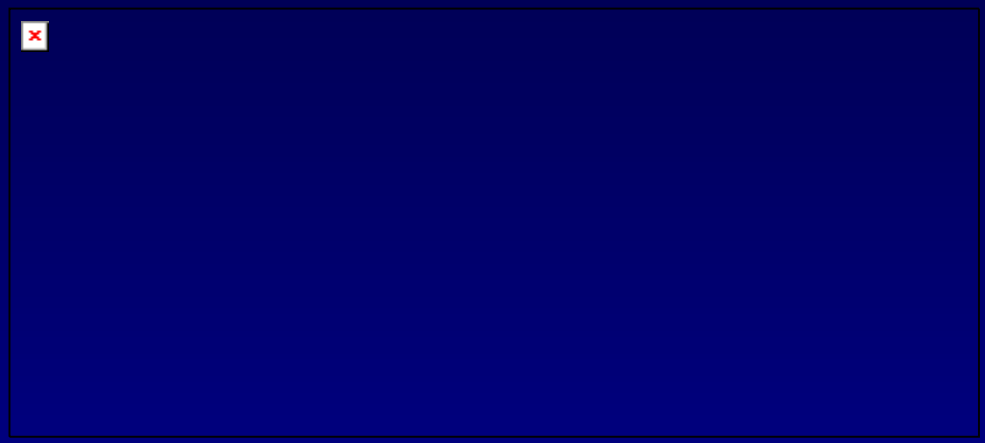


# A Year's Evolution in Attacks Against Online Banking Customers

Matthew W A Pemble

# Information Security Crystal Ball

# Phishing, Trojans & other scams

- Despite appearances banks are actually (ish) secure
- Home-user security is terrible
- Serious, **professional**, organised crime
- Go where the money is:
  - Compromise bank staff
  - Place bank employees
  - Attack the communications chain outside of the Bank's control
  - Attack the customers (and their computers)

# The situation at Singapore

- Significant increases in basic numbers
  - Majority of attacks still non-financials
  - Attacking biggest English-speaking orgs
  - US / Aus / NZ / UK + ?
- Rapid rise in use and utility of trojans
- Losses (corporate) still low
  - Absolutely
  - Compared to other fraud (card, 419 etc)
  - Compared to cost of solution

