Web 2.0 Testing

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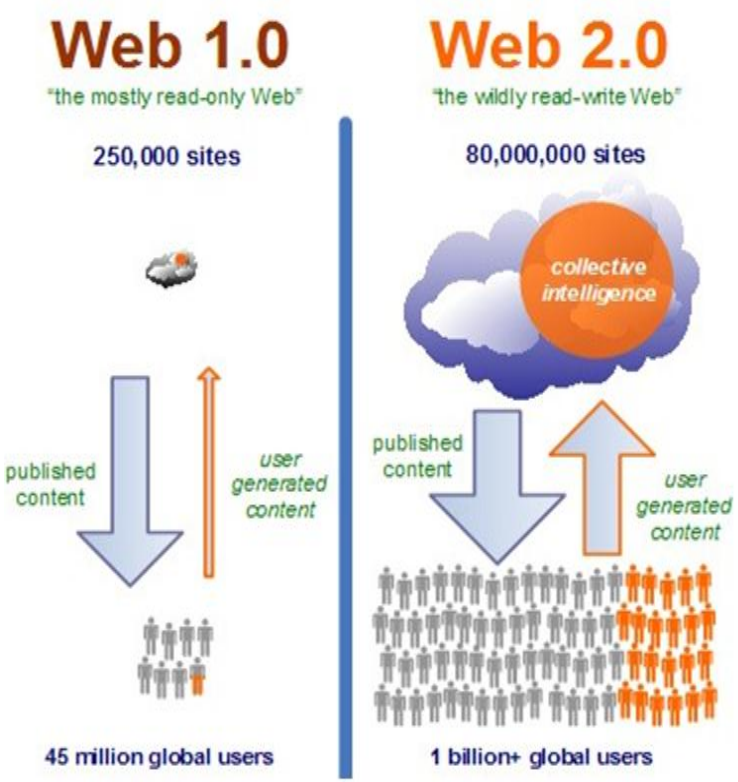
The OWASP Foundation
http://www.owasp.org

