



RISE  
THE AND OF INFOSEC  
FALL



OWASP DAY 2015





# A PowerPoint Slide Presentation



By Andrew Kelly

12/03/2015

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## Abstract: OWASP Day 2014 2015

“A skip and jump through three decades of collected wisdom and anecdotes on the ‘fall’ of InfoSec with the rise of viruses, worms, etc., in the 80’s and 90’s - and its subsequent ‘rise’ again in the 2000’s due to hacking and similar nefarious activities now being ‘accepted’ as mainstream.”

“Changing attitudes in the last 30 years - but not changes in music and fashion - will be covered; alongside some ideas on how you can use such changes to your advantage in your own careers and/or organisations.”

*“All this by a man who (he claims) has done the hard yards: All nine of them!”*

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## Abstract: OWASP Day 2014 2015

Egon: "There's something very important I forgot to tell you."

Peter: "What?"

Egon: "Don't cross the streams."

Peter: "Why?"

Egon: "It would be bad."



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- Combining the management and technical streams is something new for OWASP and presents me with a dilemma.
- Now I'll have to speak slower so the techs can keep up.



## All About Me

**Insomnia Security Group Ltd.** [2014 on]; **Health Benefits Ltd.**, Auckland, NZ [2013]; **Telecom Ltd.**, Auckland, NZ [2012-2013]; **Lateral Security (IT) Services Ltd.**, Auckland, NZ [2010-2012]; **Security-Assessment.com Ltd.**, Auckland, NZ [2007-2009]; **Transpower Ltd.**, Wellington, NZ [2006-2007]; **BT Syntegra Ltd.**, London, UK [2006]; **Fonterra Co-operative Group Ltd.**, Auckland, NZ [2004-2005]; **BT Syntegra Ltd.**, Leeds, UK [2004]; **Insight Consulting Ltd.**, Walton-on-Thames, UK [2003]; **National Bank of NZ Ltd.**, Wellington, NZ [2003-2004]; **Royal Bank of Scotland Group**, Edinburgh, UK [2002]; **Halifax/Bank of Scotland**, Leeds, UK [2001]; **Banque Nationale de Belgique**, Brussels, Belgium [2001]; **Deutsche Bank Ltd.**, London, UK [2000-2001]; **Lloyds/TSB Bank Ltd.**, Southend-on-Sea & London, UK [2000]; **Bank One International/First USA Bank**, Cardiff, UK [1999]; **Générale de Banque**, Brussels, Belgium [1998-1999]; **Perot Systems Europe Ltd.**, Nottingham, UK [1997-1998]; **Chartered Trust Plc** (Standard Chartered Bank), Cardiff, UK [1996-1997]; **Legal & General Assurance**, Kingswood, Surrey, UK [1996]; **Sun Life Assurance Company of Canada (UK) Ltd.**, Basingstoke, UK [1989-1993]; **Databank Systems Ltd.**, Wellington, NZ [1987-1989]; **Caltex Oil (NZ) Ltd.**, Wellington, NZ [1985-1987]

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Places what I've worked since 1985.



**30 #\$&@&%# Years...!!!**

**The future  
was exciting  
at one point.**



April 1985: Trainee Computer Operator,  
Caltex Oil (NZ) Ltd., IBM House, The  
Terrace, Wellington.

**27 #\$&@&%# Years...!!!**

July 1988: Data Security Officer,  
Databank Systems Ltd., Vivian Street  
Data Centre, Wellington.

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## CHANGES WHAT I HAVE SEEN



“Changing attitudes in the last 30 years - but not changes in music and fashion - will be covered...”

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- Let's have a wallow in nostalgia.
- Hands up who remembers this film?



## Career Choices

**ARE YOU DRUNK?**

YES

NO

X

“Do you want to become a computer operator ... or just another damned programmer?”

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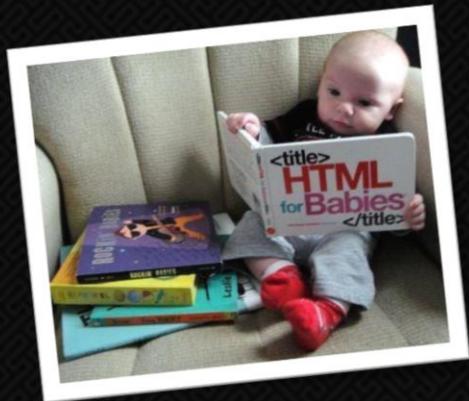


My soon-to-be Operations Manager asked me the fateful question.



