



**Regional Forum on Cybersecurity in the Era of Emerging Technologies  
&  
the Second Meeting of the “Successful Administrative Practices”-2017  
Cairo, Egypt 28-29 November 2017**

Industrial IoT – Swimming with Sharks

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## Agenda

- 1 IoT Revolution
- 2 Security Objectives
- 3 Highlighted Risks
- 4 Recommendations

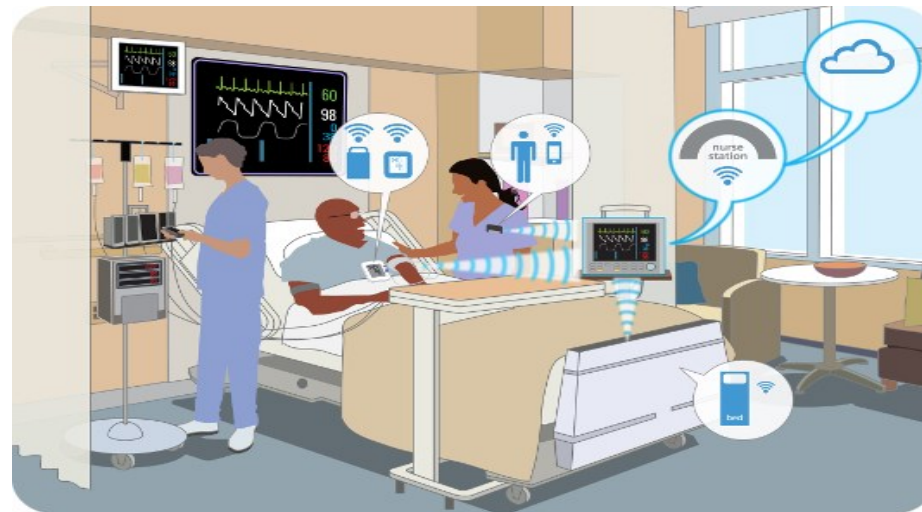


# IoT Revolution



Wearable Tech

## Smart Appliances



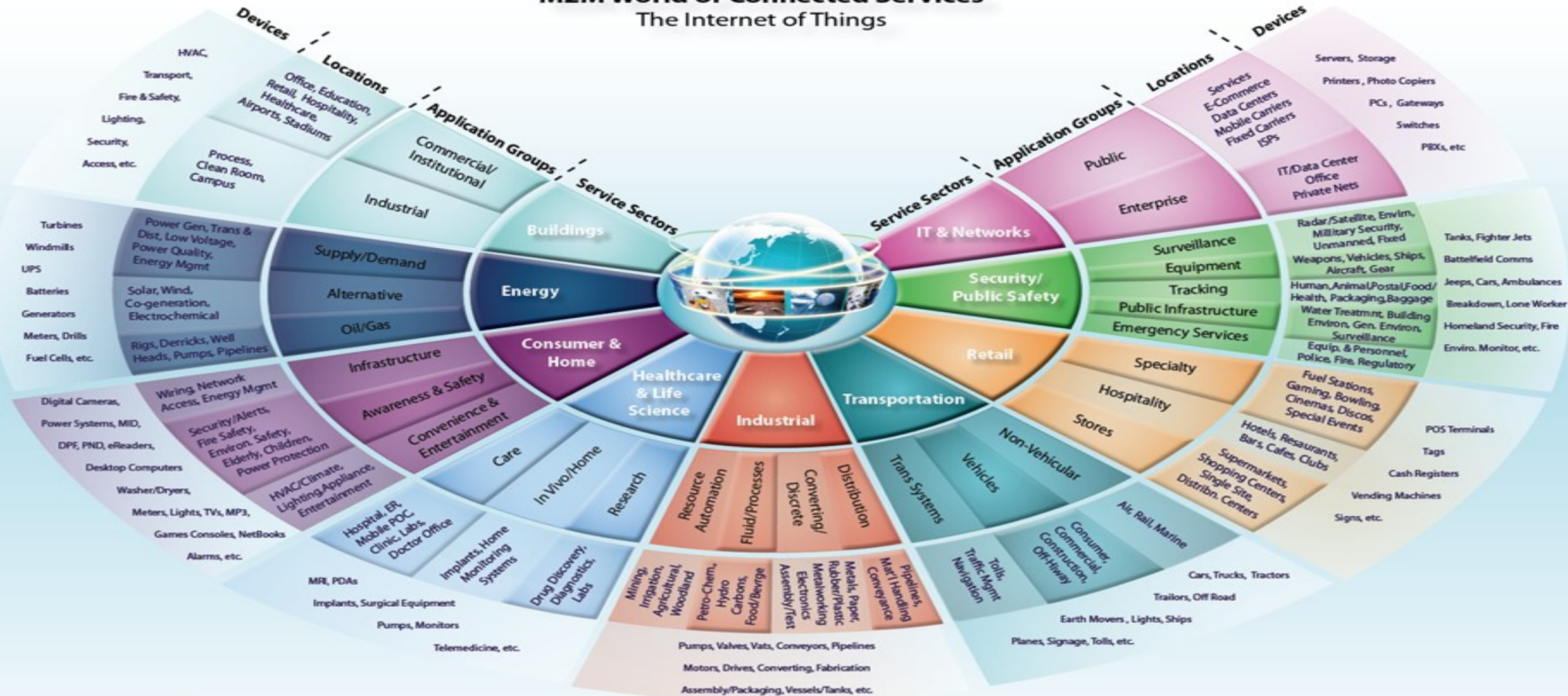
Healthcare



# IoT is everywhere



## M2M World of Connected Services The Internet of Things







# IoT is everywhere



100 percent allowed the use of weak passwords



100 percent lacked an account lockout mechanism that would prevent automation attacks



100 percent were vulnerable to account harvesting, allowing attackers to guess login credentials and gain access



Four of seven systems that had cameras, gave the owner the ability to grant video access to additional users, further exacerbating account harvesting issues



Two of the systems allowed video to be streamed locally without authentication



A single system offered two-factor authentication





IoT is everywhere



Internet of Things

Computer of Things

Security of Things





## Why be concerned about IoT?

- It's just another computer, right?
  - All of the same issues we have with access control, vulnerability management, patching, monitoring, etc.
  - Imagine your network with 1,000,000 more devices
  - Any compromised device is a foothold on the network





## Attacking IoT

- Default, weak, and hardcoded credentials
- Difficult to update firmware and OS
- Lack of vendor support for repairing vulnerabilities
- Vulnerable web interfaces (SQL injection, XSS)
- Coding errors (buffer overflow)
- Clear text protocols and unnecessary open ports
- DoS / DDoS
- Physical theft and tampering







# Security Objectives

- Privacy Protection
- Identity Protection
- Traffic Analysis Protection





# Recommendations

Accommodate IoT with existing practices:

- Policies, Procedures, & Standards
- Awareness Training
- Risk Management
- Vulnerability Management
- Forensics





# Threat vs. Opportunity



- If misunderstood and misconfigured, IoT poses risk to our data, privacy, and safety
- If understood and secured, IoT will enhance communications, lifestyle, and delivery of services





**Thank You**

