DENIM GROUP

build | integrate | secure

Software Security: Is OK Good Enough?

Appsec USA 2011
September 22, 2011

John B. Dickson, CISSP

Denim Group, Ltd.

@johnbdickson

OWASP AppSec 2011

OWASP AppSec 2011

OWASP AppSec 2011

Personal Background

Personal Background

OWASP AppSec 2011

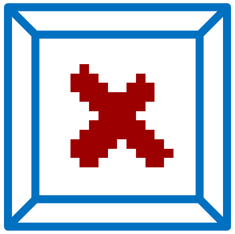
Software Security: Is OK Good Enough?

- Current State of Affairs in Software Security
- What we can Learn from Other Justification Models
- Potential Software Security Justification Models
- Questions and Answers

Current State of Affairs in Software Security

- Testing approaches differ wildly
- Incredible amount of energy focused on technical merits and demerits of testing activities
  - *Existing application security scanners identify a subset of vulnerabilities in applications*
  - *30-40% Coverage level is accepted norm*
  - *SQL injection/XSS – yes*
  - *Authorization & business logic – not so much*

1996 Network Security Question?



Firewall?

2011 Application Security Question?

I’ve run my Automated SQL Injection & XSS Application Scanner?

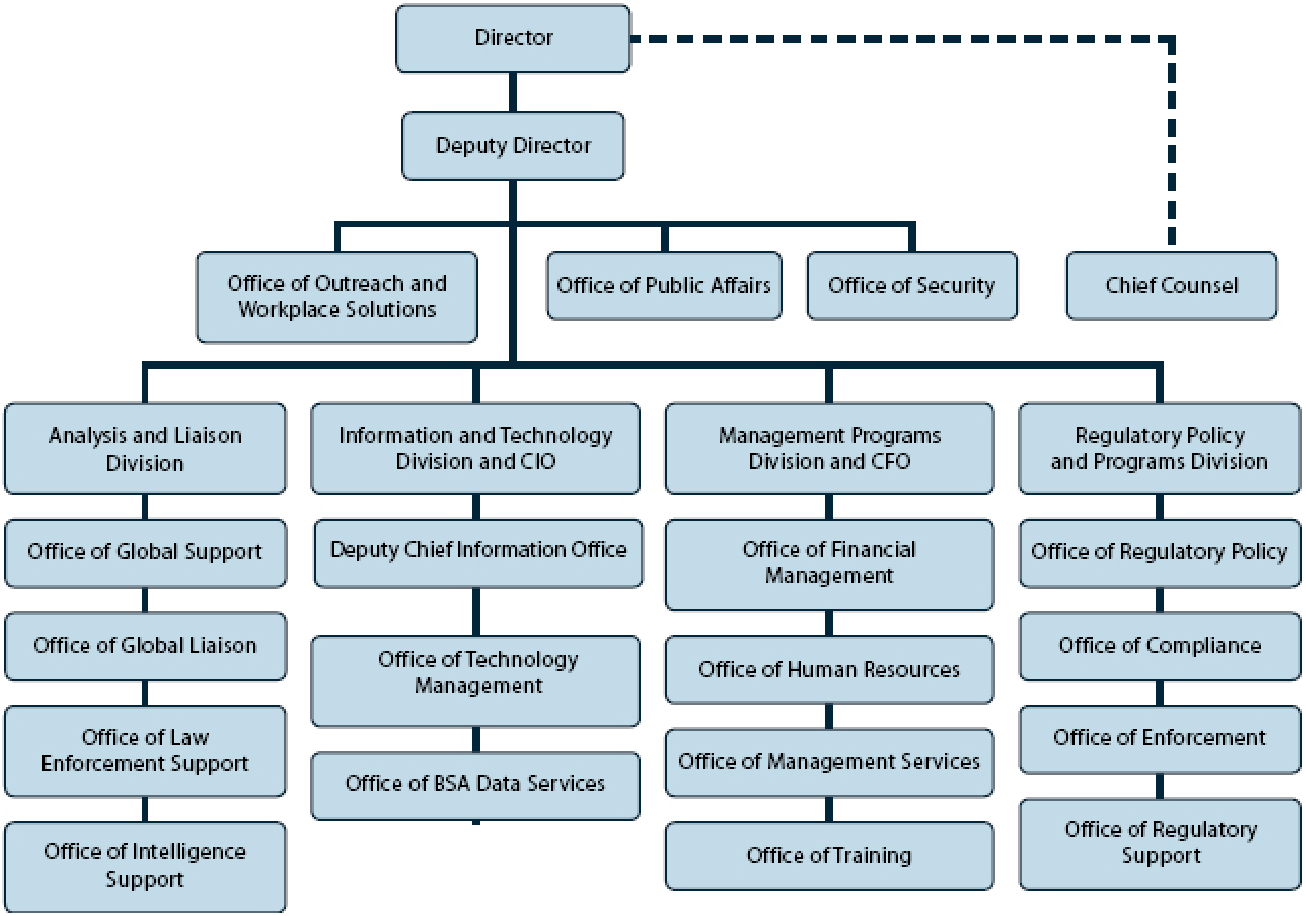
pci
DSS
COMPLIANT