## 'Programmers' Became 'Developers'

**Me:** "What you know? You're only a Programmer, see?"



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- Another intriguing question, although not one that keeps me up at night.
- At Sun Life of Canada, around 1992, the following conversation took place.



## 'Programmers' Became 'Developers'

**Me:** "What you know? You're only a Programmer, see?"

**Her:** "Back off! I'm now a Senior Developer!"



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- Along with the change in title came a change in attitude.
- Now they felt empowered somehow...



## 'Personnel' Became 'Human Resources'



‘Personnel Management’ became ‘Human Resources Management’ in the 80’s or 90’s.

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Dependent on where you were in the world.



## 'Personnel' Became 'Human Resources'

Got called into HR. I thought they wanted to talk about their desktops...



### RULE #34

If it exists, there is porn of it.

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Turns out it was another type of PC they wanted to talk to me about.



## My First Computer



Around 1983 I bought my first “Home Computer.”



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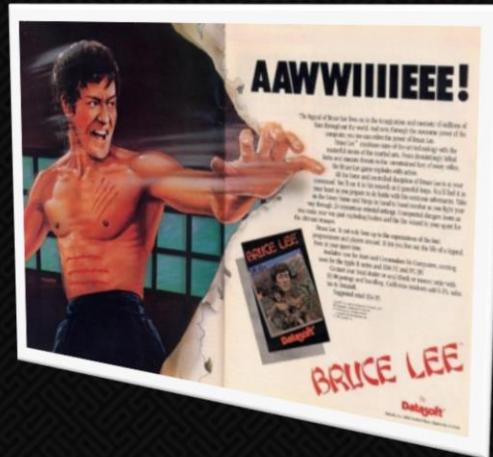
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- What they were known as then.
- The Atari 400 was introduced in 1979, and manufactured until 1992.
- Based on the 8-bit MOS Technology 6502 CPU, running at 1.79 MHz, the same processor as used in the Apple II, Nintendo Entertainment System, and Commodore 64.



## My First Computer

I had its biggest seller, “Star Raiders,” but my favourite was always “Bruce Lee.”

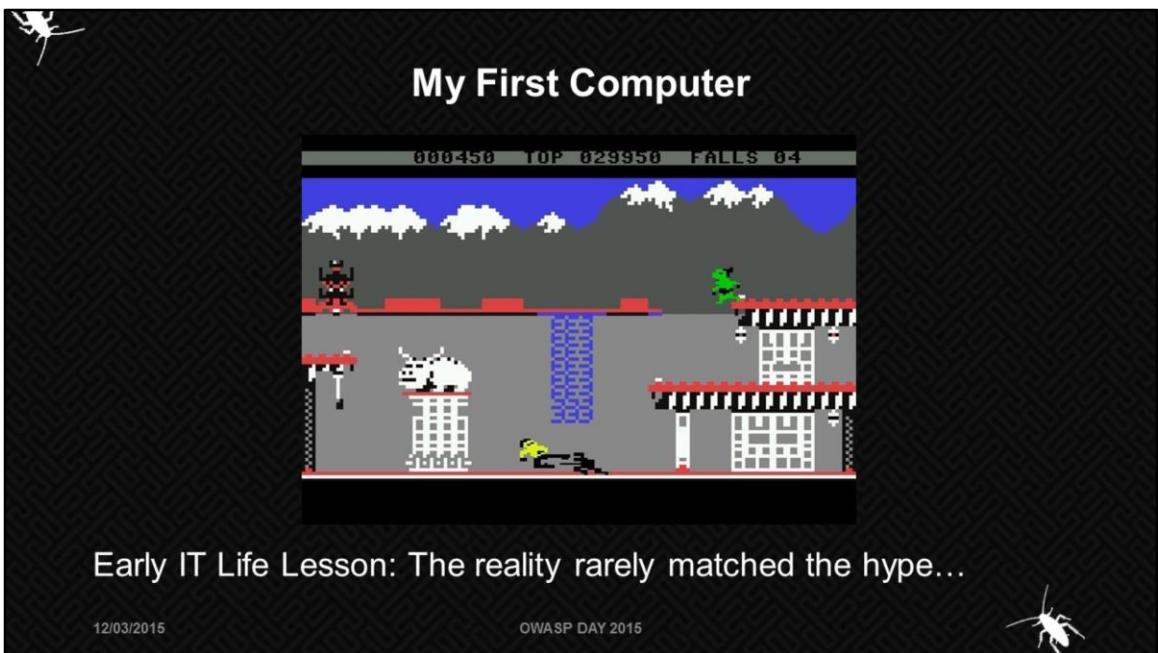


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Popular as much for gaming as for programming (Atari BASIC).