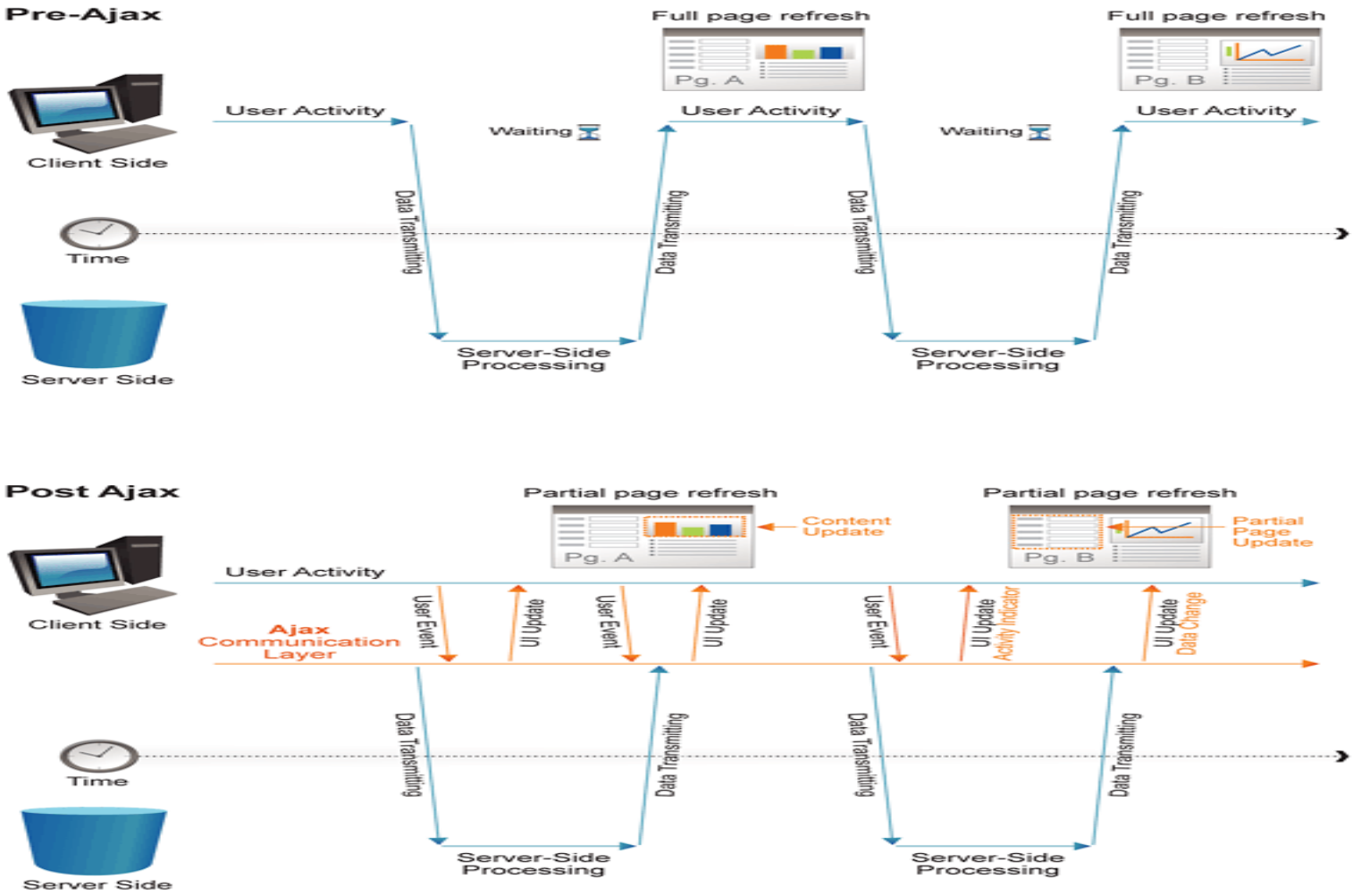
Agenda

- Increase in Web 2.0 Applications
- Traditional Web Model vs Ajax Web Model
- Hacking attempts on Web 2.0 Applications
- AJAX Real attacks examples
- Challenges in Web 2.0 Testing
- Approach to Address Security Testing Concerns
- Conclusion & Questions

Increase in Web 2.0 Applications



Traditional Vs New Web Model



Hacking attempts on Web 2.0 Applications

Facebook Accounts Hacked Sold

Facebook is not able to estimate how many more accounts may be compromised by other hackers.

Selling price : $25 per 1000 accounts with ten friends or less, and $45 per 1,000 for those accounts with more than ten friends.

MySpace

MySpace, an even larger social networking site with an estimated 250 million users, has been subverted on multiple occasions by malware attackers during the last year.

Impact: "In less than 24 hours, 'Samy' had amassed over 1 million friends on the popular online community"

