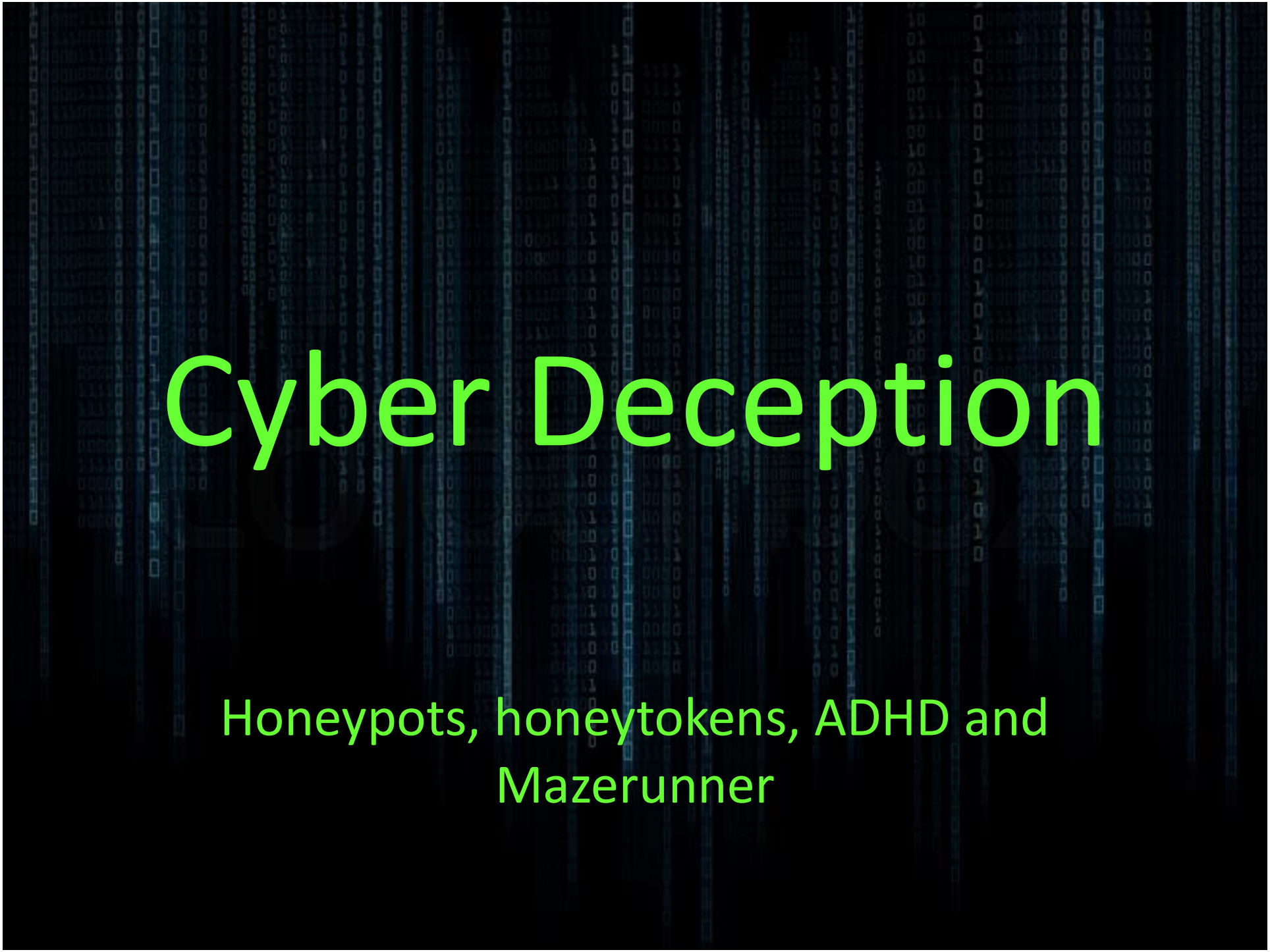
Cyber Deception
Honeypots, honeytokens, ADHD and Mazerunner

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Twitter: @chaoticneutr4l
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- SOC Analyst at Casey's General Stores
- Legal disclaimer – all of this is my opinion and personal research, not representing work or any tools/techniques/procedures we use at CGS

Honeypots

- Made “famous” by Lance Spitzner in early 2000’s with the Honeynet Project
  - https://www.honeynet.org
- It is a closed group, I have not yet attempted to apply for membership to their research mailing lists

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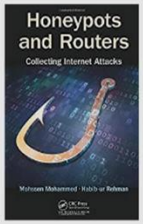

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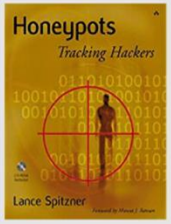
Excerpt
Front Cover : ... *Honeypots* and Routers Collecting Internet Attacks Mohssen Mohammed ... See a random page in this book.



