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Cyber Crime & IT Fraud

Could your organisation survive if it lost $20,000? $50,000? Or $1 million overnight?

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Contents and Outline

- Overview
- History
- Categories of Cyber Crime
- Types of Cyber Crime
- Prevention and Cyber Security
- Current Case Studies

Overview

The 5 most cyber attacked industries

1. **Healthcare**
2. Manufacturing
3. Financial Services
4. Government
5. Transportation

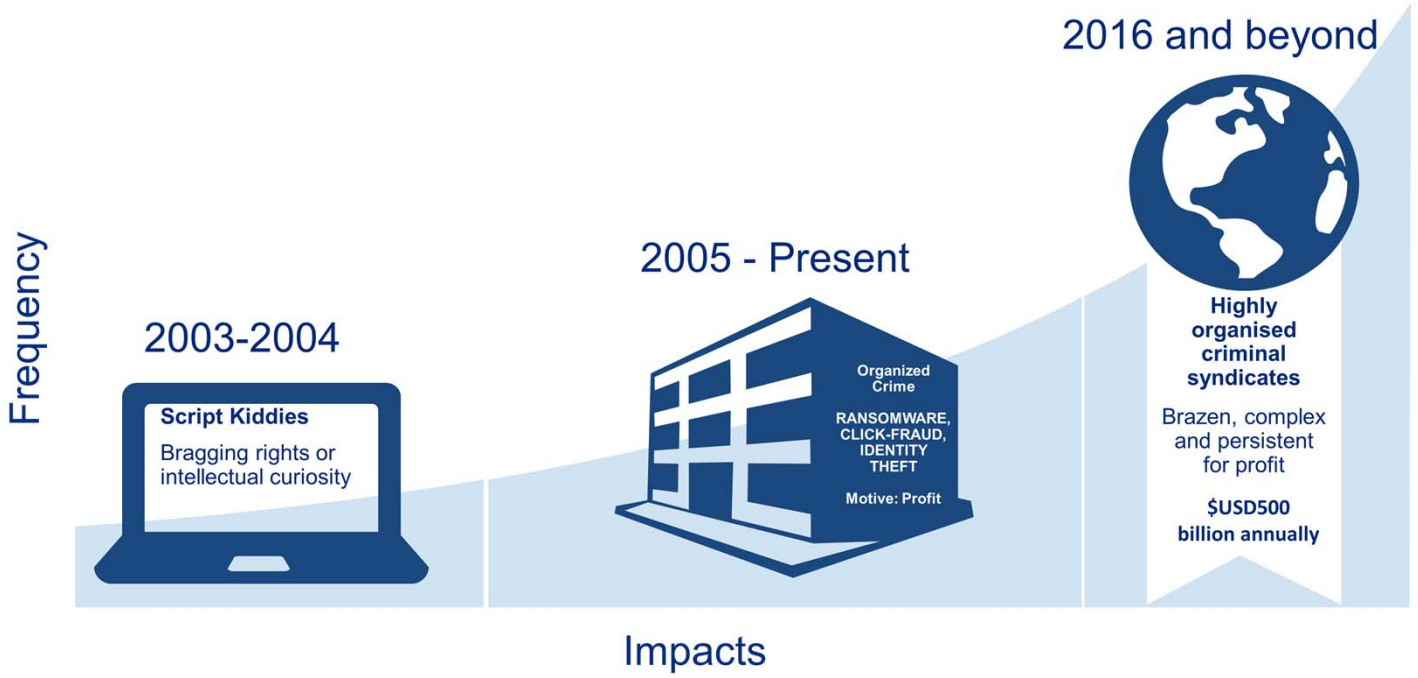
"Cybercrime is a fast-growing area of crime. More and more criminals are exploiting the ***speed, convenience and anonymity of the Internet*** *to commit a diverse range of criminal activities that know no borders, either physical or virtual"* – Interpol

1. **The Computer as a weapon**
   - Using a computer to commit real world crime
   - Cyber terrorism and credit card fraud.