Early IT Life Lesson: The reality rarely matched the hype...

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## IBM Dumb Terminal to Dumb IBM PC



Worked on IBM - or IBM clone - mainframes off-and-on between 1985 and 1999.

1989: Got my hands on an IBM 3270 PC.

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- While also a standalone PC, could emulate an IBM 3270 'dumb' mainframe terminal.
- Had an IBM PC 5150 for WordPerfect.



## An Oxymoron

This Page Intentionally Left Blank



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A nod to those early IBM manuals.



## The WorldWideInterWeb

First home connection in 1996.

An exclusive club: In December 1996, there were only 36 million people on the Internet.



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- In early 1996 there were only 100,000 websites.
- The #1 browser was Netscape Navigator (IE a distant second; IE 3 launched 1996).



## The WorldWideInterWeb



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‘Phantom Phreak’: “Yo!  
Check this out guys, this  
is insanely great, it’s got a  
28.8 BPS modem!”

‘Crash Override’: “Yeah?  
Display?”

‘Cereal Killer’: “Active  
matrix, man. A million  
psychedelic colours. Man,  
baby, sweet, oh!”

The Internet was like the 'Wild Wild West' in those days.



## The WorldWideInterWeb



I too had an 'insanely great' 28.8 kbps modem - 56.6 kbps didn't arrive until 1997.

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- A 28.8 kbps modem led to much disappointment!
- An image with "A million psychedelic colours"? Yeah right!
- A 28.8 kbps modem would load the average webpage (@10kb with no graphics) in around 3 seconds.
- A small, single graphic (@30kb) added around 9 seconds; so 12 seconds total.
- It was common practice to disable pictures and other graphics, so pages loaded faster.

## Jobs, Jobs and Employment

**Classification**  
Information & Communication Technology ▾

**Sub-Classification**  
Security ▾

Year on year, the number of InfoSec jobs are rising.

**seek** NEW

Job Search      Profile

30 jobs matching your search criteria

Tuesday 24th February 2015

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When I returned to NZ in 2003, you were lucky if there were two to three jobs on offer.



More on this later...

## Jobs, Jobs and Employment

- Technical Security Lead
- ICT Security Specialist
- Cyber Security Opportunities (GCSB)
- NZ Army Electronic Warfare Operator
- Security Systems Engineer
- Security Consultant
- Senior Security Engineer
- Senior Security Architect
- Penetration Tester
- Information Security Consultant
- Information Security Manager
- IT Security Manager



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- The last two are interesting.
- People are looking for actual managers now - not simply techs who also manager.



## Every Morning



1985: COFFEE + TV + home computer

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20 plus years ago, we had all of these: Now it's all in one gadget ... right?



## Every Morning

2015:

1. COFFEE
2. TV
3. Laptop
4. Charge personal mobile
5. Charge work mobile
6. E cigarette
7. Charge other e cigarette battery
8. Kindle



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- What's this say about our modern society?
- I have no idea...



