



# Information Security Industry Overview

Presented By Peter Benson, CEO

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- Founded 2003
- Only 'pure-play' information security assurance company in Australasia
- Audit, assess, advise and assure large and medium enterprises
- Global authority –NZ VISA/MasterCard certified auditor
- Offices in Auckland, Wellington, Sydney
- Consultants in Palo Alto, Toronto, Manchester
- Expertise in Finance, E-Commerce/EFTPOS, Government, Telcos, Utilities,.
- Focus on Security and Vulnerability Research, Forensic Research
- Global Presenters, Global Brand



- House Committee Wants NRC to Conduct Deeper Investigation Into Data Spike at Alabama Power Plant (May 18, 2007)
- The TJX Data Breach is now the worst in US history, with up to 96 Million accounts compromised. The data breach was through an insufficiently secured Wireless connection;
- Illinois State Database Suffers Security Breach (May 19, 2007) A database holding personally identifiable information of approximately 300,000 people who have applied for or hold certain professional licenses.
- MessageLabs uncovered some interesting trends in its report on online threats for March. The most common of the 249 low-volume, high-value attacks identified by the company consisted of a single e-mail sent to one person. (Spear – Phishing)



- Australia's essential services including electric, water and transport are not secured against cyber terrorist attacks, the Federal Government has warned.
- In last year's AusCERT Computer Crime and Security Survey, 58 per cent of companies surveyed reported having laptops stolen, up from 53 per cent in 2005. Nine per cent of companies said handhelds had been stolen last year, up from 8 per cent in 2005.
- McAfee unveiled a study showing that 33% of respondents said they believe a major data-loss incident involving accidental or malicious distribution of confidential data could put them out of business.
- Hackers fake Howard heart attack
- More than 100 HSBC Australia customers had their banking details, names and home addresses, as well as other personal financial information exposed in a serious security breach by staff.

- **Threats are still being underestimated by organisations:**

Attack vector types and intelligence of attacks are increasing. Business, politics and crime is driving the serious threats.

- New Spam is still booming
- Spyware, keyloggers, trojans etc are on the increase
- Time to exploit of vulnerabilities is decreasing.
- Hacking for profit (cyber-extortion) is a real threat.
- State Sponsored...?
- New technologies are opening up organisations to unimaginable risks.
- Targeted Attacks huge!
- Most organisations are struggling to just to keep up with the basics, let alone keep pace with new and emerging threats.



- IT Centric View of Security
- Systems View rather than Service View
- Complex Environments have Inherent Weaknesses
- New Technology Not Mature
- End to End / Enterprise Considerations
- Lack of Visibility (Current Compromises >5%)
- Security Risk vs Business Risk

- Wireless Attack
  - Internal
  - External

- Typical Risk Calculation  $\text{Risk} = \text{Threat} \times \text{Vulnerability} \times \text{Impact}$
- $\text{Risk} = \text{Hazard} \times \text{Outrage}$
- Lack of transparency
- Breach disclosure management
- When or if you Disclose
- Service Management Focus?

- Last Week Verified Attacks (Zone-H.org)
- Total attacks: **5952** of which **1914** single ip and **4038** mass defacements
  - Linux (54%) (down)
  - Win 2003 (36%) (Significantly up)
  - Win 2000 (6.2%)
  - FreeBSD (1.9%)
  - All others (1.5%)
  - WinNT9X!

- 37 .nz sites mirrored in the last month
  - Those are only the ones zone-h.org hears about
  - 29 .co.nz, remainder .org.nz, .net.nz

## Methods of Attack – Zone-H

- configuration / admin. mistake 18.5%
- known vulnerability (i.e. unpatched system) 14.5%
- undisclosed (new) vulnerability 12.5%
- File Inclusion 10.2%
- brute force attack 7.4%
- FTP Server intrusion 5.7%
- Other Web Application bug 4.3%
- Attack against the administrator/user (password stealing/sniffing) 4.3%
- social engineering 3.4%
- SQL Injection 3.4%

## Chronology of Data Breaches

Go to Breaches for [2005](#), [2006](#), or [2007](#)

DATE MADE PUBLIC	NAME (Location)	TYPE OF BREACH	NUMBER OF RECORDS
<b>2005</b>			
Jan. 10, 2005	George Mason University (Fairfax, VA)	Names, photos, and Social Security numbers of 32,000 students and staff were compromised because of a hacker attack on the university's main ID server.	32,000
Jan. 18, 2005	Univ. of CA, San Diego (San Diego, CA)	A hacker breached the security of two University computers that stored the Social Security numbers and names of students and alumni of UCSD Extension.	3,500
Jan. 22, 2005	University of Northern Colorado (Greeley, CO)	A hard drive was apparently stolen. It contained information on current and former University employees and their beneficiaries -- name, date of birth, SSN, address, bank account and routing number..	30,000
Feb. 12, 2005	Science Applications International Corp. (SAIC) (San Diego, CA)	On Jan. 25 thieves broke into a SAIC facility and stole computers containing names, SSNs, and other personal information of past and current employees. Stolen information included	45,000 employees



