



# arm

Mbed Silicon Partner Workshop

## Introduction and Objectives

# Welcome!



# Agenda

- Introduction
- Mbed OS update
- Objectives for the week
- Meet the team
- Format for the week

# Purpose of the Silicon Partner Workshops

Why are we here?

- The Mbed team would like to lead you through upcoming technology in Mbed OS that will enable or improve functionality of your products in the OS
- Together we will overview architecture, design patterns and hold open Q&A sessions
- Opportunity to discuss related on-demand topics of importance to you/your products
- We will use hands-on sessions to accelerate development and collaborate on common challenges
- **Have a great time!**

# Previously

# Welcome



WYBOSTON LAKES



# Silicon Partner Workshop 2016



# Silicon Partner Workshop 2017





# Silicon Partner Workshop 2017

# Silicon Partner Workshop 2018

[Our photo here]

# Mbed OS update

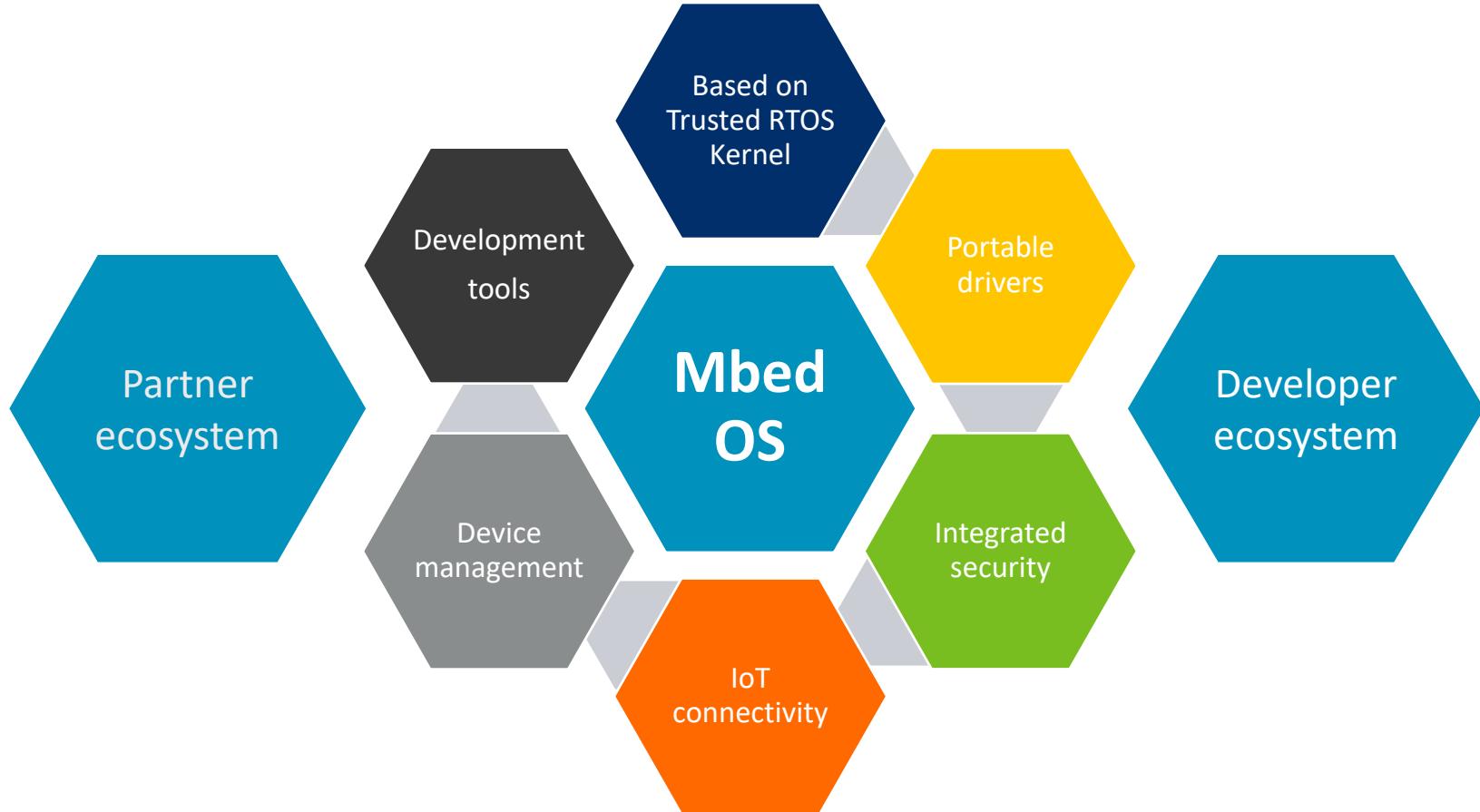
# Arm: the industry's Architecture of Choice

