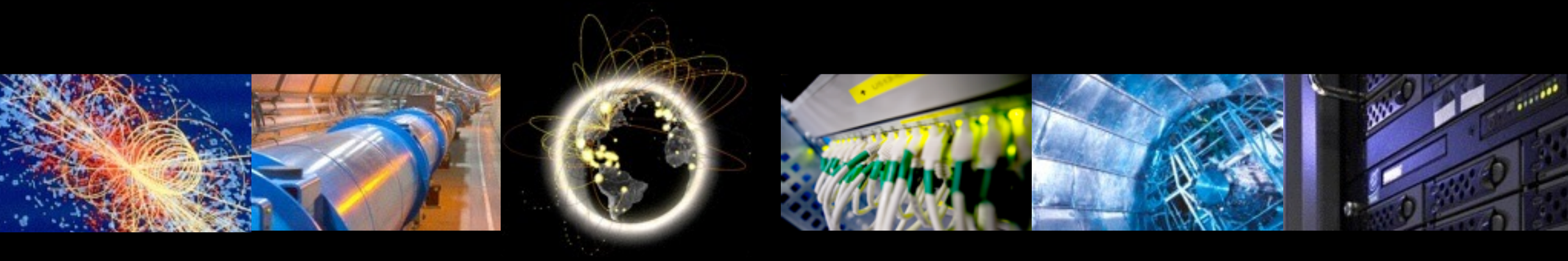
Surviving and operating services despite highly skilled and well-funded organised crime groups



Romain Wartel, CERN

CHEP 2015, Okinawa

WLCG
Worldwide LHC Computing Grid

Operation Windigo (2011 - now)

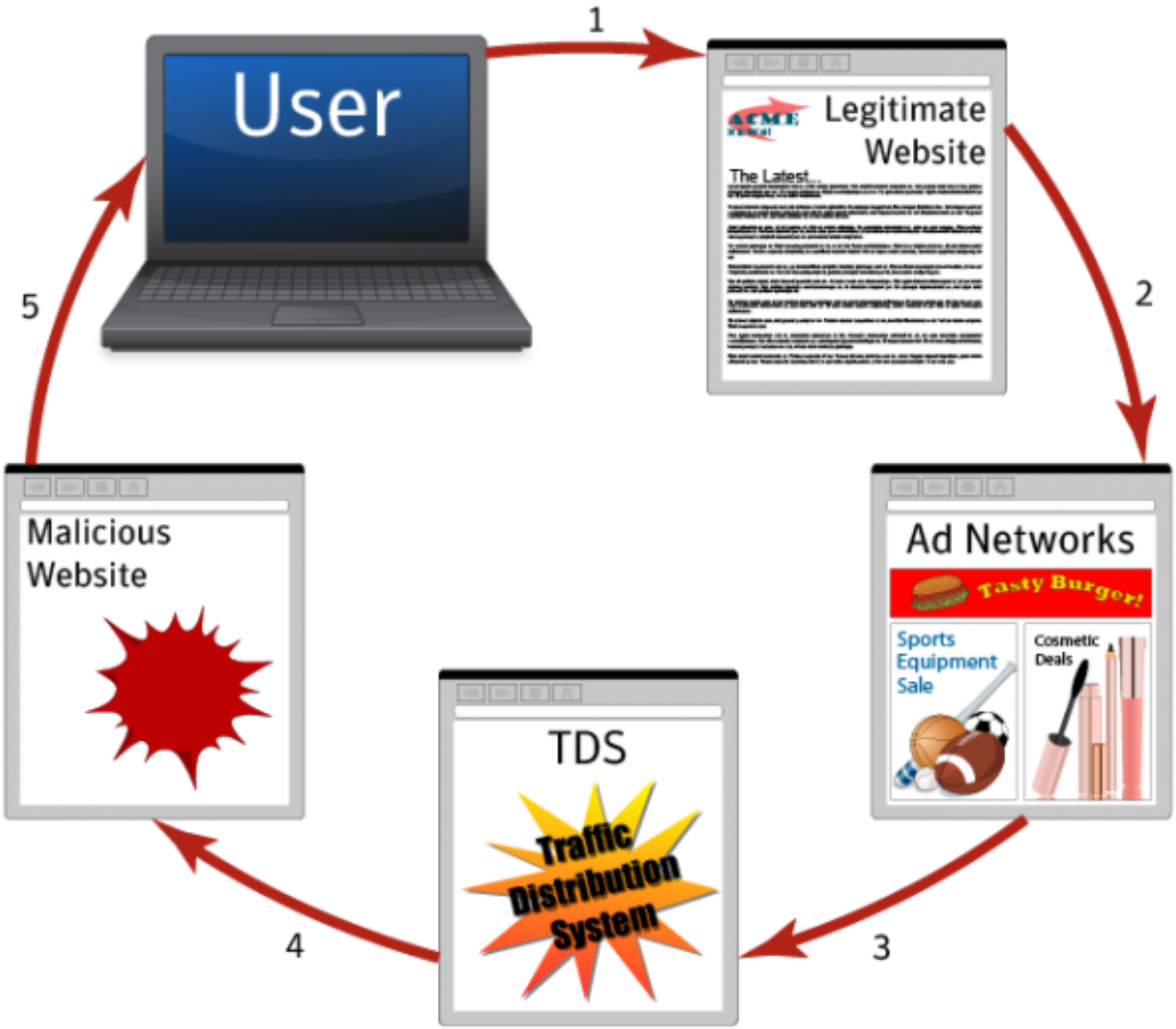
- 30,000+ unique servers compromised in the last two years
  - kernel.org, Linux Foundation, CPanel, many universities and research lab, public and private sector organisations
- A full ecosystem of advanced malware
  - Ebury: SSH backdoor. Controls servers + steals credentials