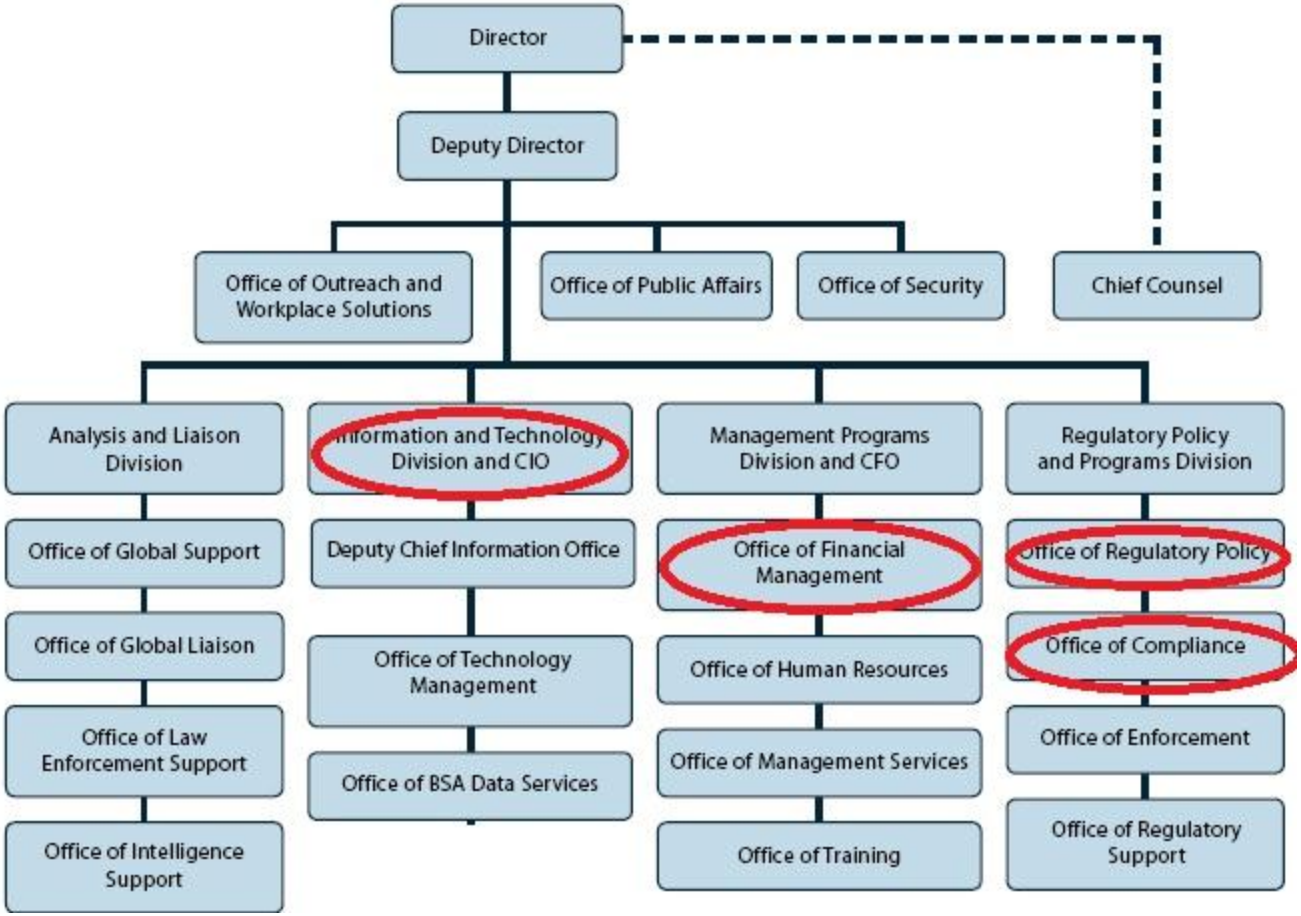
Checkbox Culture

- Compliance culture and resource constraints have limited software security coverage
- This cuts to the heart of “OK”
- Heartland Payments Systems breach and PCI test coverage
  - *Organizations try to limit PCI audit by design, even if many view PCI DSS as the most rigorous application security compliance framework*

Heartland
PAYMENT SYSTEMS™
The Highest Standards | The Most Trusted Transactions

(drawn to scale)


Director
Deputy Director
Office of Outreach and Workplace Solutions
Office of Public Affairs
Office of Security
Chief Counsel
Analysis and Liaison Division
Office of Global Support
Office of Global Liaison
Office of Law Enforcement Support
Office of Intelligence Support
Information and Technology Division and CIO
Deputy Chief Information Office
Office of Technology Management
Office of BSA Data Services
Management Programs Division and CFO
Office of Financial Management
Office of Human Resources
Office of Management Services
Office of Training
Regulatory Policy and Programs Division
Office of Regulatory Policy
Office of Compliance
Office of Enforcement
Office of Regulatory Support