2. **The Computer as a target**
   - Using a computer to attack another computer
   - Forms of Hacking, DOS/DDOS attack, virus/worm attacks

History

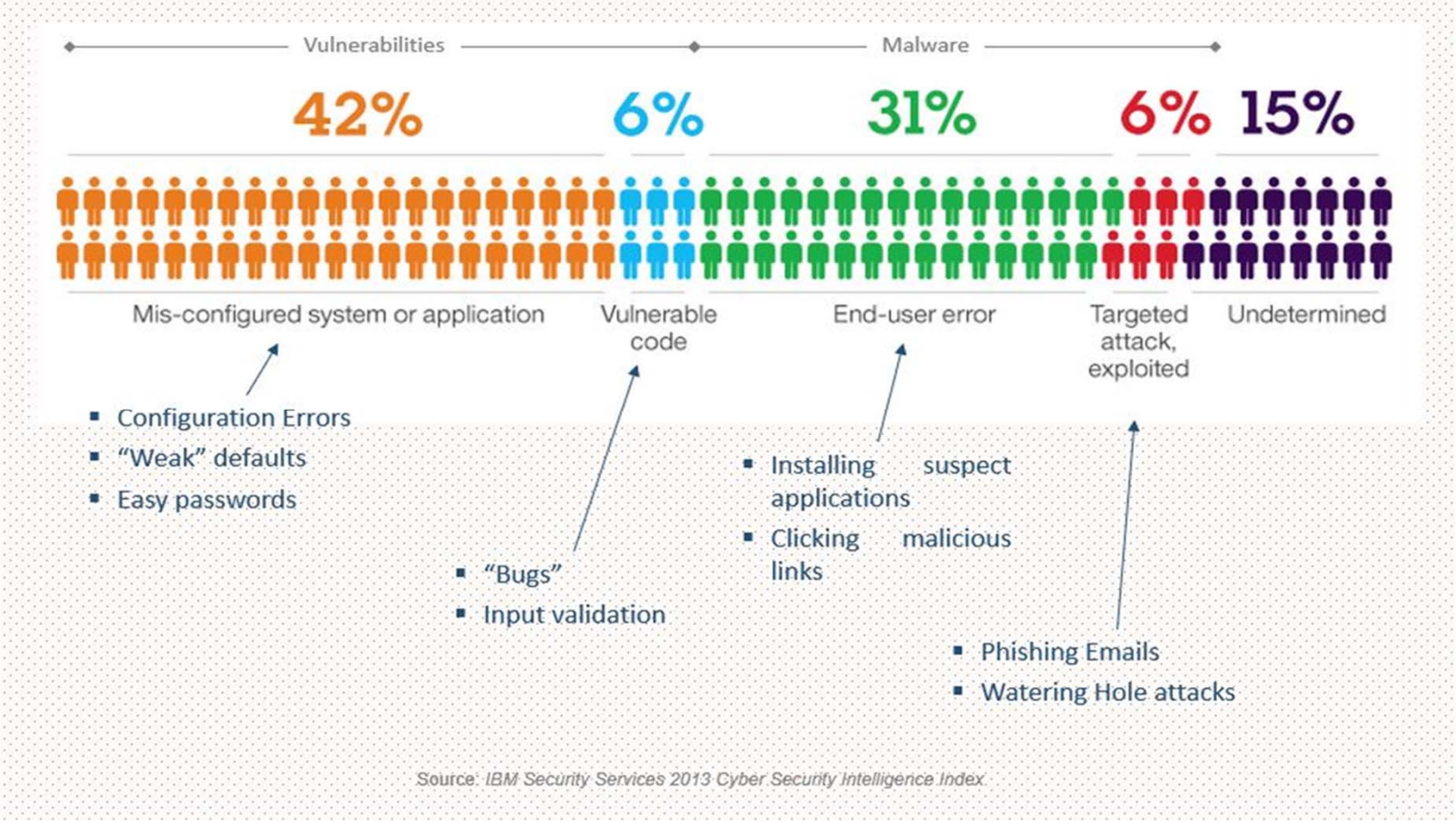
- **1820** - First recorded cybercrime
- **1978** - The first spam e-mail
- **1982** - The first virus was installed on an Apple computer