# Where are we now?

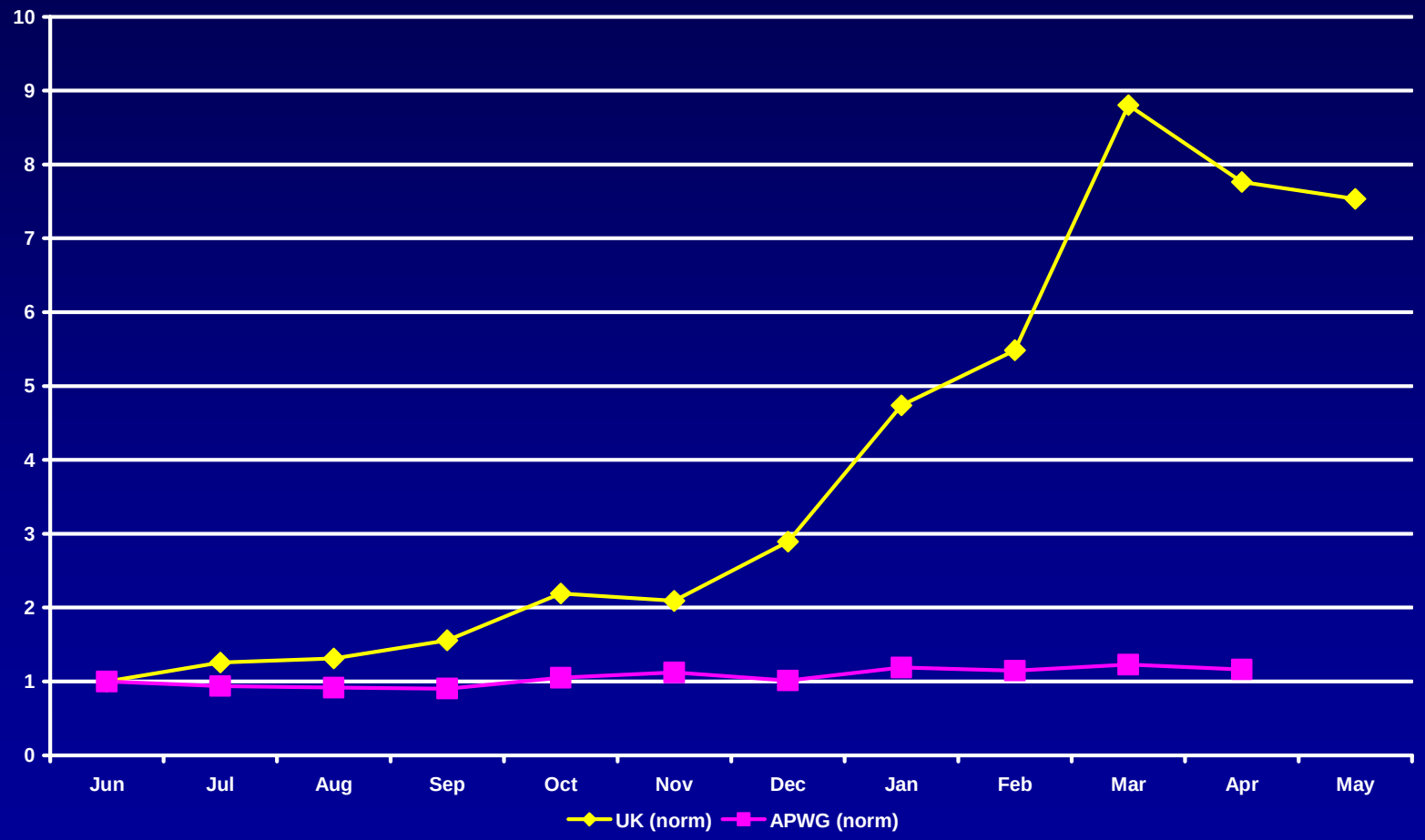
- Concentration on money making
- More sophistication in strategy
- More sophistication in technology
- Mule recruitment
  - More effort
  - Fewer mugs ?
- Use of non-internet channels for initial theft
- First 4 / 5 / 6 (BIN) “email personalisation”
- More languages (German, French, Spanish & …)
  - spulling dreadful still
  - and grimer


“Nothing is worse than active ignorance”
Goethe

# Phishing – main trends

- Flat simple numerics
  - Inexorable rise in finance attacks
  - Significant (lesser) rise in reported losses
- Change of tack
  - Non-English (at last ☺)
  - Failure of non-strong auth (Tan etc)
  - Focus on smaller institutions (UK & US)
  - Demand for (and use of) telephony credentials
- Technical sophistication of supporting infrastructure
- Balkanisation
- Nigerianization

# Normalised to Jun 05



# “Weak” hosting

- Single email
- Extremely poor English
- No geographical customisation (i.e. $ not £)
- Single host (hacked virtual hosting box)
- DNS
  - Often on the same box (old)
  - Or by legitimate server owner (ISP)
- No resilience in site
- New kit wave within 3 hrs of site takedown.

