RSAConference2016

San Francisco | February 29 – March 4 | Moscone Center

Connect to Protect

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2016 State of Vulnerability Exploits

Amol Sarwate

Director of Vulnerability Labs

Qualys Inc.

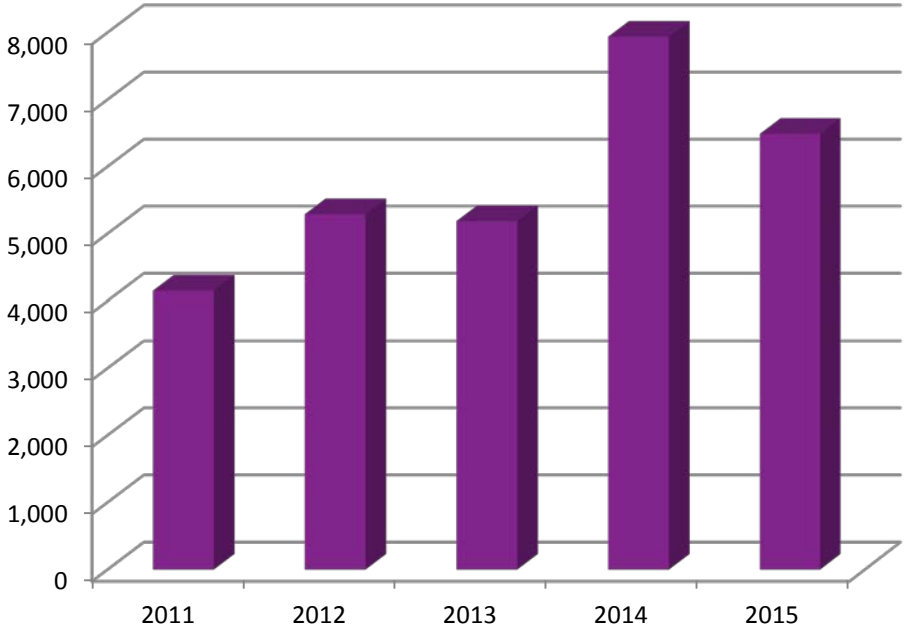
@amolsarwate

#RSAC

Agenda

- Vulnerabilities, Exploits, Exploit Kits
- 2015 – 2016 Trends
- Apply

Vulnerabilities



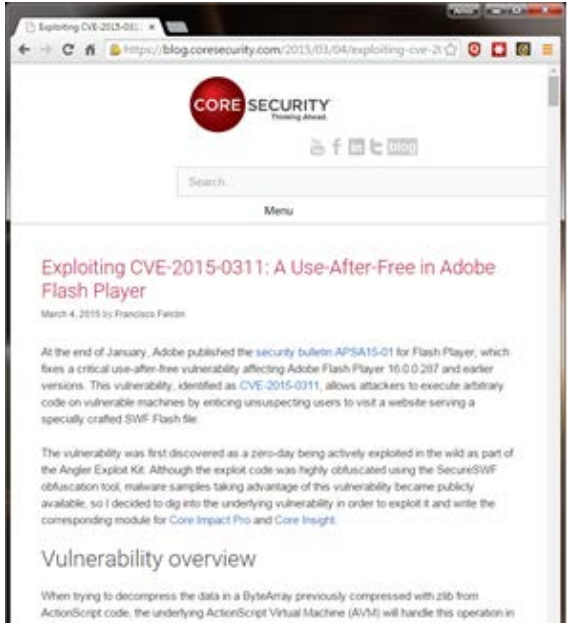

PRiORiTiES
1.
2.
3.

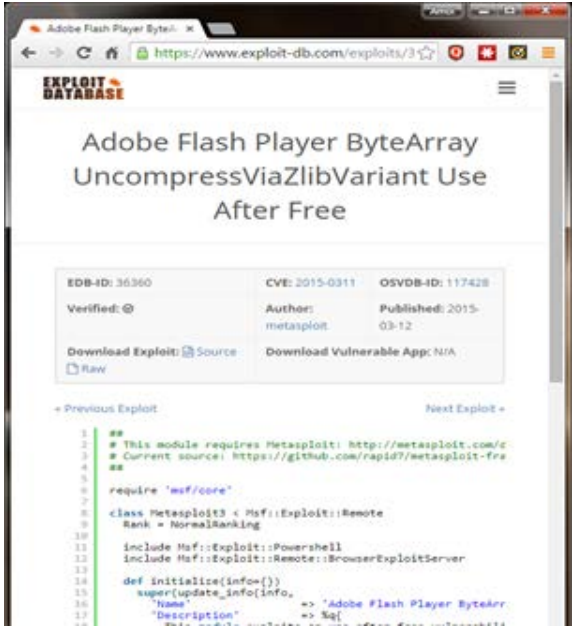
Vulnerability

*Vulnerability is a **flaw** in the system that could provide an attacker with a way to bypass the security infrastructure.*

Exploit

An exploit, on the other hand, tries to turn a vulnerability (a weakness) into an actual way to ***breach*** *a system.*





Exploit Frameworks Examples

An exploit, on the other hand, tries to turn a vulnerability (a weakness) into an actual way to ***breach*** *a system.*

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EXPLOIT DATABASE

metasploit®

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Exploit Kit

Exploit kits are toolkits that are used for the purpose of ***spreading malware****. They automate the exploitation of mostly client-side vulnerabilities, come with pre-written exploit code and the kit user does not need to have experience in Vulnerabilities or Exploits.*

