Defense against Rapidly Morphing DDOS

[**Santana and Yakou botnet services**]

[*]> SPOT PRICE <[*]
spot: 10$ for 500 sec attacks and 60 sec cooldown
custom spot: if you need a specific attack duration or cooldown just hmu (the price will go up, dont be suprised)
offert: give us 1 server and you will get a free spot ! (120 sec attack and 300 sec cooldown)

[*]> SOURCE PRICE <[*]
10$ for build (must provide server)
25$ for source

[*]> BOTNET INFO <[*]
hitting more than 40gb (tested with a 40gb nfo) and power is still going up !

[*]> CONTACT <[*]
Santana#9421
or
yakou#2850 (always on)

[*]> PAYMENT METHODS (USD only) <[*]
- PayPal
- Bitcoin

[*]> NOTE: BE READY WITH THE MONEY, YOU CAN ASK QUESTION BUT DONT BE TOXIC <[*]

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--OTHER SERVICES (CONTACT YAKOU FOR THIS, MY DISCORD IS yakou#2850)--
qbot setup = $3 (you must provide the source)
mirai setup = $6 (you must provide the source)
zmap setup = $4 (its ok i already have the files)
(MUST PROVIDE SERVER (2CPU AND 4GB))

COMING: i will sell digital ocean accounts with 100$ credit on them
COMING: might sell some vps for 2cpu and 4gb for 2$ (digital ocean)

DOS Busters

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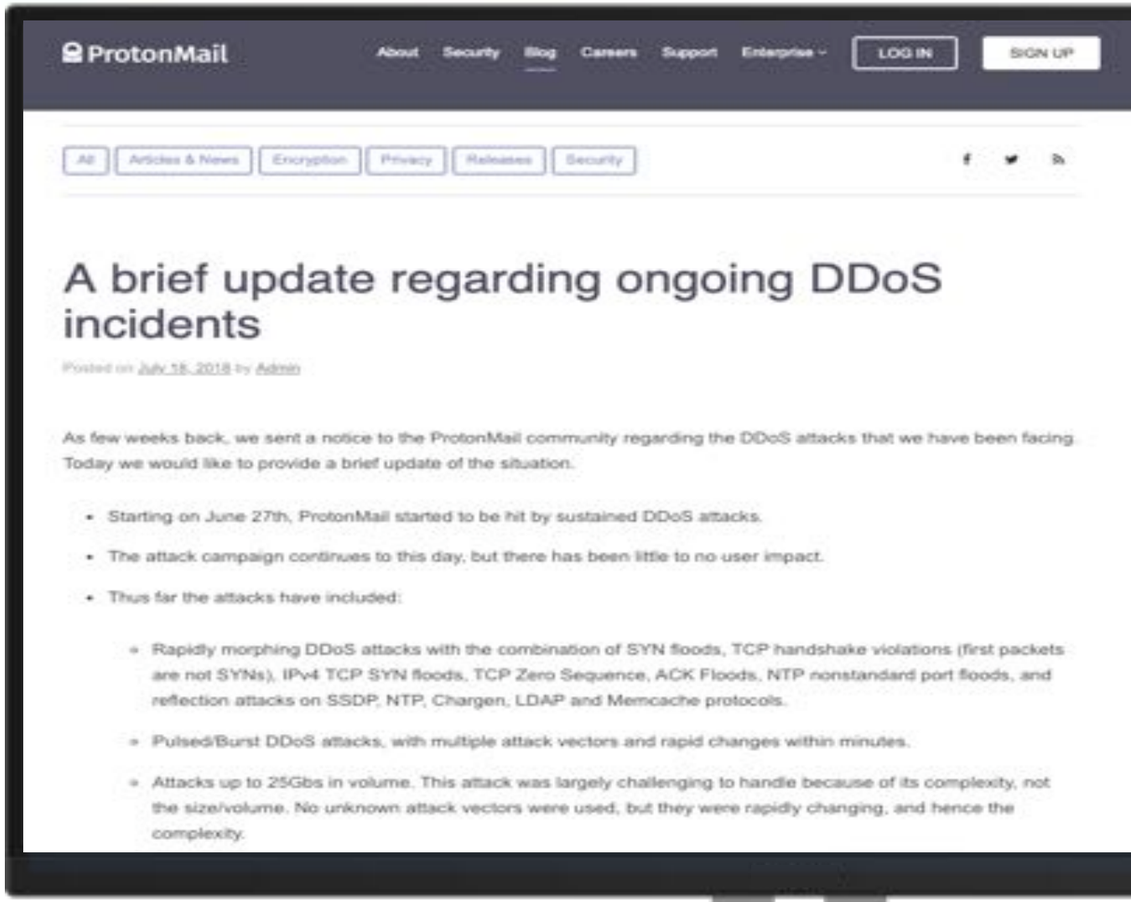
Model T-1000

A mimetic poly-alloy. Liquid metal.

Rapidly morphing…

…multiple attack vectors…

…changes within minutes.