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Honeypot Types
Low Interaction

- Simulate only the services frequently requested
- Consume relatively few resources
  - multiple virtual machines can easily be hosted on one physical system
  - short response time

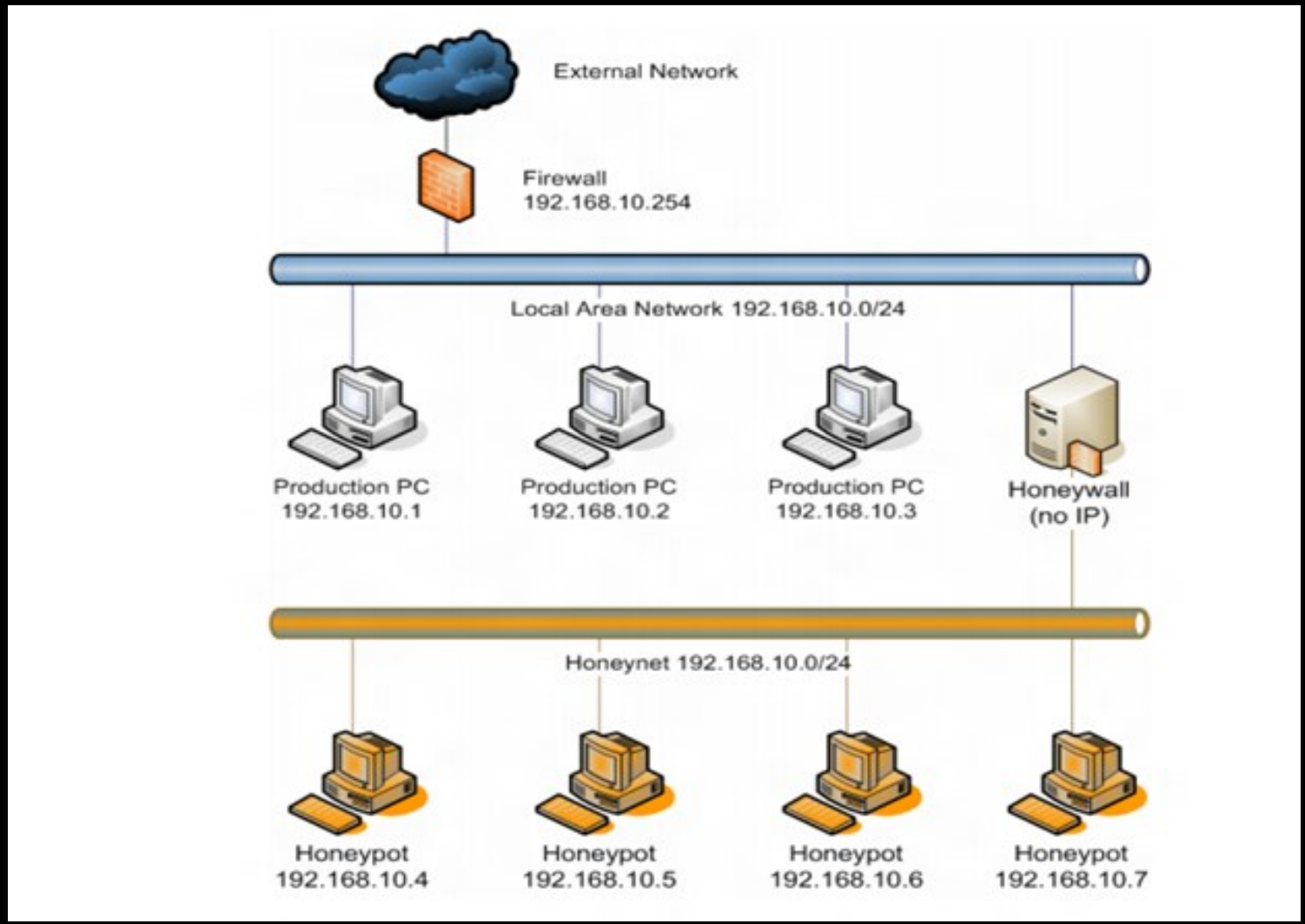
High Interaction

- imitate the activities of the production systems
- host a variety of services
- an attacker may be allowed a lot of services to waste his time.
- Using VMs - multiple honeypots can be hosted on a single physical machine – also easy rebuilds
- expensive to maintain - if you go physical

