



**IOT Innovation Challenge 2018 –
Briefing by Singtel**

14 Nov 2018



Agenda

- Problem Statements
- Singtel IoT connectivity options
- Guidelines for proposal submissions
- Questions and answers

Problem statements at a glance

1. Multiple wireless protocols IOT sensor for asset tracking and monitoring
2. Multipurpose wearable device for monitoring of patients well-being
3. Smart IOT Solutions for management of educational facilities and operations
4. IOT Solution to enhance shoppers experience

Problem statements (1 of 3)

1. Multiple wireless protocols IOT sensor for asset tracking and monitoring

Most existing positioning tracking devices/tags support only a single wireless protocol such as Bluetooth, WiFi or UWB. As there is no standardisation on positioning technology to be used indoor, a positioning device supporting only a single wireless protocol failed to function at location where the beacons supporting the wireless protocol is not available or the signals are too weak to be useful. It is therefore desired to design and develop a sensor device to connect, track and monitor mobility assets and personnel with high level of accuracy for both indoor and outdoor environments. The sensor device should be network-agnostic, and is interoperable with various different network protocols, e.g., cellular, WiFi, BLE, etc. It should be able to automatically switch between the various protocols based on the network with the strongest signal strength as it transits through different environments.

Problem statements (2 of 3)

2. Multipurpose wearable device for monitoring of patients well-being

Design and develop a disposable wearable device that can record personnel particulars, and collect vital sign information such as heart rate, body temperature, blood pressure, oxygen saturation, etc. It should be able to function as an alerting system, e.g., fall detection, as well as an indoor and outdoor tracking system.

3. Smart IOT solutions for management of educational facilities and operations

Design and develop IoT solutions that enable schools and universities to be smarter and more successful at what they do. Examples include devices that enable automation in management of facilities such as classrooms and laboratories; devices that enhance student/staff identification and attendance-tracking; devices that enhance systems for school transport/parking/passenger tracking; devices that enhance student/staff security.

Problem statements (3 of 3)


4. IOT solution to enhance shoppers experience

Design and develop platform solutions that will revolutionize the way consumers shop, using IoT and data analytics to better understand consumer behaviour, and to provide a holistic digital shopping experience. The solution should also enable retailers to plan the amount of inventory to hold, and signal when to replenish their inventory.

Singtel IoT connectivity options

	4G	3G	CAT-M1	NB-IoT
Standard	LTE-A, LTE-A Pro	UMTS, HSPA (HSPDA), HSPA+	3GPP Rel-13	3GPP Rel-13
Frequency	1800MHz, 2600MHz	900MHz, 1800MHz	1.4MHz	200KHz
Max. throughput	DL: 300Mbps UL: 150Mbps	DL: 42Mbps UL: 8Mbps	DL: 1Mbps/375Kbps UL: 1Mbps/300Kbps	DL: ~250Kbps UL: ~20Kbps

For more information on Singtel IoT connectivity, visit www.singtel.com/iotconnect

