支撑智慧产业的生态系统

ARM

Lifeng Geng
IoT Segment Marketing Manager

Sensor China Expo
Sep 13, 2016

IoT = Things + Computing + Connectivity… Why?

Insight driven optimization

- Predictive maintenance
- Logistics and tracking
- Analytics

Better user experience

- App vs tiny LCD
- Prediction, proactive vs reaction

IoT enables new business models

ARM

IoT? …through Embedded Intelligence

ARM

The Benefits

Optimize resources

Reduce opex

Increase mobility

Improve citizen health and comfort

Improve resiliency

ARM value in the IoT space

Low Power

- Longer battery life
- Smaller form factor
- Lower total cost of ownership

End to End Security

- Device Security
- Communication Security
- Lifecycle Security

Strong Ecosystem

- Partnership
- Software
- Choice
- Interoperability

Everywhere compute needs to happen


Energy grid


Automotive


Environmental


Home automation


Healthcare


Enterprise


Retail


Smart city


Wearables


Farming


Identity & tracking


VR / AR


Building automation


Connected clothing


Robotics

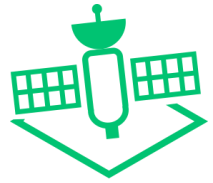

Sensor


Industrial


IoT


Smart lighting


Smart watch


Space

ARM

Cortex solutions for every Market

Cortex- A

Highest performance

Optimised for
rich operating systems

Cortex - R

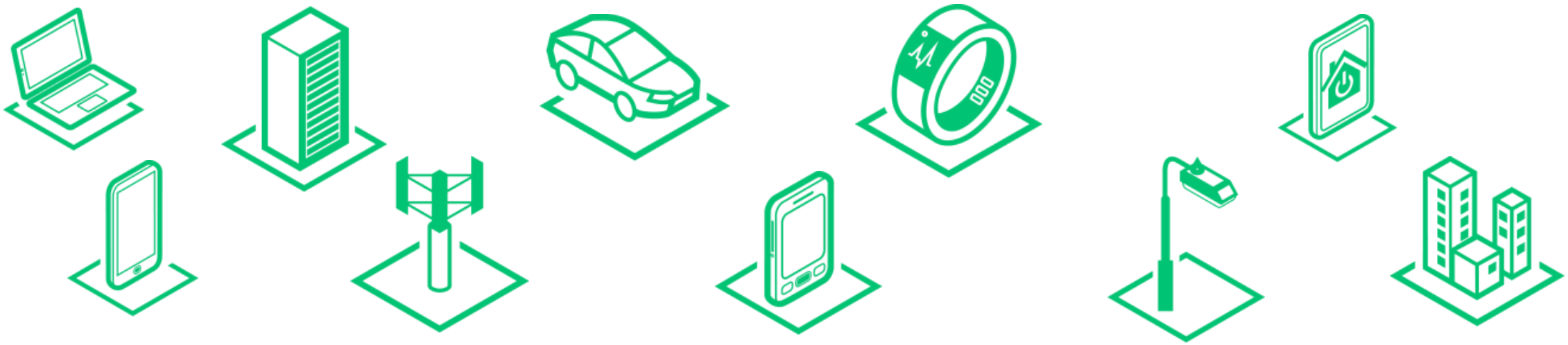
Fast response

Optimised for
high performance,
deterministic applications

Cortex - M

Smallest/lowest power

Optimised for
discrete processing and
microcontrollers



ARM

Cortex-A in IoT Gateways

- Leading architecture in Single Board Computer (SBC), Industrial PCs & Gateways
  - ARM the #1 shipping architecture in embedded compute (IHS 2015)
  - Energy efficiency means compact, fan-less, lower-profile designs, <OPEX
  - Silicon choice means optimized, cost-effective solutions

- Smart Phones frequently used as a gateway
  - wearables, consumer machine learning

- Spanning Automotive, Industrial, Medical, Consumer
  - Automotive IVI, Panel PC, PLC, Digital Signage, Gateways




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

Cortex-M: Chosen by Leading MCU Suppliers

Widest choice of open market MCUs

946

945

657

328

232

203

137

88

66

30

Listed parts on partners' websites, as of end of December 2015

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

Cortex-M Processor Value Proposition

Energy Efficient	>	Lower energy cost	>	Low power implementation Sleep mode support Wake-up Interrupt Controller Increased intelligence at node
Ease of use	>	Lower software cost	>	Broad tools and OS support Binary compatible roadmap CMSIS support Pure C target
High Performance	>	Competitive products	>	32-bit RISC architecture High efficiency processor cores Integrated Interrupt Controller (NVIC)
Reduced system cost	>	Lower silicon cost	>	Thumb-2 code density Area optimised designs CoreSight debug support

