



TRUENORTH
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RISK
SUMMIT
AUGUST 17-18
CEDAR RAPIDS, IOWA



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AUG 17 • 18, 2016



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WHO'S DRIVING THIS RIG? CYBER SECURITY CONCERNS IN THE TRANSPORTATION INDUSTRY



Agenda

- **Cyber Security: A Primer**
 - What does it mean to increase the area of the **Attack Surface?**
- **Autonomous and/or Remote Vehicle Management**
- **Autonomous or Semi-Autonomous Vehicles and Cyber Security**

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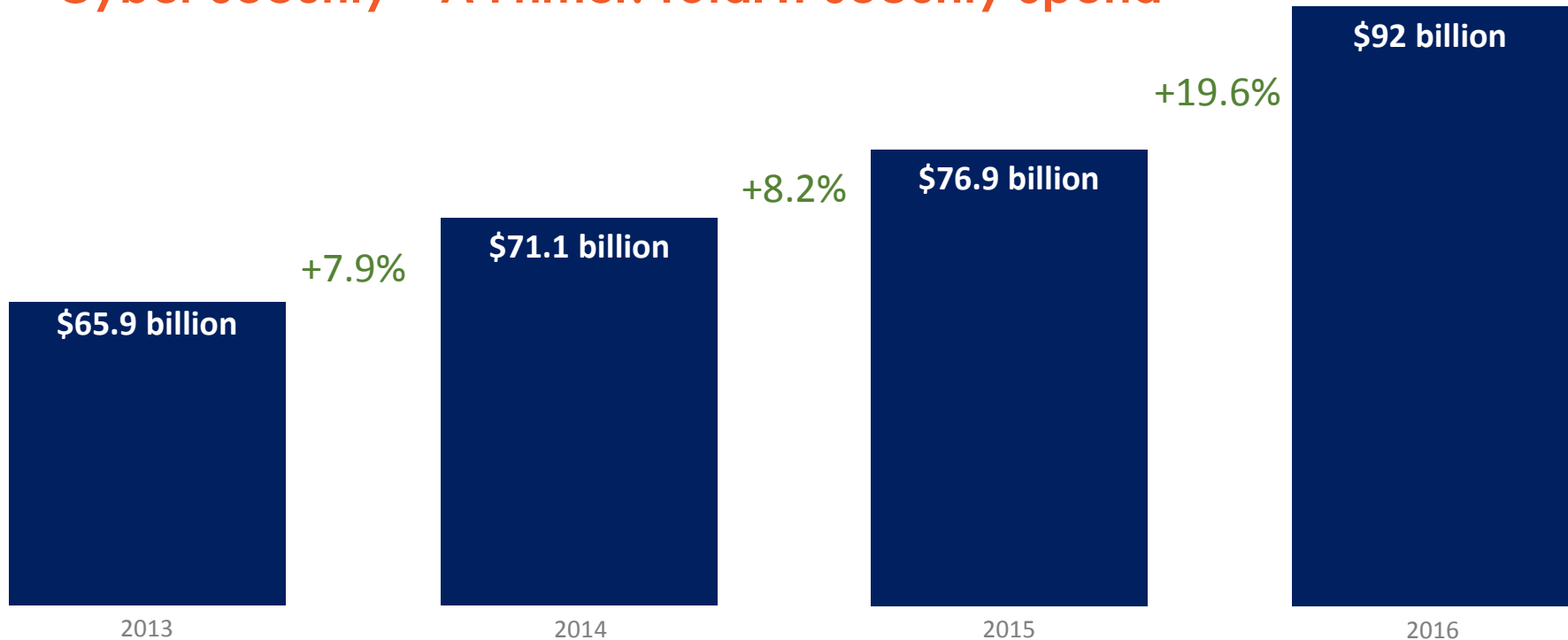
Cyber Security: A Primer

- Cyber Security is the protection of information systems from theft or damage to the hardware, the software, and to the information on them, as well as from disruption or misdirection of the services they provide.
- It includes controlling physical access to the hardware, as well as protecting against harm that may come via network access, data and code injection, and due to malpractice by operators, whether intentional, accidental, or due to them being tricked into deviating from secure procedures.