# “Strong” Hosting

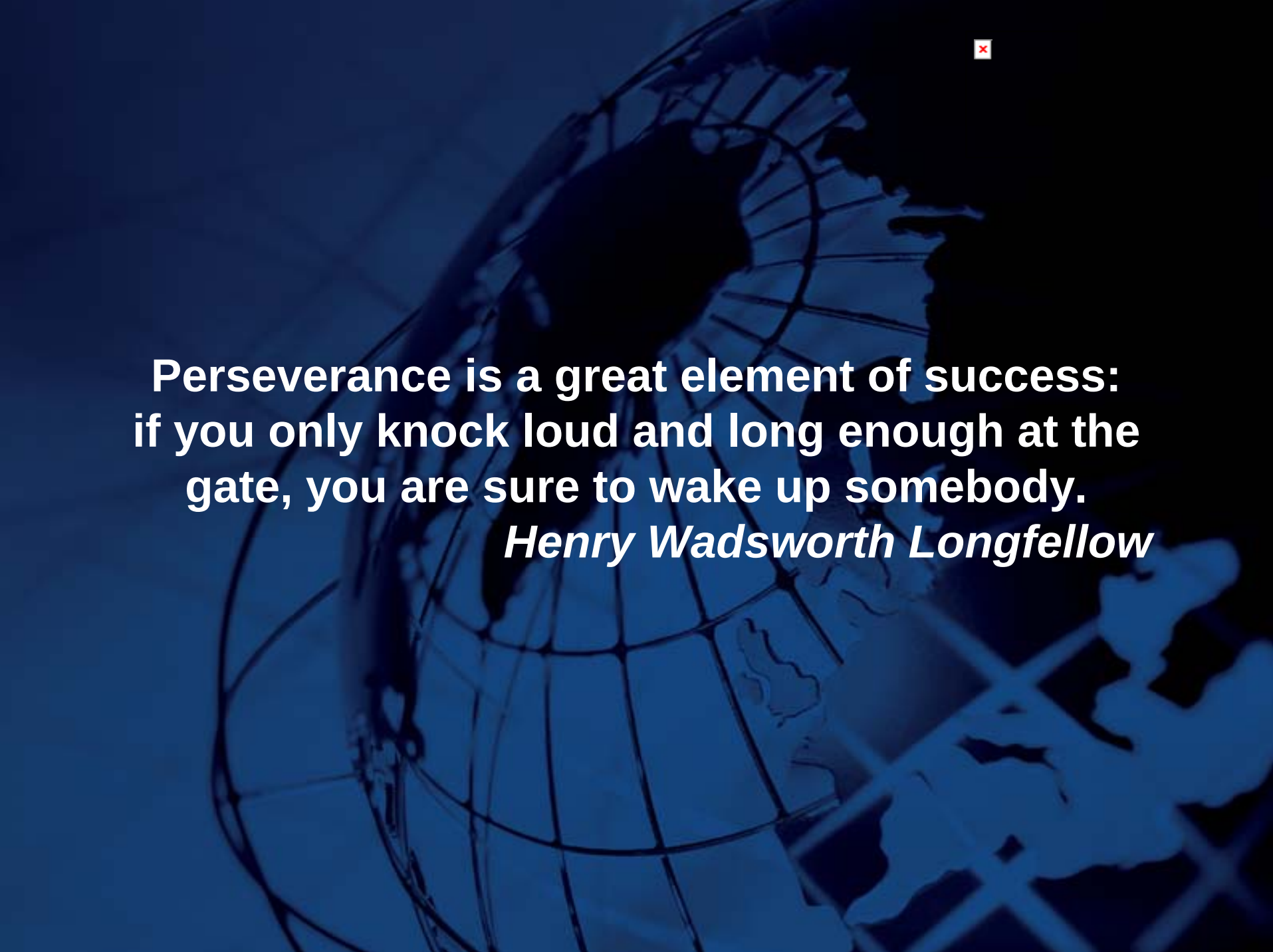
- *This is not the “Rock” group MO.*
- 1 email wave – standard wording
- Up to 4 “confusingly similar” domain names
- “Fraudster friendly” registrar
  - + don’t work weekends ☹
- Separate DNS
  - “Sensible”, fraudster owned, DNS service domain
  - 5 live A records at a time
  - Slow rotation (≈ 30 mins)
- Botnet hosting
  - 30 + IP addresses seen in 32 hr lifetime

# What does this mean?

- 2-factor approaching economic
- Attributable cost of IR on order of financial loss
- Education appears to be reducing customer response
  - But when you get an attack after 14 months …
- Inter-bank recovery rates are consistent to improving
- Wider scale spam filtering seems to be helping
- Grip slowly tightening on phishing gangs
- Law Enforcement effort needing
  - Low value crime, international & difficult

# “Spear-Phishing”

- Pick your definition
  - Well targeted attack (only genuine customers)
  - Attacking only one email domain
  - Personalising attack emails
- Scripted emails with unique identifiers
  - Active email / mug verification
  - Avoid dilution & decoys
  - Future proofing


