
15TH ANNUAL
PEAK CYBER
SYMPOSIUM
MAN VS.
MACHINE
Terry Bradley
Founder , Mile High Cyber

WHY THIS TALK MATTERS

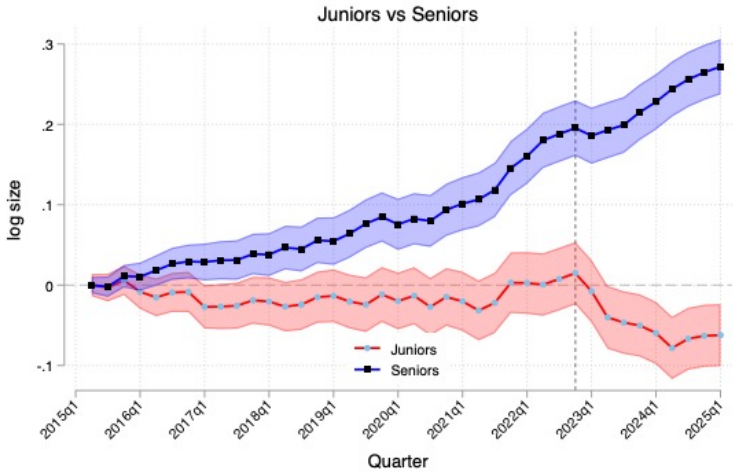


Figure 3: Employment Differences Between Adopters and Non-Adopters Over Time

Notes: The graph present the estimated coefficients β_j from Equation 1, ran separately to juniors and seniors. Standard errors are clustered in firm level.

https://www.linkedin.com/pulse/blind-disruption-ceos-who-missed-future-steve-blank-jil1c/

