Building the next generation IoT for a global ecosystem

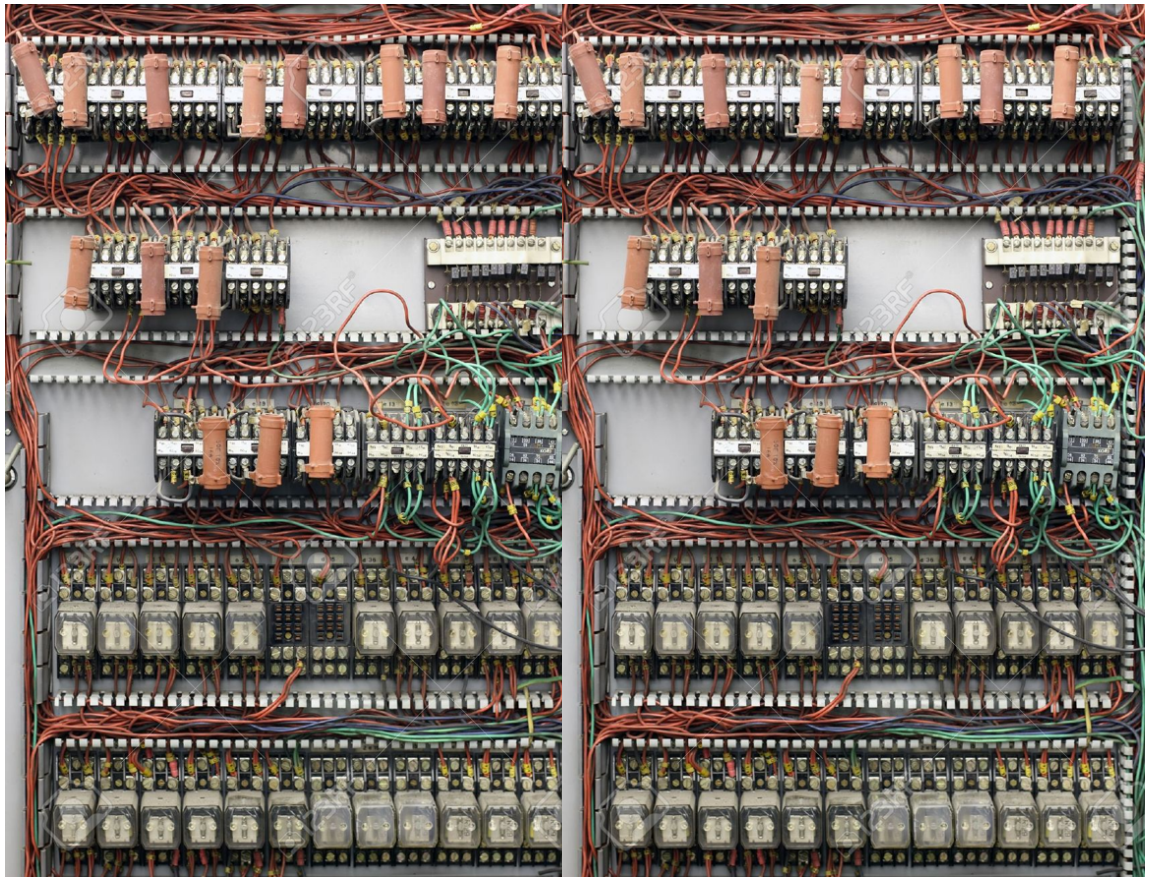
ARM

Michael Horne
Deputy GM
VP Marketing & Sales
IoT Business Unit

ARM mbed Connect / Shenzhen, China
December 5, 2016

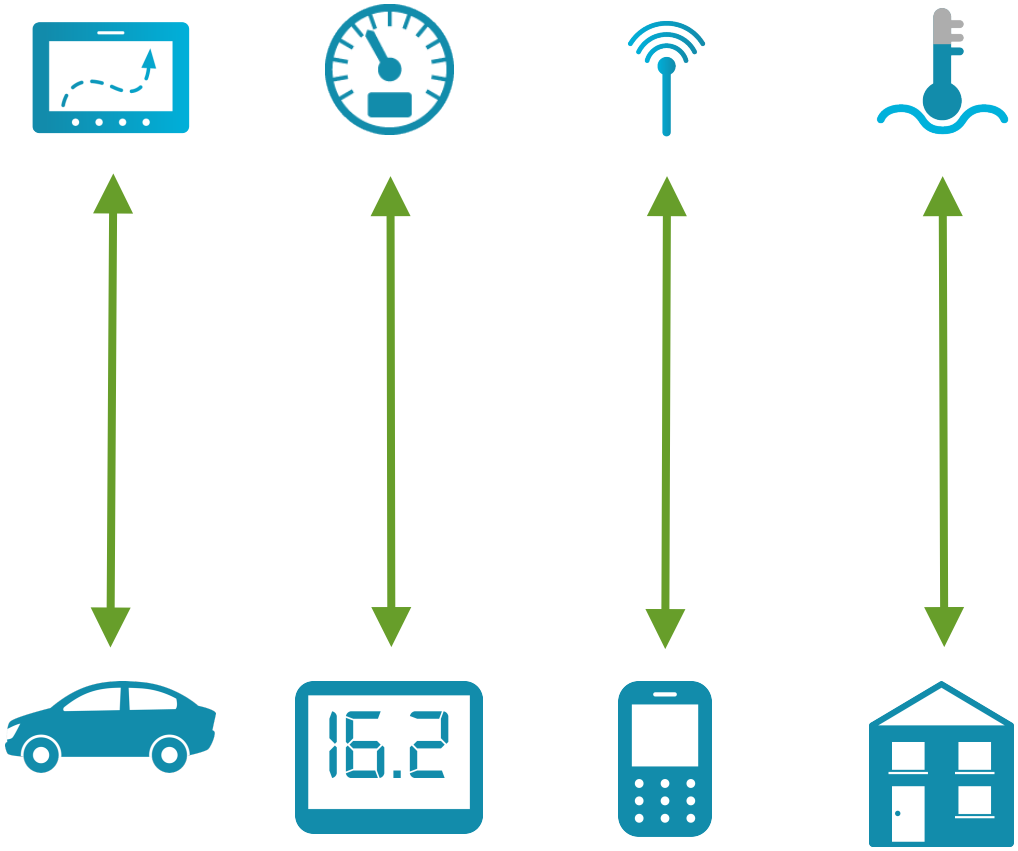
© ARM 2016

Internet of Nerdy Things – 1960s-1990s



© ARM 2016

Internet of Silo Things – 2000s



My Service

My Thing

© ARM 2016