## THE FALL OF INFOSEC

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000001D0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00   .....

```

"A skip and jump through three decades of collected wisdom and anecdotes on the 'fall' of InfoSec with the rise of viruses, worms, etc., in the 80's and 90's..."



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## Stoned

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000000140 BF 00 00 AD 3B 05 75 11 AD 3B 45 02 75 08 2E C6 Z...;u.;E.u..A
000000150 06 08 00 00 2E FF 2E 11 00 2E C6 06 08 00 02 B8 .....Y...A.....
000000160 01 03 BB 00 02 B9 07 00 BA 80 00 CD 13 72 DF 0E ...*...Y...oE.1.rB.
000000170 1F 0E 07 BE BE 03 BF BE 01 B9 42 02 E3 A4 88 01 ..MK;X'B.6H...
000000180 03 33 D8 FE C1 CD 13 EB C5 07 59 6F 75 72 20 50 .30pA1.8A.Your P
000000190 43 20 69 73 20 6E 6F 77 20 53 74 6F 6E 65 64 21 C is now Stoned!
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Wikipedia: “Notable for being an early boot sector virus, it was thought to have been written by a university student in Wellington, New Zealand - and by 1989 it had spread widely in New Zealand and Australia. It was one of the very first viruses, and was, along with its many variants, very common and widespread in the early 1990’s.”

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- First saw virus this in the UK in the early 90's.
- And it's not 'thought to have been' - it was.



**“Go us! Right...?”**

*This is something  
we can all be so  
very proud of...*

**Yeah Right.**



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## And So It Begins...

- November 1983: The term “virus” coined by Fred Cohen in the US to describe self-replicating computer programs.
- In 1984, Cohen expanded this to the phrase “computer virus” to describe the operation of such programs in terms of ‘infection.’



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## And So It Begins...

- November 1983: The term “virus” coined by Fred Cohen in the US to describe self-replicating computer programs.
- In 1984, Cohen expanded this to the phrase “computer virus” to describe the operation of such programs in terms of ‘infection.’
- In 1987, Cohen demonstrated that, in theory, there is no algorithm that can perfectly detect all possible viruses.



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This didn't stop the AV vendors, of course...



## Case Study: The Michelangelo Virus



Named Michelangelo not because of any messages in the virus itself, but because an early researcher realised the date it was set to trigger on - March 6th - was the artist's birthday.

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## Case Study: The Michelangelo Virus



It was *not* named after the Teenage Mutant Ninja Turtle...

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Although they were around then.



## Case Study: The Michelangelo Virus

Michelangelo was a variant of the Stoned virus, and probably originated in Australia.

If an infected system was booted on March 6th of any year, and if the PC was an AT or a PS/2, the virus overwrites the first one hundred sectors of the hard disk with nulls.



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- It was nasty, okay?
- A user would be hard pressed to recover their data if the virus triggered.



## Case Study: The Michelangelo Virus



In the time leading up to March 6th 1992, the media went ~~batshit crazy~~ hysterical over the Michelangelo virus.

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Fuelled in part by John McAfee, the AV company founder, who predicted that upwards of five million PCs would be infected.

**Case Study: The Michelangelo Virus**

**Man emerges from bunker 14 years after Y2K scare**

Wednesday, December 11, 2013 | Categories: Headlines Main 48

22K Likes 585 Tweet 142 Share 23K

After living away from society for 14 years, Norman Feller is most impressed with KFC's 'Double Down' sandwich.

January 1, 2000 was the day that our computers were meant to fail us and change our lives forever. It was also the day that 44 year old Norman Feller headed into his underground bunker over fears of the fallout from the Y2K virus. Remarkably Mr. Feller spent the next 14 years in isolation only to emerge this past September.

4 Listen

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- The total cost of the work done in preparation for Y2K, worldwide, is estimated at over US\$300 billion.
- It could be as high as US\$500 billion.



