Netsecuris
Who's watching your network?

Trains, Planes, & Automobiles - Reducing Cybersecurity Risks

Presented by Leonard Jacobs, MBA, CISSP, CSSA
Founder, President and CEO of Netsecuris Inc.

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Bio in a Nutshell

- Over 34 years of technology experience
  - Minicomputers in Industrial Control, Medical Equipment, Healthcare, and Financial Services
- Over 14 years of cybersecurity experience
  - Financial Services and Utilities/Industrial Controls
- Started Netsecuris in Year 2000 to provide cost-effective cybersecurity assessment services. Morphed into a Managed Security Service Provider 5 years later that still performs assessment services too.

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Albert Einstein stated, "We cannot solve our problems with the same thinking we used when we created them."

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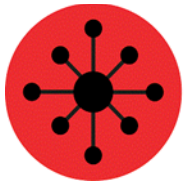
What is it about? What it is not?

- This presentation is all about:
  - What-ifs
  - Possibilities
  - Promoting Concepts
- This presentation is not about:
  - Absolutes
  - Promoting Products per se



Cybersecurity of Motion

- Our World is full of motion
  - Planes
  - Trains
  - Automobiles
  - Trucks
  - Ships
  - Motors
  - All sorts of industrial devices
- What if they were cyber attacked?

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Are Aircraft Immune to Cyber Attacks?

SECURITY WEEK
INTERNET AND ENTERPRISE SECURITY NEWS, INSIGHTS & ANALYSIS

AFP

The Ever-evolving Cyber Threat to Planes

By AFP on June 17, 2015

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Are Aircraft Really Immune to Cyber Attacks?

SECURITY WEEK
INTERNET AND ENTERPRISE SECURITY NEWS, INSIGHTS & ANALYSIS

FBI Says Researcher Admitted Hacking Airplane in Mid-Flight

By Eduard Kovacs on May 18, 2015

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Aircraft controls are getting more sophisticated

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Internet Exposed Aircraft Control Systems

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INTERNET AND ENTERPRISE SECURITY NEWS, INSIGHTS & ANALYSIS

Internet Connectivity Could Expose Aircraft Systems to Cyberattacks: GAO

By Eduard Kovacs on April 15, 2015

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Are we sure there is no cyber risk?

The Telegraph

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Schoolboy hacks into city's tram system

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Is Rail Immune?

HACKERS MANIPULATED RAILWAY COMPUTERS, TSA MEMO SAYS

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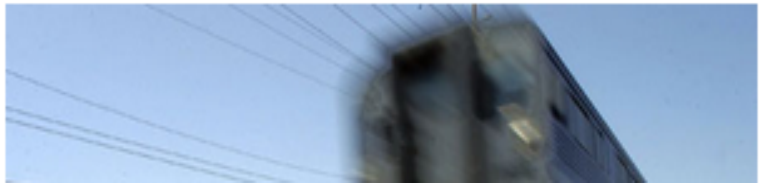

By Aliya Sternstein

January 23, 2012

1 Comment

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Rail Systems Potentially Vulnerable

- Train Operations
  - HMI
  - Propulsion
  - Braking
  - Door Controls
  - Signaling Interfaces
  - Automatic Train Control
- Fire Detection
- Emergency Systems
- Remote Diagnosis/Fault Monitoring
- Remote Software Updates

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What about that car you drive?

Cyber-Safe

Chryslers can be hacked over the Internet

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Is government worried?

INTERNATIONAL BUSINESS TIMES | Automotive IT New

News | World | Business | Politics | Technology | Science | Sport | Entertainment

Technology | CyberSecurity

Canadian military seeks hackers to build exploits and defences against connected car cyberattacks

By Mary-Ann Russon

October 7, 2015 14:29 BST

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Just Another Cyber Attack on Cars

ANDY GREENBERG SECURITY 08.11.15 7:00 AM

HACKERS CUT A CORVETTE'S BRAKES VIA A COMMON CAR GADGET

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Really? Another automobile attack!