Internet of Web Things – 2010s

Services

The Web

Things

© ARM 2016
ARM

From Embedded to Connected

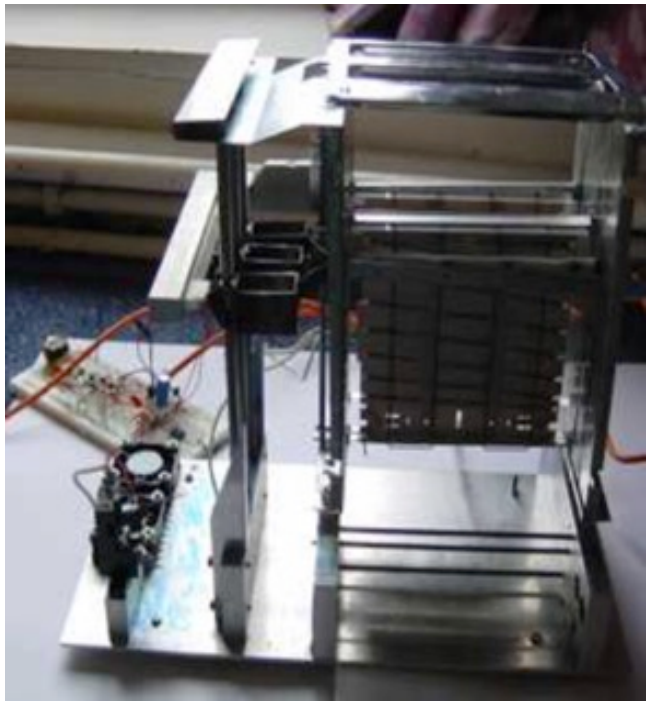
2000s

2010s

© ARM 2016

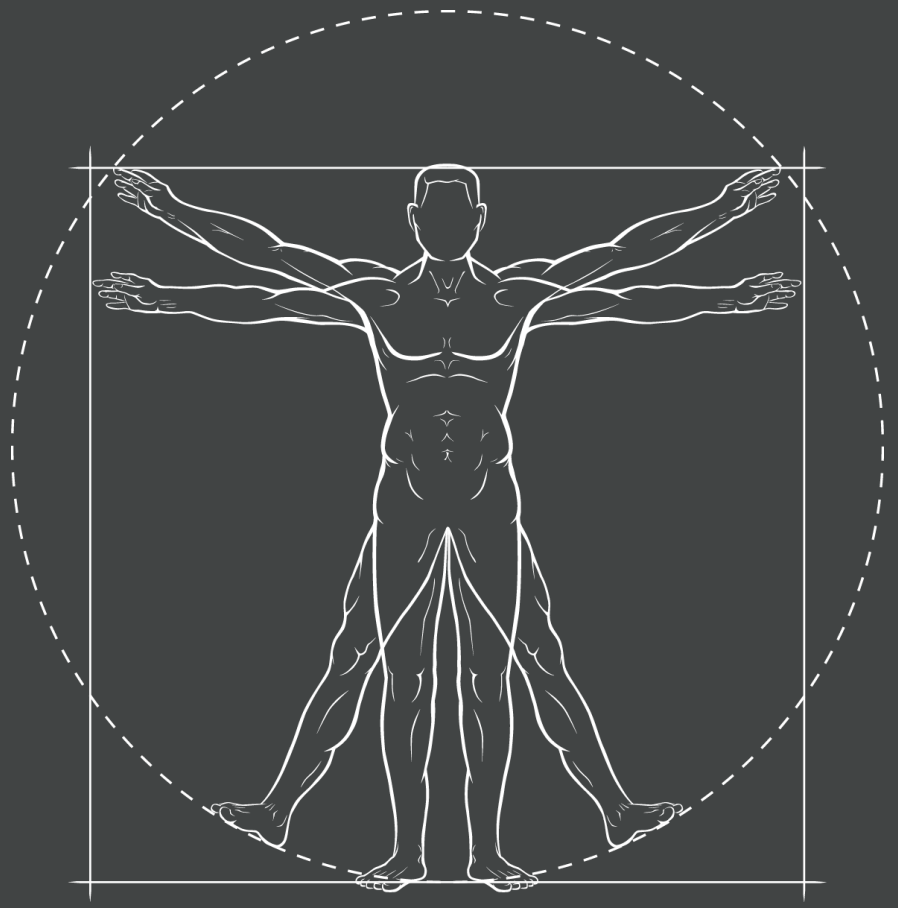
Back to the Beginning

Our Favorite "Thing" in 2001



Information Delivered on a Page

© ARM 2016



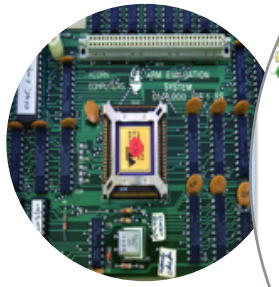
"Learn how to see. Realize that everything connects to everything else"