Next Generation

Architecture

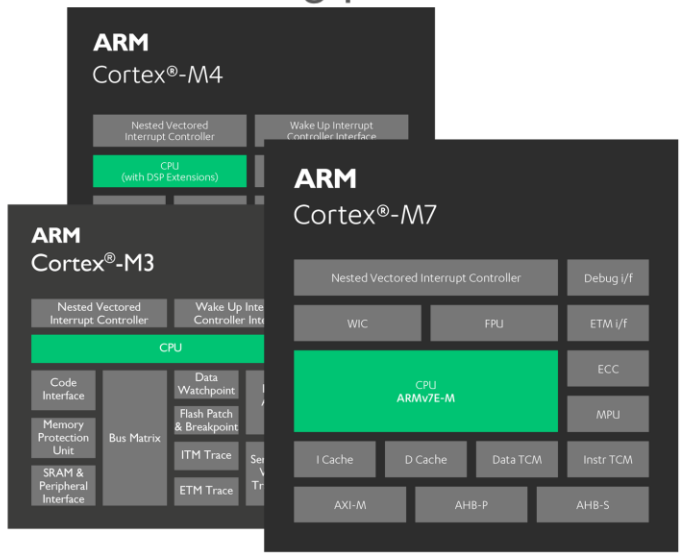
- Instruction Set
- Programmer's Model
- Memory Model
- Exception Model
- Debug Architecture

Existing products

Next generation products

ARMv7-M

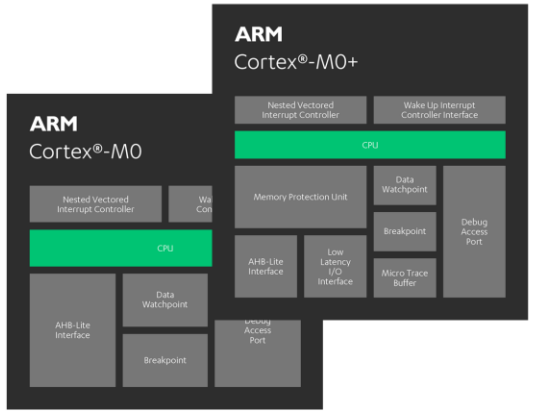
For high performance and main stream products



ARMv8-M Mainline

ARMv6-M

For ultra low power and area constrained designs



ARMv8-M Baseline

ARM

Key needs for scaling out IoT deployments

Managing IoT devices

Connectivity

Management

Productivity

Developing IoT devices

Efficiency

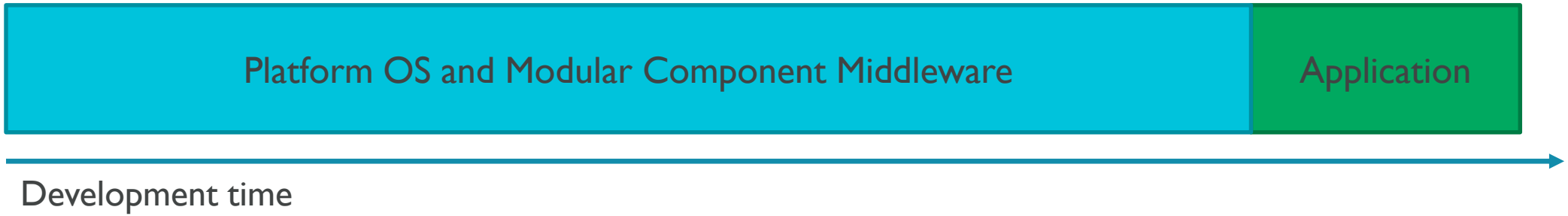
Security

Productivity

IoT projects need a Platform OS

- Historically, embedded microcontroller design has had little code or design commonality between systems that enables widespread re-use