Twitter

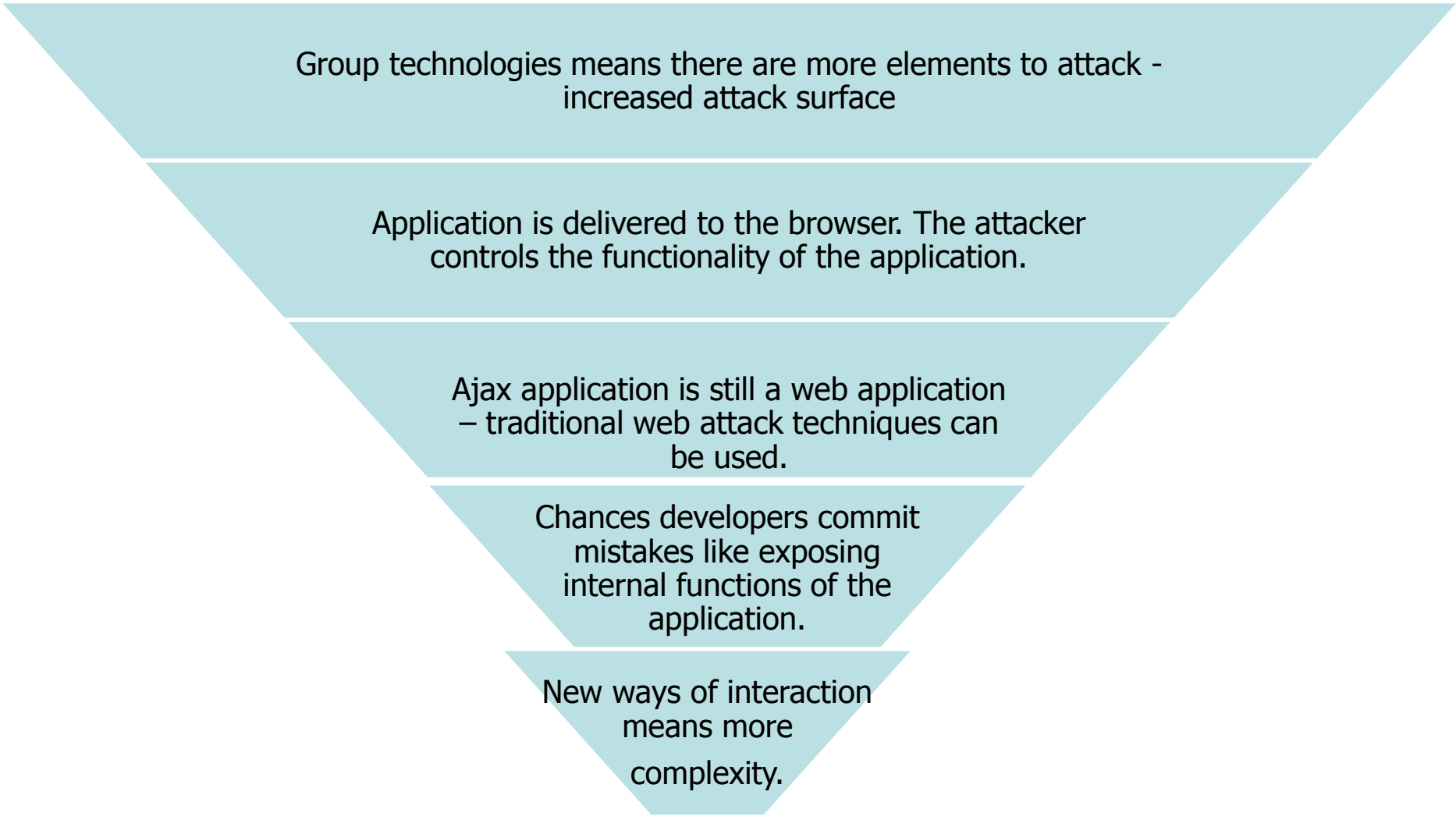
Twitter knocked offline by DDoS attack.

Popular micro blogging Twitter was knocked offline for an extended period by massive distributed denial-of-service attacks.

Hacking Amazon's Cloud and Other Web 2.0 Threats

Amazon's cloud can be hacked for BitTorrent , and social network sites are hotbeds for cyber crime.

