mbed OS
Silicon Partner Workshop

ARM

Introduction and Objectives

Wyboston Lakes
27th March 2017

Welcome!

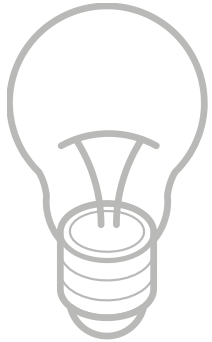
Agenda

- mbed OS update
- Objectives for the week
- Meet the team
- Format for the week
- Dinner!

mbed OS update

IoT is driving the inevitable move to "Platform OSes"

- IoT implies a disruptive jump in complexity for embedded software
  - Common requirements: Connectivity → Security → Manageability
  - Diverse requirements: Target support, component and middleware support, features



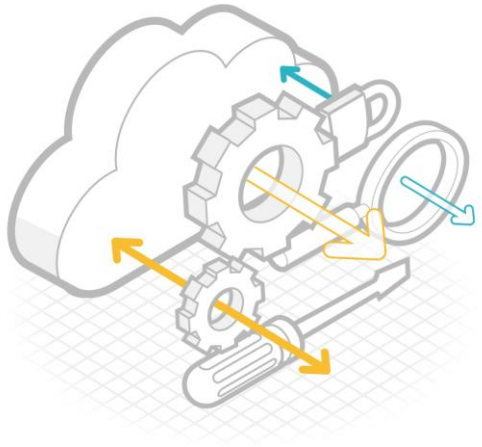
- The industry at large will adopt platform OSes for projects to succeed
  - The cost and risk of projects building from scratch or just on an RTOS will be too high
  - A platform OS will lower the barrier for new entrants and align industry investments

- IoT products will require device management services to succeed
  - Services enable new functionality, new business models and reduce risk, creating a lot of value
  - Services will become one of the essential components within a platform OS

Platform OS Requirements

- Accelerate the **development** of IoT devices
  - Integrate all the necessary software components needed for constrained IoT devices (MCUs)
  - Bring modern development methodologies and choice to MCUs to improve productivity
  - Provide OS functionality and APIs across many vendor solutions to enable choice

