2016 THREAT ENVIRONMENT

UNRESTRAINED ADVERSARIES POINT WAY TO MORE DIVERSE THREAT LANDSCAPE

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Presented by Christopher Porter, Senior Threat Intelligence Analyst, to the Information Security and Privacy Advisory Board

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Key Findings

- The lack of effective cyber deterrence has emboldened Advanced Persistent Threat (APT) groups.
- Sophisticated groups do not rely on zero days—they can turn the operating system against itself.
- Commoditization of cybercrime has spread APT-like threats worldwide.
- Threat groups are figuring out the formula for causing critical infrastructure outages.
- Threat to mobile likely to rise precipitously following FBI case against Apple.
- Intelligence sharing—information in context—is necessary to improve protection against cyber threats.

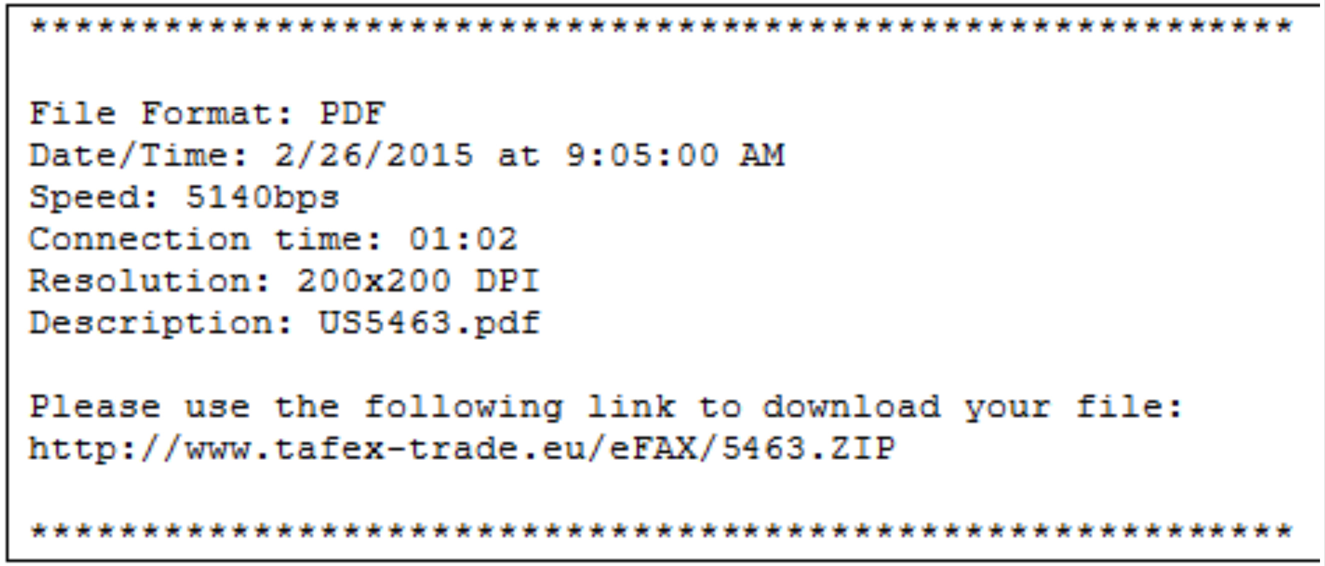
Game Theory for State-Sponsors of Cyber Attacks Now Favors Offense Rather Than Restraint

- Over the past year, public discussion of cyber attacks has turned to how major destructive attacks have gone unpunished and the difficulties of confident attribution.

- State sponsors of hacking worldwide probably now assess that they can conduct even destructive operations without provoking physical or significant economic responses from their targets.