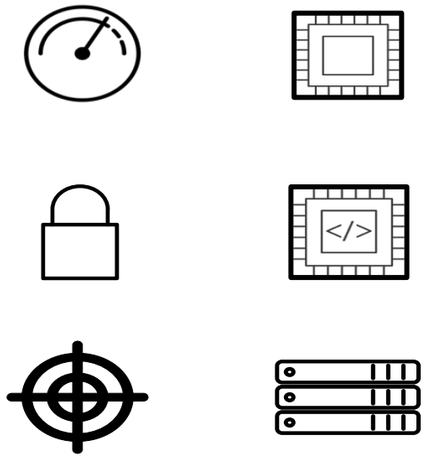


SODA: Simulation of Dos Attacks

Multi-Vector

Scales

Morphs

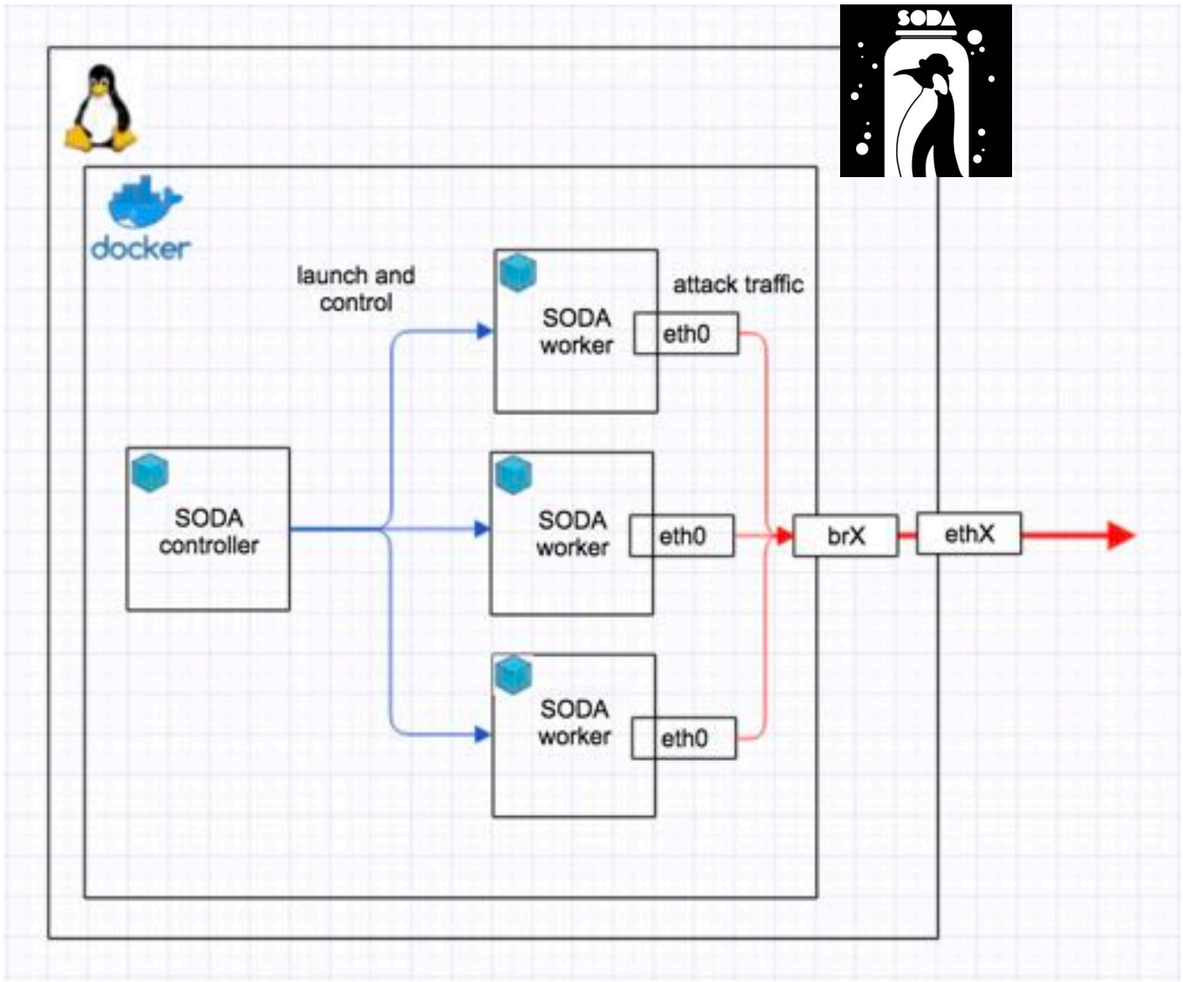


hping

THE APACHE SOFTWARE FOUNDATION

SODA for Red Team

SODA



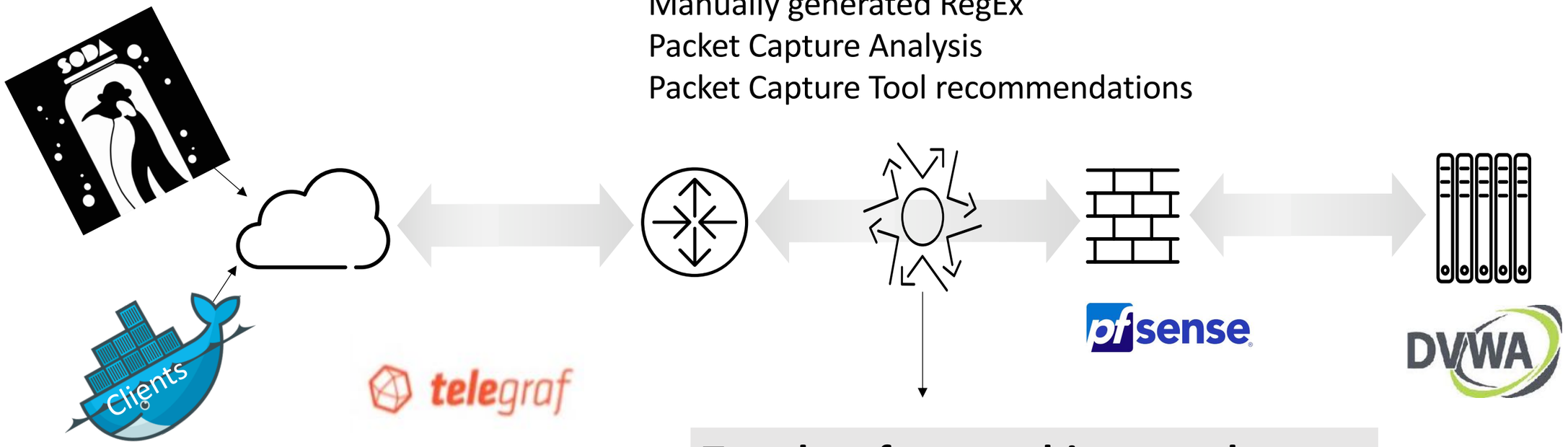
TARGET

L7 attacks on
