

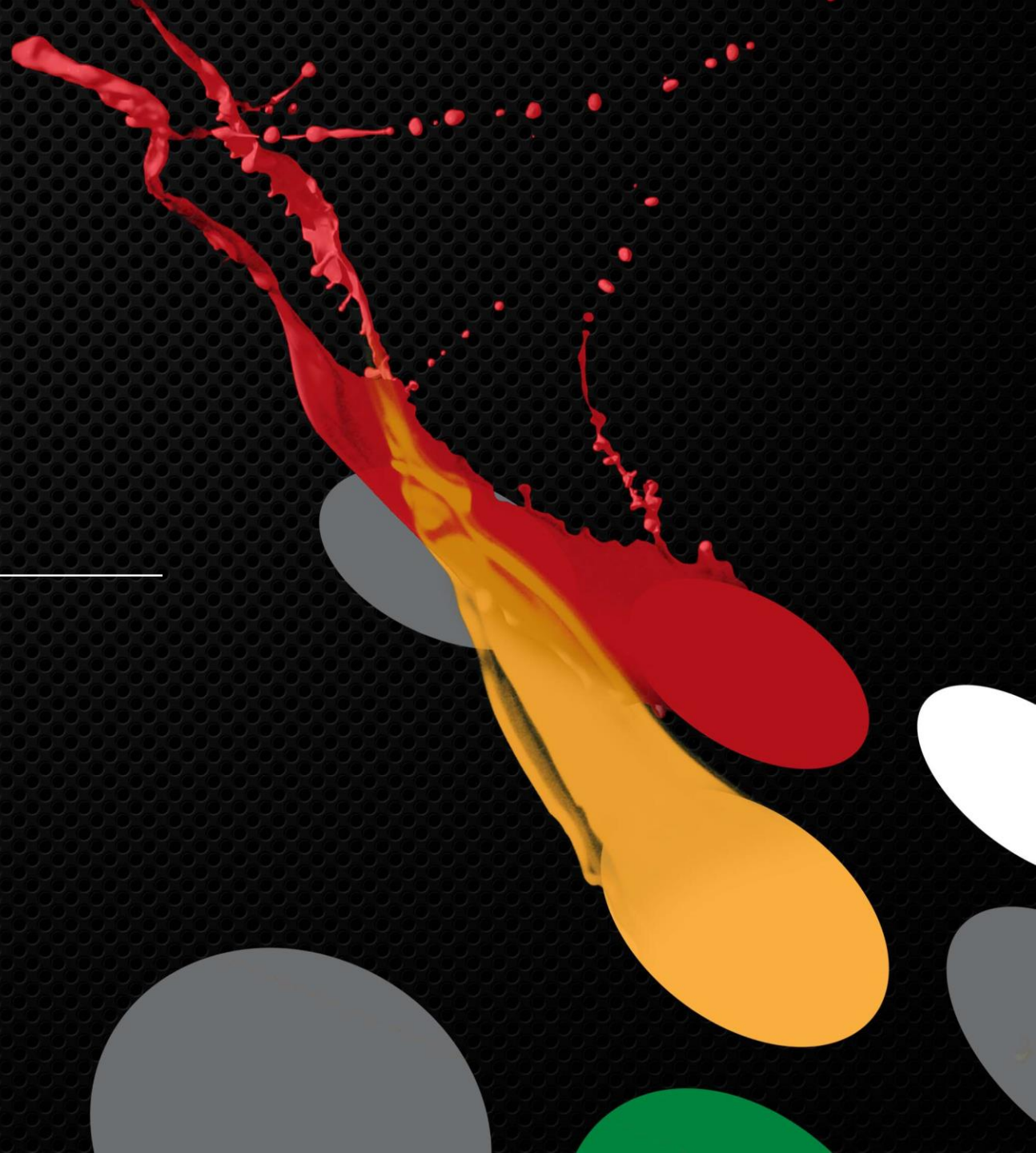


## NGSec 2017

---

**Marek Karczewski**

Radware



## Cyber Attacks

An abstract graphic on a black background. It features a central splash of red and yellow liquid that extends upwards and to the right. To the right of the splash are several overlapping, semi-transparent ovals in white, light gray, dark gray, yellow, and green.

## Sales Tools

- Resource Map
- Products
- Solutions
- Cloud Services
- Cross Sell
- Applications
- Promotions

### Latest in Sales Tools



#### Radware Cloud Security Services - Sales Presentation

21 February, 2017  
No description available

[Download](#)



#### Radware Cloud DDoS Protection Services - Service Description

20 February, 2017  
No description available

[Download](#)



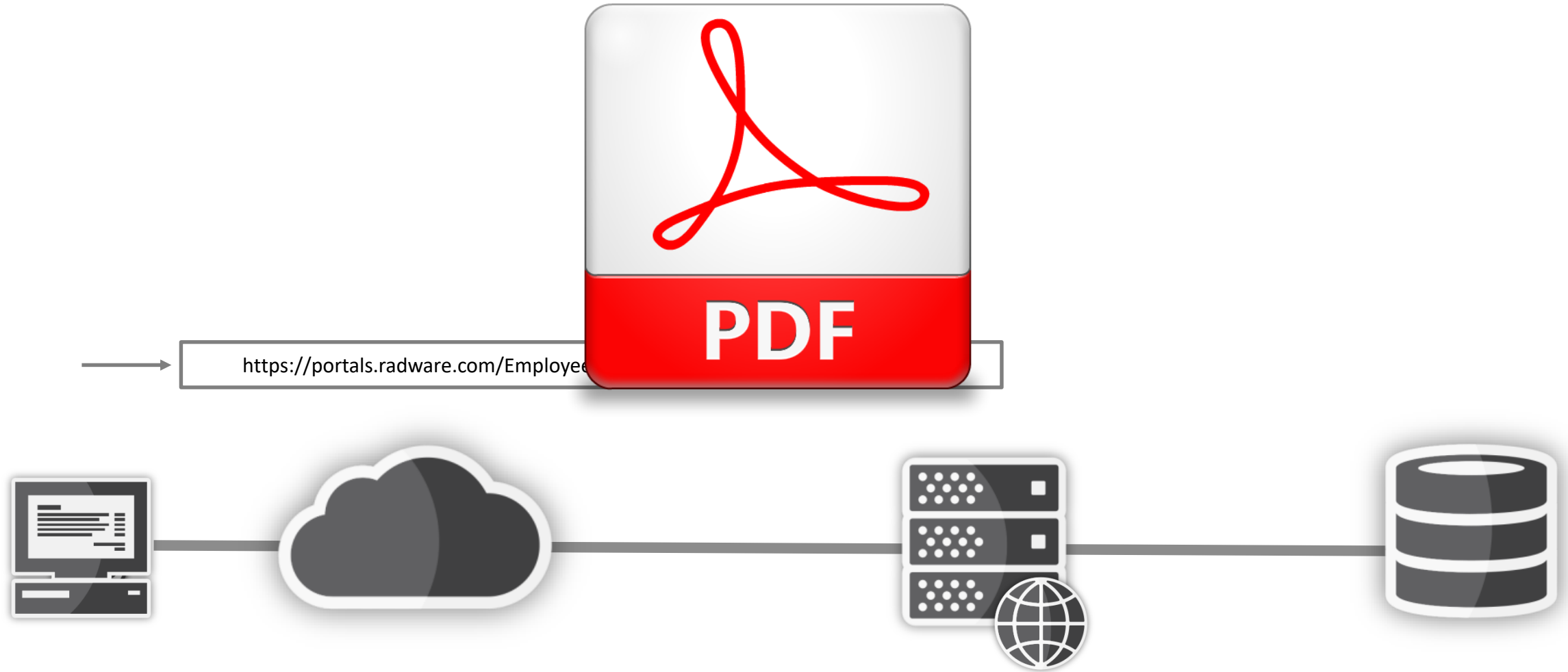
#### Security Solutions for Cloud Providers Presentation

### Corporate Resources

If you are after the corporate presentation, an RFP template or the archive of the Radware insider newsletter – look no further. The corporate Resources page combines the content developed for you by corporate marketing

- [RFI/RFP Response Tools & Templates](#)
- [FastView Sales Portal](#)
- [Radware Corporate Data Sheet 2016 v2](#)
- [Radware Departments Organization Chart](#)
- [Radware Solutions Toolkit](#)
- [Radware Enterprise Introduction Letter](#)
- [Radware Intro for Enterprise](#)
- [Product Shipping Cover Page](#)

