IT Security:
Current Landscape and 2012 Priorities

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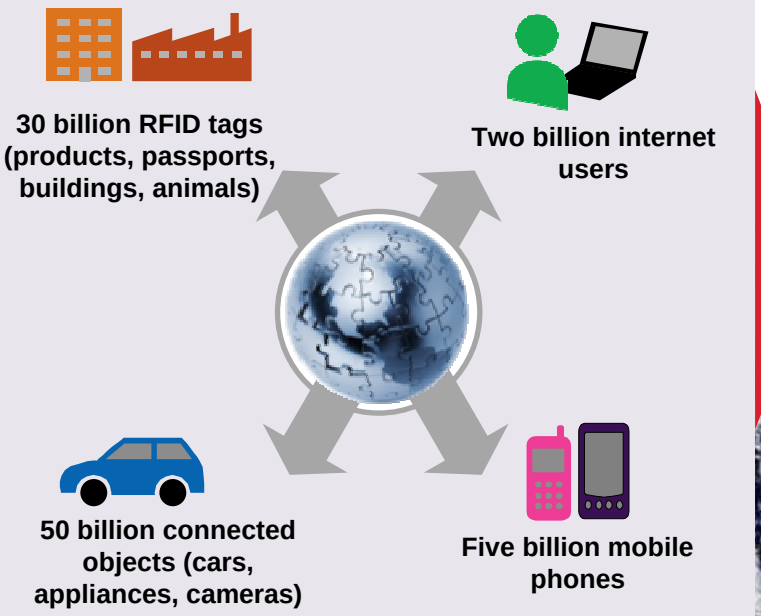
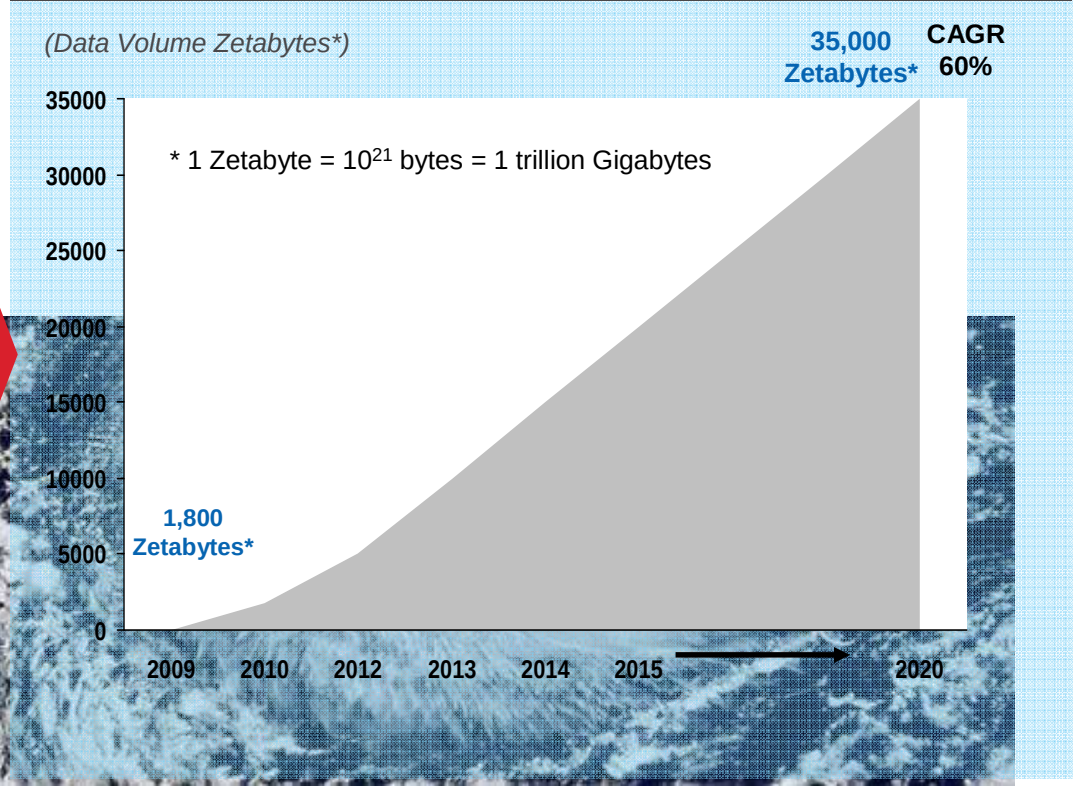
Security Tiger Team, IBM Worldwide

The world is becoming more digitized and interconnected

EXPLODING DIGITAL UNIVERSE



WORLDWIDE DATA VOLUMES PROJECTED TO INCREASE 29X OVER 10 YEARS



*Source: International Telecommunications Union. "Global Number of Internet Users, total and per 100 Inhabitants, 2000-2010." United Nations. http://www.itu.int/ITU-D/ict/statistics/material/excel/2010/Internet_users_00-10_2.xls; Ericsson. "More than 50 billion connected devices – taking connected devices to mass market and profitability." February 14, 2011. http://www.ericsson.com/news/110214_more_than_50_billion_244188811_c; IDC "Digital Universe Study," sponsored by EMC. May 2010

IBM Global Security Reach

9 Security Operations Centers + 9 Security Research Centers + 133 Monitored Countries + 20,000+ Devices under Contract + 3,700+ MSS Clients Worldwide + 21 Billion+ Events Per Day

IBM X-Force R&D - Unmatched Security Leadership

X-Force Research

14B analyzed Web pages & images

40M spam & phishing attacks

54K documented vulnerabilities

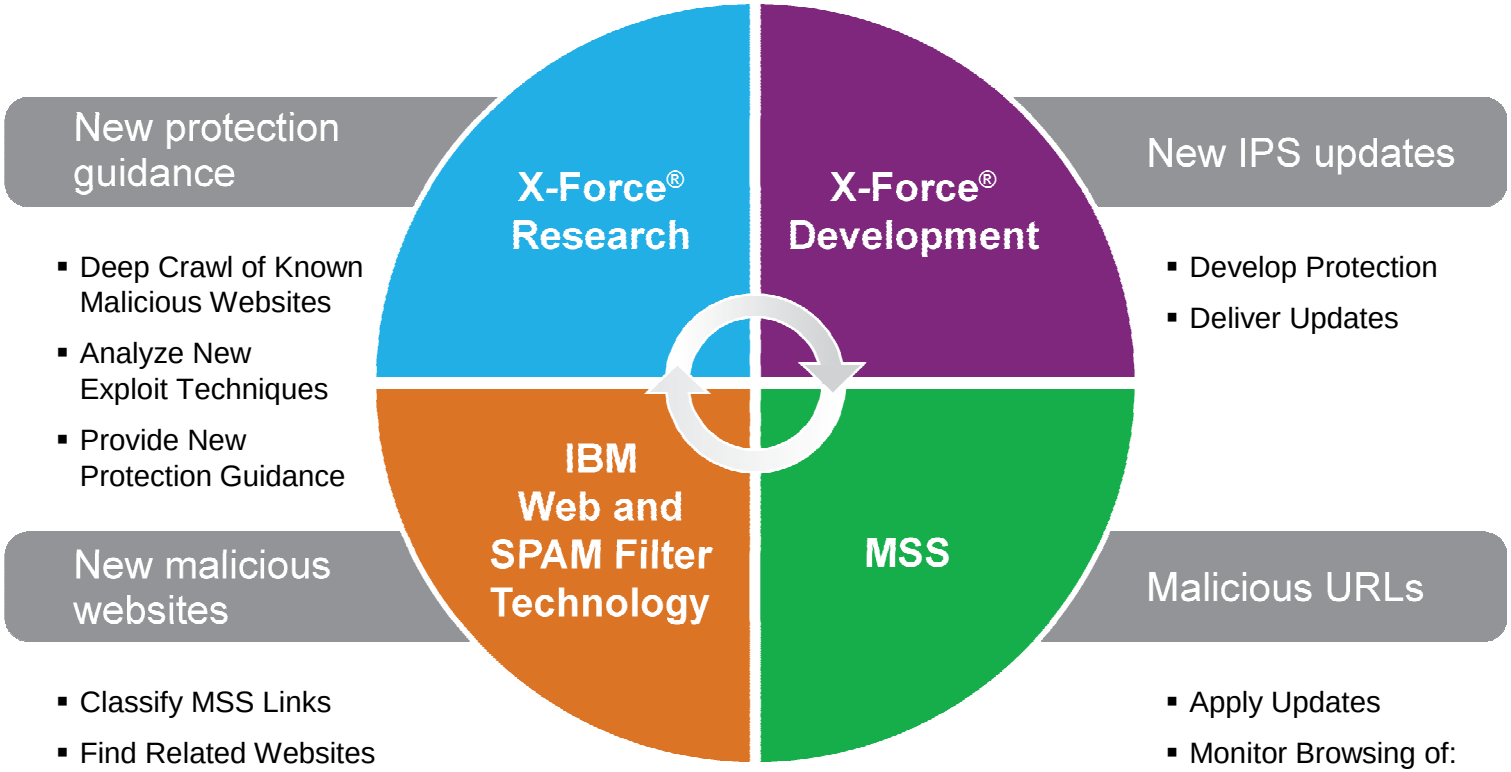
Billions of intrusion attempts daily

Millions of unique malware samples

Provides Specific Analysis of:

- Vulnerabilities & exploits
- Malicious/Unwanted websites
- Spam and phishing
- Malware
- Other emerging trends

IBM X-Force web intelligence lifecycle



- Deep Crawl of Known Malicious Websites
- Analyze New Exploit Techniques
- Provide New Protection Guidance

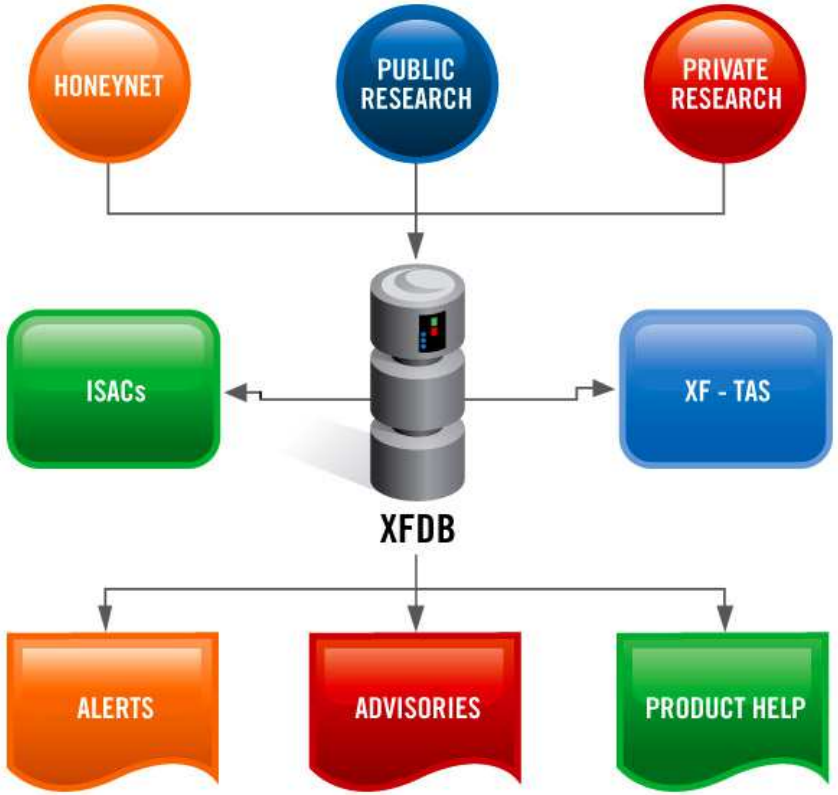
- Develop Protection
- Deliver Updates

- Classify MSS Links
- Find Related Websites (Deep Crawl)
- Search for Malware
- Find New Malicious Websites
- Block All Malicious Domains

- Apply Updates
- Monitor Browsing of:
  - Million of End-users
  - Thousands of Customers
  - Hundreds of Countries
- Block Malicious Links
- Send Links to X-Force