AJAX Real attacks examples



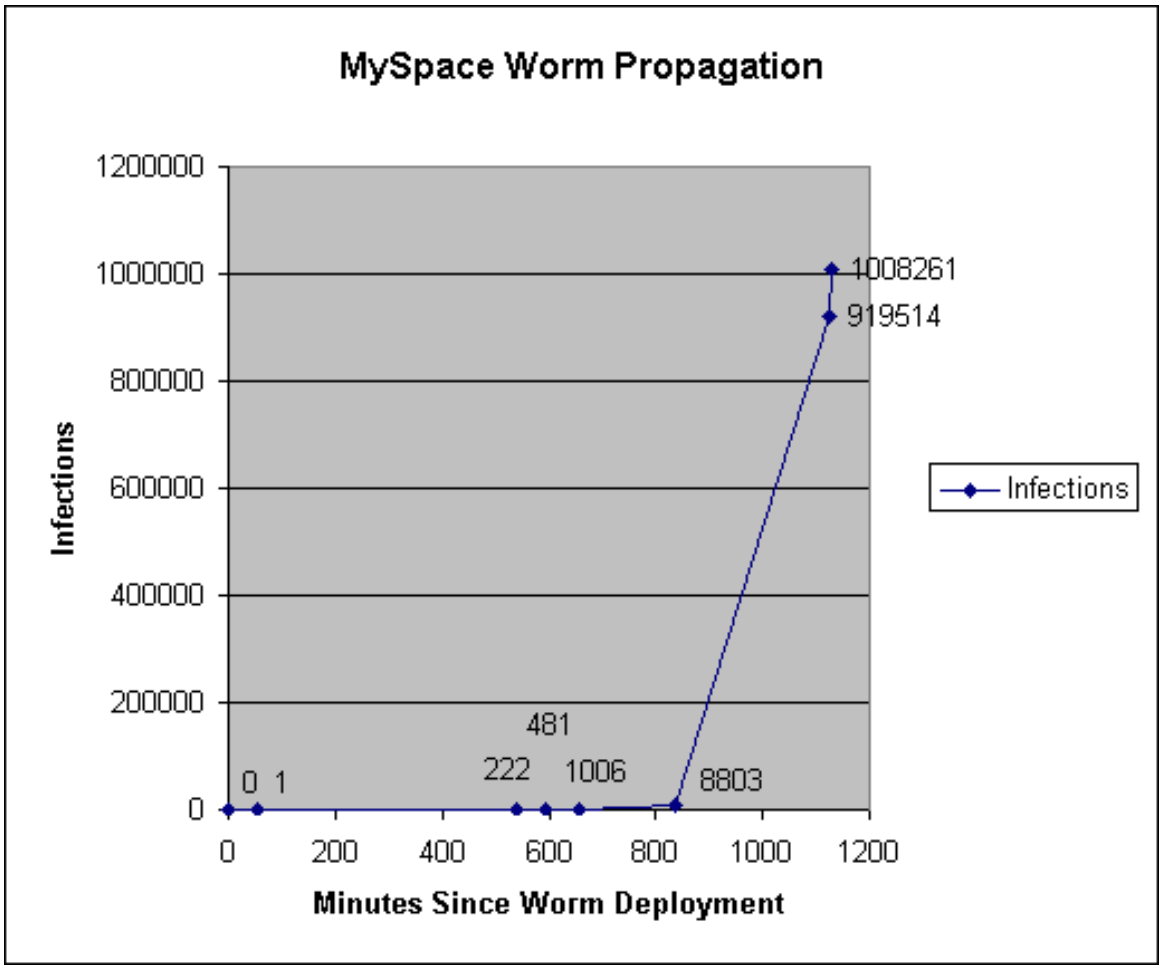
Samy ,Jammanner Nduja - Webmail XSS worm