- **APTs are continuing their operations even after detection and attribution.**

Dangerous Theory in Practice: APT29



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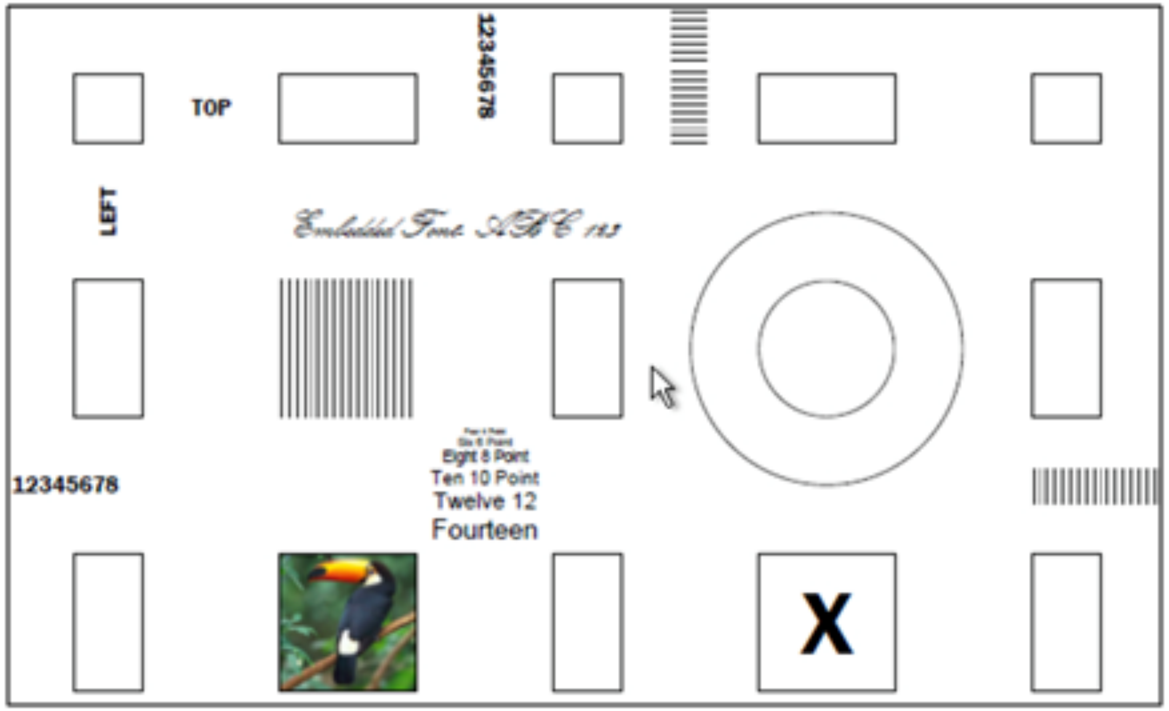


- Cybercrime-style phishing emails
- Western national governments and foreign policy entities, media organizations, defense and government contractors, and higher education institutions.
- Targeting geopolitical information related to Ukraine conflict
- Operations and development occur in Moscow time

Dangerous Theory in Practice: APT29, continued

- Email links to legitimate, compromised websites
- Real voicemails used as lures
- Escalates privileges using built-in and publicly available Windows administration tools **without writing to disk.**
- Malicious commands run as scheduled tasks.
- **Threats like APT29 must be actively hunted for to discover them; passive, network-edge detection will not work.**

Dangerous Theory in Practice: APT29, continued

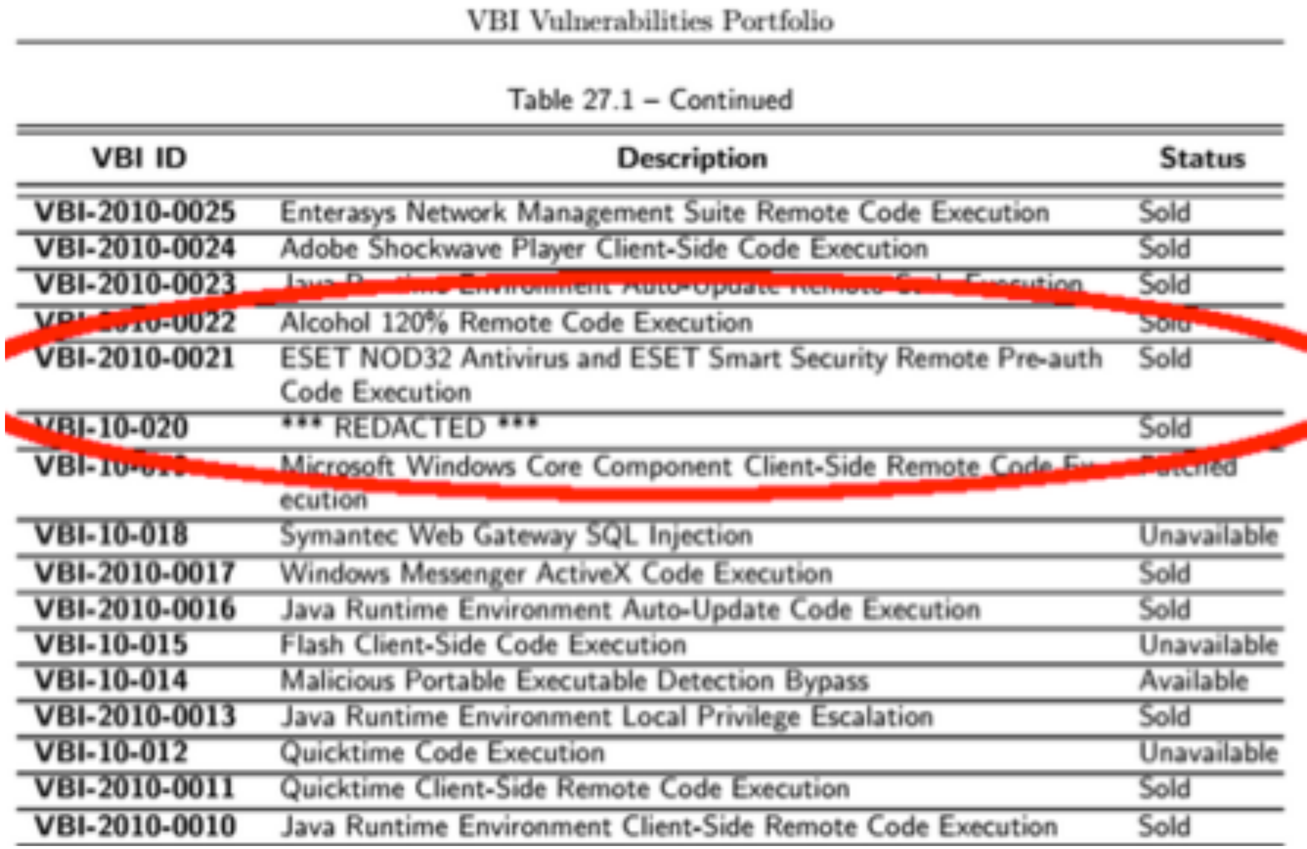
- APT29 operators operated with a full understanding that investigations were underway and defenders were watching.
- Repeated exposure and indicator sharing did not even slow them down.
- APT29 learned of an upcoming remediation event and obtained fresh password dumps in order to acquire the latest passwords.
- **Lesson learned: importance of out-of-band emergency security line.**