We analyze them all…

- Most comprehensive Vulnerability Database in the world
  - Over **50,000** unique vulnerabilities catalogued
  - Entries date back to the 1990's
- Updated daily by a dedicated research team
- The X-Force database currently tracks over...
  - 8000 Vendors
  - 17,000 Products
  - 40,000 Versions



Agenda

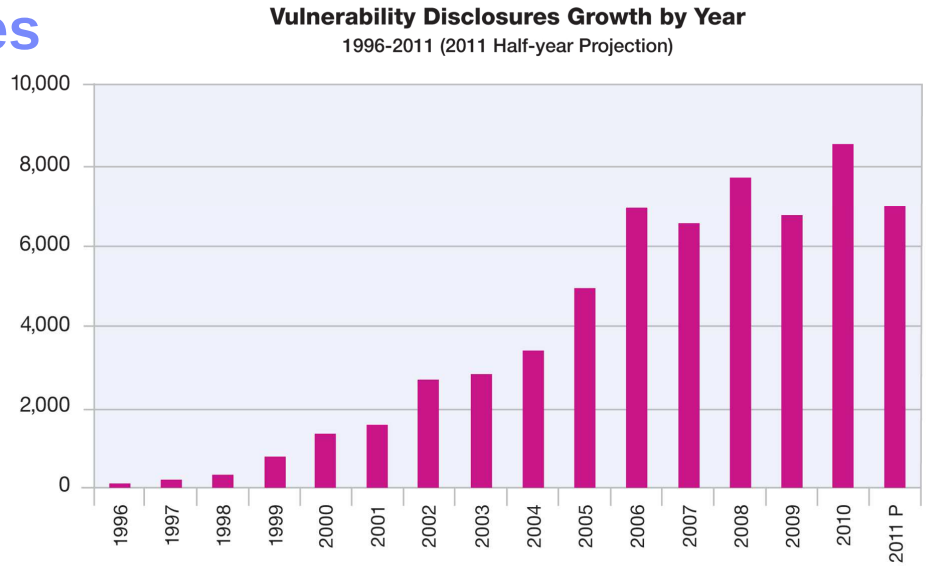
- Good news, we're making headway against threats and vulnerabilities

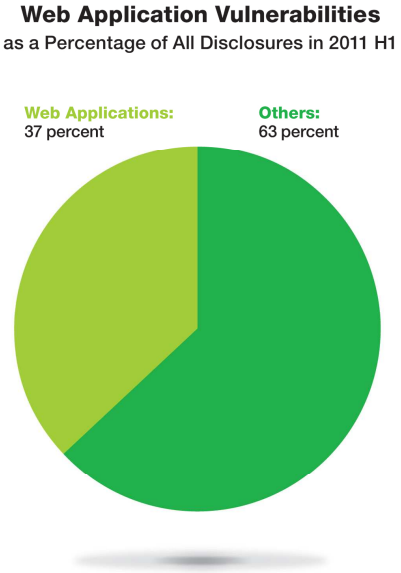
- Bad news, the landscape is becoming more complicated

- The Year of the Security Breach
  - Broadly targeted, financially motivated attacks
  - Advanced Persistent Threats
  - Hacktivism

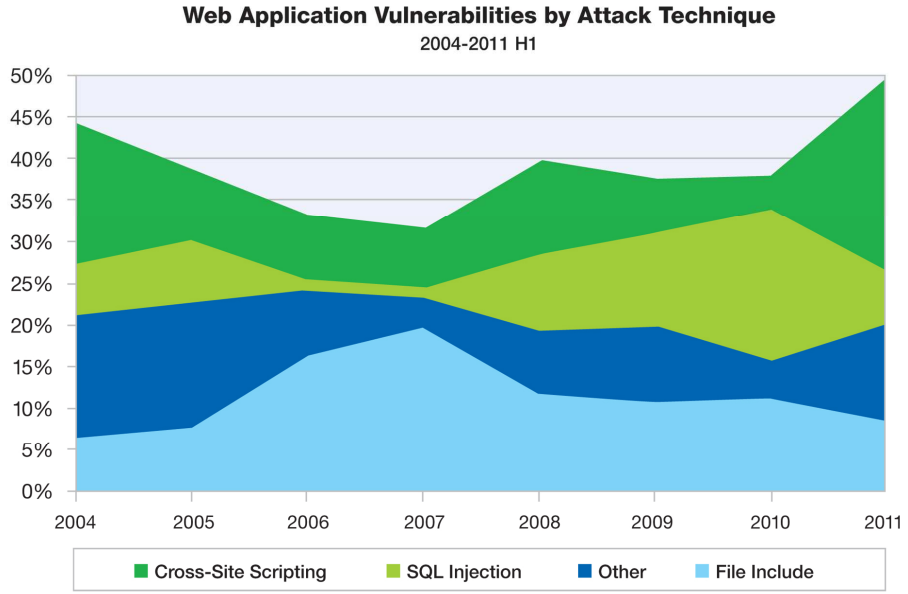
Decline in web vulnerabilities

- Total number of vulnerabilities decline — but it's cyclical
- Decline is in web application vulnerabilities





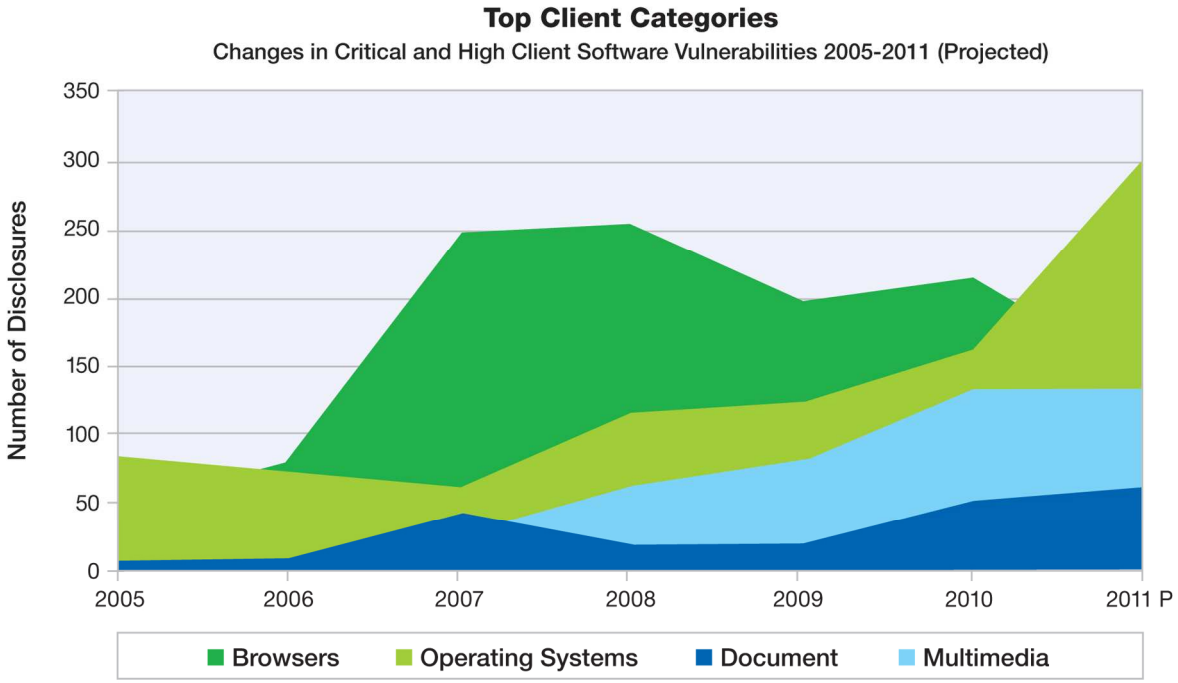
Source: IBM X-Force® Research and Development



Source: IBM X-Force® Research and Development

Exploiting other types of vulnerabilities more challenging

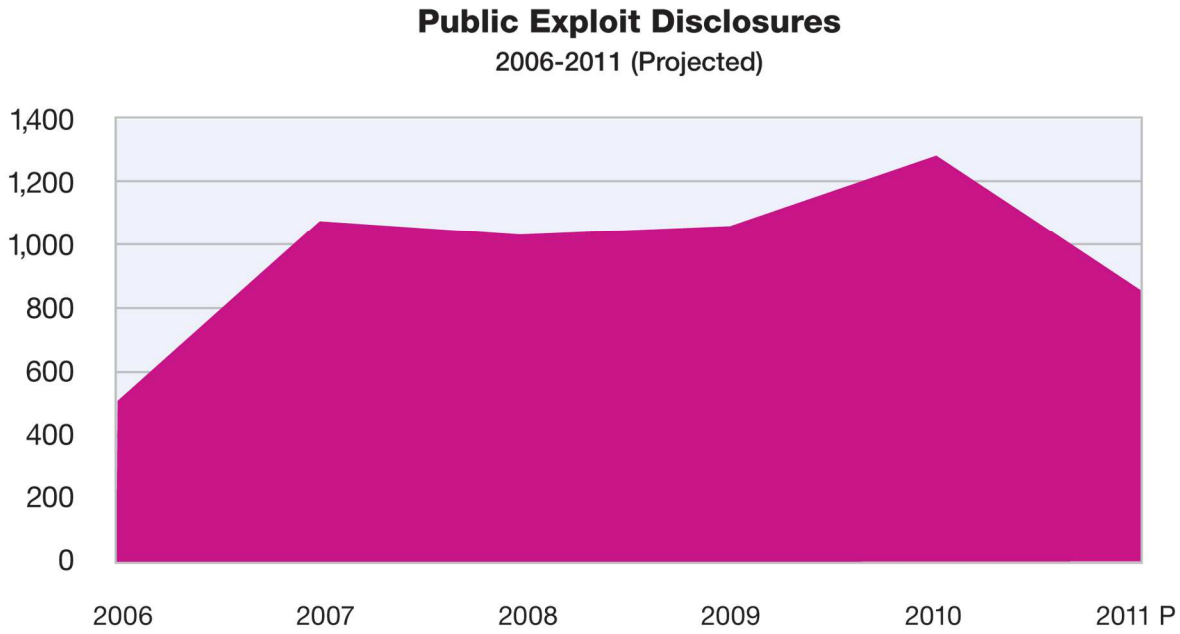
- High and critical OS disclosures exceed those in browsers
- However, advanced OS security features have made exploiting these vulnerabilities more challenging



Source: IBM X-Force® Research and Development

Public exploit disclosures decline

- Fewer exploits released in 2011
- Down as a percentage of vulnerabilities as well to 12%



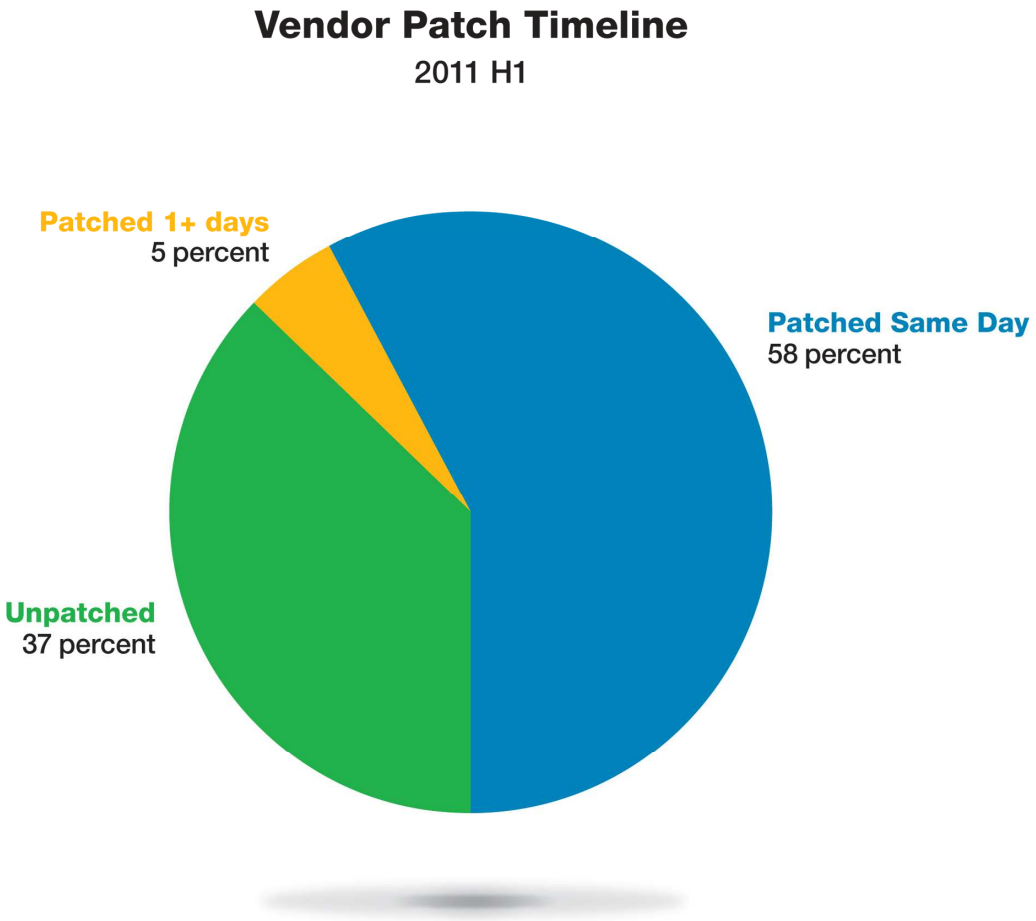
Source: IBM X-Force® Research and Development