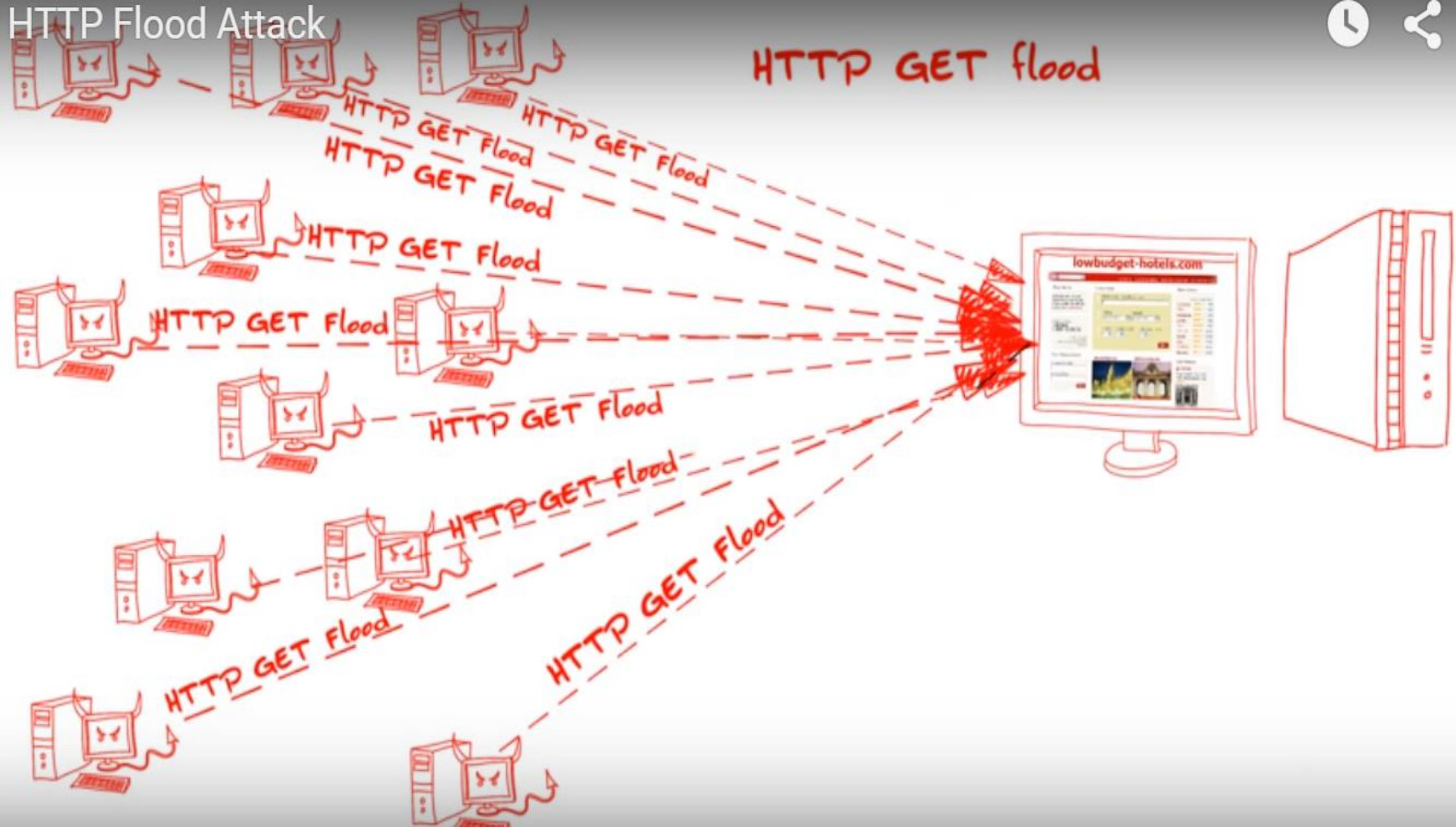
# HTTP „GET” Flood Attack



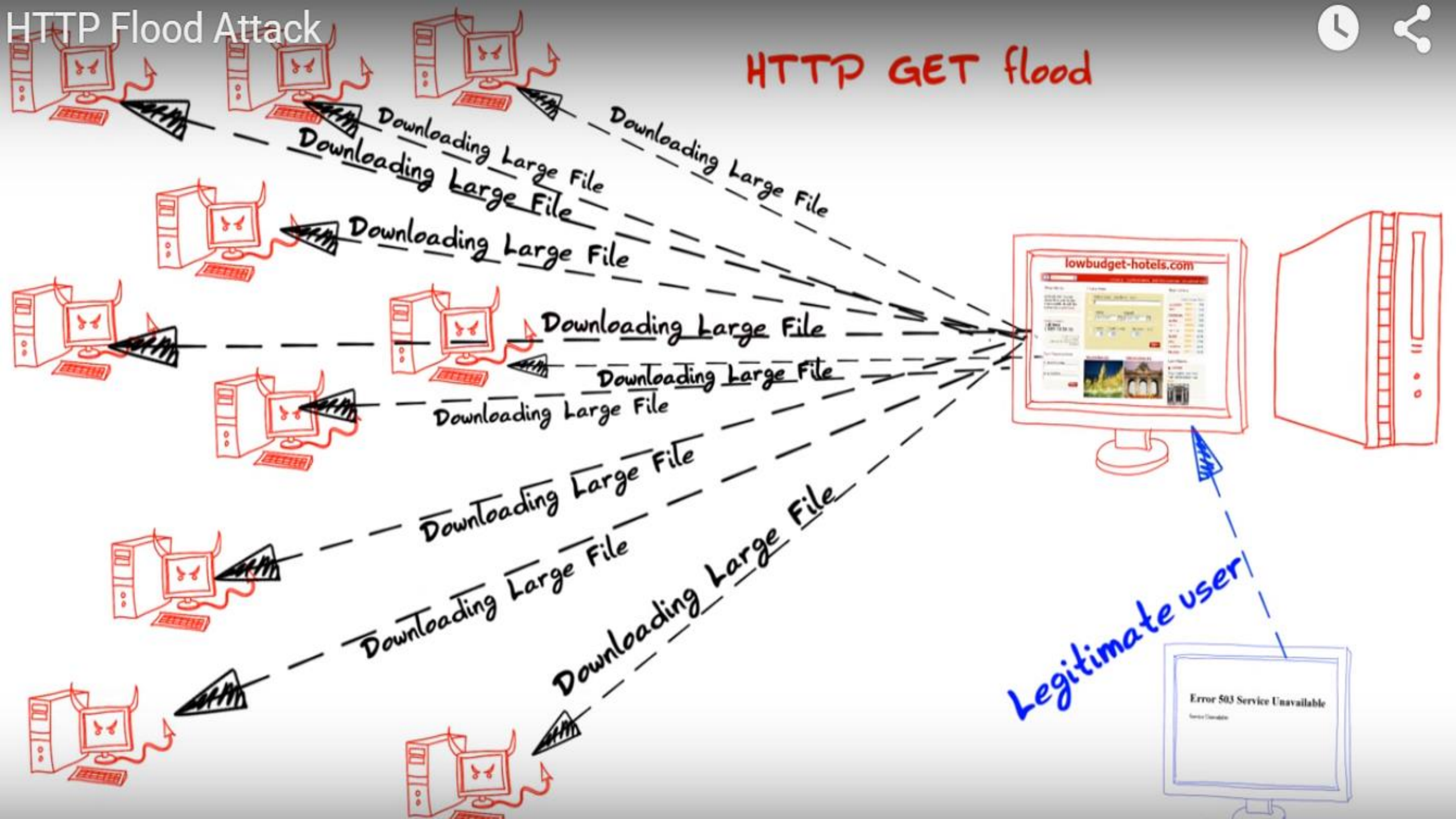
# HTTP Flood Attack



## HTTP GET flood



## HTTP GET flood



## Find a Radware Employee

People Search



Marek Karczewski

Find

## Radware Products

Product Search



Enter MAC, SN or Customer Name

Find

## Latest Documents



Alteon REST API Guide version 31.0.0.0

Feb 21, 2017



Alteon Application Switch and VMware Horzion 7.0 Integration Guide

Feb 20, 2017

## Employee News



The New  
Operator Toolbox  
Community

**Announcing the New  
Operator Toolbox  
Community**

Come on in and see  
what's new in the  
first ever Radware's  
Operator Toolbox  
Community



**Radware Blog gets a  
makeover!**

Check out our new  
user-friendly design



**Alteon NG Go-To-  
Market Online  
Course**

Announcing the  
new e-learning  
course for Radware's  
Application Delivery  
(ADC) solution!