Exploit Kit

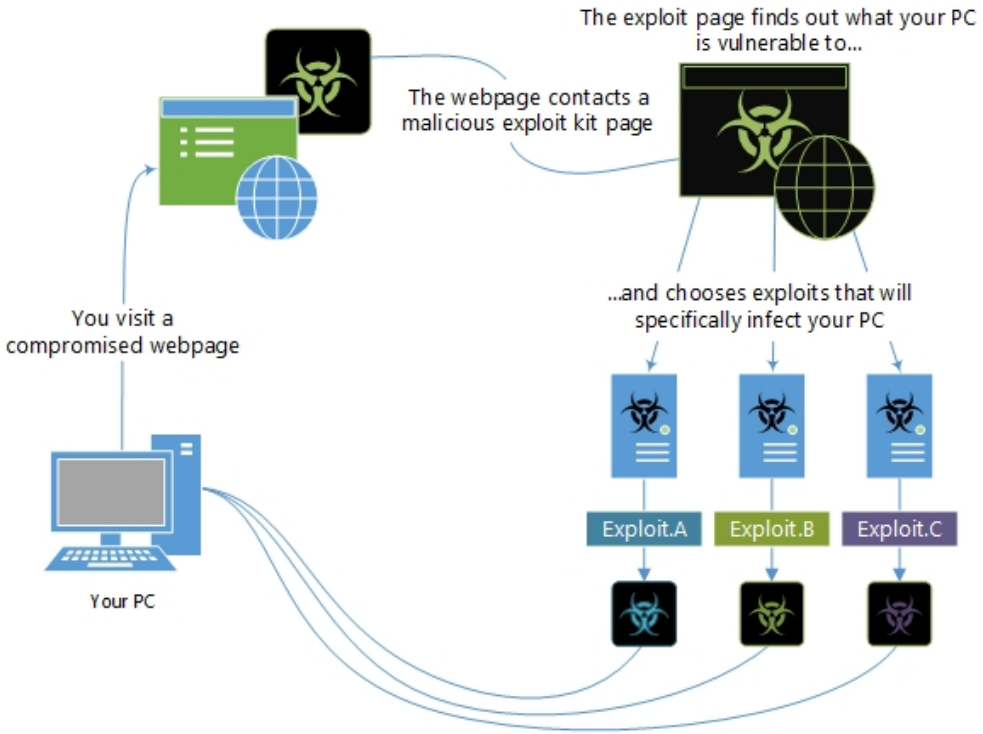
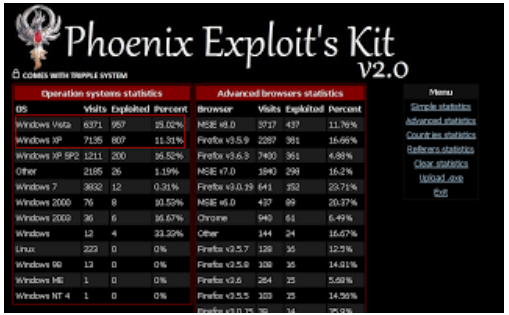


Image: http://www.microsoft.com/security/portal/mmpc/threat/exploits.aspx

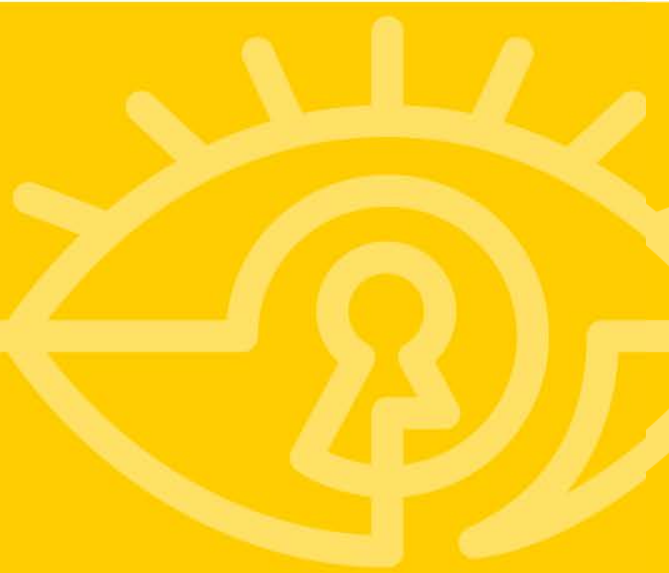
Exploit Kit


crimepack


Phoenix Exploit's Kit
v2.0
COMES WITH TRIPPLE SYSTEM
Operation systems statistics
Advanced browsers statistics
Menu
Simple statistics
Advanced statistics
Country statistics
Referrers statistics
Clear statistics
Upload exe
Exit


NB Exploiter 2011 Build 2.0.1
NB EXPLOITER 2011
download/exe
windows/exe
add system user
bing shell
默认路径为: C:\WINDOWS\SYSTEM32\CALC.EXE
生成
官网
退出