## Case Study: The Michelangelo Virus

The actual number was more in the thousands.

### Computer virus hits, but termed a dud

NEW YORK (AP) — The day of technodoom turned out to be a dud.

The much-hyped Michelangelo computer virus failed at mid-mornings around the world Friday to live up to predictions of widespread catastrophe.

A virus expert compiled reports of about 2,000 damaged machines worldwide by late in the day. A spot check by Associated Press bureaus found few companies or other personal computer users were affected.

The dire projections had ranged into the millions of infected PCs.

Some experts said the anticlimax could make computer users less careful about the thousands of other variations of the insidious electronic invaders, which remain a real threat.

"If there's an upside to all this it's greater awareness of the problem," said Pam Kane, an author on viruses and owner of a company that makes anti-virus software. "The downside is it's the boy who cried wolf."

The virus sits dormant inside IBM-type

personal computers awaiting the PC's internal clock to reach March 6, the birthday of the Italian Renaissance artist. Once the PC is turned on that day, the virus can destroy programs and data on the computer's hard disk.

The virus — a rogue bit of computer software — was discovered about a year ago in Europe. It moves from computer to computer as users exchange infected floppy disks. Its creator and the connection with the artist are unknown.

For days, news media relayed forecasts of impending doom from Michelangelo. The story had all the right elements: a mysterious invader with a sexy name that could cause havoc by a definite deadline in machines relied upon by millions.

"I think it's off," failed to mention that many projections of potential damage were provided by companies that make anti-viral software and stood to benefit from the scare.

One source was John McAfee of McAfee Associates, the largest seller of virus-killing

programs. McAfee was widely quoted as saying Michelangelo had infected up to 5 million computers worldwide.

Asked Friday whether he had overstated the threat, McAfee said the low rate of actual Michelangelo damage was due partly to precautions so many PC users took.

McAfee said he received at least 1,000 reports nationwide of hits by the virus Friday, which he believes are a fraction of all the incidents.

Joseph Wells, a virus specialist at McAfee competitor Certus International Inc., said he compiled a list of about 2,000 PCs worldwide damaged by Michelangelo, based on reports from other virus experts and organizations.

For each of these "hits," almost 200 other computers were found to have been contaminated with the virus before the Friday deadline and cleaned, he said.

The scare prompted many PC users to invest in anti-viral software at \$100 or more a copy. Computer stores reported they were cleaned out of the programs.

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Thanks in part to the widespread uptake of AV software before - and after - the event.



## Case Study: The Michelangelo Virus



Commonly heard phrases and statements throughout the 90's:

- "But we have antivirus and a firewall ... so we're secure!"
- "Our systems are still up and running..."
- "Antivirus and firewalls *are* security!"
- "We've never had a security incident, so..."

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## Case Study: The Michelangelo Virus



Commonly heard phrases and statements throughout the 90's:

- "But we have antivirus and a firewall ... so we're secure!"
- "Our systems are still up and running..."
- "Antivirus and firewalls *are* security!"
- "We've never had a security incident, so..."
- "Bounce dawg, you bunched!"  
[Approximate translation: "Leave friend, you messed up!"]

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And my favourite from that time...



## We Didn't Help Ourselves



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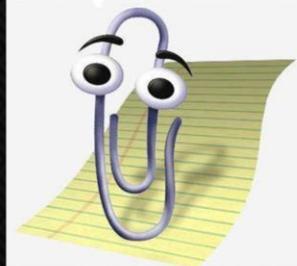
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- The whole "Sky is falling!" attitude began to wear very thin.
- We had to seek different, more imaginative ways to get management's attention.
- Covered in a previous OWASP talk.



## Part of the Problem



Hi AK. Although your audience don't give a damn, and it makes no difference whatsoever, it looks like you are having a problem with naming conventions. Would you like to...

- Grow a pair, and make a decision
- Give up and state: "I don't have the answer here" in a serious tone