'OPEN' ports
Stateful Attacks
Valid Sources of BOTs

L3/L4 Floods
FW busy 'DENYing'
Stateless Attacks
Random Sources

Tools for Blue Team

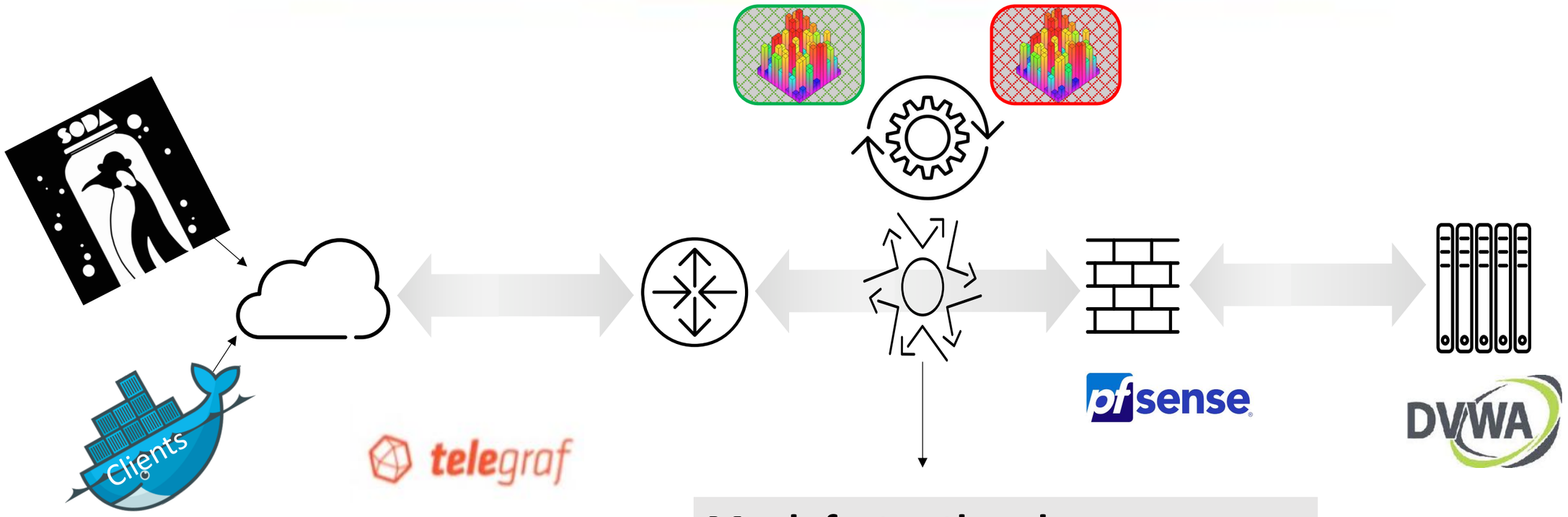
Static Vectors
Manually generated RegEx
Packet Capture Analysis
Packet Capture Tool recommendations



