基础技术和生态系统
助力物联网创新

ARM

耿立锋
物联网应用市场经理

July 2016

Innovation in all aspects of modern life

Energy grid

Automotive

Environmental

Home automation

Healthcare

Enterprise

Retail

Smart city

Wearables

Farming

Identity & tracking

VR / AR

Building automation

Connected clothing

Robotics

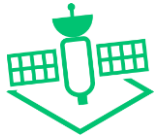
Sensor

Industrial

IoT

Smart lighting

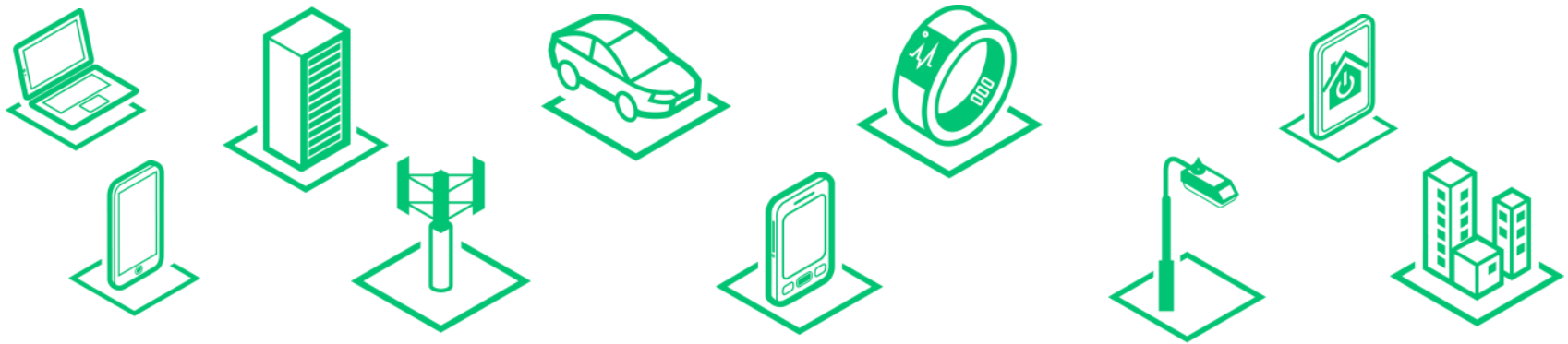
Smart watch


Space

Confidential © ARM 2016
ARM

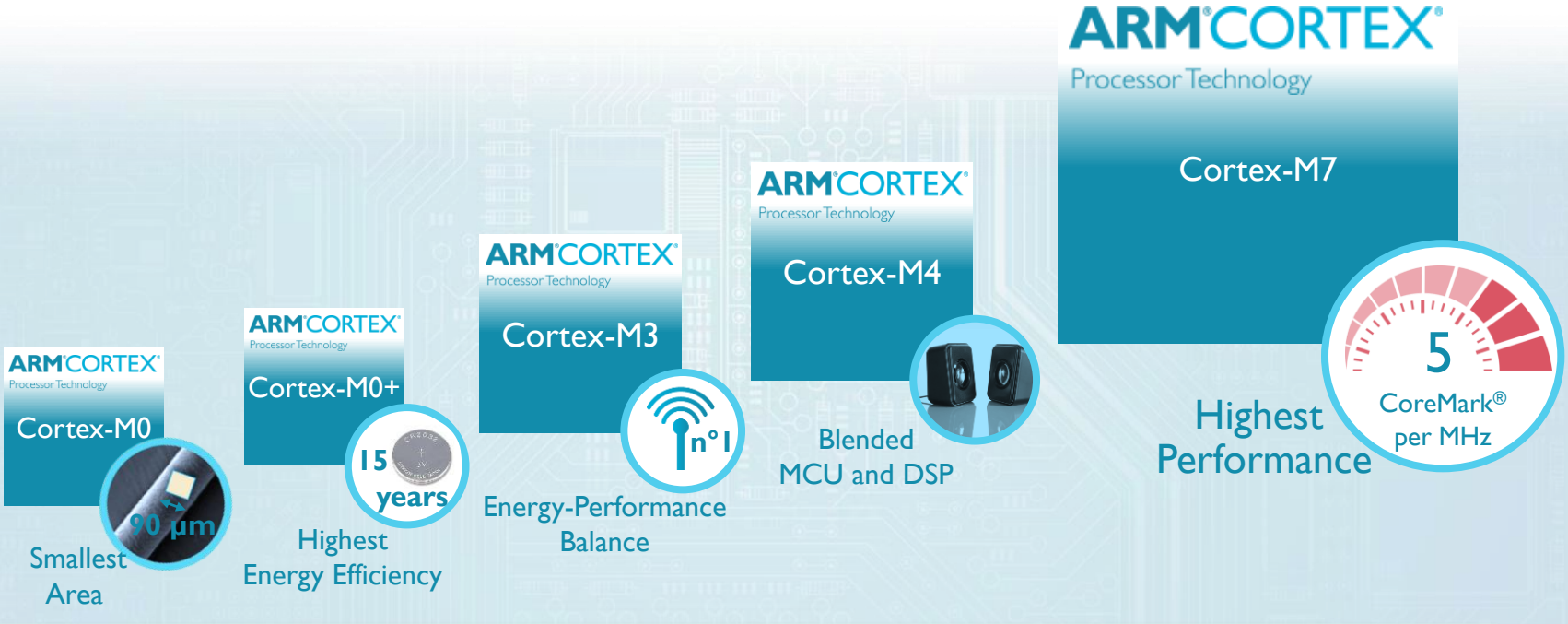
Cortex solutions for every Market

Cortex- A	Cortex - R	Cortex - M
Highest performance	Fast response	Smallest/lowest power
Optimised for rich operating systems	Optimised for high performance, deterministic applications	Optimised for discrete processing and microcontrollers



