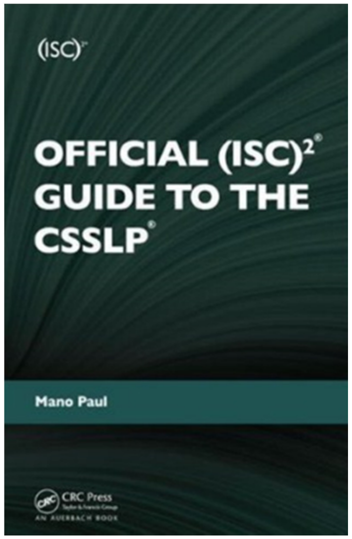
# Wild Wild Wild (WWW) Security Planet

Manoranjan (Mano) Paul

CSSLP, CISSP, AMBCI, ECSA, MCSD, MCAD, CompTIA Network+

# </Who am I? – The ABCDs>

- Author
  - Official (ISC)$^2$ Guide to the CSSLP$^{CM}$
  - Information Security Management Handbook
- Advisor - Software Assurance, (ISC)$^2$
- Biologist (Shark)
- Christian - Hidden Treasures Blog
- CEO - SecuRisk Solutions & Express Certifications
- Dell - Application Security Program Engineer/Manager
- dash4rk - SharkTalk$^{TM}$ podcaster



(ISC)$^2$

OFFICIAL (ISC)$^2$ GUIDE TO THE CSSLP

Mano Paul

CRC Press
AN AUERBACH BOOK

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Information Security Management Handbook