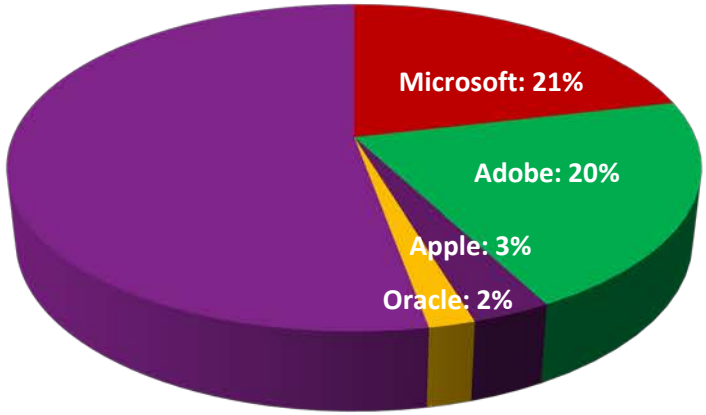
Exploit Kit Examples



Exploit Trends

and how to use them to our advantage

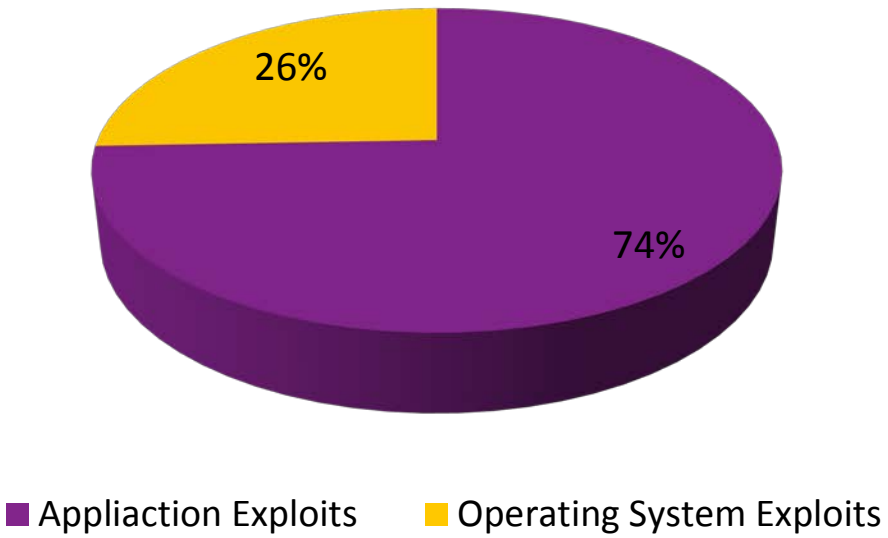
Most affected



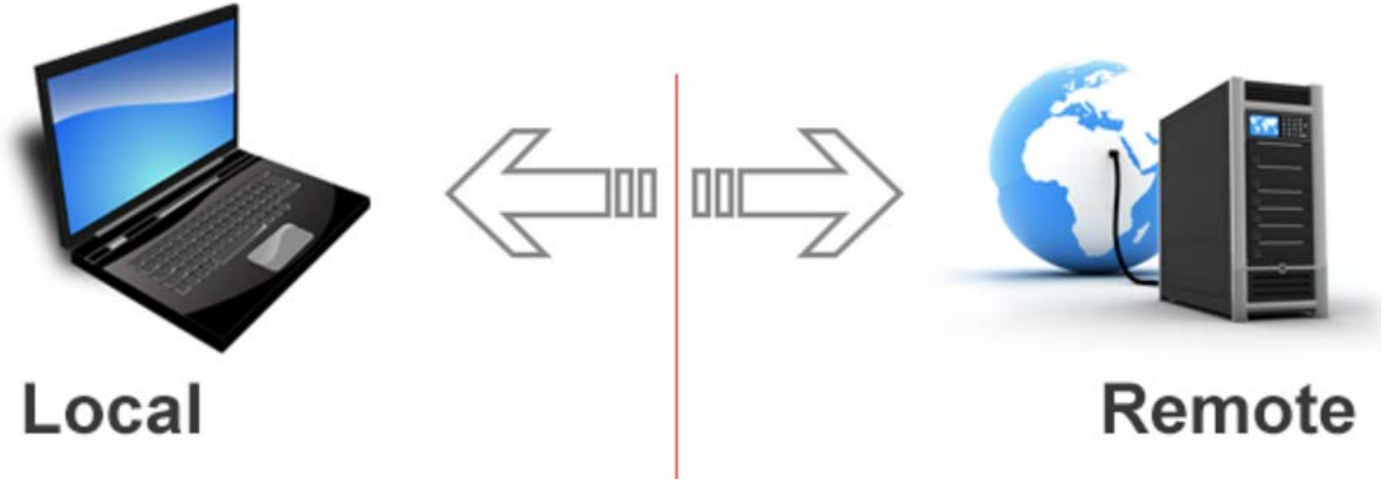
- microsoft
- pixabay_images_project
- foxitsoftware
- apport_project
- f5
- simple_ads_manager_project
- adb
- betster_project
- cups
- ericsson
- insanevisions
- magic_hills
- oxwall
- phpmybackuppro
- qlik
- sysaid
- webgroupmedia
- zend
- adobe
- redhat
- igniterealtime
- apptha
- genixcms
- thecartpress
- akronymmanager_project
- bisonware
- cybernetikz
- feedwordpress_project
- ipass
- manageengine
- palo_alto_networks
- pimcore
- selinux
- tcpdump
- websense
- zeuscart
- apple
- ansible
- jakweb
- bitrix
- magmi
- web-dorado
- apache
- boxautomation
- e107
- fork-cms
- isc
- mcafee
- palosanto
- piwigo
- sis
- teiko
- wonderplugin
- zhone_technologies
- oracle
- citrix
- mozilla
- cisco
- metalgenix
- x2engine
- arubanetworks
- centreon
- easy2map_project
- freereprintables
- job_manager
- milw0rm_project
- pcman%27s_ftp_server_project
- pligg
- softsphere
- thycotic
- wotlab
- ferretcms_project
- debian
- novell
- cmsjunkie
- novius-os
- xceedium
- atlassian
- clip-bucket
- ecommercemajor_project
- gsm
- kcodes
- moodle
- persistent_systems
- pragyan_cms_project
- solarwinds
- two_pilots
- wpmembership
- goautodial
- d-link
- symantec
- dell
- refbase
- yuba
- auto-exchanger
- cloudbees
- ektron
- h5ai_project
- libmimedir_project
- npds
- pfsense
- proftpd
- sudo_project
- vboxcomm
- wpsymposium
- google
- elasticsearch
- wpml
- emc
- samsung
- zohocorp
- avinu
- crea8social
- elegant_themes
- horde
- linux
- ntop
- photocati_media
- projectsend
- sympies
- webgate
- xen
- joomla
- fortinet
- ajsquare
- etouch
- sefrengo
- accunetix
- beehive_forum
- cs-cart
- endian_firewall
- hp
- maarch
- nvidia
- php
- qemu
- synametrics
- webgateinc
- yoast