Perseverance is a great element of success:
if you only knock loud and long enough at the
gate, you are sure to wake up somebody.
Henry Wadsworth Longfellow

# Pharming

- I would exclude “etc/hosts” changes
- Rare, but difficult to spot
  - Why?
  - Spam is easy, fools are plentiful?
- Spectacularly successful when implemented
- Potential for “transparent proxy”
- DNS surveys suggest wide-scale susceptibility

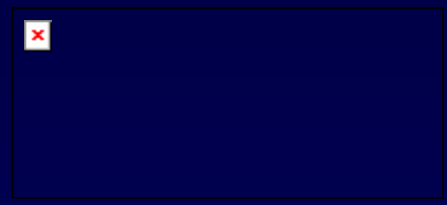
# Trojans

- Remain the “iceberg issue”
- Many customer machines multiply compromised
- Vast range of applicable threats
  - Key-logging
  - Keyword tailored key-loggers
  - Screen scraper
  - Disk search utilities (inc grep)
  - MITM Proxies (Browser Help Objects)
  - Etc/hosts file alterations

# Trojan Impact

- Very few customers per identified variant
- Spread between many banks (over 200 in some etc/ hosts)
- Auto-updates
- Well-established malware author shops / kits
- Botnet hosting
- Nasty suspicion?
  - What happens to real 1st-party fraud?

