T-Mobile IoT

Self-service IoT certification toolkit to save developers' time and to speed up the production process



Problem

IoT (Internet of Things) are at a blooming stage, with a growing amount of IoT devices, the demand for testing and certifying these devices skyrocketed as well.

Current certification process takes 6-9 months for a device to be fully certified, including 4 months of pre-test. This is affecting business results for T-Mobile and its partners. The process needs to be more efficient, transparent and standardized in order to help decrease product to market time.

Approach We Followed



Solution

We created a self-service certification toolkit to help developers pre-test their IoT devices before sending them into labs. This solution would save both parties time on device transferring also ensure certain quality assurance.

Architecture



Our solution allows developers to create and execute test cases based on AT commands this will then verify whether the devices pass certain requirements to operate on T-Mobile's network.

The team built a web application to test IoT devices. We did this by configuring, managing, and executing test cases based on AT commands that are send to IoT devices.

Benefits We Bring

Time Reduction

• Estimated 25% time reduction

Increases speed and quality by 40% in delivering solutions

Use of Modems

• Reduce test categories to only Efficiency, Basic connectivity and Functionality.

Avoid Network Problems

- Cell congestion
- Signalling storms -> wide area disruption
- Degradation of IoT service performance

Ŧ Mobile	Model 1245			Δ Δ 🕕
TOP LEVEL	Projects/HomeMonitor Model 1245			0 ¥
Project Test Sets History SHORTCUT Model 1245	Pretest Run test cases to help with debugging	ЛЛ.	Certify Get your device certified by T-Mobile	
	Profile 🔅	STM1101		
	Modem	xxxxxx		[
	IMEI	5E6787998980YH		
	Network Type	LTE-A		

Pick Test Cases

•••					
T Mobile	Model 1245	Δ			
TOP LEVEL	Projects/HomeMonitor/M	For Pretest			
Project A Test Sets History	Quick Start W	Quick Start With Recommendations		Selected Tests	20 >
PUOPTCUT	Required by T-Mobile	Cases did not passed last time		Connection Efficiency	2 🗸
	For Your Mode			Test ID	Details
Model 1245	Tests passed last time			- 5.3,TC,004	()
				- 5.3,TC_005	()
	Tests List	search for tests	Q		
	🗹 🕂 Lab-Netwo	rk Connectivity	20 >		
	Connection	Efficiency	62 🗸		
	Test ID	Description	Details		
	5.3_TC_001	Enable or Disable Network Friendly Mode feature. ATxx	(i)		
	5.3_TC_002	Check IoT Device reports the value for the <nfm active=""> and</nfm>	()		
	5.3_TC_003	Configuration of Back-off base interval.	(i)		
	S.3_TC_004	Read 'Back-off timer array' or 'Back-off timer flag'.	(i)		
	S.3_TC_005	Verify whether the Communication Module rejects the IoT D	(i)		
	5.3_TC_006	Restart the Back-off countdown again after power cycle.	(i)	22 test cases selected	tart Test
	5.3_TC_007	Check IoT Device reports the supported range of values for	(i)		



Run Test Cases