SECURITY WEEK
INTERNET AND ENTERPRISE SECURITY NEWS, INSIGHTS & ANALYSIS

BMW Patches Security Flaw That Let Hackers Open Doors

By Brian Prince on February 02, 2015

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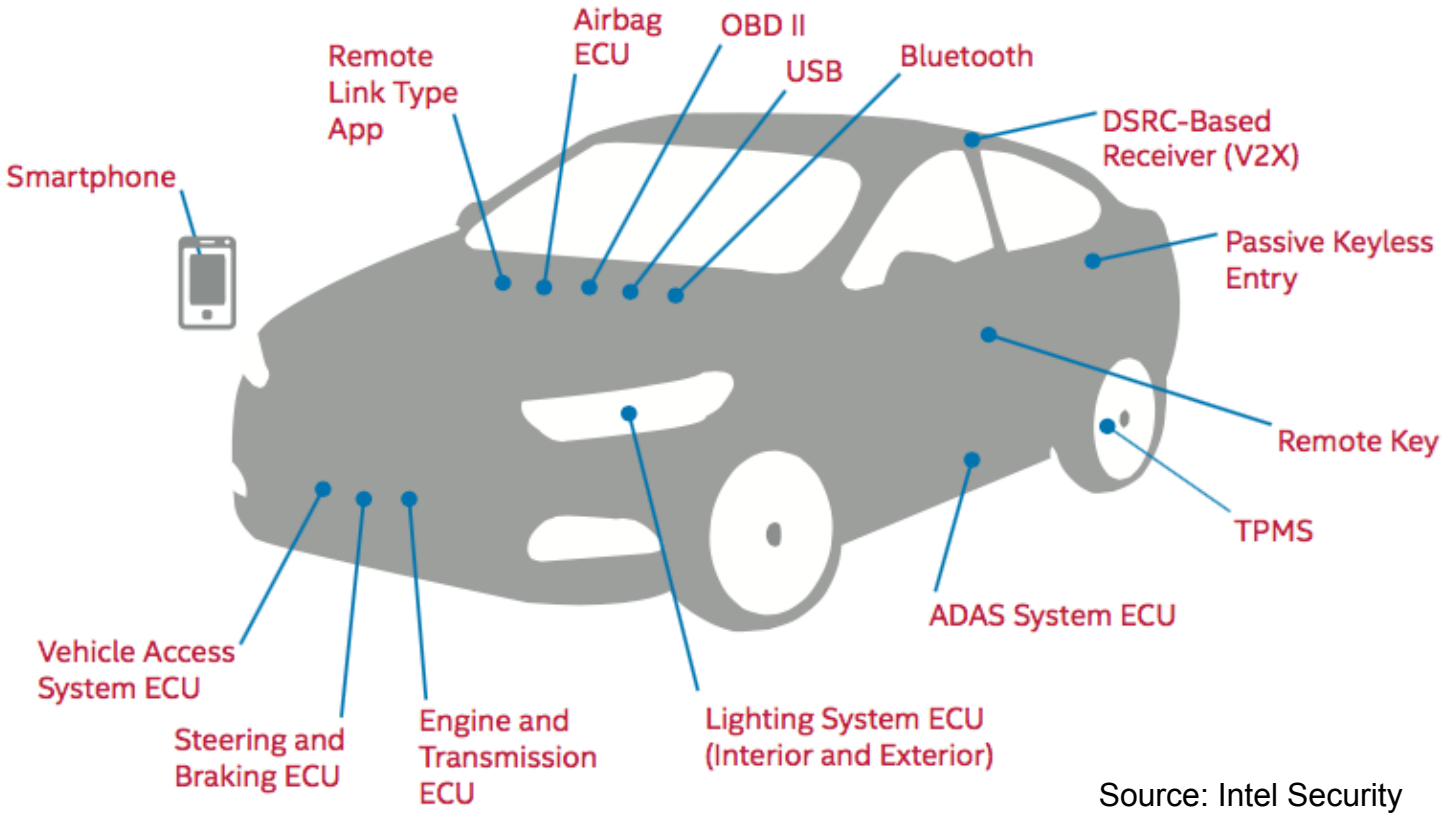
Cyber Attack an Automobile



Source: Intel Security

Automation

- Port of Hamburg
  - Highly automated
  - https://youtu.be/WxXZQ7emHC0
  - Great economic harm

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Internet of Things

- Shift in Cybersecurity Thinking
  - Expands the cybersecurity landscape
  - Blend of Old ways and New ways
    - Take traditional cybersecurity security measures and adapt
    - Ability to apply traditional cybersecurity measures as is
- IOT Sensors