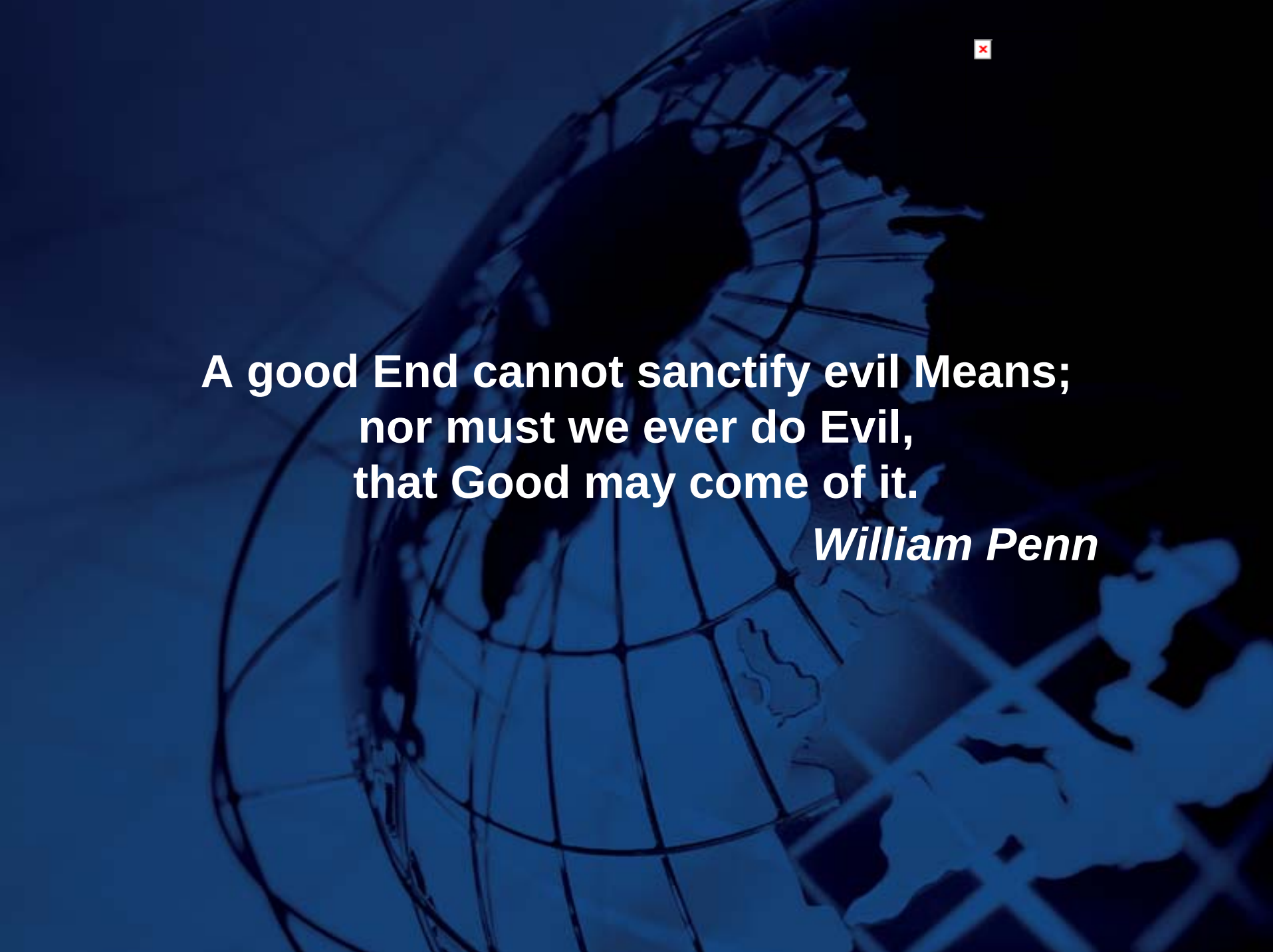
# (small) Etc/hosts sample



| | |
|---|---|
| 24.14.38.190 | www.halifax-online.co.uk |
| 24.14.38.190 | ibank.barclays.co.uk |
| 24.14.38.190 | online.lloydstsb.co.uk |
| 24.14.38.190 | online-business.lloydstsb.co.uk |
| 24.14.38.190 | www.ukpersonal.hsbc.co.uk |
| 24.14.38.190 | www.nwolb.com |
| 24.14.38.190 | banesnet.banesto.es |
| 24.14.38.190 | extranet.banesto.es |
| 24.14.38.190 | ebanking.bccbrescia.it |
| 24.14.38.190 | www.bankofscotlandhalifax-online.co.uk |
| 24.14.38.190 | www.rbsdigital.com |
| 24.14.38.190 | oi.cajamadrid.es |
| 24.14.38.190 | bancae.caixapenedes.com |
| 24.14.38.190 | banking.postbank.de |
| 24.14.38.190 | meine.deutsche-bank.de |
| 24.14.38.190 | myonlineaccounts2.abbeynational.co.uk |
| 24.14.38.190 | ibank.cahoot.com |

# Non-IT Attacks

- Telephony
  - Auto-diallers (espec VOIP)
  - SMS
- Paper
  - Interference with the Mails
  - Statement stuffers
- Marketing departments don’t help


A good End cannot sanctify evil Means;
nor must we ever do Evil,
that Good may come of it.
William Penn

# Summary: The state at Baltimore

- Attacks steadily ramping up
  - Spam volumes erratic
  - No real learning on “hook”
  - Minor variations in favourite targets
- $millions per month
- International
  - Multiple languages
  - Transnational targeting
  - West Africans now playing
- Technology improving
- Almost time to do something about it ☺

# So what for next year?

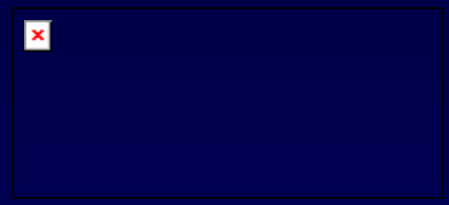
- Cleverer targeting
  - Cleaner spam lists
  - More / better personalisation
  - Theft of customer (marketing) databases
- Money movement?
  - Away from Western Union
- Suborned registrars?
- Strong 2-factor transaction data signing
  - 2FA is not enough (though necessary)

# Just remember it's not the only problem …


The "Enron 3"

