# What Every CISO Needs to Know

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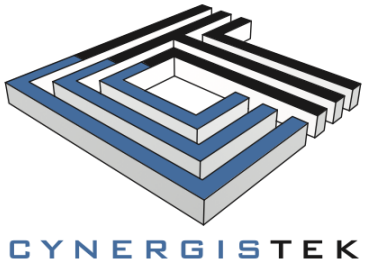


# Your Adversary Has Changed

**655,000 health records for sale on the dark web (June 28, 2016)**

**"Next time an ADVERSARY comes to you and offers you an opportunity to cover this up and make it go away for a small fee to prevent the leak, take the offer. There is a lot more to come."**

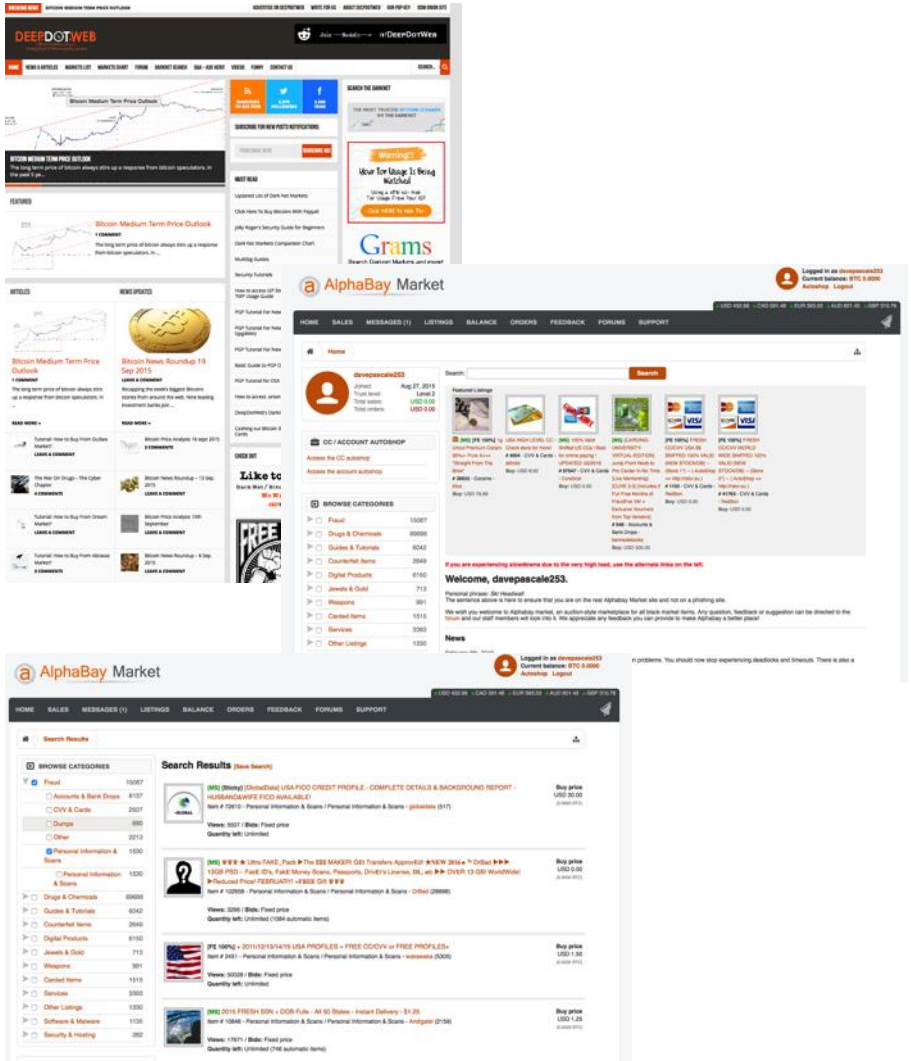
**9 million plus more health records online (June 30, 2016)**

**Healthcare HL7 Interoperability Software Source Code, Signing Keys & Licensing Database for sale (July 12, 2016)**

**"There will likely be two buyers for this, someone with nefarious intentions or someone from a small country wanting to use it for business."**