Only 26% Exploits targeted Operating Systems

74% of Exploits Target Applications

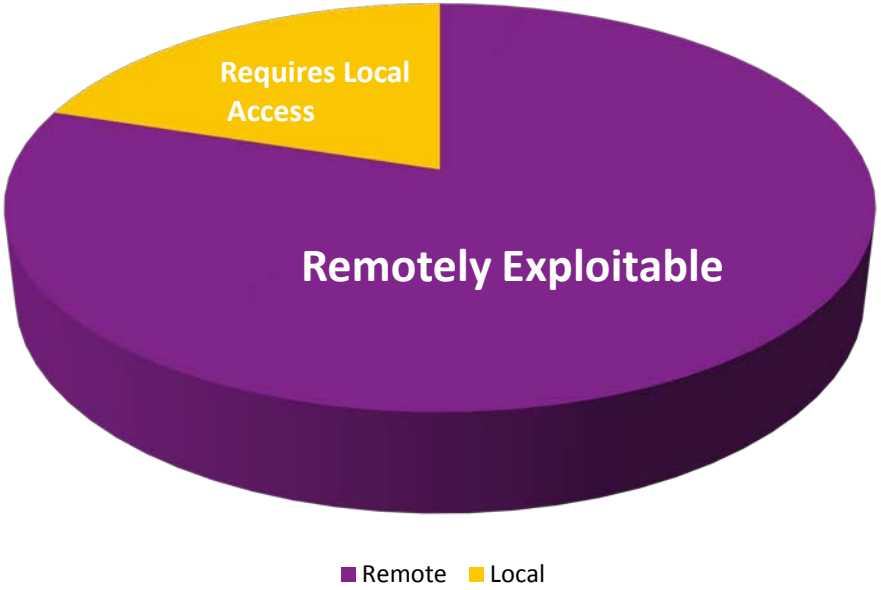


Remote vs Local Exploits



Remote vs Local Exploits

80% can be compromised Remotely

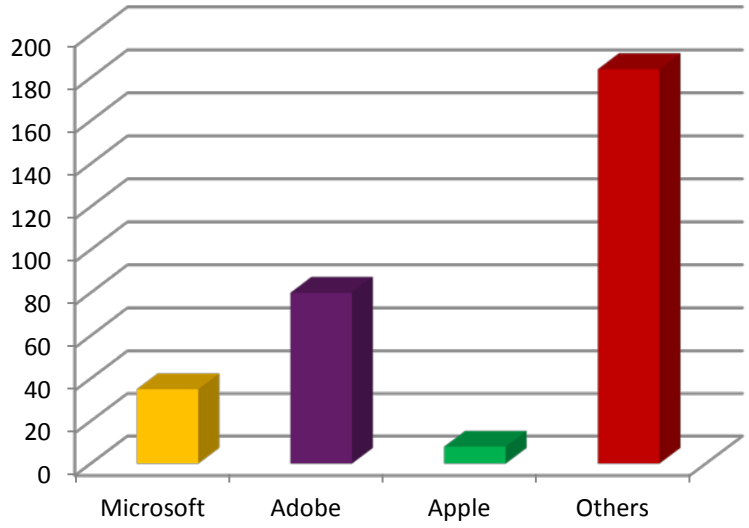


Remote vs Local Exploits

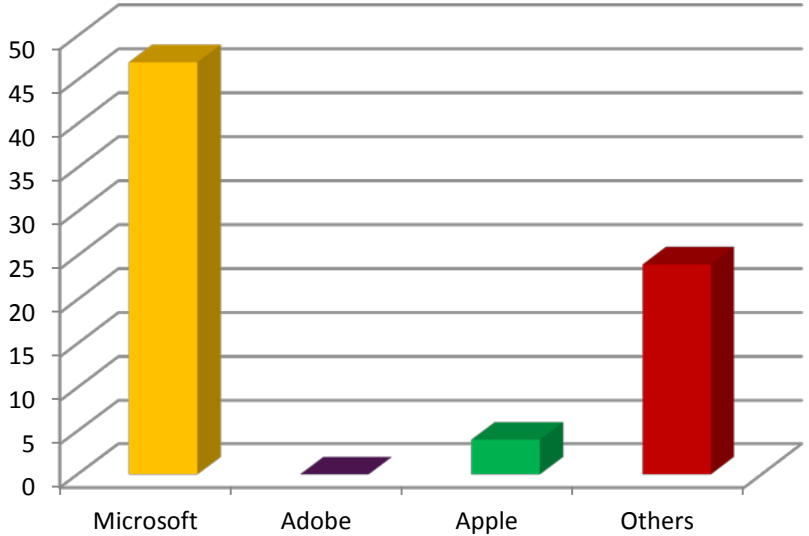
REMOTE	LOCAL
CVE-2015-0349: Adobe Flash Player APSB15-06 Multiple Remote Code Execution Vulnerabilities	CVE-2015-2789: Foxit Reader CVE-2015-2789 Local Privilege Escalation Vulnerability
CVE-2015-2545: Microsoft Office CVE-2015-2545 Remote Code Execution Vulnerability	CVE-2015-2219: Lenovo System Update 'SUService.exe' CVE-2015-2219 Local Privilege Escalation
CVE-2015-0014: Microsoft Windows CVE-2015-0014 Telnet Service Buffer Overflow Vulnerability	CVE-2015-0002: Microsoft Windows CVE-2015-0002 Local Privilege Escalation Vulnerability
CVE-2015-1635: Microsoft Windows HTTP Protocol Stack CVE-2015-1635 Remote Code Execution	CVE-2015-0003: Microsoft Windows Kernel 'Win32k.sys' CVE-2015-0003 Local Privilege Escalation
CVE-2015-0273: PHP CVE-2015-0273 Use After Free Remote Code Execution Vulnerability	CVE-2015-1515: SoftSphere DefenseWall Personal Firewall 'dwall.sys' Local Privilege Escalation
