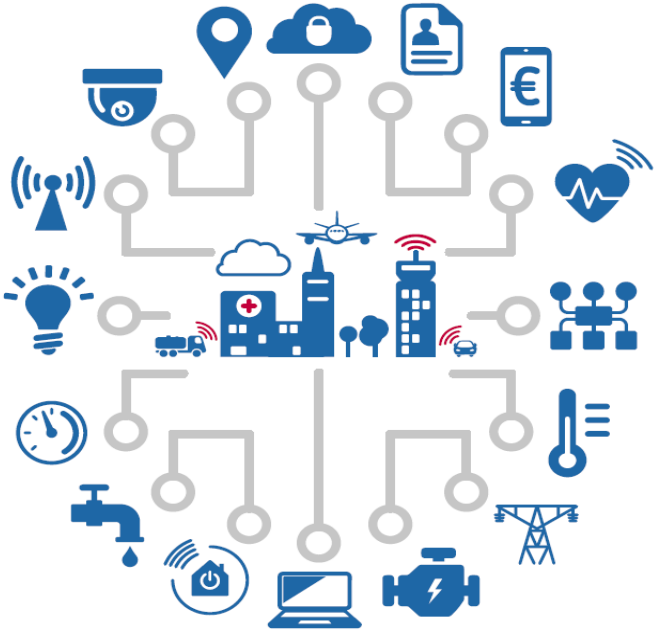


ENISA's efforts to foster IoT cybersecurity in Europe

Dr Apostolos Malatras | Network and Information Security Expert

BEREC-ENISA Workshop | Bratislava, Slovakia | 07.03.2018

Securing Europe's Information Society

Positioning ENISA activities

CAPACITY

- ✓ Hands on activities

POLICY

- ✓ Support MS & COM in Policy implementation
- ✓ Harmonisation across EU

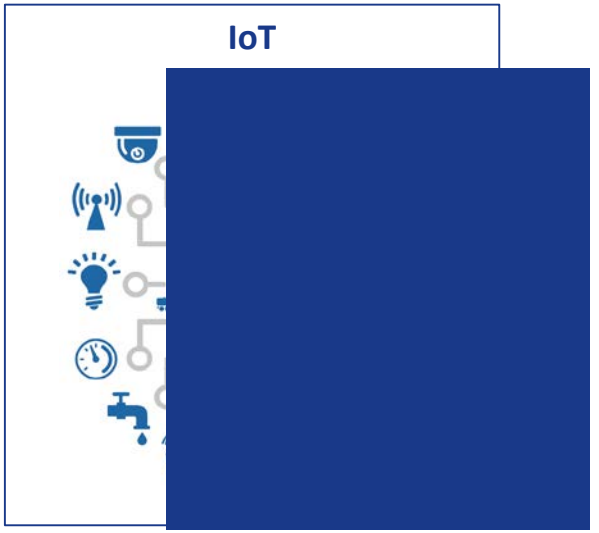
COMMUNITY

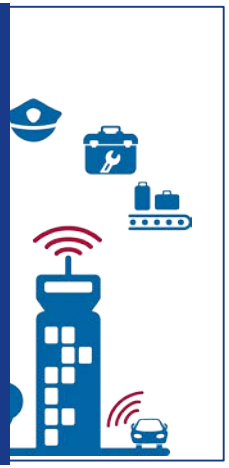
Mobilizing EU communities

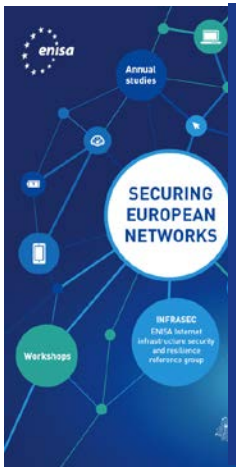
EXPERTISE

- ✓ Recommendations
- ✓ Independent Advice

