

mbed OS Silicon Partner Workshop

ARM

Introduction and Objectives

Wyboston Lakes
27th March 2017

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Welcome!



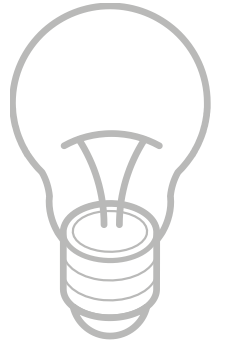
Agenda

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

mbed OS update

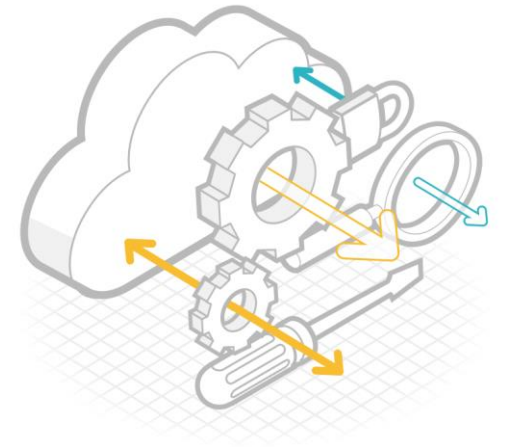
IoT is driving the inevitable move to "Platform OSes"

