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WE KNOW HOW

SWISSED 2015 «IoT Becomes Reality»

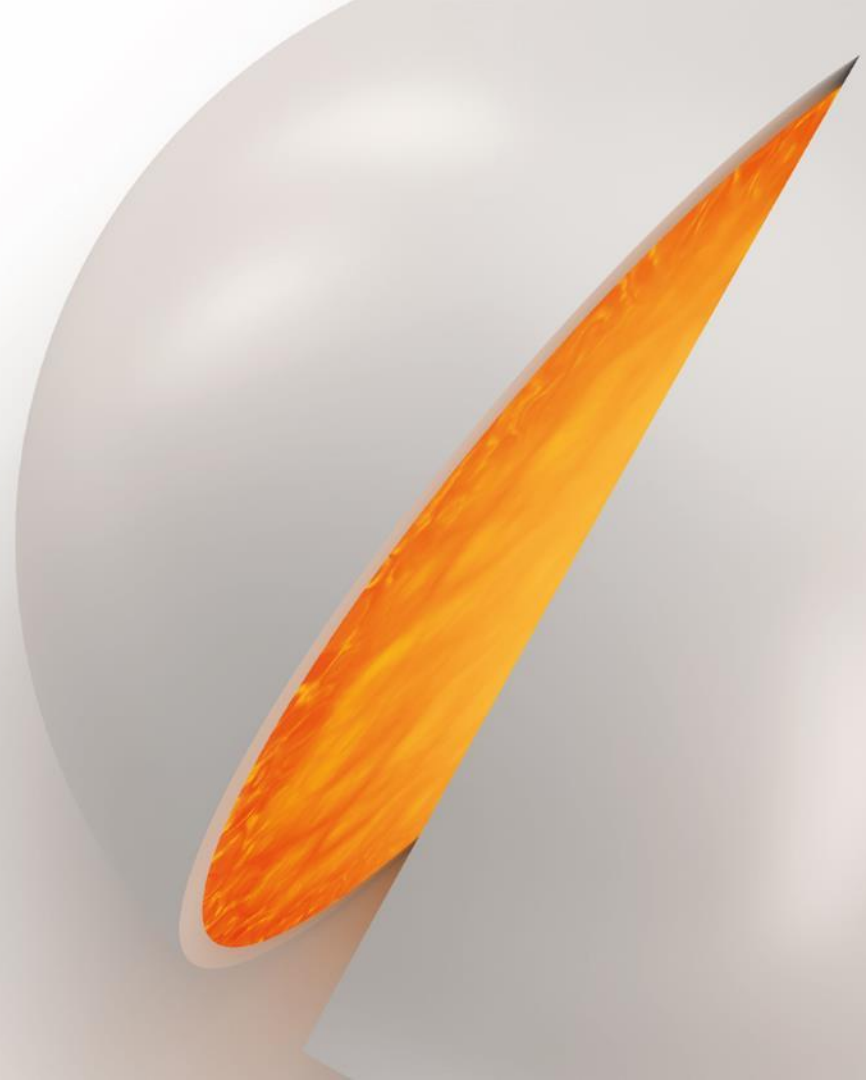
Thomas Riesen
Head BU Software Engineering
September 2015





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«IoT Becomes Reality»



50'000'000'000

IoT devices in 5 years
(Cisco)

\$ 1'700'000'000'000

Market value in 4 years
(Business Insider)