## Human Resources

HR Training

CoffeeTech

Onboarding

HR Documentation

Search Employee 

### Search Employee

1 Results found

Search Employees

Search 

**Marek Karczewski**



**ID:** 33806

**T:**

**E:** marekk@radware.com

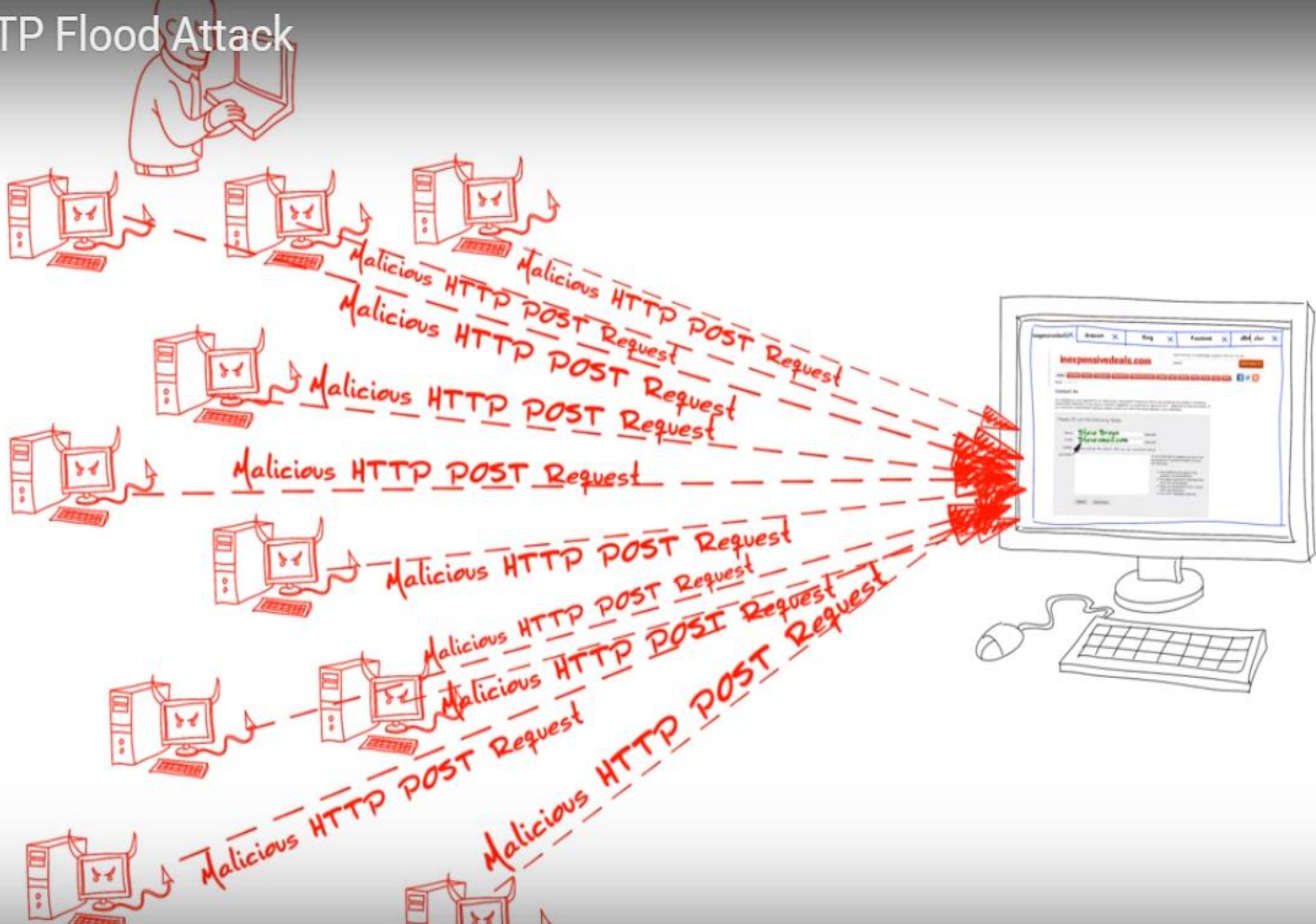
**P:** +972 723917977

**M:** +48 601080454

**IP:**



# HTTP Flood Attack



## Find a Radware Employee

### People Search



' OR 'a'='a

Find

## Radware Products

### Product Search



Enter MAC, SN or Customer Name

Find

### Latest Documents



Alteon REST API Guide version 31.0.0.0

Feb 21, 2017



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Application Delivery  
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# SQL Injection Attack

```
SELECT * FROM `CreditCardNumbers` WHERE `user`="" OR 'a'='a' AND `pass`="" OR 'a'='a'
```

```
SELECT * FROM `login` WHERE `user`=""; INSERT INTO `login` ('user','pass') VALUES (,'John',,'Doe');--' AND `pass`=""
```

```
SELECT * FROM `login` WHERE `user`=""; UPDATE `login` SET `pass`='pass123' WHERE `user`='Marek';--' AND `pass`=""
```

IP:

IP:

IP:



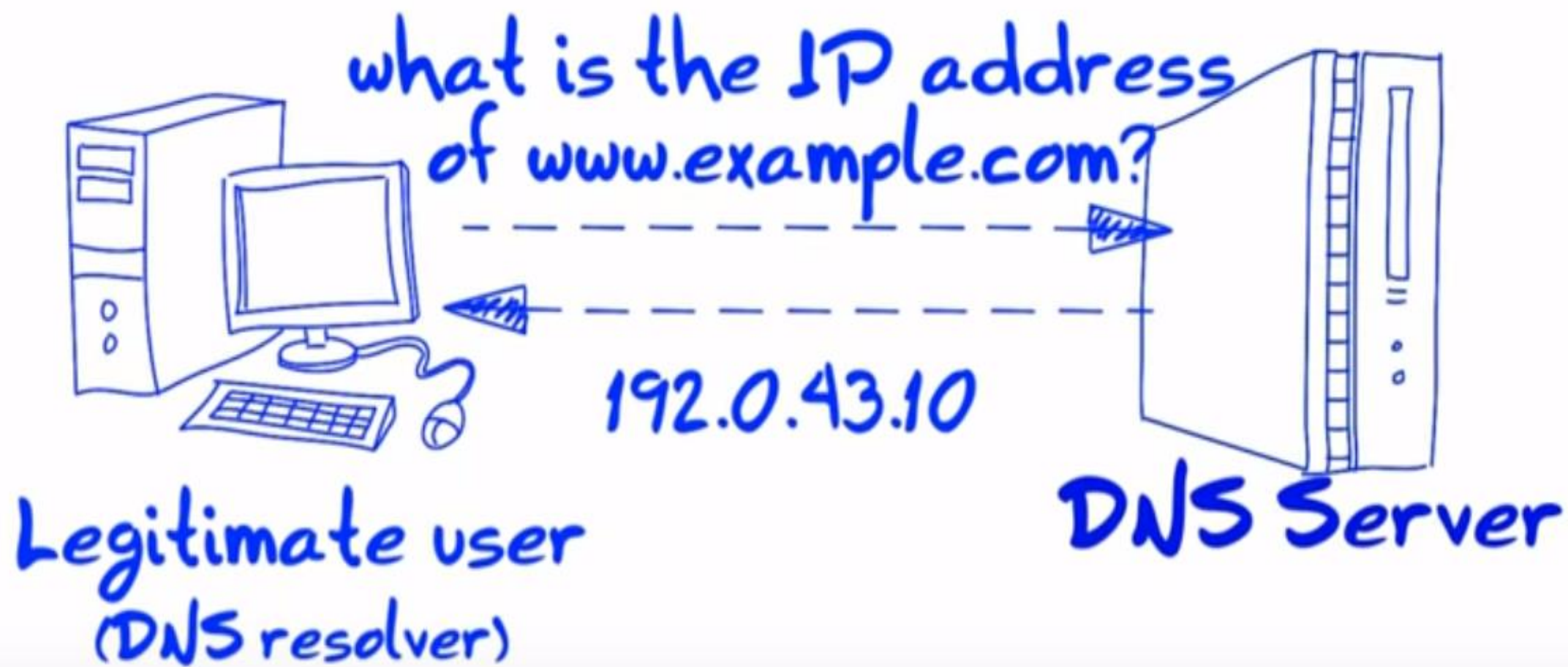
## Unauthorized Activity Has Been Detected

WAF

You are seeing this page because we have detected unauthorized activity. If you believe that there has been some mistake, please email our web site security team at:

[CloudWebSec@radware.com](mailto:CloudWebSec@radware.com) with the following case number in its subject: 1991594040.

Case Number: 1991594040



# DNS Amplification Attack

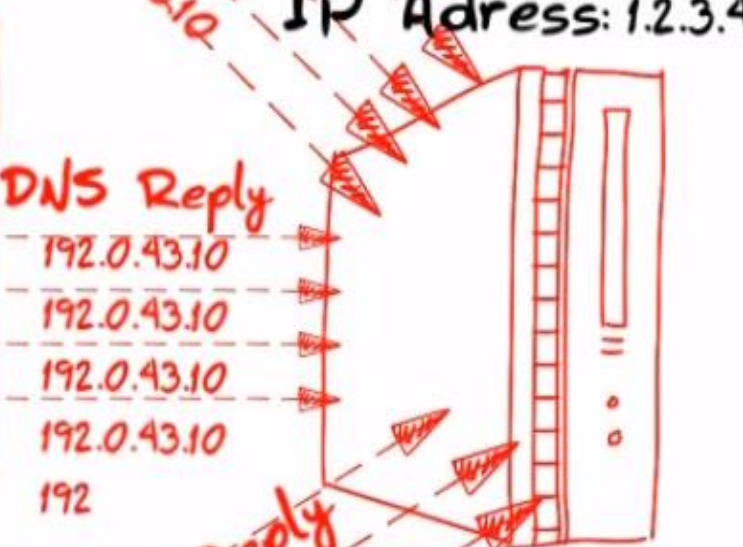
DNS Query to get all records for example.com with spoofed source IP:

Source IP = 1.2.3.4



DNS Query to get all records for example.com with spoofed source IP:

Source IP = 1.2.3.4

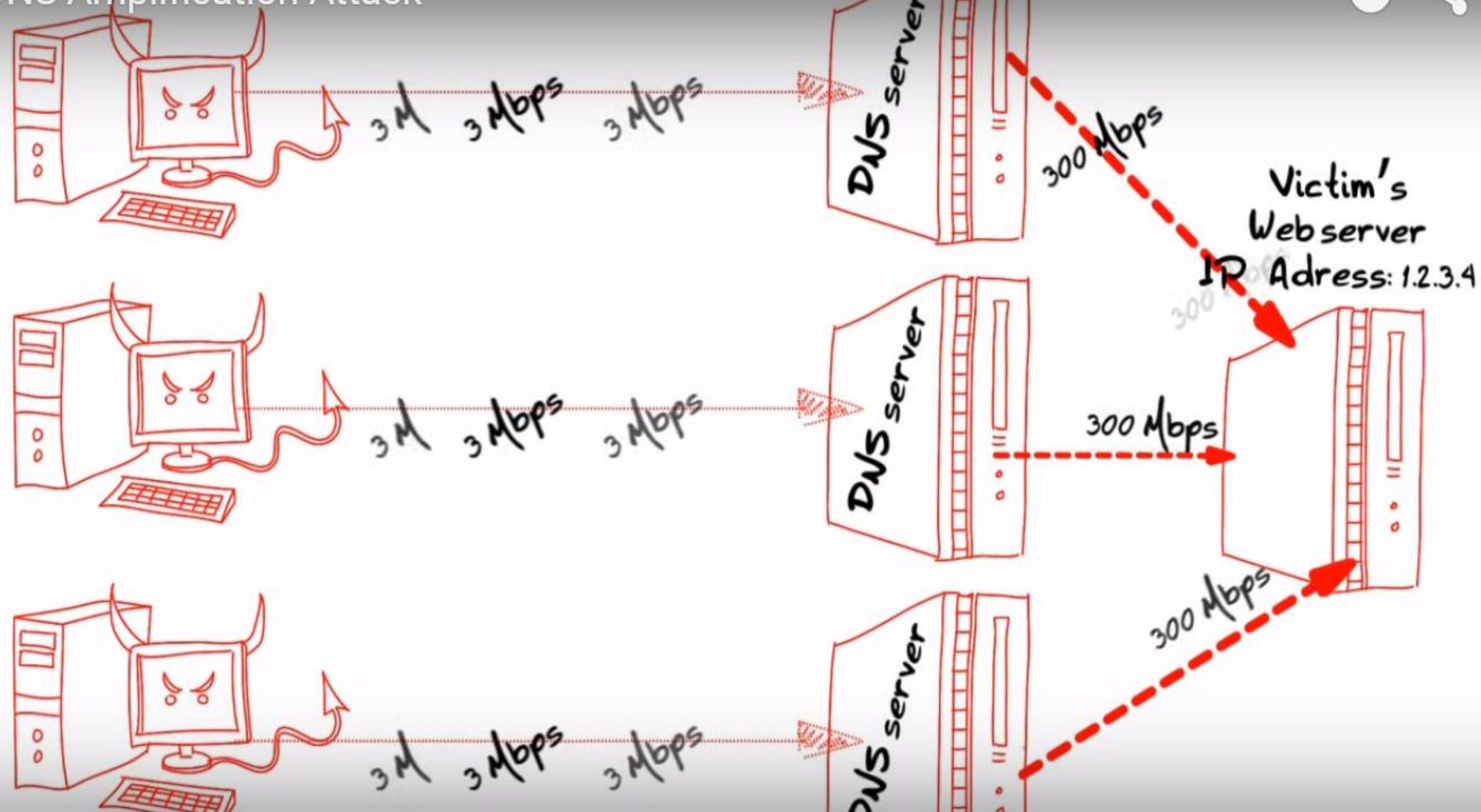


DNS Query to get all records for example.com with spoofed source IP:

Source IP = 1.2.3.4



# DNS Amplification Attack



# R-U-Dead-Yet, RUDY DDoS Attack Tool

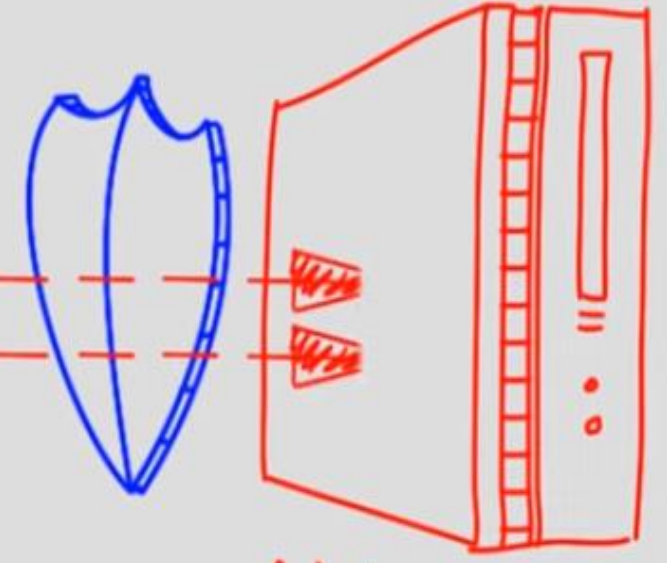


It generates a slow rate  
and low volume of traffic



Attacker  
(using the RUDY tool)

Rudy  
Low & Slow



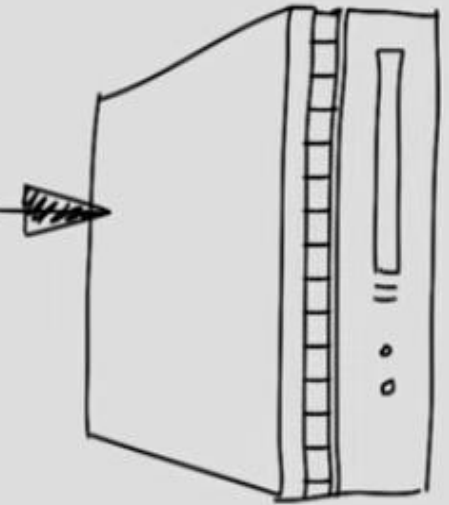
Web server  
under attack



# R-U-Dead-Yet, RUDY DDoS Attack Tool



HTTP POST Request  
Name, Email, Subject ...



Web server

Legitimate user  
browse the website



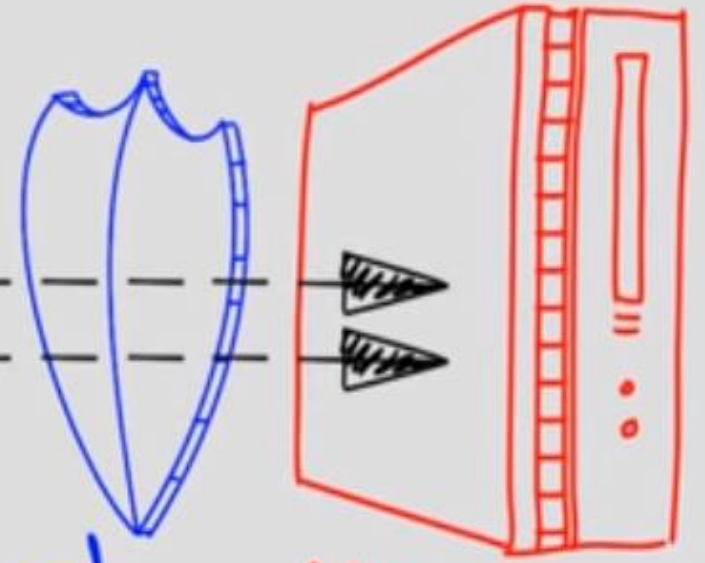
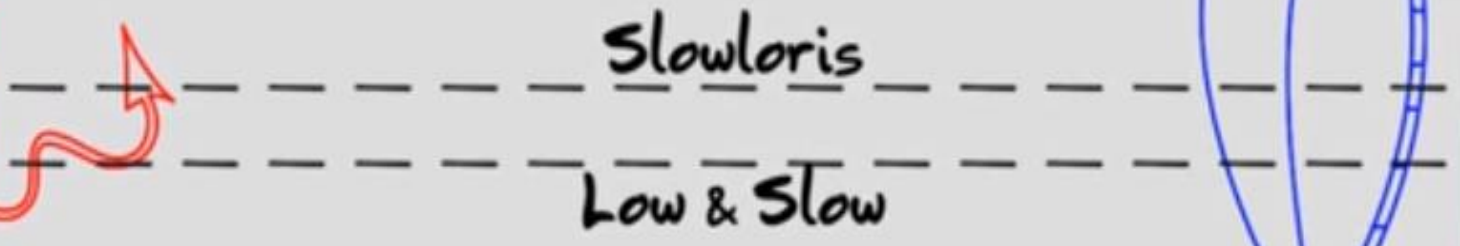
# Slowloris DDoS Attack Defense Tool



Slowloris



**Attacker**  
(using the Slowloris tool)



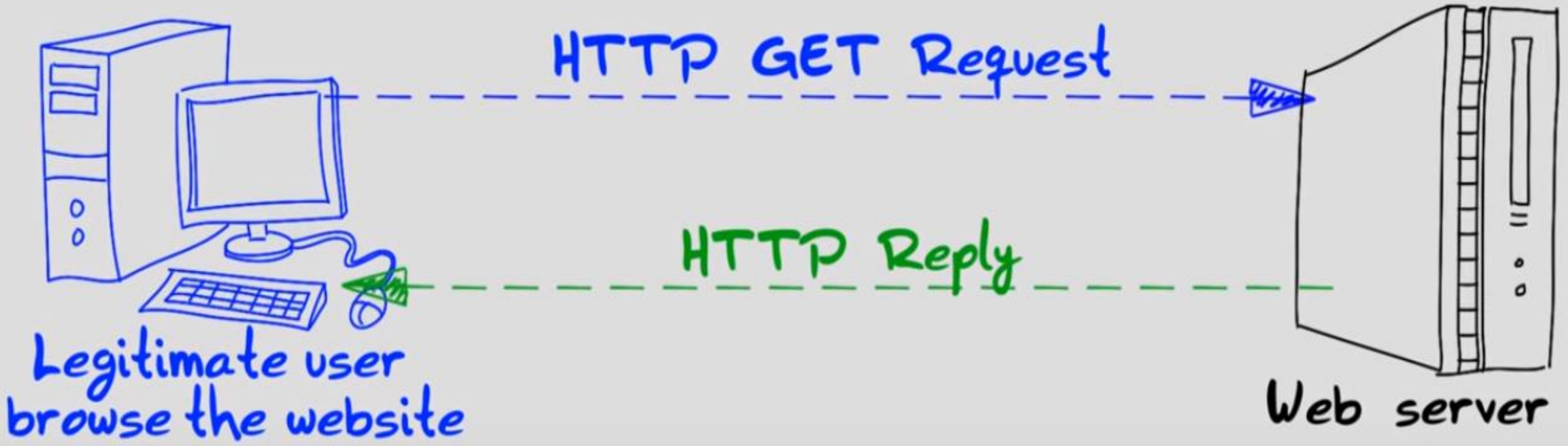
**Web server**  
under attack

difficult to detect by anti-DDoS mitigation standard systems

# Slowloris DDoS Attack Defense Tool



Slowloris



# Slowloris DDoS Attack Defense Tool

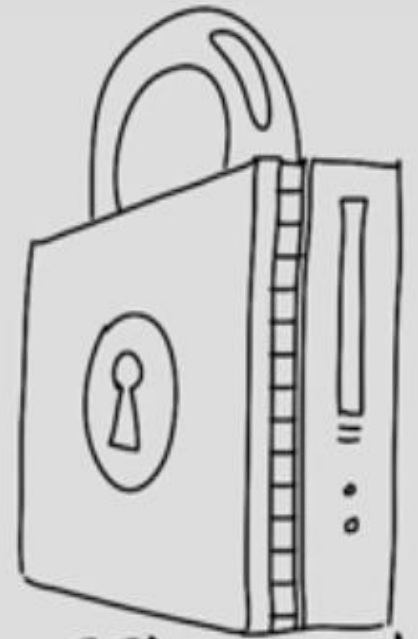


The SSL protocol is used to secure connections and transactions over the Internet