Extraordinary growth – from sensors to server



# Mbed OS

A free, open source Platform OS targeting IoT end node devices

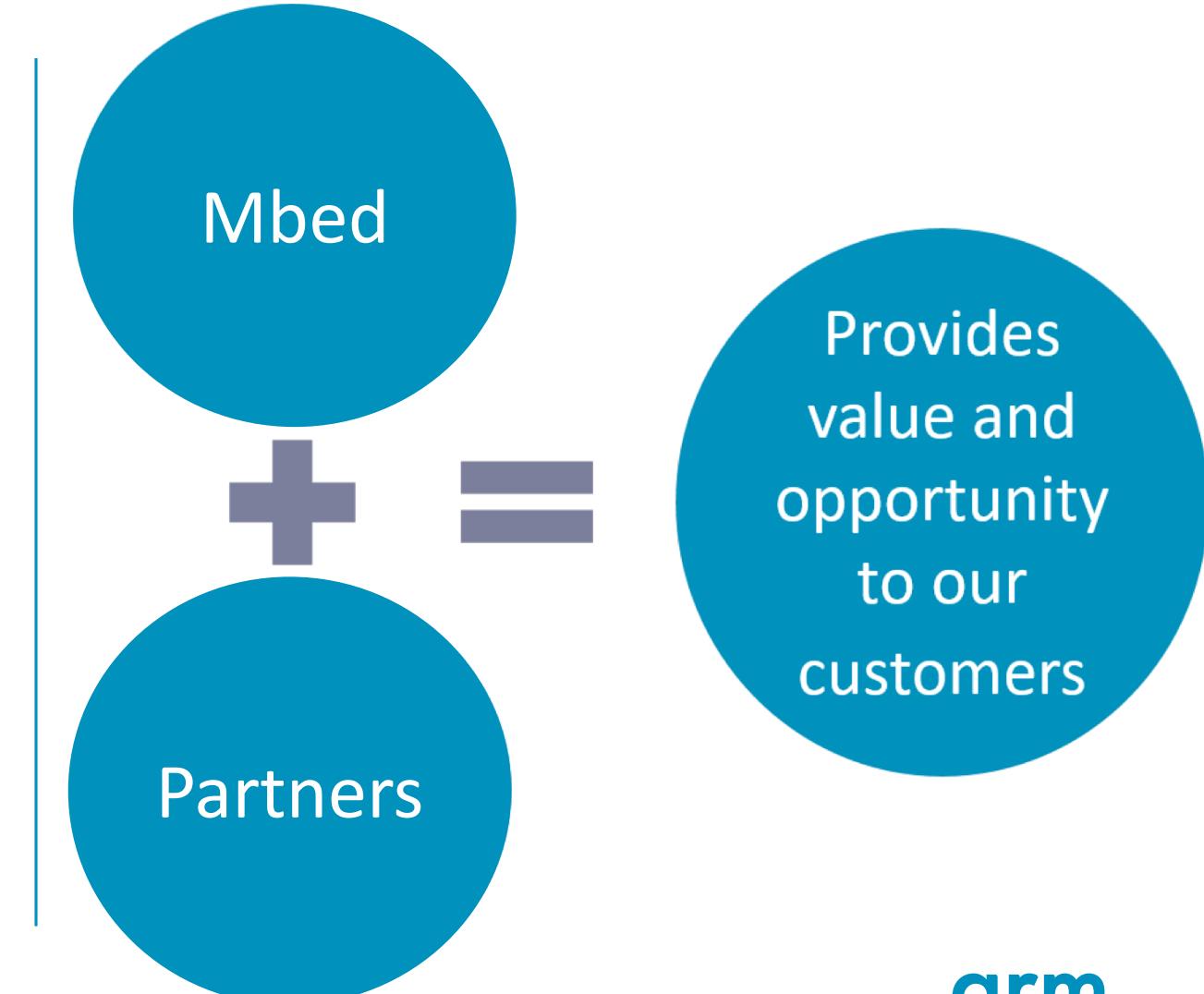


**Addressing the disruptive jump in software complexity of IoT device product requirements and reducing IoT product development time and cost**

