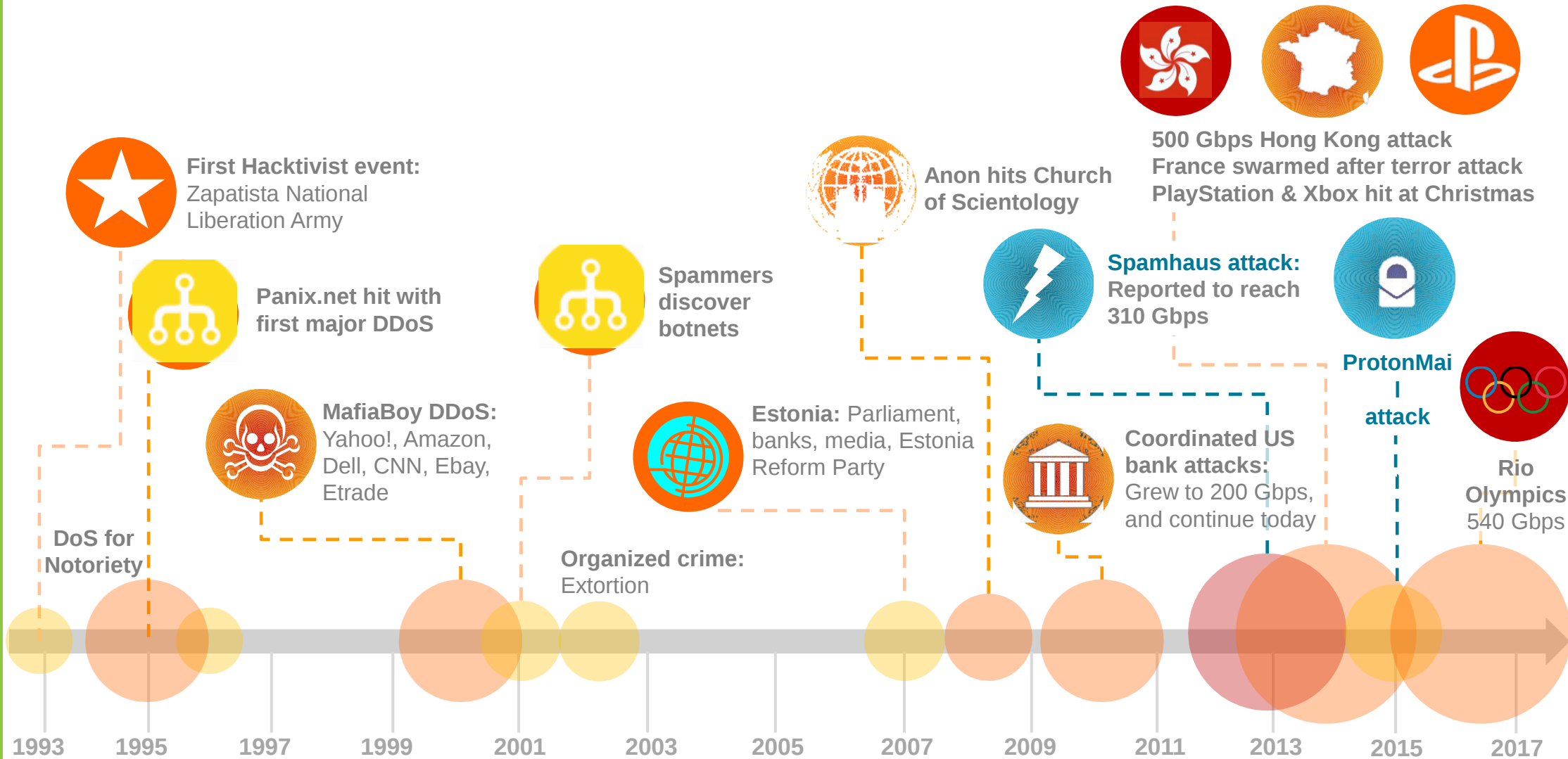


Sub-Saturating DDoS Attacks The Silent Bandwidth Thief

Sean Newman
Director Product Management



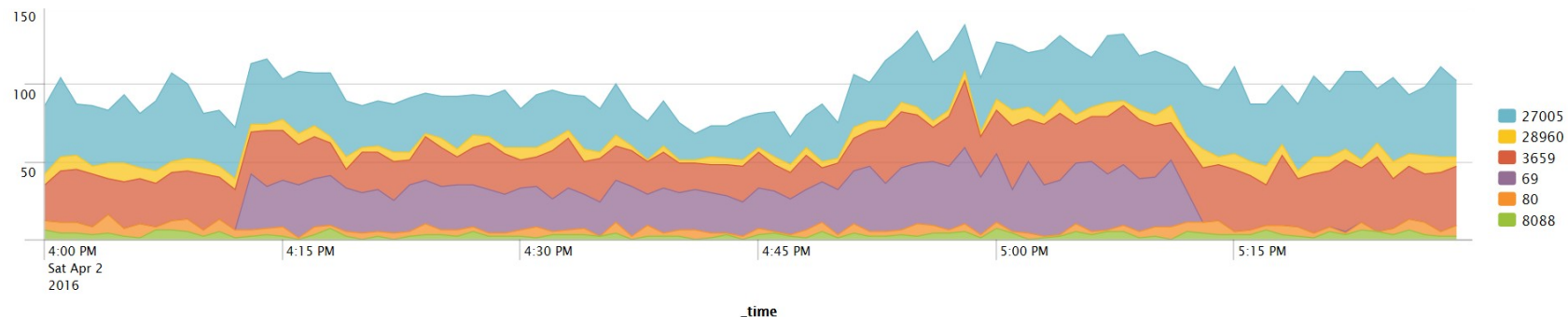
20+ Years of DoS Attacks



Latest DDoS Attack Vectors



- Use of NTP for reflection attacks is on the decline
 - Significant vulnerabilities patches released early in 2016
- New DDoS Reflection vector leveraging TFTP (port 69)
 - Small request packet, with spoofed source IP, requesting file
 - TFTP Server sends 60x larger response to spoofed target
- Many TFTP Servers accessible from the public Internet
 - TFTP is Unauthenticated
- TFTP Attacks already seen in the wild...



New Breed of Smarter 'Surgical' DDoS Attacks

84%

OF ATTACKS ARE
LESS THAN 10
MINUTES

AVERAGE DURATION OF DDoS ATTACK ATTEMPTS Q1-Q2 2015



Minutes	Volume
0-5	71.6%
6-10	12.6%
11-20	4.2%
21-30	7.0%
31-60	2.2%
>60	2.4%

AVERAGE SIZE OF DDoS ATTACK ATTEMPTS Q1-Q2 2015



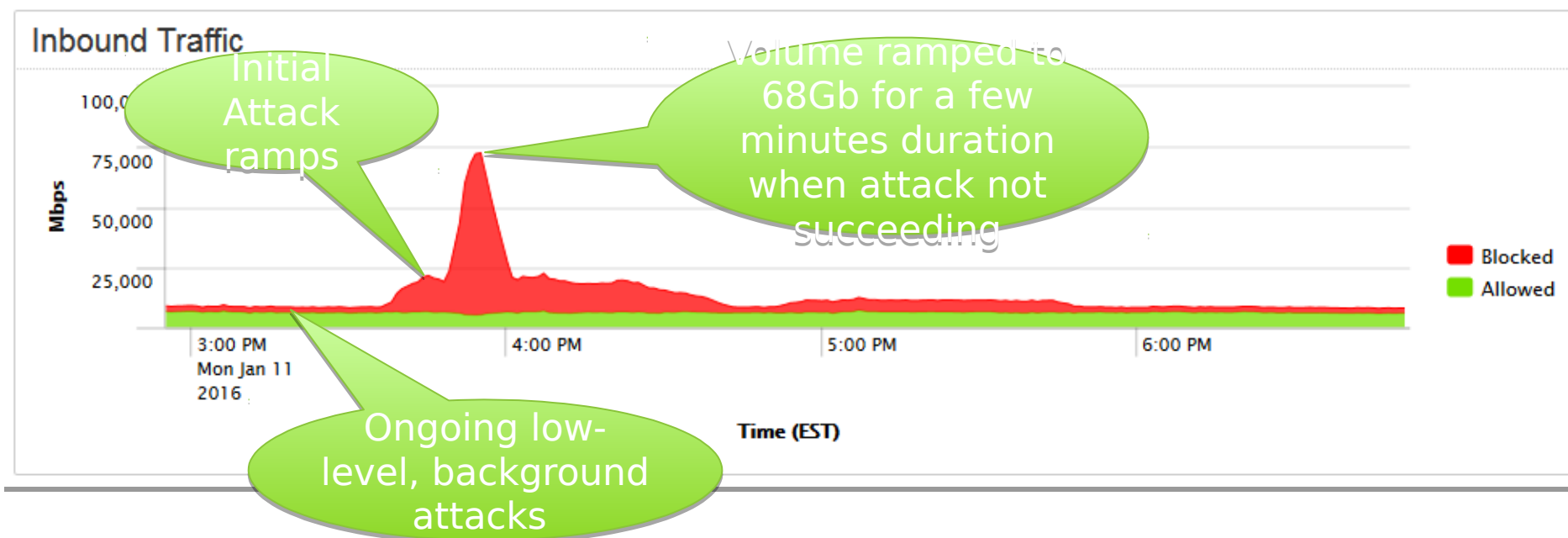
Size	Volume
<1G	93.0%
1G-5G	5.4%
5G-10G	1.3%
>10G	.3%

93%

OF ATTACKS ARE
1 Gbps OR LESS
IN SIZE

Sophisticated Multi-Layered Attacks

- Just enough volume to cripple target destination
- Advanced DoS attacks crafted to avoid detection
- Short duration to avoid legacy DDoS scrubbing-center mitigation



The Challenge - DoS is part of the new-normal

Thousands of attacks every day:

- ✓ Many Motives
 - ✓ Political / Beliefs
 - ✓ Ransom / Extortion
 - ✓ Targeted Attack Smokescreens
- ✓ Anyone can launch an attack:
 - ✓ Free tools and how to videos
 - ✓ DDoS for hire sites
- ✓ Increasingly Sophisticated
 - ✓ Harder to Detect and Mitigate





Why Should You Care?

Cost - Increasing volume of bandwidth being wasted

- Traditional Scrubbing is either blind, or too slow to react
- Even if your customers protect themselves, you still suffer

Reputation – Many businesses believe their provider protects them

Opportunity – Protect your infrastructure and sell on as a service

Businesses believe DDoS protection is not their problem; expectation is service providers already dealing with it!

...are you?

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Thank You!

