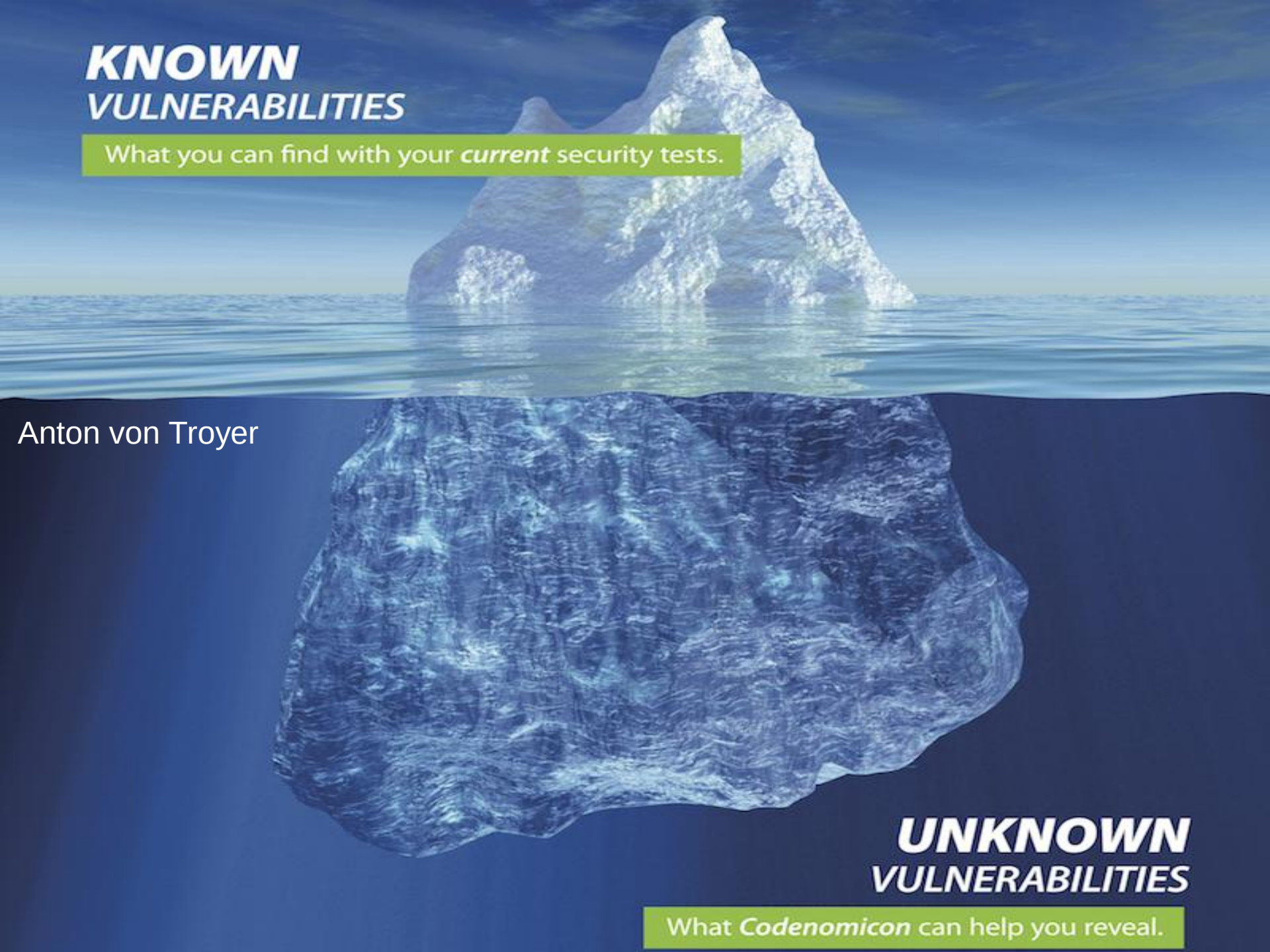

KNOWN
VULNERABILITIES
What you can find with your current security tests.
Anton von Troyer
UNKNOWN
VULNERABILITIES
What Codenomicon can help you reveal.