    (signed RPM installed "in the past". Infects libkeyutils.so)
  - LinuxCdorked: stealth, file-less, multi-platform HTTP backdoor
  - Perl/Calfbot: manages the payload, 35 million spams/day
  - Linux/Onimiki: supporting Linux DNS malware
  - Win32/Boaxxe.G: Click fraud malware
  - Win32/Glupteba.M: Generic proxy/downloader malware
- Not just software: large-scale malicious infrastructure
  - Fully distributed, complex infrastructure, using multi-tiered proxies, lots of obfuscation and encryption
- International gang, highly profitable activity - still ongoing

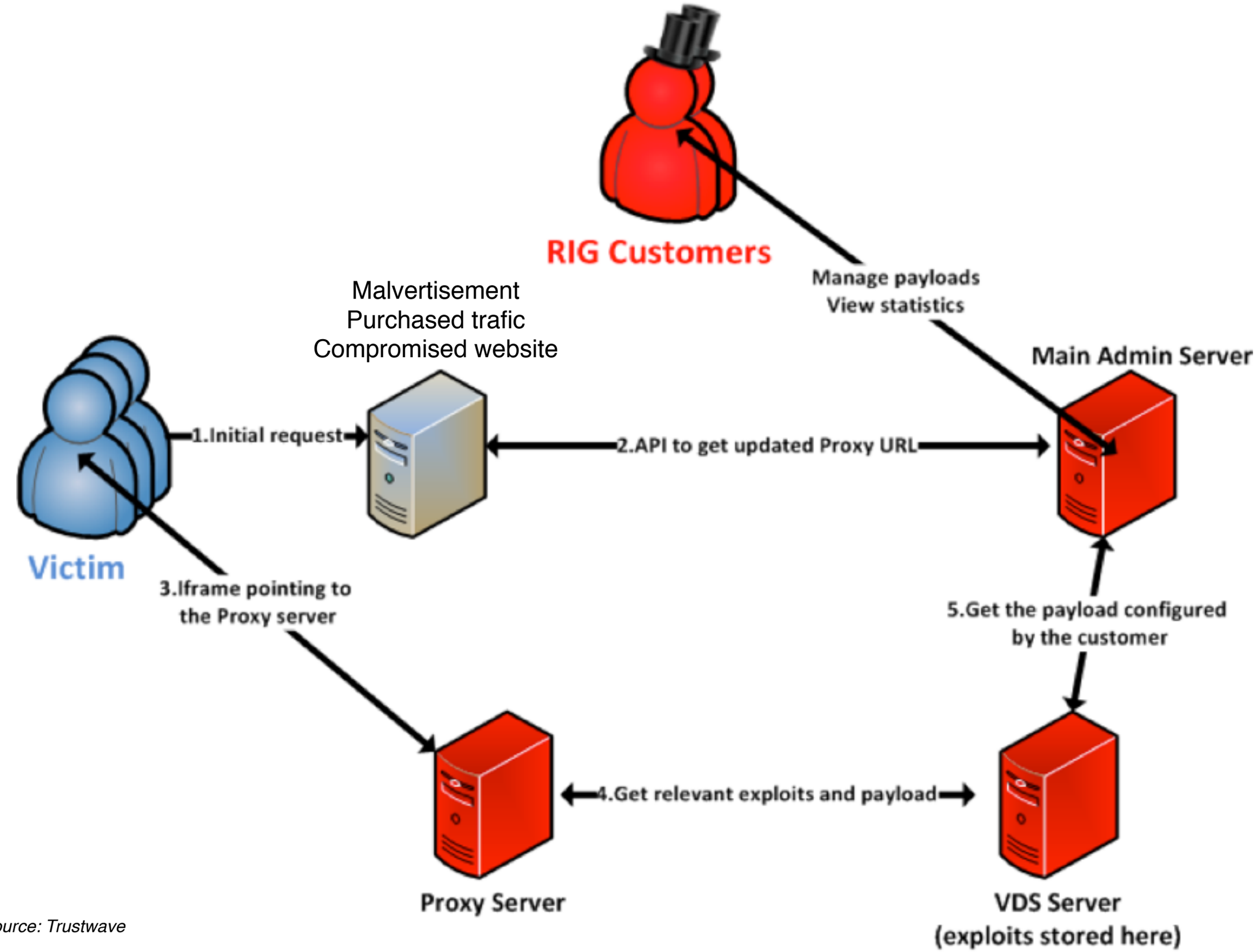
What are bad actors up to?

- No major evolution of the threat landscape
  - Same infection techniques, same rootkits
- No major evolution of the Linux & Windows malware
  - But most large attacks now target both platforms!
- Web (and Flash in particular) play prevalent role
- Significant uptake of Android malware
- iOS malware still very rare
  - But growing evidence of effective government-sponsored attacks
- Strong consolidation of the underground market/economy
  - Severe competition between a handful of exploit kits (EK)
  - Angler, Magnitude, Sweet Orange, Fiesta, RedKit, Nuclear, etc.
  - Huge progress on time-to-market for exploits
    - Only hours/days before vulnerabilities available in EK
    - CVE-2015-0311 discovered as a Flash “0-day” in Angler EK