# And They Saw Opportunity…

- A little initiative, a curious nature, a deviant behavior, a Bitcoin wallet, PGP for encrypted communication, and a TOR browser and you are in business…



# The Stakes Are Higher

- Cyber extortion
- Cyber espionage
- Hacktivism
- Targeted attacks
- Cyber terrorism
- APTs & malware

***Motivated, Persistent & Disruptive***

# You Won't Have Time To Rest

## From lost/stolen devices to hacking

**2009 - 2011**

- BCBS Tennessee **1.02M** Stolen Hard Drives
- NYC Health & Hospitals **1.7M** Stolen Backup Tapes
- AvMed **1.2M** Stolen Laptops

**2012**

- TRICARE **4.9M** Lost Backups
- Health Net **1.9M** Lost Hard Drives
- Nemours **1.6M** Lost Backups

**2013***

- Utah Dept. of Health **780K** Hacking
- Emory **315K** Lost Backups

**2014**

- Advocate Medical **4.03M** Computer Theft
- Boston Children Hacktivism **Anonymous**
- Horizon BCBS **840K** Laptop Theft

**2015***

- Community Health **4.5M** Hacking
- Premera BCBS **11M** Hacking
- Anthem BCBS **80M** Hacking
- Montana Public Health **1.3M** Hacking
- Beacon Health **225K** Hacking
- UCLA **4.5M** Hacking
- CareFirst **1.1M** Hacking
- Westchester Health Hacked **Pro ISIS Group**

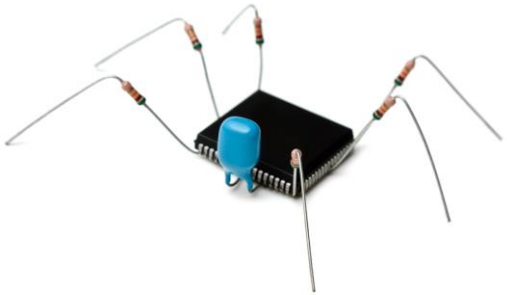
**2016***

- Haley VA **5 Days** Hacking
- HPMC **10 Days** Hacking
- Titus Regional **6 Days** Hacking
- Hurley **6 Days** Hacking

*Multiple Sources

# Ubiquitous Is The New Paradigm

- *Smart phones*
- *I0T*
- *Social media*
- *POS systems*
- *Medical devices*
- *Removable media (USBs)*
- *SPAM & email*
- *Applications*
- *Smart TVs*
- *CCTV cameras*
- *Environmental systems*
- *Downloads*
- *Attachments*
- *Browsers*
- *Wearables*
- *Telehealth*



***Threats are introduced from all directions, simple compliance strategies will not suffice, an integrated set of controls is needed.***