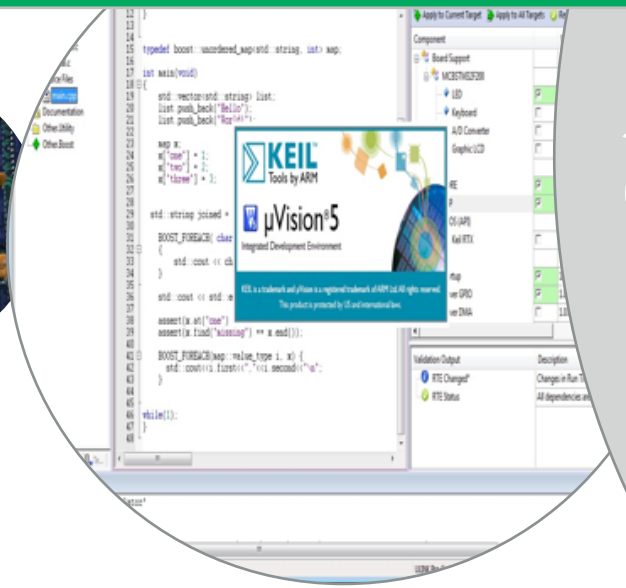
- Leonardo da Vinci

© ARM 2016

Reaching Millions of New Devices

1990s	2000s	2010s
1000's	100,000's	Billions

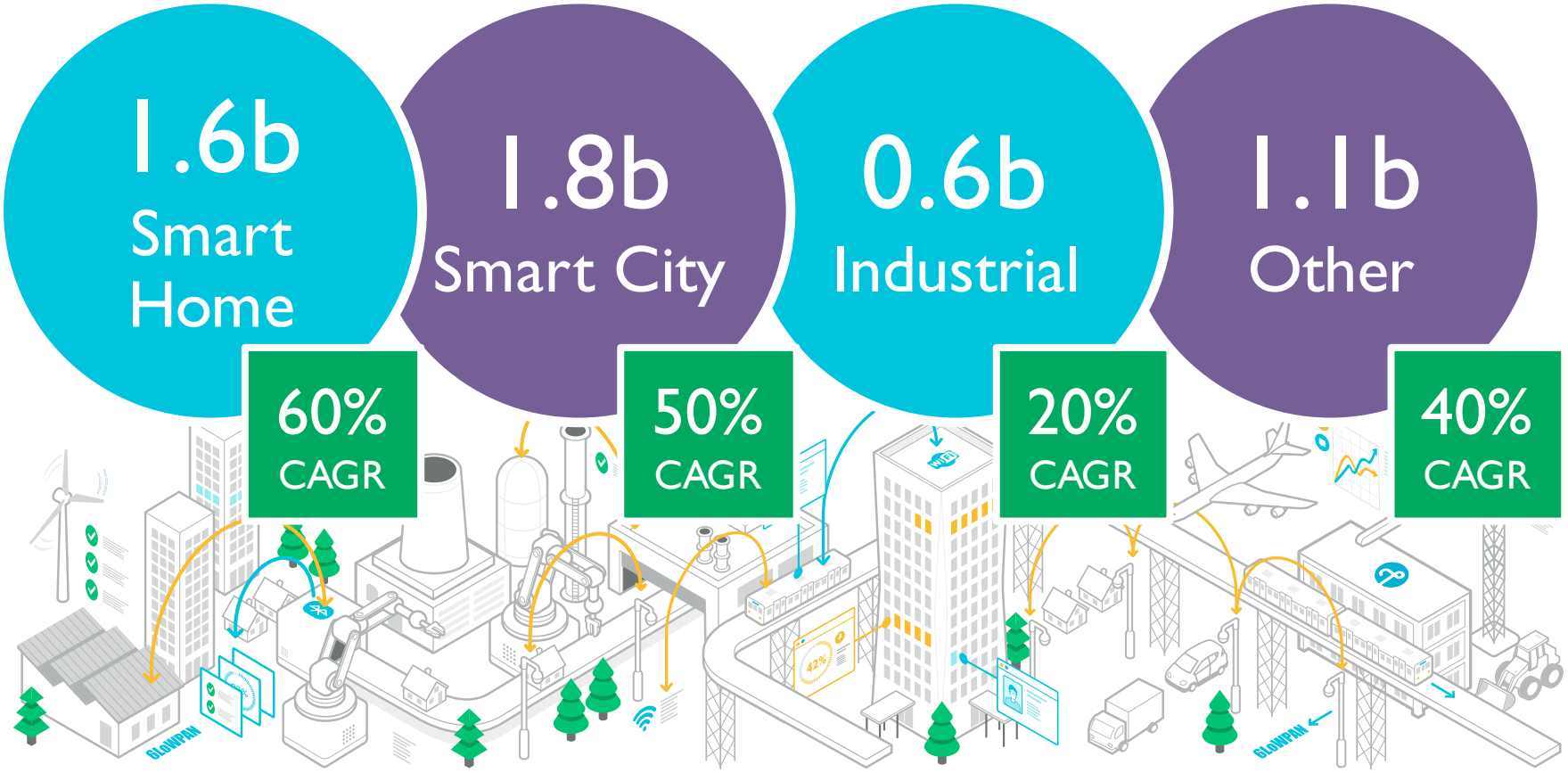




© ARM 2016

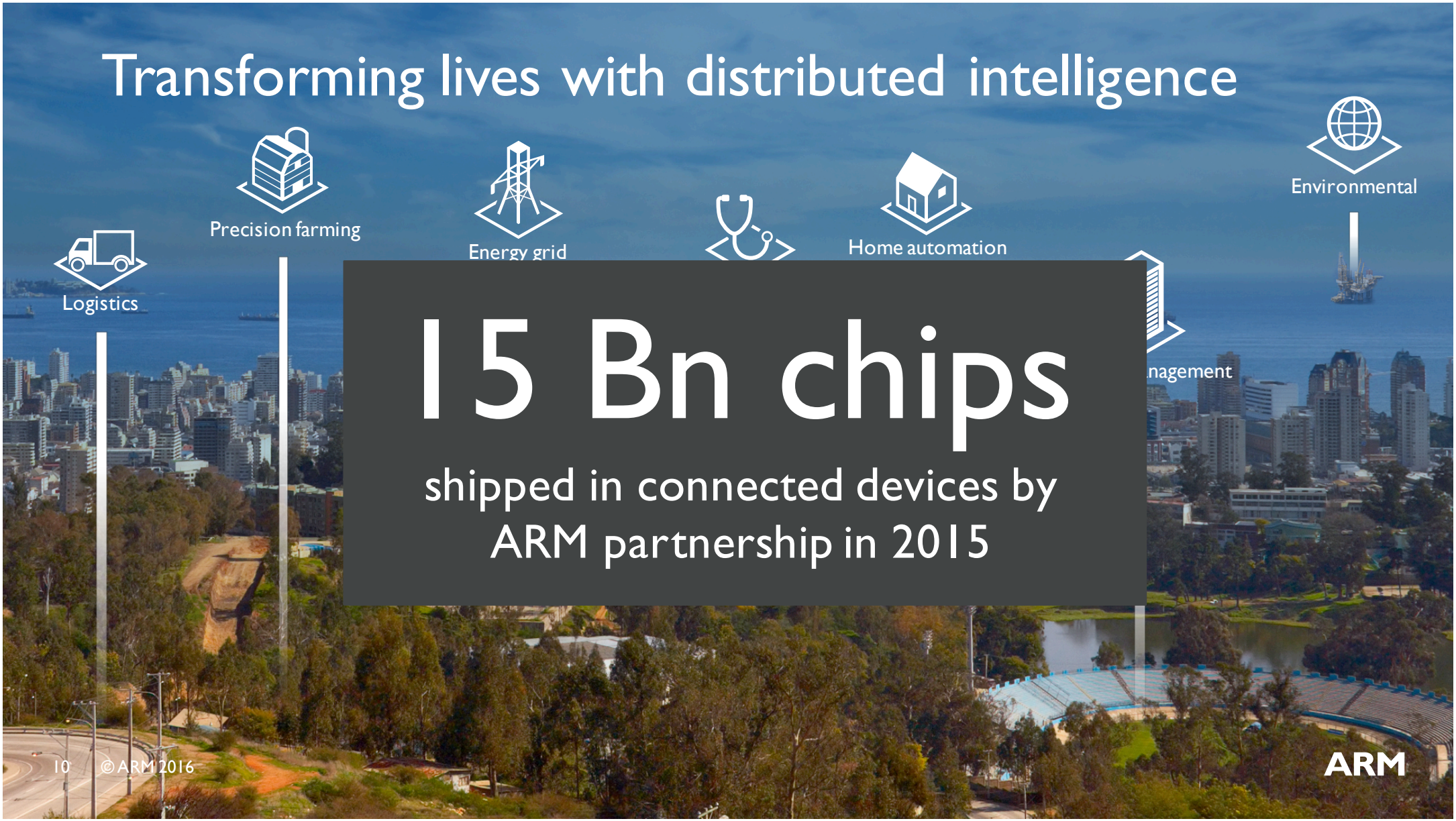
IoT market opportunity

Expected number of IoT devices shipped in 2020



