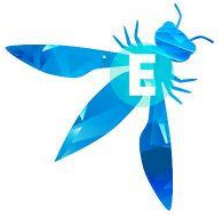
OWASP
Open Web Application Security Project

Catching up with today's malicious actors

Current security posture and future possible actions

OWASP EEE Bucharest Event 2015
Adrian Ifrim



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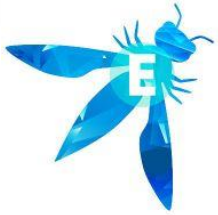

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id -un

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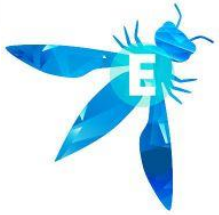
cat .bash_history | grep jobs

- Helpdesk/Network Administrator
- Junior System Administrator
- Support Engineer
- IS Analyst
- IT Auditor
- Tech Security Lead



uname -a

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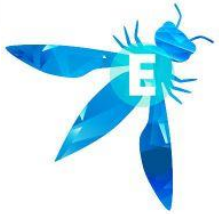
- cat /proc/cpuinfo | grep hobbies
  - Information Security
  - Information Security
  - Information Security
  - Information Security



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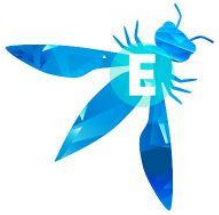
Chapter 1
Current state



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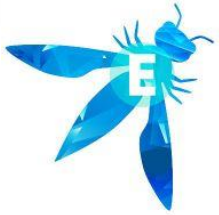
Who are we dealing with?

- State sponsored attacks
- Organized Hacking Teams
- State-sponsored hackers: hybrid armies
- Terrorist organizations
- One-man-show
- Internal disgruntled employees
- Malicious vendors – Software/Hardware
- Trusted Third Party



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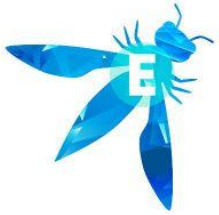
What are their strengths?

- Time
- Unlimited budget
- Open source tools
- Open Knowledge base (the Internet)
- No bureaucratic approvals
- New tricks up their sleeves (0days)
- Strong Motive (financial, political, patriotic, fun)



Who do we usually have?

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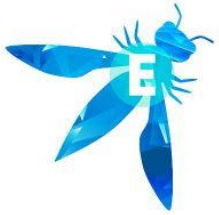
- Small teams of security professionals
- Limited time
- Limited budgets
- Limited tools (if you don't have support you cant use it)
- Bureaucratic approvals
- Security testing requirements



Losing the war - Tools

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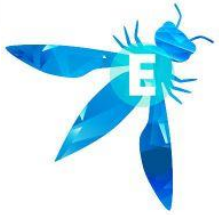
- Anti-Virus
  - ✓ veil framework
  - ✓ backdoor factory
  - ✓ mitmf
  - ✓ metasploit
  - ✓ powershell
  - ✓ wmic
  - ✓ vbscript
- Cost to make an undetected virus ~ 0



Losing the war – More tools

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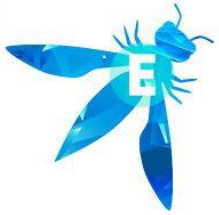
- Maintained by people for the people

  - ✓ Firewalls/Routers/Switches)
  - ✓ Web Site filtering
  - ✓ Data Leakage Protection
  - ✓ Web Application Firewalls
  - ✓ Database Activity Monitoring
  - ✓ SIEMs
  - ✓ Vulnerability scanners
  - ✓ IDS/IPS
  - ✓ Anti Malware
  - ✓ etc



Losing the war: Monitoring those tools

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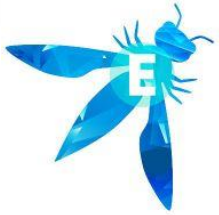
- Maintained by people for the people
- Various time formats
- Various log formats
- Alert/parsing configuration
- Huge number of events



The hype:

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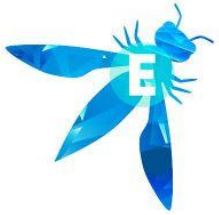
- Stagefright bug
  - ✓ Scary but not working on latest version of Android
  - ✓ Other countries may be affected :)
- Heartbleed
  - ✓ http://siui.casan.ro/cnas/ is protected btw (no certificate)
  - ✓ introduced in 2012 and publicly disclosed in 2014
- Various 0days: flash,adobe reader, windows, osx, android, php, anti-virus



Start being afraid of the right things
Your real problems:

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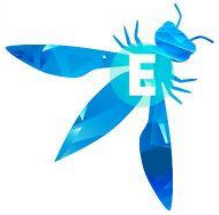
- Your assets. The inventory
- Personnel
- ~6000days
- Everyone's a coder
- Availability
- Did you know you use IPv6? Yeah you do
- Tools
- Old mindsets
- Credentials everywhere
- No two factor
- No encryption
- Wireless
- Monitoring
- APT (Antivirus Fail)
- Unauthorized tools



Various questions and answers received over the years

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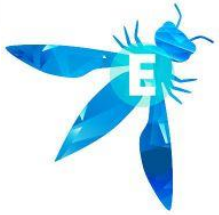
- Why would I need security advisory in change management?
- I know all my systems
- But we do vulnerability scanning
- If its internal they can't get in and we should not use encryption
- Our anti-virus definitions are up-to-date



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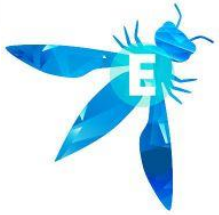
Chapter 2
Future State of Security



It's over

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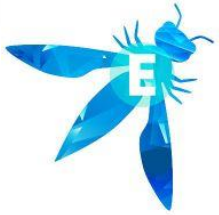
- Traditional ways of protecting our networks are not working anymore
- The victory of **300 Spartans** is a not quite true:
  - 300 Spartans
  - 700 Thespians
  - 400 Thebans
  - and perhaps a few hundred others
  - most of whom were **killed**.



But people say

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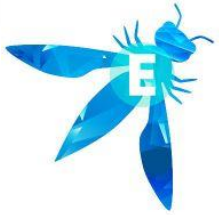
- Waving the white flag means you've lost
- You're compromised and you don't even know it.
  Are you a **target**?



Start being afraid of the right things

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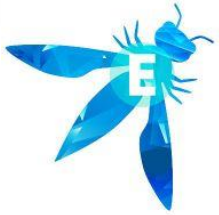
- 80%+ percent of you problems come from 20% of you issues
- Exploiting the 20% problems left would require some skills
- It's **OK** to fail.
- It's **NOT OK** not to know that you have failed or failing over and over again



Understand what you are trying to protect

Next steps

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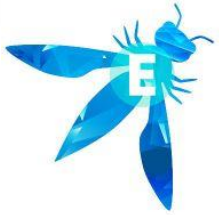
- Artificial intelligence
- Self-protecting mechanism just like the human immune system
- Shape-shifting networks
- Big Data
- Advanced Honeypots
- **On the fly patching**



Next steps

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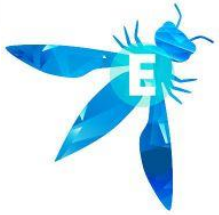
- Listening
- Learning
- Doing



The future is here

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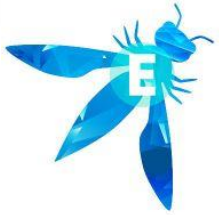
- Checkout DARPA Cyber Grand Challenge

The challenge:

Systems will autonomously create network defenses, deploy patches and mitigations, monitor the network, and evaluate the defenses of competitors.

- Sounds like something the US would do ☺



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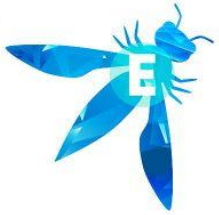
What we will need to do

- Gather **all** information
- From **all** devices
- Process that information
- Identify malicious events and patterns
- Establish automated alerts
- Establish automated decisions and actions



What we will need to do

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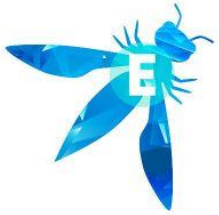
- Establish correct incident response plans
- Create production like environments
- Add this layer on top of the old layers
- Automate as much as you can



Q&A

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Wait, what are you trying to say?