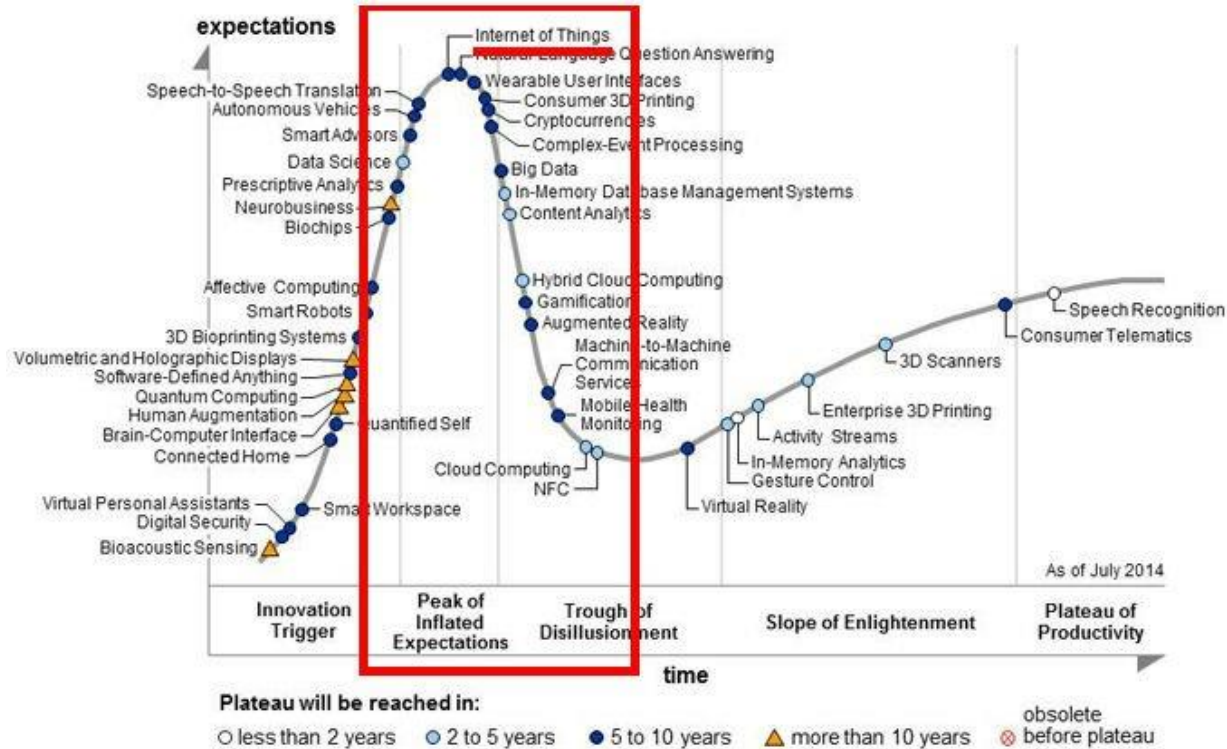
«IoT will have a bigger impact on companies than all previous IT developments»

(Michael E. Porter, US-Ökonom/Harvard-Professor)

«IoT Becomes Reality»

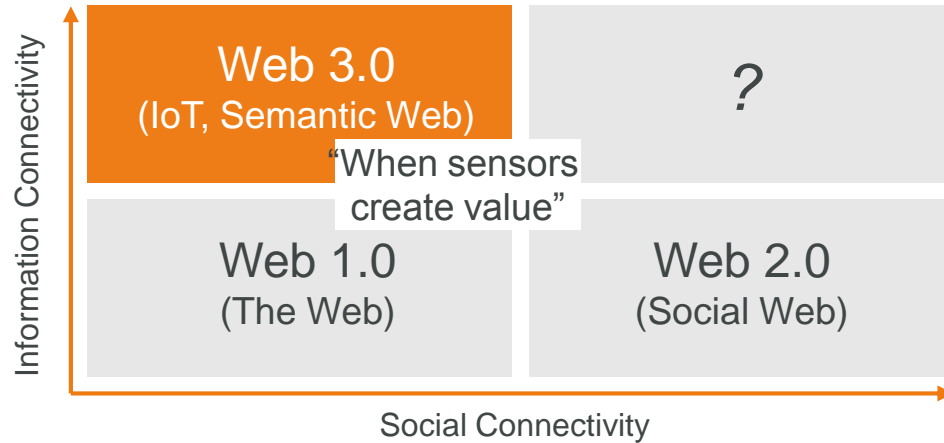
(Noser Engineering, 2015)

Context of the Internet of Things (IoT)



Sources: <http://www.gartner.com/>, <http://postscapes.com/internet-of-things-history>

History



*“You go to Bed as an Industry Company
-
and you wake up as a Software Company”*

(Jeffrey Immelt, CEO General Electric)

- IoT is an “evolution”, not a “revolution”
- New Internet Wave → new business models
- The IoT age requires new organizational models

Organizational Impacts



Business Model Examples

How can additional business be generated with IoT solutions?

Insight: Many IT-influenced business models so far followed these trends:

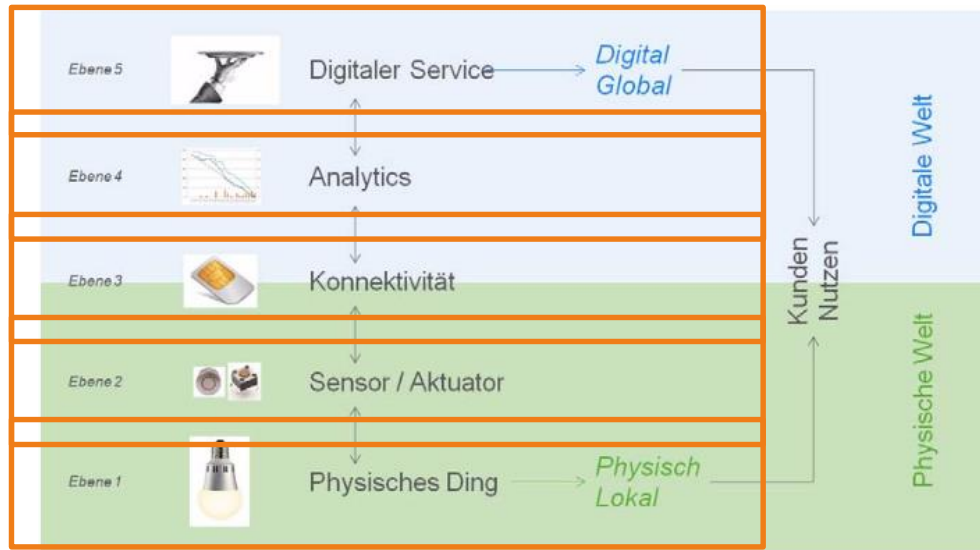
- Integration of users and customers (e-commerce, mass customization)
- Service orientation (subscription model)
- Data analysis (collect & analyze data)