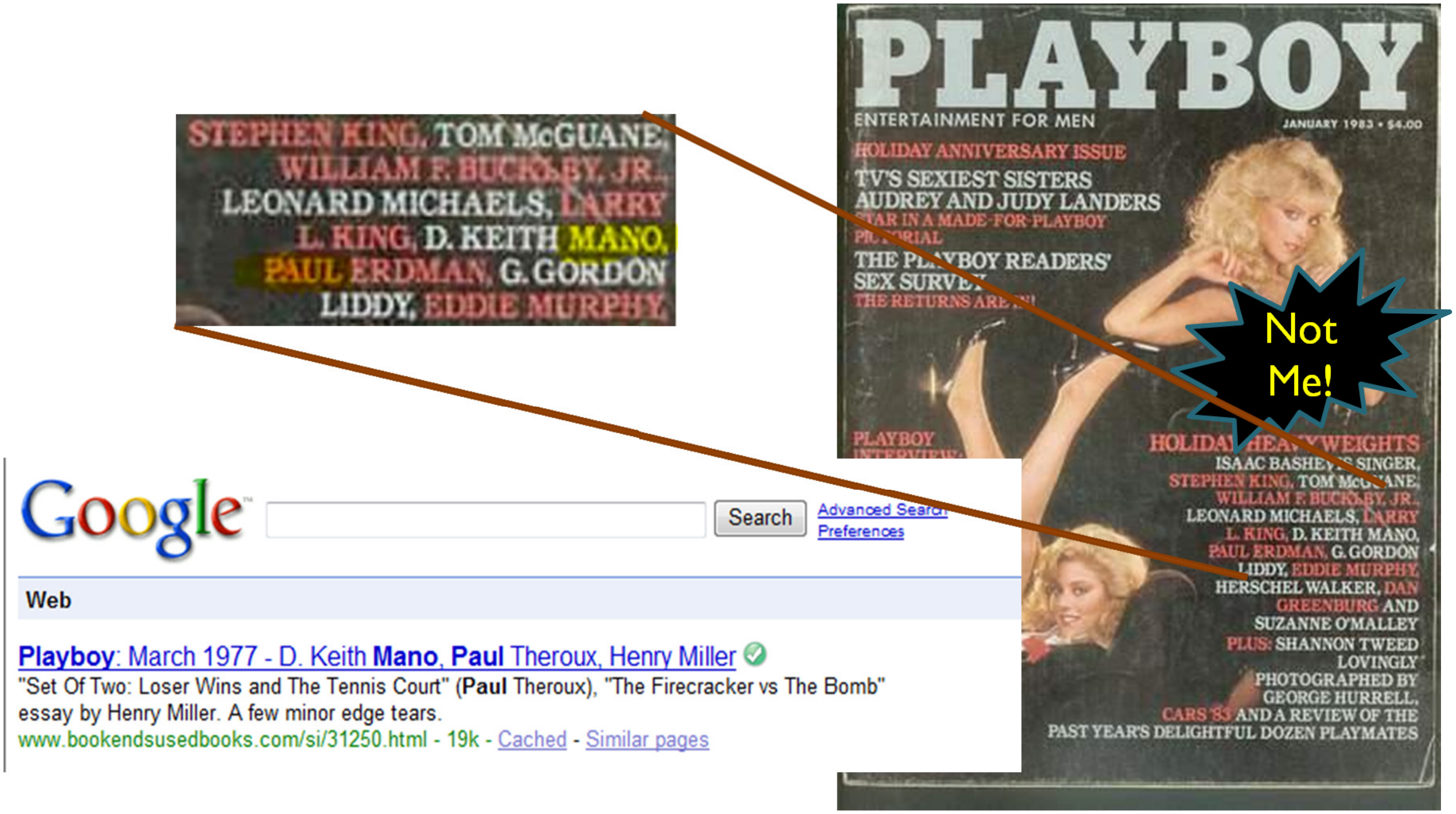
Sixth Edition

Edited by
Harold F. Tipton, CISSP · Micki Krause, CISSP

Volume 3

CRC Press
Taylor & Francis Group
AN AUERBACH BOOK

# </Who I am NOT? – Seriously>


STEPHEN KING, TOM McGUANE, WILLIAM F. BUCKLEY, JR., LEONARD MICHAELS, LARRY L. KING, D. KEITH MANO, PAUL ERDMAN, G. GORDON LIDDY, EDDIE MURPHY
PLAYBOY
ENTERTAINMENT FOR MEN
JANUARY 1983 • $4.00
HOLIDAY ANNIVERSARY ISSUE
TV'S SEXIEST SISTERS AUDREY AND JUDY LANDERS STAR IN A MADE-FOR-PLAYBOY PICTORIAL
THE PLAYBOY READERS' SEX SURVEY THE RETURNS ARE IN!