Secure Infrastructure and Services

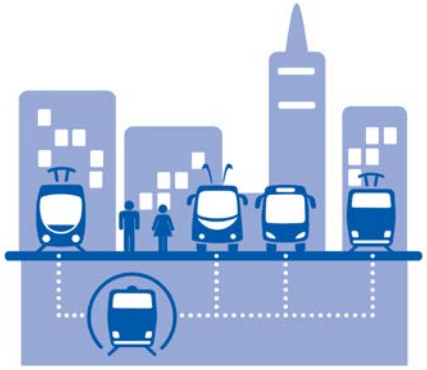


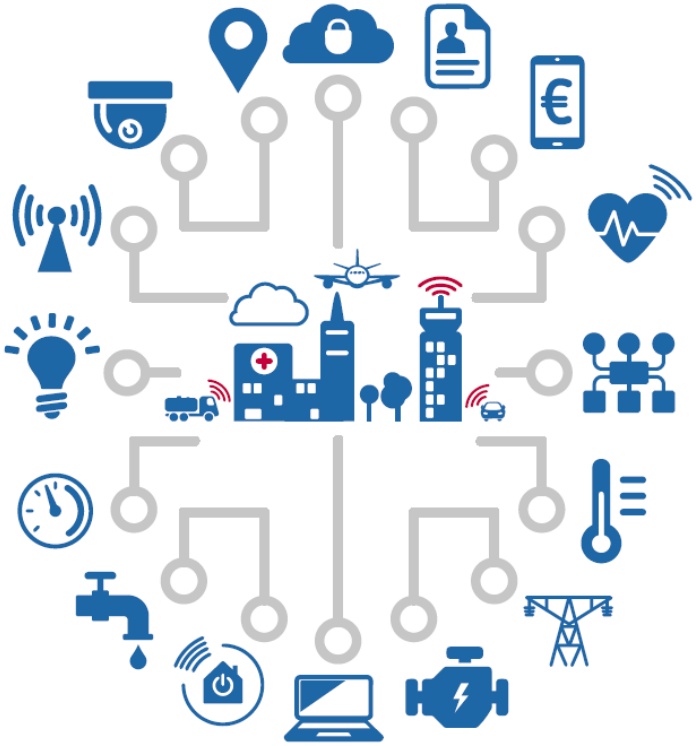




www.enisa.europa.eu/topics

Internet of Things is everywhere





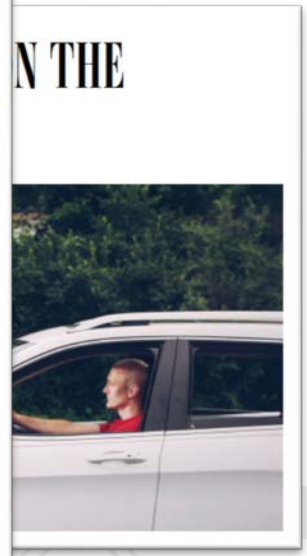
…and it has real-life implications

By JEFF PEGUES / CBS NEWS / October 24, 2016, 7:23 PM

Hackers exploited connected "smart" devices for massive cyberattack

83 Comments / Share / Tweet / Stumble / @ Email

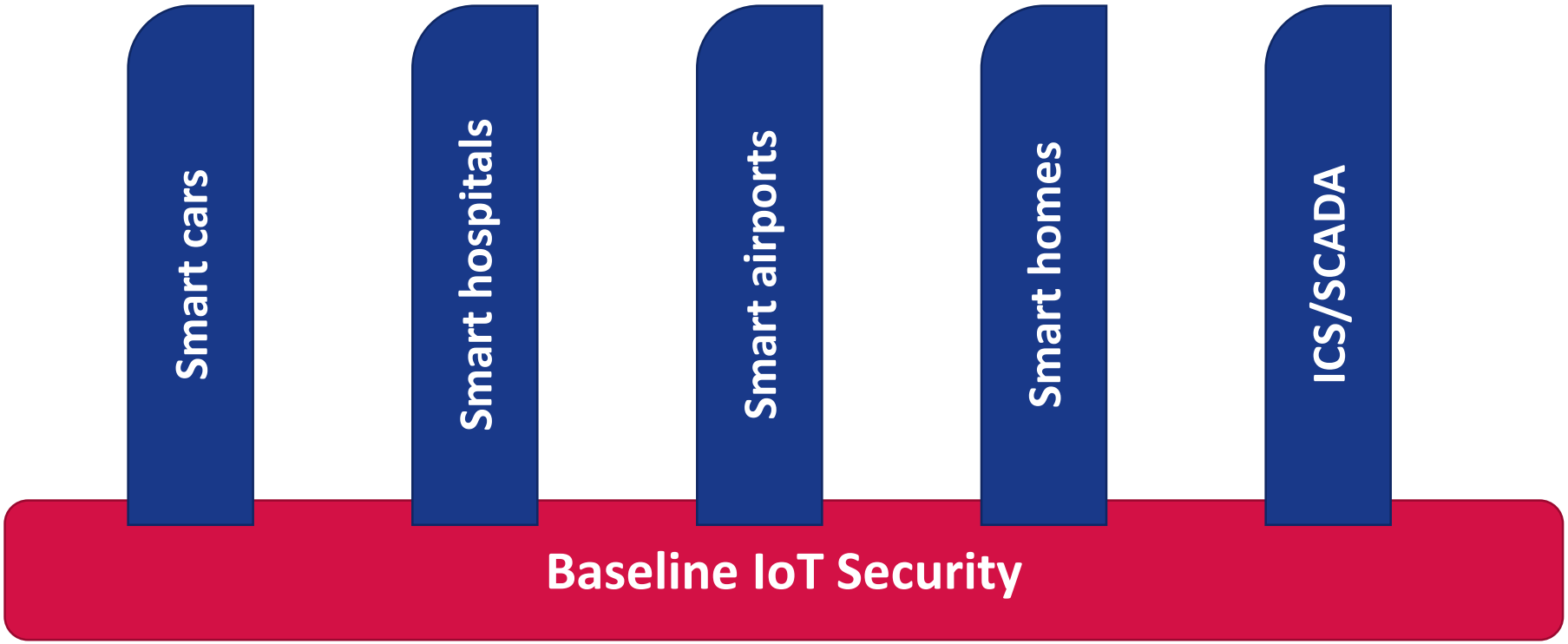
U.S. investigators are still trying to figure out who was behind the cyberattack Friday that crippled some of the biggest sites on the internet, from Amazon to Twitter.