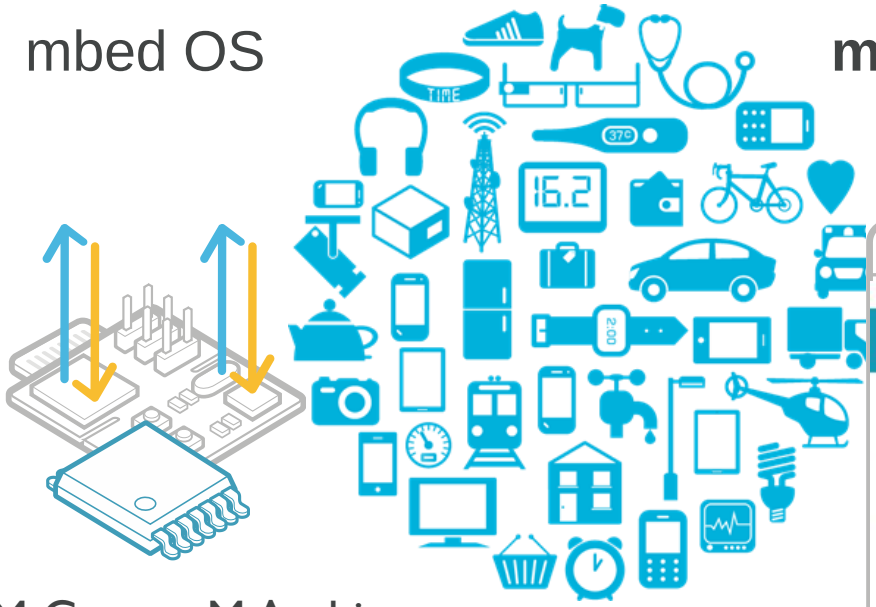
- The communication, device management and security demands of IoT devices are a disruptive jump in complexity that drives the need to use a Platform OS



ARMmbed

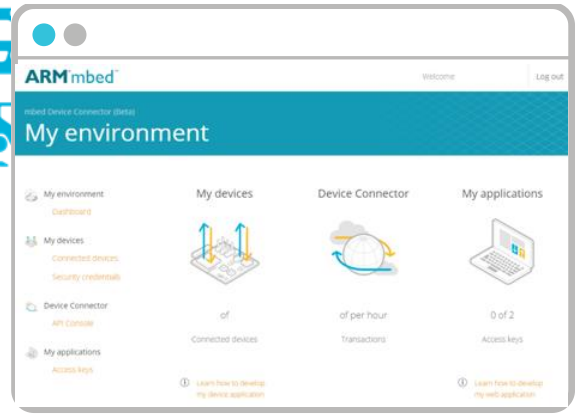
IoT Device Platform

mbed OS



ARM Cortex-M Architecture

mbed Device Connector



mbed Cloud Partnership

mbed Silicon Partnership

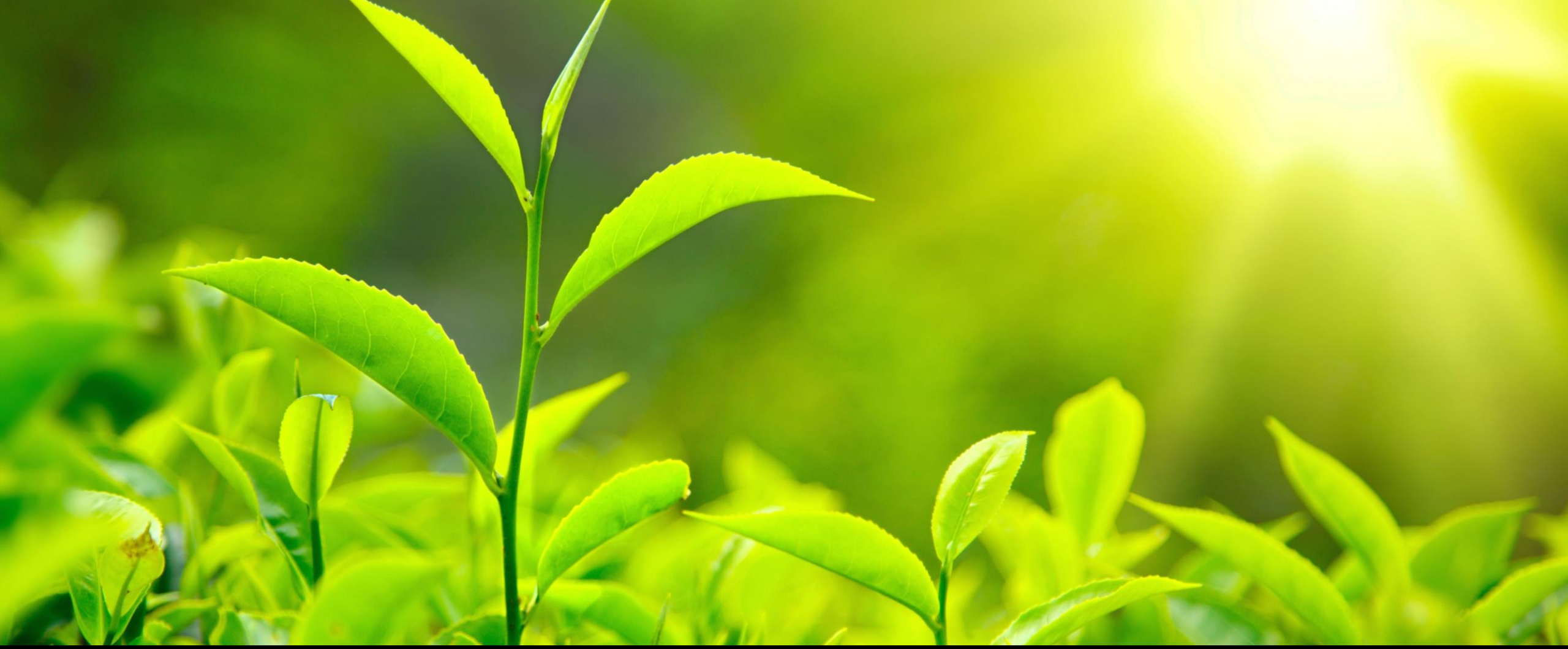
Collaboration and contributions from over 55 partners