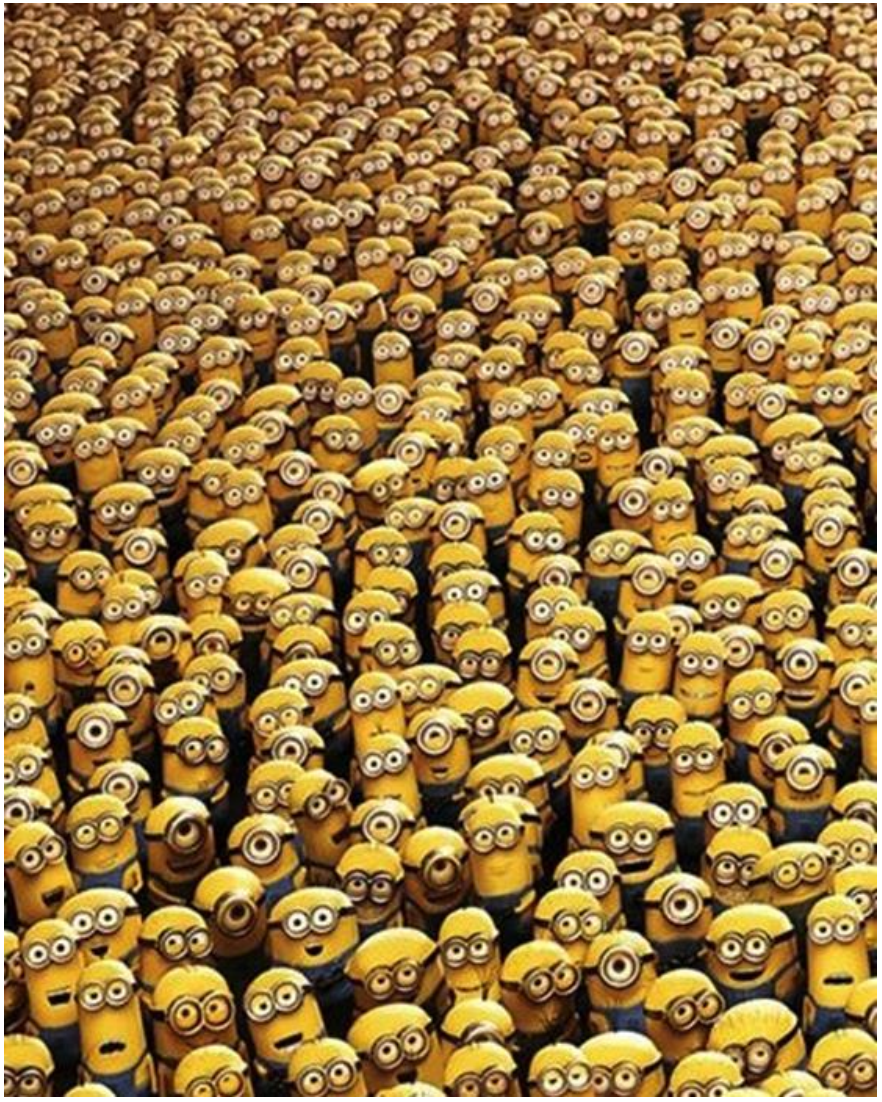
# Human Nature Is Not Going To Change

- 93% CISOs feel vulnerable to insider threats
- 59% worry about privileged users most
- See contractors/service providers next biggest concern
- 37% feel user awareness training is failing
- Year over year 20% increase in ID/Med ID theft
- Traditional audit methods are failing right and left
- Behavioral monitoring is the answer

