Secure Device and Data management for IoT of Scale

ARM

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CIR 8th Smart Grids and Cleanpower 2017 Cambridge, UK

www.cir-strategy.com/events

…join the follow up 9th SGCP18 26-27 June Cambridge, UK

100 bn

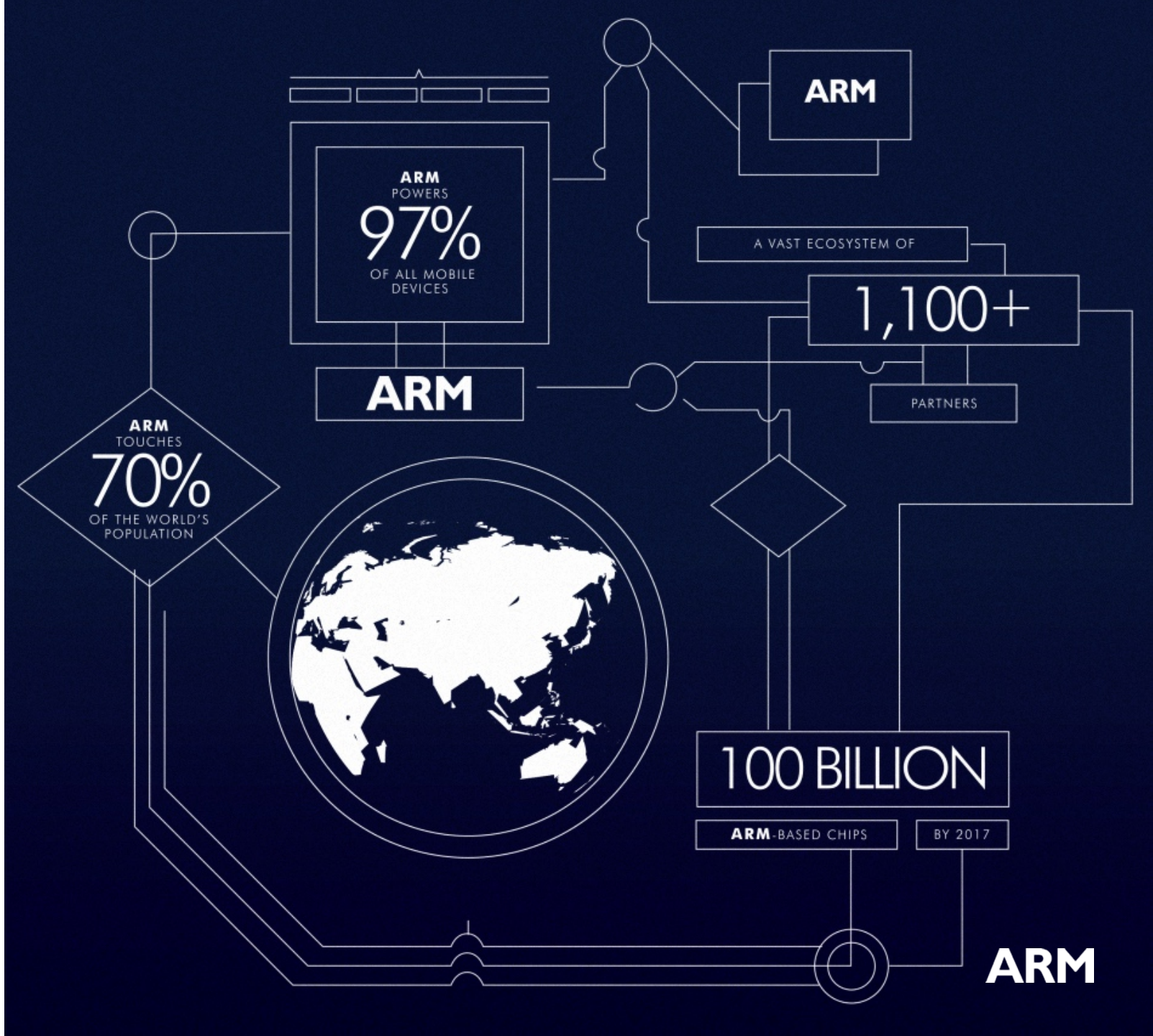
ARM-based chips shipped since 1991

Hallmark of energy-efficient computing

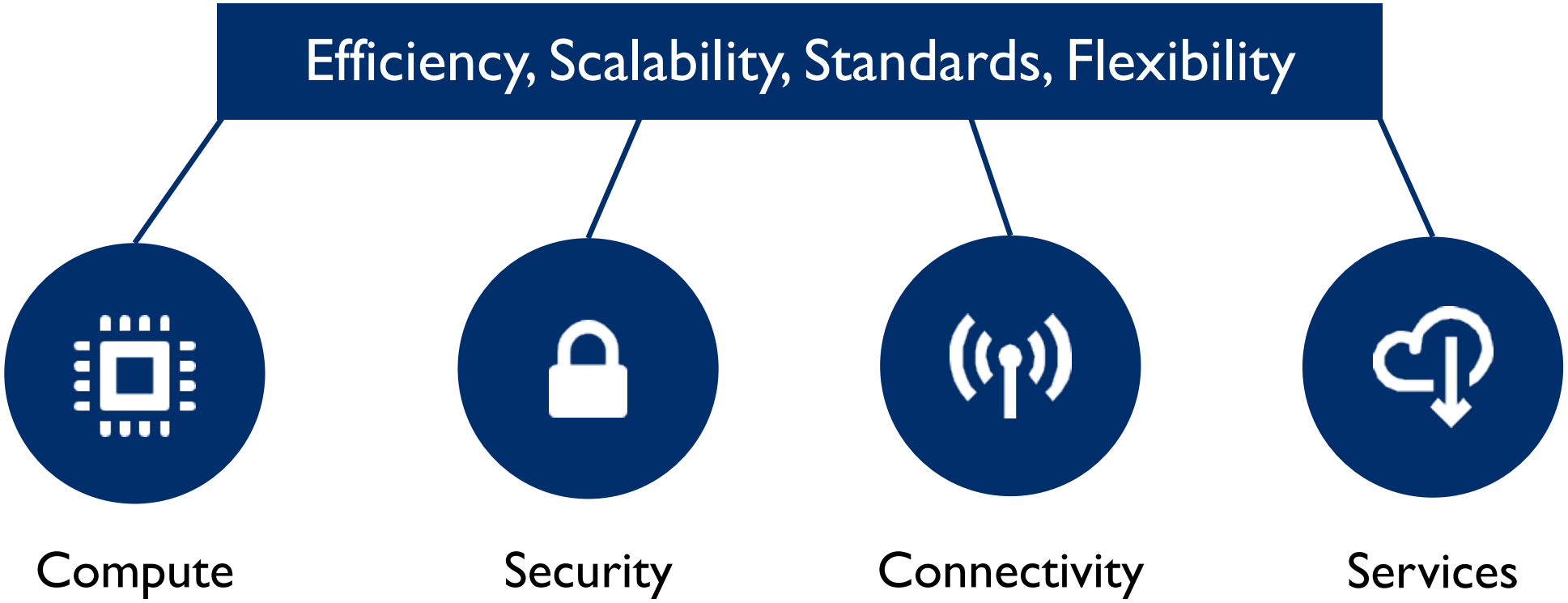
1000+

partner ecosystem

Creation of shared value to achieve scale



Architecting the IoT opportunity



ARM mbed IoT Device Platform

ARMmbed
IoT device platform

We offer standards-based services to securely create, manage and unlock value from connected products to fast-track IoT deployments

World's largest partnership dedicated to IoT products and solutions

A community of 250,000 developers engaged in design and development of secure IoT

Strongest end-to-end security offering from chip-to-cloud and across the full device lifecycle

"This was rather ingenious as it allowed the evolution to begin."

ARM mbed Cloud: A Much Needed Step For The Internet Of Things (IoT) – Nov 2016, Forbes

Economist IoT business index 2017

Surveyed

800+ senior leaders

400+ C-suite respondents

Sectors covered:

Financial services, manufacturing, healthcare, biotechnology, IT and energy, construction and facilities management

Read the latest report at: www.arm.com/iot17

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Key findings: What can accelerate IoT?