CVE-2015-5477: ISC BIND CVE-2015-5477 Remote Denial of Service Vulnerability	CVE-2015-1328: Ubuntu Linux CVE-2015-1328 Local Privilege Escalation Vulnerability
CVE-2015-2590: Oracle Java SE CVE-2015-2590 Remote Security Vulnerability	CVE-2015-1701: Microsoft Windows CVE-2015-1701 Local Privilege Escalation Vulnerability
CVE-2015-2350: MikroTik RouterOS Cross Site Request Forgery Vulnerability	CVE-2015-3246: libuser CVE-2015-3246 Local Privilege Escalation Vulnerability
CVE-2015-0802: Mozilla Firefox CVE-2015-0802 Security Bypass Vulnerability	CVE-2015-1724: Microsoft Windows Kernel Use After Free CVE-2015-1724 Local Privilege Escalation Vulnerability
CVE-2015-1487: Symantec Endpoint Protection Manager CVE-2015-1487 Arbitrary File Write	CVE-2015-2360: Microsoft Windows Kernel 'Win32k.sys' CVE-2015-2360 Local Privilege Escalation
CVE-2015-4455: WordPress Aviary Image Editor Add-on For Gravity Forms Plugin Arbitrary File	CVE-2015-5737: FortiClient CVE-2015-5737 Multiple Local Information Disclosure Vulnerabilities

Remote vs Local Exploits

Remotely Exploitable



Requires Local Access



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Lateral Movement

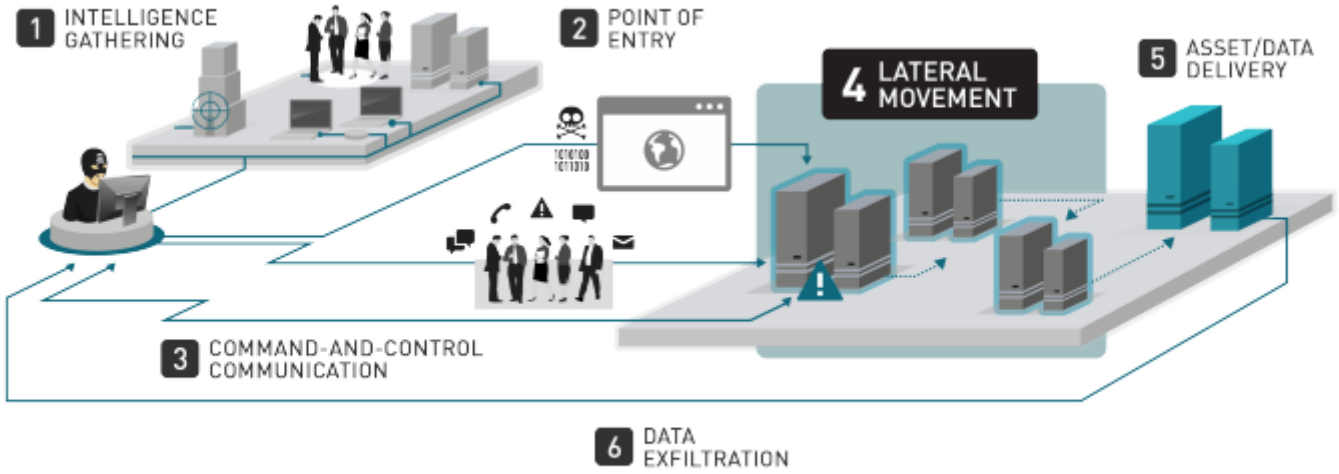


Figure 1. Six Stages of an APT attack

http://about-threats.trendmicro.com/cloud-content/us/ent-primers/pdf/tlp_lateral_movement.pdf

