



UCF Cyber Security Expo

Photo by Reuben Wu.



Presenter: David Knowles
Indialantic, Florida

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Introduction

- Name: David Knowles
- email: david.knowles@raytheon.com
- Born: Cape Canaveral Hospital, Cocoa Beach, FL
- Education:
 - Merritt Island High School 1985
 - University of Central Florida 1989
- Parents:
 - Father – Rocket Scientist – NASA
 - Mother – Latin Teacher – MIHS
- Married, with 2 sons.



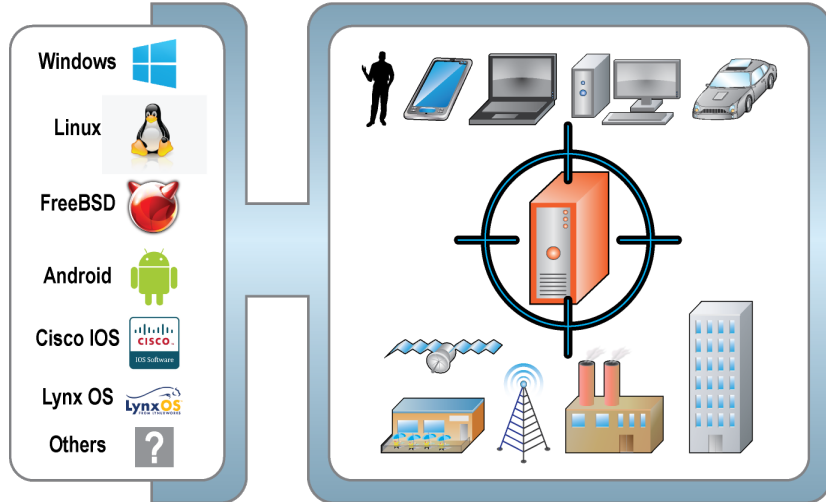
Work Experience

- Harris – Air Traffic Control – Voice Communications 7 years
- American Digital Switching – telephony 2 years
- Terion – GPS tracking of tractor trailers 2 years
- AirNet – GSM cell phone towers 7 years
- Harris – Wireless Products Group – GSM, UMTS, LTE, 5G – 13 years
- Raytheon – CodeX – Cyber Security – 1 year.



Core Capabilities





Defensive Cyber Operations (DCO)
Persist Forward/Protect Mission

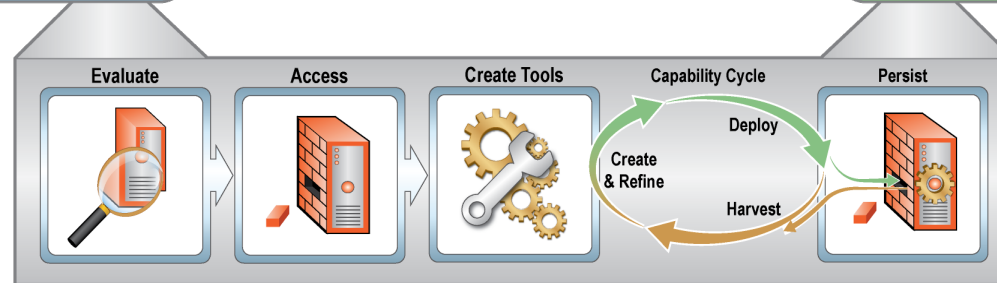


**Intelligence, Surveillance, & Reconnaissance (ISR)
Understanding of Environment**

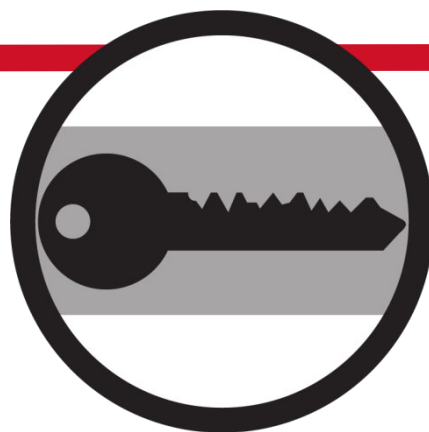
System emulation and debugging
Large-scale testing
Static and dynamic analysis tools
CNO tools and framework
Anti-tamper and protection/hardening
Low-level secure boot via software/hardware
Platform electronic bus protection
System integrity protection