Director

Deputy Director

Office of Outreach and Workplace Solutions

Office of Public Affairs

Office of Security

Chief Counsel

Analysis and Liaison Division

Office of Global Support

Office of Global Liaison

Office of Law Enforcement Support

Office of Intelligence Support

Information and Technology Division and CIO

Deputy Chief Information Office

Office of Technology Management

Office of BSA Data Services

Management Programs Division and CFO

Office of Financial Management

Office of Human Resources

Office of Management Services

Office of Training

Regulatory Policy and Programs Division

Office of Regulatory Policy

Office of Compliance

Office of Enforcement

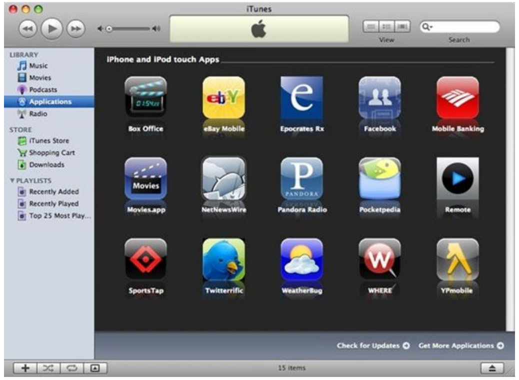
Office of Regulatory Support

Going Concern: In accounting, "going concern" refers to a company's ability to continue functioning as a business entity.

USAF
00050
ED
FUD
FUD
FUD
FUD
FUD
FUD

What do Street Vendor food and iTunes applications have in common?

Available on the iPhone
App Store



Introduction of malware into iTunes & Droid Apps stores

- Applications submitted to the Apple iTunes AppStore and the Google Android store do not undergo rigorous security testing
- Both application stores do not do "white listing” per se

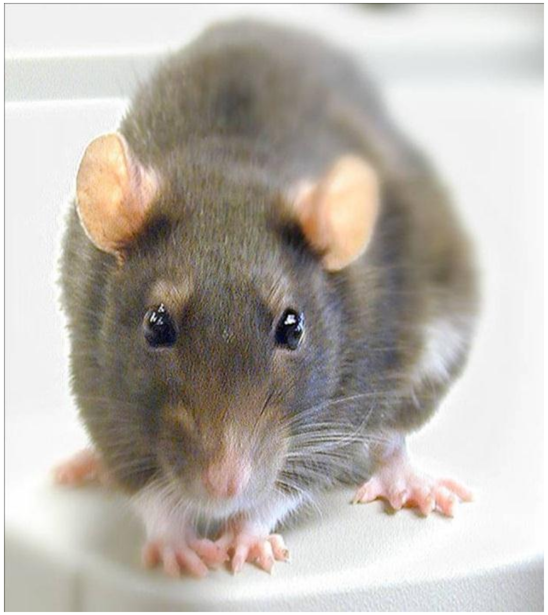
New York City

- 24,000 restaurants inspected/year
- Point-based rating scale
- 3 Categories of violations
  - Public health hazard (7 points)
  - Critical violation (5 points)
  - General violation (2 points)

NYC Health

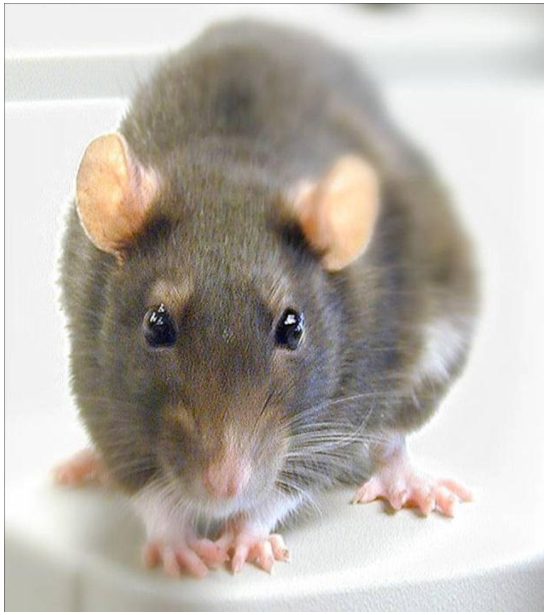
SANITARY INSPECTION GRADE
C
SANITARY INSPECTION GRADE
B
SANITARY INSPECTION GRADE
A
NYC

Venture a Guess?



- 3 Categories of violations
  - Public health hazard (7 points)
  - Critical violation (5 points)
  - General violation (2 points)

Venture a Guess?