Types of Cyber Crime

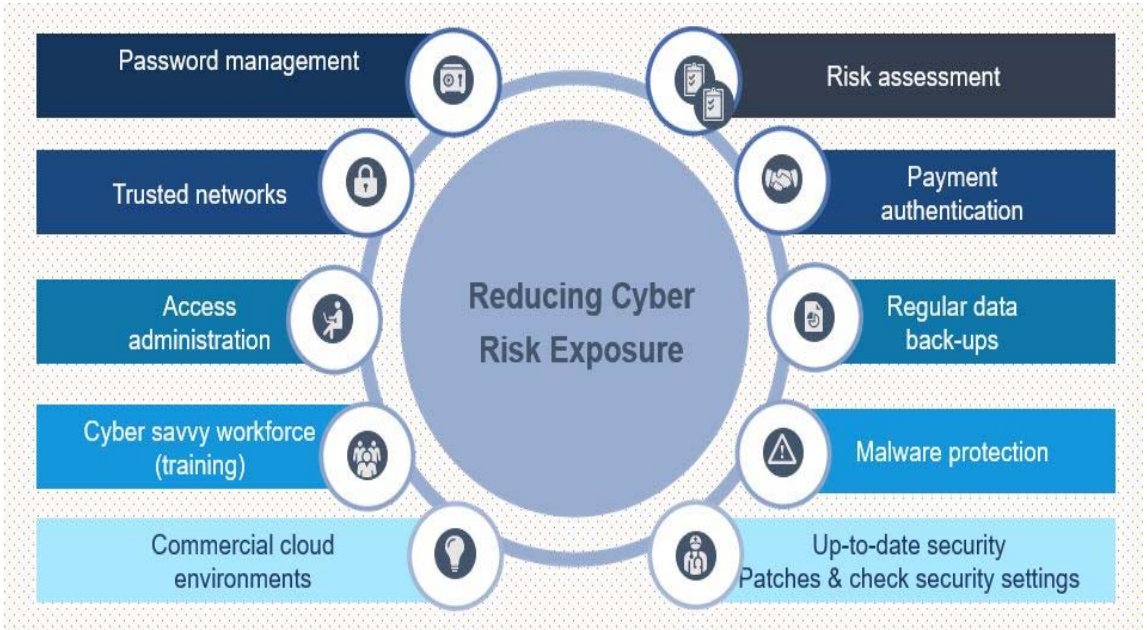
1. **Hacking (credit card)**
2. Denial of Service Attacks
3. **Identity theft**
4. Virus Dissemination
5. **Computer Vandalism**
6. Cyber Terrorism
7. **Online Fraud**
8. Software Piracy
9. Forgery
10. Malicious Code
11. Malware
12. **Phishing**
13. Spam
14. Spoofing
15. Defamation

WHY DO BREACHES OCCUR?



Prevention and Cyber Security

- Firewalls
- Operating system is up-to-date
- Up-to-date anti-virus and anti-spyware
- Use a pop-up advertising blocker
- Use strong passwords
- Secure wireless network
- Reputable websites and mobile applications
- Avoid clicking on unexpected or unfamiliar links



2017 Threat Study Ransomware

Why is it so dangerous?

- Causes significant business disruption & data loss.
- A single compromised device puts a whole network at risk.
- Significant growth in new ransomware variants increases the risk of zero-day attacks.

Prevention

- Properly monitored End-point Anti-virus.
- Operating system and application patch management to avoid exploits.
- A Multi-layered email security system.
- A web security/ web filtering system & firewall.
- Email and web use training.

Mitigation

- Backups should be regular, comprehensive and stored in a secure non-network accessible location. Many businesses have their backups encrypted too, resulting in complete data loss.

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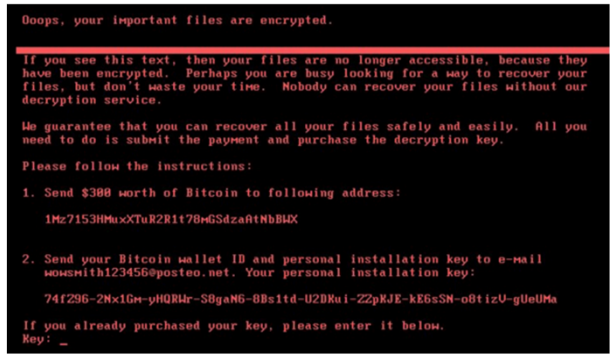