True Exploits	2006	2007	2008	2009	2010	2011 Projected
Percentage of Total	7.3 percent	16.5 percent	13.4 percent	15.7 percent	14.9 percent	12.0 percent

Table 5: Public exploit disclosures – 2006-2011 (Projected)

Improvement in availability of Vendor Patches

- Significant improvement in unpatched vulnerabilities
- Hasn't dropped below 44% in over five years

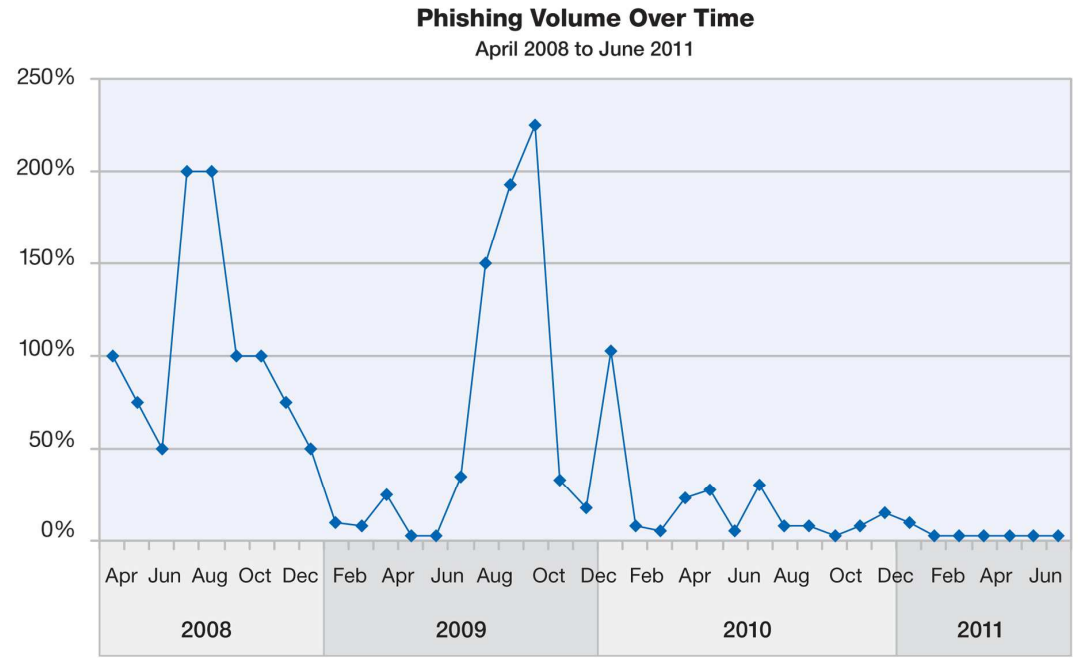


Source: IBM X-Force® Research and Development

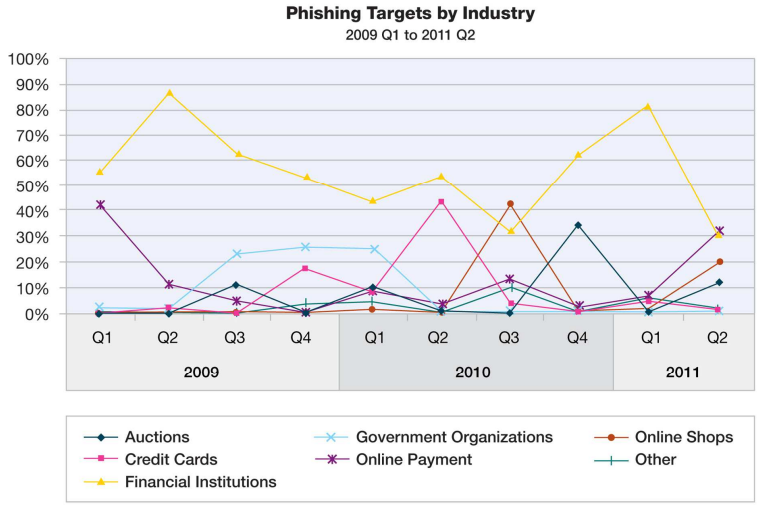
Goodbye to Phishing

- In 2011, spammers said goodbye to traditional email phishing. When looking at the percentage of spam that is phishing on a weekly basis we have measured less than 0.01 percent for every month.

- 80% still targeting financial institutions



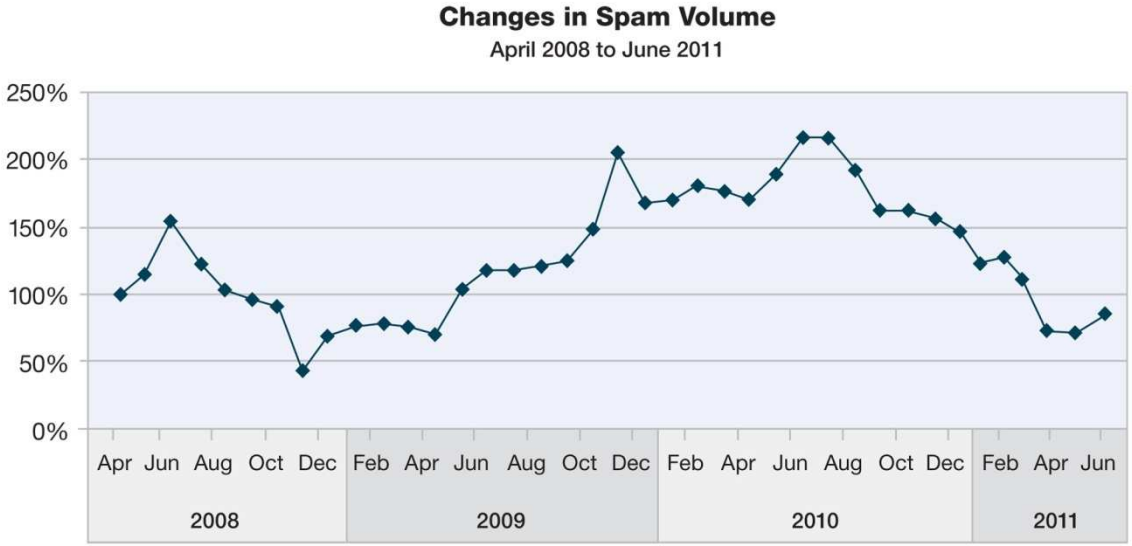
Source: IBM X-Force® Research and Development

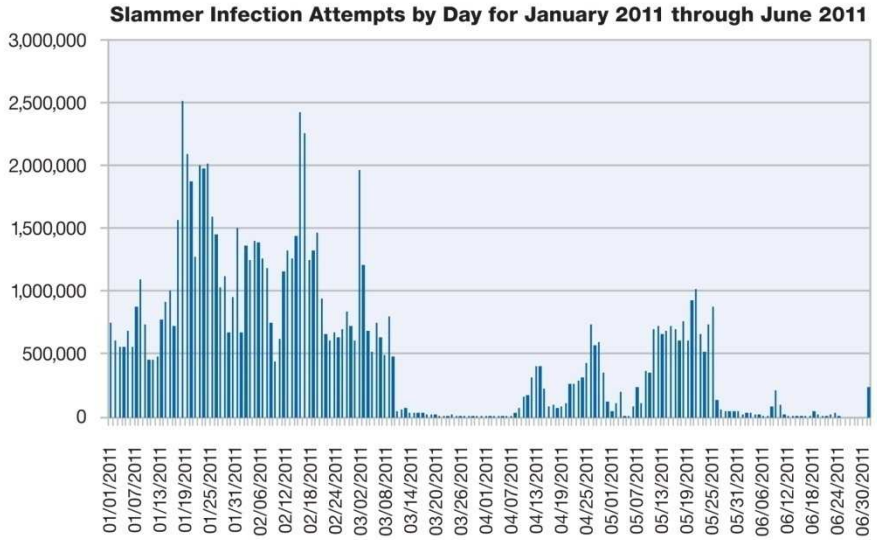


Source: IBM X-Force® Research and Development

Action taken against Bot Networks

- Rustock Botnet Takedown early in 2011 caused significant spam volume decline.
- IBM Botnet C&C data from 2011 shows abrupt disappearance of Waledec.
- A number of other botnets have been taken out by vendors, researchers, and law enforcement.
- Mysterious disappearance of SQL Slammer





Source: IBM X-Force® Research and Development

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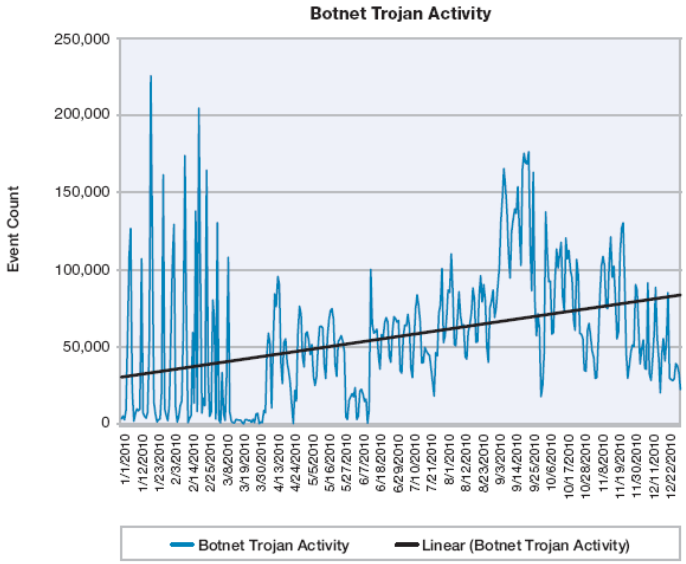
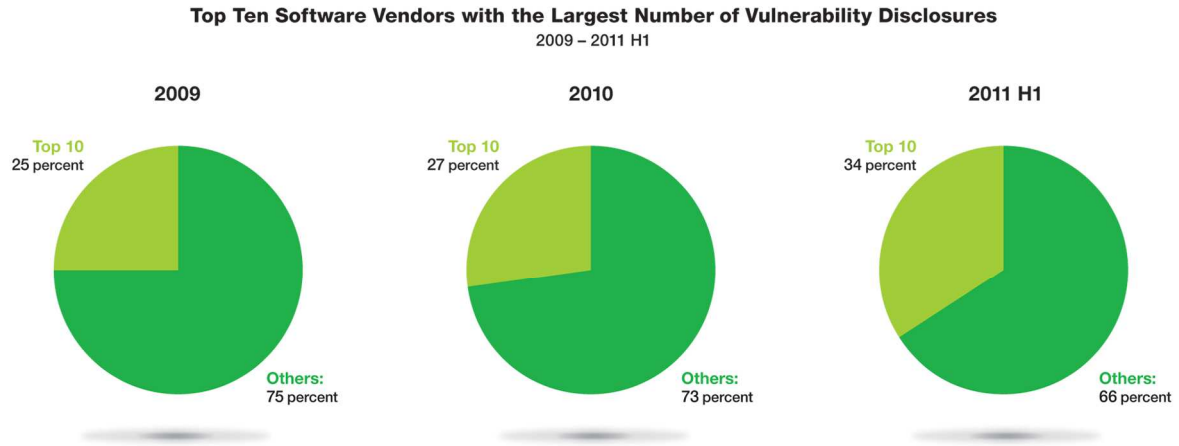