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=5425555

ABOUT TERRY BRADLEY

OWASP®

MILE HIGH CYBER

MYTH #1: THE MANUAL PEN TEST

MYTH #2: HUMAN PEN TESTERS ARE BETTER

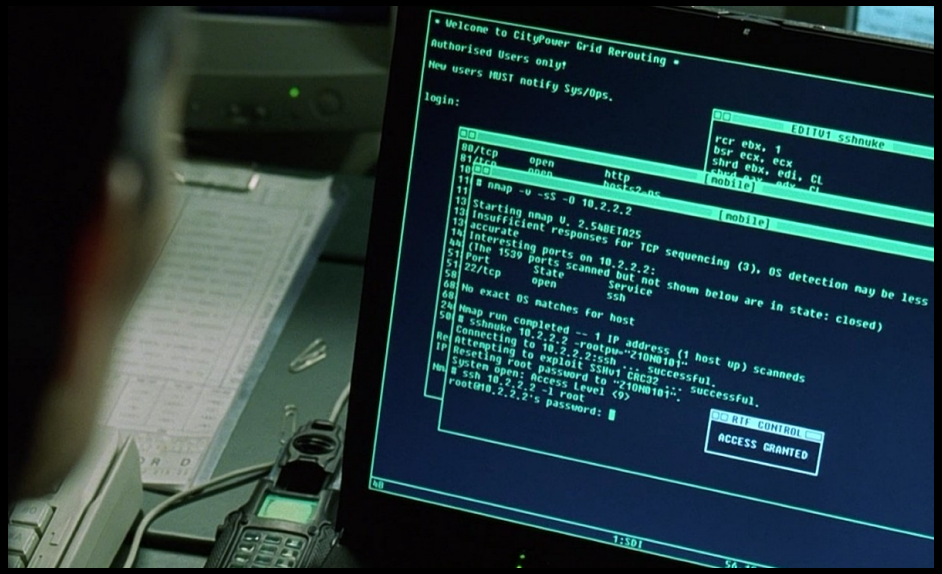
MYTH #3: AUTOMATED PEN TESTS ARE FASTER

MYTH #4: AUTOMATED PEN TESTS ARE CHEAPER

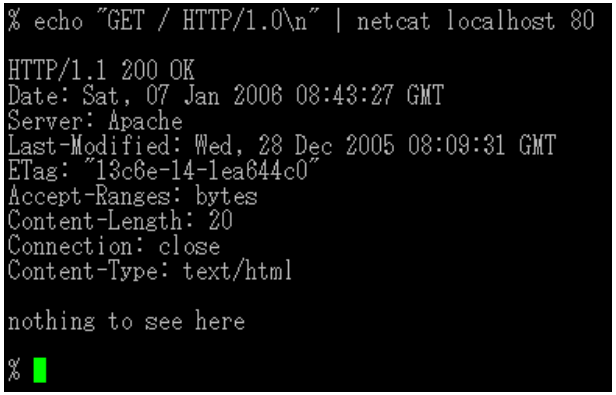
MYTH #5: HUMAN-LED PEN TESTS ARE SAFER

MYTH #1: THE MANUAL PEN TEST

HUMAN PEN TESTERS RELY ON AUTOMATED PEN TEST TOOLS TO FIND SECURITY FLAWS AND ENSURE GOOD TEST COVERAGE

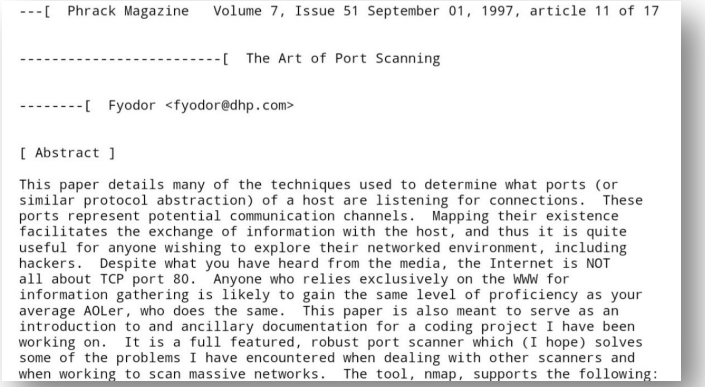


EARLY PEN TEST TOOLS



netcat
1995

SATAN
1995

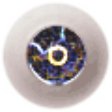


Nmap
1997

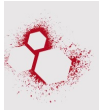
TREND → MORE AUTOMATION

Ballista 1997 

Nessus 1998 

Retina 1998 

Nikto 2001 

CANVAS 2002 

Metasploit 2003 

Cobalt Strike 2012 

OWASP ZAP 2010 

Armitage 2010 

Core Impact 2006 

Burp Suite 2005 

MYTH #2: HUMAN PEN TESTERS ARE BETTER

A. NOT ALL PEN TESTERS ARE THE SAME

B. ALL PEN TESTERS HAVE GOOD/BAD DAYS

C. WILD DISAGREEMENT ON WHAT “GOOD” MEANS

In my experience, the results the top automated pen test platforms available today are very comparable to human-led pen tests.

ISSA CYBER FOCUS WEEK 2024

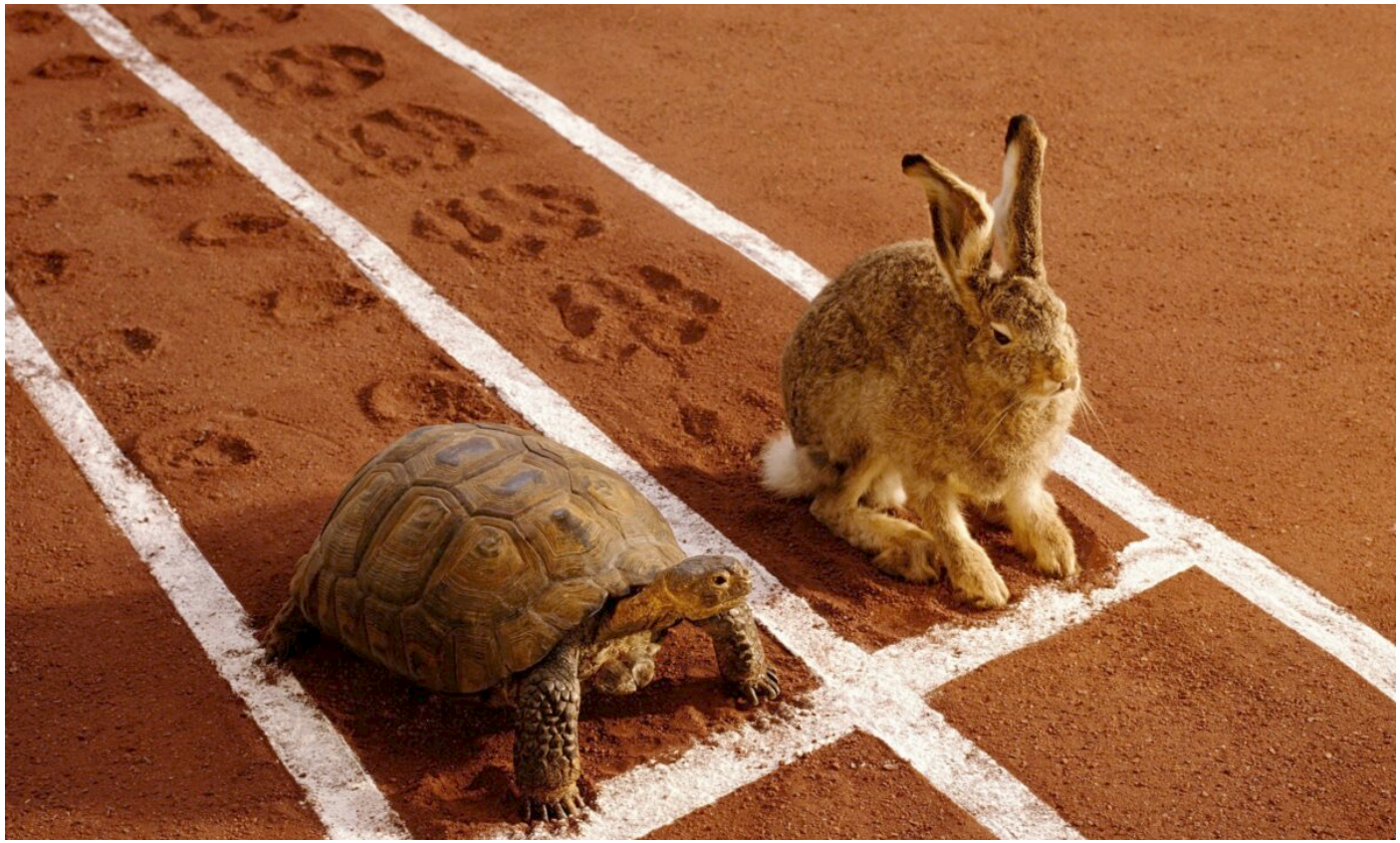
The Kinds of Security Bugs Scanners Miss