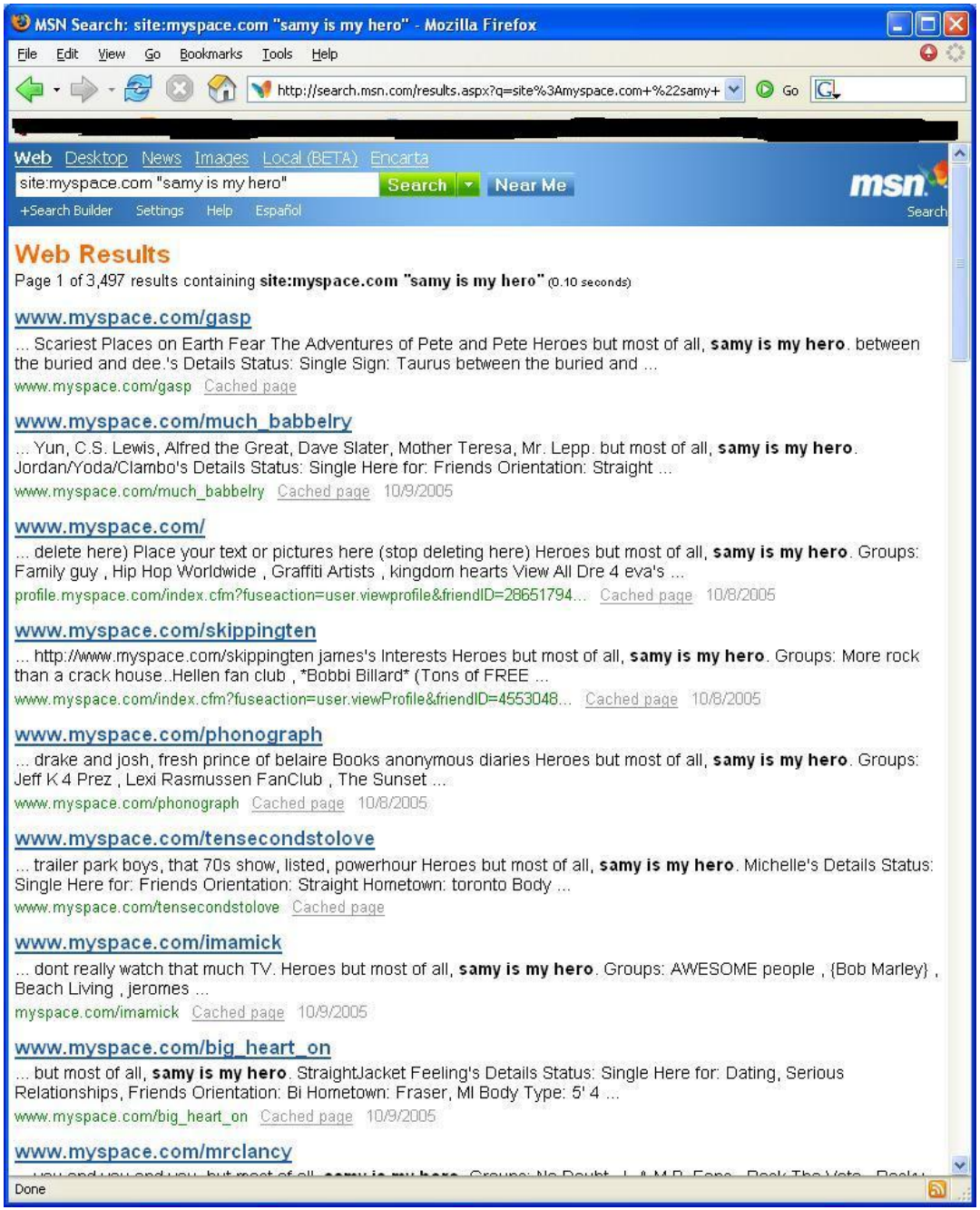
Ajax Security – Case Study – Samy worm

- Inserted HTML and JavaScript through MySpace's profile editor.
- Automated the friend selection process. Instead of someone selecting Samy as a friend, the worm automated the procedure with JavaScript.
- The result of the code injection made the visitor and all visitor friends to be friend Samy when visiting Samy's page. Samy automatically also became their "hero".
- Worm Source Code: http://namb.la/popular/tech.html