Critical vulnerabilities up

- Top 10 vendors a greater percentage



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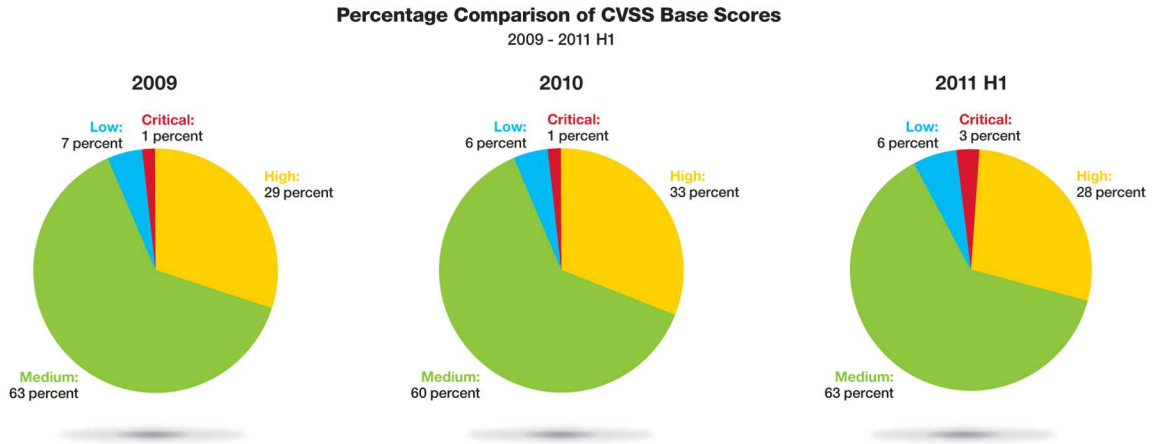
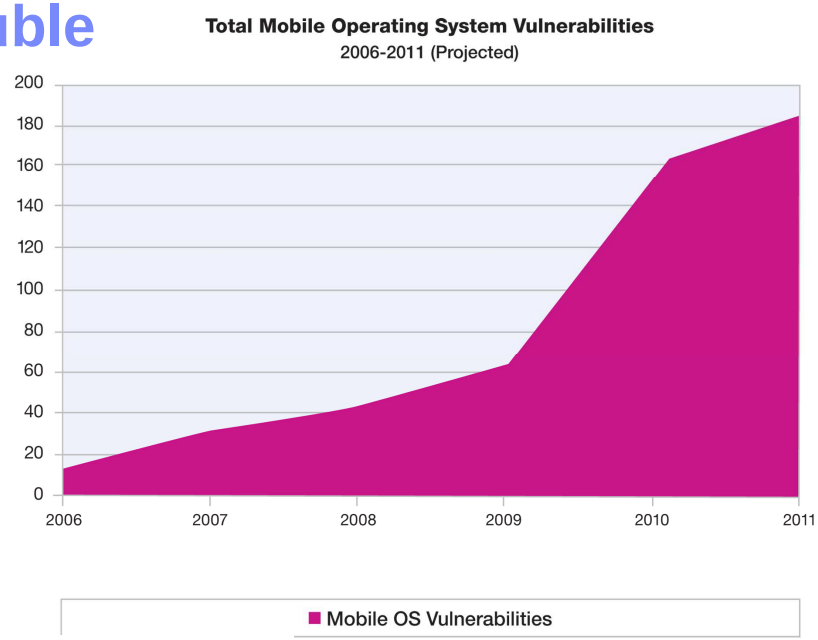
- Critical vulnerabilities triple as a percentage



Source: IBM X-Force® Research and Development

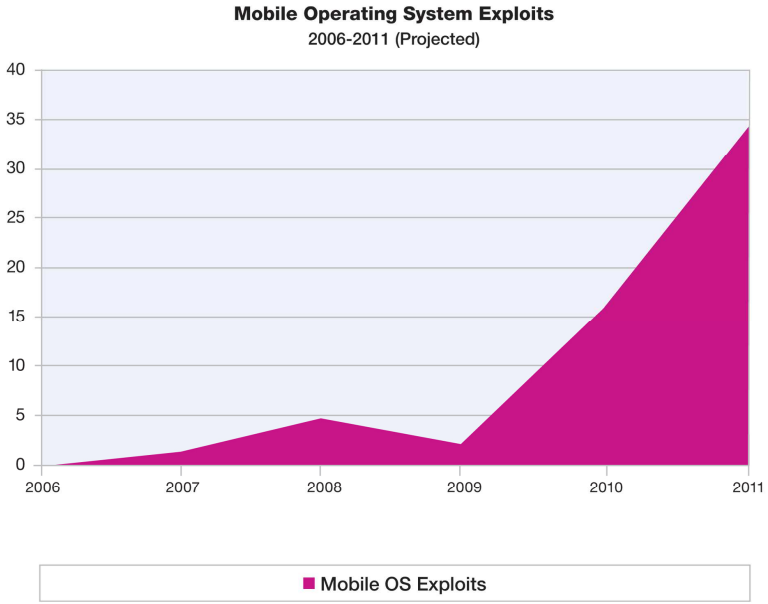
Mobile OS exploits projected to double

- Continued interest in Mobile vulnerabilities as enterprise users bring smartphones and tablets into the work place



Source: IBM X-Force® Research and Development

- Attackers finally warming to the opportunities these devices represent



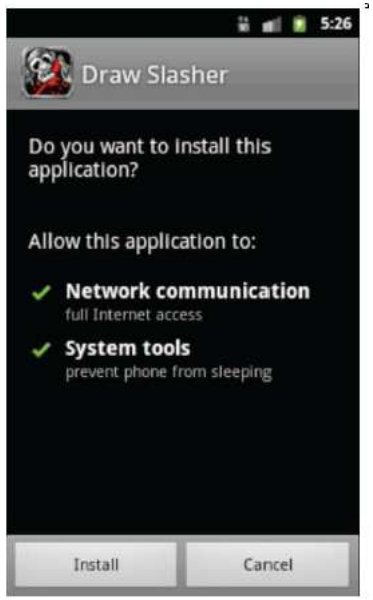
Source: IBM X-Force® Research and Development

COMPUTERWORLD
The voice of the ICT community

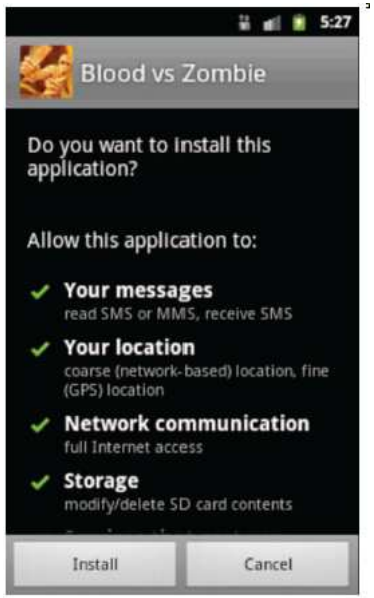
IBM X-Force: Mobile devices are a fast growing target of malware

Look for double the mobile exploits this year vs. 2010 and particularly watch out for mobile applications that are really malware, says IBM's X-Force security research team.

By Tim Greene, Framingham | Friday, 30 September, 2011



Draw Slasher, a legitimate game that requires minimal permissions

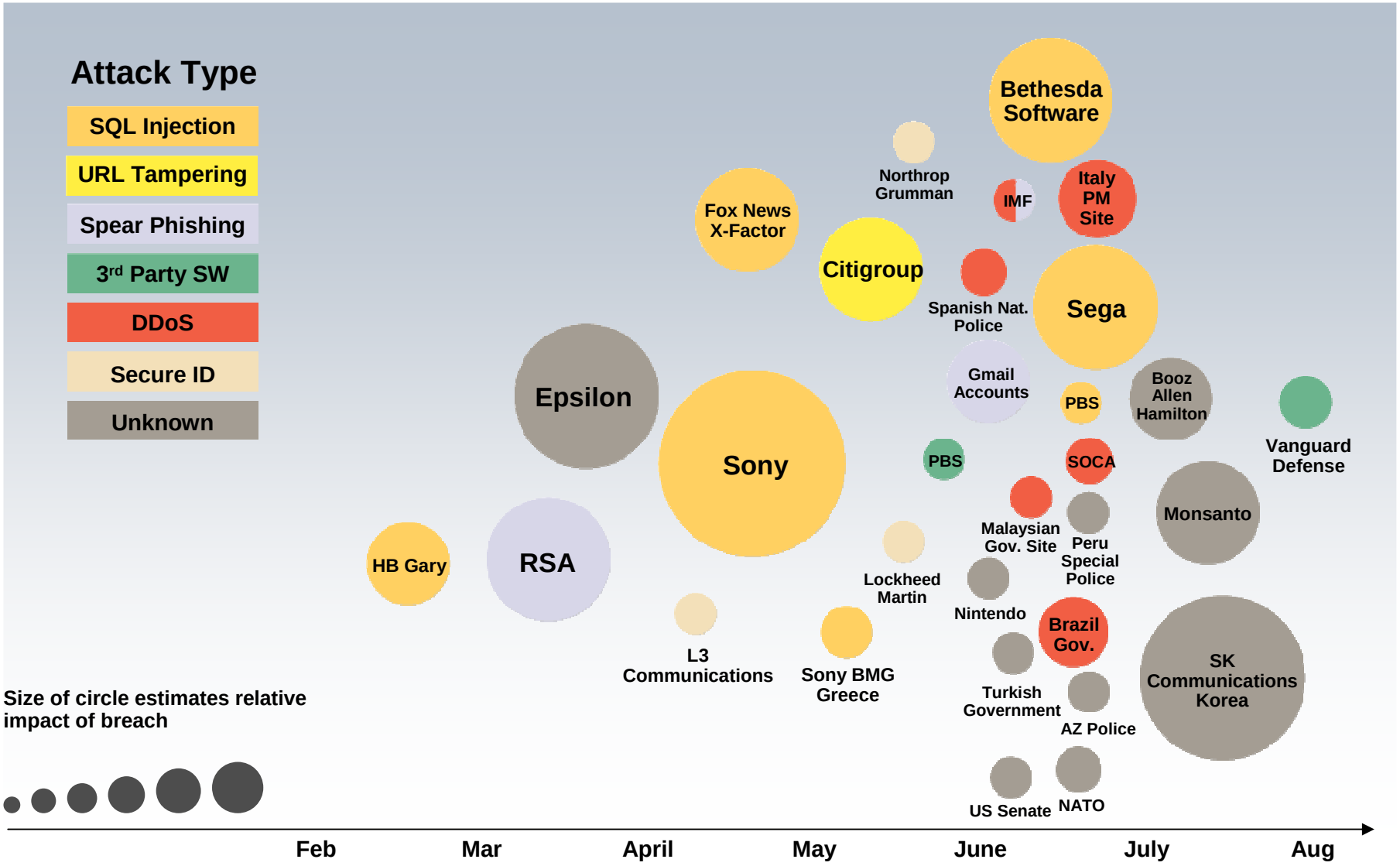


Blood versus Zombie, a malicious copy of Draw Slasher that contains more permissions than a game should need—including GPS[1] and SMS[2] access.