Lateral Movement

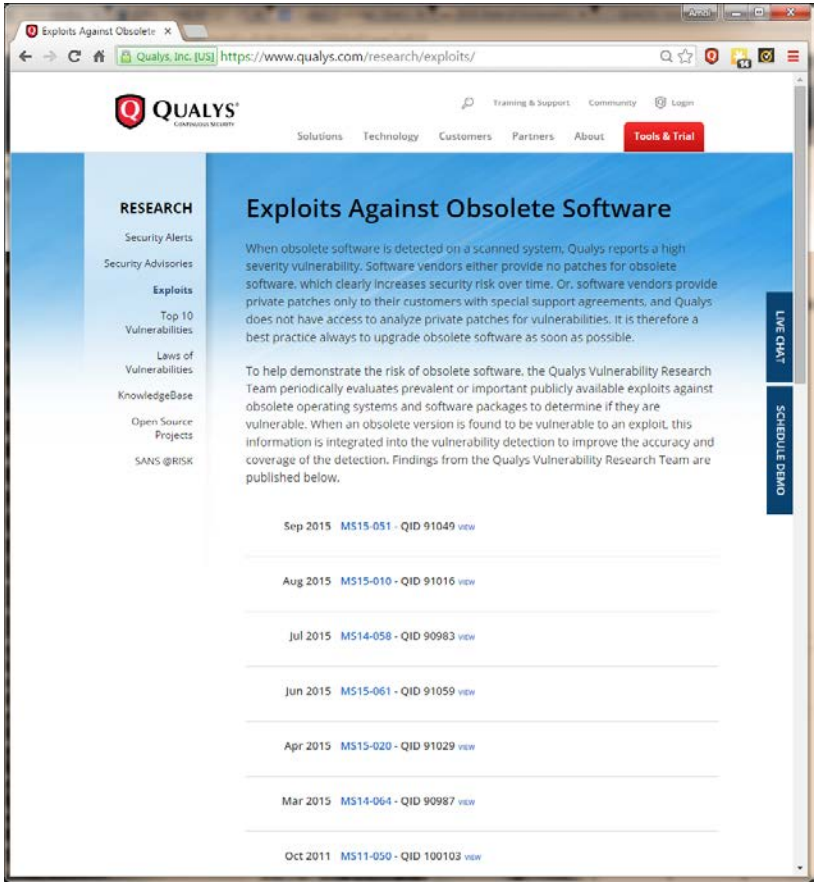
HIGH LATERAL MOVEMENT	LOW LATERAL MOVEMENT
CVE-2015-0117: IBM Domino CVE-2015-0117 Arbitrary Code Execution Vulnerability	CVE-2015-1155: Apple Safari CVE-2015-1155 Information Disclosure Vulnerability
CVE-2015-2545: Microsoft Office CVE-2015-2545 Remote Code Execution Vulnerability	CVE-2015-5737: FortiClient CVE-2015-5737 Multiple Local Information Disclosure Vulnerabilities
CVE-2015-1635: Microsoft Windows HTTP Protocol Stack CVE-2015-1635 Remote Code Execution Vulnerability	CVE-2015-1830: Apache ActiveMQ CVE-2015-1830 Directory Traversal Vulnerability
CVE-2015-2590: Oracle Java SE CVE-2015-2590 Remote Security Vulnerability	CVE-2015-1427: Elasticsearch Groovy Scripting Engine Sandbox Security Bypass Vulnerability
CVE-2015-0240: Samba 'TALLOC_FREE()' Function Remote Code Execution Vulnerability	CVE-2015-1479: ManageEngine ServiceDesk Plus 'CreateReportTable.jsp' SQL Injection Vulnerability
CVE-2015-2342: VMware vCenter Server CVE-2015-2342 Remote Code Execution Vulnerability	CVE-2015-1592: Movable Type CVE-2015-1592 Unspecified Local File Include Vulnerability
CVE-2015-2219: Lenovo System Update 'SUService.exe' CVE-2015-2219 Local Privilege Escalation Vulnerability	CVE-2015-2560: ManageEngine Desktop Central CVE-2015-2560 Password Reset Security Bypass Vulnerability

50% of Vulnerabilities had minimal Lateral Movement

Remote + High Lateral Movement

Examples:	
CVE-2015-0117	IBM Domino CVE-2015-0117 Arbitrary Code Execution Vulnerability
CVE-2015-2545	Microsoft Office CVE-2015-2545 Remote Code Execution Vulnerability
CVE-2015-1635	Microsoft Windows HTTP Protocol Stack CVE-2015-1635 Remote Code Execution Vulnerability
CVE-2015-2426	Microsoft Windows OpenType Font Driver CVE-2015-2426 Remote Code Execution Vulnerability
CVE-2015-2590	Oracle Java SE CVE-2015-2590 Remote Security Vulnerability