Malware-as-a-service

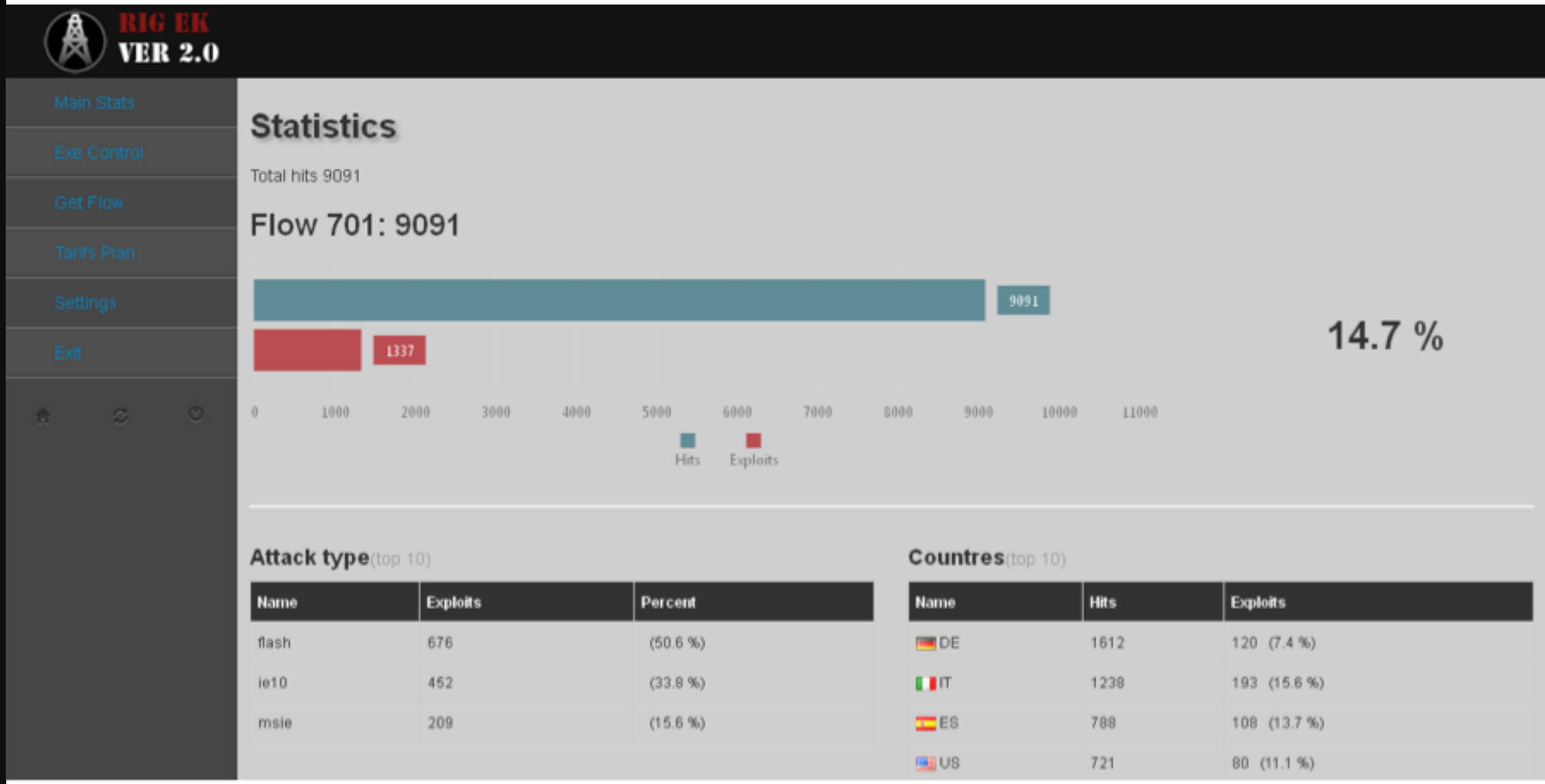


Malware-as-a-service



Source: Trustwave

Malware-as-a-service



Source: Trustwave

Malware-as-a-service

TakeThat

18.06.2014, 11:43

байт

Группа: Пользователь
Сообщений: 13
Регистрация: 18.06.2014
Пользователь №: 55 928
Деятельность: вирусология

Репутация: 5
(1% - хорошо)

Связка Эксплоитов RIG v2.0

Рады представить вам связку эксплоитов RIG v2.0

-Работа на всех WinOS 32/64bit — **Works for Win x86/x64**
-Обход UAC на сплоитах — **UAC bypass**
-Частые чистки + чистки по требованию — **Ability to exploit large volumes of traffic**
-Держим большие объёмы — **Domains are checked by AV**
-В выдаче всегда чистые и трастовые домены с автоматической проверкой по блеклистам