[1]GPS – Global Positioning System

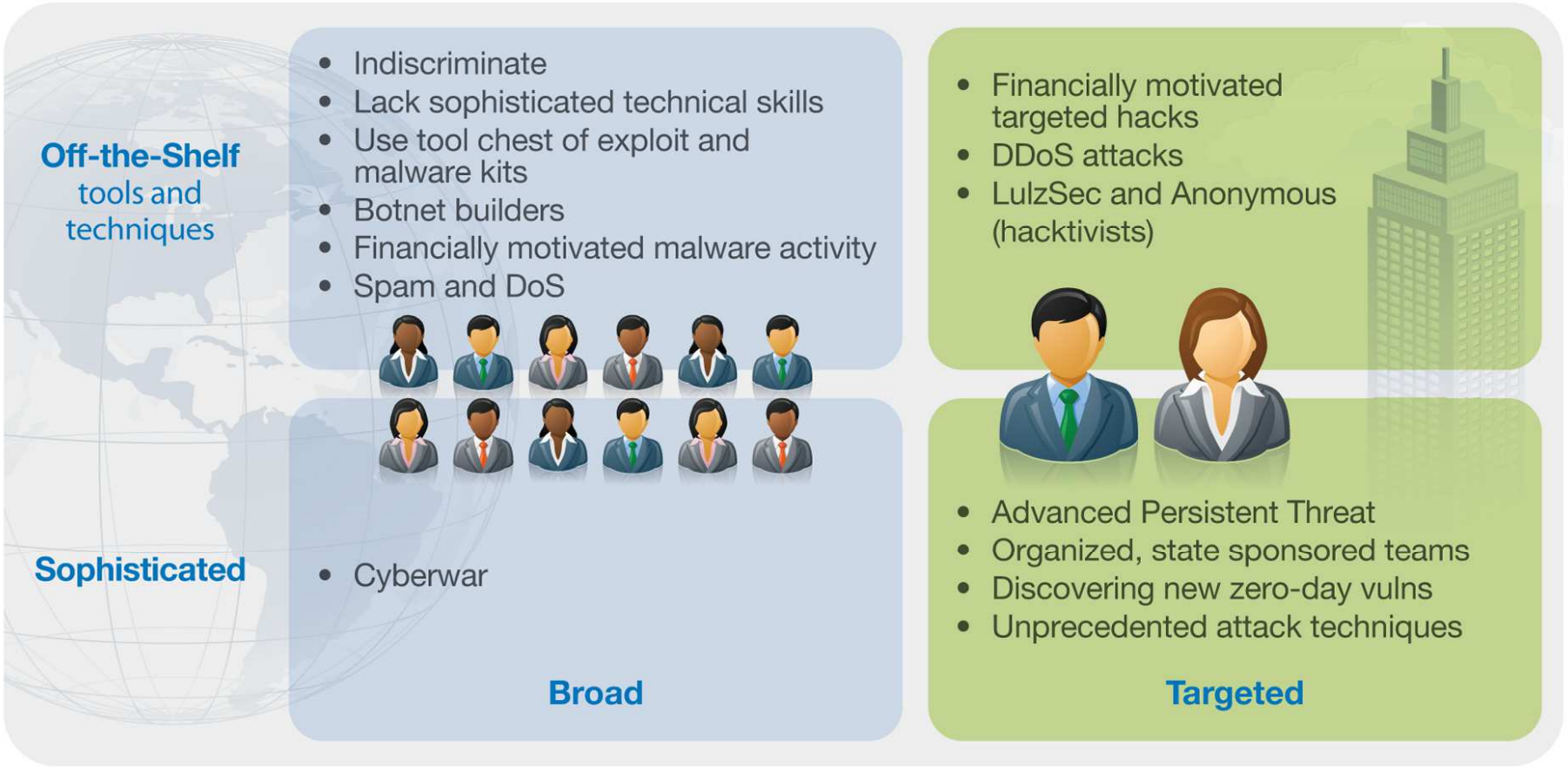
[2]SMS – Short Message Service

2011 – The Year of the Targeted Attack



Who is attacking our networks?

Attacker Types and Techniques 2011 H1



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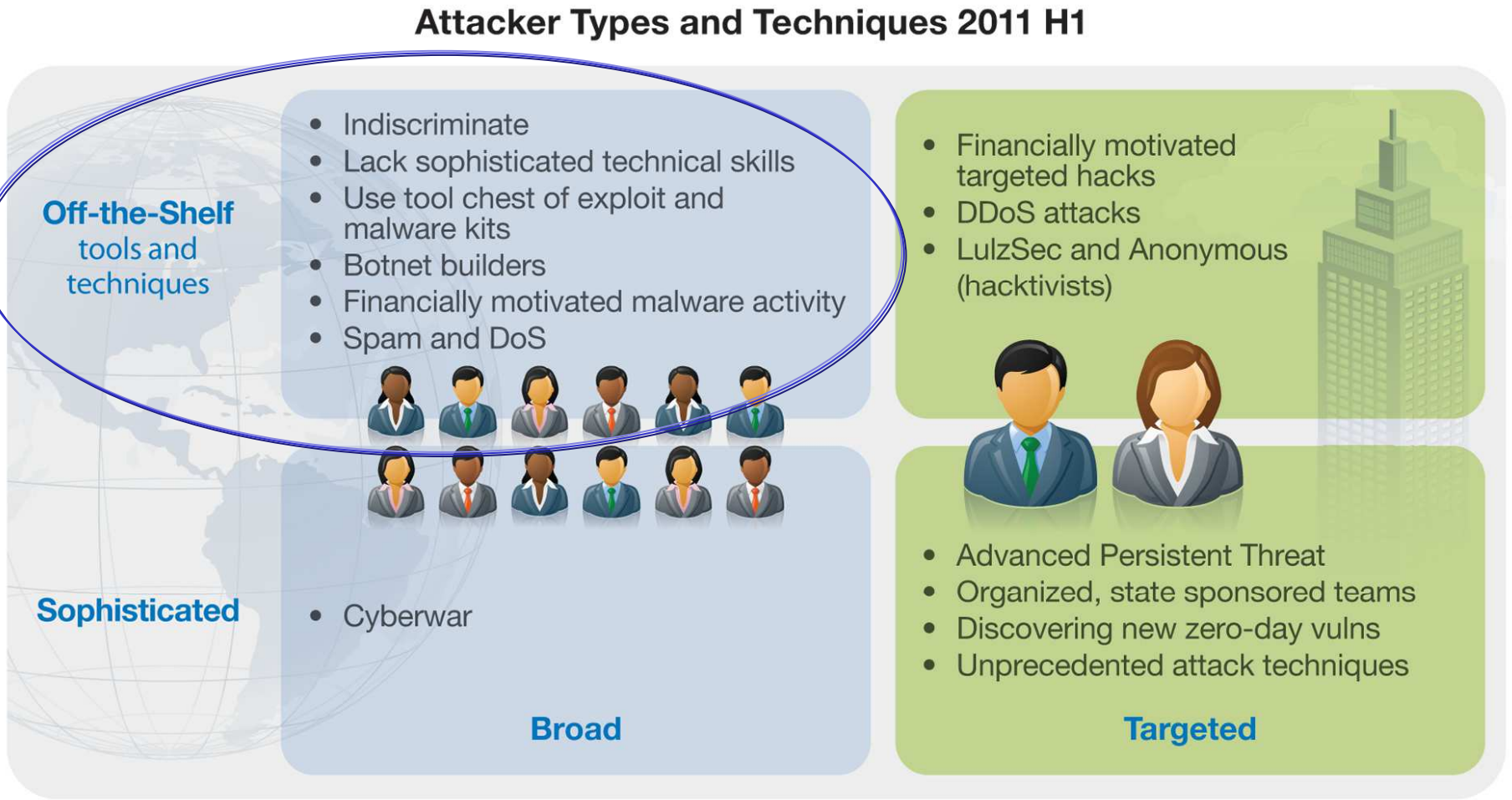
Who is attacking our networks?



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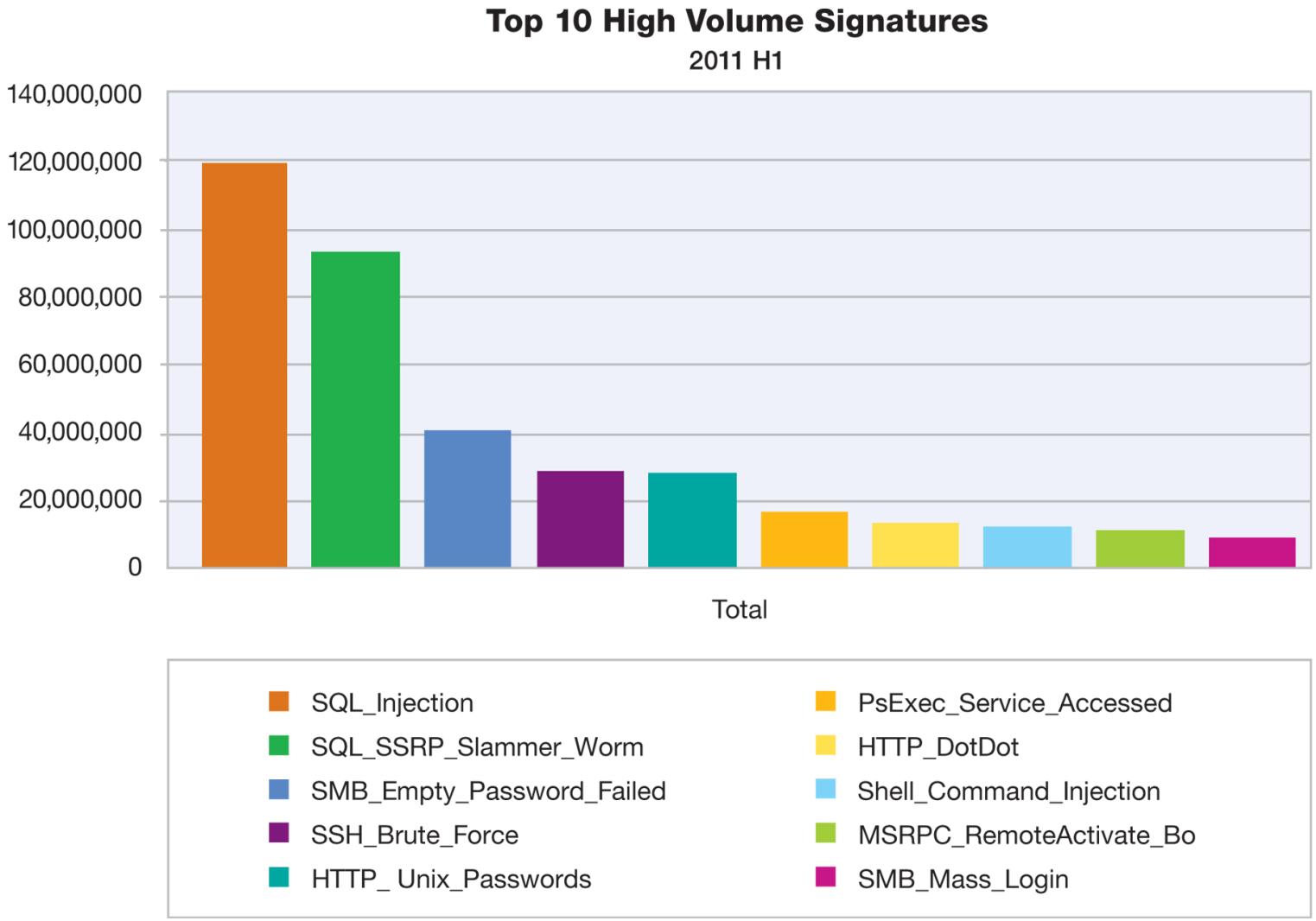
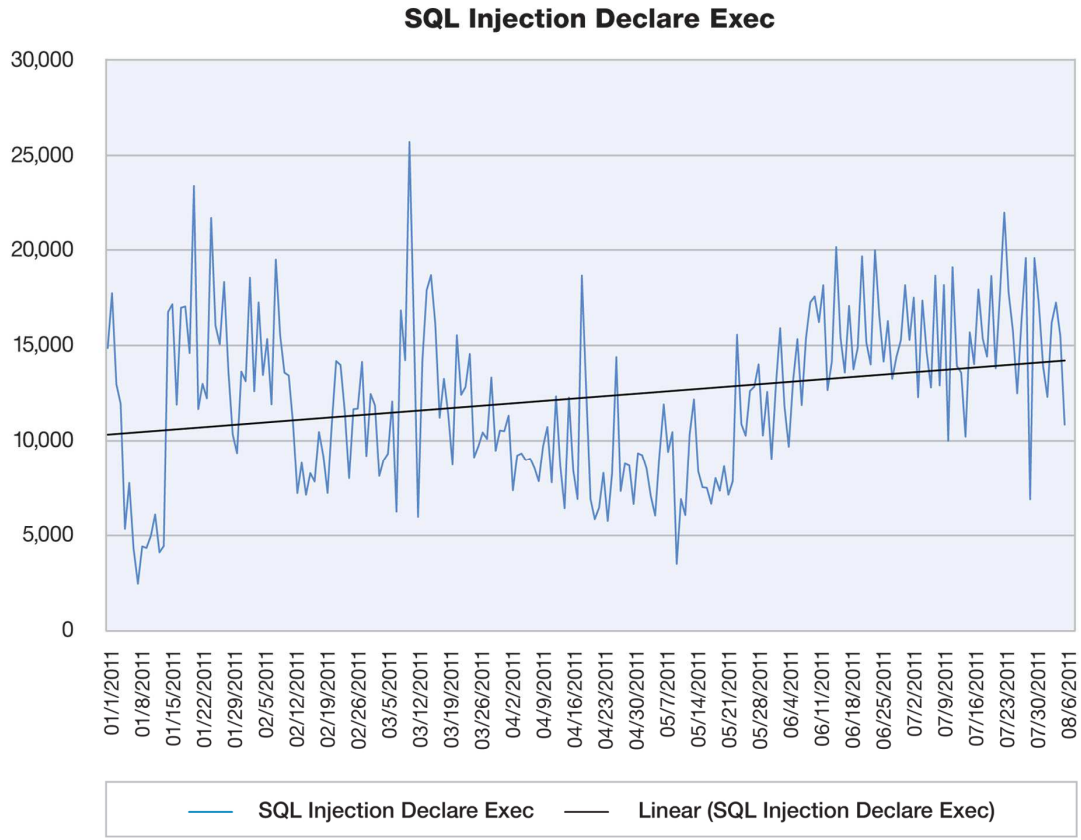
Highest volume signatures