Exploits for EOL Applications



Sep 2015 MS15-051 - QID 91049 HIDE

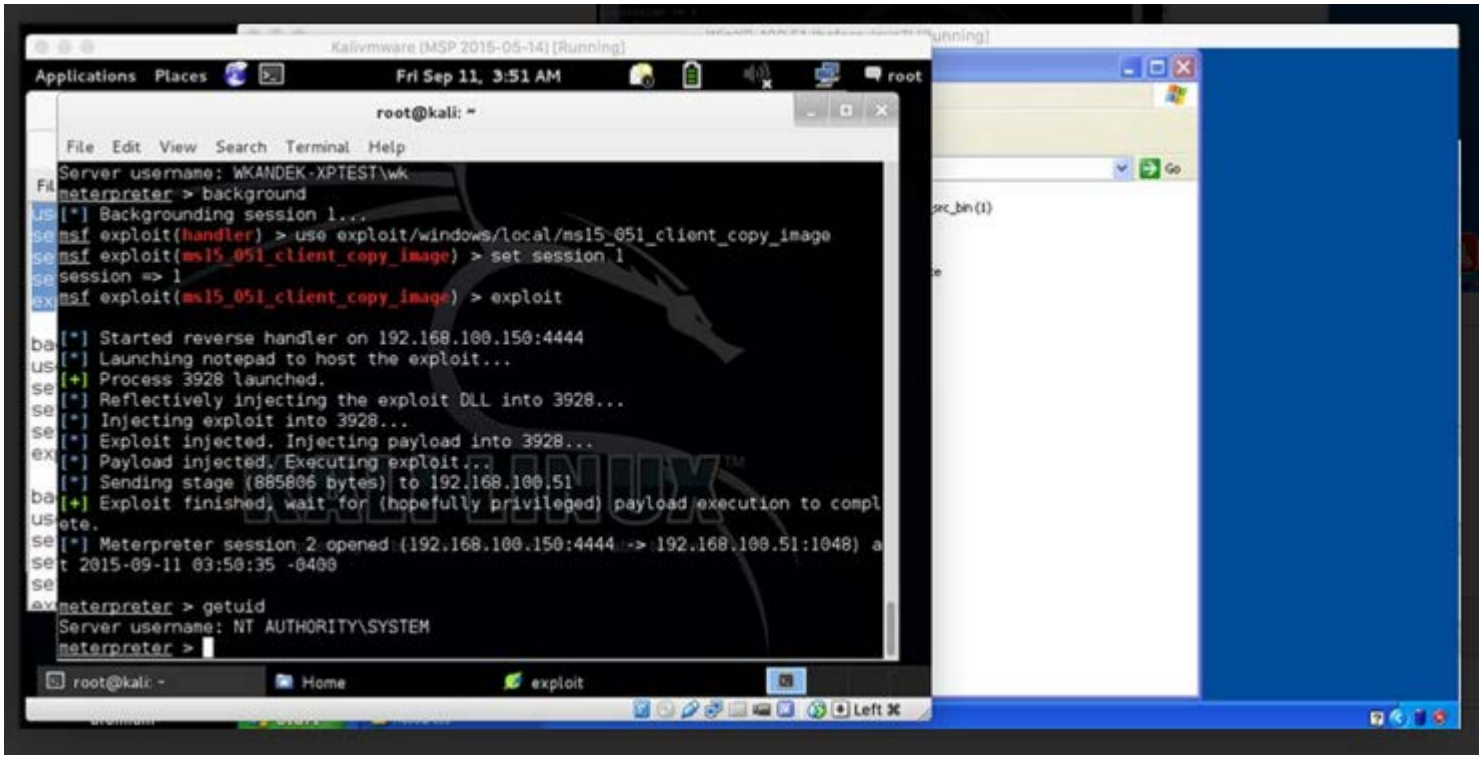
Vulnerable Software per Vendor Advisory: Windows 2003 - Windows 8.1 - see Microsoft Advisory for full detail

Exploit Used: Metasploit v4.11.4 - 2015071402

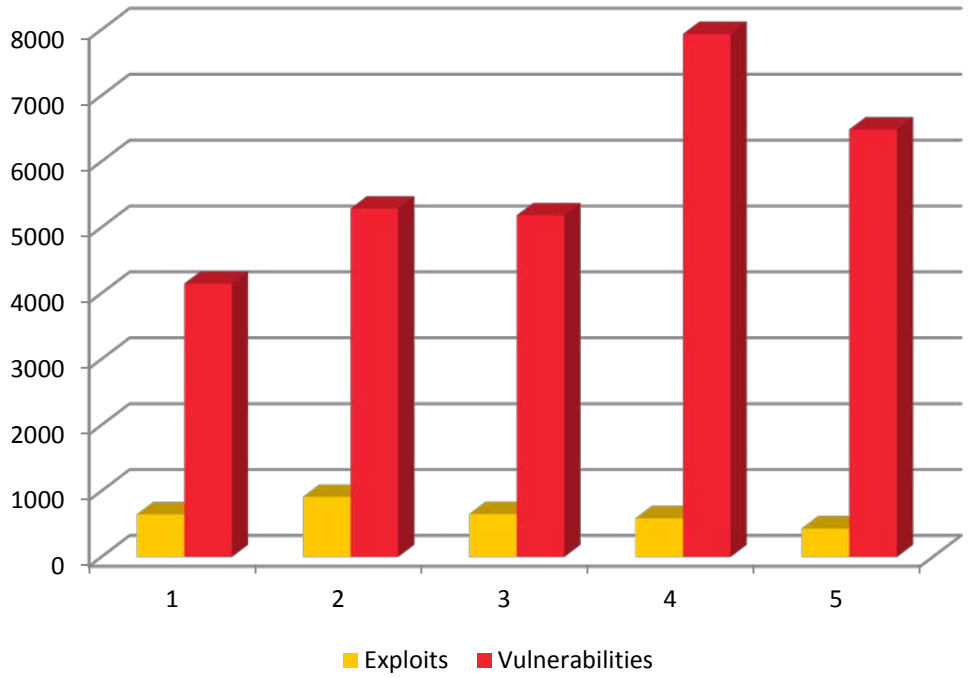
Findings:

Additional Vulnerable Software	Impact of Exploit
Windows XP SP3	Elevation of Privilege

Exploits for EOL Applications



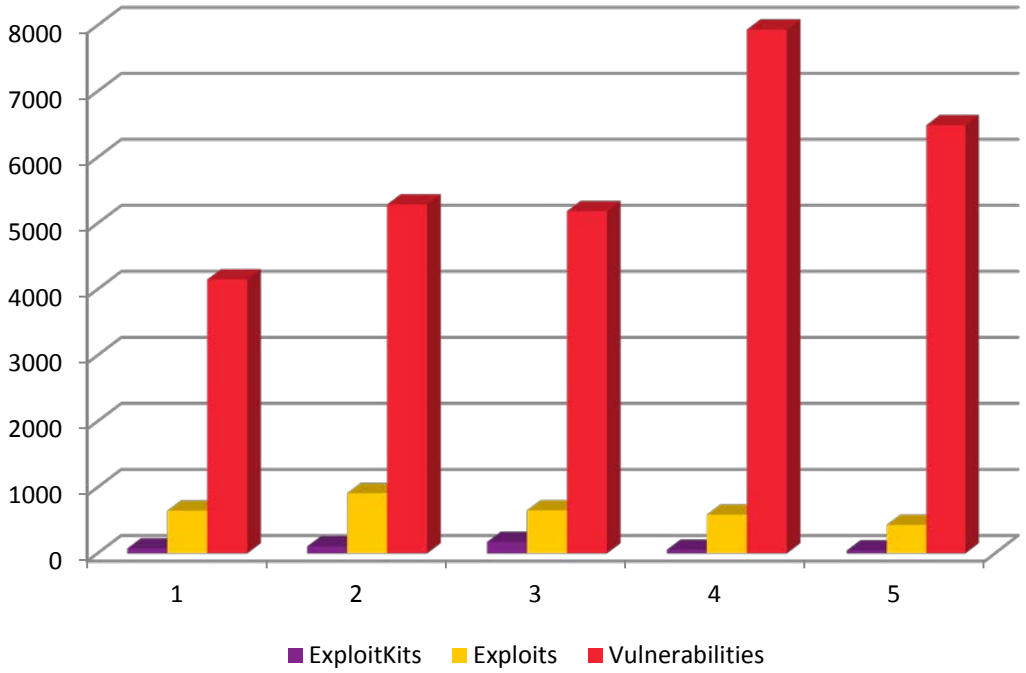
Only 7% of Vulnerabilities in 2015 had an associated Exploit