IoT Security – Main challenges

- very large attack surface and widespread deployment
- security for safety (especially for critical sectors)
- interoperability, increased connectivity and cascading effects
- security by design not a top priority
- lack of expertise
- applying security updates
- insecure development
- unclear liabilities
- fragmentation of good practices and standards

How do we secure IoT?



ENISA and IoT cybersecurity

- IoT security in sectors
  - Understand threats and assets
  - Consider context of use
  - Highlight security good practices in specific sectors
  - Provide recommendations to enhance cyber security
  - Expert groups

eHealth

Aviation

Automotive & Transport

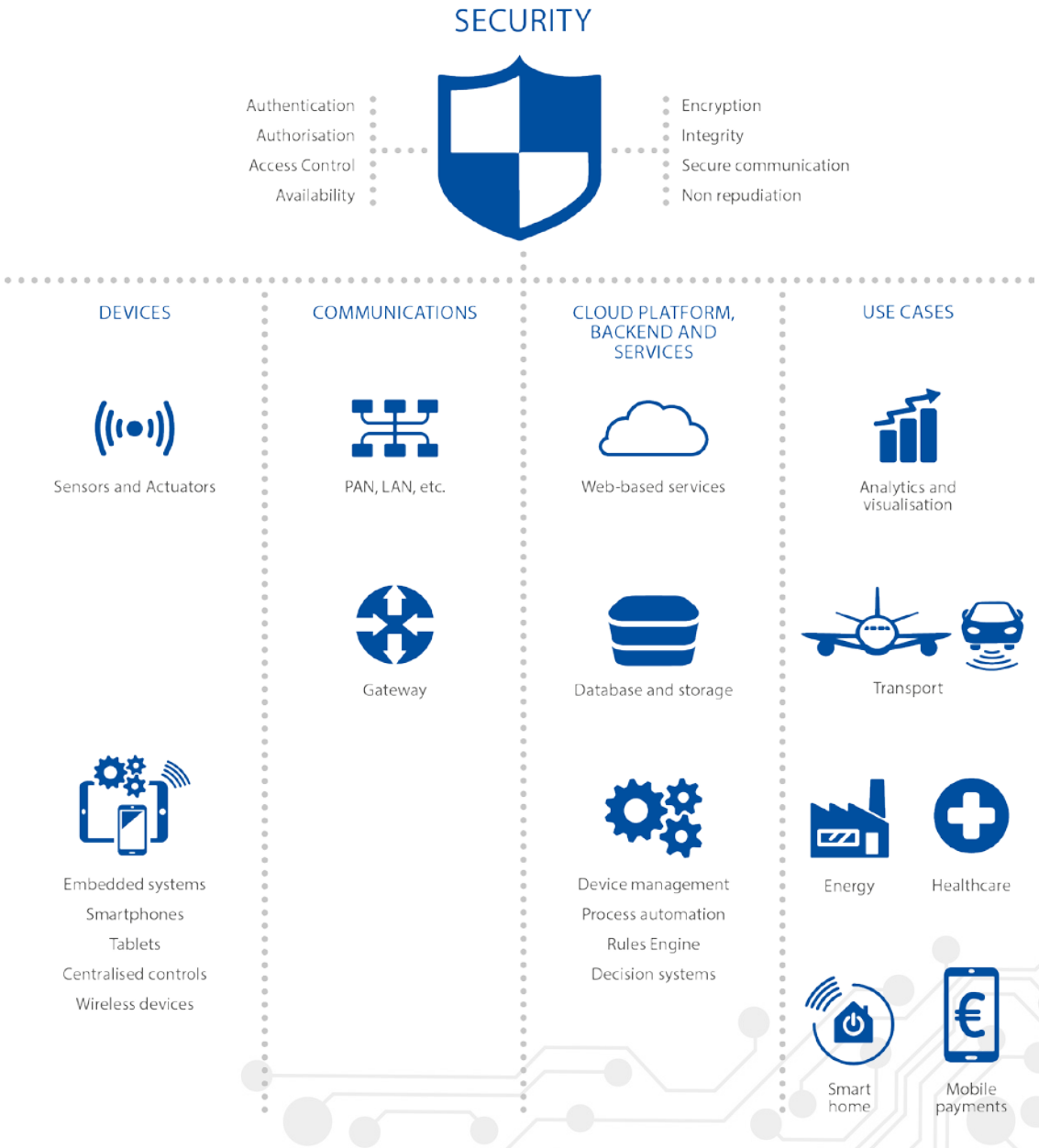
Smart homes

ENISA and IoT cybersecurity

- Baseline Security Recommendations for IoT
  - Map existing IoT security initiatives
  - Address the problem holistically engaging with wider community
  - Utilize sectorial knowhow
  - Provide horizontal cybersecurity recommendations and security measures