Source: IBM X-Force® Research and Development

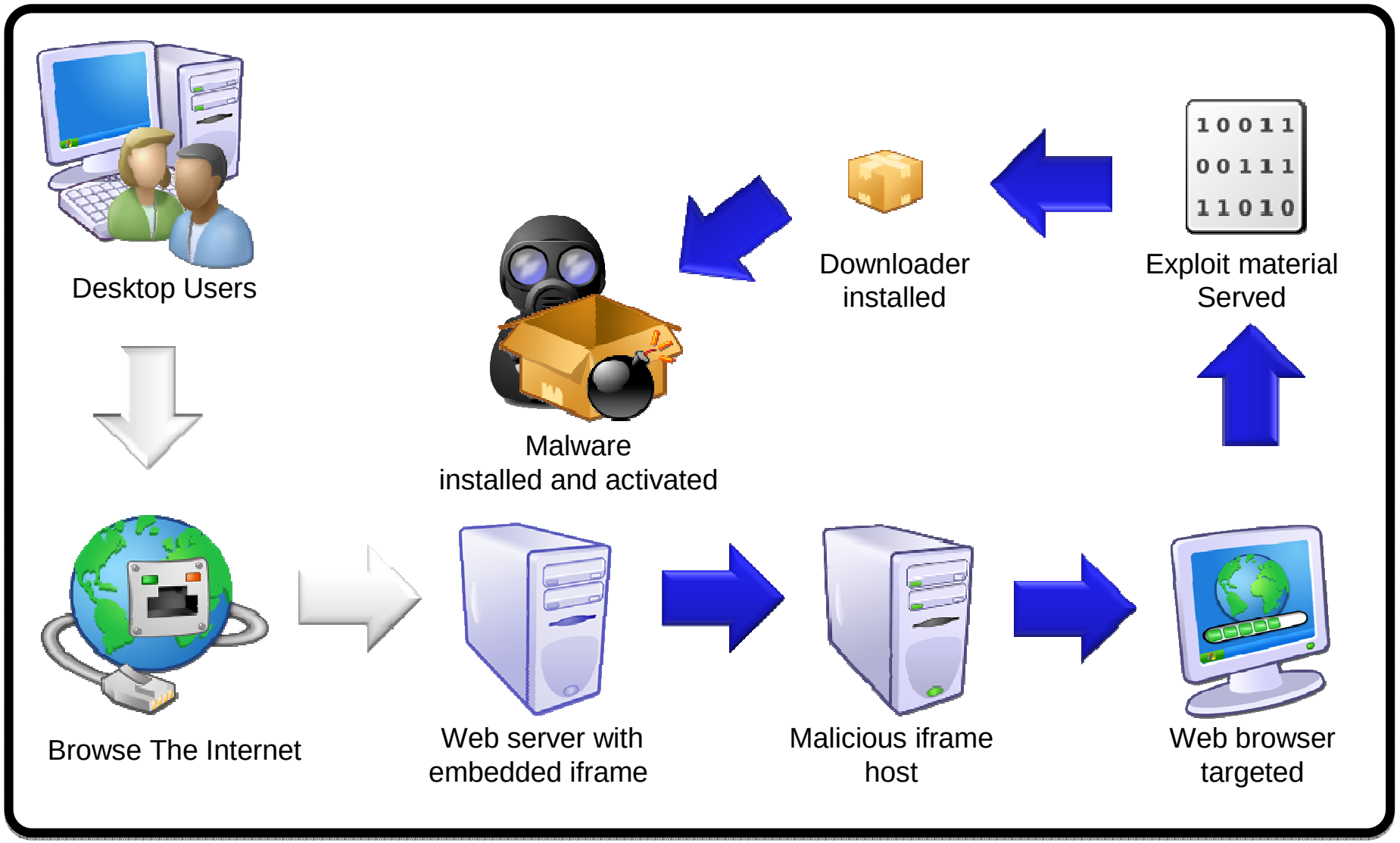
SQL Injection continues to be a favorite attack vector

- Attackers are analyzing Web applications to find SQL injection vulnerabilities they can exploit
- Once a vulnerable Web application has been identified, attackers use search engines to automate the process of finding target sites

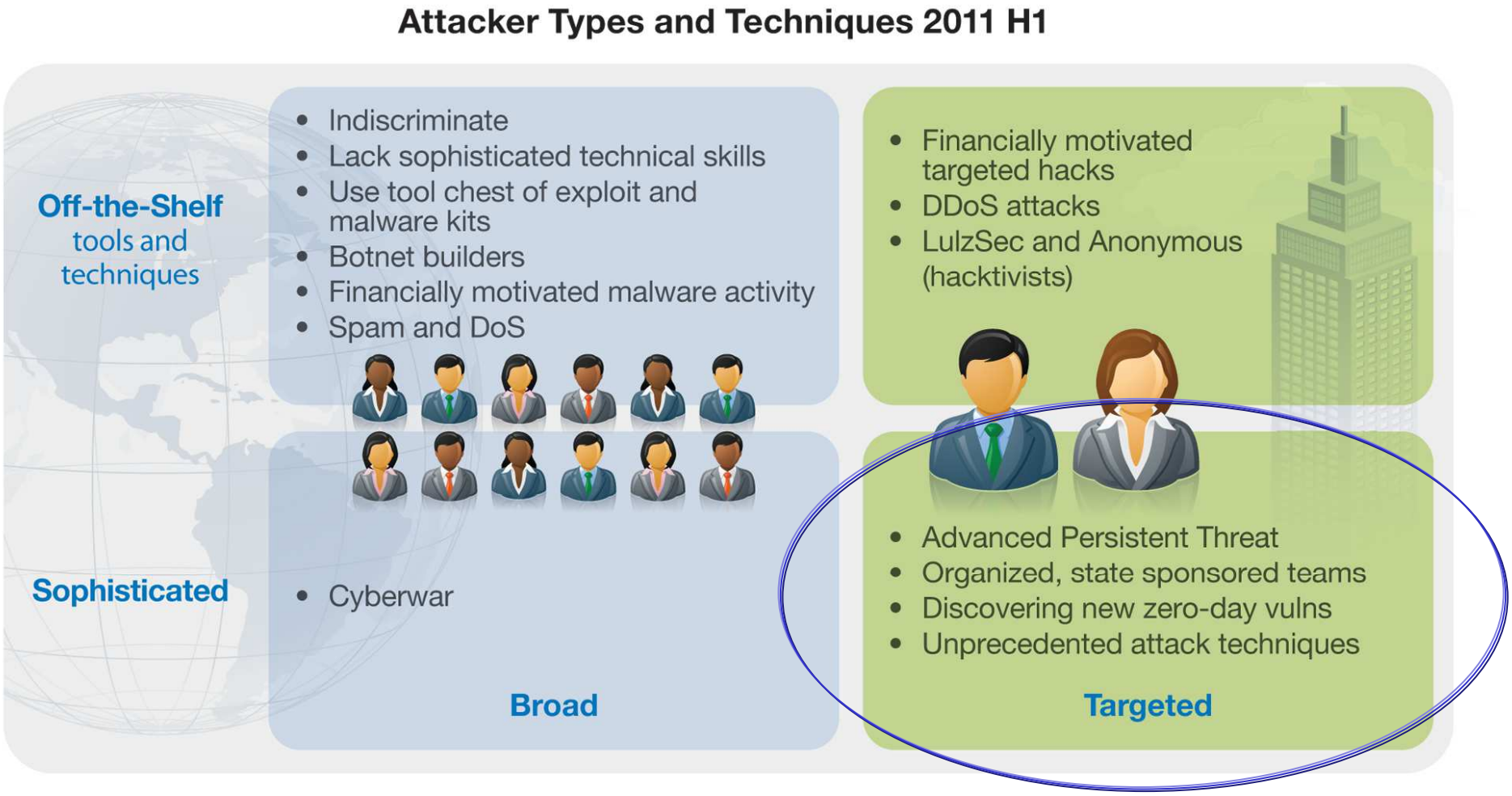


Source: IBM X-Force® Research and Development

The drive-by-download process



Who is attacking our networks?



Source: IBM X-Force® Research and Development

What is APT?

- **Advanced**
  - Using exploits for unreported vulnerabilities (zero day)
  - Advanced, custom malware that isn't detected by antivirus products
  - Coordinated attacks using a variety of vectors
- **Persistent**
  - Attacks lasting for months or years
  - Resistant to remediation attempts
  - Attackers are dedicated to the target – they WILL get in
- **Threat**
  - Targeted at specific individuals and groups within an organization, aimed at compromising confidential information
  - Not random attacks – they're actually "out to get you"

Internet Intelligence Collection

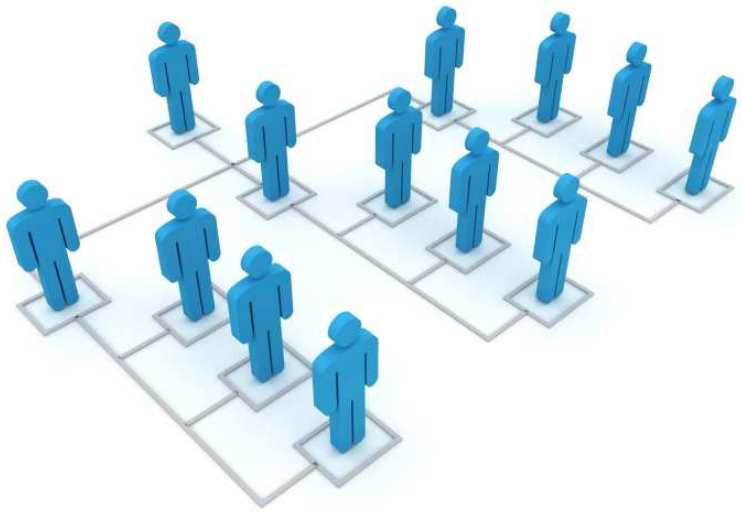
- Scan the corporate website, Google, and Google News
  - Who works there? What are their titles?
  - Write index cards with names and titles

- Search for Linkedin, Facebook, and Twitter Profiles
  - Who do these people work with?
  - Fill in blanks in the org chart

- Who works with the information we'd like to target?
  - What is their reporting structure?
  - Who are their friends?
  - What are they interested in?
  - What is their email address?