Challenge	Recommendations
▪ IoT infrastructure costs remain a high barrier to business scale	Innovative SaaS solutions instead of PaaS and middleware offerings can help reduce these costs
▪ Businesses are daunted by security concerns	Businesses should look for off-the-shelf chip-to-cloud solutions that allow agile security implementation
▪ IoT device development and connectivity costs are high	Invest in platform OS that accelerates application development on a wide choice of silicon

Addressing IoT scale-out

- Platform to address the challenges of large scale deployments
  - Reliable, fail-safe updates to reduce cost
  - Securing and authentication of updates

- Pathways to production
  - Easy routes to unlocking value of secure industrial intelligence
  - Connected spaces, operations, assets

How to fast-track your IoT?

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mbed Cloud simplifies connecting highly-constrained and IoT-ready devices and offers end-to-end security

- Standards-based approach
- Optimized for energy efficiency
- Unique offering for a chain of trust for IoT
- Simplifies firmware update across complex networks

Connecting chip to cloud

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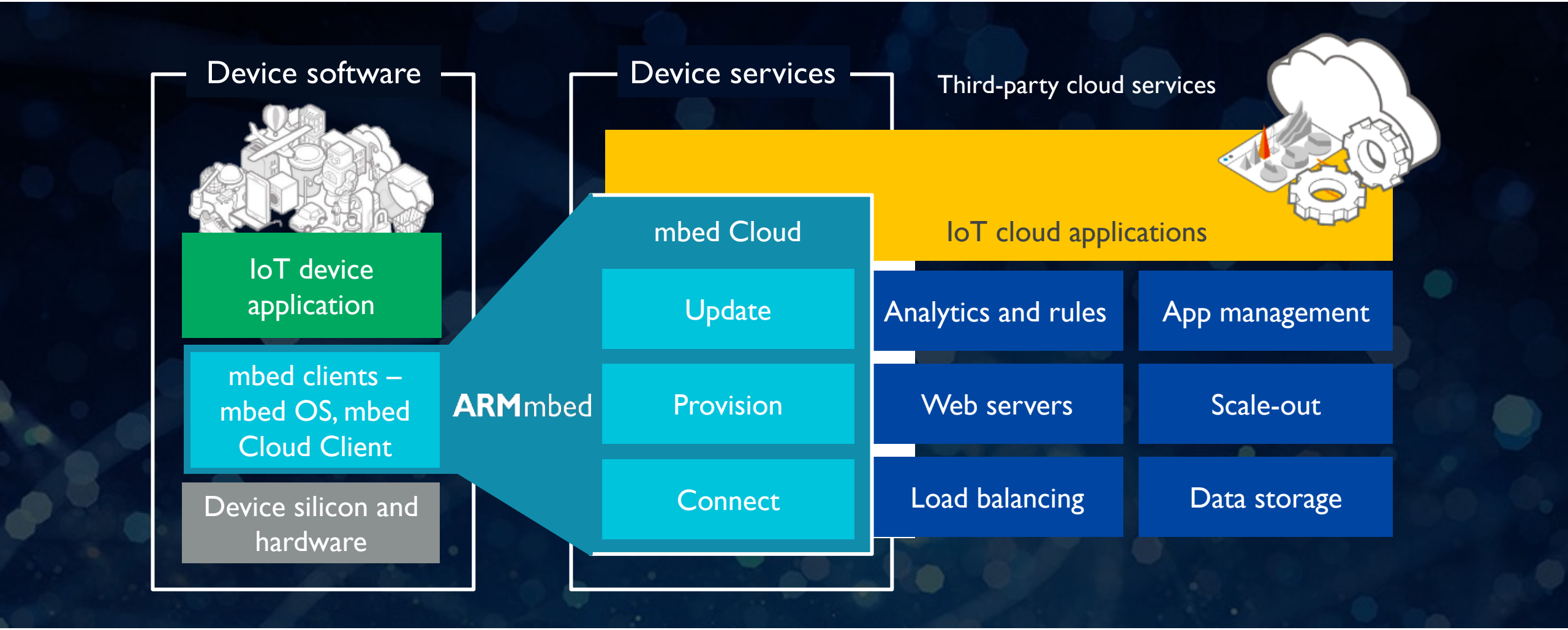

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Addressing remote device updates

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New in mbed Cloud v1.2 – Enhanced update capability

Only device management solution offering secure firmware updates for remote devices