“Medium” Interaction

- More than low, which is essentially just a couple running services
- Not full machines like a High would be
- Easier to config/setup

Basic Architecture



Config

- Depending on which type you configure, the install process is a pain
- Usually a matter of build your own management systems/architecture/GUI
- LOGGING!!!

Current/Future

- That was the past
- Research just stopped for years
- Finally several new companies have taken the basic concepts and run with them into functional software tools/suites
- Thinkst(Canaries), BHIS(ADHD) and Cymmetria(Mazerunner)

Thinkst

- Main product is called Canary
- Idea is no management config necessary
- setup in 2-3 minutes and their software auto configures
- Multiple protocols supported out-of-the-box
- hosted console gives you effortless monitoring and notifications

ADHD

- Linux distro based on Ubuntu LTS
- Tools aimed at active defense preinstalled and configured
- Purpose of this distribution is to aid defenders by giving them tools to “strike back” at the bad guys.

- Interfering with the attackers’ reconnaissance
- Compromising the attackers’ systems
- Defense mechanisms triggered by malicious activity such as network scanning or connecting to restricted services.
- Look up John Strand’s YouTube account for vids

ADHD Tools

Annoyance

Artillery

Bear Trap

Cryptolocked

DenyHosts

Honey Ports

Invisiport

Kippo

OsChameleon

PHP-HTTP-Tarpit

Portspoof

PSAD

Rubberglue

Spidertrap

TcpRooter

Weblabyrinth

Wordpot

ADHD Tools

- Artillary - purpose of Artillery is to provide a combination of honeypot, file-system monitoring, system hardening, real-time threat intelligence feed, and overall health of a server monitoring-tool
- Cryptolocked - file system integrity failsafe, monitors your file system for unauthorized modification
- Spidertrap - Trap web crawlers and spiders in an infinite set of dynamically generated webpages.

ADHD Tools

Attribution

Decloak - Used to identify the real IP address of a web user, regardless of proxy settings, using a combination of client-side technologies and custom services

Docz.py

Honeybadger - Used to identify the physical location of a web user with a combination of geolocation techniques using a browser's share location feature, the visible WiFi networks, and the IP address

Jar-Combiner

Sqlite Bug Server

Web Bug Server

ADHD Tools

Absolution

Human.py - Human.py (Aka human pie) is a script made for the sole purpose of detecting human usage of service accounts.

Lockdown

OpenBAC

Simple-Pivot-Detect

Sweeper

TALOS - TALOS is an evolution in the democratization of Active Defense technologies and methodologies. It is an Active Defense Framework; allowing for the quick training and deployment of computer network defenders

ADHD Tools

Attack

Beef - The Browser Exploitation Framework Project is a tool for the pwnage of one of the underexplored frontiers in information security, the web browser

Gcat

Ghostwriting.sh - method of anti-virus bypass utilizing binary deconstruction, insertion of arbitrary assembly code, and reconstruction

Java-Web-Attack

Pushpin

Recon-ng – passive recon

SET(SocEng Toolkit) - open source tool implemented in python which focuses on penetration testing through social engineering

ADHD Tools

HoneyDrive

- Over 10 pre-installed and pre-configured honeypot software packages such as Kippo SSH honeypot, Dionaea and Amun malware honeypots, Honeyd low-interaction honeypot, Glastopf web honeypot and Wordpot, Conpot SCADA/ICS honeypot, Thug and PhoneyC honeyclients

Windows

Kansa - modular incident response framework in Powershell

OsFuscate

Powercat - PowerShell module offers all the functionality of netcat with a few added features

Software Restriction Policies - restrict which types of files from the Windows and Program Files directories are allowed to run and where they are allowed to run from