# Mbed Partners

Partners are the foundation on which the Mbed ecosystem is built

- Partners contribute **code, knowledge** and **technology** to the Mbed ecosystem
- These **contributions** are **fundamental** to the **growth** of the **value** of the ecosystem
- The **integration** of the contributions **reduces** later supply chain **complexity**
- The products Partners **enable** provide both **opportunity** and **choice** to mutual customers



# Mbed OS Roadmap Priorities

	Current	Next	Future
Core	<b>NVStore</b> <i>Portable, updateable internal MCU FLASH based storage for keys, certificates</i>  <b>Crash Dump Log at Hard Faults</b> <i>Log of system parameters at the time of hard fault helps in debugging hard faults</i>	<b>Device Analytics</b> <i>Allows collection of important device parameters</i>  <b>StorageLite</b> <i>Simple, lightweight component to save and retrieve data from external memory</i>	<b>Dual Core MCUs</b>  <b>ARM V8M</b>  <b>Standardized Error Handling</b>  <b>Encrypted Block Storage</b>
Connectivity	<b>Cellular Stack for Cat-NB1 &amp; Cat-M1</b> <i>Release of upgraded cellular stack now also supporting NB-IoT and Cat-M1</i>  <b>LoRaWAN Stack for modules</b> <i>Release of native LoRaWAN stack with module support</i>	<b>BLE Security Manager</b> <i>Enables BLE security establishment and enforcement</i>  <b>Secure Sockets</b> <i>Integrated security for their socket connections</i>	<b>NFC Stack</b>  <b>NFC/BLE Commissioning</b>  <b>Wi-sun</b>
Security	<b>PSA Secure Partition Manager</b> <i>Allows secure partitions with their own memory and storage space</i>  <b>Mbed TLS support to secure element</b> <i>Enables provisioning and authentication using secure element</i>	<b>PSA Secure Time</b> <i>Enable a standard PSA API for Secure time</i>  <b>PSA Crypto APIs</b> <i>Offering cryptographic operations on keys referenced by an opaque ID</i>	<b>PSA Secure Boot</b>  <b>PSA Secure Storage</b>  <b>PSA Secure Audit</b>  <b>PSA Secure Debug</b>

# Mbed OS Roadmap Priorities



# Mbed OS Security – PSA Strategy

Mbed OS starts implementing PSA – while defining it

## Secure Partition Manager

Separate secure vs non-secure partitions



Mbed SPM

## Crypto + Key Store API

Hide keys inside a secure partition, offer access to other partitions



PSA Crypto API

## PSA Security Features

Secure Boot

Secure Storage

Attestation

Device Identity

Secure Time

Audit Logs

# Objectives for the week

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## Hardware

Mbed OS 5.9 is targeting native low power operation and accuracy

We will work on:

- RTC, Timers, Sleep
- Watchdog and ResetReason

→ *Enables native low power with tickless scheduler and reliable execution*

## System

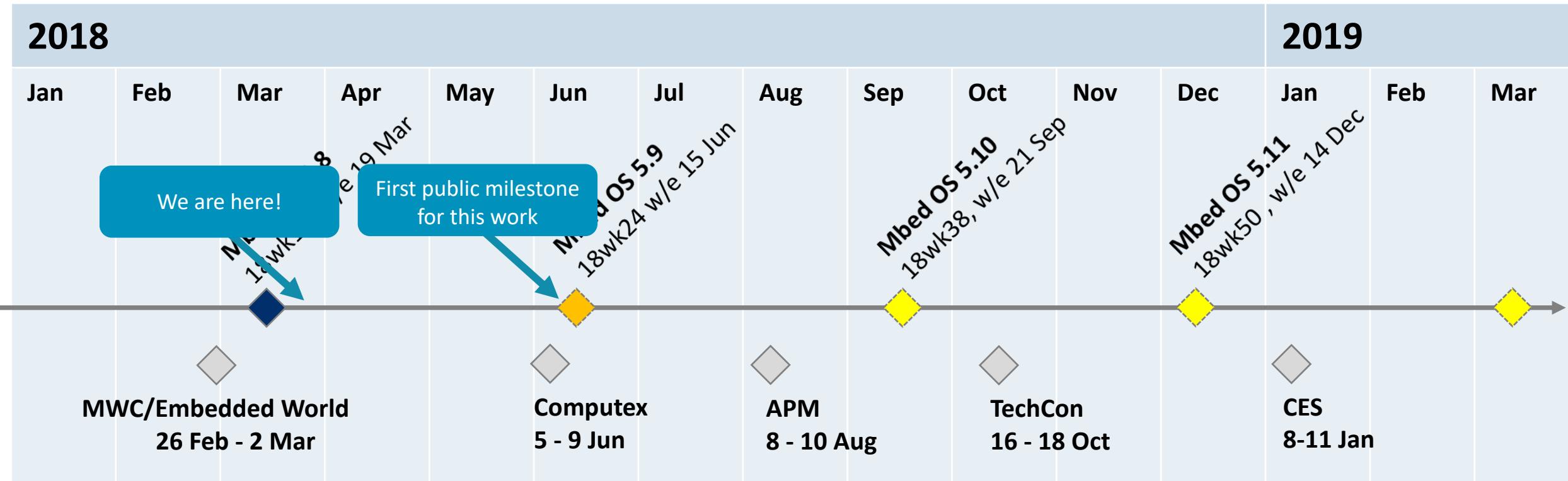
Mbed OS 5.9 plans to introduce improved USB Device stack