Too slow for morphing attacks

False Positives

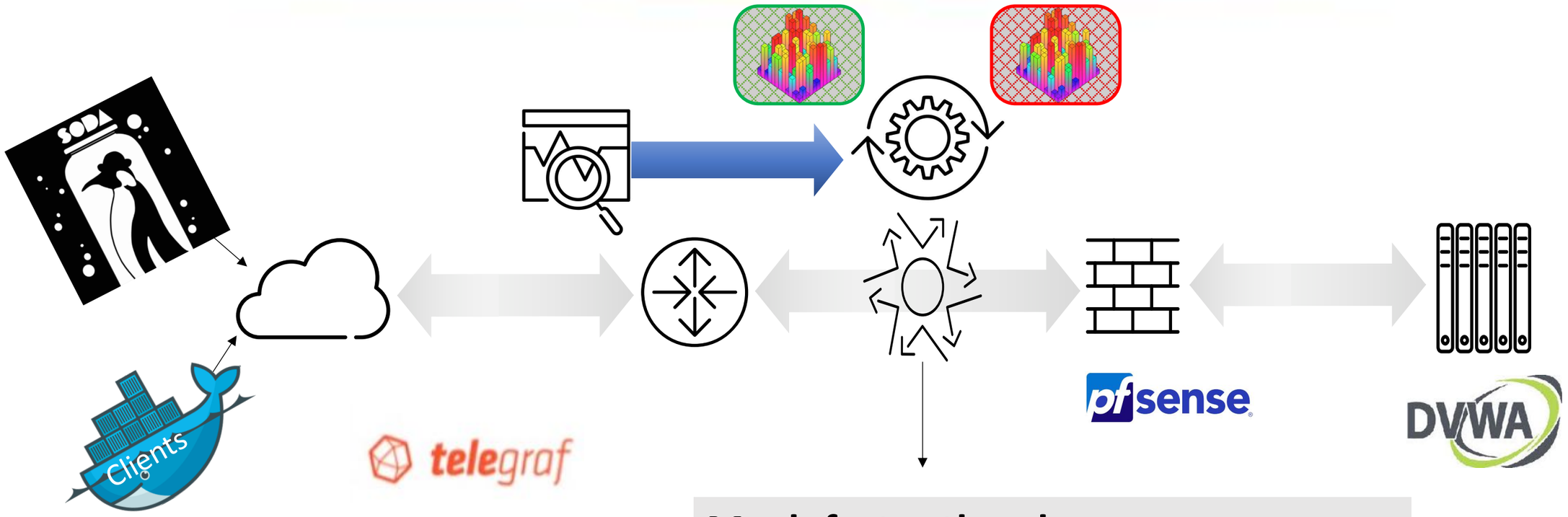
Tools for Blue Team



Much faster than human

False Positives

Tools for Blue Team

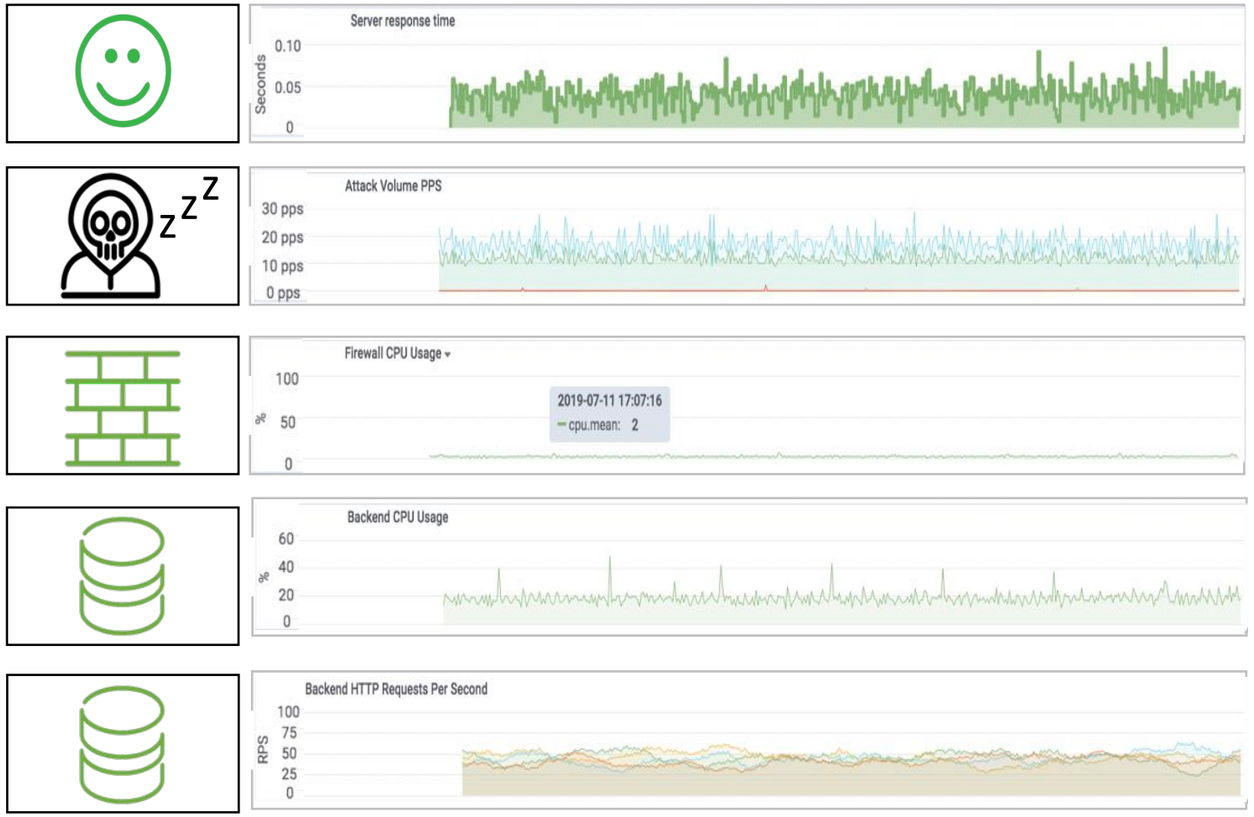


Much faster than human

Low False Positives

Mitigate only with proof of harm

SODA Sleeping



User Latency