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PLUS: SHANNON TWEED LOVINGLY PHOTOGRAPHED BY GEORGE HURRELL, CARS '83 AND A REVIEW OF THE PAST YEAR'S DELIGHTFUL DOZEN PLAYMATES
Not Me!
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**Playboy**: March 1977 - D. Keith **Mano**, **Paul** Theroux, Henry Miller

"Set Of Two: Loser Wins and The Tennis Court" (**Paul** Theroux), "The Firecracker vs The Bomb" essay by Henry Miller. A few minor edge tears.

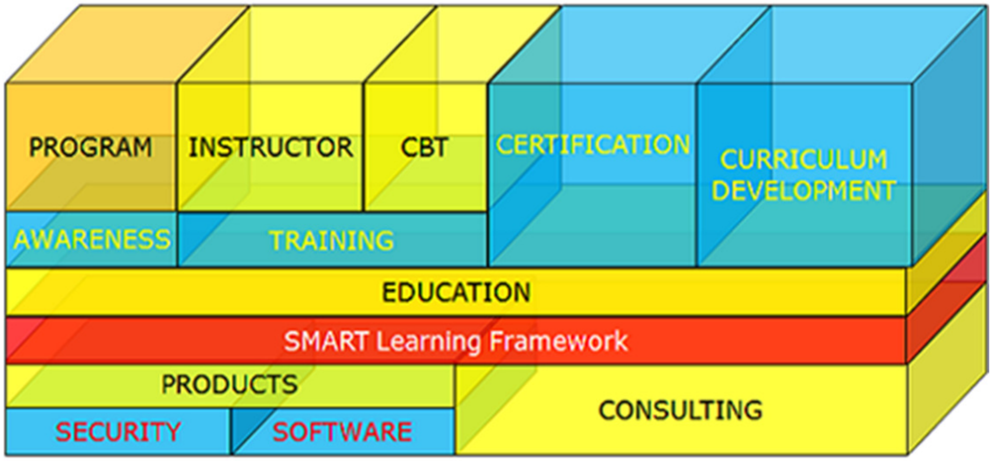
www.bookendsusedbooks.com/si/31250.html - 19k - Cached - Similar pages