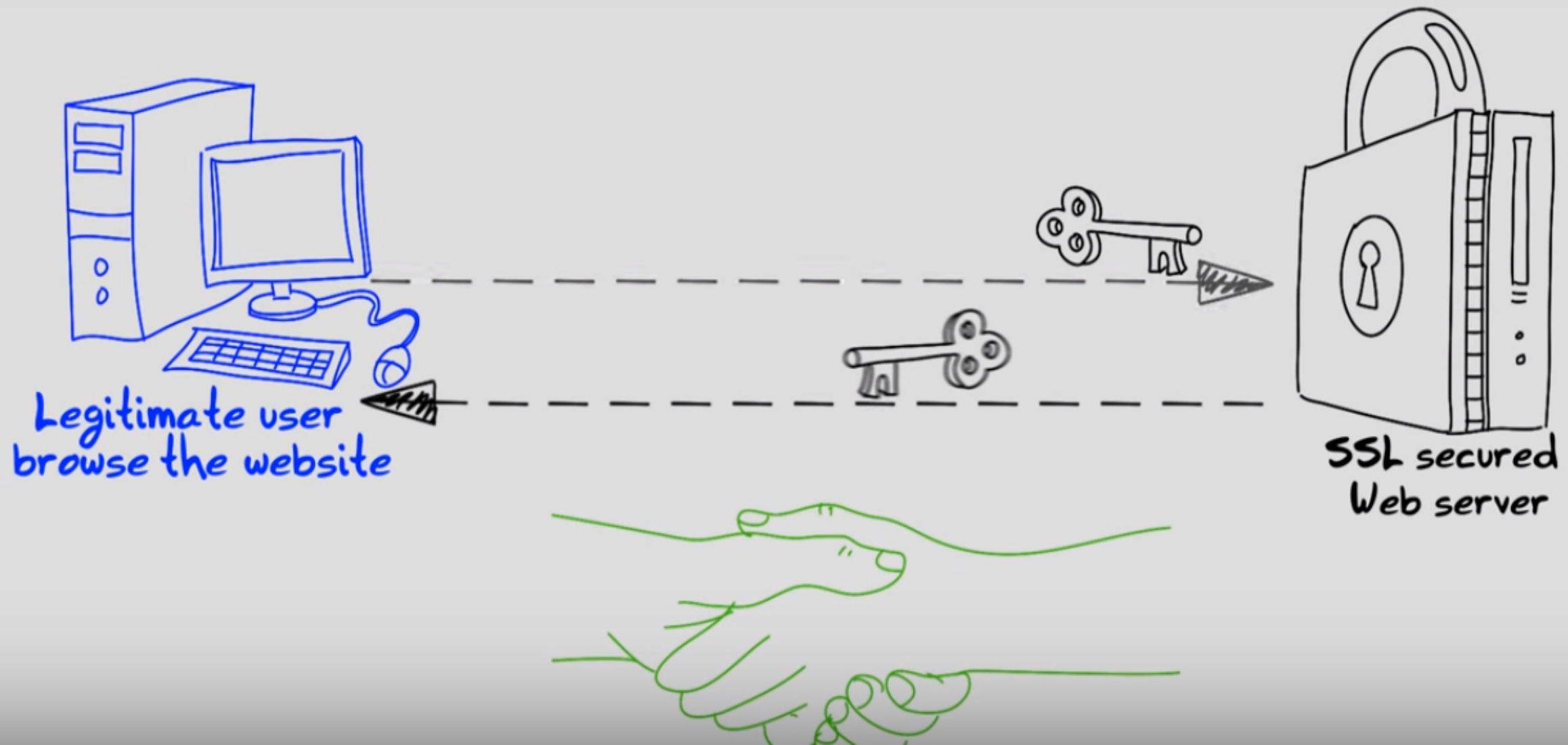


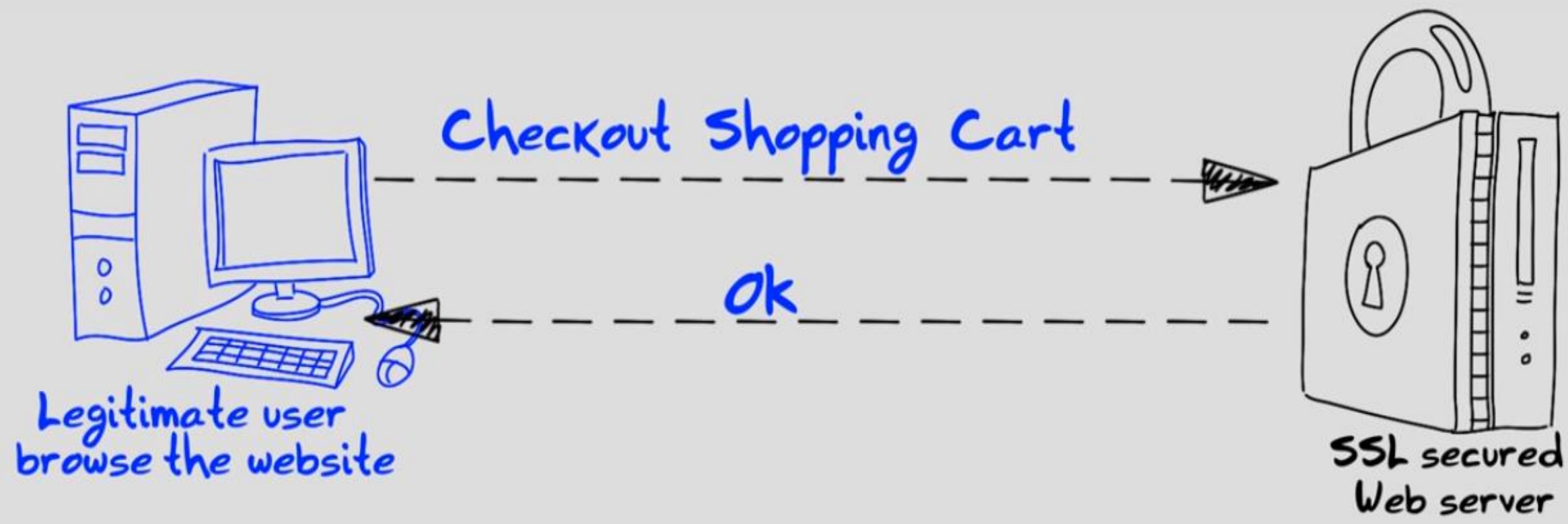
Legitimate user  
browse the website

- online financial transactions
- web email
- social networks

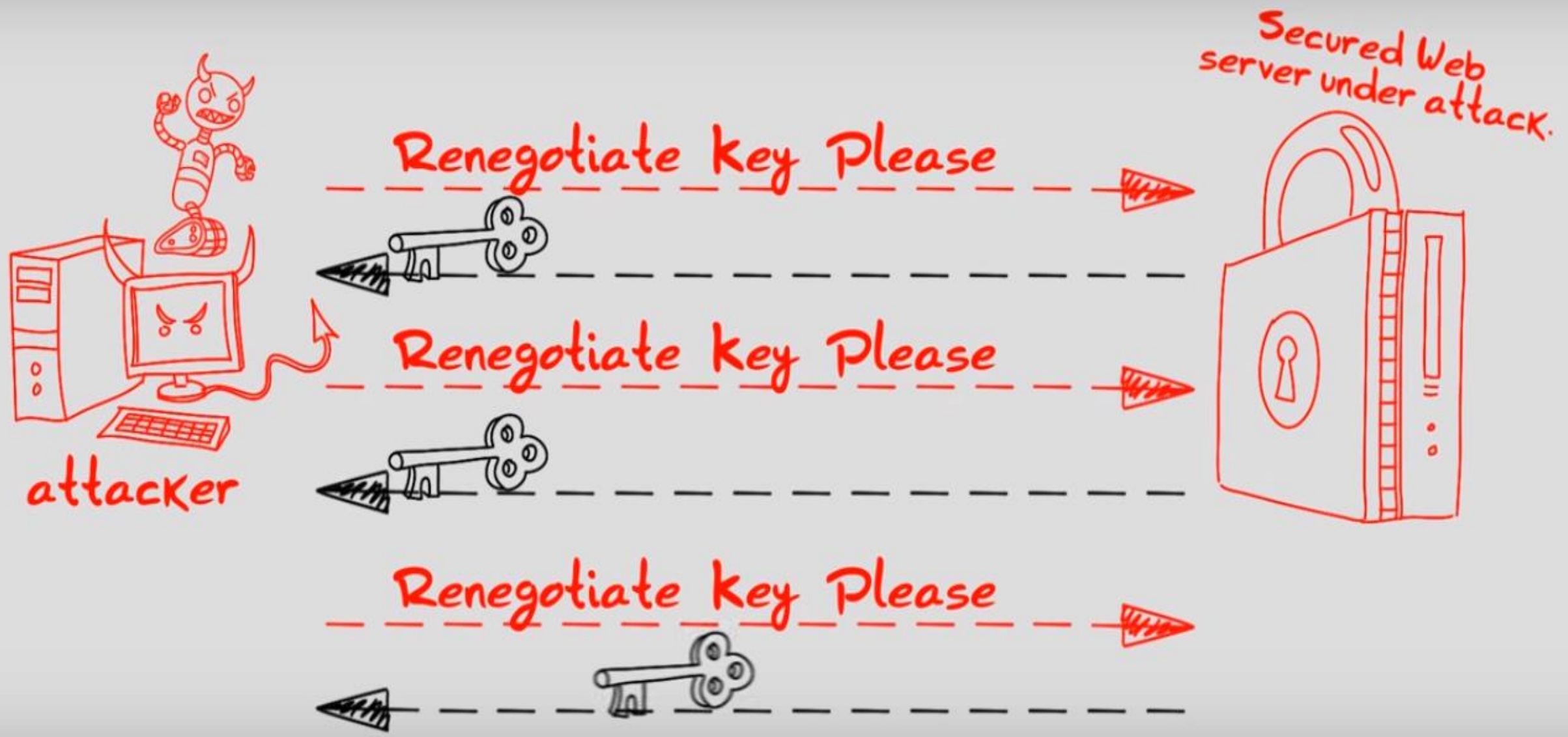


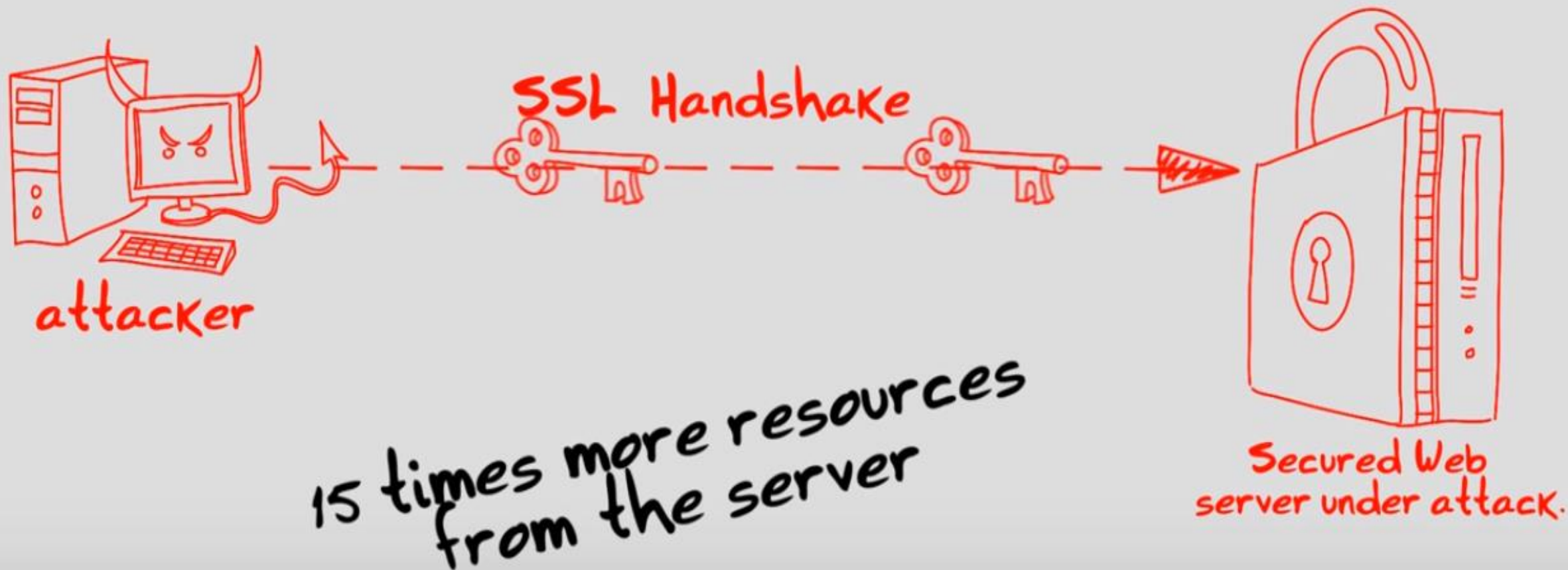
SSL secured  
Web server











1 standard home PC



SSL based web server



several computers



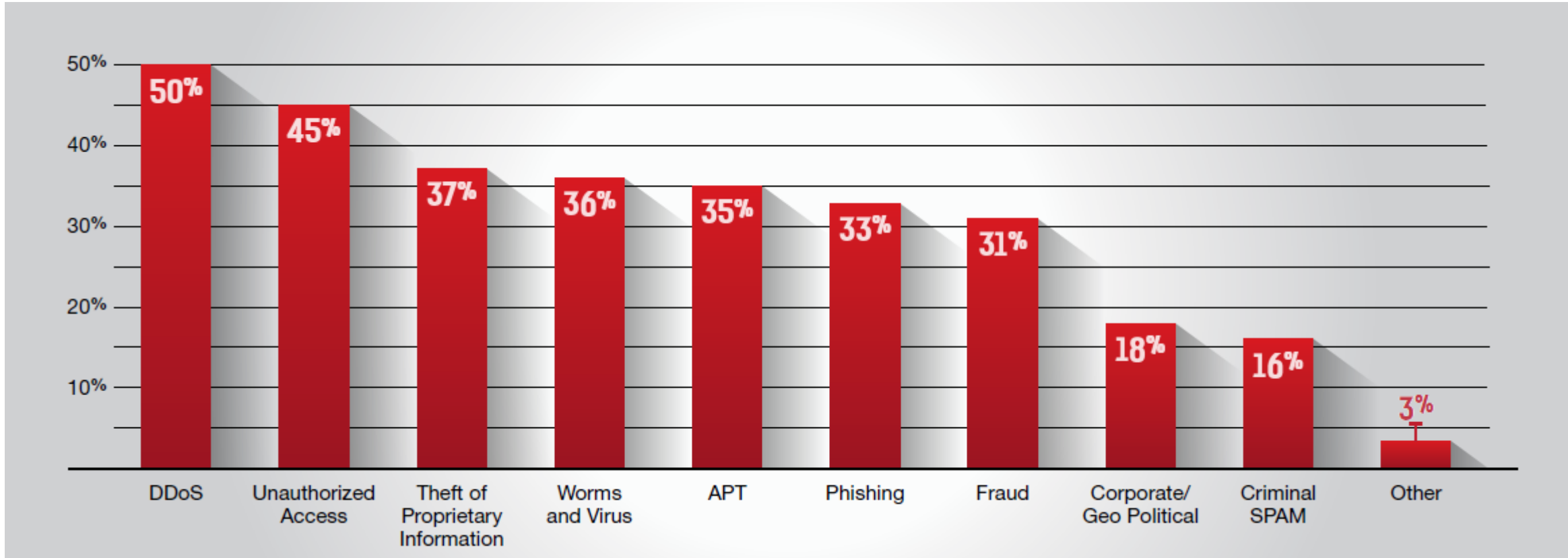
farm of large secured  
