# VTC 2018

IoT Technology and Business Models

The connected world

- IoT In 2020...
  - 5B people connected by 2020
  - 33B Objects connected by 2020
- Key technologies required
  - (Wireless) network infrastucture
  - Intelligent sensor processing
  - Data management/AI
  - Low power
  - **Security**

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IoT business models

❑ Technology in IoT devices allows for:
   ▫ Remote monitoring and tracking
   ▫ OTA (over-the-air) updates
   ▫ Pro-active maintenance and support
   ▫ Direct digital payment

➔ Results in a service/subscription vs product business model

Subscription
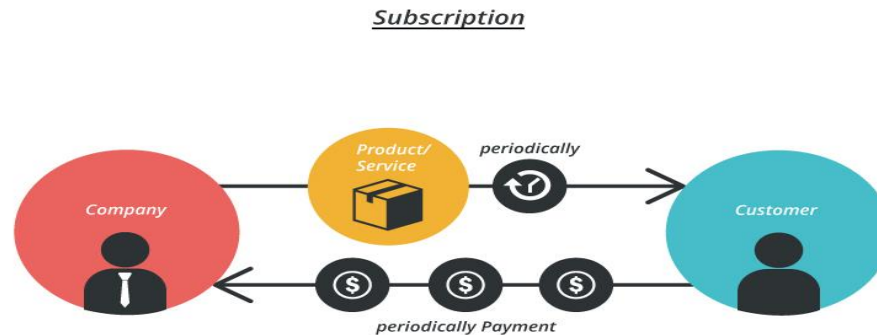
Business Model **Toolbox**

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IoT service business model

- ❑ Well-known model for internet and telecom providers
- ❑ Widely used for data-center users and cloud-based computing
- ❑ Model used by "industry disruptors"
  - ❑ Uber, Lyft, ...
  - ❑ Music/video streaming
  - ❑ Car/bicycle sharing
  - ❑ ...
- ❑ Challenging for volume/product-based corporations
- ❑ Easy customer adoption
  - ❑ Lower initial cost
  - ❑ Lower customer responsibility
- ❑ Service model also propagated to IoT technology providers

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IoT security, a big challenge

- Attacks are on the rise
  - ❑ Jeep, Tesla, Baby monitors, Wannacry, Etherium…
- Attacks continuously evolve
  - ❑ Ransomware, DDoS…
- Everyone is affected:
  - ❑ Consumers, providers, manufacturers, shareholders
- Hacks result investigation
  - ❑ Device/chip manufacturers need to be prepared
 - ❑ Security needs to be addressed from the start of product development (architecture), not added afterwards

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A secure connected world

- IoT (and potential business models) will only become a reality if it is secure!
  - ❑ Secure devices
    - ❑ Edge devices
    - ❑ Gateways
    - ❑ Data centers
  - ❑ Secure connections
    - ❑ TLS/SSL connections
  - ❑ Secure data transfer
    - ❑ Source authentication
    - ❑ Data integrity
    - ❑ Confidentiality

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A secure connected world

- Security in IoT is more than encryption
  - From datacenter to edge device
  - Highly scalable and flexible
  - Lower power AND high performance
  - Requires a Hardware Root of Trust
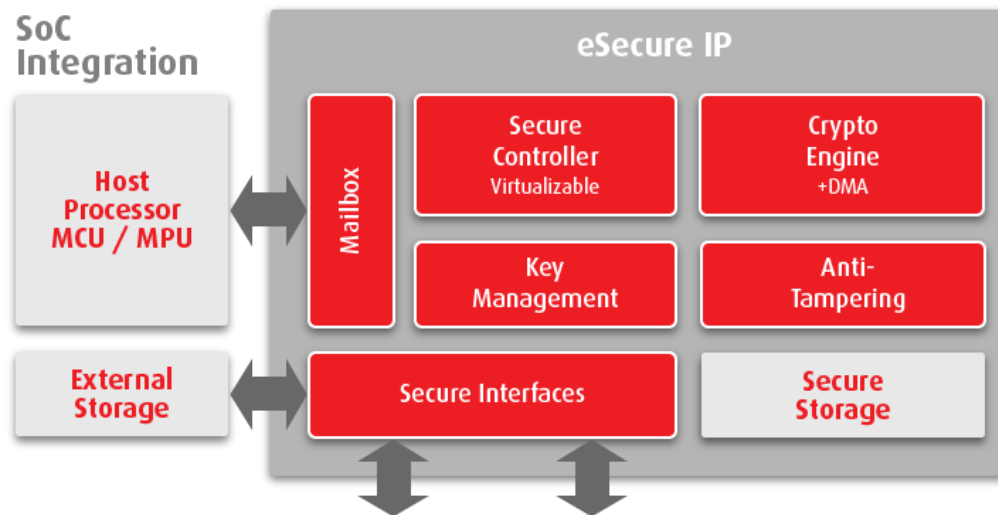
Silex Inside IP overview

- Security solutions
  - eSecure
    - HW Root of Trust embedded security module
  - Crypto-Coprocessor
  - MACSec/IPSec packet processor
  - TLS/SSL connections offloading co-processor
  - Inline decryptor/Bus Encryption
- Crypto IP cores
  - Symmetric cryptography:
    - AES
    - SHA-x/SM3
    - Chacha20Poly1305
    - SM4 (NEW)
    - ZUC/Kasumi/snow3G
- Asymmetric cryptography
  - High performance Public key IP core supporting all asymmetric algorithms
  - Random number generation (NIST-800-90A/B/C):
    - True random number generator (TRNG) IP core
  - Customization and design services on the security IP products

Barco Silex becomes

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