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Cyber resilience – new risk, new approach?

Wiebe Ruttenberg

European Central Bank

Focus session, 18 November 2016, Vienna

Living in a dangerous cyber world



Technology News | Wed Aug 31, 2016 | 7:22am EDT

Exclusive: SWIFT discloses more cyber thefts, pressures banks on security

By Jim Finkle

SWIFT, the global financial messaging system, on Tuesday disclosed new hacking attacks on its member banks as it pressured them to comply with security procedures instituted after February's high-profile \$81 million heist at Bangladesh Bank.

Continued on <http://www.reuters.com/article/us-cyber-heist-swift-idUSKCN11600C>



Technology News | Wed Jun 1, 2016 | 1:18pm EDT

Exclusive: Fed records show dozens of cybersecurity breaches

By Jason Lange and Dustin Volz | WASHINGTON

The U.S. Federal Reserve detected more than 50 cyber breaches between 2011 and 2015, with several incidents described internally as "espionage," according to Fed records. The central bank's staff suspected hackers or spies in many of the incidents, the records show.

Continued on <http://www.reuters.com/article/us-usa-fed-cyber-idUSKCN0YN4AM>



13.09.2016 | 11:06 | (DiePresse.com)

Hacker-Angriffe auf Österreichische Nationalbank

Nach den Hacker-Angriffen auf den Wiener Flughafen wurde jetzt die Nationalbank attackiert. Vermutlich handelt es sich erneut um das türkisch-nationalistische Hacker-Kollektiv. Die türkisch-nationalistische Hacker-Gruppe hat ihre Drohung wahr gemacht und nach dem Wiener Flughafen nun die Österreichische Nationalbank im Visier gehabt. Freitagnacht attackierten sie die Server. Mit nur wenig Erfolg, denn der Angriff konnte abgewehrt werden. Lediglich die "Webseite war kurzfristig nicht erreichbar", erklärte Nationalbank-Sprecher Christian Gutleider gegenüber dem "Kurier".

Continued on <http://diepresse.com/home/tech/science/internet/5084507/HackerAngriffe-auf-Osterreichische-Nationalbank>



May 4, 2016 14:13 BST

Operation Icarus: Anonymous to attack stock markets and world banks in 30-day cyber assault

By Jason Murdock

The Anonymous hacking collective has threatened a slew of financial institutions including the London Stock Exchange, PayPal and NASDAQ as part of a 30-day cyber-assault called 'Operation Icarus'.

Continued on <http://www.ibtimes.co.uk/operation-icarus-anonymous-attack-stock-markets-world-banks-30-day-cyber-assault-1558196>



September 22 at 7:49 PM

Yahoo says 500 million accounts hacked by 'state-sponsored actor'

By Hayley Tsukayama, Craig Timberg and Brian Fung

The stolen data "may have" included names, email addresses, telephone numbers, dates of birth, passwords and security questions for verifying an account holder's identity.

Continued on https://www.washingtonpost.com/news/the-switch/wp/2016/09/22/report-yahoo-to-confirm-data-breach-affecting-hundreds-of-millions-of-accounts/?hpid=hp-more-top-stories_yahoo-switch-330pm%3Ahomepage%2Fstory



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Cyber threats landscape

*Cyber threats are not new
but it is much more harmful and harder to defend against*

- **Advanced persistent threats**
Persistent, stealthy, remotely controlled, reconnaissance capabilities
- **Destructive attacks**
Data availability and data integrity at stake
- **Powerful actors** enter the scene
States, state-backed initiatives, criminal syndicates, “crime as a service”

The detection and response challenge

Persistent targeted attacks are very hard to detect



**146
Days**

Down from 205 in 2014



**53%
Discovered
Externally**

Down from 67% in 2014

Destructive attacks

High-profile attacks with unprecedented sophistication and destructive impact have radically changed the nature of cyber threats



**Stuxnet
attack**
2010

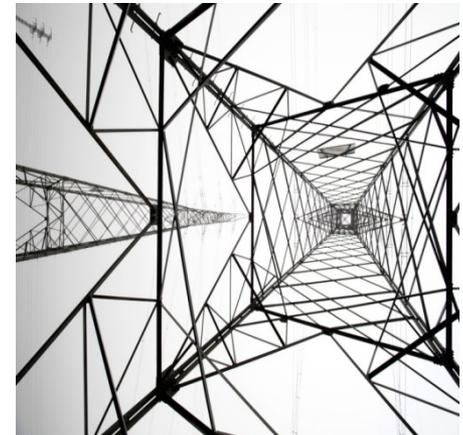


**Sony
Entertainment
Hack**
2014

**Tesco Cyber
Heist**
2016



**Ukrainian
electric grid
hack**
2015



Key challenges for effective cyber security

The nature of the emerging threats make conventional cyber security techniques increasingly inadequate