- 3 Categories of violations
  - Public health hazard (7 points)
  - **Critical violation (5 points)**
  - General violation (2 points)

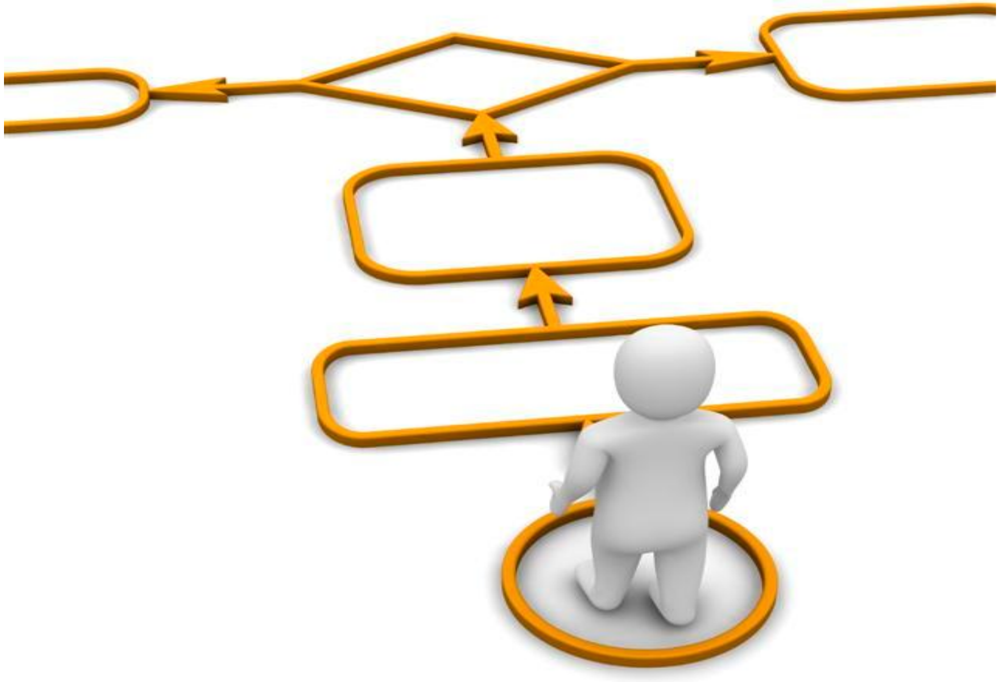
What we can Learn from Other Justification Models – Earthquake Building Codes

Haiti **vs.** **Chile**

What we can Learn from Other Justification Models

- What we can learn from these two models?
- No model is based purely on industry-driven compliance
  - *Have no regulation is bad*
- Starting point is a generally accepted need for regulation
  - *Buyers need to demand software "seatbelts"*
  - *Political consensus in Chile & California to enforce more stringent building codes*
- Must have Rule of Law present to enforce regulation
  - *Building codes were in place in both Chile & Haiti*
- Misguided regulation may be more destructive than no regulation at all
  - *e.g., Sarbanes Oxley*

So where do you go from here?



Software Security Justification Models in an “OK” World

What can be Done Globally?

We need more Earthquakes

TJX

Do Bats Kill? Debating Wood Vs. Aluminum
LEISURE & ARTS | D6

The New Hunt For Business— From Above
MARKETPLACE | B1

Making a Move To First Class An Easier Sell

THE WALL STREET JOURNAL.

TUESDAY, JULY 31, 2007 - VOL. CCL NO. 25

NASDAQ 2583.28 ▲ 0.8% NIKKEI 17289.30 ▲ 0.03% DJ STOXX 50 3710.74 ▼ 0.3% 10-YR TREAS ▼ 4/32, yield 4.904% OIL $76.83 ▼ $0.19 GOLD $664.10 ▲ $4.00 EURO $1.3664

...at's News—

World-Wide

● Chief Justice Roberts was hospitalized after suffering a seizure.

Snowman Video In YouTube Debate Chills Some Politicos

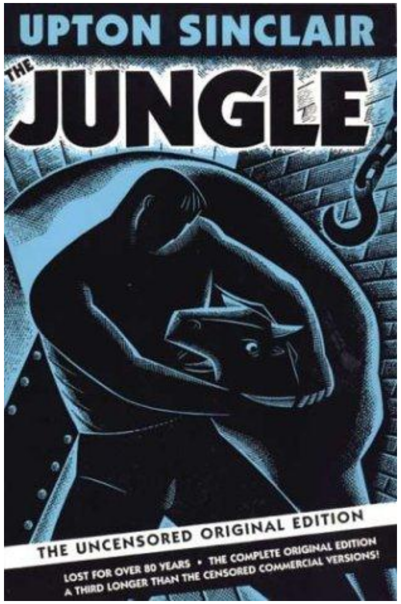
Brothers Who Created It Are All the Rage, but GOP Doesn't Entirely Get It