About Codenomicon

Founded in Autumn 2001

Commercialized the academic approach built since 1996

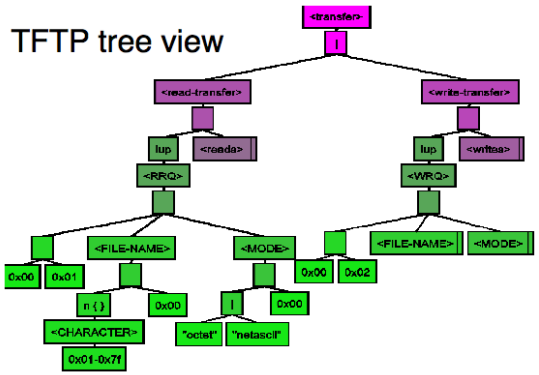
Technology leader in security test automation

- Model-based, intelligent, targeted tests
- Software-based, with subscription licensing
- Horizontal market, supports 150+ technologies
- 200+ customers globally

State-of-the art Network Analysis and Security assessment services

Highly successful, constantly growing

- **2009 was 9th subsequent growth year!**
- **Profitable year 2009! §**



CODENOMICON

Glossary of Terms: Product Security Terminology

Vulnerability – a weakness in software, a bug. Most software has bugs

Threat/Attack – exploit/worm/virus against a specific vulnerability

Protocol Modeling – Technique for explaining interface message sequences and message structures

Anomaly – abnormal or unexpected input

Failure – crash, busy-loop, memory corruption, or other indication of a bug in software

CODENOMICON

Robustness Testing

Discover unknown vulnerabilities with Testing & QA

CODENOMICON

Definition of fuzzing

Fuzzing is a technique for

- intelligently and
- automatically

generating and passing into a target system

- valid and
- invalid

message sequences to see if the system breaks, and if it does, what it is that makes it break.

CODENOMICON

Model Based Fuzzing Techniques

Specification Based Fuzzing

- Full test coverage
- Always repeatable
- Short test cycle, more optimized tests
- Easy to edit and add tests

Template Based Fuzzing

- Base test cases on a sample
- Quality of tests is based on the used seed and modeling technique
- Very quick to develop
- No need for protocol specification

Codenomicon is Riding the Wave: The Last 8 Minutes of Fuzzing

Fuzzing = Security Testing

1990 Random fuzzing becomes popular. Hackers use Fuzzing for zero day discovery;

1999 Model-based fuzzing becomes popular. 100% of zero-days found with fuzzing;

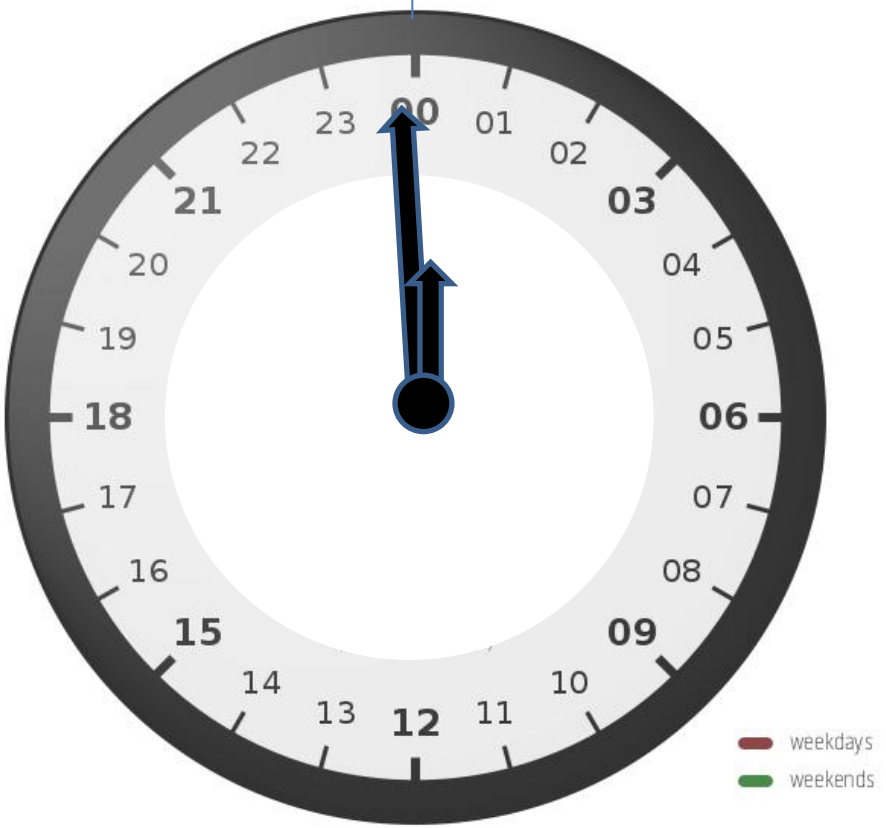
2001 Network equipment manufacturers start using Fuzzing for protection against hackers