Source: ARM and Gartner Estimates. Device TAM opportunity in IoT in 2020

©ARM 2016


Transforming lives with distributed intelligence
Precision farming
Energy grid
Home automation
Environmental
Logistics
nagement
15 Bn chips
shipped in connected devices by
ARM partnership in 2015
10
©ARM 2016
ARM

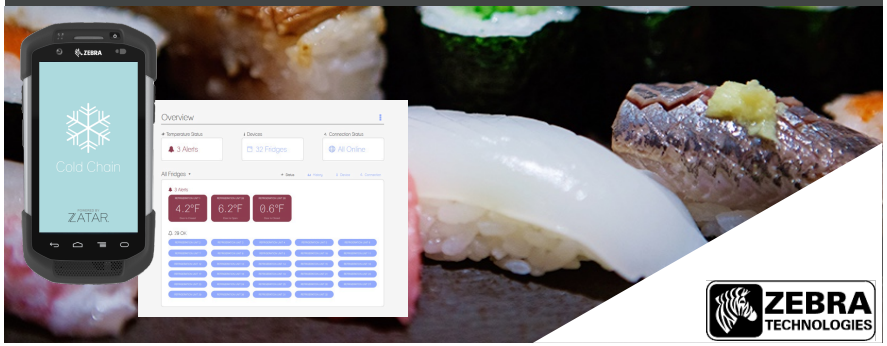
IoT deployments are starting to scale out