COMMODITY KING

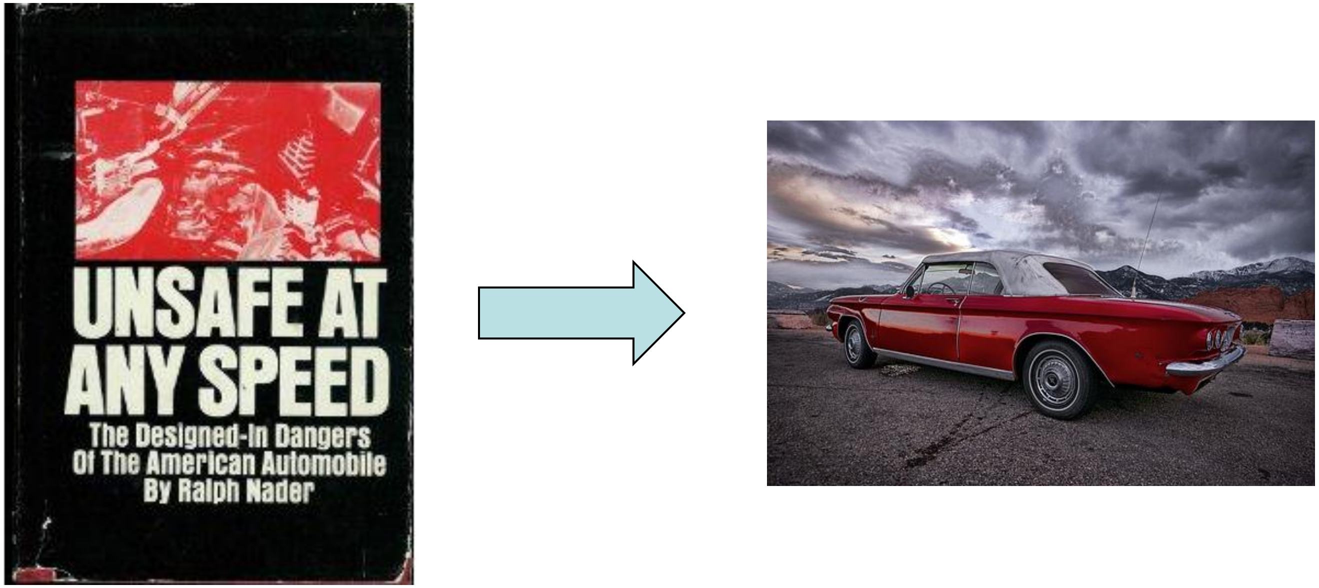
Aggressive Swiss Gi... Rides Resources...

Successor to Marc Rich, Glencore Gains Power As Trader, Producer Too

We Need Better Mainstream Scary Stories

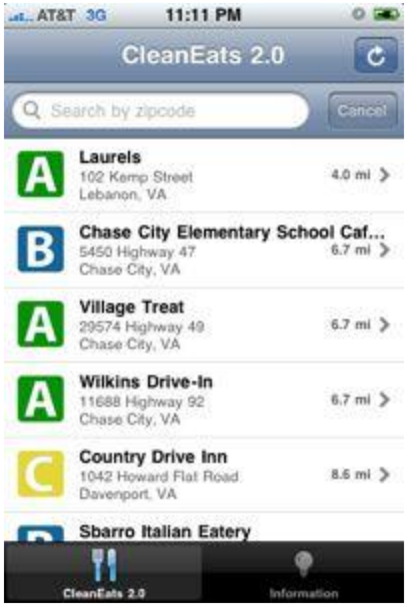

UPTON SINCLAIR
THE JUNGLE
THE UNCENSORED ORIGINAL EDITION
LOST FOR OVER 80 YEARS • THE COMPLETE ORIGINAL EDITION
A THIRD LONGER THAN THE CENSORED COMMERCIAL VERSIONS!

We Need Better Mainstream Scary Stories



We Need Smarter buyers

There's an App for That!



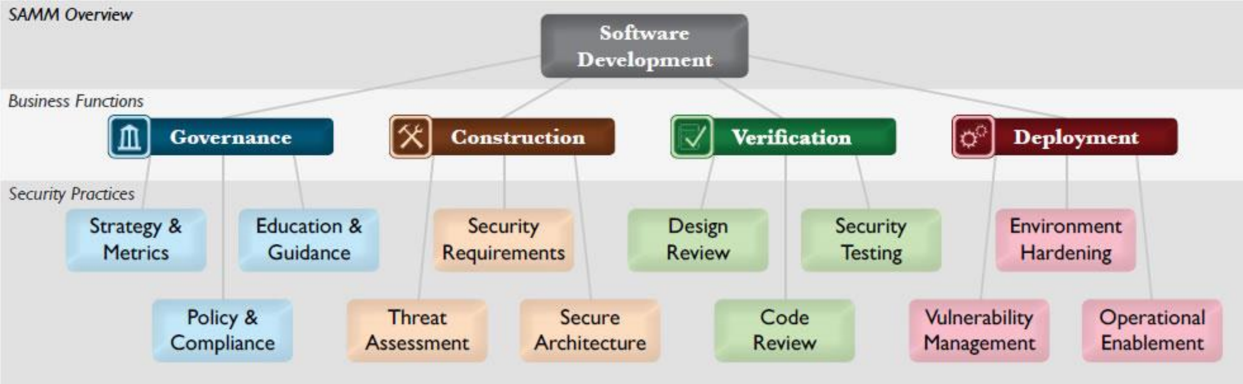
A	Laurels	102 Kemp Street Lebanon, VA	4.0 mi
B	Chase City Elementary School Caf...	5450 Highway 47 Chase City, VA	6.7 mi
A	Village Treat	29574 Highway 49 Chase City, VA	6.7 mi
A	Wilkins Drive-In	11688 Highway 92 Chase City, VA	6.7 mi
C	Country Drive Inn	1042 Howard Flat Road Davenport, VA	8.6 mi
	Sbarro Italian Eatery		