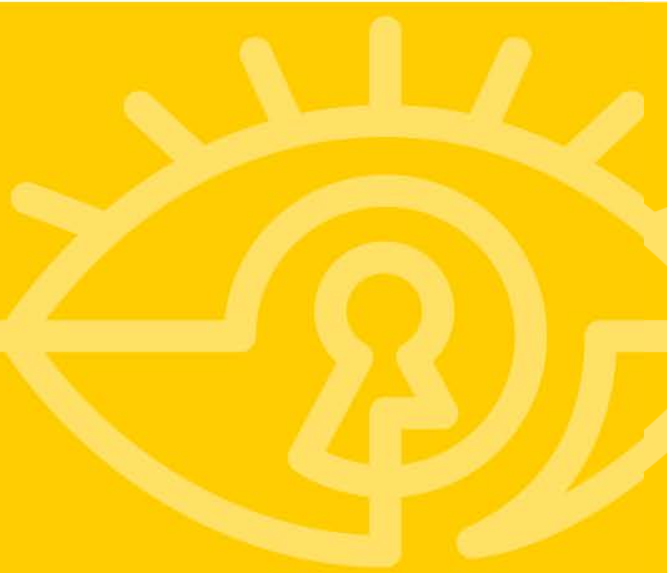


Exploit Kits of 2015

CVE	VULNERABILITY	EXPLOIT KIT
CVE-2015-0313	Adobe Flash Player Remote Code Execution Vulnerability (APSB15-04)	Hanjuan, Angler,
CVE-2015-0311	Adobe Flash Player Remote Code Execution Vulnerability (APSB15-03)	SweetOrange, Rig, Fiesta, Nuclear, Nutrino, Magnitude, Angler
CVE-2015-2419	Microsoft Internet Explorer Cumulative Security Update (MS15-065)	RIG,Nuclear Pack, Neutrino, Hunter,Angler
CVE-2015-0312	Adobe Flash Player Remote Code Execution Vulnerability (APSB15-03)	Magniture, Angler
CVE-2015-0359	Adobe Flash Player Multiple Remote Code Execution Vulnerabilities (APSB15-06)	Fiesta,Angler, Nuclear, Neutrino, Rig, Magnitude
CVE-2015-0310	Adobe Flash Player Security Update (APSB15-02)	Angler
CVE-2015-0336	Adobe Flash Player Remote Code Execution Vulnerability (APSB15-05)	Angler
CVE-2015-5560	Adobe Flash Player and AIR Multiple Vulnerabilities (APSB15-19)	Nuclear Pack
CVE-2015-2426	Microsoft Font Driver Remote Code Execution Vulnerability (MS15-078)	Magnitude
CVE-2015-5122	Adobe Flash Player Multiple Vulnerabilities (APSB15-18)	Hacking Team, Nutrino, Angler, Magnitude, Nuclear, RIG, NULL Hole
CVE-2015-5119	Adobe Flash Player and AIR Multiple Vulnerabilities (APSA15-03, APSB15-16)	Neutrino, Angler, Magnitude, Hanjuan, NullHole
CVE-2015-1671	Microsoft Font Drivers Remote Code Execution Vulnerabilities (MS15-044)	Angler
CVE-2015-3113	Adobe Flash Player Buffer Overflow Vulnerability (APSB15-14)	Magnitude, Angler, Rig, Neutrino
CVE-2015-3105/3104	Adobe Flash Player and AIR Multiple Vulnerabilities (APSB15-11)	Magnitude, Angler, Nuclear
CVE-2015-3090	Adobe Flash Player and AIR Multiple Vulnerabilities (APSB15-09)	Angler, Nuclear, Rig, Magnitude
CVE-2015-0336	Adobe Flash Player Remote Code Execution Vulnerability (APSB15-05)	Nuclear,Angler, Neutrino, Magnitude

Less than 1% of Vulnerabilities had an associated Exploit Kit





Applying Exploit knowledge

Next week
Next Quarter
Next 6 months

Applying Exploit knowledge

- Next Week: Create inventory of :
  - Applications with weaponized Exploit packs
  - EOL Applications and EOL Operating Systems
  - Vulnerabilities with working exploits
  - Vulnerabilities that can be remotely compromised
- Next Month:
  - Upgrade EOL applications
  - Patching all vulnerabilities with Exploit packs and exploits
- Next Quarter:
  - Automatic inventory and alerting
  - Debate if most exploited applications, like Flash, are required for business.

Thank You

@amolsarwate