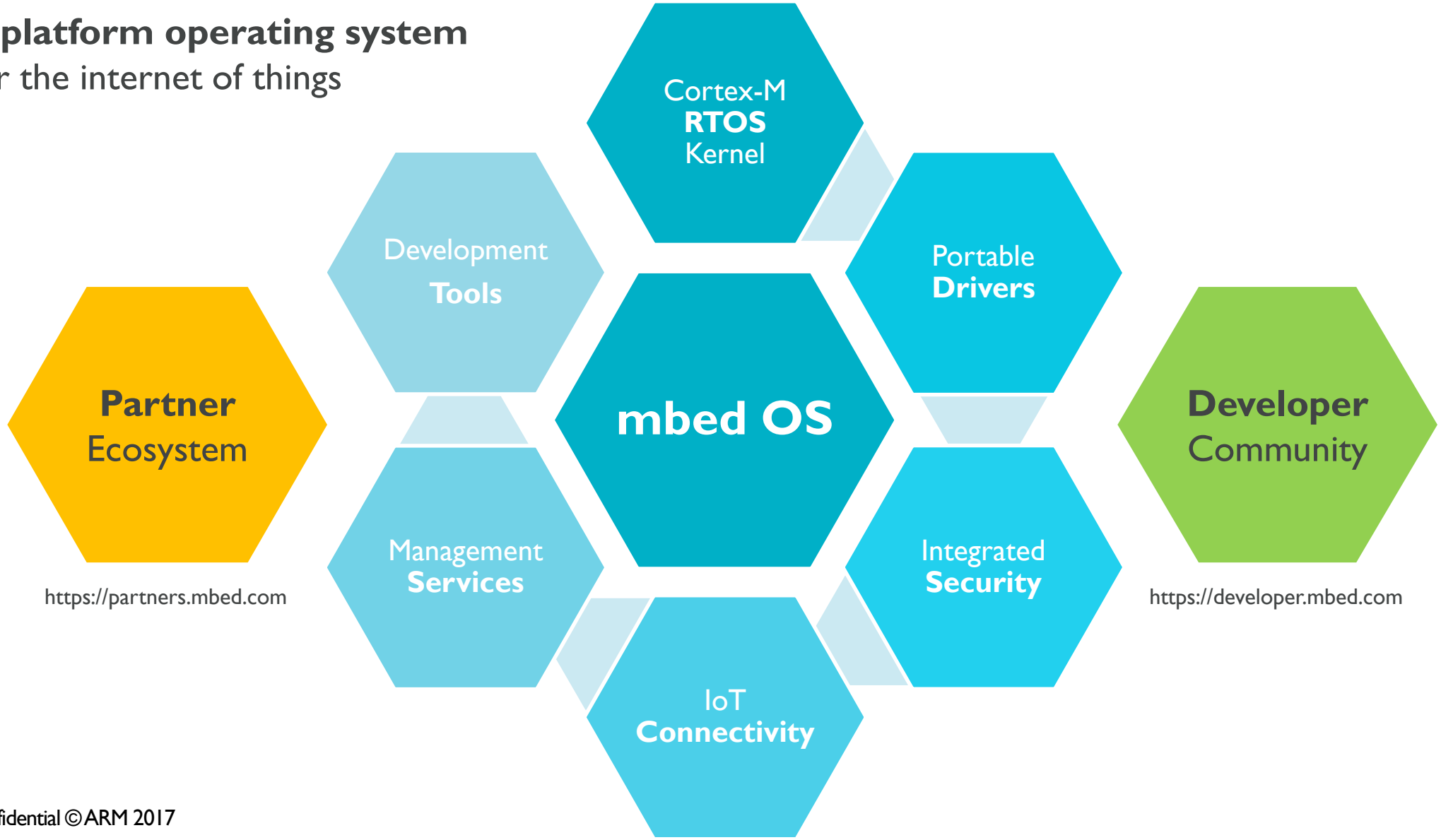
- Accelerating the **deployment** of IoT devices
  - Provide standardised connectivity to the cloud across different transports
  - Provide manageability from the cloud to open opportunities and reduce cost/risk



- Develop and leverage an **ecosystem**
  - Freely available and open source to remove barriers to entry and enable adoption
  - In collaboration with partners to provide maximum gearing of investment for everyone
  - The tools and web infrastructure to support an ecosystem and create network effects