Important are:

- Customer insights and benefits




IoT Value Chain

Thing + IT = Physical Benefit + IT-based Service



Source: Business models for Internet of Things (Bosch/HSG)

Examples

	Thing	Practical use “Thing”	Extended use through “IoT”
	Watch	Display time	Automatic notification with position
	Lamp	Light	Security (e.g. activity simulation) Save money (automatic timer)
	Your product	[current use]	User gets a higher level of comfort? Larger cost? User saves time? ...?

Business Case Example

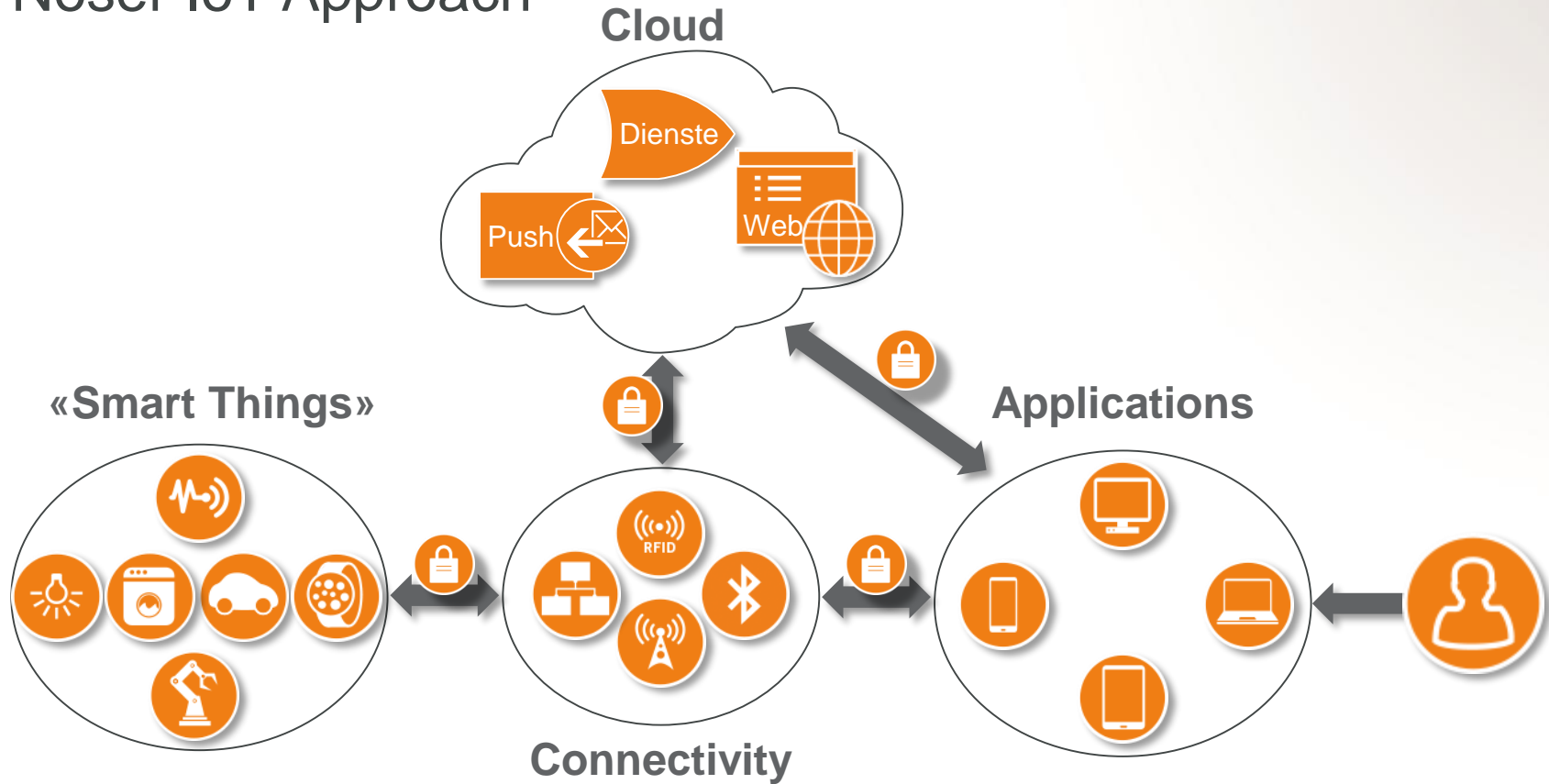
1. Digitally Charged Products

- Physical Freemium: Physical thing + free digital service
- Digital Add-on: (Affordable) thing + high margin digital services
- Digital Lock-In: Digital “handshake” with physical products
- Condition Monitoring: Preventative error detection