2006 Telcos integrate Fuzzing into acceptance testing and test for zero-day threats

2010 Large-scale propagation of Fuzzing at

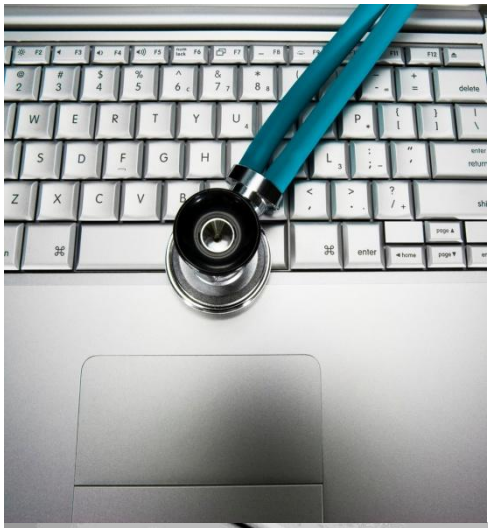
- Finance
- Government
- SCADA

<u>2015-> Fuzzing as a purchase criteria and requirement by GOV</u>



CODENOMICON

Fuzzing means crash testing…
ANY TYPE OF DEVICE!








Why to fuzz?

Fuzzing a popular method also among hackers

Fuzzing mimics the ways attackers search for security holes

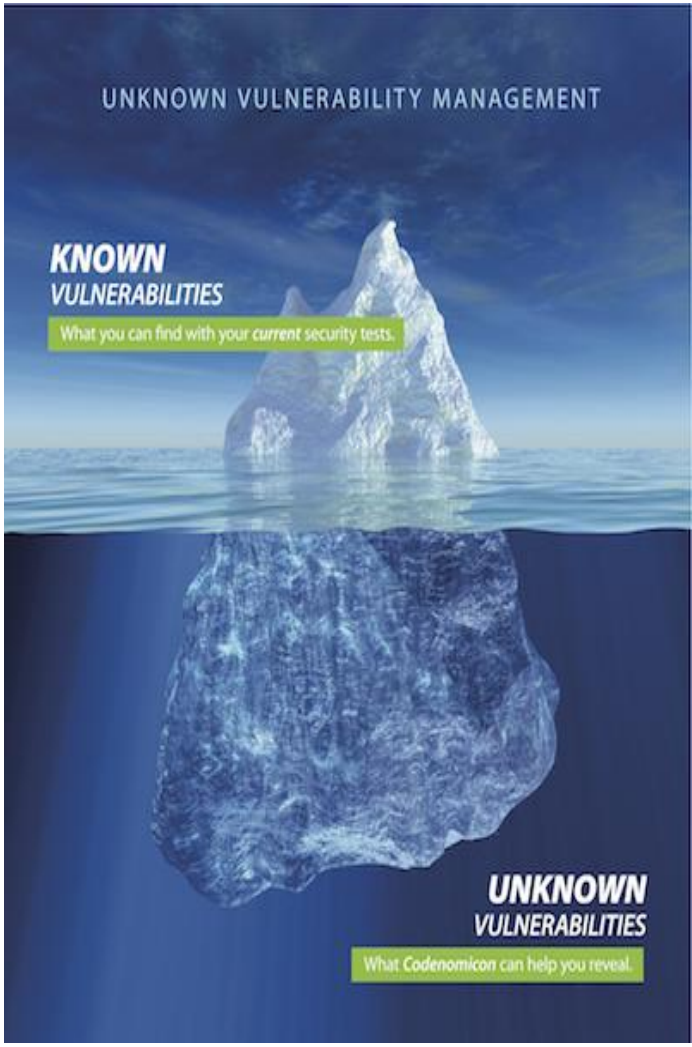
Most exploits/zero days nowadays found by fuzzing

CODENOMICON

Unknown Vulnerability Management: Be Proactive with Security

- Modern security testing is about finding unknown **zero-day vulnerabilities** in devices and software before and after release
- Provides a quick technique for security assurance for any device or software

www.codenomicon.com/unknown/



CODENOMICON

Benefits of fuzzing

"All software has undetected exploitable vulnerabilities"
- Security Vendor 2009

"You would be a fool not to Fuzz."
– Forrester 2011

"All our zero-day vulnerabilities were found with Fuzzing."
– Software Vendor 2010

CODENOMICON

Benefits of fuzzing

- "The Codenomicon tools are *amazing*. Using them is like being attacked by the most relentless adversary who uses every possible method to find flaws in your code

  We fixed subtle crash bugs that had been in our code for over ten years. We would *never* have found those bugs without the Codenomicon tools.

  If you're serious about implementing protocols correctly, you need the Codenomicon tools.“

CODENOMICON

Defensics 10