We will work on:

- Knowledge about USB
- USB Phy

→ *Enables creation of robust USB Device solutions*

# Mbed OS 2018 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



**Gary Swanson**  
Training Manager



**Andy Powers**  
HAL Product Manager



**Sam Grove**  
OS Technical Lead



**Mihail Stoyanov**  
Partner Enablement  
Manager

# The Workshop team

[roundtable introductions]

# Format of the week

	Sunday, Mar 25	Monday, Mar 26	Tuesday, Mar 27	Wednesday, Mar 28	Thursday, Mar 29		
7-9am		Breakfast	Breakfast	Breakfast	Breakfast		
9am		Introduction and Objectives	HAL Improvements Tickless	USB Device Improvements and Validation	Optional Hands-on Development Time		
10am		Collaboration & Workflows					
11am		HAL Improvements RTC and Tickers					
12pm		Hands-on Development Time	Hands-on Development Time	Hands-on Development Time			
1pm		Lunch	Lunch	Lunch	Lunch		
2pm		Power Management Sleep	HAL Improvements Watchdog & ResetReason	Hands-on Development Time			
3pm		Hands-on Development Time	Hands-on Development Time				
4pm							
5pm		Show & Tell, QnA	Show & Tell, QnA	Show & Tell, QnA			
6pm		Break	Break	Workshop Review and Next Steps			
7pm	Welcome Dinner	Dinner	Dinner	Dinner			
8pm							
9pm		Optional Hands-on Development Time	Optional Hands-on Development Time	Optional Hands-on Development Time			

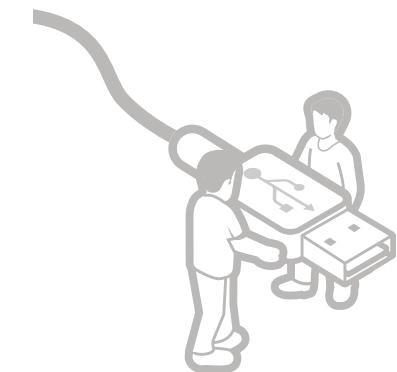
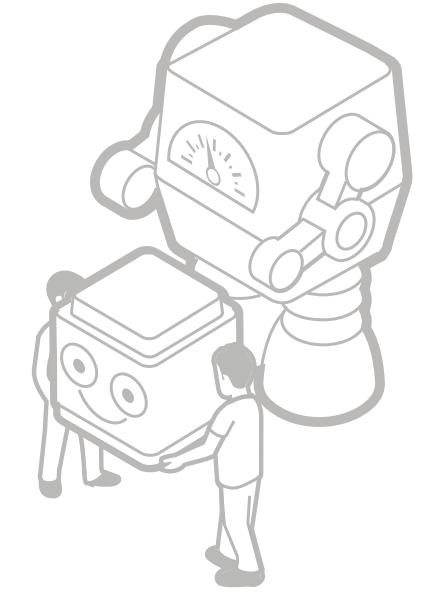
Leave 8:30pm 

# Additional Objectives

Improve and bugfix the porting and testing process as we go

Identify high priority tasks we should work on, and who should be involved

Build a strong working relationship between the teams



# Workshop Materials & Presentations

Workshop materials at

<https://github.com/ARMmbed/mbed-sip-workshop-2018q1>

Slides will be shared here just after they are presented.

# Logistics

# Final Logistics

Fire exits – turn right out of the doors, at the end of the corridor

Toilets – just to the left of the door

Each day:

- Breakfast served 7-9am in the restaurant to the left of reception
- Lunch will be provided at the hotel
- In here for 9am start!
- Wrap up with a Show&Tell, QnA session

Thank You!

Danke!

Merci!

谢谢!

ありがとう!

Gracias!

Kiitos!

감사합니다

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