Donald MacKenzie

# Some perspective

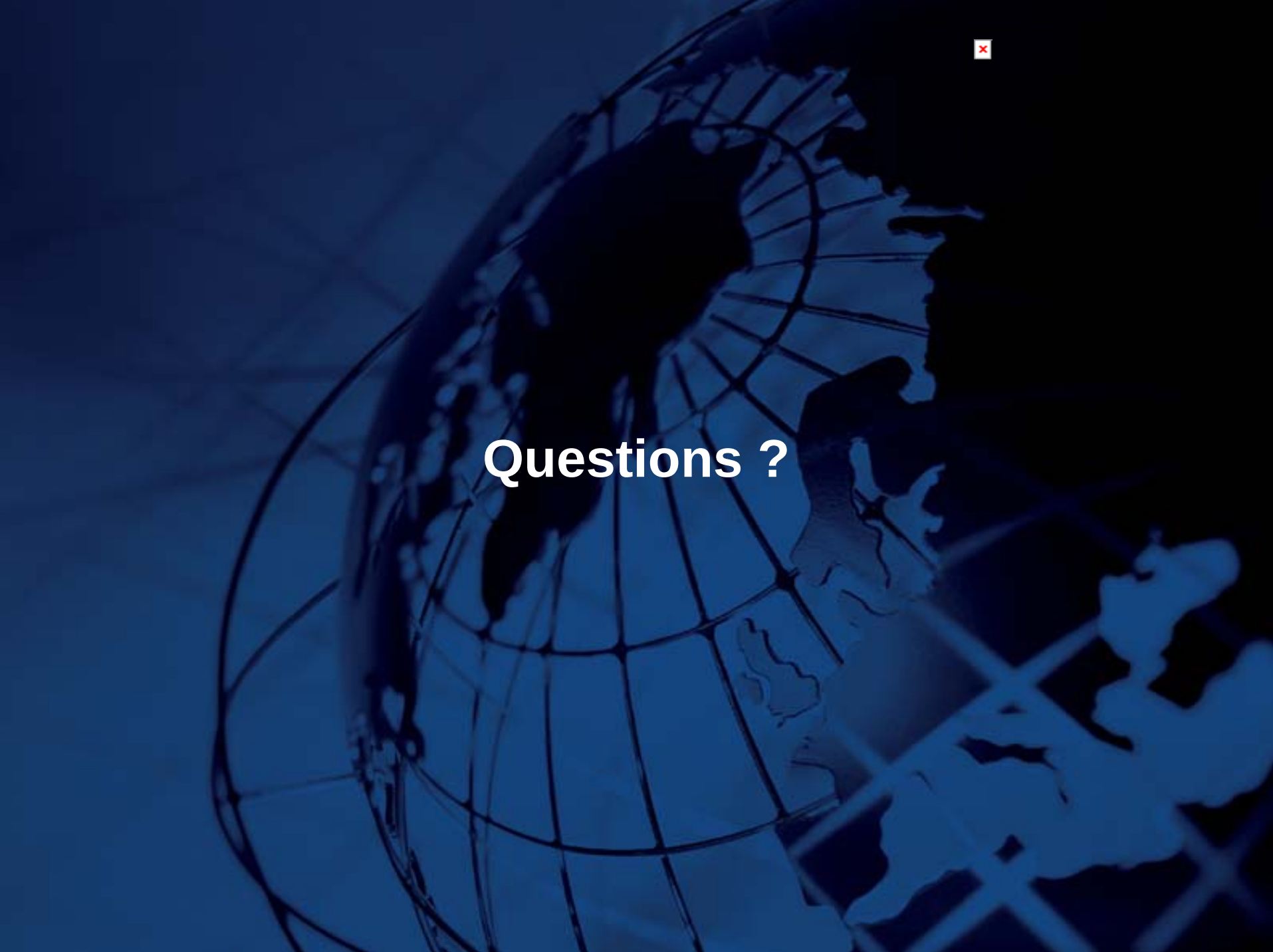


## Phishing & trojans

- Organised crime
- Hundreds of attacks
- £23.2m UK admitted loss
- Thousands of hours ISIRT
- Mostly getting away with it
- *Apparently* below LE “radar”

## Donald MacKenzie

- Business Relationship Mgr
- 5 year rolling scheme(r)
- Prosecuted for ≈ £21m loss
- Loan & dormant account fraud
- 5 man-days
  - Computer & phone forensics
  - Statement writing
- Sent down for 10 yrs on Tuesday 27th June ☺


Questions ?