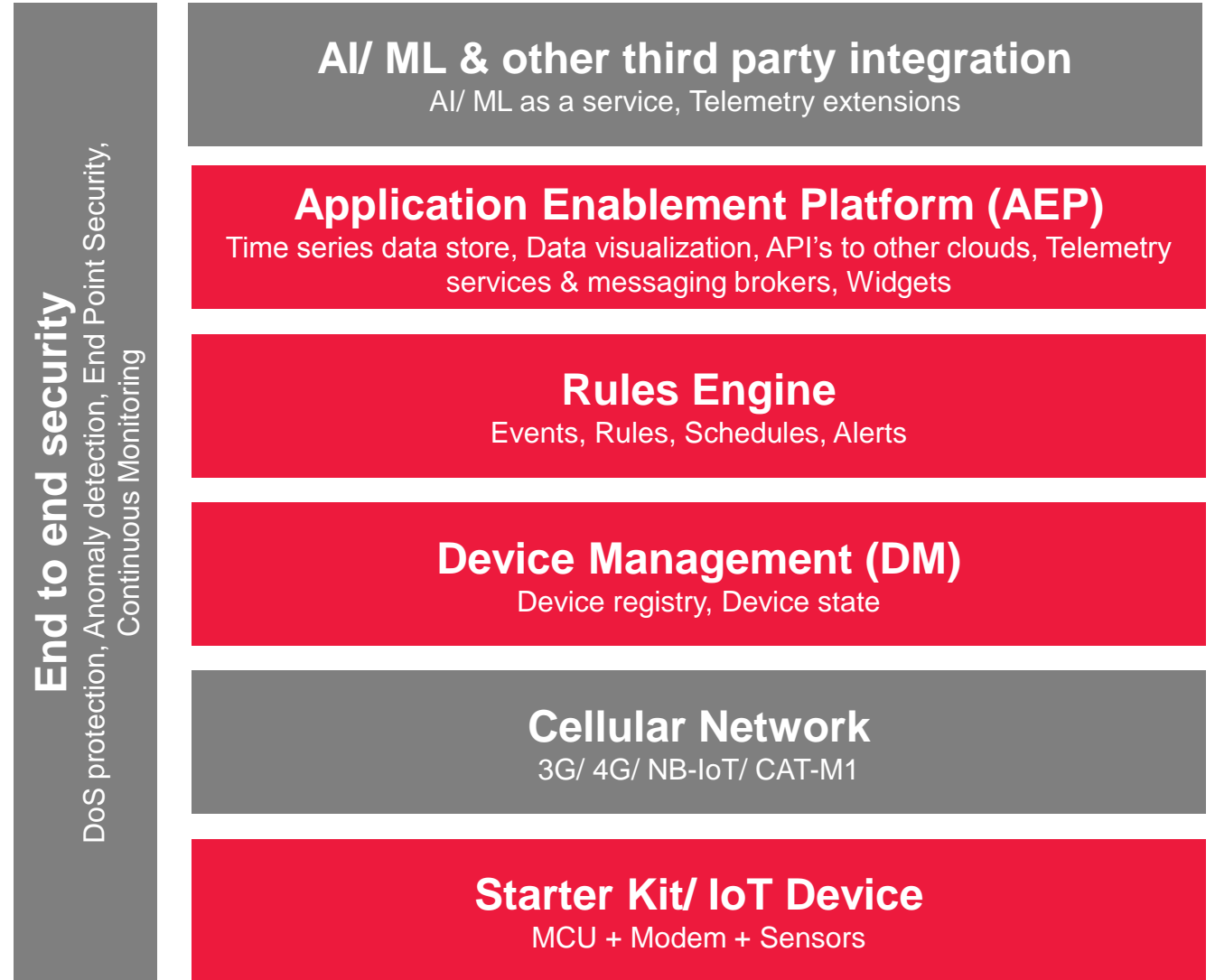
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Guidelines for Proposal Submission