Secure: Authenticity, integrity and confidentiality protection

Fail-safe: Update campaigns protected during power failures and no roll-back

Campaign tracking: Accurate campaign tracking reducing maintenance costs

Conditional control: Rules to avoid interrupting critical device operations

Update campaigns and monitoring

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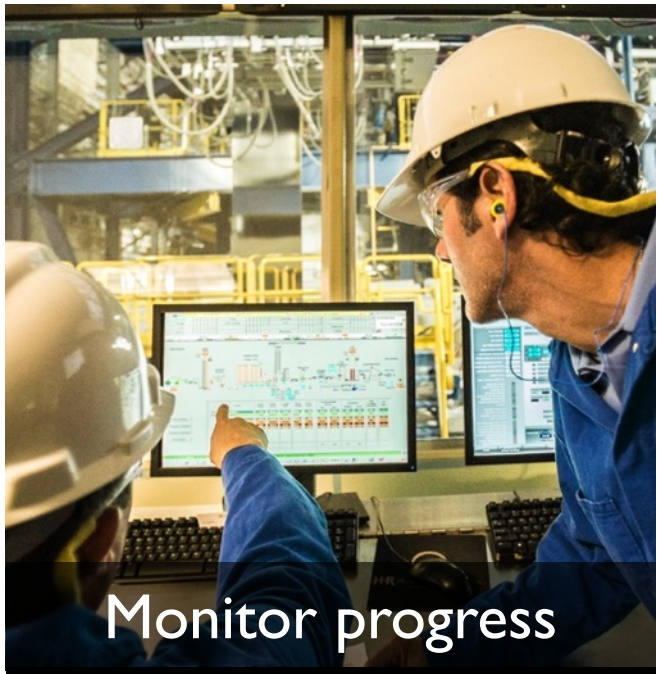
IoT device platform

Update campaigns

Set target devices, firmware versions and conditions for update



Monitor progress

Easy statistical monitoring of progress and errors

Troubleshoot devices

Deep dive into devices to examine status

Paving pathways to production for you

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Connected spaces

50-60% of the IoT opportunities over the next 10 years are in connected buildings, factories and cities

Connected operations

86% of companies report that device management is their key challenge in IoT

Connected asset intelligence

56% senior decision makers consider assets insights the most strategic outcome from IoT

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Proven at scale for connected city operations

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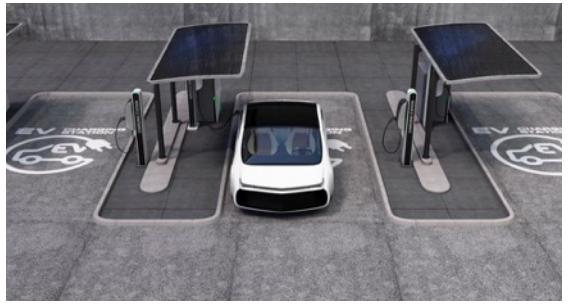
- Deployed in smart street lighting solutions since 2014.
- $250,000 annual savings in San Diego from 100,000 nodes deployed.
- Reduced OpEx and improved citizen safety.
- Deployed throughout USA and South America.