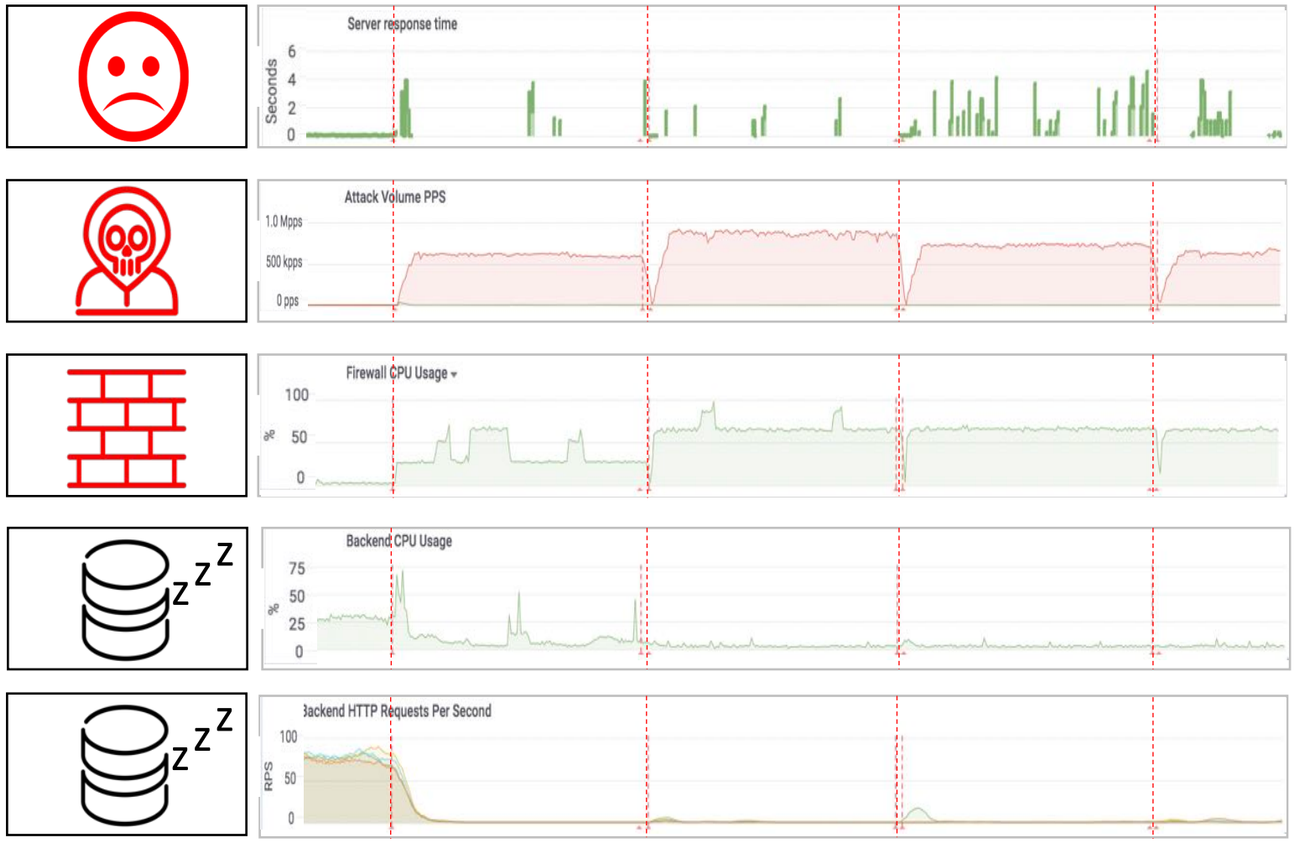
Attacker Traffic Volume

Firewall CPU Load

Backend CPU Load

Completed HTTP Requests

SODA sends morphing L3/L4 attacks



User Latency

Attacker Traffic Volume

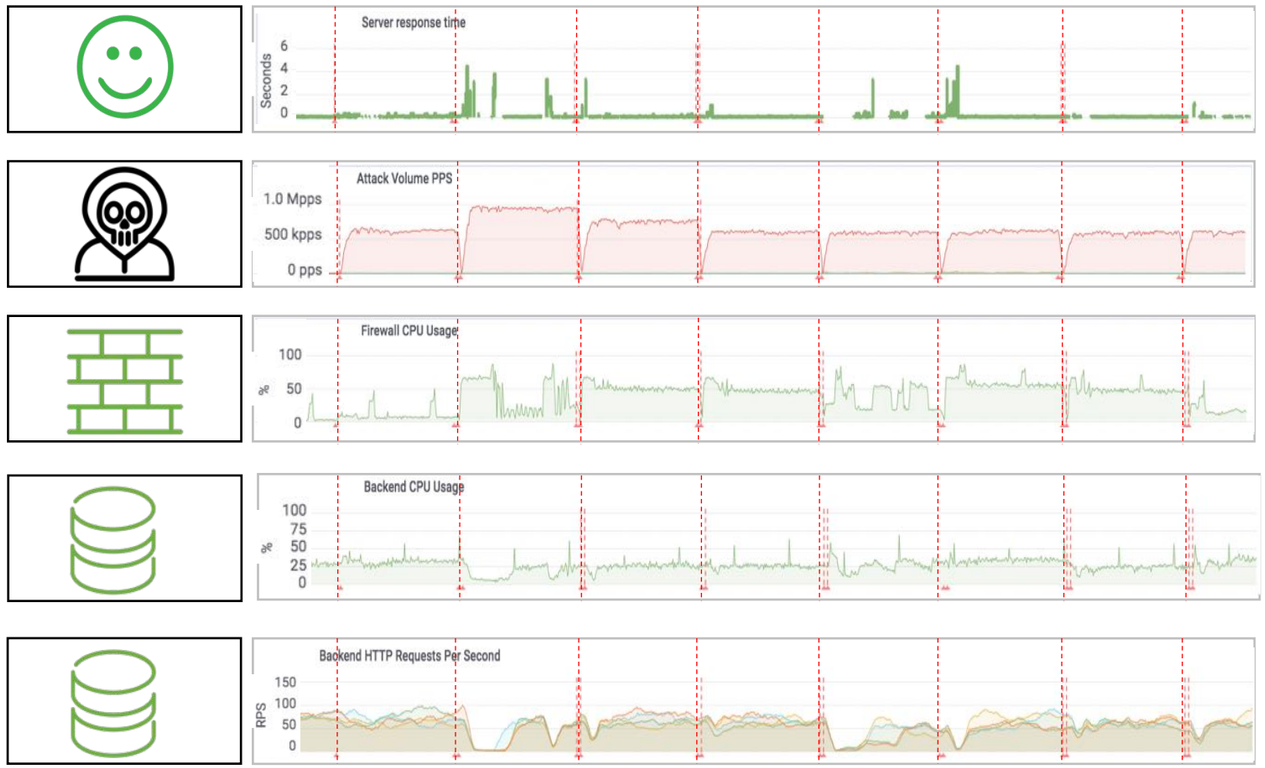
Firewall CPU Load

Backend CPU Load

Completed HTTP Requests

"…network layer floods kill infrastructure…"