mbed OS 5

A **platform operating system**
for the internet of things

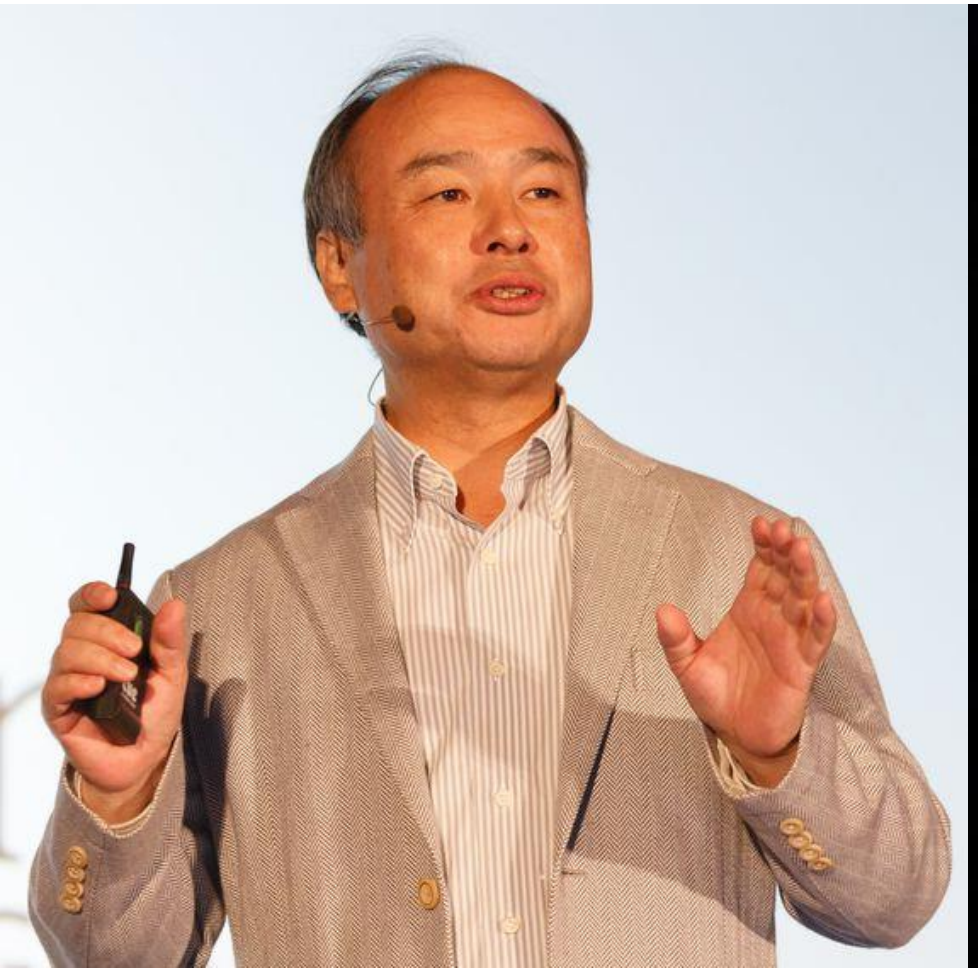


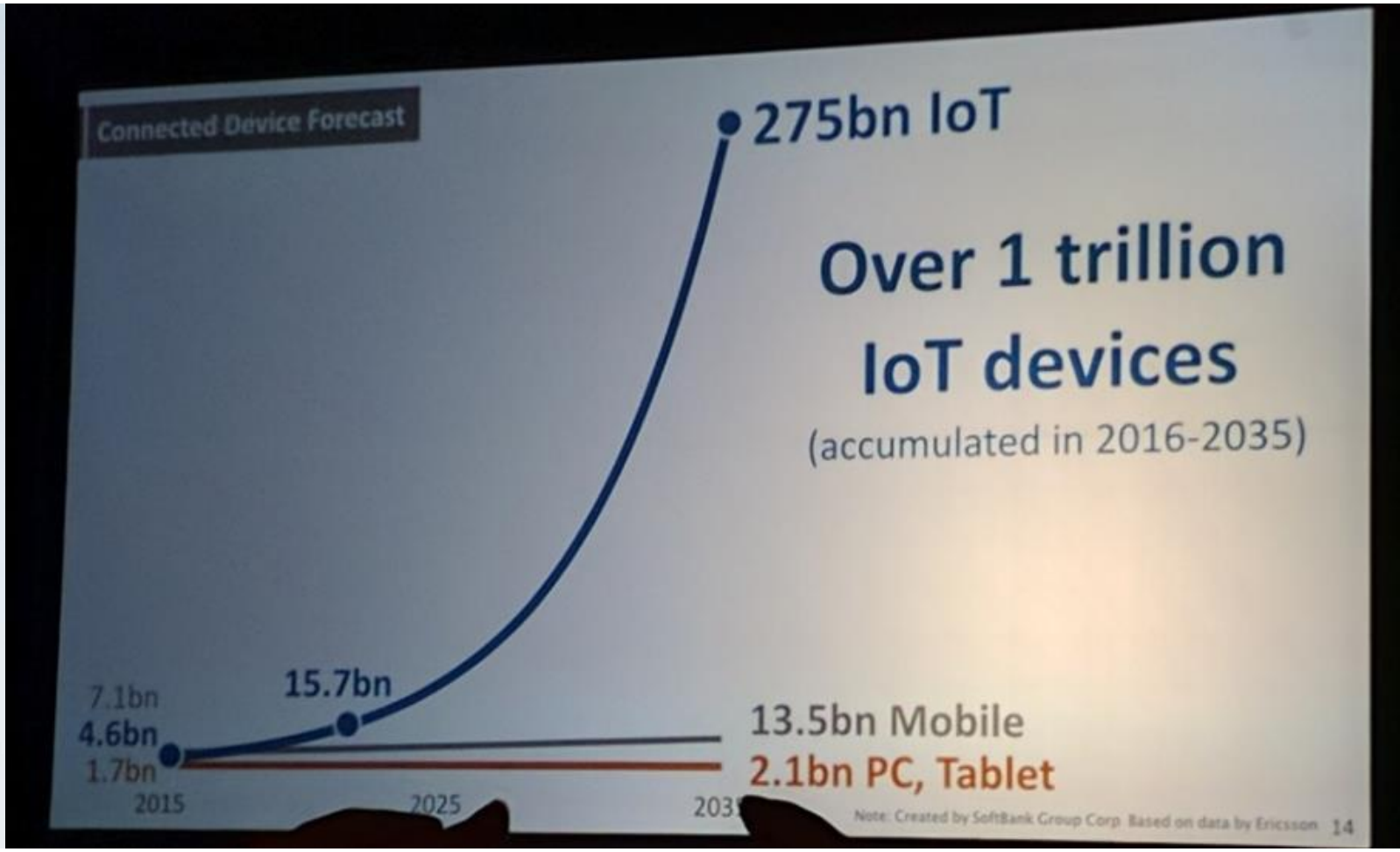
https://partners.mbed.com

https://developer.mbed.com

ARM

Go Go Go!





2017 themes

- **#1 in IoT connectivity**
  → A single platform OS that can reliably address the diversity of IoT node connectivity requirements

- **Security and mbed Cloud services integrations**
  → Solving the end-to-end device security and management problems faced by product manufacturers

- **Relentless progress in quality, features and support**
  → Accelerate mbed OS evolution with a high cadence clockwork delivery and commercial support

- **Running on wireless modules**
  → Simplify professional product development and design-ins