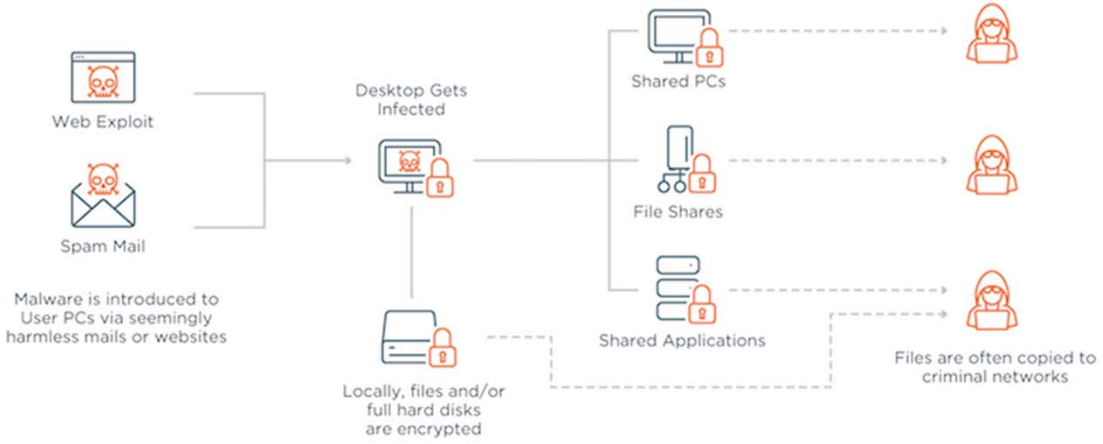

2017 Threat Study Internal Threats

Stolen Credentials| Malicious Insider |Social Engineering

Why is it so dangerous?

- Staff are able to bypass most security measures taken.
- User accounts often have access to significant amounts of sensitive data.
- Requires little or no technical knowledge.

Prevention

- Implementation of Multi-factor authentication
- Restrict data egress channels. (USB, file transfer)
- Comprehensive exit process, performed immediately on employee termination.
- Clean desk policy.
- Staff training.

Mitigation & Detection

- Segregation of duties to minimise severity of data breaches.
- Network/file monitoring for abnormal behaviour.

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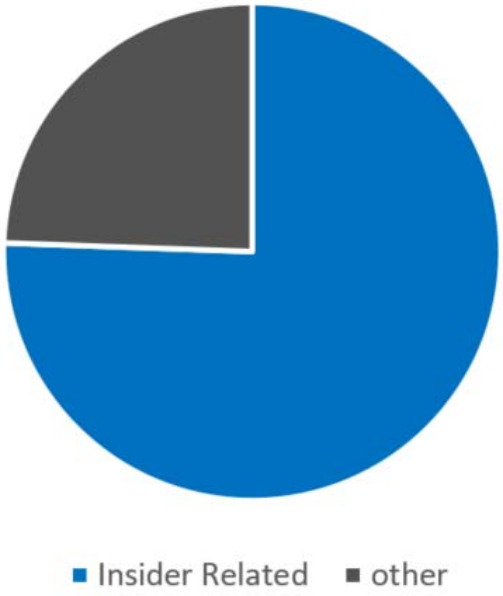
IBM: Security Trends in the healthcare Industry

Network attacks Targeting HealthCare



What training do staff need?

Passwords

- Prevent reuse of passwords from external accounts, and sharing of passwords.
- Prevent insecure password storage. (post it notes on computer, stored on network drive).
- What constitutes a secure password. Enforce or suggest increased password complexity.

Emails, files and the web

- Identifying malicious emails, attachments and links.
- Identifying malicious files and common file types for malware delivery.
- Identifying malicious websites.
- Safe & work appropriate web browsing practices.

Other

- Preventing social engineering
- Signs a device may be infected & appropriate responses
- When to alert IT staff.