- **Business Logic Errors**
- **Insufficient Process Validation**
- **Race Conditions**
- **User Enumeration**
- **Authentication and Session Management Flaws**

The Kinds of Security Bugs Pen Testers Miss

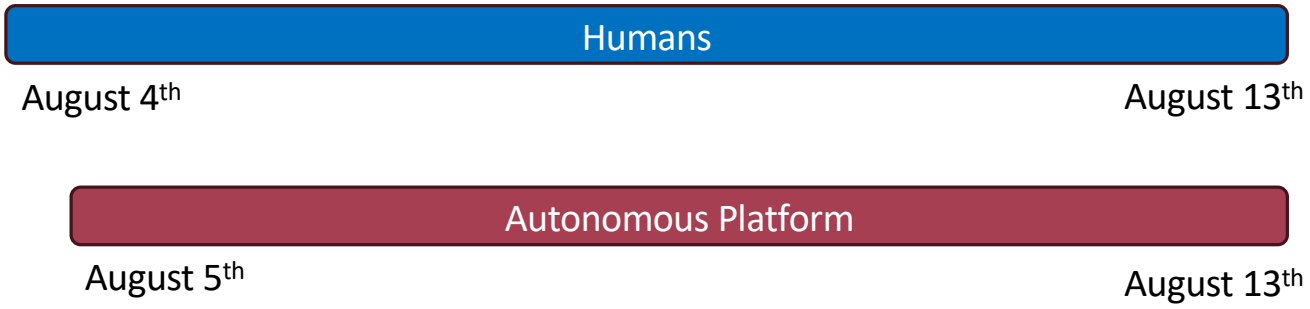
- **Business Logic Errors**
- **Insufficient Process Validation**
- **Race Conditions**
- **User Enumeration**
- **Authentication and Session Management Flaws**
- **Multi-step Data Leakage**
- **Chain of Vulnerabilities**
- **Complex Access Control Issues**