The Digital Underworld is Flat: Cybercrime Market Matures

- Offensive tool vendors—“legitimate” and underground—give even small nations and criminal groups the purchasing power to keep up a steady supply of zero days.

- Hackers can threaten anyone from anywhere…(driving prices down and threats up)

- ...but geography still matters. Cybercriminals in Latin America, Middle East, and Eastern Europe often operate with impunity in the absense of laws and enforcement capability.



VBI Vulnerabilities Portfolio

Table 27.1 – Continued

VBI ID	Description	Status
VBI-2010-0025	Enterasys Network Management Suite Remote Code Execution	Sold
VBI-2010-0024	Adobe Shockwave Player Client-Side Code Execution	Sold
VBI-2010-0023	Java Runtime Environment Auto-Update Remote Code Execution	Sold
VBI-2010-0022	Alcohol 120% Remote Code Execution	Sold
VBI-2010-0021	ESET NOD32 Antivirus and ESET Smart Security Remote Pre-auth Code Execution	Sold
VBI-10-020	*** REDACTED ***	Sold
VBI-10-019	Microsoft Windows Core Component Client-Side Remote Code Execution	Patched
VBI-10-018	Symantec Web Gateway SQL Injection	Unavailable
VBI-2010-0017	Windows Messenger ActiveX Code Execution	Sold
VBI-2010-0016	Java Runtime Environment Auto-Update Code Execution	Sold
VBI-10-015	Flash Client-Side Code Execution	Unavailable
VBI-10-014	Malicious Portable Executable Detection Bypass	Available
VBI-2010-0013	Java Runtime Environment Local Privilege Escalation	Sold
VBI-10-012	Quicktime Code Execution	Unavailable
VBI-2010-0011	Quicktime Client-Side Remote Code Execution	Sold
VBI-2010-0010	Java Runtime Environment Client-Side Remote Code Execution	Sold

“But Cybercriminals Are Not APTs: What’s the Worst That Could Happen?”

- **False Flag Attacks -** Criminal groups have APT-like capabilities and go after similar targets. Both know that defenders will have a hard time telling them apart. *Large-scale cybercrime must be reduced to even begin addressing APT incentives.*

- **Targeting the Executive –** Attacking leadership at home or on mobile devices as an entry vector to organization or for digital blackmail. *Cyber is often tactically “symmetric” even when it is strategically asymmetric.*

- **Consequences Spiral –** Ransomware designed for profit disables far more than threat actors intend (or not), resulting in loss of physical infrastructure operation or life. *Operational savvy, not cyber skill, is “limiting reagent” for ICS attacks. These incidents enable criminals and APTs alike to learn what works.*

Precedents Being Set are Worsening Threats to Mobile

- FireEye tracks 15 different Chinese APTs that conduct computer network operations against telecommunications companies worldwide.
- Two Chinese APTs, APT1 and APT5, have targeted mobile operators' intellectual property, including code.
- Several Russian groups already exploit jailbroken iOS.
- Celebrity photo-scandal actors relied on "law enforcement-only" tool and brute force password-guessing.
- China as of 1 January requires companies operating there to provide technical assistance "to avert and investigate terrorist activities."
- FireEye tracks 9 Chinese APTs that target NGOs, ethnic and religious minorities, and related news outlets that would probably fall under this law.

Intelligence Sharing—Not Information Sharing—Key to Improving Public-Private Cyber Defense Partnerships

- APT29 exposed more than a dozen times over 18 months, with no demonstrable effect on their operational tempo.
- Indicators may be necessary, but they are not sufficient.
- Best groups will leave indicators behind to dazzle technology-only solutions and mislead non-expert investigators.
- APTs are also informed when information is broadly shared.
- Indicators combined with context, like plans and intentions or attribution, can help private sector prioritize engagements, identify unique activity, and provide more valuable information back to public sector.

Questions?

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