mbed OS Connectivity

LAN

Ethernet

BLE

WiFi

Thread

WAN

Cellular

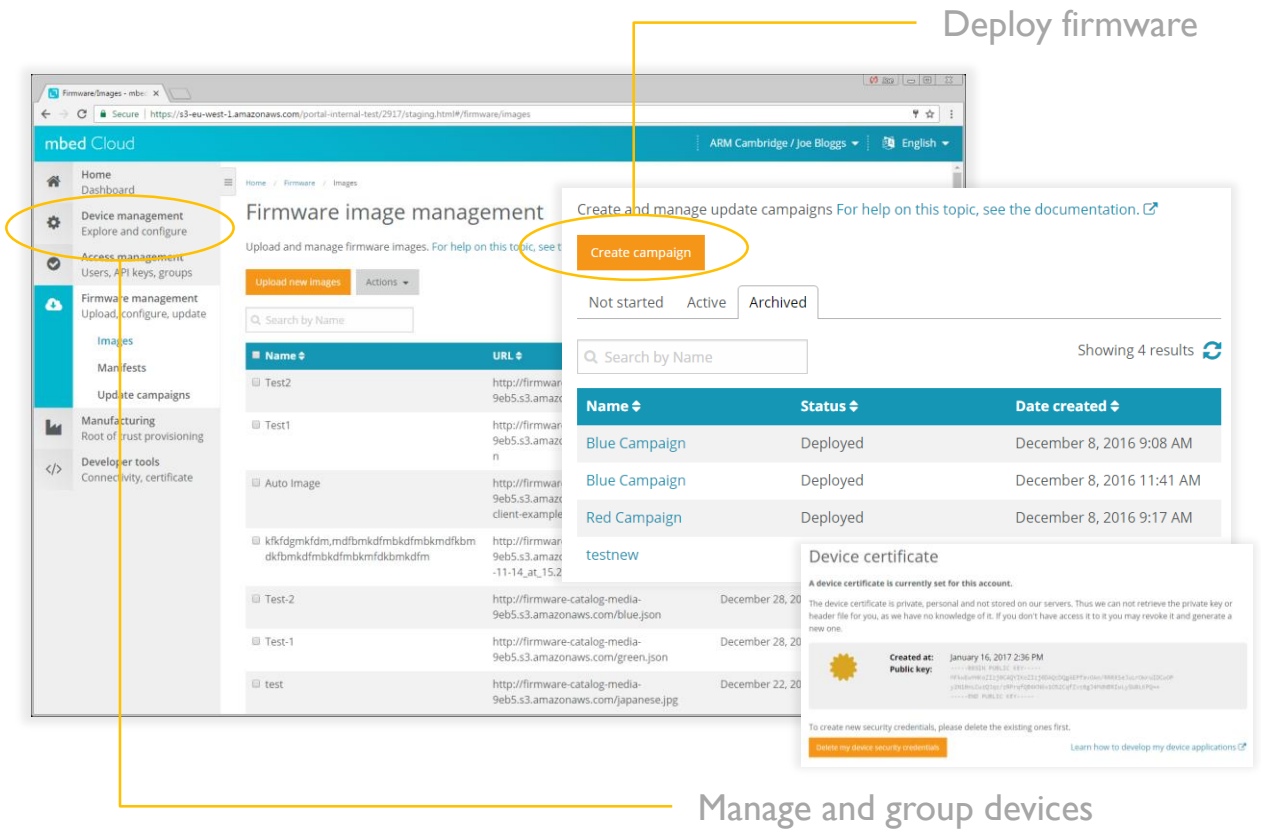
LoRaWAN

Sub-GHz 6LoWPAN

NB-IoT

ARM

mbed OS Security and Services



Device Management

Manage devices, view their activity logs, and monitor resources on them. Create filters based on device attributes, allowing groups of devices to be targeted for firmware updates etc.

Firmware Management

Users can upload firmware, along with the manifest that describes how the update will be applied. They can then trigger the firmware update campaign.

Objectives for the week

Objectives for the week

Hardware Security

- mbed OS 5.4 includes APIs for partners to add hardware security support
- We will work on:
  - Software and hardware entropy sources
  - Hardware cryptographic acceleration
  - How to contribute