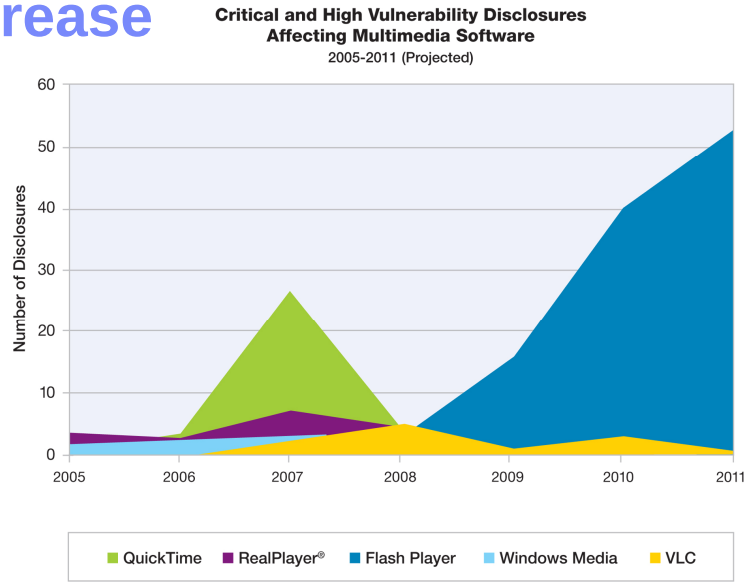
    At work?

    Personal email?



Multi-media & doc vulnerabilities increase

- Significant increases in both categories
- Attackers have zeroed in on software that consumers are running regardless of the browser
- Recent efforts to sandbox these applications are not perfect



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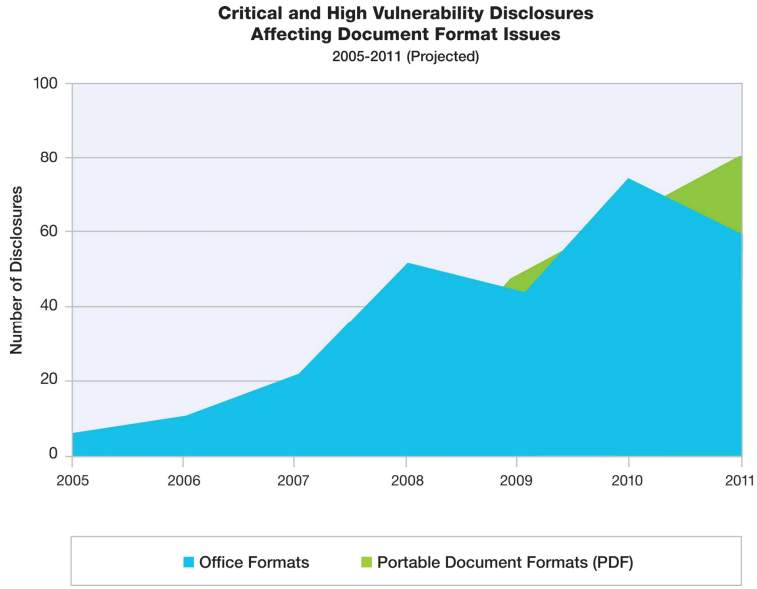

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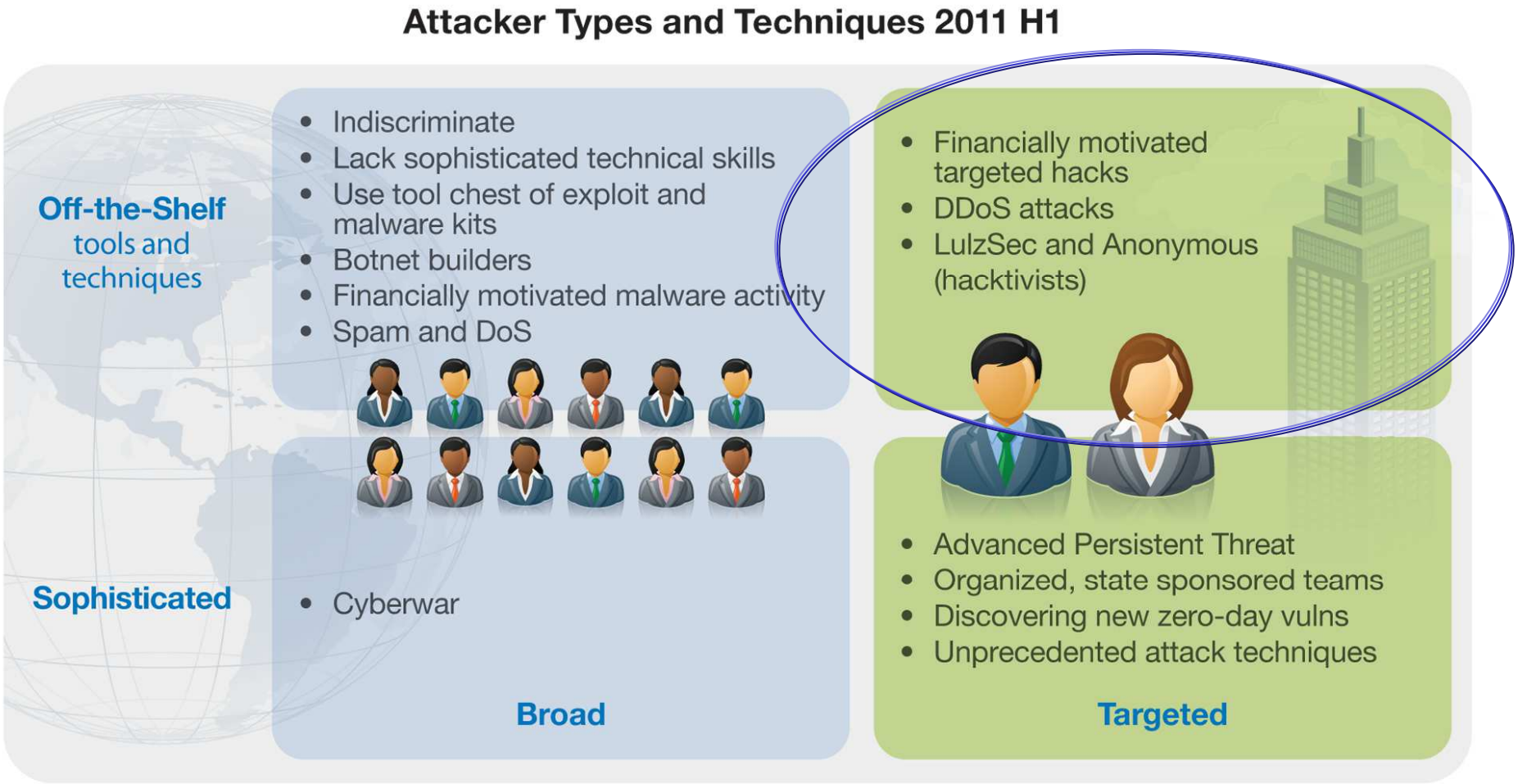
Who is attacking our networks?



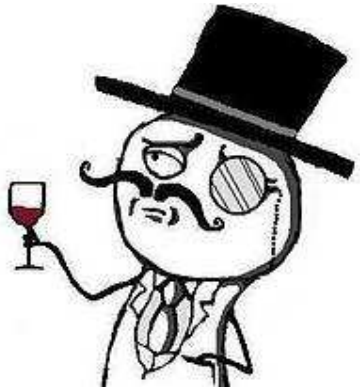
Source: IBM X-Force® Research and Development

Hacktivists are politically motivated

A member of Anonymous at the Occupy Wall Street protest in New York*

ANONYMOUS

One self-description is:
"We are Anonymous. We are Legion. We do not forgive. We do not forget. Expect us."**



Lulz Security logo

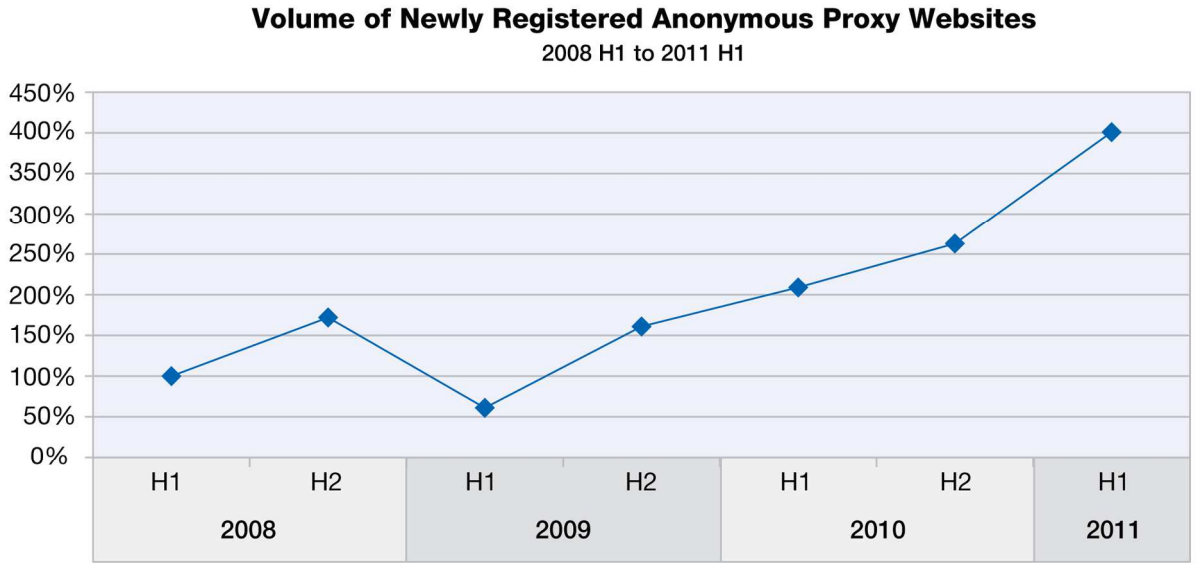
"The world's leaders in high-quality entertainment at your expense."

*Source: David Shankbone

**Source: Yale Law and Technology, November 9, 2009

Anonymous proxies on the rise

- About 4 times the amount from 3 years ago
- Some used to hide attacks, some used to evade censorship

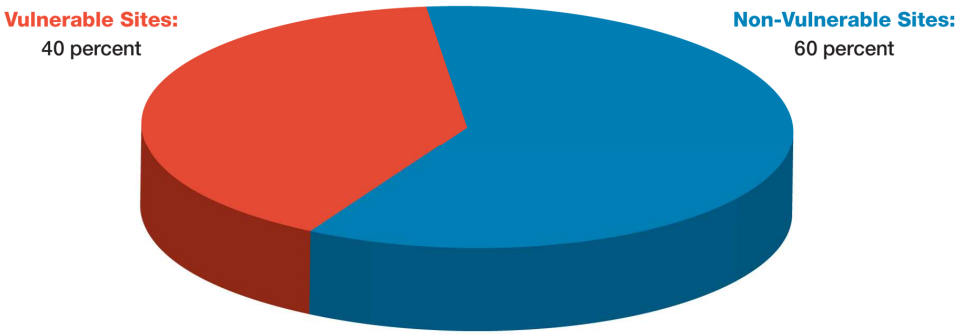


Source: IBM X-Force® Research and Development

Many major operations have important security blindspots

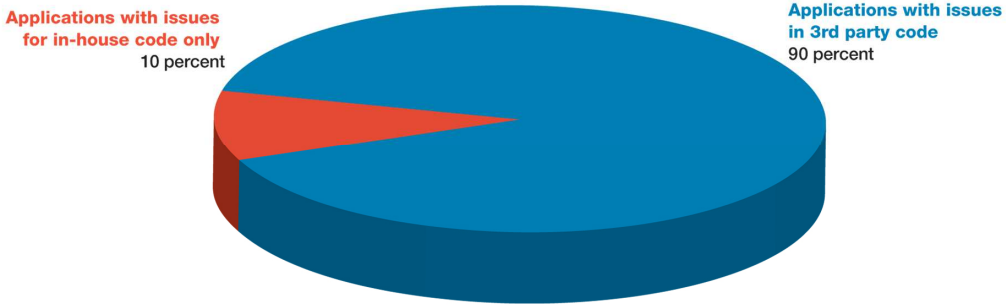
- IBM scanned 678 websites
  - Fortune 500 & 178 popular sites
- 40% contain client-side JavaScript vulnerabilities
- Third party code is primary culprit