  - One stop shop for IoT cybersecurity in Europe

https://enisa.europa.eu/iot

High-level IoT reference model



IoT Security Measures

- Authorization
- Access Control - Physical and Environmental security
- Cryptography
- Secure and trusted communications
- Secure Interfaces & network services
- Secure input and output handling
- Logging
- Monitoring and Auditing

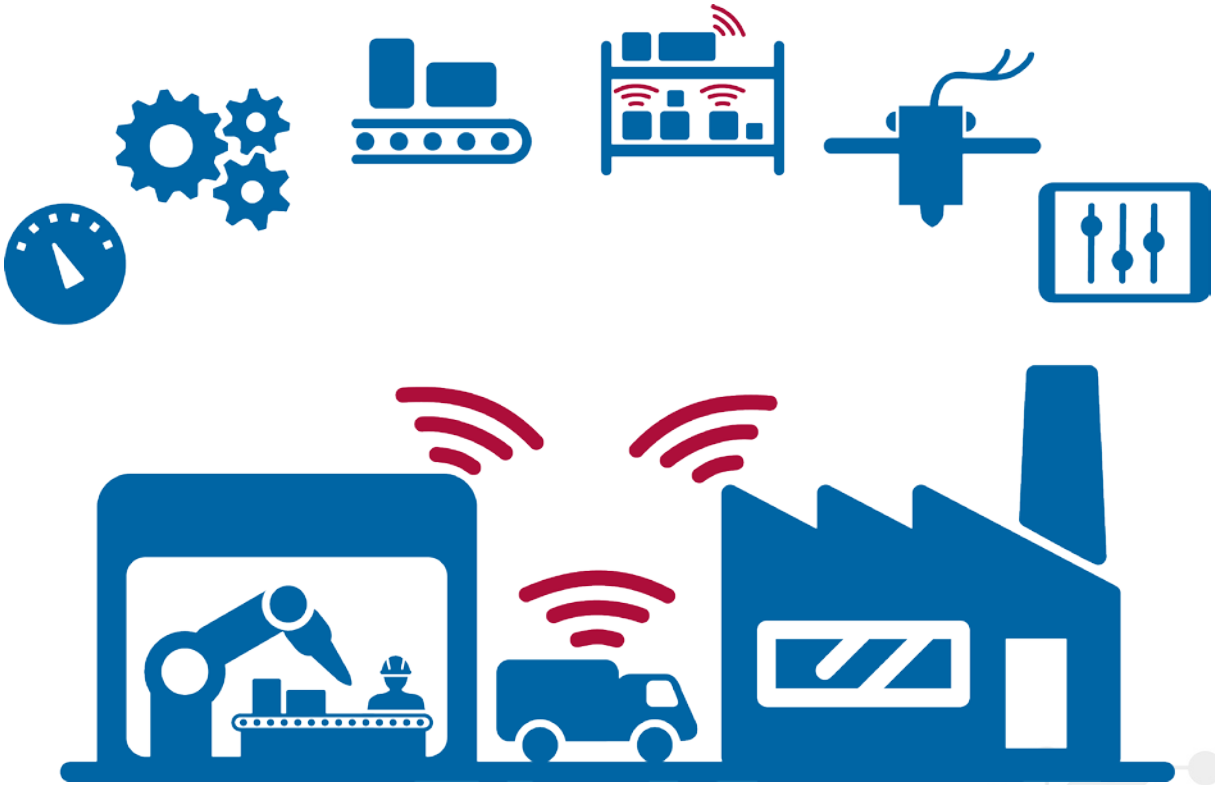
Baseline IoT Security Recommendations

- Promote **harmonization of IoT security initiatives** and regulations
- **Raise awareness** of the need for IoT cybersecurity
- Define **secure software and hardware development lifecycle guidelines** for IoT
- Achieve **consensus on interoperability** across the IoT ecosystem
- Foster **economic and administrative incentives** for IoT security
- Establish **secure IoT product/service lifecycle management**
- Clarify **liability** among IoT stakeholders

https://enisa.europa.eu/iot

Future efforts

Industry 4.0



Thank you

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