Software Security Justification Models in an "OK" World - In the World you Influence

Tailor Responses for Limited Resources - ASVS "Applied" Case Study

- Financial Services firm services 2,000 + banks
- Before
  - Reactive testing
  - No repeatable or predictable
  - Poor coverage
- After
  - Acceptable level of security testing
    - Applied 80/20 rule to clients
  - Predictable results
  - Mutually understood results

Tailor Responses for Limited Resources
- Open Software Security Maturity Model (OpenSAMM)



Tailor Responses for Limited Resources

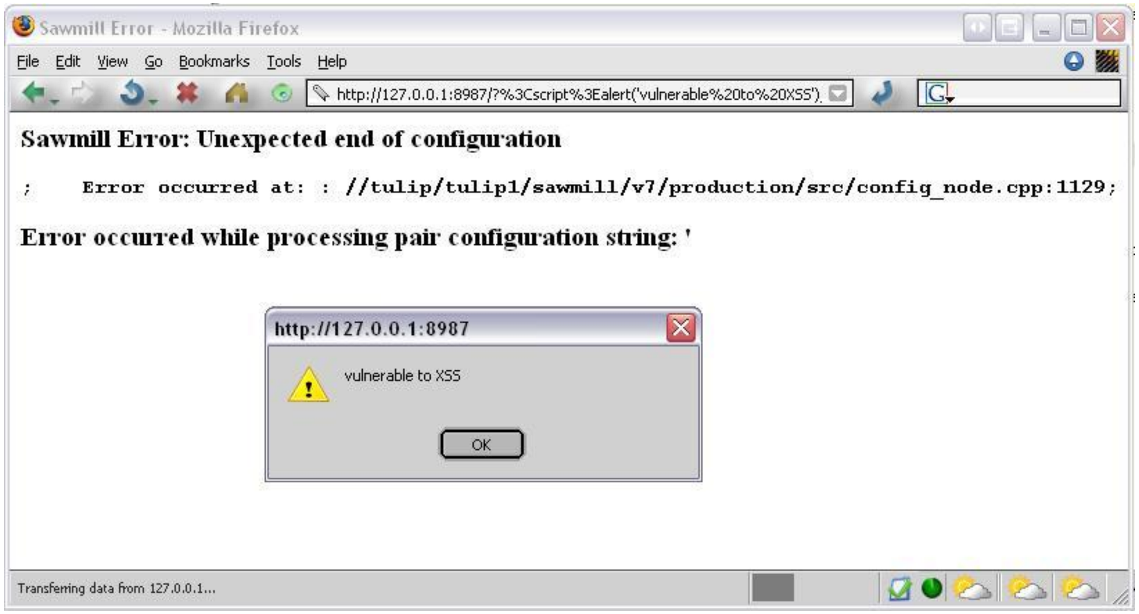
Measure, Measure, Measure

Realize that Sales & Marketing is our #1 Job

We Need Better Developers

- Is it enough to say you are "Rugged"
- We need software developers to elevate their coding practices to lower the number of obvious security vulnerabilities
- These developers need better tools
  - *Modern frameworks*
  - *Static analysis baked into build*
- Starting point – software engineers need to be further along out of college
- Industry responses
  - *Carrot & stick models*

The New Negligence: Eliminate SQL Injections and XSS



Sawmill Error - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://127.0.0.1:8987/?%3Cscript%3Ealert('vulnerable%20to%20XSS')

Sawmill Error: Unexpected end of configuration

```
;    Error occurred at: : //tulip/tulip1/sawmill/v7/production/src/config_node.cpp:1129;
```

Error occurred while processing pair configuration string: '