IoT technology stack

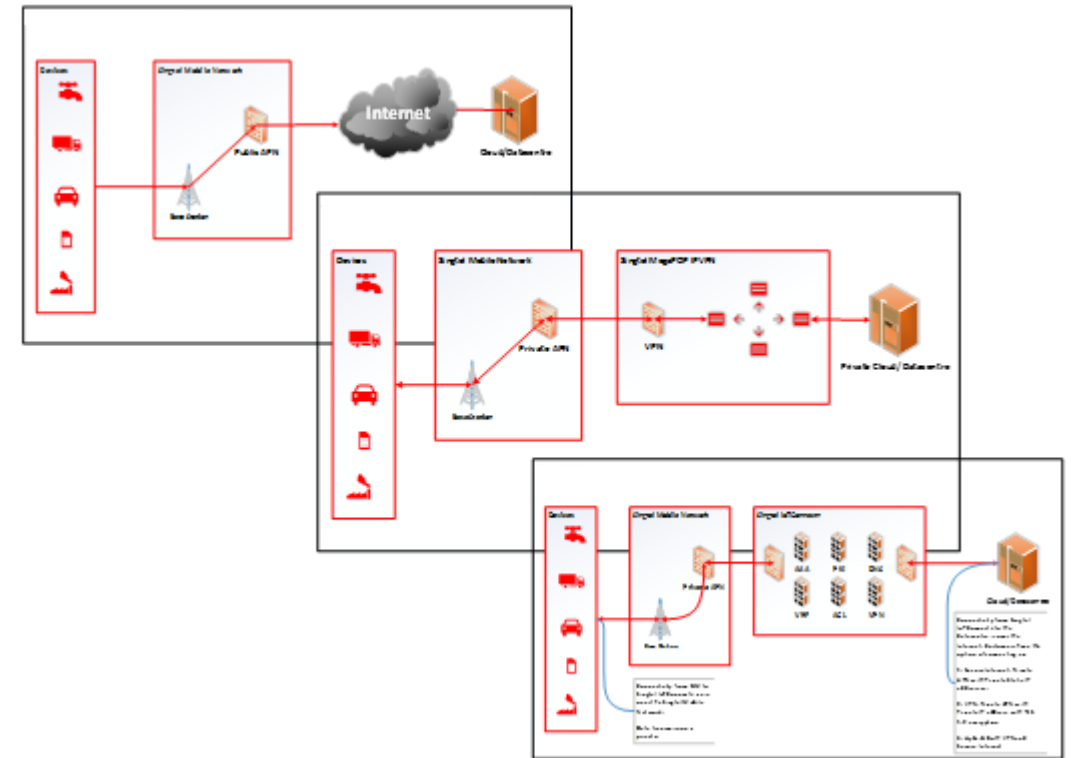
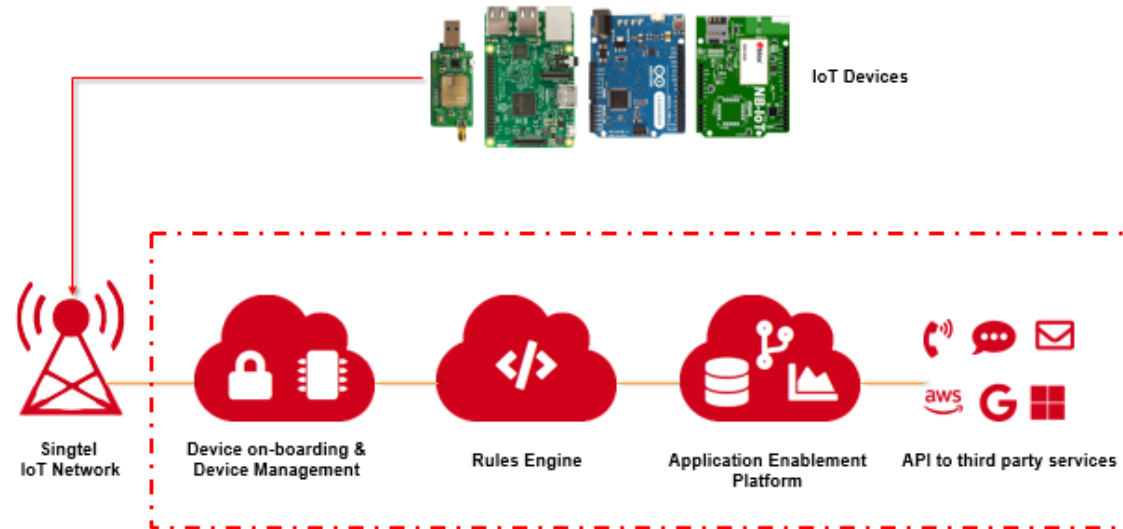
Proposal submission should address each layer of the technology stack.

Examples can be found in the next slide.



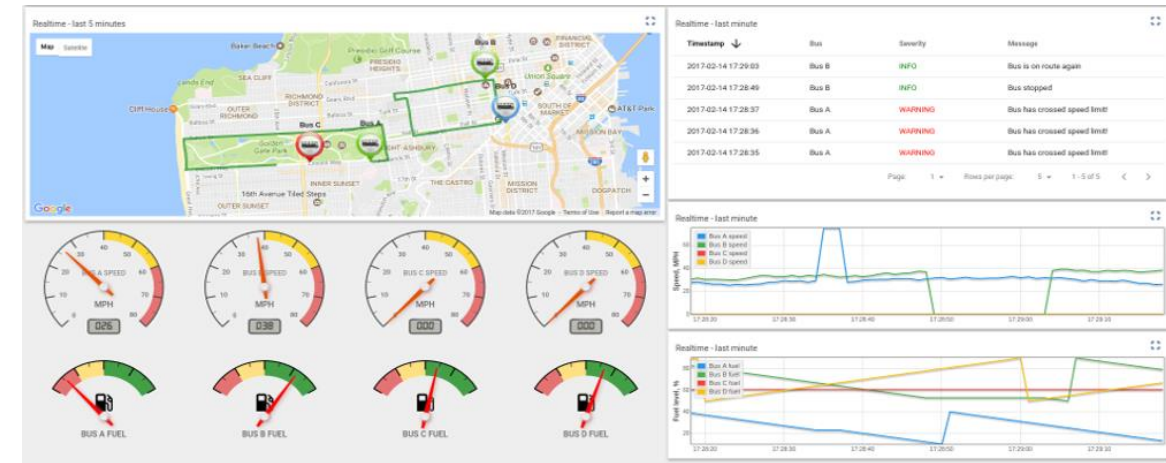
Examples

Examples of a high level architecture diagram:



Examples

Examples of platform – Dashboard and data visualisation:



Source: Thingsboard.io

For more information on Singtel IoT, visit www.singtel.com