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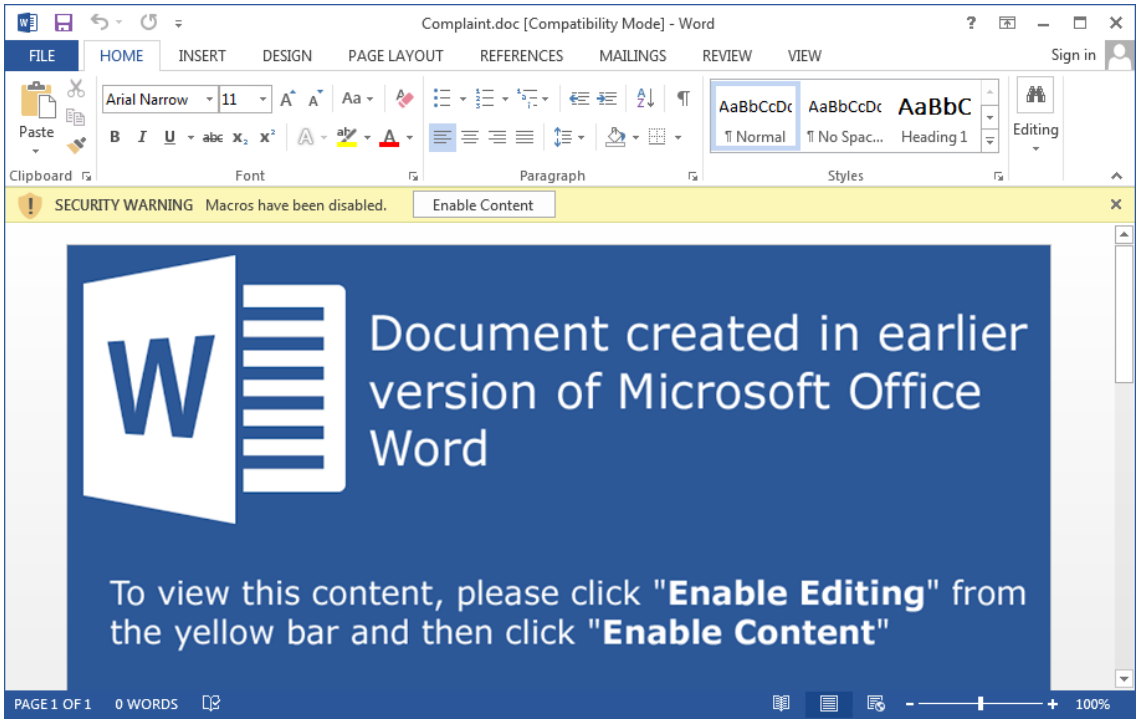
Malicious Script hidden in a zip file



A malicious word document.

Preventing Network Vulnerabilities

Common issues

- Vulnerable components exposed to the internet e.g. RDP without MFA, PPTP VPN.
- Missing OS & Application Patches
- Misconfigured Firewall
- Poor monitoring and reviewal of server, firewall and antivirus logs.
- Website Vulnerabilities
- Unrestricted Physical and USB Access.
- Personal Device Connection to network
- Exploitable Wireless networks
- Poor Account Segregation

Test

- Network & web vulnerability/penetration testing, particularly for external facing resources
- Misconfiguration Testing
- WIFI Exploit testing
- Review Policy and procedure

(automated tools exist to reduce IT labour)

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Top 25 Remediations by Risk

March 31, 2017 2:33:06 PM PDT

Top Remediations Report

Applying	Will Remediate		Affecting
25 Remediations	62.9% Vulnerabilities	63.6% Risk	3 Assets
	71% published exploits	96% available malware kits	

Remediation	Assets	Vulnerabilities			Risk
1. MS16-144: December, 2016 Security Only Quality Update for Windows Server 2008 R2 for x64-based Systems (KB3205394)	2	152	208	22	76,064
2. MS16-001: Cumulative Security Update for Internet Explorer 8 for Windows Server 2008 R2 x64 Edition (KB3124275)	2	54	64	20	28,741
3. March, 2017 Security Only Quality Update for Windows Server 2008 R2 for x64-based Systems (KB4012212)	2	148	0	0	25,894
4. Upgrade tcpdump for Ubuntu 12.04 LTS	1	41	0	0	21,950
5. Upgrade libpcre3 for Ubuntu 12.04 LTS	1	25	0	0	14,380
6. MS17-004: January, 2017 Security Only Quality Update for Windows Server 2008 R2 for x64-based Systems (KB3212642)	2	28	8	0	11,709
7. Upgrade libxml2 for Ubuntu 12.04 LTS	1	32	2	0	10,097