online services



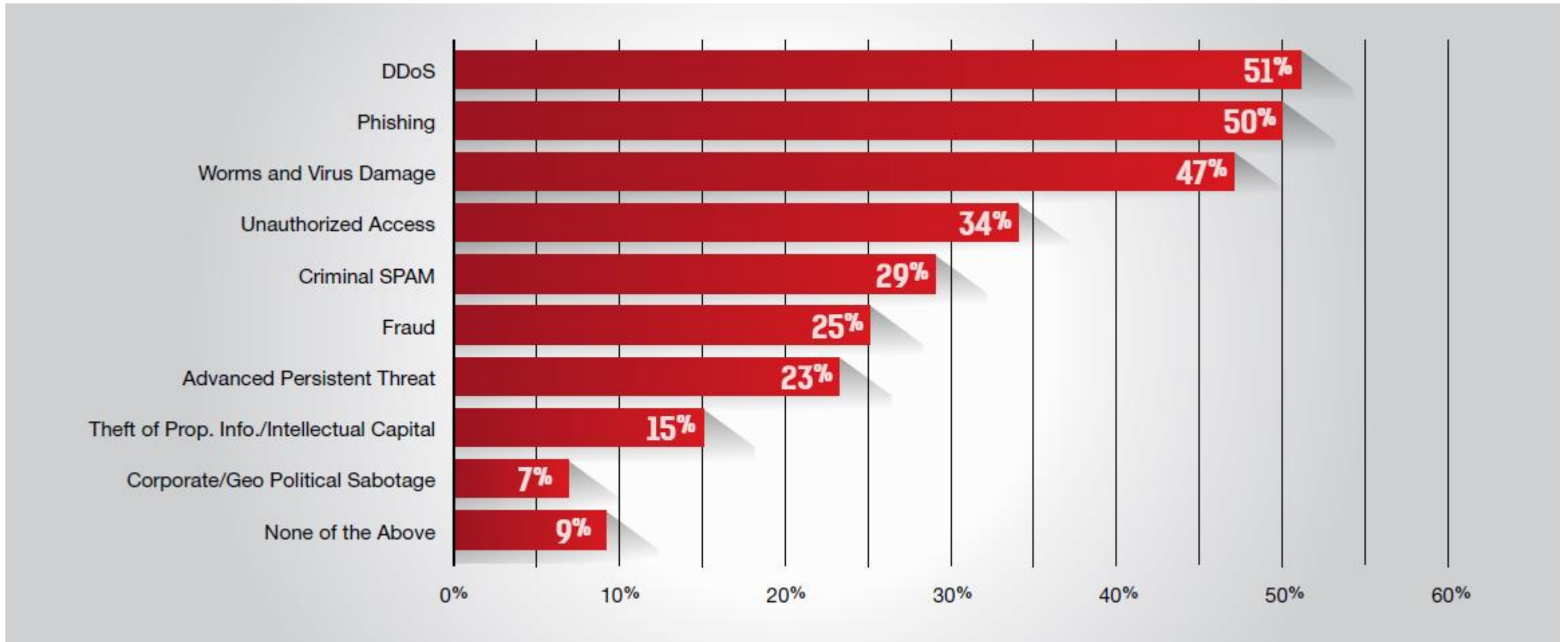
## Cyber Attacks in numbers

A decorative graphic on the right side of the slide. It features a horizontal splash of paint in shades of red, orange, and yellow, with smaller red droplets trailing upwards and to the left. Below and to the right of the splash are several overlapping, semi-transparent ovals in white, light gray, dark gray, yellow, and green.