http://127.0.0.1:8987

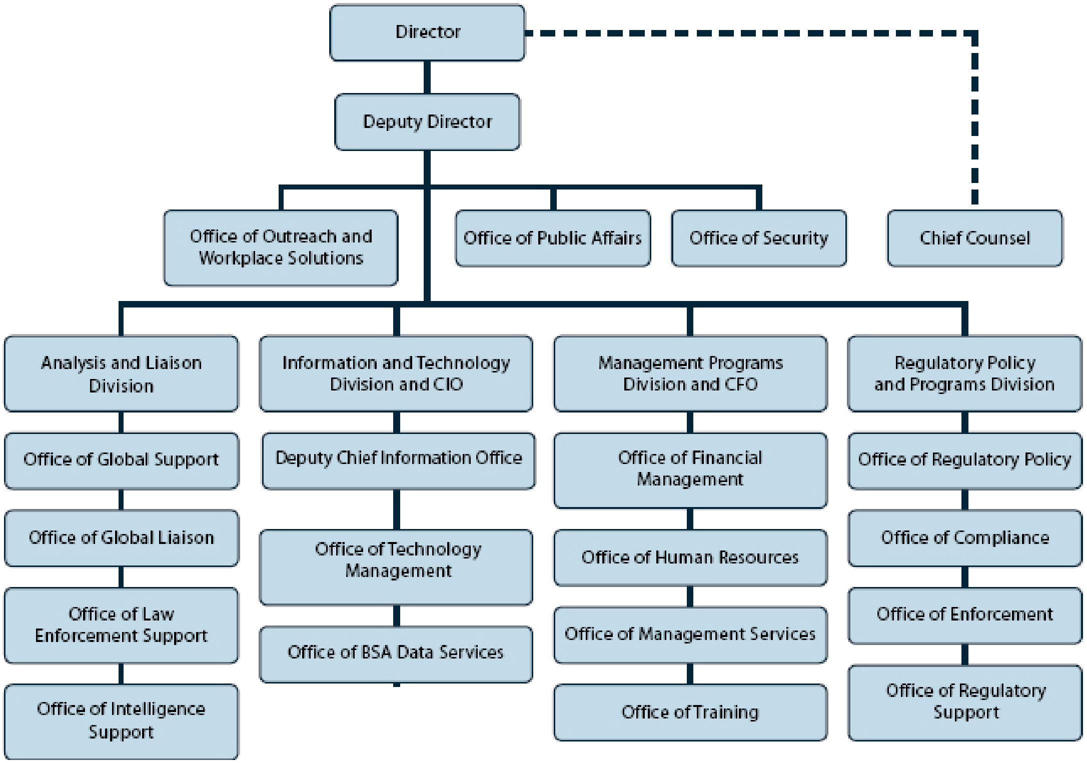
vulnerable to XSS

OK
Transferring data from 127.0.0.1...

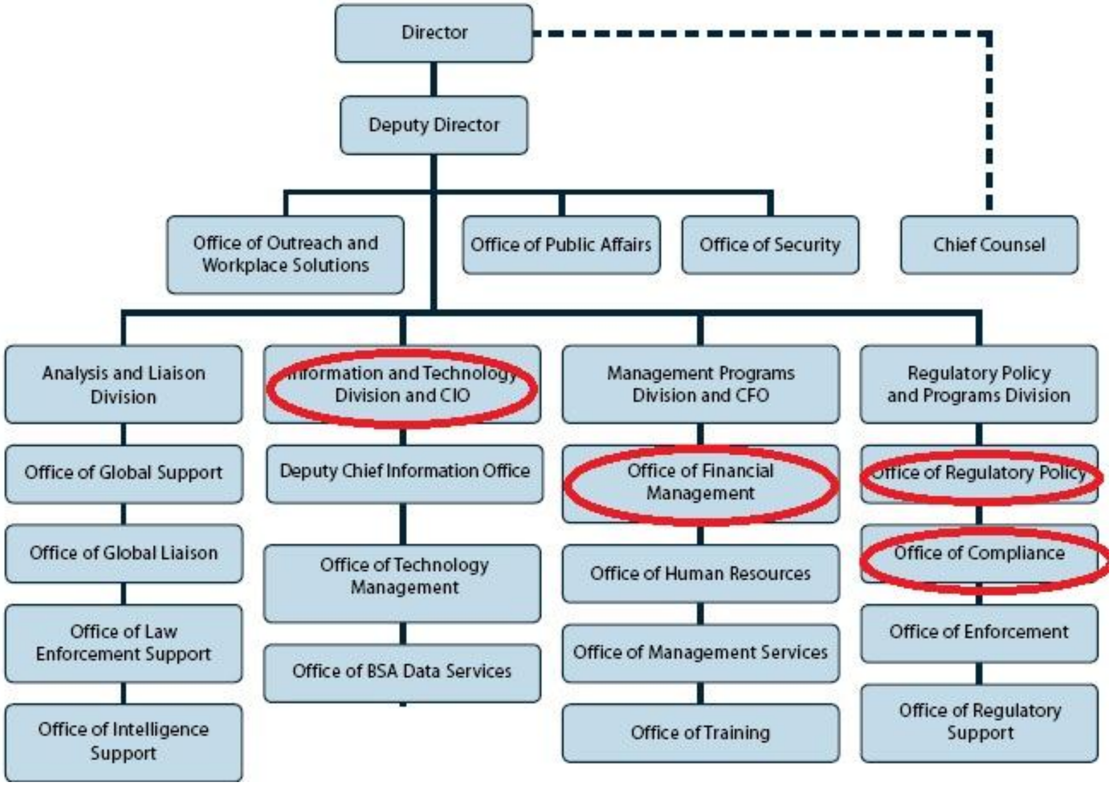
The Negligence:
SQL Injections and XSS

XSS &
SQL Injections =

We need better coverage of attack space


Director
Deputy Director
Office of Outreach and Workplace Solutions
Office of Public Affairs
Office of Security
Chief Counsel
Analysis and Liaison Division
Office of Global Support
Office of Global Liaison
Office of Law Enforcement Support
Office of Intelligence Support
Information and Technology Division and CIO
Deputy Chief Information Office
Office of Technology Management
Office of BSA Data Services
Management Programs Division and CFO
Office of Financial Management
Office of Human Resources
Office of Management Services
Office of Training
Regulatory Policy and Programs Division
Office of Regulatory Policy
Office of Compliance
Office of Enforcement
Office of Regulatory Support