- 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



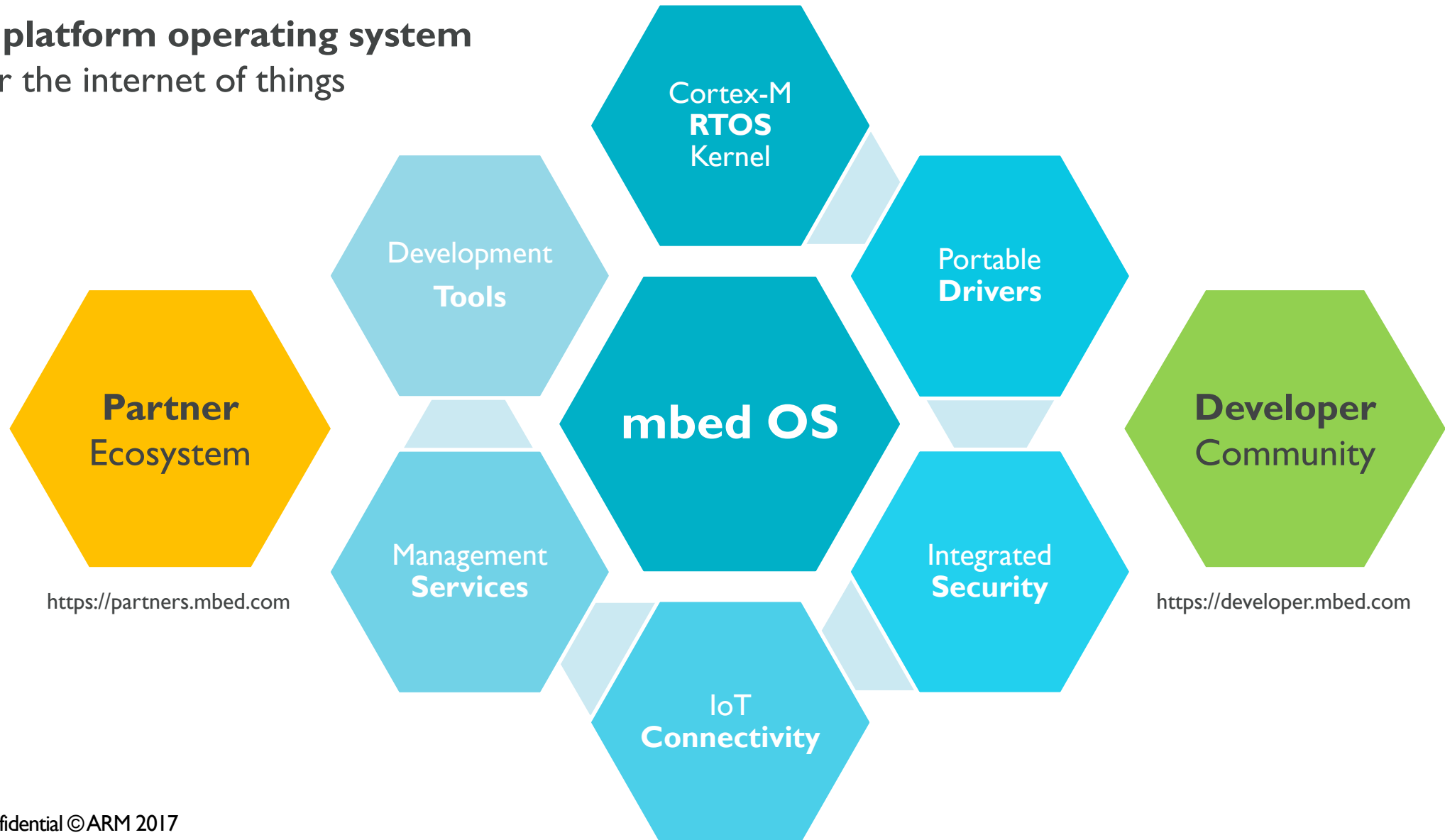
Platform OS Requirements

- 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

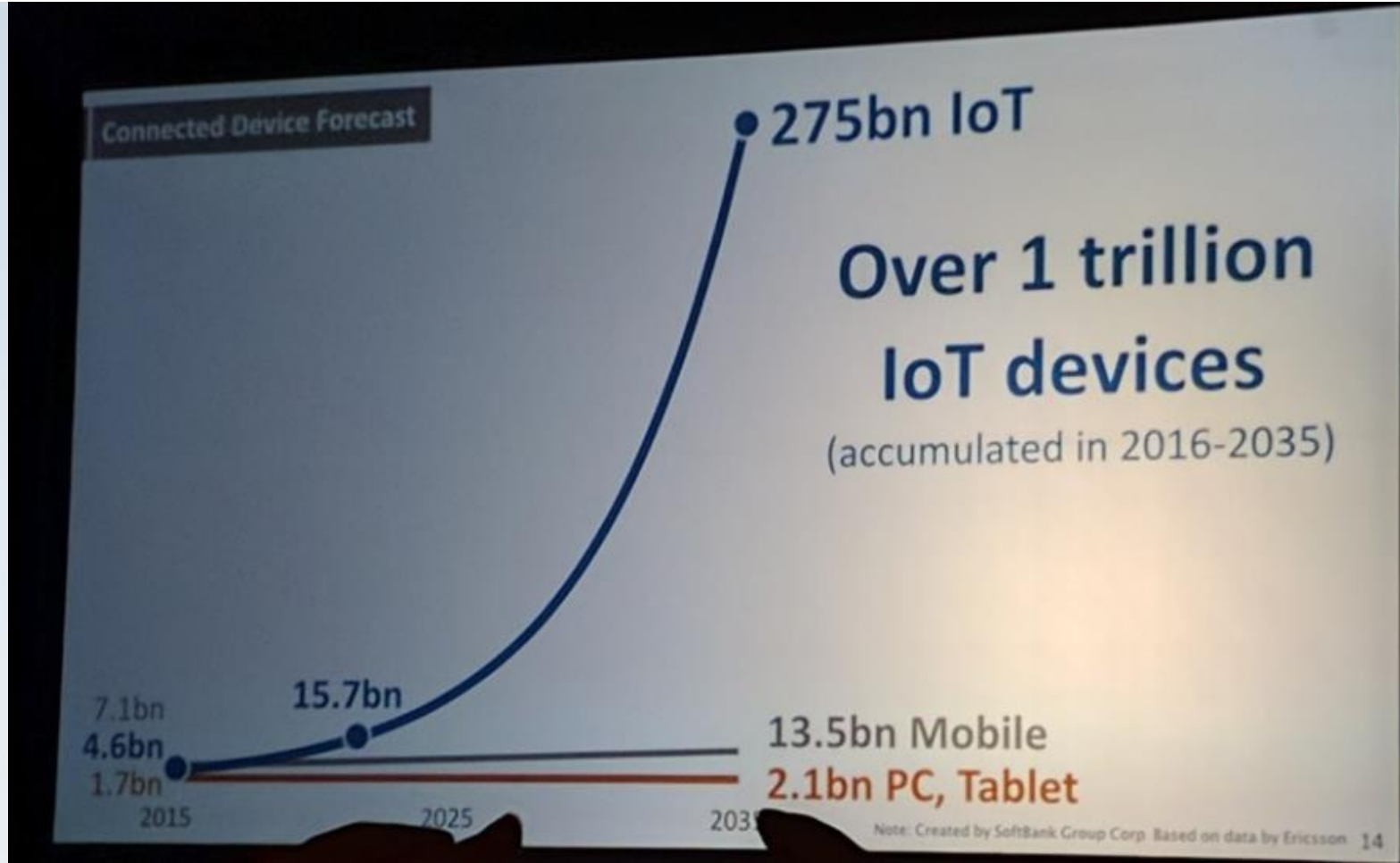
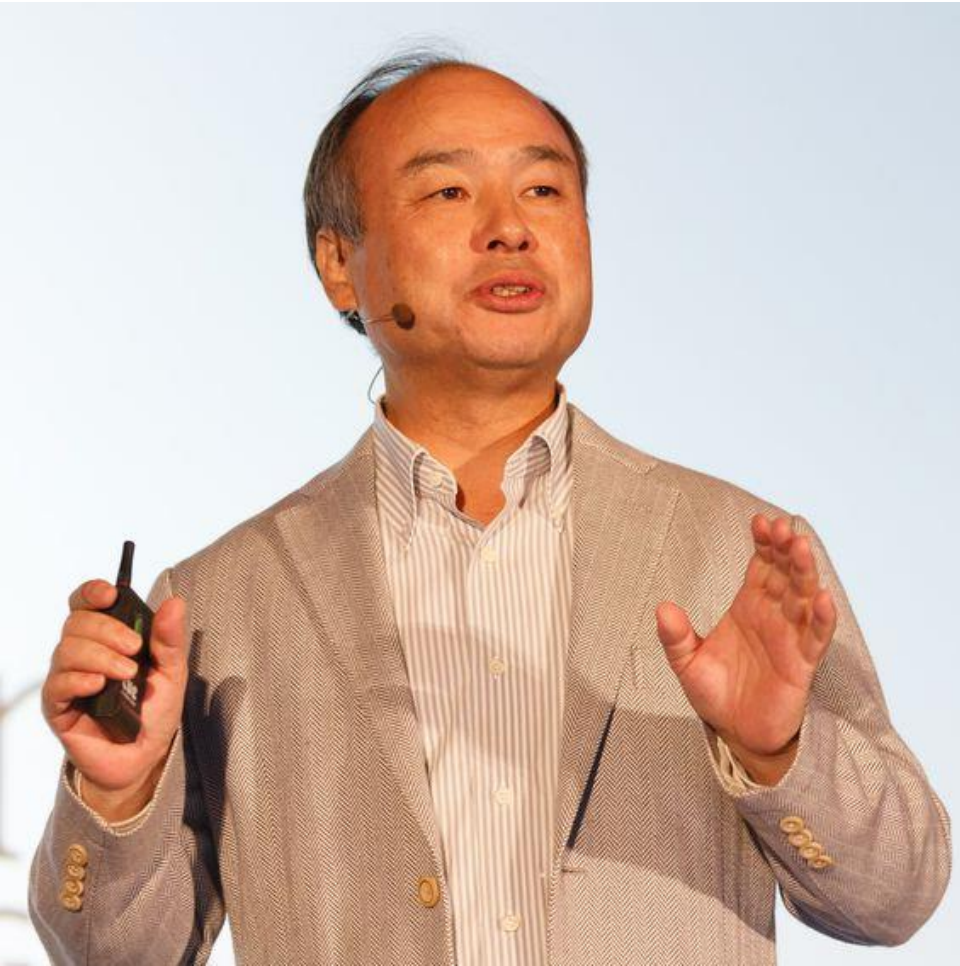


mbed OS 5

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



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

mbled OS Connectivity



Ethernet

BLE

WiFi

Thread



Cellular

LoRaWAN

Sub-GHz
6LoWPAN

NB-IoT

mbled OS Security and Services

Deploy firmware

The screenshot displays the mbed Cloud web interface. On the left, a sidebar contains navigation links: Home, Dashboard, Device management (highlighted with a yellow circle), Access management, Firmware management, Images, Manifests, Update campaigns, Manufacturing, and Developer tools. The main content area is titled 'Firmware image management' and includes a table of uploaded images. A yellow line points from the 'Device management' link in the sidebar to the 'Manage and group devices' text at the bottom. Another yellow line points from the 'Create campaign' button in the 'Firmware image management' section to the 'Deploy firmware' text at the top.

Firmware image management

Upload and manage firmware images. For help on this topic, see the documentation.