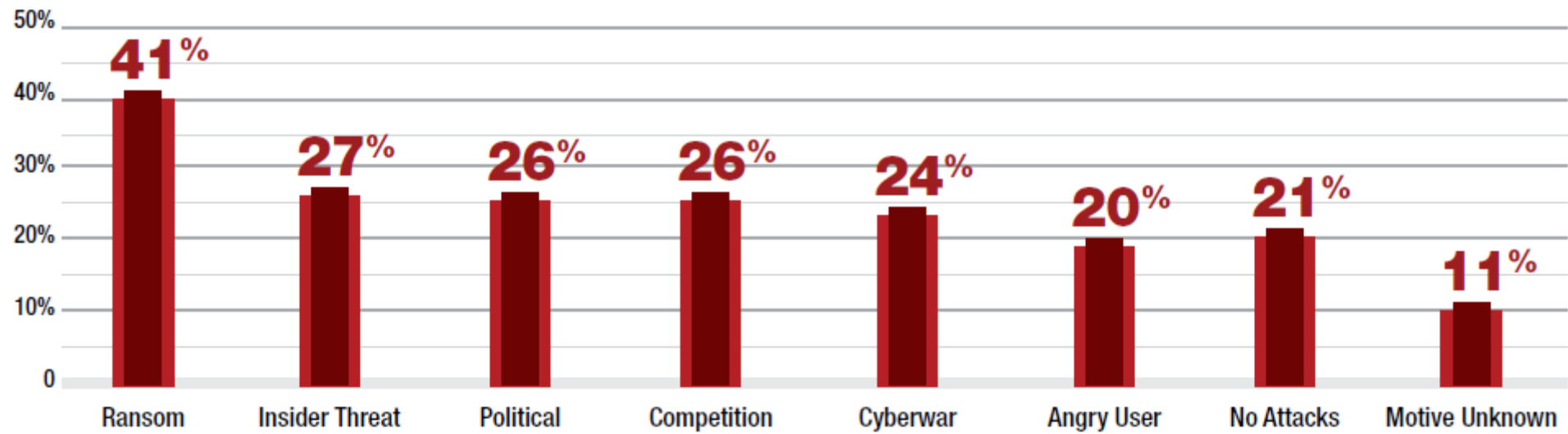
# Attacks that will cause the most harm to businesses



# Types of Attacks Experienced By Organizations in 2015

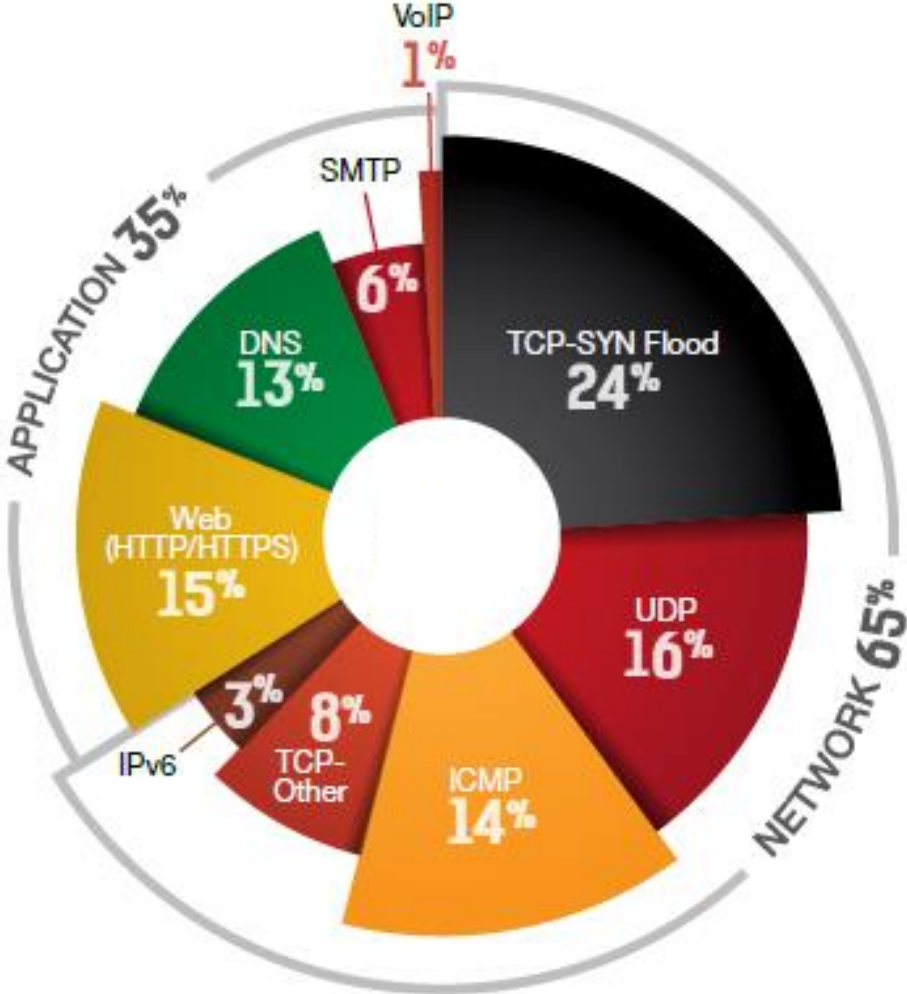


## Motives behind any cyber-attack





# Biggest DDoS Attacks in 2016



# SSL or TLS based Attacks

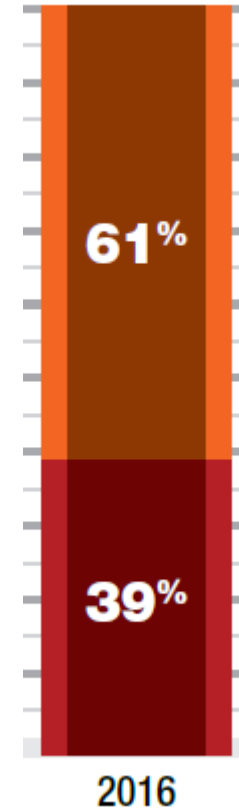
Over **50%** of traffic in enterprises is encrypted