©ARM 2016

By Fayhoo (Own work) [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0)], via Wikimedia Commons

IoT deployments are starting to scale out

Meet new food safety regulations



Rapidly deploy new customer experiences

Transform B2B services markets

Transforming living

©ARM 2016

By Fayhoo (Own work) [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0)], via Wikimedia Commons

Consider the larger lifecycle of device

Suppliers and users need authentication

Need to be updated in field

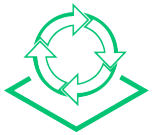
Tricky to access and conserve battery

© ARM 2016

Mission: Enable success to IoT developers

Managing IoT devices

Connectivity



Management

Productivity

Developing IoT devices

Efficiency

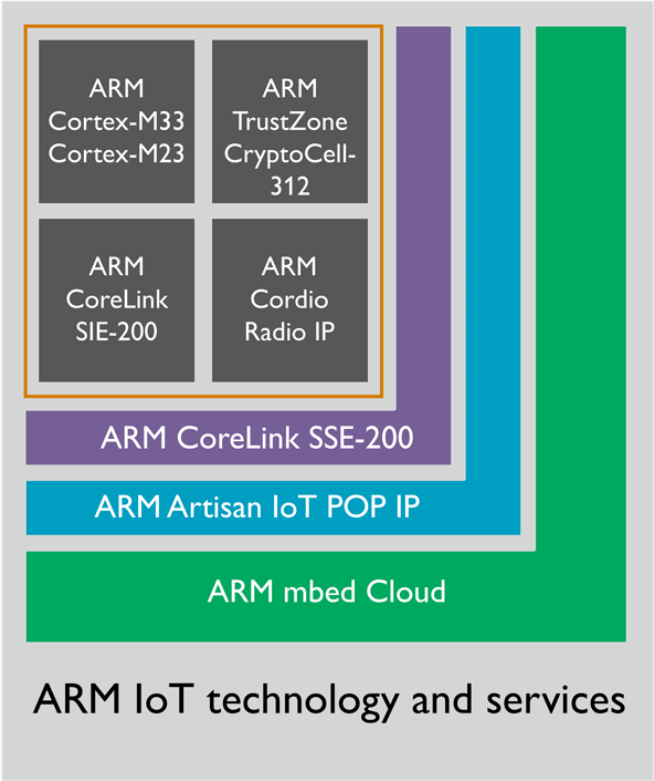
Security

Productivity

© ARM 2016

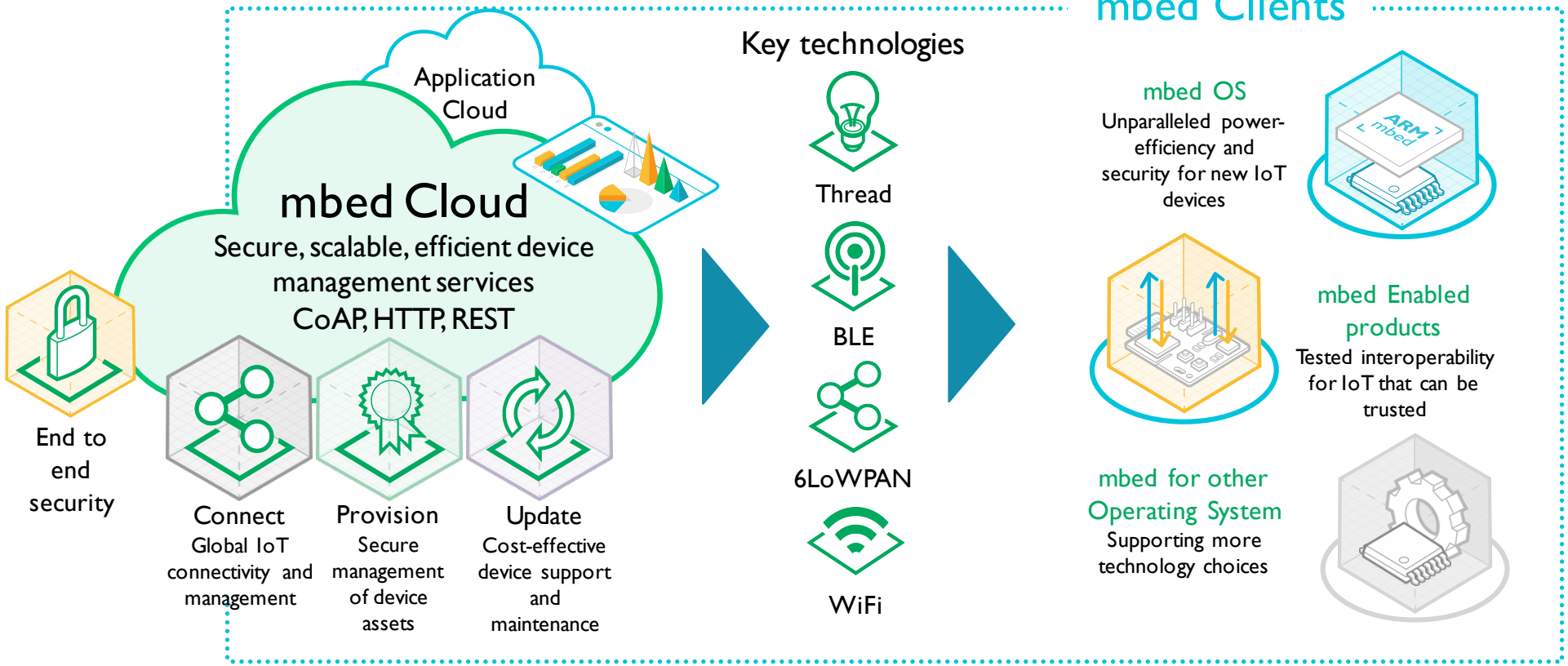
Faster route to secure IoT from chip to cloud