We need better coverage of attack space



Director

Deputy Director

Office of Outreach and Workplace Solutions

Office of Public Affairs

Office of Security

Chief Counsel

Analysis and Liaison Division

Office of Global Support

Office of Global Liaison

Office of Law Enforcement Support

Office of Intelligence Support

Information and Technology Division and CIO

Deputy Chief Information Office

Office of Technology Management

Office of BSA Data Services

Management Programs Division and CFO

Office of Financial Management

Office of Human Resources

Office of Management Services

Office of Training

Regulatory Policy and Programs Division

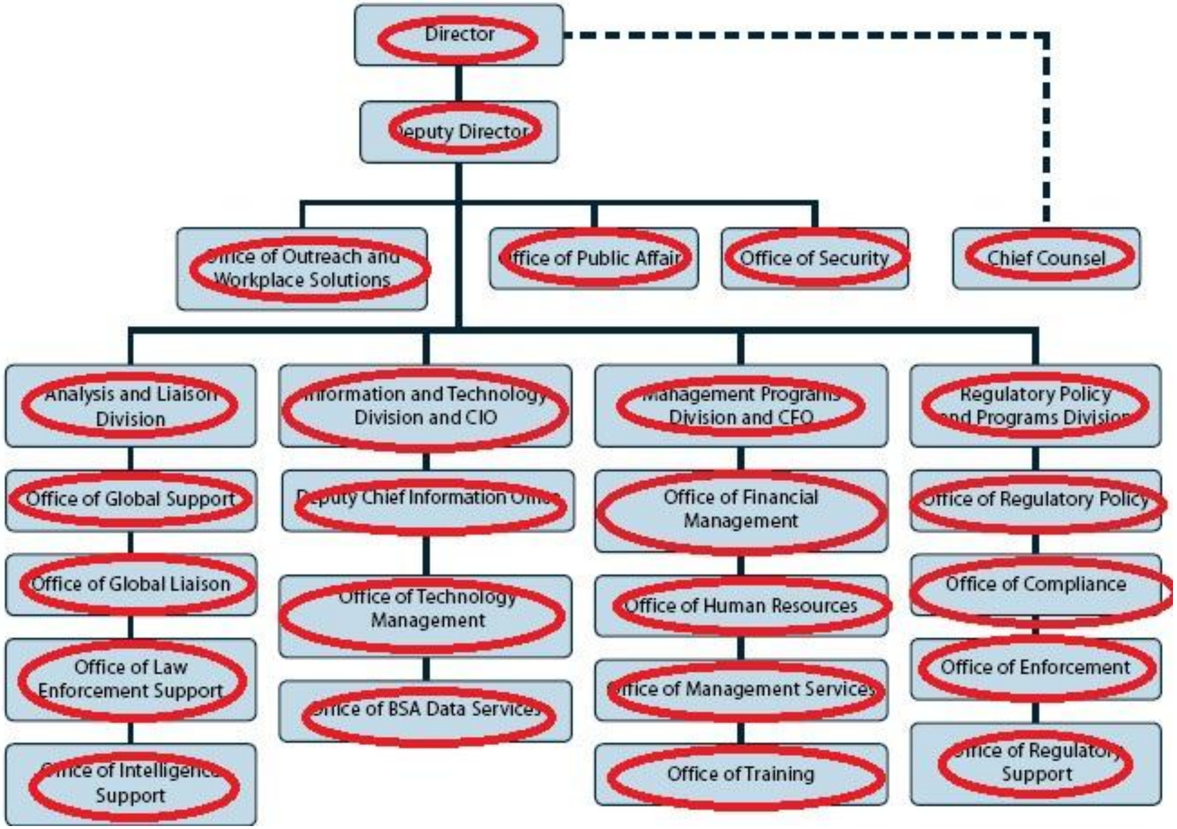
Office of Regulatory Policy

Office of Compliance

Office of Enforcement

Office of Regulatory Support

We need better coverage of attack space


Director
Deputy Director
Office of Outreach and Workplace Solutions
Office of Public Affair
Office of Security
Chief Counsel
Analysis and Liaison Division
Office of Global Support
Office of Global Liaison
Office of Law Enforcement Support
Office of Intelligence Support
Information and Technology Division and CIO
Deputy Chief Information Office
Office of Technology Management
Office of BSA Data Services
Management Programs Division and CFO
Office of Financial Management
Office of Human Resources
Office of Management Services
Office of Training
Regulatory Policy and Programs Division
Office of Regulatory Policy
Office of Compliance
Office of Enforcement
Office of Regulatory Support

Questions, Answers, & Contact

John B. Dickson, CISSP

john@denimgroup.com

(210) 572-4400

www.denimgroup.com

blog.denimgroup.com

Twitter: @johnbdickson