Confidential © ARM 2016
ARM

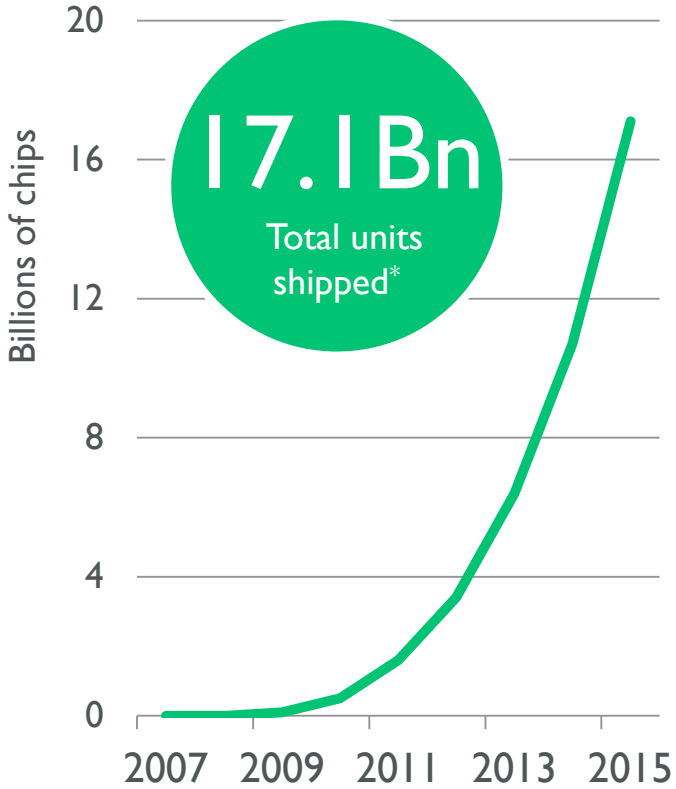
Cortex-M Product Line



Scalable & Compatible Architecture

Confidential © ARM 2016
ARM

Cortex-M: Trusted Choice for Embedded Intelligence



6.4Bn
Units shipped in 2015

3600+
Catalog parts*

360
Licenses*

2015:
32-bit MCU shipments surpass 4/8bit**

* Data up to end Q4, 2015
** The McClean report

Confidential © ARM 2016

New Wave of Innovation

Driving a new wave of custom SoC development

Sensor and mixed signal companies: integrated IoT solutions

Start-ups: innovative solutions

OEMs: reduce cost, reduce power, differentiate

Confidential © ARM 2016
ARM

Real Example Mixed-signal Custom SoC from S3 Group

Smart industrial sensor

Integration of discrete mixed signal components and Cortex-M processor

Pressure & temperature sensing
Diagnostics
Motor control
Communications

Confidential © ARM 2016

Return on Investment

Differentiation

Control of supply chain

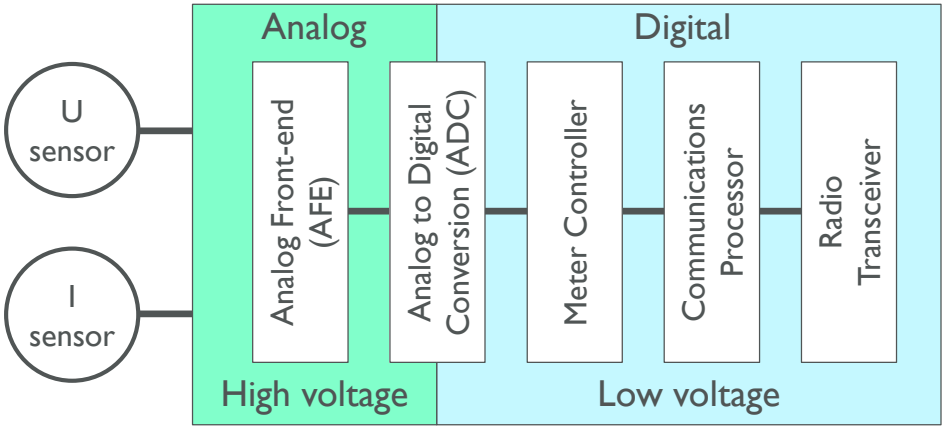
85%
Reduction in PCB area

90%
Reduction in BOM

Confidential © ARM 2016

Example of Differentiation by Integration

- ESD tests required for certification
- Single-chip (metrology + metering application) reduces BOM cost
- Ample room for innovation



Confidential © ARM 2016
ARM

Control of Supply Chain

- Reliable long-term supply of components
- Supply chain risk reduction outweighs initial NRE cost

Confidential © ARM 2016

DesignStart: Enabling Innovation in Custom SoCs

Driving a new wave of custom SoC development

Retail

Sensor and mixed signal companies:

integrated IoT solutions

Start-ups:

innovative solutions

OEMs:

reduce cost, reduce power, differentiate

Building Automation

Smart Lighting

Medical

Industrial

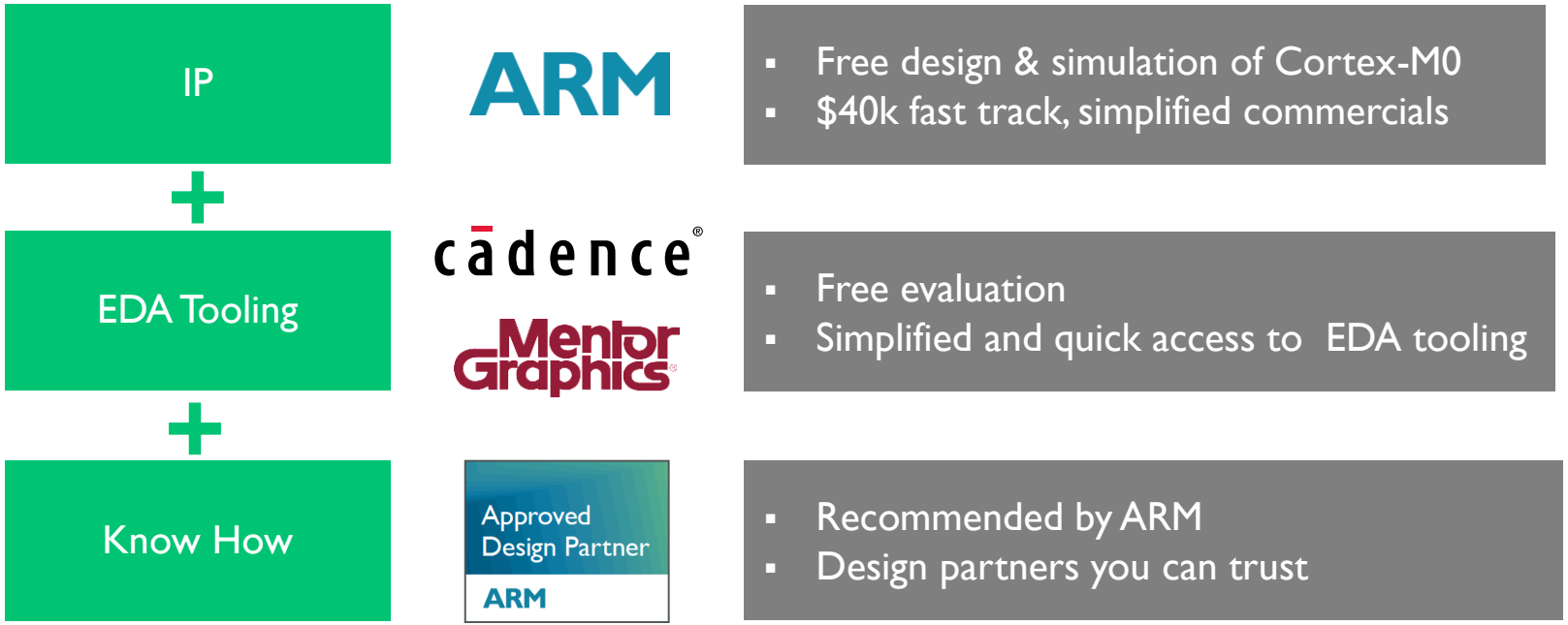
Home

Agriculture

Confidential © ARM 2016

ARM

ARM DesignStart: Fast Path to Silicon



Confidential © ARM 2016

Easy and Low-cost Path to Commercialization

Produce

- New fast track $40k simplified licensing package
  - Makes it easy to move to next stage of product development

- Package includes system IP and tools to simplify system design:
  - Cortex-M0 processor
  - Cortex-M0 System Design Kit (including system IP, peripherals, test bench and software)
  - ARM Keil MDK development tool for software development
  - 1 year support and maintenance

Confidential © ARM 2016

ARM Cortex-M Processors and the ARM Architecture

Architecture

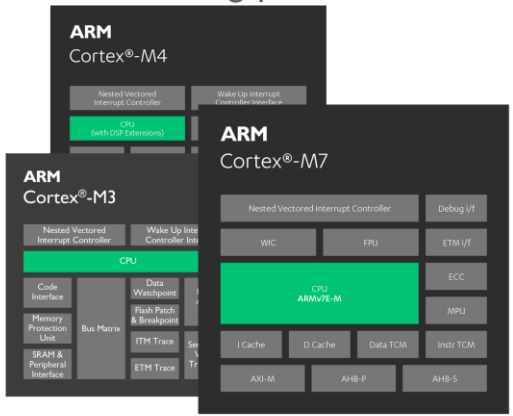
- Instruction Set
- Programmer's Model
- Memory Model
- Exception Model
- Debug Architecture

Existing products

Next generation products

ARMv7-M

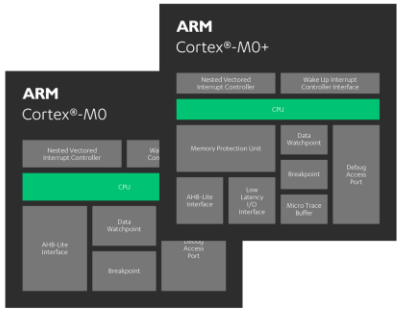
For high performance and main stream products