- The most comprehensive suite of technologies to accelerate IoT deployment at scale
  - Simplifying design of secure SoCs
  - Cloud SaaS to manage IoT devices
  - End-to-end security
- Rapidly develop, deploy and manage secure connected devices



© ARM 2016
ARM

ARM mbed: Bridging IoT cloud and device security



©ARM 2016
ARM

mbed Cloud: Any device, any cloud

First ARM secure device management services, delivered as SaaS

Flexibility

Multi-cloud capable

Coverage

Any device

Optimizations

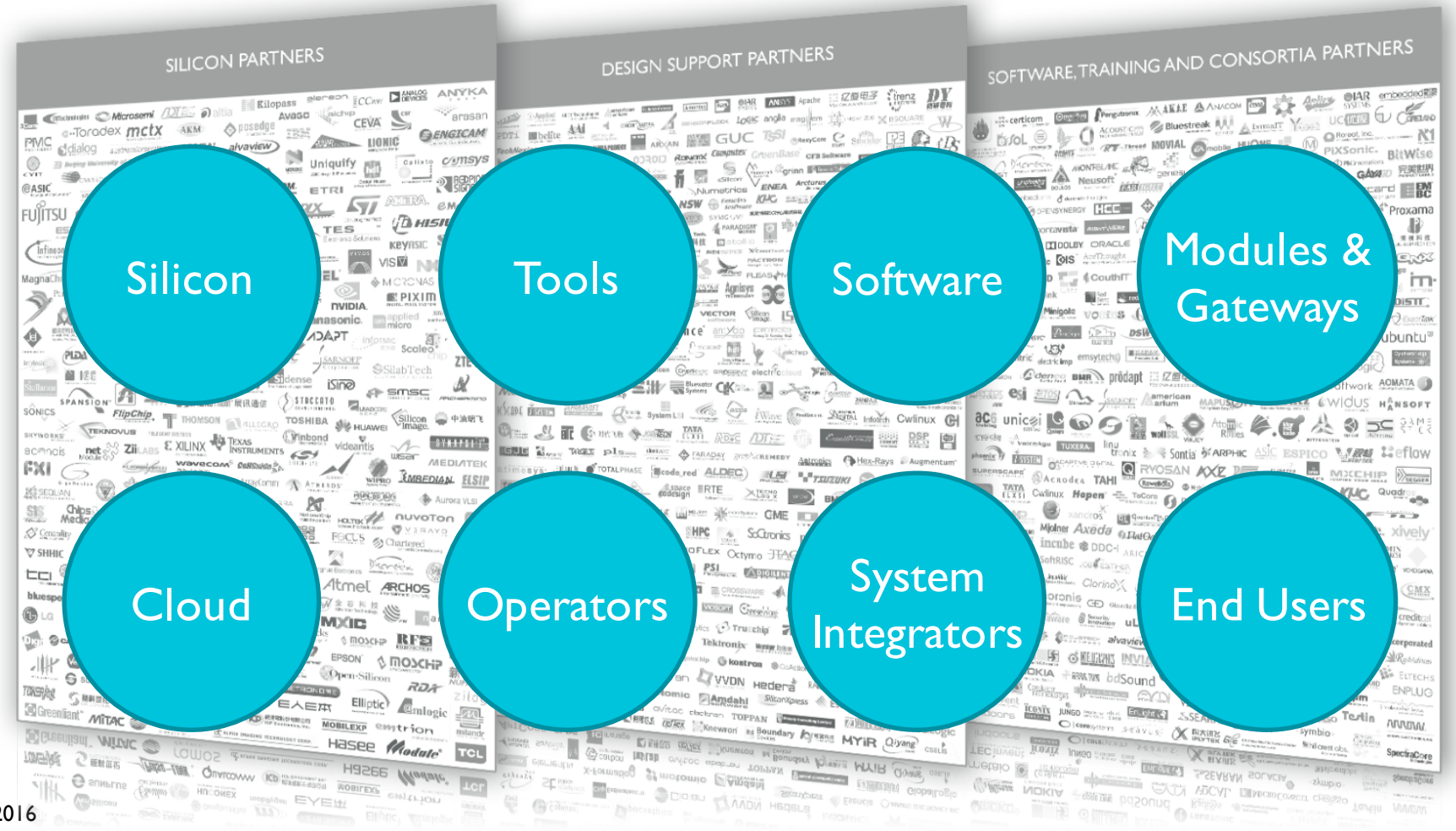
Energy efficiency

Trust

Every transaction secured

© ARM 2016

IoT Requires an Ecosystem



©ARM 2016
ARM

It's all about the pace of innovation which you bring

www.kickstarter.com/ARM

© ARM 2016
ARM

…and connectivity interplay is key

Delivering greater coverage

5x