# Innovation Will Not Slow Down

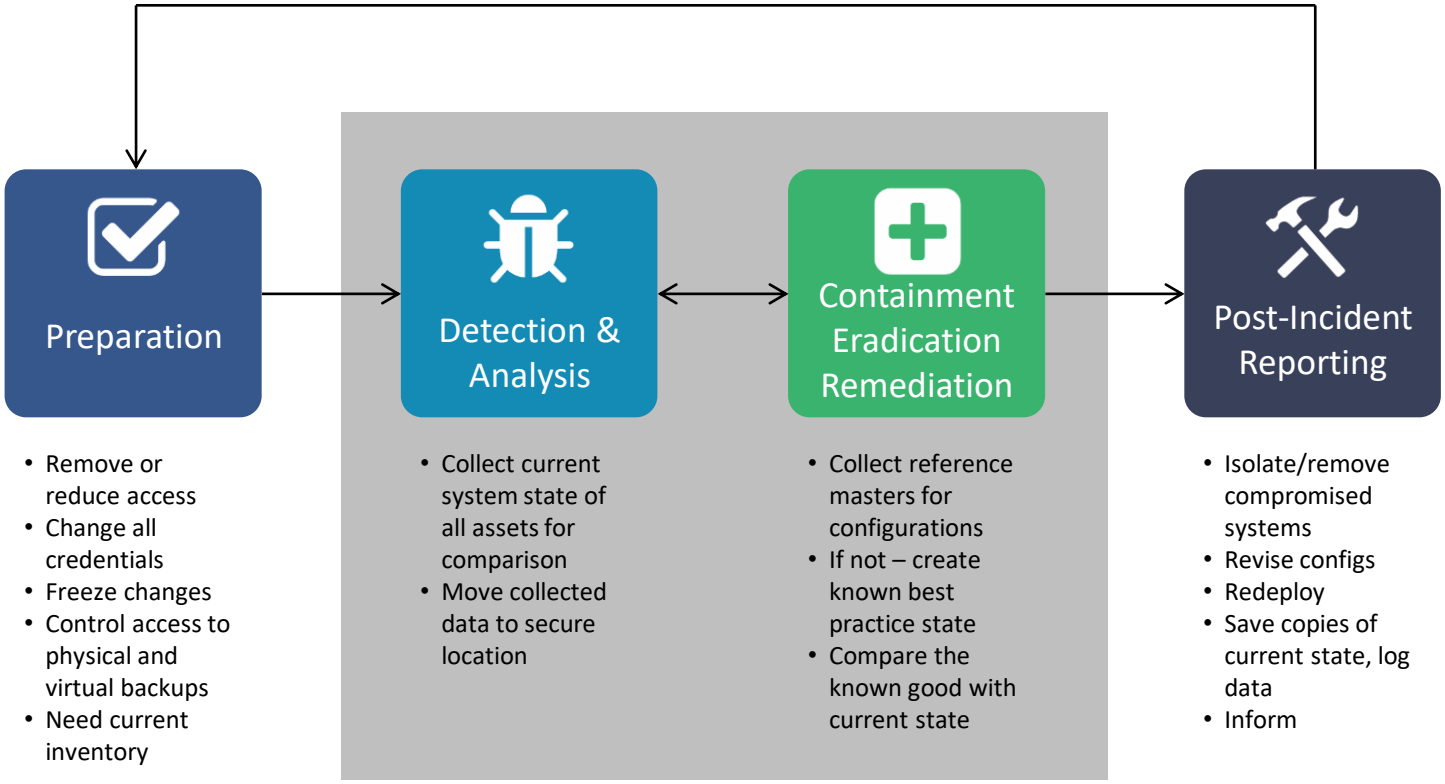
- Mobile technologies (BYOD)
- Networked medical devices
- Cloud and SaaS solutions
- Big data
- Wearable technologies
- Social media
- Home monitors
- *Whatever is next…*

# It's Always Been About People



- Awareness must be raised at all levels:
  - Workforce
  - IT Staff
  - IRM Members
  - Executives
  - Board
- New approaches that focus on interaction, role play, exercise, simulation, etc.

# Organization & Practice Are Critical




> Life is about timing. – Carl Lewis
>
> So is breach mitigation – Mac McMillan

# Short Term Demand Outpaces Supply

- Nearly half have of all entities do not have a full-time CISO or information security manager
- Current estimates place shortage of CISOs at 1.5M
- Education & Training vehicles increasing, but time still a factor
- Short term reliance on external support is critical

# Compliance Is Not The Answer

- HHS Security & Privacy guidance does not fully address the important controls outlined in federal guidance.
- HHS guidance does not fully align with the NIST cybersecurity framework.