# </What I do?>

- SecuRisk Solutions
  - Education
  - Consulting
  - Products

- Express Certifications
  - Self Assessments / Practice Exams
    - CISSP (2007)
    - SSCP (2007)
    - BCI Certificate (2009)
    - CSSLP (2010)
    - CAP (2010)

SecuRisk Solutions Framework



*SMART - Skills Measuring Assessment Reinforced Training

# </A Wild + Wonderful World>

CHICHEN ITZA, MEXICO
CHRIST REDEEMER, BRASIL
COLOSSEUM, ITALY
TAJ MAHAL, INDIA
GREAT WALL OF CHINA
PETRA, JORDAN
07.07.2007
LISBON
OFFICIAL DECLARATION OF
THE NEW 7 WONDERS
OF THE WORLD
MACHU PICCHU, PERU

# </Shakespearean Security>

- All the World's a Stage (As you like It)
- The ides of … (Julius Caesar)
  - Digital Pearl Harbor
- Method in the Madness (Hamlet)

What is the Question?

2B || !2B

Secure

# </A Wild World … >

**It’s a jungle out there**

*“ … organisms keep themselves safe in a world that's every bit as unpredictable as our world”*

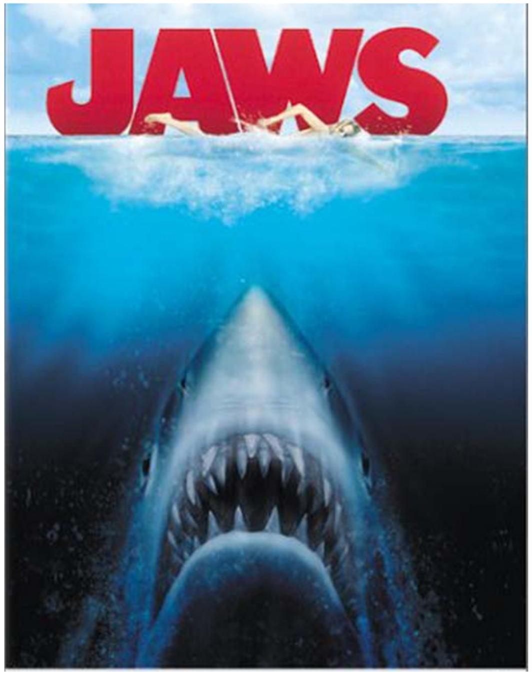
Raphael Sagarin<br>
Author of Natural Security

# </Head in the Sand>

- Ignoring known vulnerabilities in your software is akin to sticking your head in the sand …
- Accept, Transfer, Mitigate, or Avoid Ri$k.

# </Sharks and Candirus>

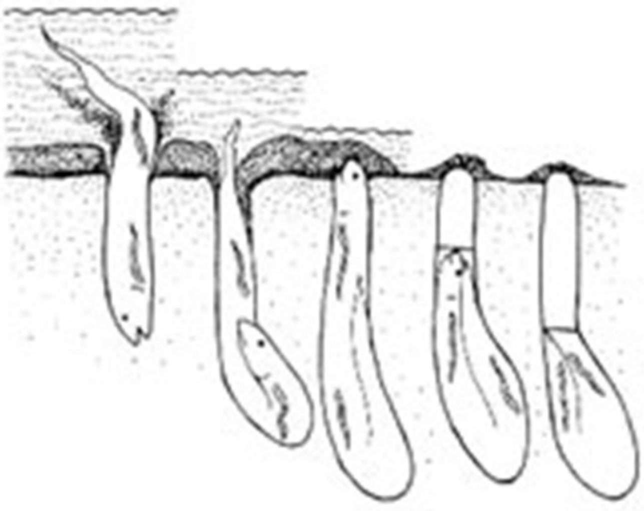
- External – Attacks from the outside
- Sharks