Offensive Cyber Operations (OCO)
Core Capabilities/Enable Missions

-  Reverse Engineering
-  Emulation
-  Vulnerability Research
-  Computer Network Operations Tools



Vulnerability Research / Access



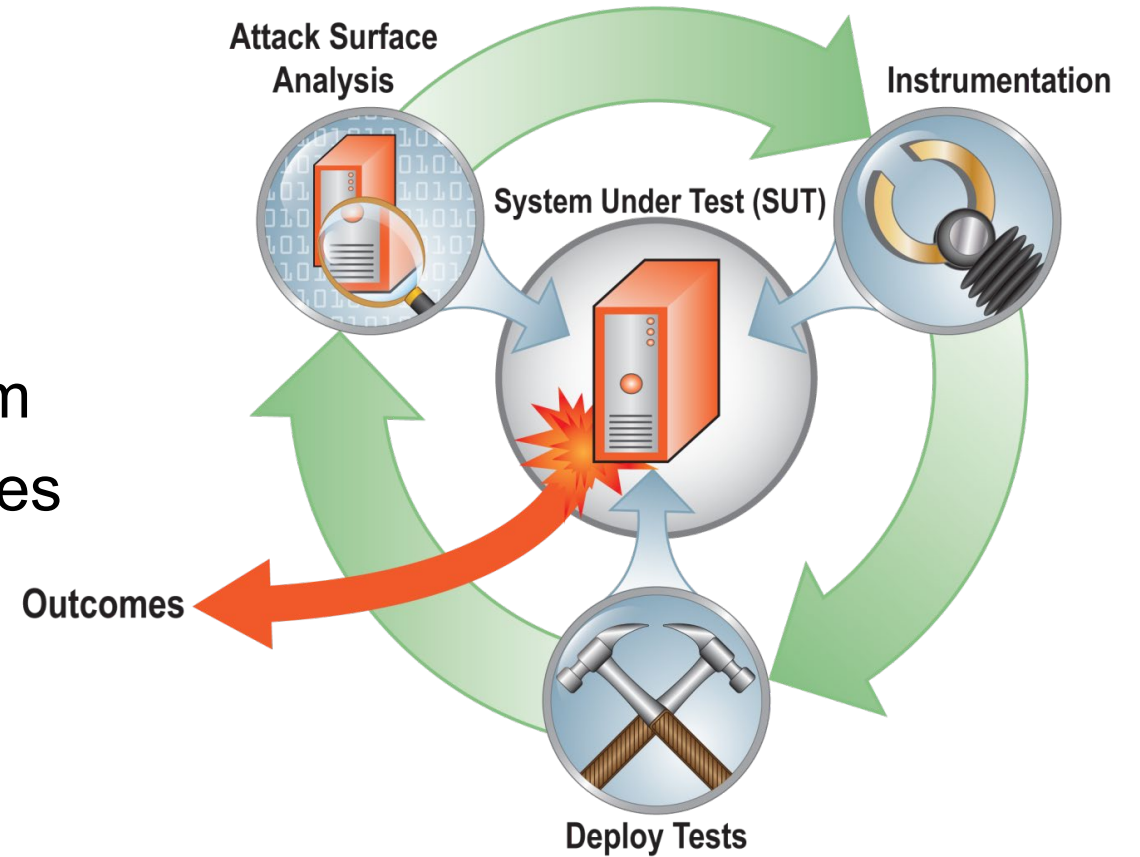
Vulnerability Research Overview

- Vulnerability research (VR) is the discovery of vulnerabilities in software and hardware systems
 - Servers, desktops, embedded, network, mobile, infrastructure, government
- Discovered vulnerabilities can be used offensively, defensively, or both
- CODEX is recognized as a world class organization in vulnerability research



Vulnerability Discovery

- Attack surface analysis
- Gaining system introspection (via instrumentation)
- Create and deploy tests against system
- Evaluate results to identify vulnerabilities



Our People Drive Innovation

- To be the best in the cyber domain, we must create and maintain a culture of innovation
 - Attract and hire the best and brightest—and get out of their way
- Solutions to hard problems do not always present themselves at a desk, so we encourage our people to play as hard as they work



Questions?

Thank You.