Increase of coverage in Bluetooth 5.0

Connecting long-range devices and networks

15-30
miles
distance supported between nodes with LoRA

Enabling mission-critical services

1ms
latency achieved with 5G

©ARM 2016
ARM

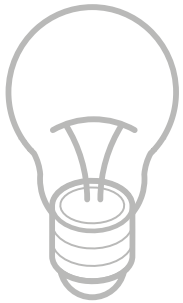
Simon Ford

Senior Product Director, mbed OS

© ARM 2016

OS platforms for IoT and embedded

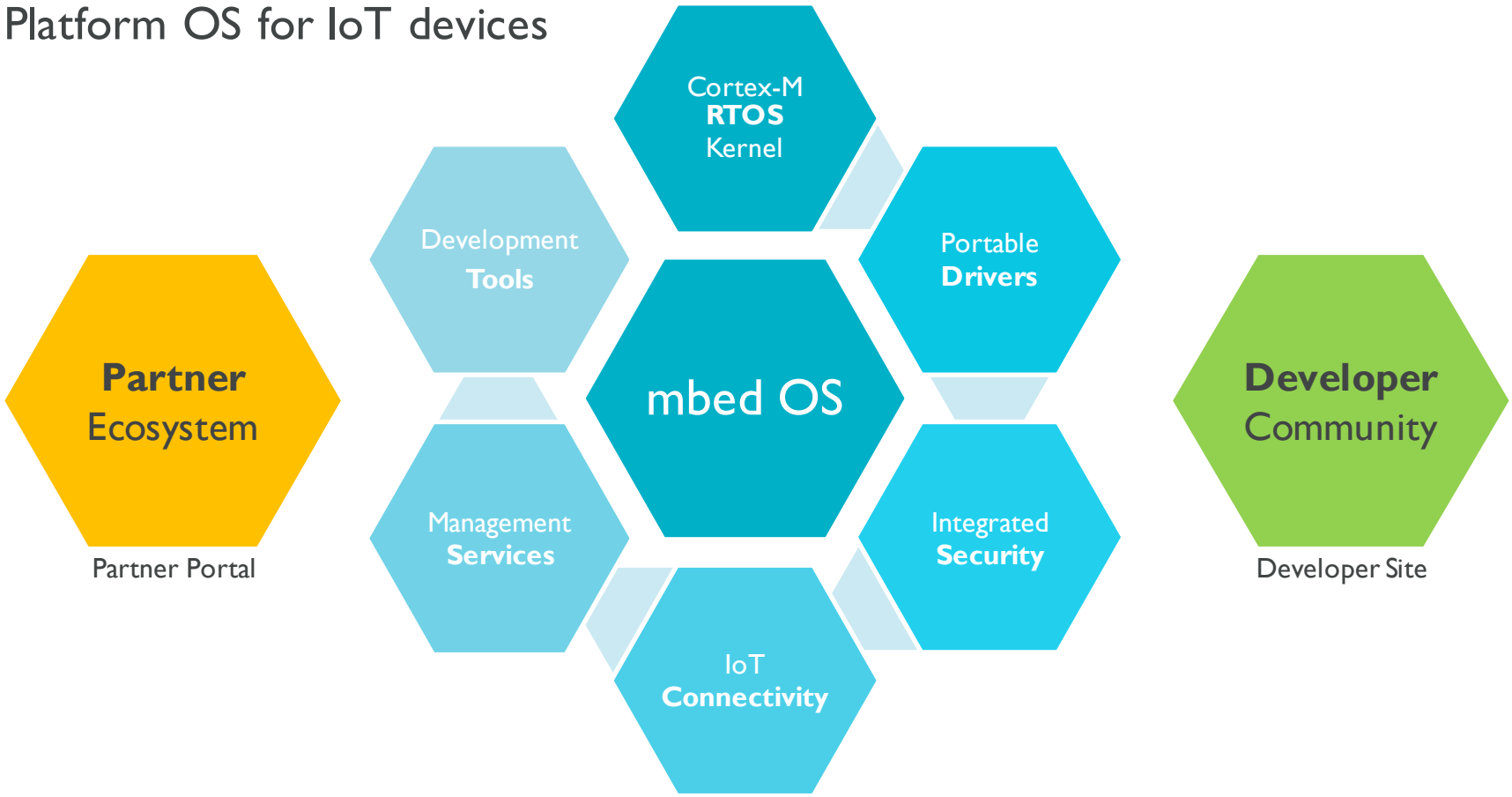
- IoT is a disruptive jump in complexity for embedded software
  - Requirements for Connectivity → Security → Management
- Adoption of OS platforms is necessary for industry success
  - The cost and risk of projects building from scratch is too high
  - A platform OS lowers the barrier to entry for new entrants
- IoT products require device management services
  - Will become essential components within a platform OS