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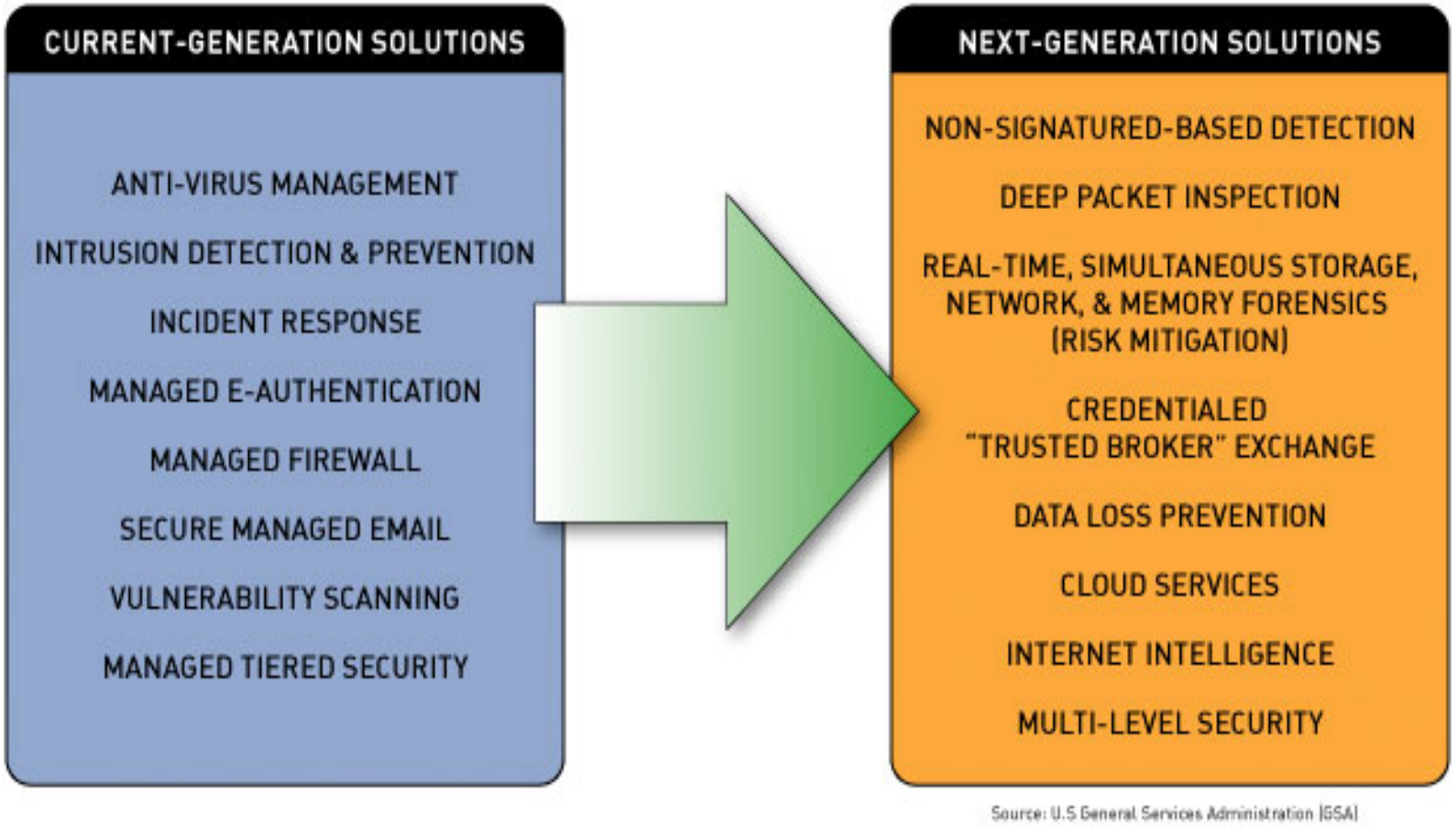
Cybersecurity Solutions



Source: U.S General Services Administration (GSA)

Non-signature based Detection/Prevention

- Not traditional Anomaly Detection/Prevention
- Behavioral Baselining
  - Determining what is normal
  - Looking for the unusual
  - There are some systems that can kind of do this today
  - Going to require more data

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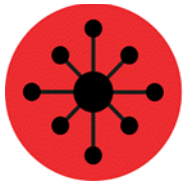
Network Security Monitoring

- Not dependent on any one source of data
- Uses the best computer we have
- Threat Centric vs. Vulnerability Centric
  - Goalie vs. Brick Wall

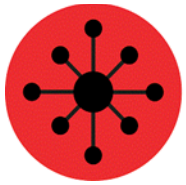


Network Security Monitoring

- Threat Centric
  - Prevention will eventually fail
  - Focuses on collection
  - Combines intelligence with every attack
  - Cyclical process
  - Not just reliant on known signatures

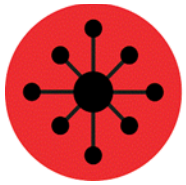
Network Security Monitoring

- Tools
  - Suricata (Capable of processing ICS Protocols)
  - Bro
  - Wireshark (Tshark)
  - TCPDump
  - Netflow and the like
  - Security Onion



Network Cloaking

- Host Identity Protocol (HIP)
  - IETF RFC 7401 Host Identity Protocol v2 and RFC 4423 HIP Architecture
  - HIP separates the end-point identifier and locator roles of IP addresses.
  - In HIP networks, IP addresses are eliminated and replaced with cryptographic host identifiers.
  - HIP is ideal for cloaking the identity of ICS devices and hiding their IP address.

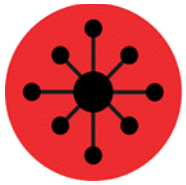


Network Cloaking

- Implements "Zero Trust" Model
  - Device A trusts Device B but not Device C
  - Device B can be allowed to trust Device C
- Secure the communications
  - High level of encryption
  - Cloak the IP Address of end devices
- All orchestrated efficiently and quickly

Cybersecurity Intelligence

- Those with the data are the "winner."
- Provides an "early warning system."
- Feeds your cybersecurity control devices
- Examples:
  - CRISP Program
  - SoltraEdge
  - A whole slew of commercial and free resources



Miniaturization of Cybersecurity

- Integration of cybersecurity onto silicon
  - Mellanox Technology (EZ Chip) (Tilera) and Suricata
  - Intel's acquisition of McAfee
  - Adapteva Epiphany
- Firewall and IDS/IPS Everywhere
- Fast Response Times

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