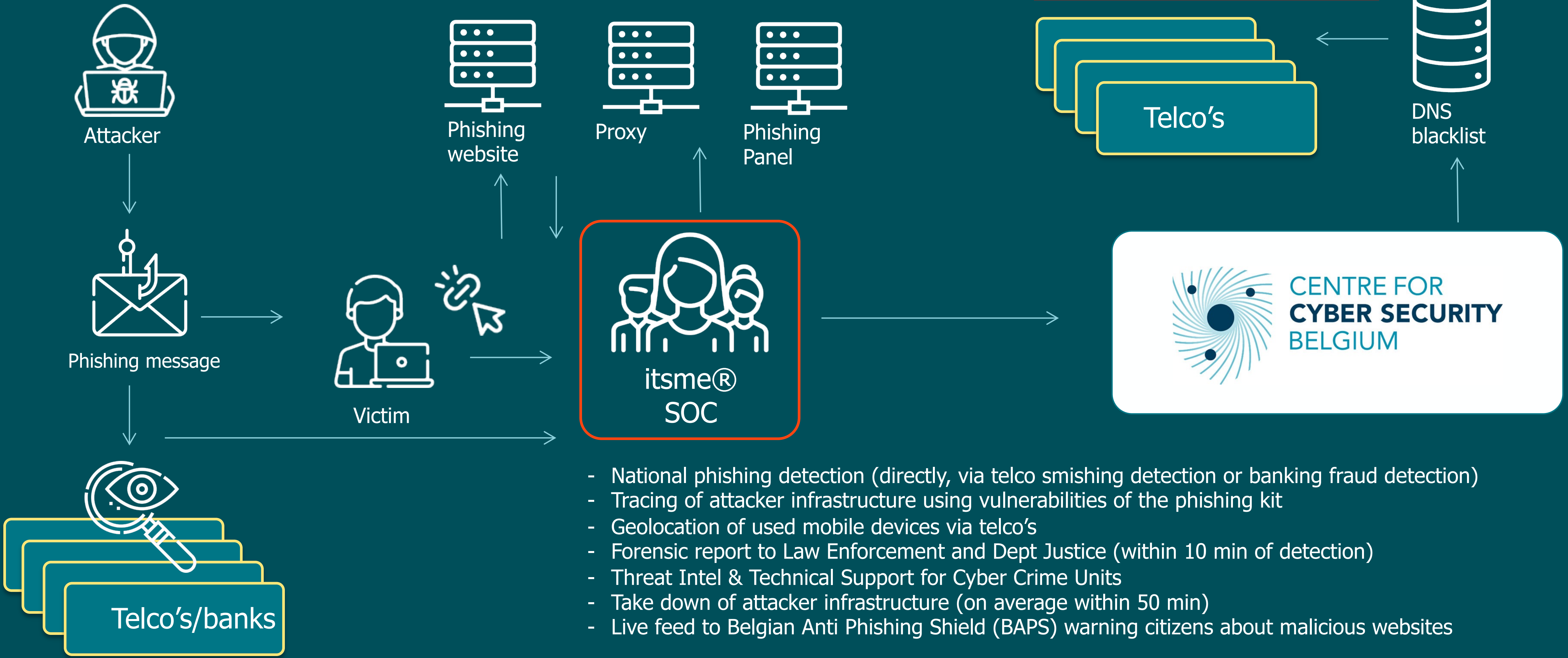
CENTRE FOR CYBER SECURITY BELGIUM

WAARSCHUWING – KWAADAARDIGE WEBSITE
De website die u wou bezoeken is onveilig.

AVERTISSEMENT – SITE INTERNET MALVEILLANT
Le site Internet que vous souhaitez visiter est dangereux.

WARNUNG - BÖSARTIGE WEBSITE
Die Website, die Sie besuchen wollen, ist nicht sicher.

WARNING – MALICIOUS WEBSITE
The website you want to visit is not safe.



- National phishing detection (directly, via telco smishing detection or banking fraud detection)
- Tracing of attacker infrastructure using vulnerabilities of the phishing kit
- Geolocation of used mobile devices via telco's
- Forensic report to Law Enforcement and Dept Justice (within 10 min of detection)
- Threat Intel & Technical Support for Cyber Crime Units
- Take down of attacker infrastructure (on average within 50 min)
- Live feed to Belgian Anti Phishing Shield (BAPS) warning citizens about malicious websites

New initiative: Risk Warning System

- Objective:
  - National Threat Intel system with indicators for consumer fraud (e.g. MSISDN’s/IMEI’s used for Smishing, IBAN’s of mule accounts)
  - Fast(er) notification and blocking of consumer fraud
- Key stakeholders:
  - National Centre for Cybersecurity (CCB)
  - Belgian Police
  - Banks
  - Telco’s
  - Digital ID infrastructure (itsme®)
  - Telco regulator (BIPT)
  - Bank regulator (FSMA)
  - FOD Economie
  - DNS Belgium

Collaboration is key

”It takes a network to fight a network”

Thank you

Remy Knecht
Chief Security Officer

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Curriculum lead Security Operations
Solvay Executive Master in Cybersecurity

Financial Action Task Force
Industry Expert AML/CTF
Co-author Guidance on Digital Identity

Founder
Consulting for EU Commission
- Digital Identity
- Cybersecurity

EU CyberNet
Expert Cyber Defense & Intelligence

Advisor

Advisor on Digital Identity Eco-Systems
Co-creator toolkit for governments

CSIRT Focus Group