Proven across a broad range of devices

Low power and high efficiency solutions using BLE devices with 16kb memory



Security and connectivity are unified and strengthened on a shared platform

Deployed across many mbed OS based Cortex-M platforms

Proven in heterogeneous and hierarchical networks with gateways

Deployed on Linux based mobile devices

Demonstrated as beta on FreeRTOS

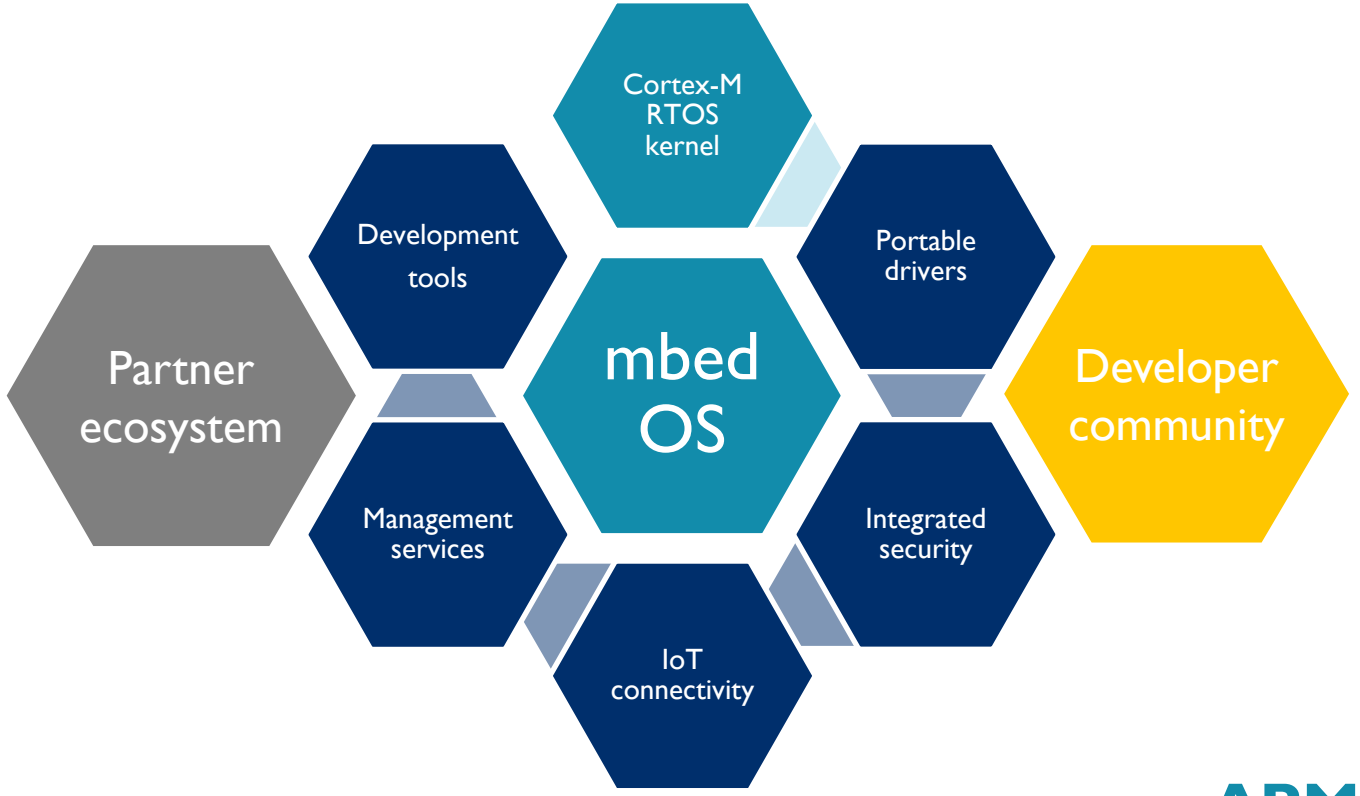
Enhanced device-side capabilities with mbed OS 5

IoT brings a disruptive jump in complexity for embedded software, requiring a platform OS. mbed OS is built to address these challenges in devices built for IoT.

Addresses built-in security, multi-protocol connectivity and device updatability

Over 70 silicon platforms supported for developers today

Open collaboration across the ecosystem accelerates IoT system development



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mbed OS 5 at a glance

Partnership

- Platform OS with IoT-specialized features
- RTOS core based on CMSIS-RTOS
- Cortex-M processors and Radio IP supported

Security

- Industry leading device to cloud security
- Hardware enforced and communications security
- mbed TLS widely adopted

- Unified support for key IoT connectivity standards
- Designed for integrated radio SoCs and Modules
- Leading innovation on Thread, LoRa and NB-IoT

mbed Partnership

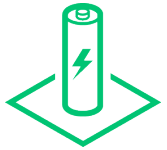
Productivity

mbed allows partners to be more productive with higher quality. Partners contribute to mbed creating a vast ecosystem of standards based things.

Security

mbed includes more than, sixty companies designing with security in mind throughout the value chain. The mbed ecosystem builds secure systems for the benefit of the partnership- and the consumer!

mbed is led by ARM and benefits partners by creating an easy to adopt, practical and secure IoT implementation



Efficiency

The mbed partners provides an evolving set of IoT technology and services, allowing partners room to innovate in verticals.

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