Mazerunner – Community Edition

- Platform for creating effective deception stories
- Attackers making lateral movement will first collect info on their next target
- Breadcrumbs deployed by MazeRunner that point to decoys
- Reveal their attack tools and methods, which defenders are then able to document and analyze
- Setup to export threat information to create attack signatures

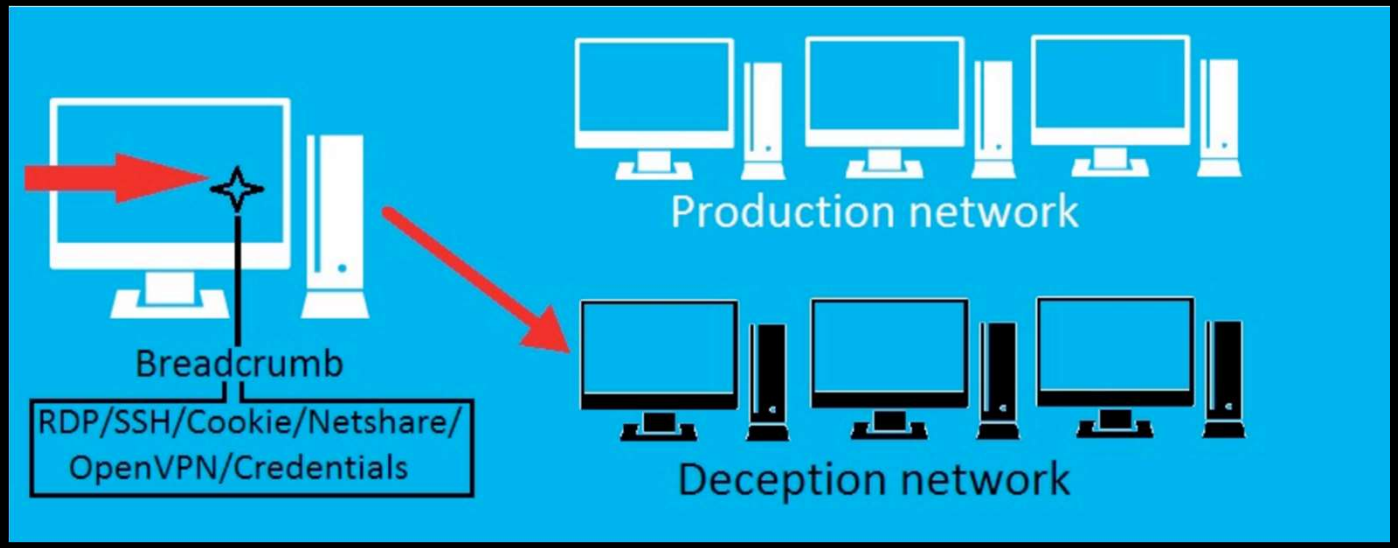
Mazerunner – Community Edition

- Community edition comes as a preconfigured OVA/QCOW2 file – two open VM formats
- Easy to setup in VMWare Player/Wkstn, ESXi and KVM
- Currently NOT supported for VirtualBox
- System req's:
  - 150GB minimum storage, 500GB recommended
  - 2GB of RAM (add 2GB for each additional nested decoy)
  - 1 x CPU @ 2 GHz (add another CPU core for each additional nested decoy)
  - VMware hypervisor (Player 7 or higher; Workstation 11 or higher; ESXi server 5.1 or higher) or KVM hypervisor, with nested virtualization enabled