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Cyber Security – A Primer: Total IT Security Spend

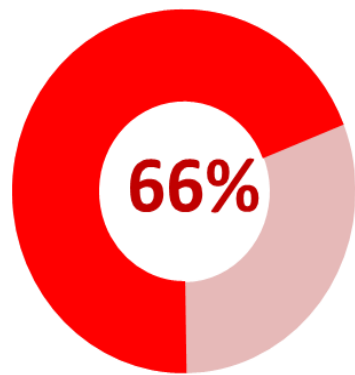


Source: Gartner, Gartner Says Worldwide Information Security Spending Will Grow Almost..., August 2014; Gartner Summit, June 2016

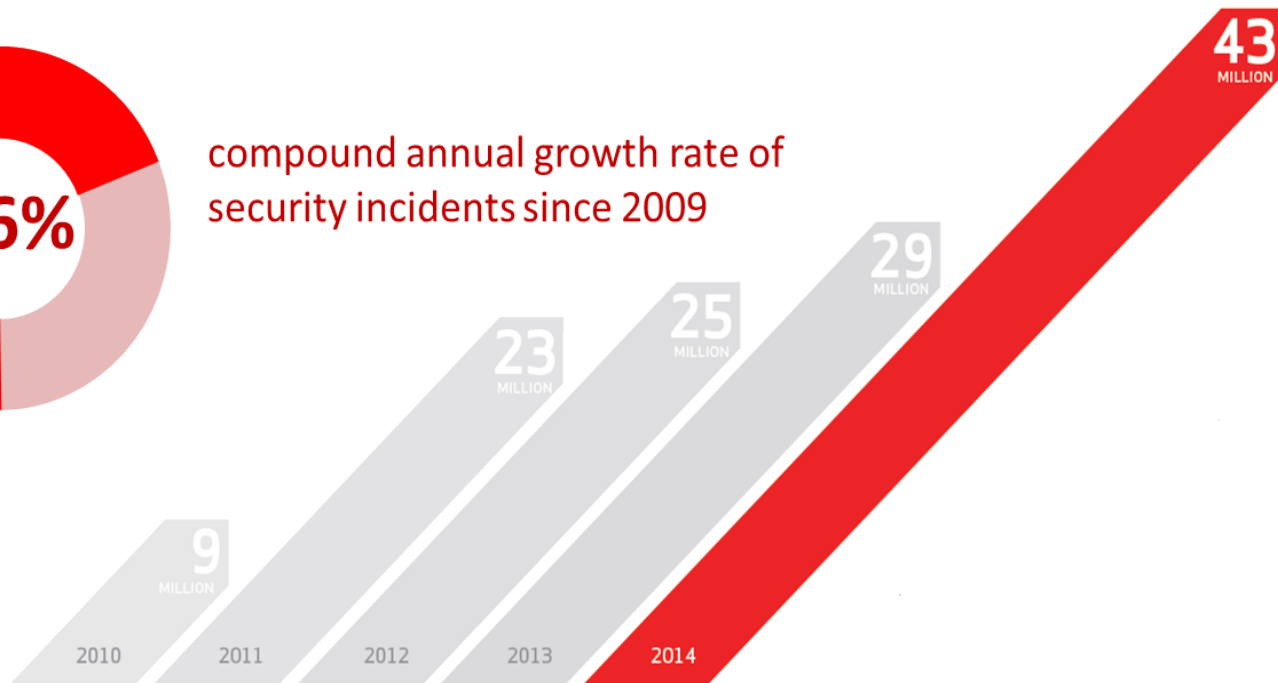
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Cyber Security – A Primer: Cyber Reality Check



compound annual growth rate of security incidents since 2009



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Cyber Security – A Primer: Today's Cyber Security Approach



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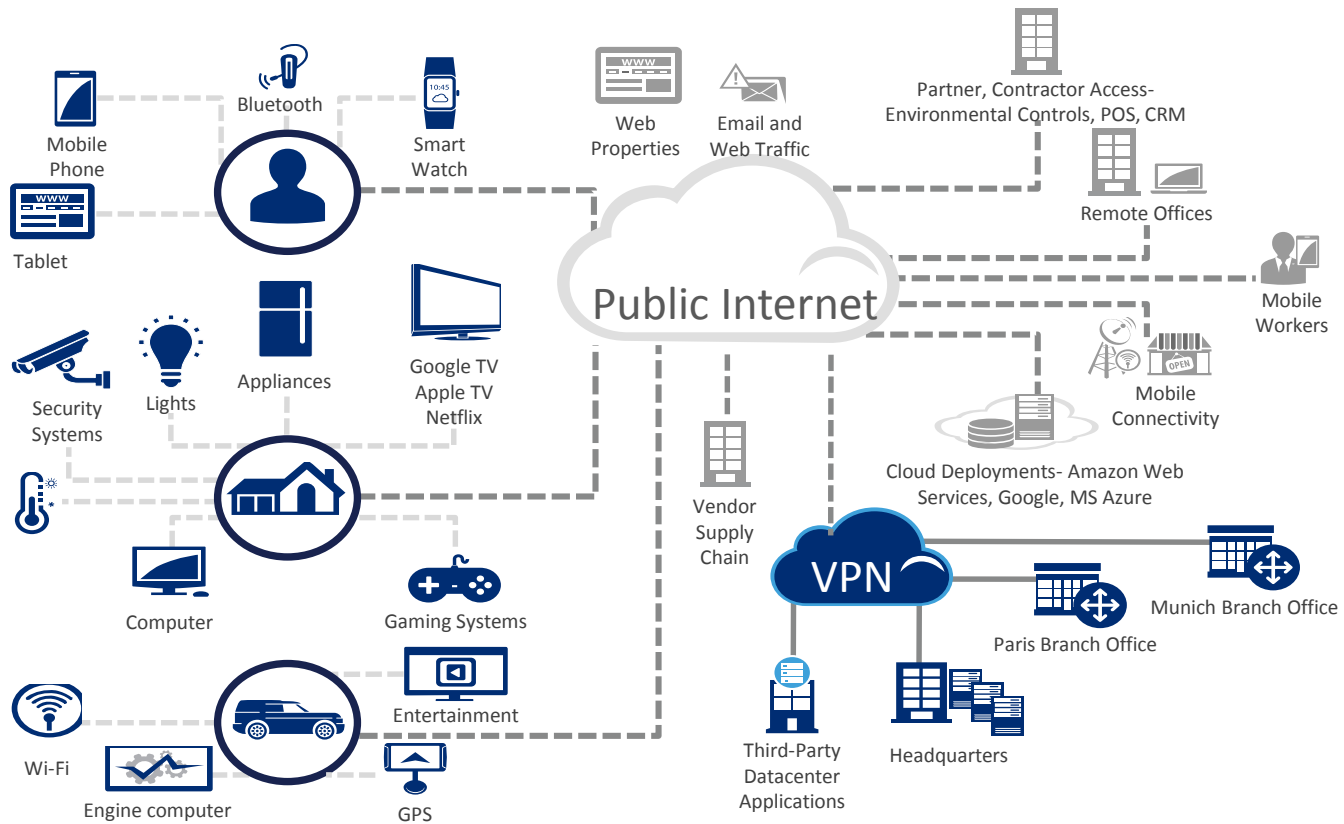