'Computer Security', 'Cyber Security', 'Data Security',  
'Information Security' or 'IT Security'?

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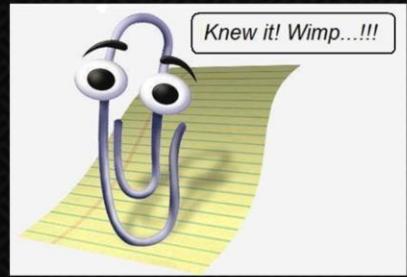


- Was it, is it, or should it be?
- We didn't know what to call ourselves!



## Part of the Problem

- 2008: "Information Security" Management Consultant
- 2006: "IT Security" Portfolio Manager
- 1999: "Data Security" Analyst
- 1989: "Information Security" Analyst
- 1988: "Data Security" Officer



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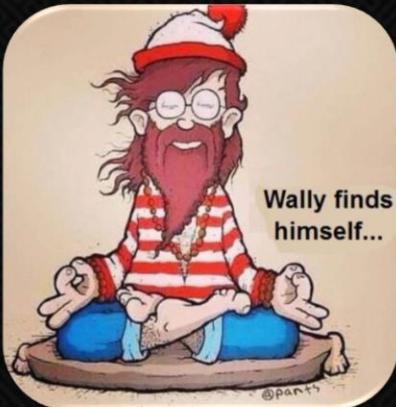
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- "I don't have the answer here..."
- Never been called "Computer Security" or "Cyber Security" anything (except perhaps a 'threat to'), but then I've not worked that often for any government.



## THE RISE OF INFOSEC



“[InfoSec’s] ... subsequent ‘rise’ again in the 2000’s due to hacking and similar nefarious activities now being ‘accepted’ as mainstream.”

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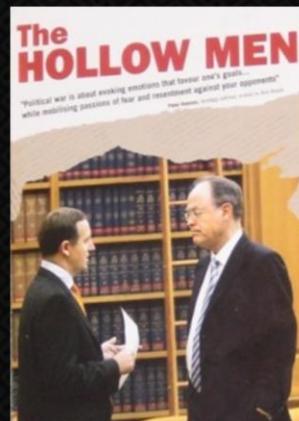




## Don, Key, and the Hacker

In 2006, Nicky Hager's book "*The Hollow Men*" covered National's 2005 election strategies, under then-Leader Don Brash.

Book describes National's underhanded techniques, and led to Brash's resignation.



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Hager had used (surprise!) extracts from 475 leaked Brash emails.



## Don, Key, and the Hacker

Hager claimed he'd been given the leaked emails by six National Party insiders.



New Leader John Key stated in 2008 that a hacker did it.

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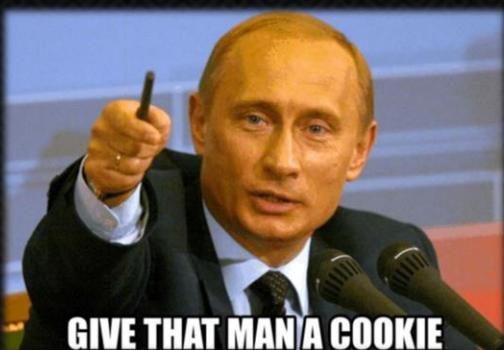
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Despite police ruling out a breach of the parliamentary computer system.



## John Key and the Hacker



Who knew that John Key would be right in his claim about Hager and a hacker doing it?

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Albeit six years later...

## John Key and the Hacker

So John Key has 'history' with hackers.

He even has an opinion on security, of course.



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## John Key and the Hacker

From “*The New Zealand Herald*” August 2014:

“Mr Key suggested that even if Mr Ede had accessed the records, “of course it would be fine to go and do that” because they were unprotected.”



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- Thing to remember here is: Even, and finally, the Government ‘gets hackers.’
- Important because, back in the day, the Government almost ignored InfoSec.
- Infosec now in the public psyche.



## The State of the Union



President Obama  
actually mentioned  
'Cyber Security' in his  
2015 State of the Union  
speech!

\*terms and conditions may apply.

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OMG!



## The State of the Union

"No foreign nation, no hacker, should be able to shut down our networks, steal our trade secrets, or invade the privacy of American families, especially our kids."



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- Who's thinking of the children? President Obama apparently...
- Again: Hackers and InfoSec go 'mainstream.'



## Job Growth



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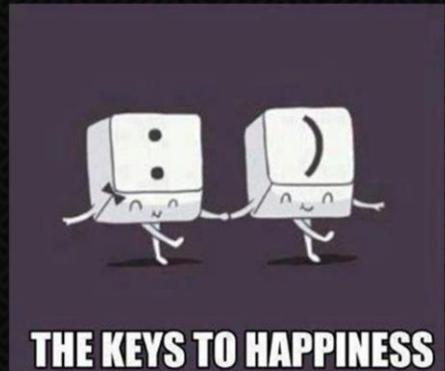
Based on US Department of Labor prediction on jobs that'll grow the most 2012 - 2022.

Ranked on projected openings; rate of growth; job prospects; unemployment rates; salary; and job satisfaction.

## Job Growth

The 10 Best Jobs of 2015:

1. Dentist
2. Nurse Practitioner
3. Software Developer (No.1 in 2014)
4. Physician
5. Dental Hygienist
6. Physical Therapist
7. Computer Systems Analyst
8. Information Security Analyst
9. Registered Nurse
10. Physician Assistant



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Weird how every other one is medical related.



## Job Growth



### No. 3 Software Developer

139,000+ new software developer jobs by 2022

### No. 7. Computer Systems Analyst

24.5% growth through 2022

### No. 8. Information Security Analyst

36.5% growth between 2012 - 2022





## TO YOUR ADVANTAGE



“Some ideas on how you can use such changes to your advantage in your own careers and/or organisations.”

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## The Michelangelo Virus

*"If you can keep your head when all  
about you are losing theirs..."*

"If-" by Rudyard Kipling, 1895

**IT'S ALL  
FUN  
AND  