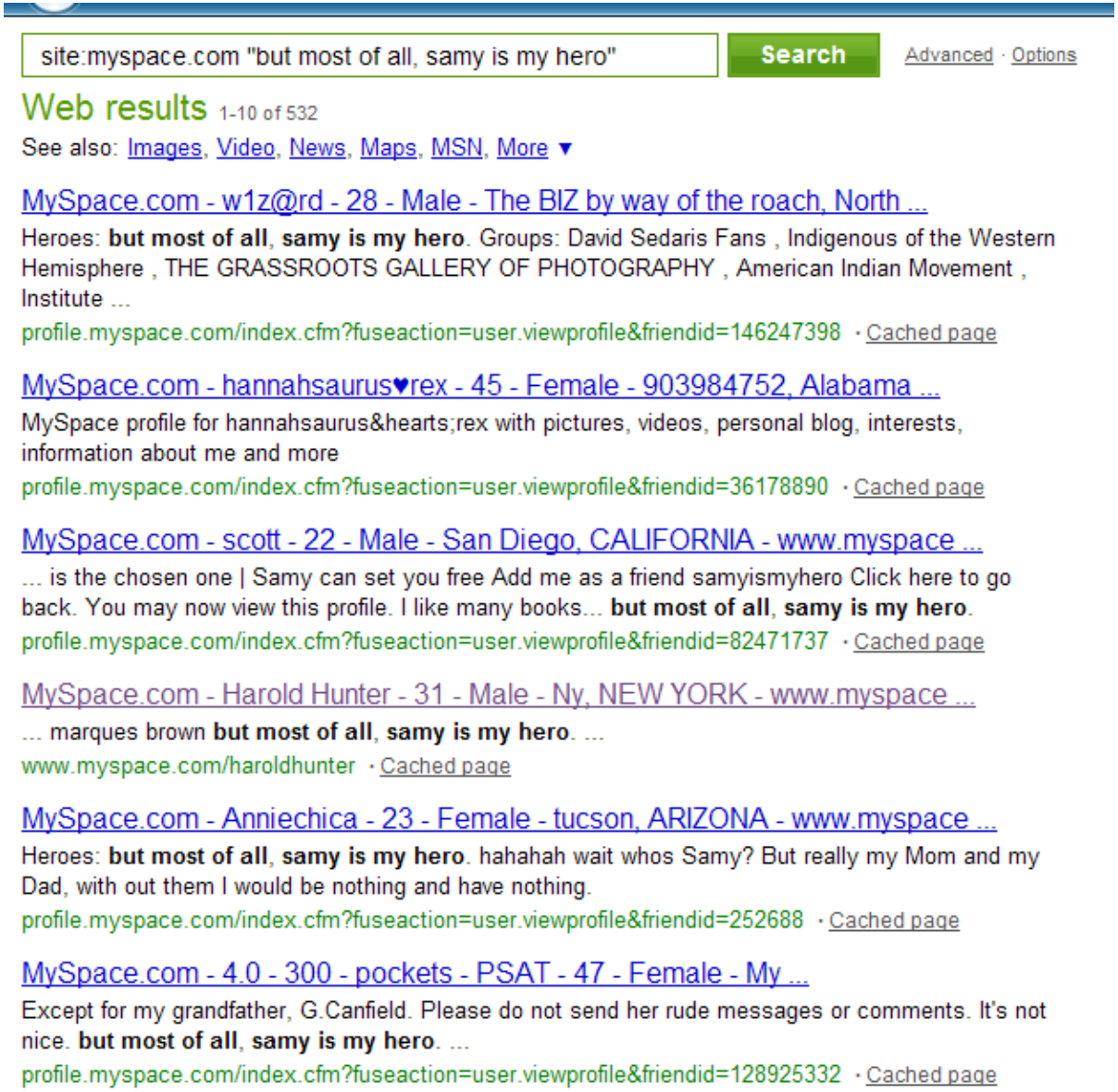
Ajax – Case Study – Samy worm (cont)

- Impact: "In less than 24 hours, 'Samy' had amassed over 1 million friends on the popular online community"