- Internal – Something Fishy Inside
- Candiru (Parasitic)

# </Sleeping NOT so beauty>

- Lungfish aestivation



As the water level falls lungfish burrow into the bottom mud to form a cocoon and aestivate through the dry season.

- Logic Bombs

# </Sharks at Sea and on Land>

## Sharks

- Sharp teeth
- Cartilaginous body
  - Flexibility
  - Muscular efficiency
- Attack
  - Weaker organisms
- Picky eaters
- Deadly consequences

## Hackers

- Sharp skills
- No backbone
  - Adaptive
  - Path of least resistance
- Attack
  - Vulnerable organizations
- Selective
- Deadly consequences

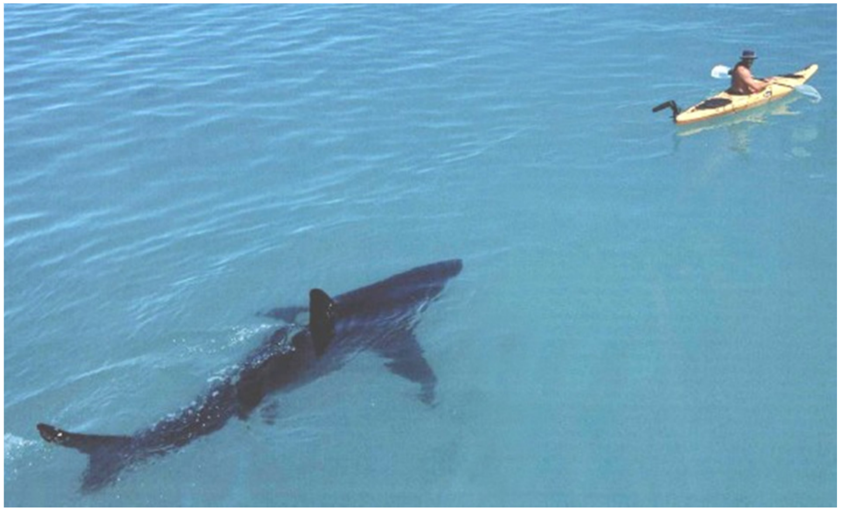
# </Shark school!>

- Have you seen a school of sharks?
  - Sharks are usually asocial in nature, although some sharks are observed to be in schools.

- Hackers
  - Psycholog dence and anon
  - With a st ocial group
  - Cyber-cri organized

# </Attack behavior>

- Sharks
  - Pattern: Circles prey before moving in
  - Motive: Usually unintentional



- Hackers
  - Pattern: Reconnaissance activities
  - Motive: Usually intentional

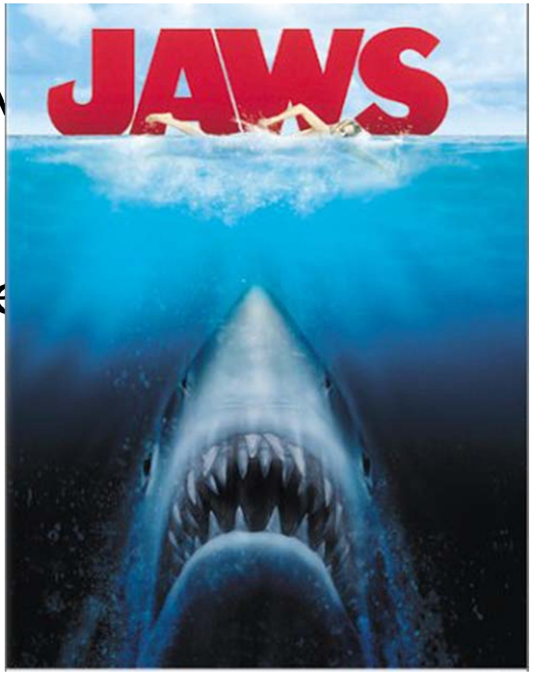
# </Attack Patterns: Recon to Root>

- Probe (Reconnaissance)
  - Mining
  - Scanning
  - Fingerprinting
  - Social Networking
- Penetrate
  - Bruteforcing
  - Overflow
  - Injection