Percentage of Vulnerable Websites



Source: IBM X-Force® Research and Development

Applications with Issues for In-house Code Only vs. Applications with Vulnerable 3rd Party Code



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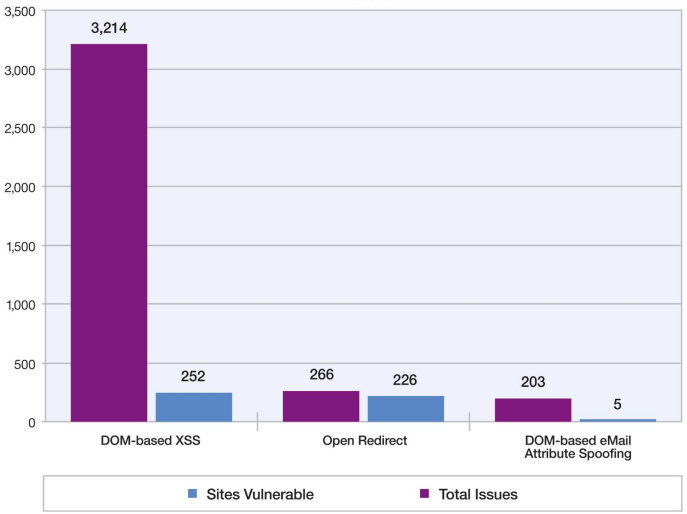
Distribution of Client-Side Issue Types
2011 H1



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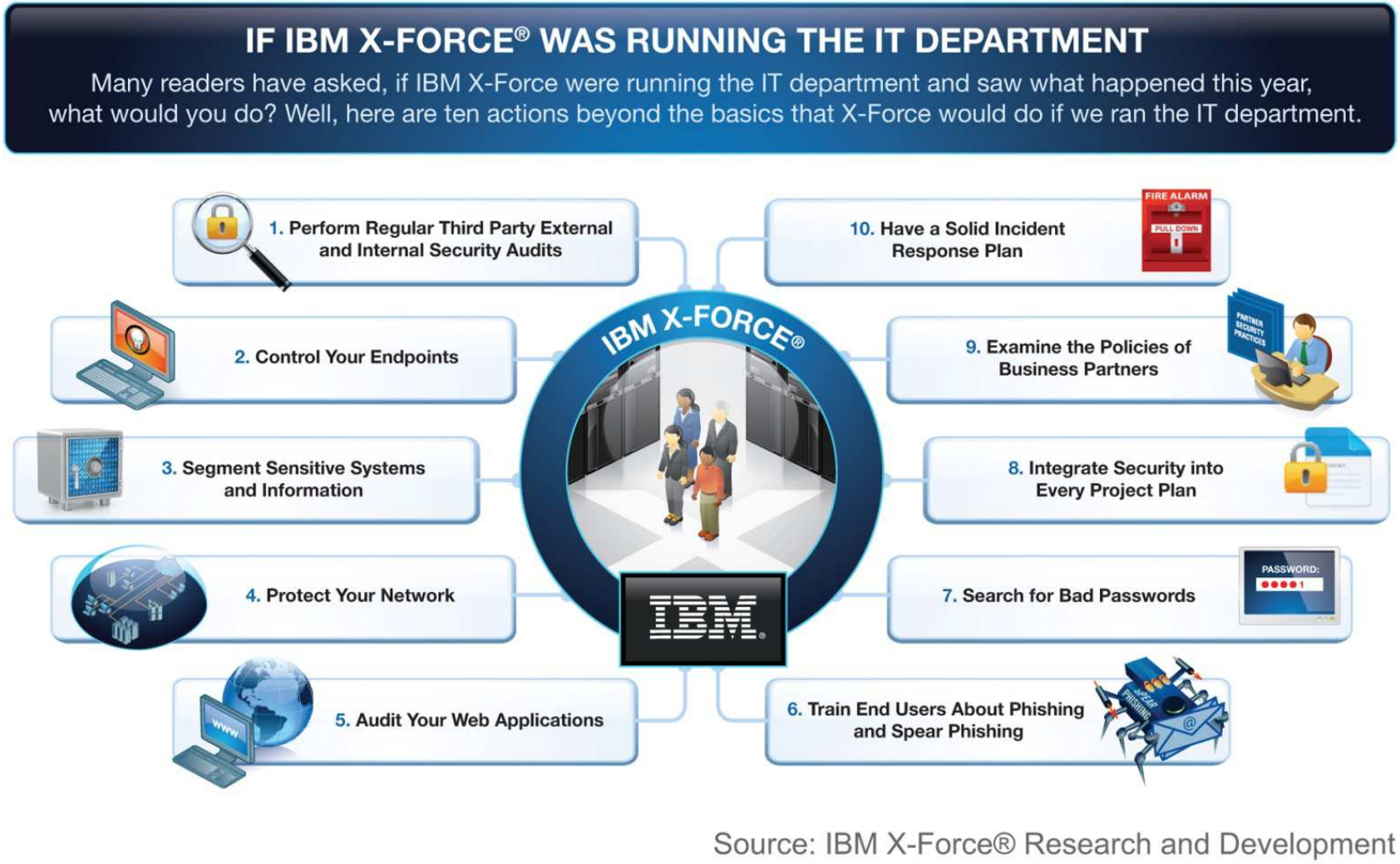
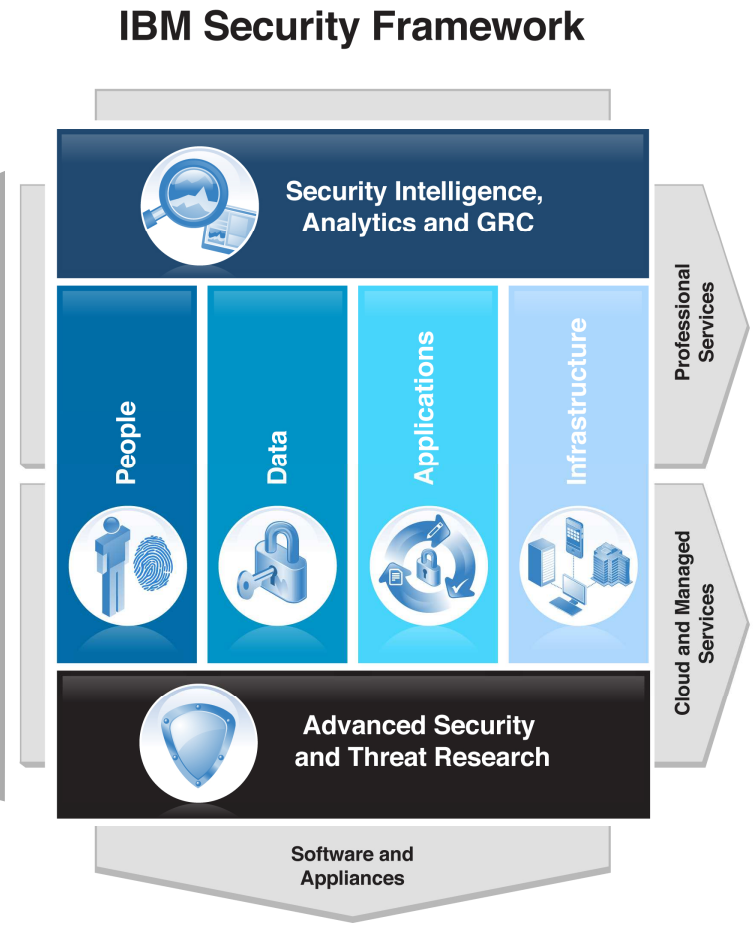
2012 Priorities and Next Steps



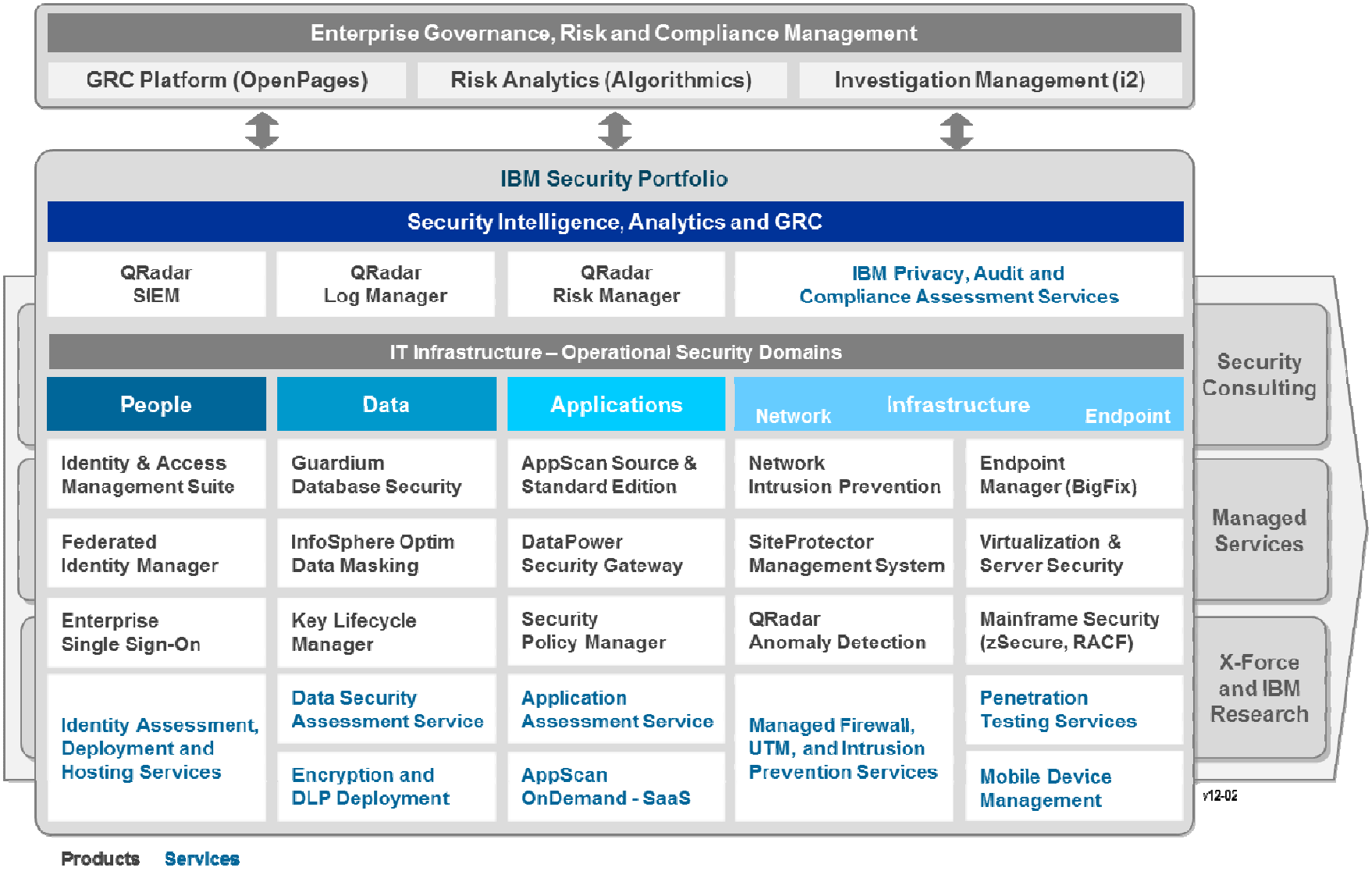
IBM Security Systems

IBM Security Systems

- Unique Security Framework
- $1.8B investment in innovative technologies
- 6K+ security engineers and consultants
- Largest vulnerability database
- Award-winning X-Force® research
- Analyst recognized Leadership in every segment



IBM Security Framework: Product, Services and Research



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