ML defends using L3/L4 Predicates



User Latency

Attacker Traffic Volume

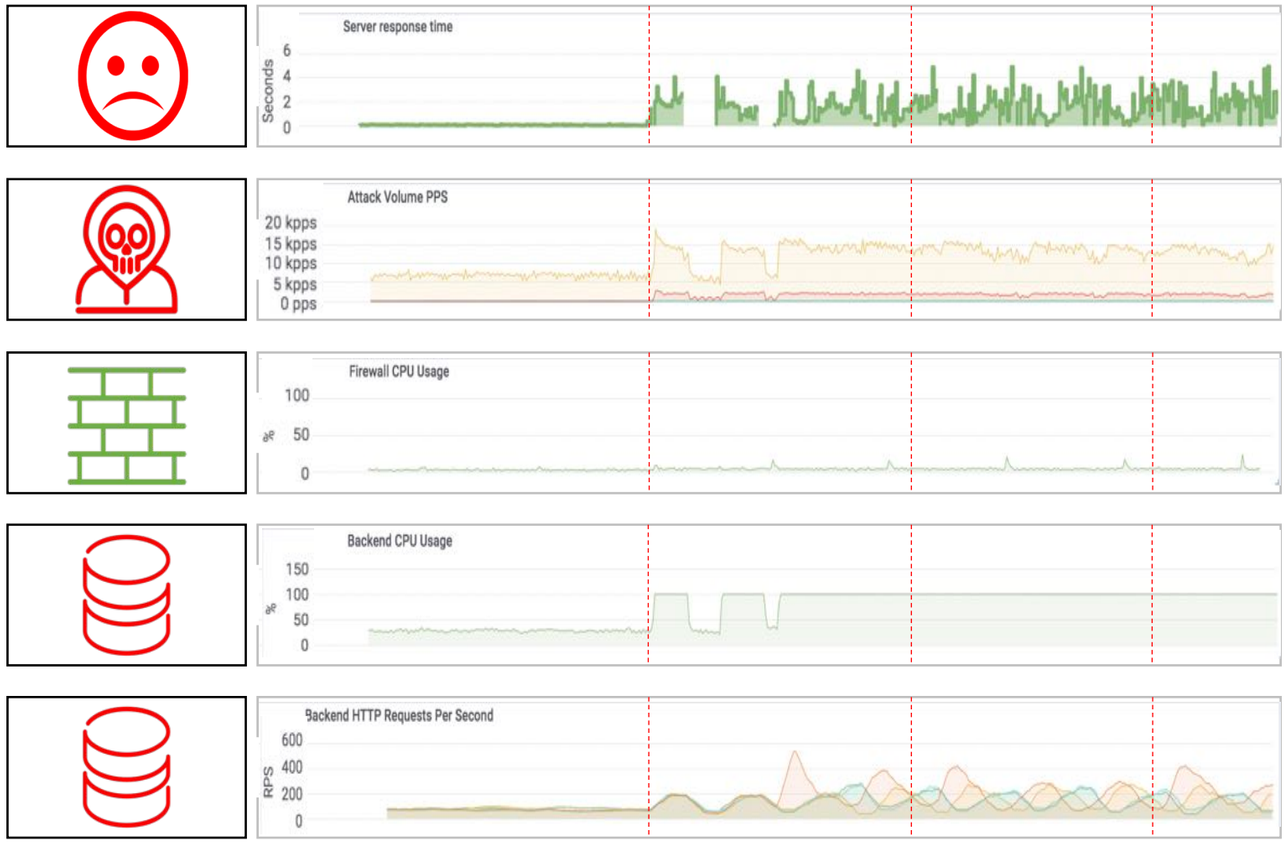
Firewall CPU Load

Backend CPU Load

Completed HTTP Requests

"... ML takes only few seconds to prevent network floods…"