# **THREATS, TRENDS AND MISCONCEPTIONS**

- There's money on the Internet and lots of it:
  - Spamming, Phishing, Porn
  - Cyber-extortion, Hacking for Profit
  - Pirating / Warez
- New attack vectors and targeted attacks continue to grow:
  - Applications are easy targets yet risks not well understood by most
  - Network Access Control / End Point Security is hot !
  - VoIP vulnerable / SPAM?
  - Attacks and compromises can be very well hidden

## What we are seeing from a management perspective:

- Reliance on technology is creating a false sense of security.
- Obligations and Duties not understood. Business Risk!
- Very few organisations have an effective IT Security, ISMS, SSMF, or Risk Management strategy in place.
- Most believe that cyber-threats are not as real as reported!
- Most organisations have little understanding of the risks they face.
- Most wouldn't know if they have been compromised (>35%?).
- Most underestimate the repercussions of an incident. (Outrage)
- You're on your own – with hundreds of so-called standards to help you!
- Compliance vs. Security – two different objectives ?

## What we are seeing from an implementation perspective:

- New whizz-bang technologies STILL seen as silver bullets.
- Patch management and IDS/IPS seen as total solutions vs. vulnerability management
- Organisations want security to be automated totally!

*We cannot Manage what we cannot Measure.  
Throwing more Technology and People at  
the problem is not an option anymore*

New technologies being deployed without careful security review  
eCommerce systems, Web Services, VoIP etc etc etc.

- Lack of Enterprise Perspective
- Compliance is driving behaviours but in some cases to the detriment of security!



- Security is built into applications and systems (Not!)
- Someone else has tested this product before us (Not!)
- Testing just before we go live gives us assurance (Not!)
- Security is an IT issue (Not!)
- Now that we have gone live, Operations should be able to keep it secure (Not!)
- We have a large organisation, but are focussed on security, and so are secure enough (Not!)
- We have never had a security incident (Really?)
- What we don't know won't hurt us (Really?)
- Our perimeter is secure, that's enough (Not!)
- VoIP can be deployed easily and securely (Not!)



# **SYSTEMS DEVELOPMENT LIFECYCLE**



- Project Initiation and Planning
- Requirements Definition
- Design
- Implementation
- Test (transition to live)
- Maintain