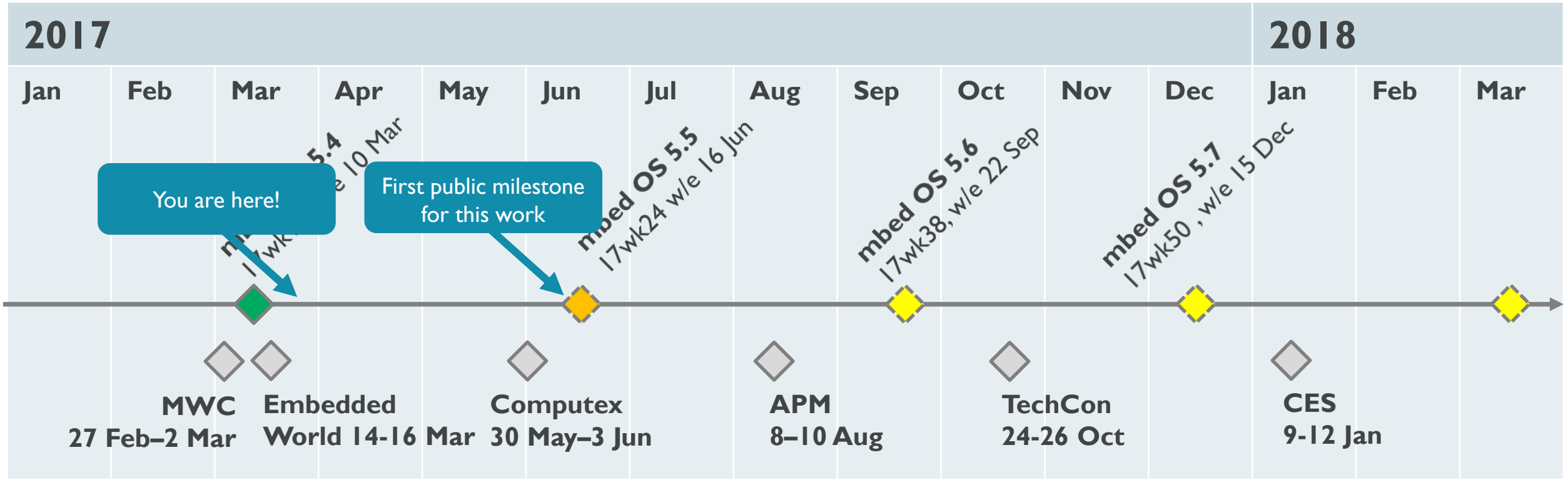
→ *Enables optimal security capabilities and performance available on your platforms*

Services Infrastructure

- mbed OS 5.4 introduces components needed for device management services
- We will work on:
  - Flash algorithms for image installation
  - Put in place first bootloader
  - Enabling storage subsystems

→ *Enables out-of-the-box support for mbed Cloud services on your platforms*

mbed OS 2017 Release Schedule



- Main releases scheduled approximately every 3 months
- Patch release train every 2 weeks (picks up Bug fixes and Partner target support)

ARM

Meet the team

Key go-to people this week

Sam Taylor
Engineering Manager

Simon Ford
Product Management

Sam Grove
Technical Lead

Mihail Stoyanov
Partner Enablement Lead

Format for the week

	Monday, Mar 27	Tuesday, Mar 28	Wednesday, Mar 29	Thursday, Mar 30	Friday, Mar 31
7-9am		Breakfast	Breakfast	Breakfast	Breakfast
9am		**mbed TLS Architecture** **Adding Entropy to mbed TLS** Possible entropy sources Software Interface NV Seed	**Adding HW Acceleration to mbed TLS** Software Interface Symmetric (AES) & Asymmetric (ECC)	**Contributing Security Code** **mbed TLS Optimization Tips** **mbed CI Shield**	Optional Hands-on Development Time
10am					
11am		Hands-on Development Time	Hands-on Development Time	Hands-on Development Time	
12pm					
1pm		Lunch	Lunch	Lunch	Lunch
2pm		**Adding Bootloader Support** Flash API, Flash Algos, Runtime	**Adding Storage Support** Block Storage API NOR Flash, Filesystem	Hands-on Development Time	
3pm					
4pm		Hands-on Development Time	Hands-on Development Time		
5pm		Show & Tell, QnA	Show & Tell, QnA	Show & Tell, QnA	
6pm	**Objectives for the week**	Break	Break	**Workshop Review and Next Steps**	
7pm	Dinner	Dinner	Dinner	Dinner	
8pm					
9pm		Optional Hands-on Development Time	Optional Hands-on Development Time	Optional Hands-on Development Time	

Workshop Materials & Presentations

- Workshop materials at https://github.com/ARMmbed/mbed-os-workshop-17q2
- Also slides will be shared just after they are presented.

Final Logistics

- Fire exits
- Toilets
- Garden

- Tonight
  - Dinner @ 7pm in the "Robinson Room"
  - This room ("Exec Conf 2") is open after dinner for any setup you may want to do

- Tomorrow
  - Breakfast served 7-9am in the "Executive Restaurant"
  - In here for 9am start!

Have a great week!

ARM