CASE STUDY A

England National Health Service (NHS) Ransomware Attack

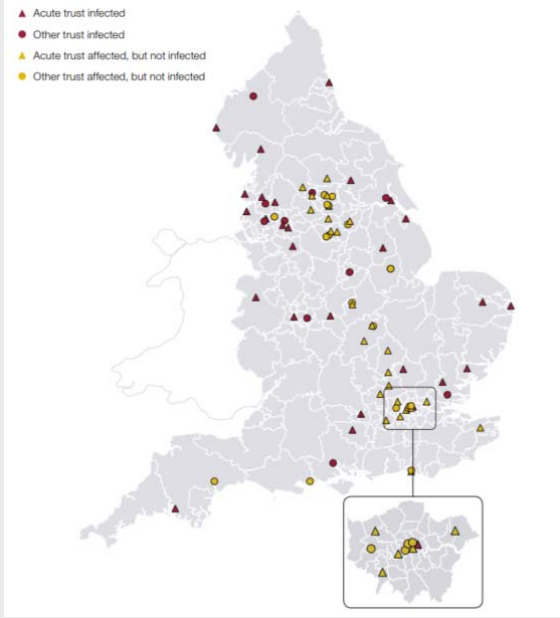
Between May 12 and May 19 2017, NHS was hit with a ransomware attack affecting more than 34% of trusts.

Cause

- Missing patches & unsupported operating systems (XP).
- Poor user training & response.
- Out of date firewalls and Antivirus.

Result

- Estimated 19 000 appointments cancelled, some urgent.
- Significant financial cost & loss of public image.
- Data loss, manual data re-entry and work disruption.



CASE STUDY B

$90k Phishing email – fake CEO

- Finance manager received an email from the ‘CEO’ while the CEO was on leave holidaying in Asia
- The email asked the FM to transfer $90k to a foreign bank account
- There was back and forth between the FM and the ‘CEO’ regarding the details of payment
- FM prepared all of the relevant documentation and took this to the CFO for approval for payment. The payment was made

Issue - Email – was very strange and clearly fake

Result - This was a breakdown of the internal controls, rather than inadequate IT systems.

CASE STUDY C

Incident 1

- Customer Gmail account was hacked, invoice was sent to a customer for $15k with fraudulent bank details
- The customer paid the $15k to the fraudulent bank account
- Client wore the cost and police are investigating
- **Customer is now transitioning to Microsoft Outlook – Being a more secure email provider**

Incident 2

- A supplier email was hacked and the same situation as above occurred in reverse
- The invoice was send to our client for approx. 3K and client paid
- The payment was based off the bank details listed on the invoice (being fraudulent).
- The supplier will wear this cost and our client is not out of pocket
- **A process of checking master supplier bank details has been implemented prior to paying any invoices in order to mitigate this risk**

CASE STUDY D

$12k

- Client was processing a refund for $12k
- A hacker watched on remotely as transaction took place
- The internet banking screen was actually a layover (fake) screen and as such the banking details typed in by the finance manager never hit the internet banking site
- The hacker entered different bank details
- They paid the full 12K to an incorrect bank account without knowing
- While the hacker was in their internet banking, he/she changed the account numbers of saved accounts, including staff super funds and employee bank details
- **The bank refunded the money, the account numbers were corrected and an IT review was conducted to identify holes in the IT system**

CASE STUDY E

$230k

- Two employees within consolidated group in receipt of an invoice
- Subsequent to receipt of invoice a series of falsified emails were then sent between these two employees
- legitimate invoice previously received from a legitimate supplier for $230k but now with altered payment details
- Payment approved and processed
- Bank (fraud section) advising that payment had been made to an account with potentially fraudulent activity
- one word different in email address (archtiecs *versus* architects) being incorrect
- **The emails contains formatting and grammatical errors not consistent with their usual style. They make claims of a suspicious nature. A query of this email directed to either employee of the group would likely have detected the fraudulent activity.**

CASE STUDY F

> 1.5million pounds

- Overseas client transferring funds
- Client emails hacked
- Changed banking instructions
- Bank did not confirm details verbally
- Transfer was made
- Bank responsible

Managing the fall out

Consideration

- Need a policy/risk plan
- Contact authorities
- Employee counselling
- Termination of employment?
- Implement/monitor control systems
- Education

Recommendations

- Purchase cybercrime insurance;
- Engage a Cyber Security Professional to review the security of your systems;
- Educate staff on cybercrime and encourage them to remain vigilant in regard to the risks around emails requesting payment or containing links; and
- Strict use of only official email addresses by all Directors for conducting of entity related business.
- Back up data