## Project Initiation Activities

Identify User Needs

Evaluate Alternatives

Select/Approve Approach

## Parallel Security Activities

Identify Security Needs

Initial Risk Analysis

Identify Security Framework





## Function Requirements Activities

Prepare Project Plan

Develop Functional Requirements

Preliminary Test Plans

Select Acquisition Strategy

Establish Formal Functional Baseline

## Parallel Security Activities

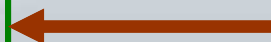
Security Areas in Project Plan

Define Security Requirements

Preliminary Security Test Plans

Include Security Requirements in RFPs, Contracts

Functional Baseline has Security Requirements



### System Design Activities

Develop Detailed Design

Update Testing Goals & Plans

Establish Formal Baseline

### Parallel Security Activities

Define Security Specifications

Update Security Test Plans

Security Areas in Formal Baseline



**Project Construction  
Activities**

**Parallel Security  
Activities**

**Construct from  
Detailed Design  
Specification**

**Write/Procure &  
Install Security  
Related Code**

**Perform & Evaluate  
Unit Tests**

**Perform Unit Tests  
Evaluate Security Code**

**Implement Detailed  
Design**

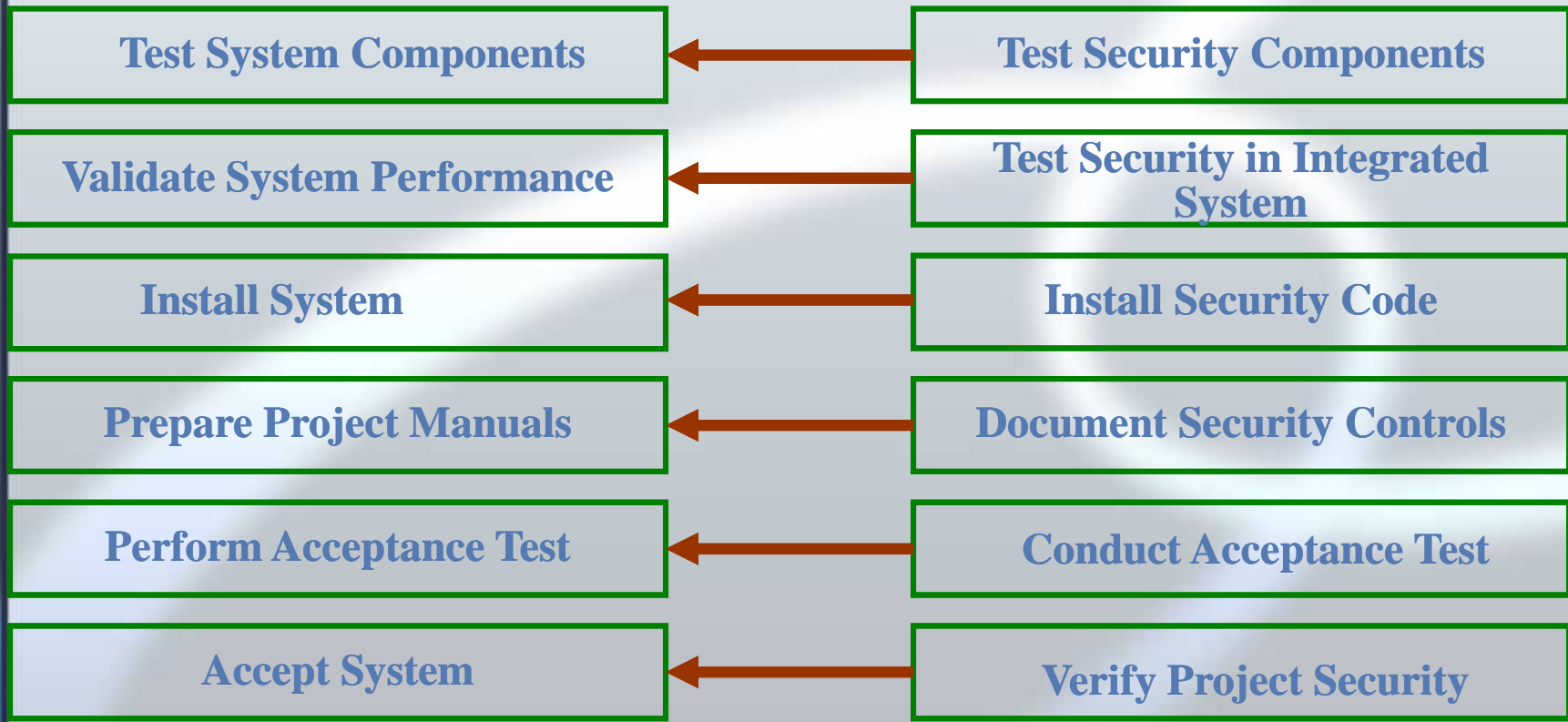
**Include Approved  
Components in Formal  
Baseline**





### Project Test Activities

### Parallel Security Activities



## Maintenance Security Activities

**Regularly Update Risk Register**

**Conduct Periodic Testing To  
Confirm Security Position**

**Review Changes For Security  
Impact**



# **COMMON SECURITY ISSUES IN PROJECTS**



- Mis-configuration
- Unpatched systems
- Weak passwords
- Insecure implementation
- Insecure design
- Lack of user training/education
- Security degradation over time (normally due to poorly documented controls, lack of strong management)



The longer a security vulnerability is left unsolved, the more costly to resolve.

Security should therefore be built into the project lifecycle to catch vulnerabilities as soon as possible.

It is too late to wait until one week before go-live to get a security review performed.

- Examples Of Poor Security Implementation
  - SQL Injections
  - Authorisation Bypass
  - Command Execution
  - URL Manipulation
  - Session Hijacking
  - ...



- Examples Of Poor Security Implementation
  - Ability to bypass firewalls
  - Unhardened equipment
  - Default or weak passwords
  - Unnecessary services
  - Unpatched systems



## Examples Of Poor Security Implementation

- **Carrier**
  - default installs/configurations - assuming blackbox is magic
  - no encryption (very few)
  - caller id spoofing
  - insecure client equipment (including shared passwords)
  - no customer segregation
- **Corporate**
  - data segregation (VLANs)
  - web configuration utilities - phones
  - Layer-2 attacks
  - phone configuration via tftp
- **Client**
  - Client-side vulnerabilities such as URL Handlers, Buffer Overflows



- CERT
  - [www.cert.org](http://www.cert.org)
- SANS
  - [www.sans.org](http://www.sans.org)
- Voice Over IP Security Alliance
  - [www.voipsa.org](http://www.voipsa.org)
- Open Web Application Security Project
  - [www.owasp.org](http://www.owasp.org)
- Open Source Security Testing Methodology Manual
  - [www.osstmm.org](http://www.osstmm.org)



Questions?

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