**20%** of organizations inspect SSL

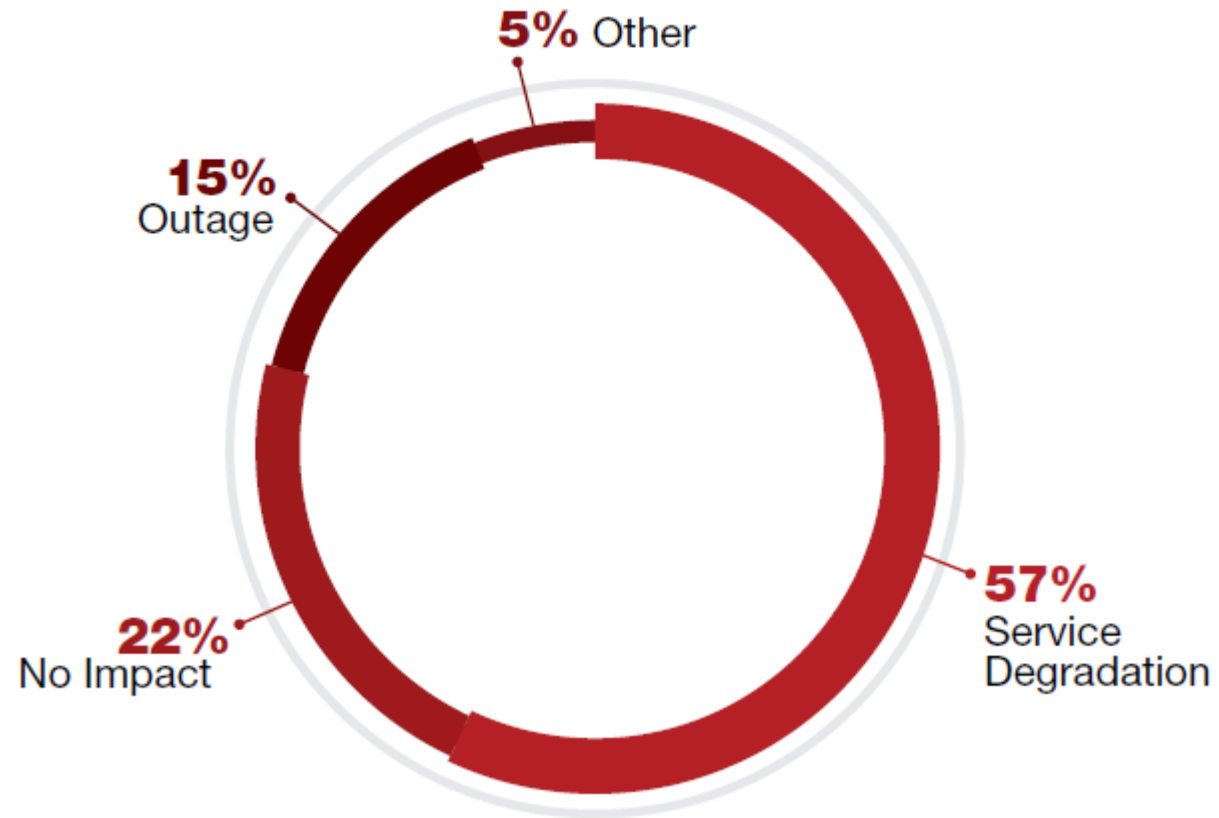


**80%** of organizations don't inspect SSL Traffic

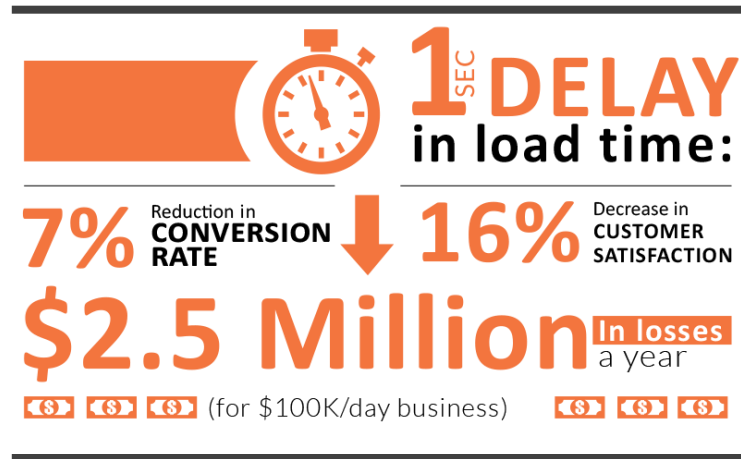


SSL based attacks in 2016

# Impact of DDoS Attacks on Systems



# Impact of DDoS Attacks on Business

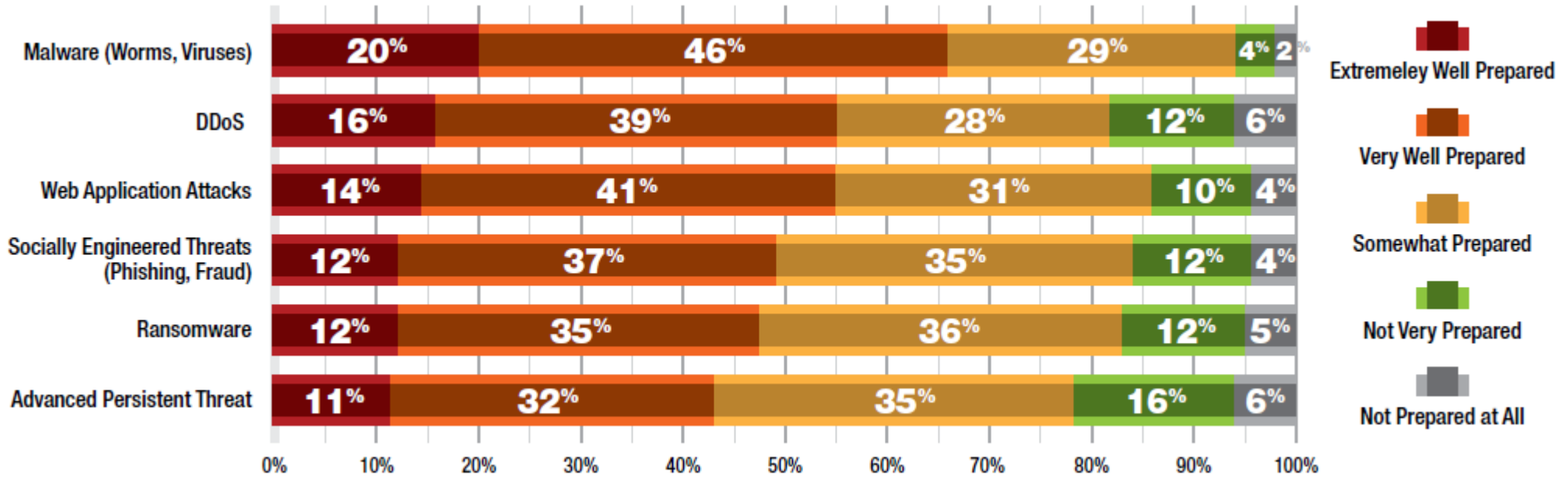


Today more than ever, **TIME IS MONEY**

# Impact of DDoS Attacks on Business



# How Prepared Are Today's Organizations?



## Attacks on Krebs, OVH and Dyn

**09/20** – KrebsOnSecurity.com target of record-breaking **620Gbps** DDoS attack

**09/21** – French web hoster OVH targeted by **1.5Tbps** IoT DDoS attack

**09/30** – Source Code of **IoT Botnet Mirai** Released on Hackforums.net by Anna-senpai



*The Hackforums post that includes links to the Mirai source code.*

**10/21** – Dyn's managed DNS infrastructure in the US under DDoS attack. Impacting many websites and services including **Twitter, Amazon, Tumblr, Reddit, Spotify and Netflix**

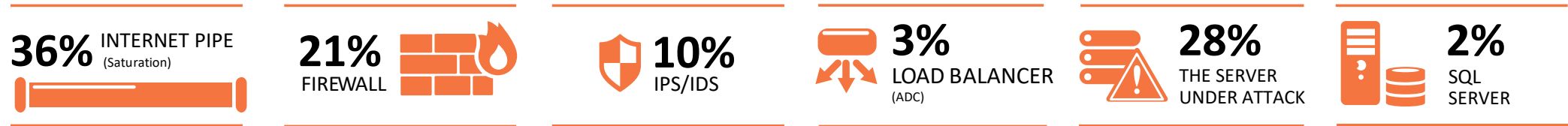
# October 21<sup>st</sup> - DDoS attack on Dyn (Managed DNS Network) - Mirai malware

- ActBlue
- Basecamp
- Big cartel
- Box
- Business Insider
- CNN
- Cleveland.com
- Etsy
- Github
- Grubhub
- Guardian.co.uk
- HBO Now
- Iheart.com (iHeartRadio)
- Imgur
- Intercom
- Intercom.com
- Okta
- PayPal
- People.com
- Pinterest
- Playstation Network
- Recode
- Reddit
- Seamless
- Spotify
- Squarespace Customer Sites
- Starbucks rewards/gift cards
- Storify.com
- The Verge
- Twillo
- Twitter
- Urbandictionary.com
- Weebly
- Wired.com
- Wix Customer Sites
- Yammer
- Yelp
- Zendesk.com
- Zoho CRM
- Credit Karma
- Eventbrite
- Netflix
- NHL.com
- Fox News
- Disqus
- Shopify
- Soundcloud
- Atom.io
- Ancersty.com
- Constant Contact
- Indeed.com
- New York Times
- Weather.com
- WSJ.com
- time.com
- xbox.com
- dailynews.com
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- nimblechedule.com
- Vox.com
- Livestream.com
- IndieGoGo
- Fortune
- CNBC.com
- FT.com
- Survey Monkey
- Paragon Game
- Runescape
- Amazon

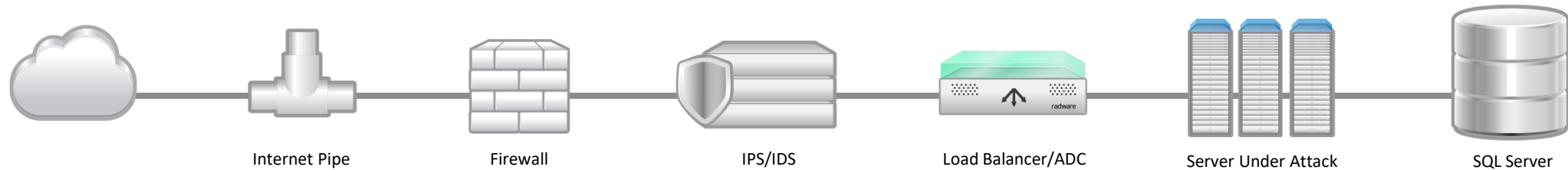


# Cyber attacks from infrastructure perspective

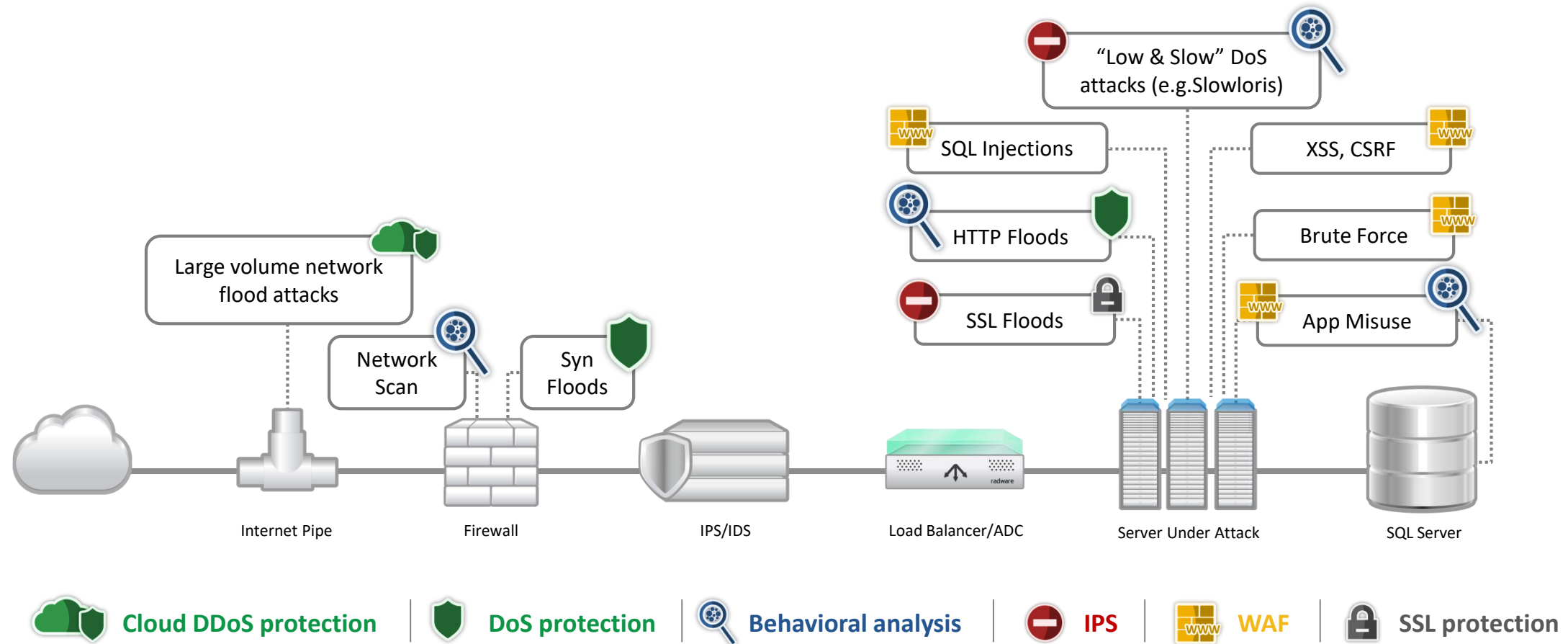
2016



2015



# Complexity of attacks continues to grow



## Multi-technology protection



Only a **multi-technology** solution can provide full protection from **multi-vector** threats



Cloud DDoS protection



DoS protection



Behavioral analysis



IPS



WAF



SSL protection



**Thank You!**