Upload new images Actions

Q Search by Name

Name	URL
Test2	http://firmware-9eb5.s3.amazonaws.com/...
Test1	http://firmware-9eb5.s3.amazonaws.com/...
Auto Image	http://firmware-9eb5.s3.amazonaws.com/...
kfkfdgmikfkm,mdfbmkdfmbkdfmbkmdfkbm	http://firmware-9eb5.s3.amazonaws.com/...
Test-2	http://firmware-catalog-media-9eb5.s3.amazonaws.com/blue.json
Test-1	http://firmware-catalog-media-9eb5.s3.amazonaws.com/green.json
test	http://firmware-catalog-media-9eb5.s3.amazonaws.com/japanese.jpg

Create and manage update campaigns For help on this topic, see the documentation.

Create campaign

Not started Active Archived

Q Search by Name

Showing 4 results

Name	Status	Date created
Blue Campaign	Deployed	December 8, 2016 9:08 AM
Blue Campaign	Deployed	December 8, 2016 11:41 AM
Red Campaign	Deployed	December 8, 2016 9:17 AM
testnew		

Device certificate

A device certificate is currently set for this account.

The device certificate is private, personal and not stored on our servers. Thus we can not retrieve the private key or header file for you, as we have no knowledge of it. If you don't have access to it you may revoke it and generate a new one.

Created at: January 16, 2017 2:36 PM

Public key: -----BEGIN PUBLIC KEY-----

To create new security credentials, please delete the existing ones first.

Delete my device security credentials

Learn how to develop my device applications

Manage and group devices

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

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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

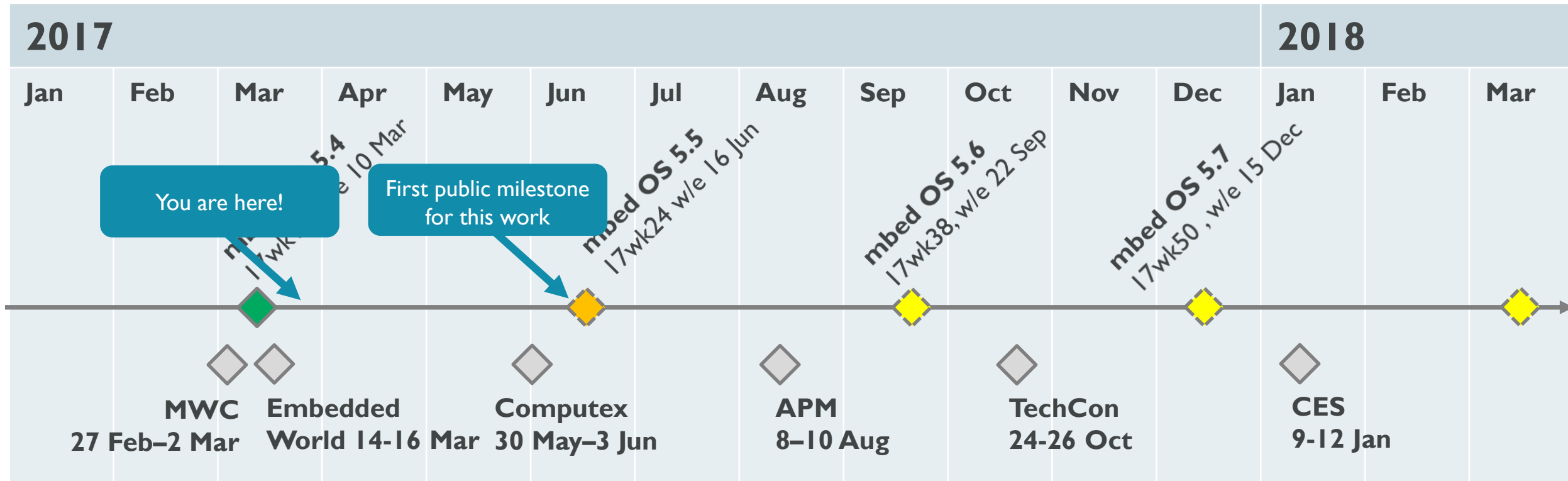
→ *Enables optimal security capabilities and performance available on your platforms*

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)

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		mbd 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)	mbd OS Engineering Roadmap Additional Requirements for Contributing Security Code	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	Best Practices for Writing Security Code	
3pm					
4pm		Hands-on Development Time	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				
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!

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