ARMv8-M Mainline

ARMv6-M

For ultra low power and area constrained designs



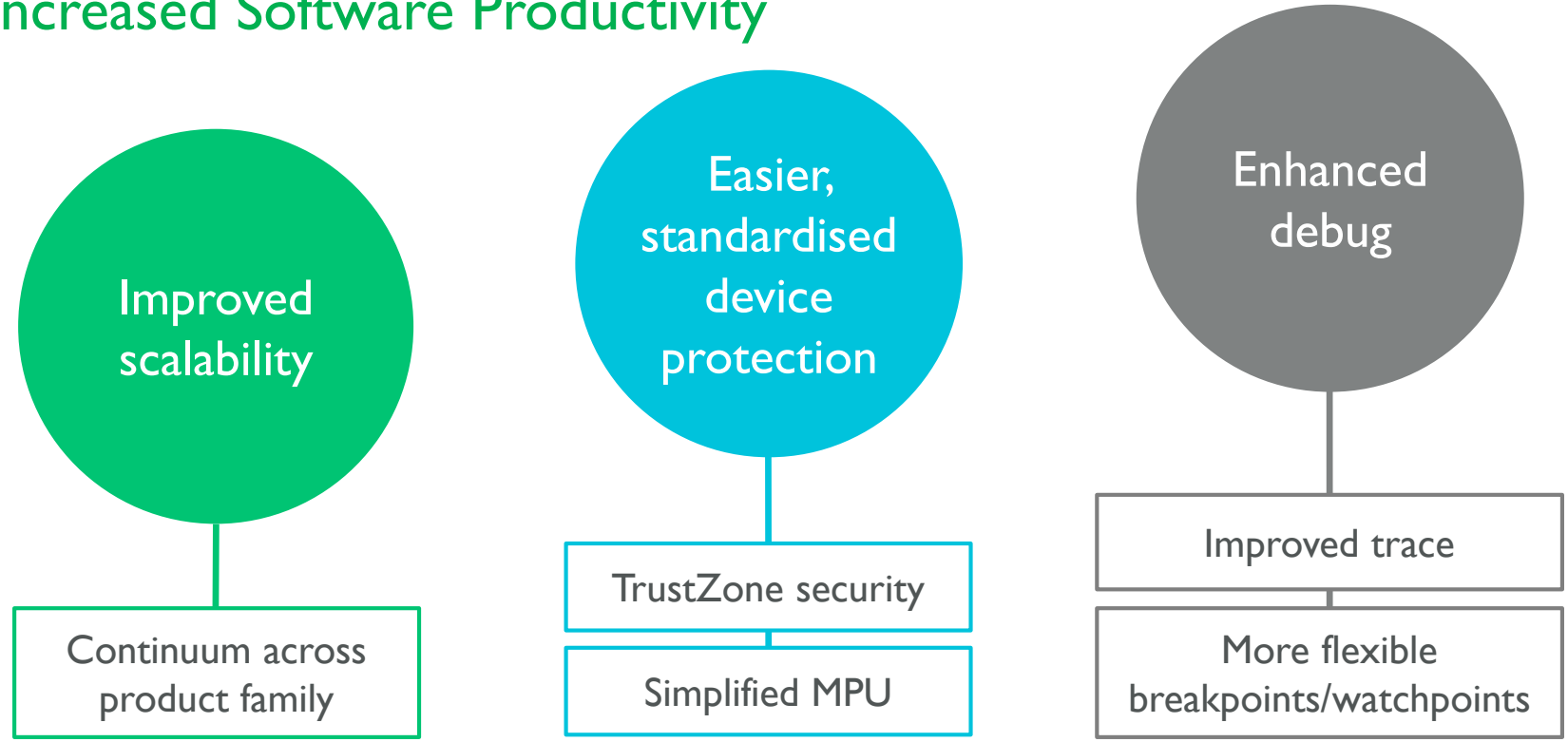
ARMv8-M Baseline

Confidential © ARM 2016

ARM

Key New Features in ARMv8-M

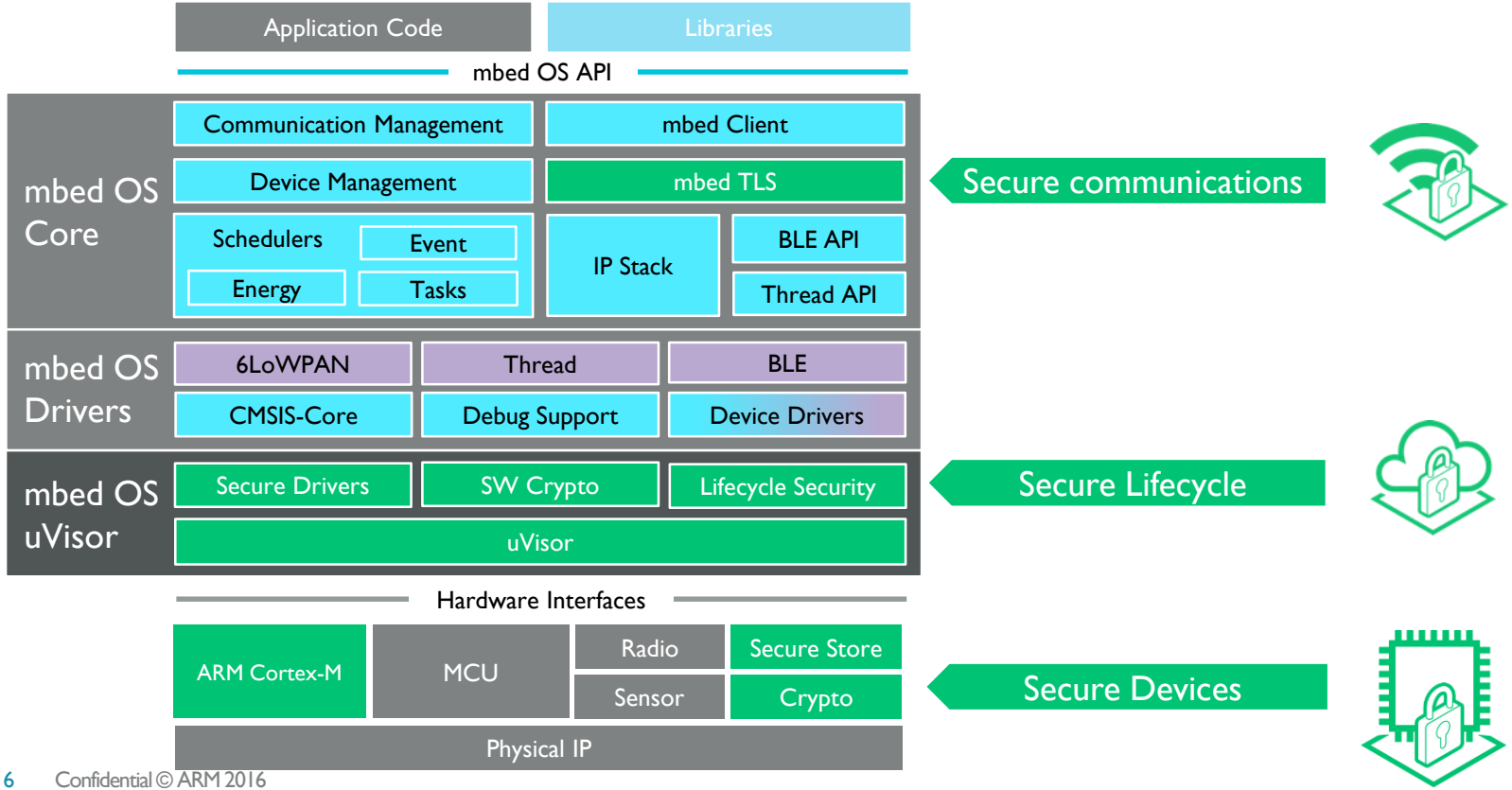
Increased Software Productivity



ARMv8-M Architecture Technical Overview : https://community.arm.com/docs/DOC-10896

Confidential © ARM 2016