**What does it mean to increase the
area of the Attack Surface?**

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A Growing Attack Surface



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Today's Cyber Security Challenges



Silo-Based
Security Tools



Manual
Data Aggregation
and Analysis



Lack of Context



Reactive
Mitigation

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Autonomous and/or Remote Vehicle Management

- Autonomous Vehicle: NHTSA defines 5 levels:
 - Level 0: No-Automation
 - Level 1: Function-specific Automation
 - Level 2: Combined Function Automation
 - Level 3: Limited Self-Driving Automation
 - Level 4: Full Self-Driving Automation

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Autonomous Vehicles

- **Level 0:** The driver is in complete and sole control of the primary vehicle controls – brake, steering, throttle, and motive power – at all times.



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Autonomous Vehicles

- **Level 1:** Automation at this level involves one or more specific control functions. Examples include electronic stability control or pre-charged brakes, where the vehicle automatically assists with braking to enable the driver to regain control of the vehicle or stop faster than possible by acting alone.

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Autonomous Vehicles

- **Level 2:** This level involves automation of at least two primary control functions designed to work in unison to relieve the driver of control of those functions. An example of combined functions enabling a Level 2 system is adaptive cruise control in combination with lane centering.

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Autonomous Vehicles

- **Level 3:** Vehicles at this level of automation enable the driver to cede full control of all safety-critical functions under certain traffic or environmental conditions and in those conditions to rely heavily on the vehicle to monitor for changes in those conditions requiring transition back to driver control. The driver is expected to be available for occasional control, but with sufficiently comfortable transition time. The Google car is an example of limited self-driving automation.

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Autonomous Vehicles

Level 4: The vehicle is designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip. Such a design anticipates that the driver will provide destination or navigation input, but is not expected to be available for control at any time during the trip. This includes both occupied and unoccupied vehicles.

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Remote Vehicle Management

- Used to Monitor:
 - Vehicle Location using GPS
 - Engine Diagnostics
 - Performance Metrics including
 - Maintenance issues prior to breakdown
 - Drive Time
 - Miles Driven
 - Fuel Use
 - Driver behavior
 - Alerts (accidents, breakdowns, etc.)

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REMOTE VEHICLE MANAGEMENT

- Accident Tracking
- Dispatch Management
- Driver Management
- Fuel Management
- GPS Integration
- Inspection Management
- Inventory Management
- Maintenance Scheduling
- Maintenance Tracking
- Mileage Tracking
- Motor Pool / Daily Rental
- Parts Management
- Routing
- Tire Management
- Tool Tracking
- Vehicle Information
- Vehicle Tracking
- Work Order Management

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Remote Vehicle Management

- Communicates via secure wireless or satellite connections

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Autonomous or Semi-Autonomous Vehicles and Cyber Security

- Remember: Attack Surface
- Less concerned with number of computing devices in the vehicle and more concerned with how many ways are there communicate with those computing devices.
- If a communication pathway can be established, then the concern shifts to what can those computing devices do?

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DON'T REACT TO ATTACKS.
BE PRO-ACTIVE!

Contact RiskSense at
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