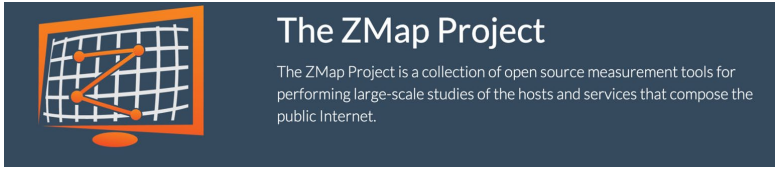
ZMap Project Updates and Feedback

Phillip Stephens - Stanford University

U.S. National Science Foundation
Pathways to Enable Open-Source Ecosystems

Empirical Security Research Group

- ZMap - Fast L4 Packet Scanner



The ZMap Project

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ZMap

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ZGrab

ZGrab is a stateful application-layer scanner. ZGrab is written in Go and supports HTTP, HTTPS, SSH, Telnet, FTP, SMTP, POP3, IMAP, Modbus, BACNET, Siemens S7, and Tridium Fox. For example, ZGrab can perform a TLS connection and collect the root HTTP page of all hosts ZMap finds on TCP/443.

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LZR

LZR is a scanner that efficiently identifies what protocol an Internet service runs. LZR can identify 99% of unexpected Internet services in five handshakes. It runs as shim between ZMap and ZGrab.

ZCrypto

ZCrypto is a TLS and X.509 library for researchers. It is based on Go's standard library, but supports a more extensive set of cipher suites, extra lenient ASN.1 and X.509 parsing, and handshake transcription.

ZLint

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ZCertificate

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ZAnnotate is a utility that annotates IPs with additional metadata, such as Maxmind GeoIP2 locations and routing data from a TABLE_DUMPv2 MRT file.

ZIterate

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ZBlocklist

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ZTee

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ZSchema

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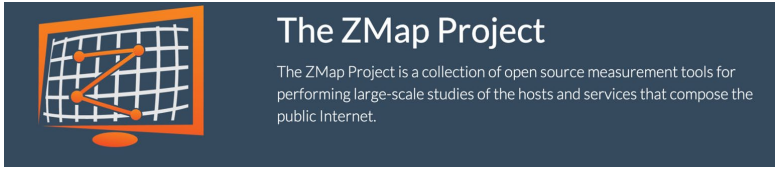
- ZMap - Fast L4 Packet Scanner
- ZDNS - “dig for bulk lookups”



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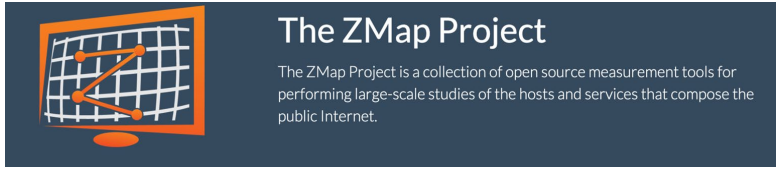

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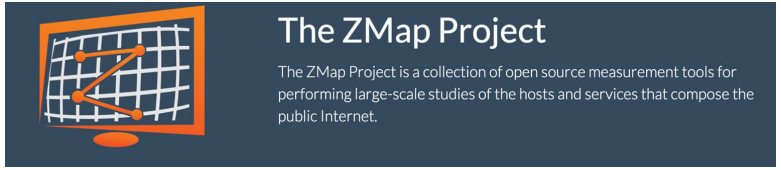
- ZGrab2 - L7 application scanner
- ZLint - Web PKI Certificate Linter



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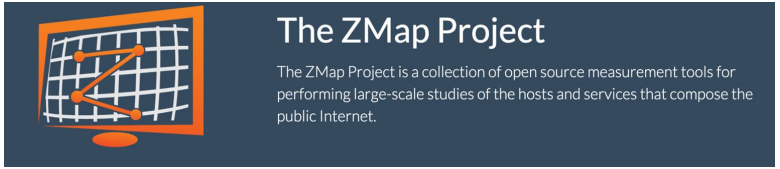
- ZMap - Fast L4 Packet Scanner
  - Multiple ports in single scan
- ZDNS - “dig for bulk lookups”
  - Library API
  - -all-nameservers mode
- ZGrab2 - L7 application scanner
  - Bring your own dialer
  - New Application modules



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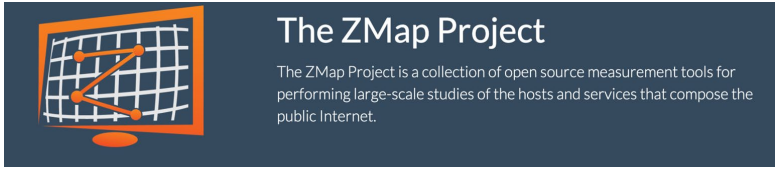
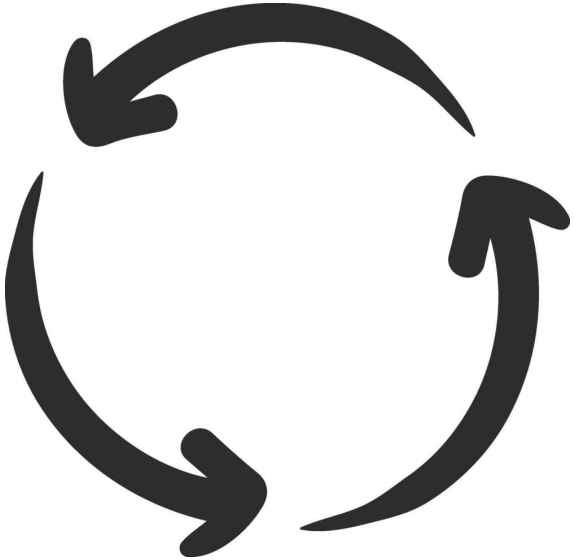
  - Pathways to Enable Open-Source Ecosystems - POSE
- User/Ecosystem Discovery
  - Users
  - Contributors
  - Maintainers
  - Successful Open-Source Projects
  - Commercial Users



Sustainability

- Open-Source “crowd sourced” development

- Commercial users contributing engineer hours / recurring monetary contributions
  - ZLint
  - Dual-licensing?
  - Industry affiliates program?



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What we've learned so far (n = 80)

- Things are working for people (broadly)
- Cross-tool Documentation
  - Using tools *together* to solve use cases
  - New website?
- ZMap
  - Inconsistent versioning across pkg managers + source
  - Performance tuning guidance
- ZGrab
  - Making HTTP module *just work* out-of-the-box


HETEMEEL.COM
I WANT YOU
TO TALK WITH ME ABOUT
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