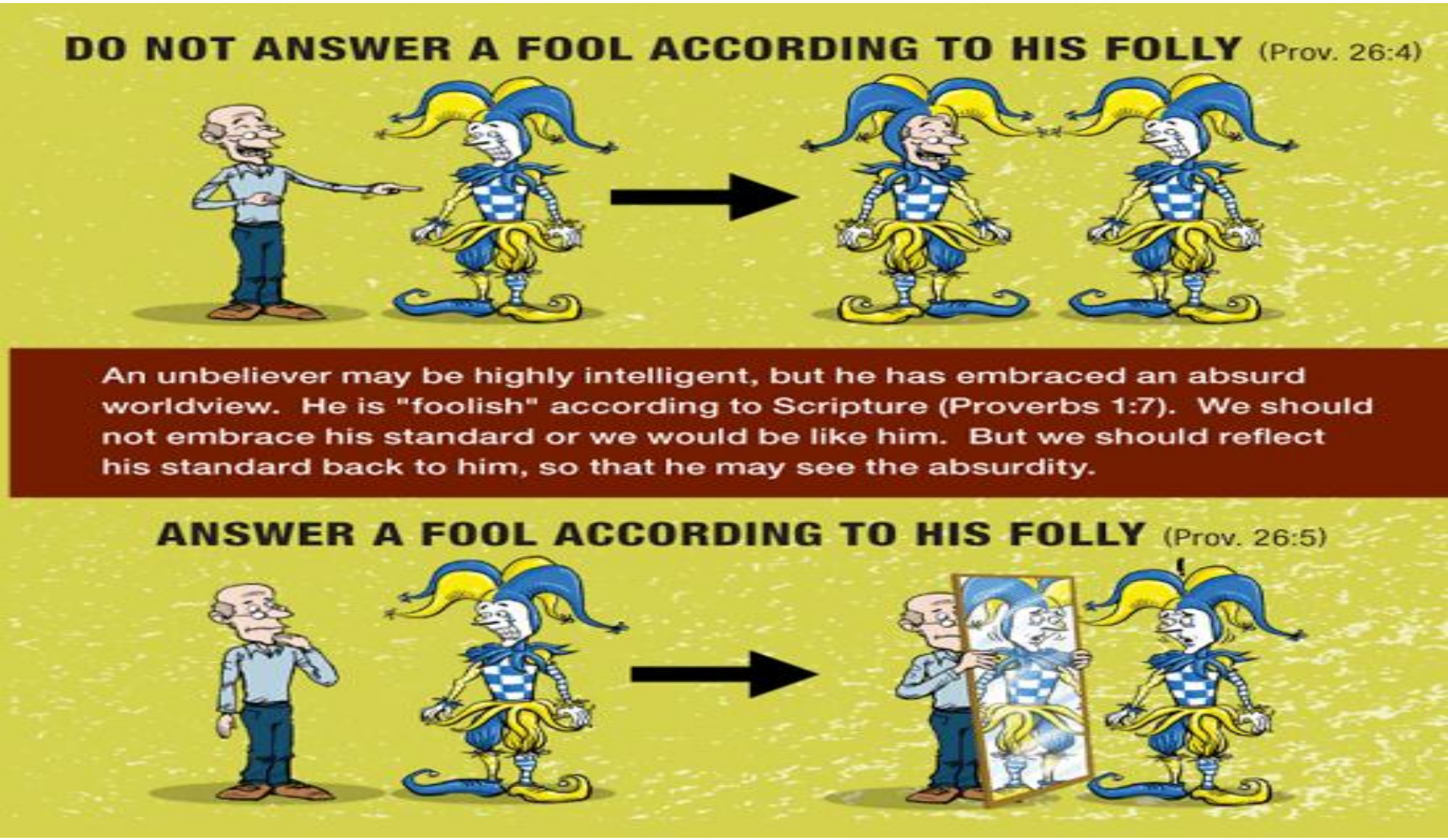
Screenshot showing list of Myspace profiles infected by Samy Worm



And today there are still Myspace accounts with Samy as a hero!

532 results with live.com

A Fool With a Tool is Still a Fool



Challenges in Web 2.0 Testing

- WSDL scanning and enumeration
- Web services routing issues
- XPATH injection in SOAP message
- XML poisoning
- Flash Parameter Injection

- GIFAR
- ActiveX Repurposing
- Tunnelling TCP over HTTP over SQL-injection
- Cross-domain leaks
- Abusing HTML 5 structured client-side storage.
- Click jacking / video jacking

- Cross-site scripting in AJAX
- Malicious AJAX code execution
- Client side validation in AJAX routines
- XSRF in AJAX
- Dynamic script construction & execution
- JSON pair injection
- JS Array poisoning
- Manipulated XML stream
- Script injection in DOM

- Appscan
- Web inspect
- Acunetix
- N-Stalker

(Less than 20% of holes can be discovered)

- Multiple scattered end points and hidden call
- Validation confusion
- Untrusted information sources
- Data serialization

Tester Vs Hacker

- Can only execute scripts which they know about.
- More Dependent on Tools
- Will have a standard testing frame work to test
- Work 5 days a week
- Mentally get disturbed during recession

- Find problems that's never reported by Testers.
- More towards hacking the business logic
- Will have a monetary frame work defined for every test
- Work continuously till they break
- Self-employed