mbed Enabled

Over 100 boards available for developers to get started

ARM

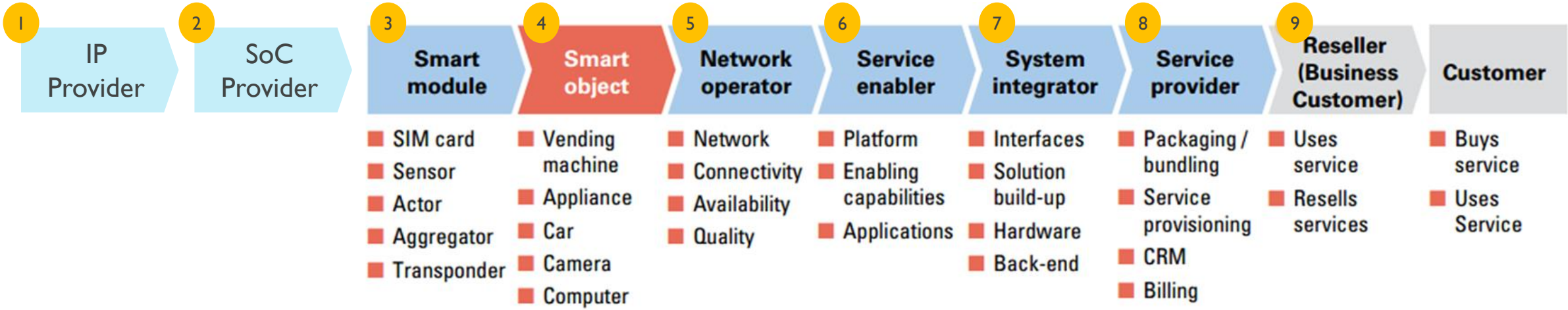

accenture
High performance. Delivered.
ADVANTECH
Alcatel·Lucent
ANALOG DEVICES
ARROW
ATHOS
Atmel
AVNET
Baidu 百度
CYPRESS PERFORM
DELTA
devicepilot
LOCATE, MONITOR & MANAGE AT SCALE
dialog SEMICONDUCTOR
EBV Elektronik
An Avnet Company
ELAN
element14
ESPOTEL
expresslogic
ERICSSON
FORGEROCK
FUTURE ELECTRONICS
GreenPeak
IBM
maxim integrated
MULTITECH
myotest
NORDIC SEMICONDUCTOR
NSW
NIPPON SYSTEMWARE CO.,LTD.
nuvoTon
NXP
ON Semiconductor
PXI
PollenTech
QUALCOMM
RDA
RENESAS
salesforce
Schneider Electric
SEMTECH
AVNET Silica
SILICON LABS
SilverSpring NETWORKS
SK telecom
SmeshLink
EXPERT OF IOT
SoftBank Technology
SpinDance
life.augmented
SWITCHSCIENCE
COMTECH
TELECOMMUNICATIONS CORP.
ThunderSoft
TEXAS INSTRUMENTS
tieto
ublox
WIRELESS
Things connected – Naturally
WIZnet
ZEBRA TECHNOLOGIES
ZUMTOBEL



Precision environmental monitoring with IoT for Tea Production

SmeshLink
EXPERT OF IOT

IoT Value Chain is Much More Complex



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

ARM

Ecosystem Partnering For Connected Intelligence Success

ARM