GAMES  
UNT L**

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- The media, and some of us too, went hysterical.
- The '5-minute Rule' took me a long time to learn.



## We Didn't Help Ourselves



“The sky is falling!”

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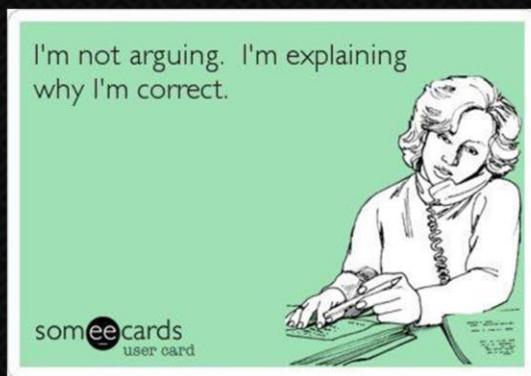


- Reference the Michelangelo virus: This attitude is so last century; learn to approach a problem from other, more fruitful, angles.
- Fellow worker lesson.



## Don, Key, and the Hacker

John Key stating in 2008  
that: "A hacker did it..."



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Learn to accept that others will totally misunderstand what you do or have done, and learn to live with it.



## John Key and the Hacker



"It would be fine to go and do that..."



Accept that your peers, bosses, and those in other fields don't always know what they're talking about.



## The State of the Union



It's good that the President of the United States now acknowledges InfoSec 'is a thing', right?

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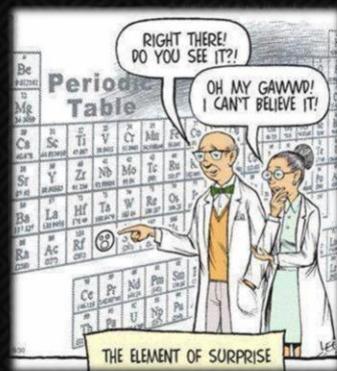


- One of Obama's proposed laws means media could be charged with computer crimes for obtaining documents taken without authorisation from a government computer system by a whistleblower, or for sifting through data leaked online by hackers.
- And let's not mention NSA spying shall we?



## My First Computer

In 1983 I bought my first “Home Computer.”



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- You started out curious.
- Stay curious; and continue to learn about the industry you're in.



## Every Morning

It was a sad  
and  
disappointing day  
when I discovered my  
Universal Remote Control  
did not,  
in fact,  
control the Universe.

(Not even remotely.)

More and more gadgets?

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- Tech is sexy; love the tech - but don't forget other stuff is also important.
- Remember that what we have right now, is firmly based on what we had in the past.



## Use Technology

*"If you think technology can solve your security problems, then you don't understand the problems and you don't understand the technology."*

Bruce Schneier 2000



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My favourite quote...



## Use Technology



When the US Navy deploys a battle fleet on exercise, the security of its aircraft carriers is paramount.

That's the theory...

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- At least a dozen warships stand guard to detect and deter any intruders.
- Like those surrounding the USS Kitty Hawk back in 2007.



## Use Technology

Or, rather, was the theory...

A Chinese 'Song Class' submarine.



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- Don't dismiss the 'tried and true' for the 'latest thing'; lessons from the past still hold true.
- Also: Legacy systems.

## People, Process, and Technology



Organisations often apply technology (first) to solve problems.

Only to find the 'solution' ends up worse than the original problem.

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- Remember Schneier?
- Whether considering security, developing, whatever.



## People, Process, and Technology

A ‘technology-first’ tactical mind-set often provides only a temporary fix.



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- The goal should be to define a 'fit-for-purpose' environment.
- First make the people and processes more efficient.
- Then give employees the tools and technology to make them more effective.



## “HERE ENDETH THE LESSON”

1. “Changing attitudes in the last 30 years - but not changes in music and fashion - will be covered...”
2. “A skip and jump through three decades of collected wisdom and anecdotes on the ‘fall’ of InfoSec with the rise of viruses, worms, etc., in the 80’s and 90’s...”
3. “[and its] ... subsequent ‘rise’ again in the 2000’s due to hacking and similar nefarious activities now being ‘accepted’ as mainstream.”
4. “Some ideas on how you can use such changes to your advantage in your own careers and/or organisations.”

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## The Hopeful Ending...?



"The more things change, the more they stay the same."  
Jean-Baptiste Karr, 1849

*As stated by this presenter  
who (he claims) has done the  
hard yards: All nine of them!*

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**ANY QUESTIONS?**



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