SODA sends morphing L7 attacks



User Latency

Attacker Traffic Volume

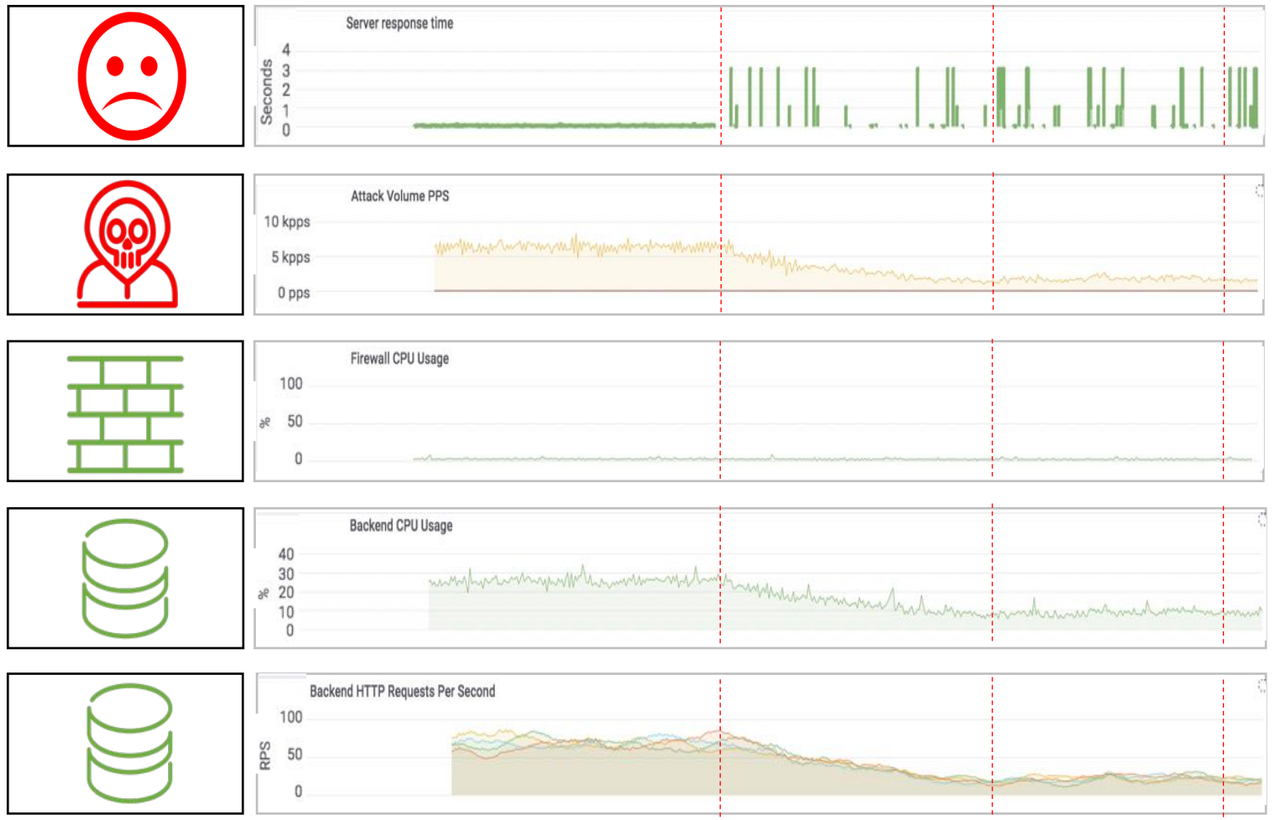
Firewall CPU Load

Backend CPU Load

Completed HTTP Requests

"…app floods kill backends directly…"

ML defends using L3/L4 Predicates



User Latency

Attacker Traffic Volume

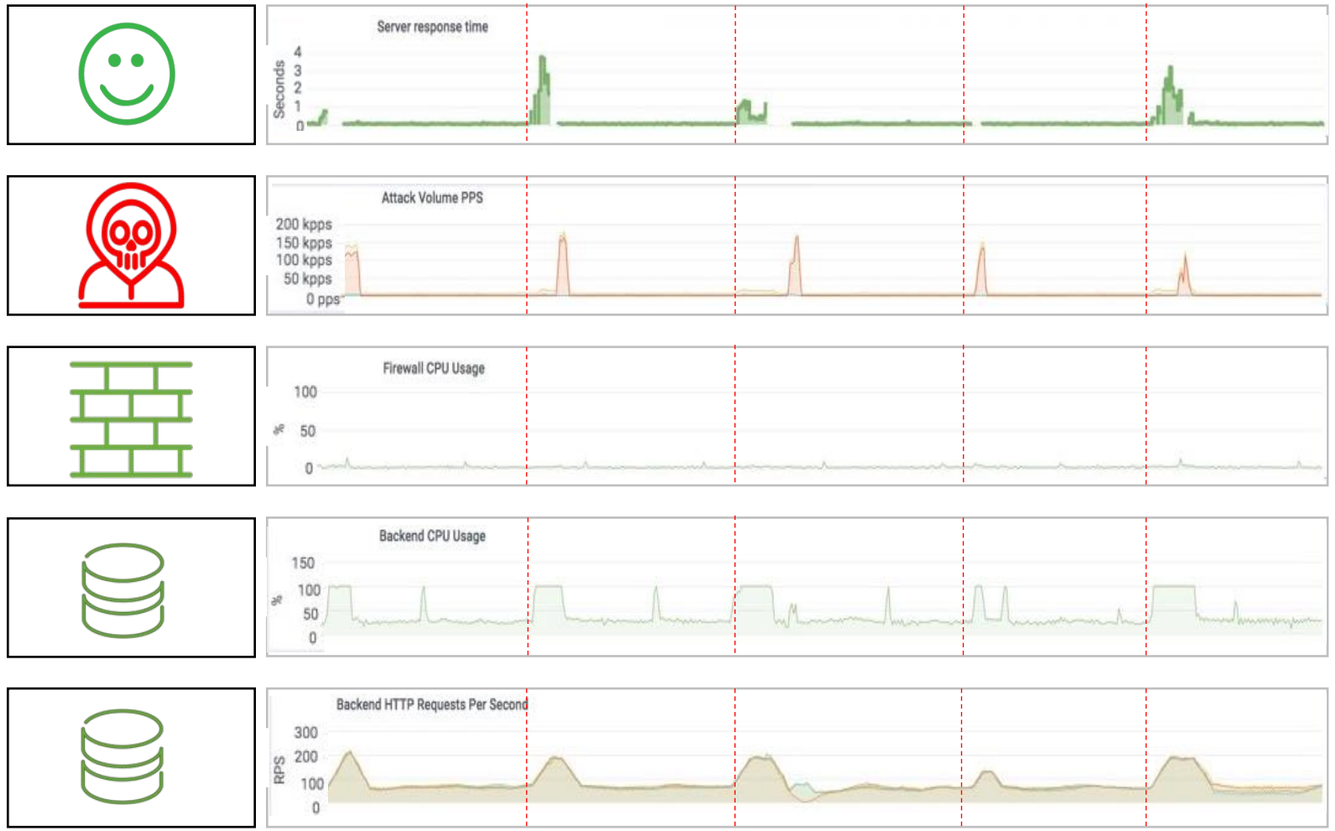
Firewall CPU Load

Backend CPU Load

Completed HTTP Requests

"…L3/4 Signatures are too wide for app level attacks…"

