Defense at Scale
an optimistic #infosec talk in two slides

BSidesNYC 2016
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https://v.gd/defenseAtScale
Defense at Scale
an optimistic #infosec talk in two or more slides

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Security at its core is about reducing attack surface. You cover 90% of the job just by focussing on that. The other 10% is mostly luck.
1 in a million is next Tuesday.
Got phished.

Downloaded drive-by malware.

Got pwned by script kiddies.

Uses Flash

Actually targeted by NSA.
https://v.gd/defenseAtScale06
$ uptime
  2:26PM  up 3429 days, 11:59, 1 user, load averages: 0.33, 0.27, 0.29
$ uname -rs
FreeBSD 4.11
You get to drink from the FIREHOSE!!
No caption necessary.
UNDER STAFFED!

UNDER STAFFED EVERYWHERE!
VERIFIED POC
DEV PROBLEM NOW
Skin in the Game

• Who carries the cost of fixing security problems?

• Who pays out the Bug Bounty for the same set of command-injection or XSS vulnerabilities?

• Who is incentivized to improve security?
Prioritize.
100% secure is impossible – but that’s ok.

Raising the cost of an attack is often sufficient. (Know your Threat Model.)
Fucks don’t scale.
“Prevent, Detect, React”
“Prevent, Detect, React”

Firewalls, Monitoring, Patching
“Prevent, Detect, React”

Firewalls, Monitoring, Patching

Vendor Crap, Vendor Crap, -\_(ツ)_/\-
“Are vulnerabilities in software dense or sparse? If they are sparse, then every one you find and fix meaningfully lowers the number of avenues of attack that are extant. If they are dense, then finding and fixing one more is essentially irrelevant to security and a waste of the resources spent finding it. Six-take-away-one is a 15% improvement. Six-thousand-take-away-one has no detectable value.”

Geer/Schneier

https://v.gd/defenseAtScale08
If you can make things better without making things worse, do it.

Even if it doesn't make things perfect.
If what you’re doing doesn't make things better, stop doing it.

Even if you've always done it.

Even if it took a lot of effort to start doing.

https://v.gd/defenseAtScale09
Think big.
Vulnerabilities are not sparse.

Don’t fix individual bugs, focus on eliminating entire vulnerability classes instead.
If you keep fixing the same issue over and over again, you’re not making progress.
SAY 'SIEM' AGAIN
I DARE YOU
When you tell your VP the first time that you know your network is already compromised and no you’re not kidding.

https://v.gd/defenseAtScale10
SIEMs don’t detect compromises.

A human going “huh, weird” detects a compromise.
Increasing the hay stack does not make it easier to find the needle.

some of the data you collect

compromise indicator
Lead by example.
Engineer: “Hey, can we add the new service account ‘fishbone’ everywhere? Needs full sudo, no password.”

Infosec: “LOL what? No way.”

Infosec eng1: “Hey, can we add ‘nessus’ everywhere? Needs full sudo, no password.”

Infosec eng2: “Sure, one sec.”
Lead by example.

If another team asked you, would you say ‘no’?
Other people’s fucks are also limited.

Many corp. sec. depts seem to think if they haven't made people's lives more difficult they haven't done their job. Opposite is true.

https://v.gd/defenseAtScale11
Vulnerabilities are dense.

CI/CD is your friend.

Embrace automation.
CI/CD is your friend.

• You *cannot* update individual systems; you *can* ensure all your systems regularly get all updates automatically.

• You *cannot* remove individual vulnerabilities; you *can* gate deployments on using the right libraries.

• You *cannot* manually change a config file on a few hundred thousand systems; you *can* enforce consistent convergence in idempotent changesets prescribed by your configuration management system.
Your endpoint security model should assume the network is compromised; your network security model should assume the endpoint is.

Both in fact are.
Consider today:

- auto-update your OS, third-party- and custom software
- mandatory configuration management across your fleet
- 2FA SSO with time-bound authentication tokens
- provide libraries for common problems (secret management, input/output validation, hashing, encrypting, ...)
- have exactly one TLS stack that everybody uses (internally and externally)
...and what may come:

• Embrace the cloud. You are already operating in hostile networks and crossing trust boundaries.

• Rethink your ‘trusted network’ (*BeyondCorp*).

• Rethink the need for user accounts.

https://v.gd/defenseAtScale13
...and what may come:

- Containers are just big ass static binaries with all their problems. Deal with it.

- Build upon remote attestation of both hardware and software; signed containers.
Defend smarter, not harder.

• Don’t waste your time on busy work. Measure your impact. Prioritize.

• Embrace automation. Move fast.

• Help others take responsibility. Guide them.

• Have a Red Team.
  “You can’t grade your own homework.”
  – @MicahZenko
Thanks!

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