- **Traditional prevention techniques are insufficient**
Blacklisting / whitelisting does not work any more: everything has to be verified
- **The network perimeter is dissolving**
Mobility, remote access, cloud, extended enterprises etc.
- **IT security skills are scarce**
Supply of skilled security professionals is far below the market demand
- **Security of the supply chain is a difficult problem**
Both service and technology supply chains are hard to control and trust
- **The Internet of Things is bound to introduce unprecedented security hazards**
*Physical objects are becoming increasingly networked
Security is low on the agenda of manufacturers*



Recent regulatory initiatives related to cyber threats/security/resilience

Legislative



- Payment Services Directive 2:
- Network & Information System Security Directive
- General Data Protection Regulation
- Systemically Important Payment Systems Regulation

Recent regulatory initiatives related to cyber threats/security/resilience

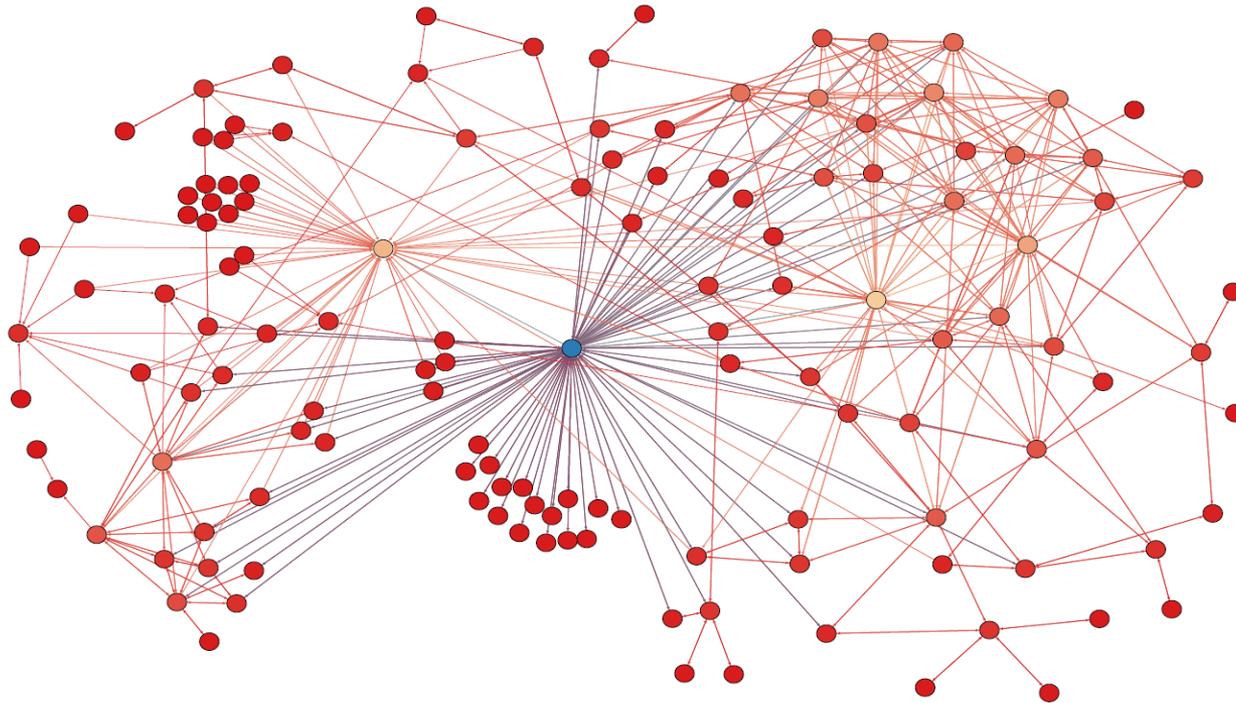
Guidance



- G7 Fundamental elements of Cyber Security for the Financial Sector
- CPMI-IOSCO Guidance on Cyber Resilience for Financial Market Infrastructures

Financial Market Infrastructure interconnectedness

Cyber resilience of individual FMIs is key, but the resilience of whole financial ecosystem must be ensured



How to ensure cyber resilience of the financial ecosystem? – A joint effort

Five strategic pillars

1. Institutional readiness (i.e. credit institutions, PSPs and financial market infrastructures)
2. Information sharing
3. Regulator – industry engagement (“social” dialogue)
4. Ecosystem resilience (e.g. identifying critical nodes)
5. Cross-authority and international collaboration (alignment of regulatory initiatives and actions)

Increased focus of banking supervisors and financial market infrastructure overseers but

First responsibility is with financial institutions & infrastructures



Thank you for the attention!

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