ML defends using L7 Predicates



User Latency

Attacker Traffic Volume

Firewall CPU Load

Backend CPU Load

Completed HTTP Requests

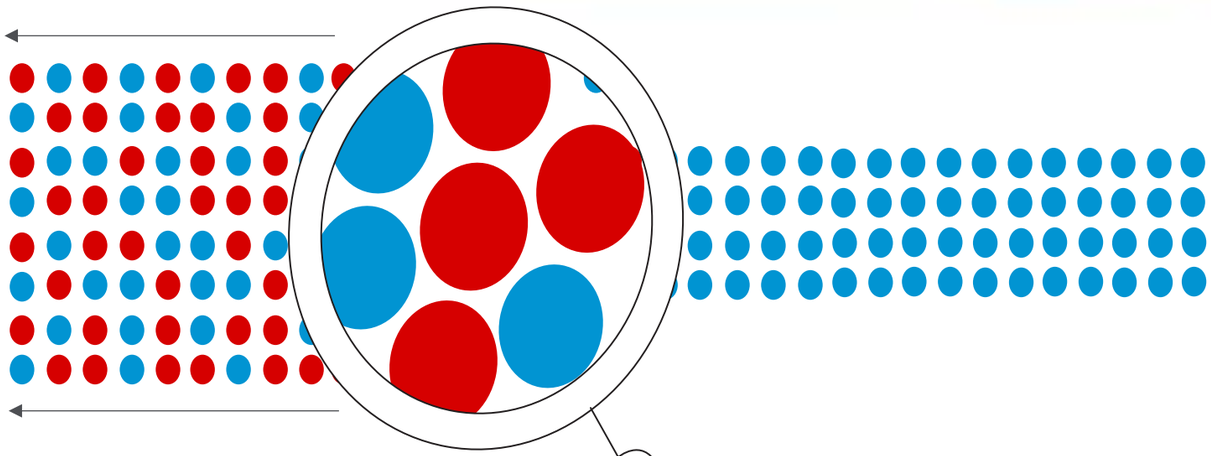
"…ML takes only few seconds to prevent app level attacks…"

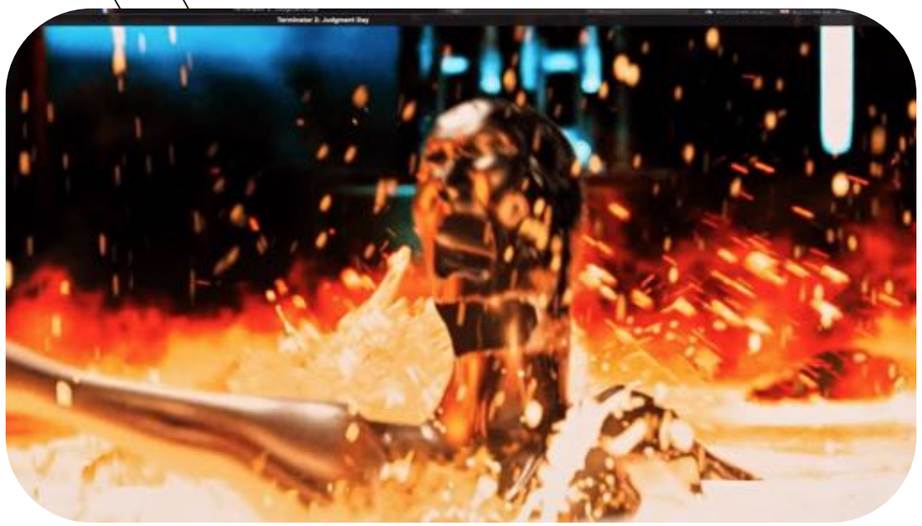
Key Findings

If you can beat SODA, you are doing well!

- Must check DOS posture using morphing attacks
- Layers 3/4 signatures are too broad for L7 attacks
- Anomaly detection mechanism needs supervision

Intelligent Mitigation





1. Tell the clients to slow down
2. Use Dynamic Signatures
3. Human vs. BOT
4. Drop the slow connections
5. Drop sessions with heavy URL
6. Rate limit most active source IP
7. Rate limit heavily used URI
8. Rate limit based on CPS/TPS/BW

Thank You

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Questions?

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Contribute to SODA here: https://github.com/464d41/soda

Mikhail Fedorov

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Mikhail Fedorov is a security expert focused on researching DDoS attacks and effectiveness of available detection and mitigation techniques. In his previous project, Mikhail worked on crafting tools to perform penetration testing for evaluating WAF technologies. He has a masters in Physics and a Bachelors in Information Technology, from Tomsk State University, and also has CCDA, CCNP, and CCNP Security certifications. Prior to working at F5, Mikhail designed and implemented secure application infrastructure as a consultant at Depo Electronics, a system integrator in Russia.

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Mudit Tyagi is a Strategic Architect with the F5 Product Management team. He has 20 years of experience in Software Engineering and System Architecture design for delivery of secure applications for Financial and HealthCare services. In his current role at F5, Mudit advises CIOs and Enterprise Architects in the use of Cloud and Open Source Technologies, emerging trends such as Software Defined Networking, and modern API based application architectures utilizing microservices. He works with CISOs to evaluate strategies for delivering secure applications. Prior to F5, Mudit was the Founder and CEO of Confiserve, a secure application development firm focused on Financial Services and HealthCare. Mudit was also an early employee at various Networking and Security startup companies including Rapid City(BayNetworks), Nevis Networks(Qualys), Damballa Networks(Core Security), Inkra Networks(Cisco). He has Bachelor's degrees in Physics and Electrical Engineering from Columbia University and a Masters in Computer Engineering from University of New Mexico.