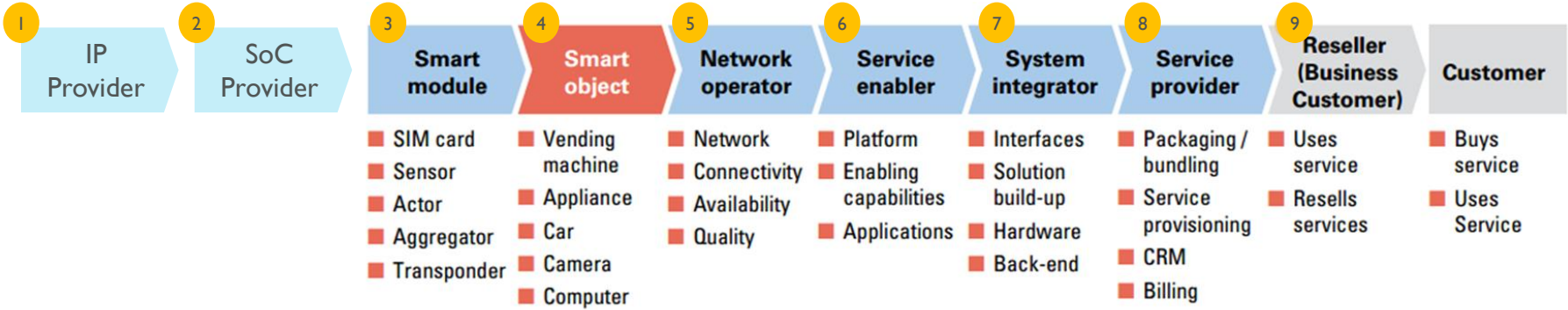
Security from Silicon to Services for IoT Devices



Confidential © ARM 2016
ARM

Confidential © ARM 2016

IoT Value Chain is Much More Complex



Our target is to "Go Deep" and build ARM ecosystem across the value chain.

Confidential © ARM 2016
ARM

Ecosystem Partnering For Connected Intelligence Success

ARM

- 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