- Persist
- Propagate
- Paralyze (r00t)
  - Rootkits
  - cmd prompt access

# </The Top 5 most dangerous sharks>

- 5 - Shortfin Mako Shark
  - Fastest Shark – you cant out-s
- 4 - Oceanic Whitetip Shark
  - Opportunists – 1st at a shipwre
- 3 - Tiger Shark
  - Garbage collectors of the sea
- 2 - Bull Shark
- 1 - Great White Shark
- Which among the top 5 poses the greatest threat to humans?



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# </The MOST dangerous hacker>

- The one who can operate in different environments
  - Network
    - Understands perimeter defenses, operations and circumvention techniques
  - Hosts
    - Understand OS protection, patching and penetration
  - Applications / Software
    - Understands programming, secure coding and how to break software

# </Architectures – Large and Small>

From monolithic applications to smaller disconnected and modular services/apis/apps.

# </Sharks and Kangaroos>

- What do Kangaroos and Sharks have in common?
  - Kangaroos cannot walk backwards
  - Sharks can only swim forward
    - Must keep swimming, must keep swimming
  - No reversing

- Hackers on the other hand can reverse engineer.

# </Fish are friends not …>

- Cant really say that about hackers ... Can you?
- So we need to defend ourselves …

# </pH – potentially Hackable>

- pH is
  - the measure of acidity/alkalinity
- Security pH-ilosophy should be to NEUTRALIZE threats with controls
- Any imbalance will lead to potentially Hackable software

# </Defensive Dams>

- Necessary protections should be built in the software layered with defense in depth, starting with the perimeter.

# </Layered defense>

- Sharks are Polyphyodont animals; no dentist needed

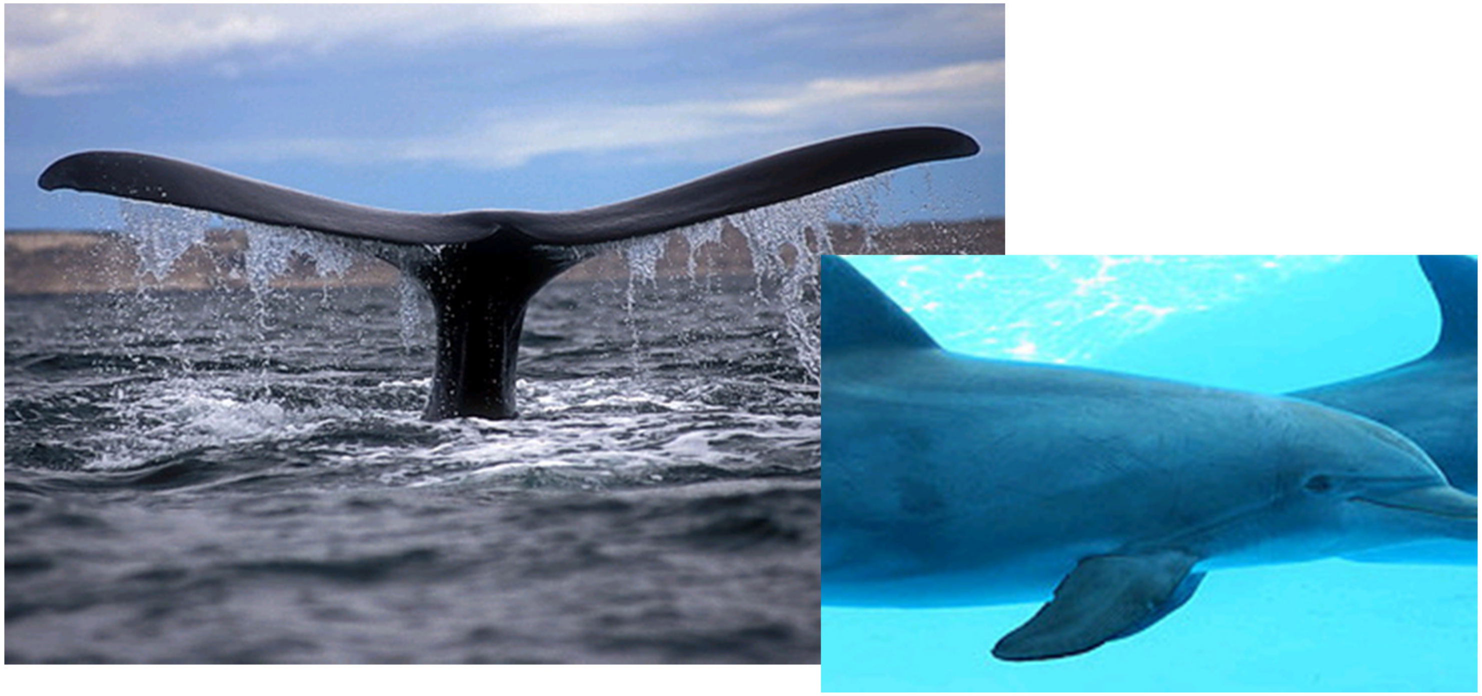
- Our defenses need to be similar
  - Continuously effective
  - Validation and Verification (V&V) activities