Each customer can have 2 flows and 2 different EXE payloads

Каждый аккаунт имеет 2 потока и может грузить 2 разных exe

API с автоматической выдачей линков — **API for automatic landing page URL**

Особое внимание уделяется чистоте сплоитов — **We pay special attention to make sure our exploits are undetected by AV**

Текущие сплоиты: **List of exploits**
Java: CVE-2012-0507
Java: CVE-2013-2465
IE7-8-9: CVE-2013-2551
Flash: CVE-2015-0313
Windows: CVE-2014-6332

Средний пробив 10-15% — **Average exploitation rate**
Пробив зависит от источника трафа

Стоимость:
Сутки - 30 usd
Неделя - 150 usd
Месяц - 500

Prices:
24 hours - $30
One Week - $150
One Month - $500

Jabber: [redacted]

Source: Trustwave

Getting the victims to click

- Web: Gigantic attack surface
  - Vulnerabilities (browser, PDF, Flash, etc.)
  - Malvertisement
  - Compromised (legitimate) websites
  - Social network applications or plugins
  - Malicious browser plugins, extensions

- Email: leading source of compromise
  - 90%+ of breaches caused by spear phishing
  - Extremely effective:
    - 10 emails = 1 click guaranteed
    - Targeted phishing: ~70% success rate

Learn & adapt

- Defend your organisation or (Linux) data center
  - Must start defending Windows/Web/mobile realms too
  - Ultimately, must defend people
- International collaboration is our main asset
  - Main intrusion detection system at CERN in the last 5 years
- International community: sharing and trusting
  - Strong knowledge on attack methods and tools
  - Report about actual compromises or data leaks in our community
  - Invaluable intelligence
  - Engage & participate!
- Work on connections with industry and law enforcement
  - Attackers arrested on a regular basis for attacking HEP organisations

Learn & adapt

- Protect your people:
  - Raise awareness
  - Organise training events (tools, methods)
  - Write and advertise clear policies
  - Do not overlook personal use and devices

- Protect your organisation
  - Understand your adversaries
  - Invest resources to have sufficient in-house capabilities
  - Contribute to global efforts against cybercrime (botnet takedown…)
  - Build your network of contacts in the security community
  - Invest in threat intelligence and technical means to use it
  - Treat security incidents as part of normal operations

Raising the bar

Getting “80%” protected

- Mail, or instant messaging
  - Absolutely never click on links from emails
  - Preferably go directly to the homepage of the website
  - If not easily possible, copy/paste and carefully verify the link
  - Malware comes via links or attachements (PDF, DOC, PPT)
  - Unexpected email? Unknown sender? Unusual language? Factual mistakes and typos? Unusual request or practices?
- Web: Stop. Think. Click.
  - Prefer Chrome, or at least Firefox, over Internet Explorer
  - Use a different Web browser for personal & professional use
  - Never click on popup windows or on “update” links for Flash or other plugins
  - If possible, disable or at least configure “click-to-play” for Flash
  - Do not install plugins or extensions. Absolutely never install drivers, video codecs, video players, add-ons bars

Getting “80%” protected

- Computers
  - Keep up-to-date with security patches. Enable automatic patching
  - Run a good anti-virus
  - Install or update from trusted sources only (your lab, Apple App Store, directly from the official vendor website). Never CNET/ download.com, etc.

- Phones
  - Android is the primary target for malware
  - Many Android phones very difficult to patch and very quickly unsupported
  - Think before installing (check permissions required, user reviews, number of downloads, etc.)

Conclusions

- Criminal groups equally target Linux and other platforms
  - Target victims
  - Operate their services
- Expect large-scale and sophisticated attacks
- Protecting services is no longer sufficient
  - Must defend people
  - Across all their devices, both professional and personal
  - Improve their online hygiene
- Web and mobile platforms are primary targets
- International collaboration is the a key aspect of defence