Approach to Address Security Testing Concerns

- Understand Business Process
- *Logic discovery*
- Dissecting application
- Enumeration of Services
- Threat Model

- Multiple scattered end points and hidden calls
- Untrusted information sources
- Data serialization
- Dynamic script construction & execution
- Script injection in DOM
- Cross-domain access and Callback
- Flash-based cross domain access
- Web services routing
- WSDL scanning and enumeration
- Discovering hidden calls
- Business logic flaws

- XSS in AJAX
- XML poisoning
- Malicious AJAX code execution
- RSS / Atom injection
- Malicious AJAX code execution
- Client side validation in AJAX routines
- Web services routing issues
- Parameter manipulation with SOAP
- XPATH injection in SOAP message
- Flash Parameter Injection

- Result Reporting
- Business Impact Analysis
- Benchmarking Application against Industry Standard
- Defect Remediation suggestions

Tools

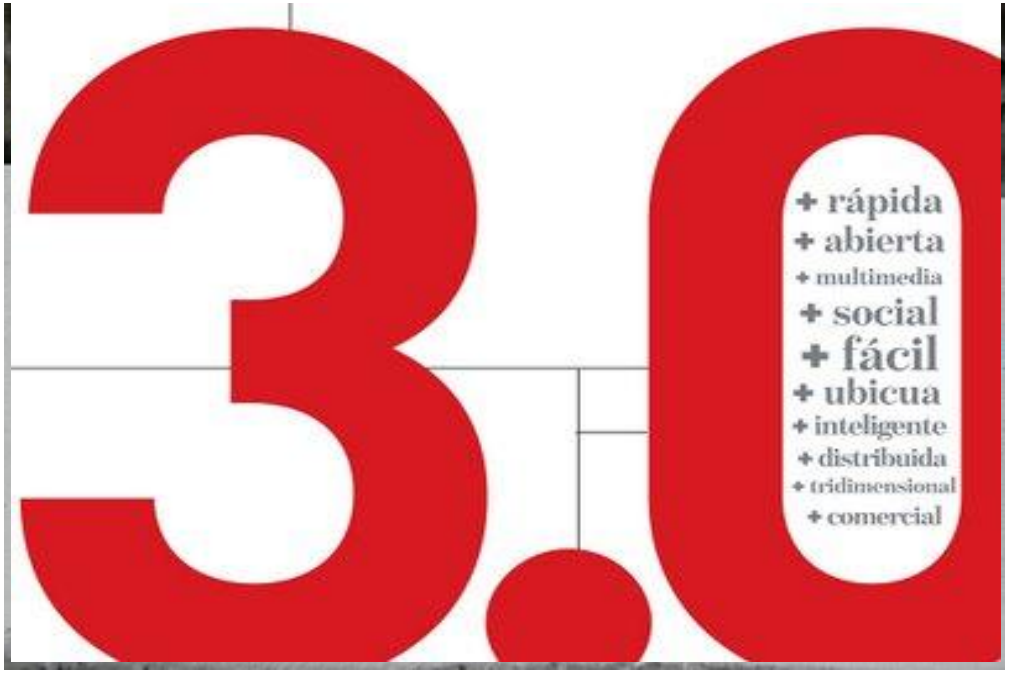

Free Tools
Httprint - Web Server Fingerprinting Tool.
Datapipe_http- Raw/HTTP TCP Tunnelling.
Ajaxfinger - Ajax Fingerprinting Tool.
Nstools-Security ToolKit from Net-Square.
Datapipe_http- Raw/HTTP TCP Tunneling .
Msnpawn-application Footprinting, Profiling & Assessment tool
WsChess- Toolkit for Web Services Assessments and Defense.
HP SWF Scanner.

Conclusion & Questions

Things to Remember

- Perform Threat Modeling
- Spend More time to understand the Business Logic
- Perform an effective manual testing rather than running automated tools
- Don’t use a common testing approach
- Update your skills on new technologies

Next ?


3.0
+ rápida
+ abierta
+ multimedia
+ social
+ fácil
+ ubicua
+ inteligente
+ distribuida
+ tridimensional
+ comercial