2. Sensor as a Service

- Sensors collect data that can be commercialized

Noser IoT Approach



Aspects of a IoT Solution



Connectivity: Wireless technologies as «critical link for IoT»

- NFC, BLE, LPN (LoRa), LAN
- Cost effective, standardized



Security as the prerequisite for IoT

- Data is globally available, devices globally controllable
- Secure hardware chips, certifications (EAL, CC), cryptology

Aspects of a IoT Solution



Applications

- UI and interactivity for the user
- Modern technology concepts and platforms (smartphones, tablets, browser)



Cloud

- Consolidation and analysis of data
- Performance, redundancy
- Modern architectures and turn-key solutions (e.g. Azure)

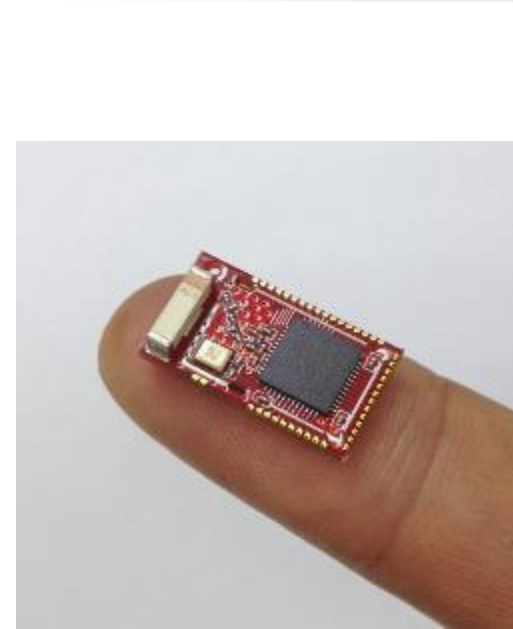
Enabler: Connectivity

New Technologies for the Internet of Things:

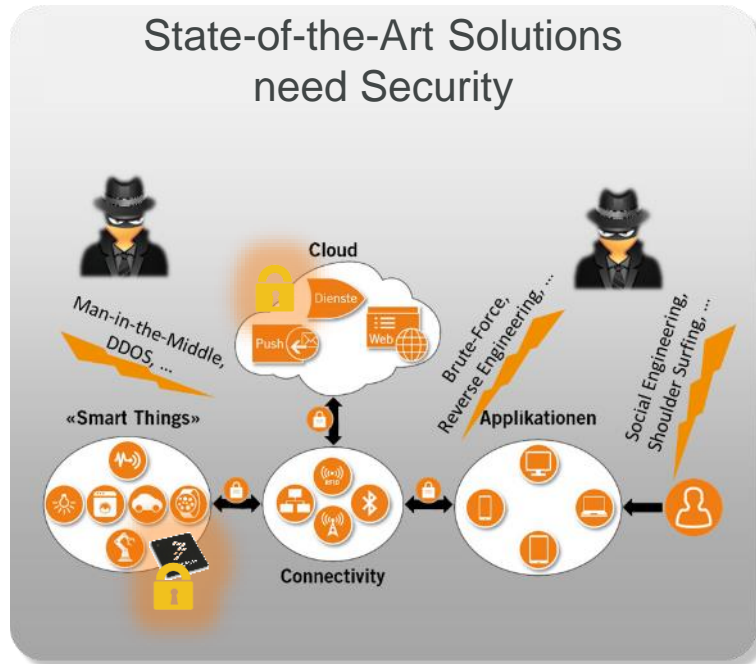
- IPv6 / 6LoWPAN
 - Swisscom LPN / LoRa
- Prerequisites, IoT applications suitable for the masses

Connectivity characteristics:

- ✓ Cost effective, small form factor
- ✓ Low energy consumption
- ✓ Wireless, uniquely addressable
- ✓ High broadcast range



Enabler: Security



Security objectives

- Confidentiality
- Integrity
- Availability

Possible actions

- ✓ Secure design (security development lifecycle)
- ✓ Data encryption / authentication
- ✓ Use of secure chips
- ✓ Remote access mechanismen (e.g. reverse proxy)



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Thank you!

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