# </Holistic defense>

- Hammerhead Shark
- Owl

- $360^0$ (Holistic) Security
  - People, Process and Technology
  - Network, Hosts and Application
  - Tactical and Strategic

# </Sleep-Swimming>



- Some aquatic mammals sleep by shutting ONLY one side of their brain at a time.
- Security should always be vigilant (conscious).

# </The ~~Bear~~ Bare Necessities>

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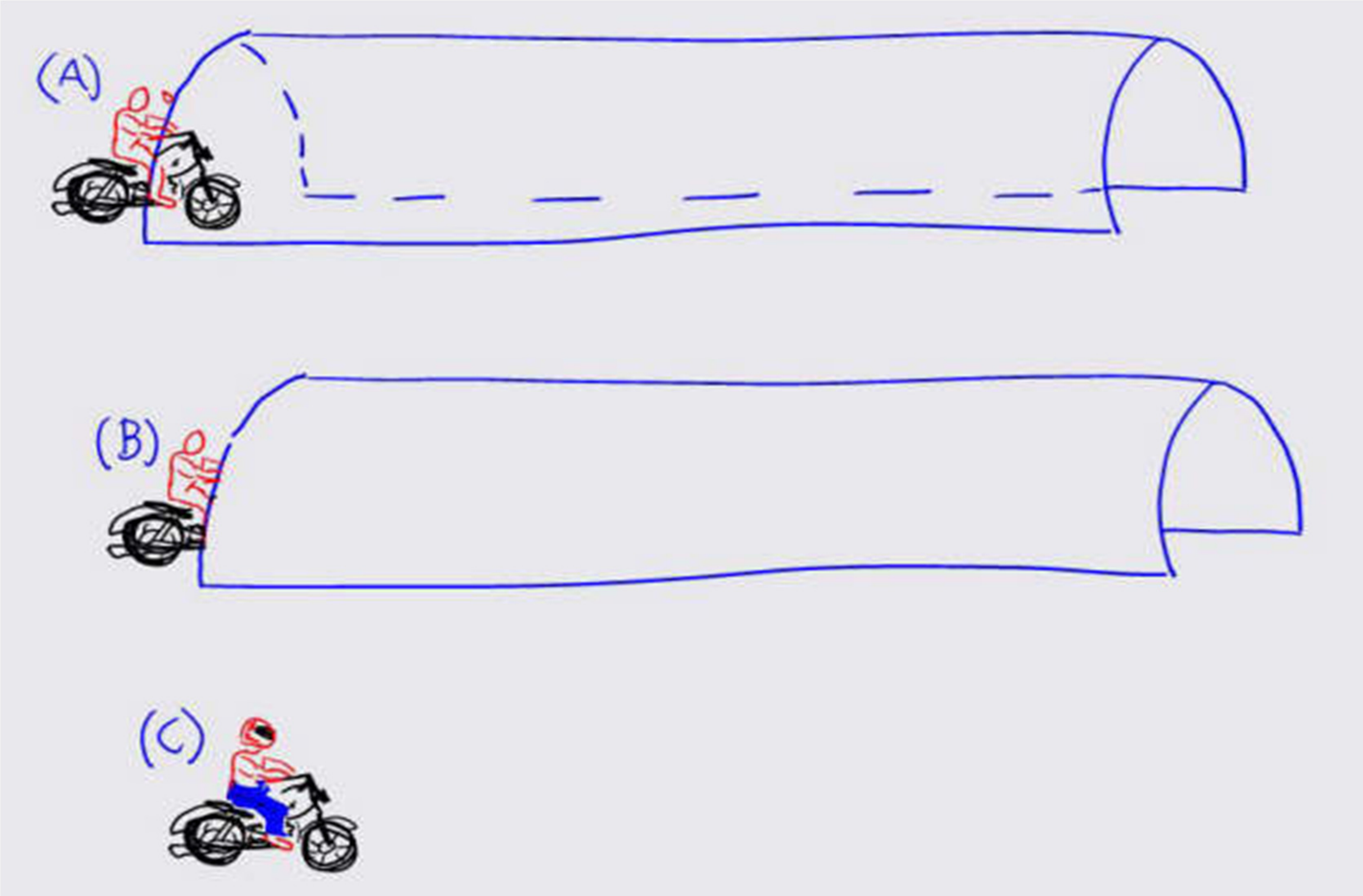
| Down | Across |
|---|---|
| 1. Synonym: Sensitivity; Antonym: Disclosure | 5. Who is making the request? |
| 2. Rights and Privileges of the Requestor | 6. Historical Evidence |
| 3. Synonym: Criticality; Antonym: Destruction | |
| 4. Synonym: Accuracy; Antonym: Alteration | |

# </A myth to kill …>



Source: End to End security, or why you shouldn't drive your motorcycle naked?
By Vittorio **Bertocci**

# </Bee-Having Software>

Secure software should be

- Modular (Unit)
- Highly Cohesive (discreet functions)
- Loosely Coupled (no dependencies)

# </The Third Eye>

- The Horse Shoe Crab (Limulus) is said to have a third eye.
- Secure Software should allow for Extra Vigilance (Auditing)!

# </Defensive Strategies …>

- Against Sharks
  - Stay on land
  - Swim in a Swi
  - Cages
  - Chain Suit
  - Stun Gun
- Against Hackers
  - Risk Avoidance

# </More dangerous than Sharks?>

- According to the CBS News, which of the following is more dangerous than Sharks?
  - Dogs
  - Cars
  - Sand
  - Stroke

- Side Channel attacks
  - "Side-Channel Leaks in Web Applications: a Reality Today, a Challenge Tomorrow," by Shuo Chen, Rui Wang, XiaoFeng Wang, and Kehuan Zhang.

# </To sum up …/>

**2B || !2B**

Secure **Naturally**

Incorporating the **Bare Necessities**

so that your software is NOT

**potentially Hackable**

That is the Question

- A Wild Wild Wild (WWW) Security Planet -

We live in, but it is a Wonderful Planet.

# </Thank you>

Did I live up to my name?

# </Cont@ct!/>

```
If (Liked_the_presentation)
{
   Contact me;
}
else
{
   Have a great day;
}
finally
{
   Thank you;
}
```

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