© ARM 2016

mbed OS 5

A Platform OS for IoT devices



© ARM 2016
ARM

mbed OS product diversity

Bluetooth SMART

MINEW

Google

OpenAIS

TRIDONIC

LoRa™

MULTITECH

WaterBit

© ARM 2016

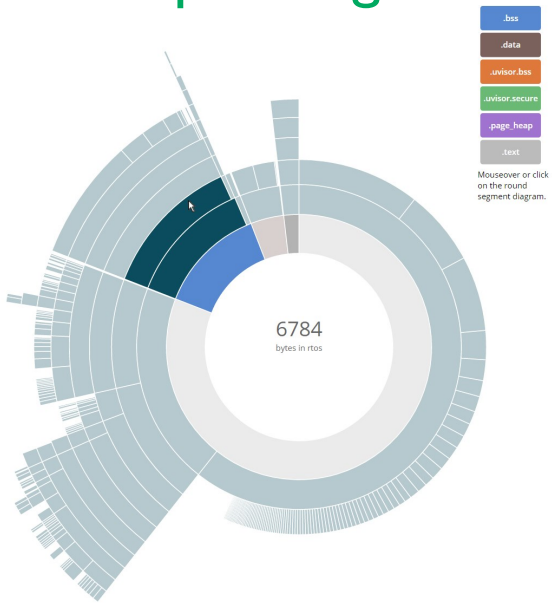
ARM

mbed OS 5.2 headline features

Wi-Fi SoC and module support

Hardware entropy support

Memory footprint profiling



Now available @ http://www.mbed.com

©ARM 2016
ARM

© ARM 2016

400+ Contributed components

©ARM 2016

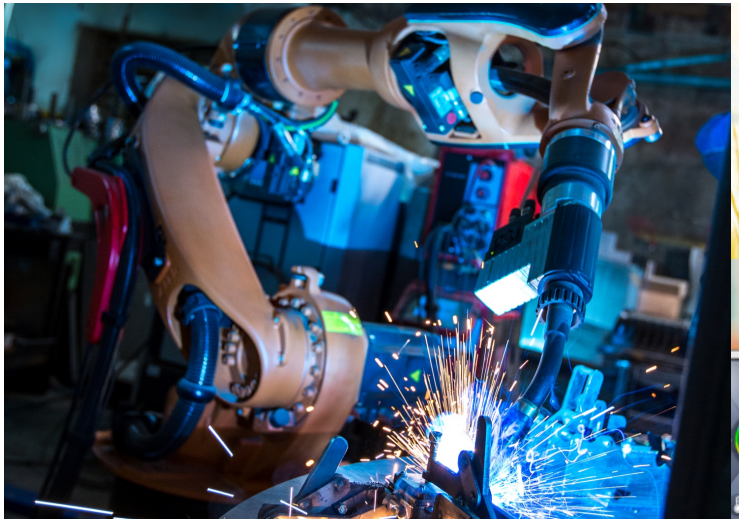
Not just easily available hardware,
but software, applications and trust
are critical to unlocking the value of IoT

© ARM 2016

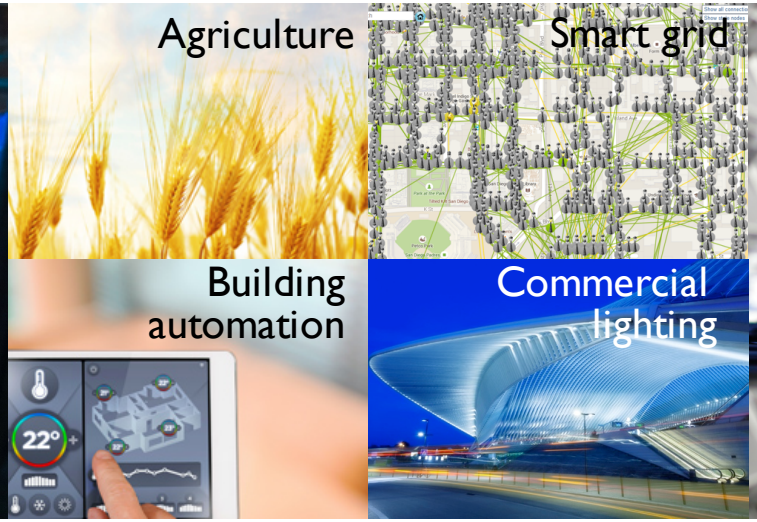
Unlocking the transformative value of IoT

Solutions in

Health and safety



Industrial IoT



Inventory Management

© ARM 2016

accenture
High performance. Delivered.
ADVANTECH
Alcatel·Lucent
ANALOG DEVICES
ARROW
ATHOS
Atmel
AVNET
Baidu 百度
COMTECH
CYPRESS
DELTA
devicepilot
LOCATE, MONITOR & MANAGE AT SCALE
dialog SEMICONDUCTOR
EBV Elektronik
An Avnet Company
LAN
element14
ESPOTEL
expresslogic
ERICSSON
FORGEROCK
FUTURE ELECTRONICS
GreenPeak
IBM
lierda
利尔达科技集团
maxim integrated
MULTITECH
myotest
NORDIC SEMICONDUCTOR
NSW
NIPPON SYSTEMWARE CO.,LTD.
nuvoTon
NXP
ON Semiconductor
PIXI
PollenTech
Omnisense
QUALCOMM
RDA
REALTEK
RENESAS
ROHM SEMICONDUCTOR
salesforce
Schneider Electric
SEMTECH
AVNET Silica
SILICON LABS
Silver Spring NETWORKS
SK telecom
SmeshLink
EXPERT OF IOT
SoftBank Technology
SpinDance
life.augmented
SWITCHSCIENCE
TOSHIBA
ThunderSoft
TEXAS INSTRUMENTS
u-blox
WD
WIREPAS
Things connected – Naturally
WIZnet
wpg
大聯大控股
WPG Holdings
ZEBRA TECHNOLOGIES
ZUMTOBEL

©ARM 2016
ARM

ARM

Thank you

The trademarks featured in this presentation are registered and/or unregistered trademarks of ARM Limited (or its subsidiaries) in the EU and/or elsewhere. All rights reserved. All other marks featured may be trademarks of their respective owners.
Copyright © 2016 ARM Limited

© ARM 2016