# Need To Strengthen Your Defenses

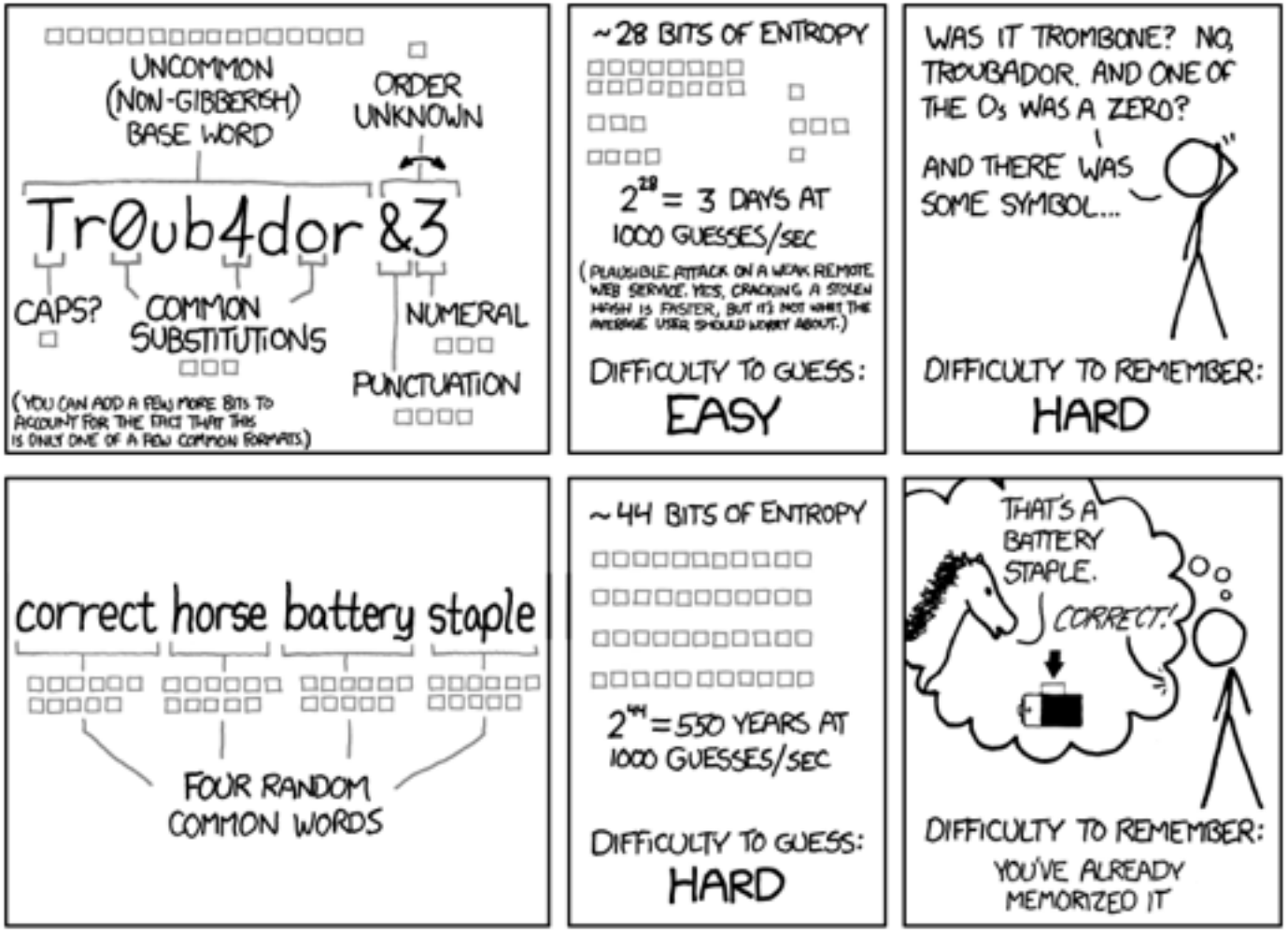
- ***Improve the perimeter:*** remote access connections, firewalls/UTM, IPS, web apps, sandboxing, SaaS & public/private clouds
- ***Focus on malware detection:*** secure email gateways and secure web gateways
- ***Reinforce endpoint detection:*** admin privileges, regular testing, anti-virus, anti-malware, host based IPS, include IoT devices
- ***Automate audit/monitoring:*** dedicated SOC, enhanced SIEM, behavioral analysis
- ***Step up IR capabilities:*** define process, train members, establish contacts, track & learn, share intelligence
- ***Threat deception:*** use technologies that deceive/divert, endpoints, applications, data, identity and infrastructure

With motivation, the right equipment, the right training and timely execution ***YOU*** can stop the threat.

# Technology Is An Imperative

- The calibrated eyeball was never designed to read and comprehend 4,000 events per second, or 300 logs per minute or search 40 terabytes of data …
- Over 400M new malware a year, a new zero day attack every week, 3000% increase in Ransomware, automated attack tools…
- Thousands of systems, connections, employees and relationships creating 10s of millions of log events per month...
- Many healthcare organizations today don't know if they have been subject to a breach; basically, they don't know what they don't know…

# Make Basics A Priority Again



# Questions

Questions?

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