MYTH #3: AUTOMATED PEN TESTS ARE FASTER



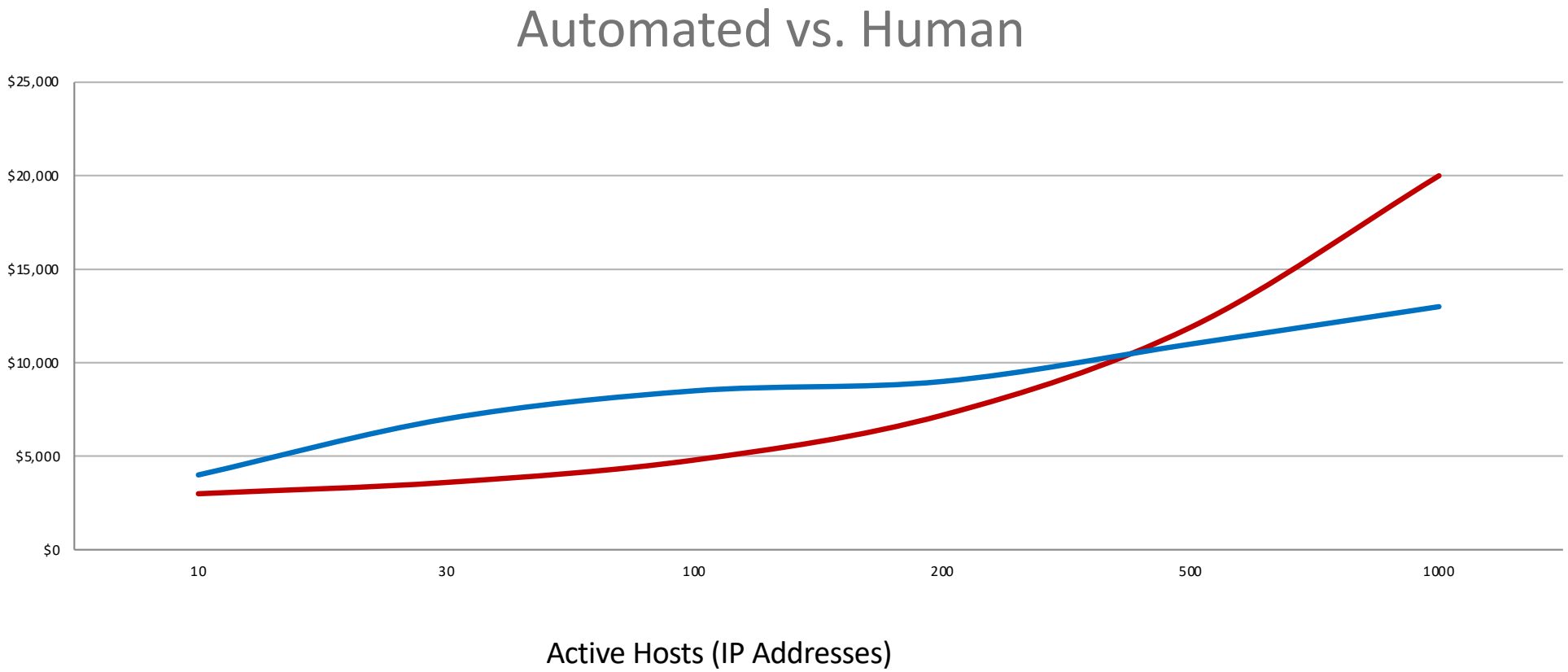
RECENT EXTERNAL NETWORK PEN TEST

- Local government client
- ~100 external IP addresses with numerous web applications



MYTH #4: AUTOMATED PEN TESTS ARE CHEAPER

ROUGH PRICING FOR PEN TESTS



MYTH #5: HUMAN-LED PEN TESTS ARE SAFER


TRAIN WRECKS I’VE WITNESSED…


WHAT IF I TOLD YOU

HYBRID APPROACH

Capability	Automated vulnerability scanning	Autonomous penetration testing with NodeZero® platform	Hybrid approach with manual testing and NodeZero® platform	Fully manual penetration testing
Discovery of live hosts within the in-scope networks	✓	✓	✓	✓
Vulnerability identification	✓	✓	✓	✓
Dedicated project management	✓	✓	✓	✓
Exploitation and privilege escalation		✓	✓	✓
Lateral movement		✓	✓	✓
Proof of exploitation		✓	✓	✓
Hands-on exploit development and analysis			✓	✓
Deep dives into specific vulnerabilities				✓

https://www.nccgroup.com/uk/technical-assurance/network-infrastructure-architecture-container-security/network-penetration-testing-services/

OBSERVATIONS

HUMAN-LED PEN TESTS

- Capacity / bench are big issues
- Project / Reporting is slower
- Personal interaction and tailoring is good*
- Relationship building*
- Ability to dig-deeper / assess business context is superior*

* If you're doing it right…

AUTOMATED PEN TESTS

- Testing is not very tailored
- No capacity / no bench issues
- Testing and reporting are fast
- Super-consistent testing with
- "One-click retests"
- *Potentially* cheaper
- Bonus features, depending on license

FINAL TAKEAWAYS

AI is here to stay and it's a force multiplier

- Threat actors are already leveraging automation and AI *
- Agentic AI platforms are on the horizon…

Decreasing junior cyber roles / increase the value of senior experts

- Harvard study ‡

Purely automated / AI pen test service offerings are not yet fully trusted but successful firms will integrate them into their offerings

* http://catonetworks.com/blog/cato-ctrl-threat-research-analyzing-lamehug/
‡ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5425555

THANK YOU

Terry Bradley
719-310-5454

terry.bradley@milehighcyber.com