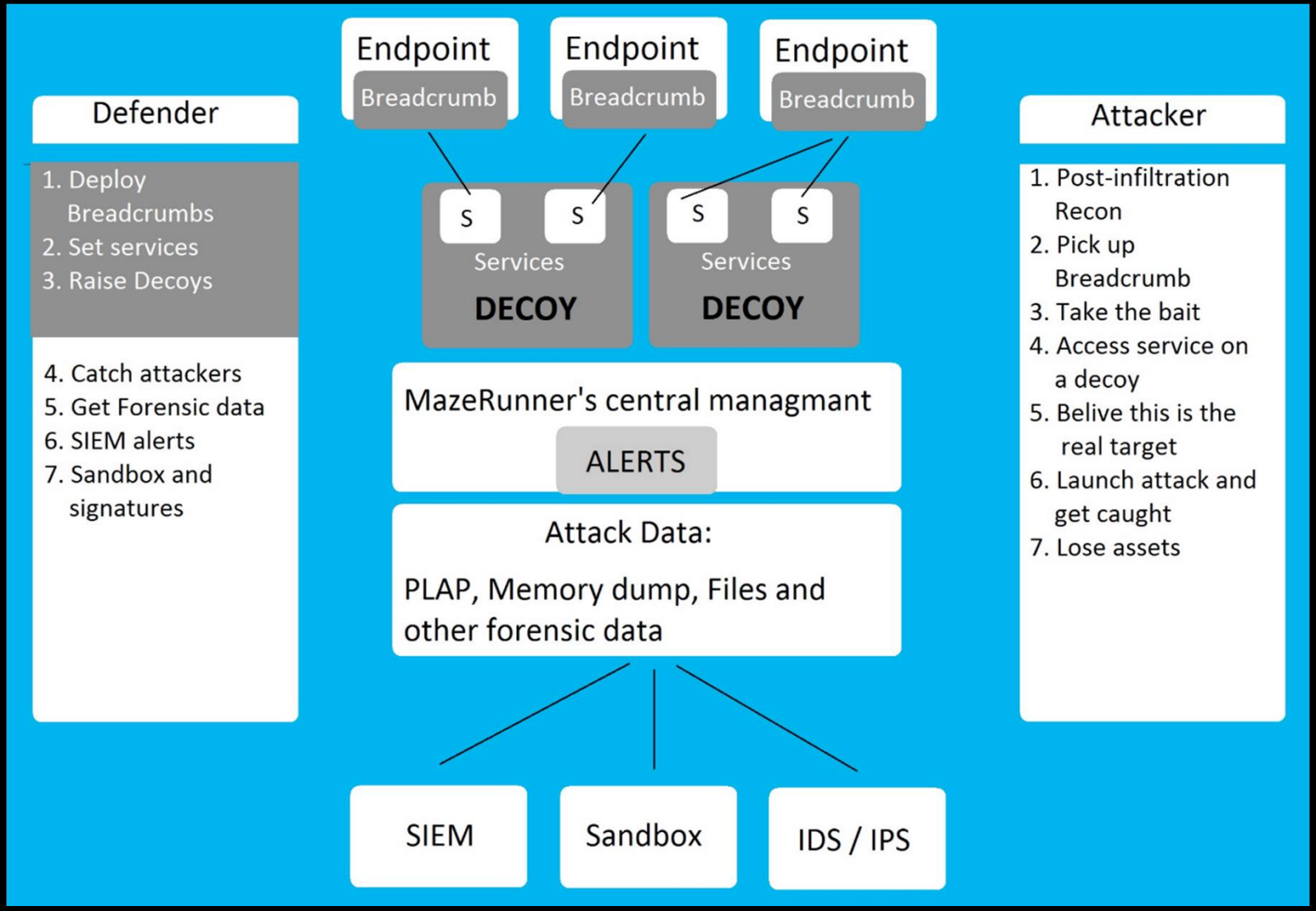
Mazerunner – Community Edition

- Dashboard – Your deception battle map, where you control and review your campaigns
- Campaign screen – Here you create the different components of your deception campaign
- Endpoints screen – This screen shows the endpoints on which you have placed breadcrumbs
- Investigation screen – Used for viewing your campaign's events and alerts. Here you can see every move an attacker has made

Mazerunner – Community Edition
Basic Architecture



Mazerunner – Community Edition Detailed Architecture



Deception campaign:

Decoys

- Virtual machines (servers or other devices) running Windows or Linux systems
- Look and act like production machines
- Reached by following a breadcrumb found on an endpoint

Deception campaign:

Services

- Each decoy server runs live services (e.g., SMB, SSH, OpenVPN servers, etc.)
- Each breadcrumb leads to a specific service on a decoy machine

Breadcrumbs

- Passive elements of data
- placed on endpoints to be found by attackers during the reconnaissance phase
- placed in a natural manner that is compatible with a user's habits

Deception campaign:

Demo’s

Honeyports vid:

https://www.youtube.com/watch?v=0YZjNdbTnoc

Mazerunner vid:

https://www.youtube.com/watch?v=E-dj4CtAdcE