Mattia Fazzini



Alessandro Orso



Problem Description

Mobile App Testing















Could Testing Infrastructures









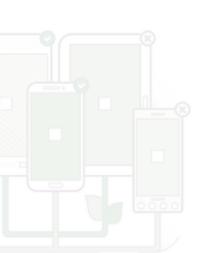


Study Methodology

Test Suite



AWS



Android Version	#Devices	CST ver.	#Modules	#Tests
JELLY BEAN 4.2	2	4.2.2_r1	50	17268
JELLY BEAN 4.3	5	4.5_r2.2-cts	58	18013
KITKAT 4.4	38	cts-4.4_r4	73	24039
LOLLIPOP 5.0	11	cts-5.0_r9	93	33929
LOLLIPOP 5.1	6	cts-5.1_r28	96	34207
MARSHMALLOW 6.0	15	cts-6.0_r32	114	37613
Nougat 7.0	7	cts-7.0_r32	124	43494
Nougat 7.1	2	cts-7.1_r29	133	43598
Oreo 8.0	11	cts-8.0_r20	195	59459
OREO 8.1	4	cts-8.1_r16	210	60383
PIE 9	9	cts-9.0_r9	289	84182

We used the Compatibility Test Suite to analyze the behavior of 110 devices on the Device farm. We collected a total of 12 million test executions.

Study Results and Analysis

175 - Android 4.2 Android 4.3 Android 4.4 150 - 125 - 100 - 75 - 50 - 25 - 0	Android 5.0 Android 5.1	Android 7.0	Android 7.1 Android 8.	Android 8.3		

- We observed 9,778 failures and all devices experienced at least one failure
- We investigated general issues with the cloud infrastructure
 - ▶ <u>58 tests failed on all devices</u> (27 confirmed by a device farm engineer)
- We investigated security-related issues
 - ► 1,307 security-related test failures (caused by 153 different tests)

- Create a taxonomy of the failures
- Identify per-vendor and per-version failures
- test executions

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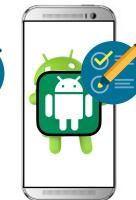
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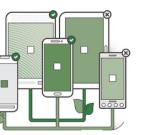






Could Testing Infrastructures

AWS Device Farm



Firebase Test Lab



App Center

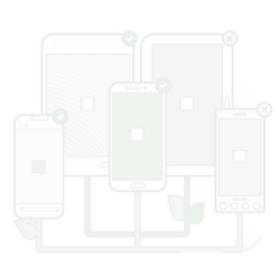


Study Methodology

Android Compatibility Test Suite



AWS Device Farm



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Problem Description

Mobile App Testing









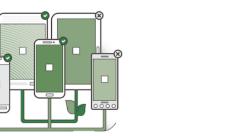






Could Testing Infrastructures

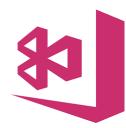
AWS Device Farm



Firebase Test Lab



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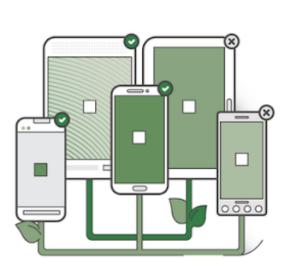


Study Methodology

Android Compatibility Test Suite



AWS Device Farm



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Could Testing Infrastructures

AWS Device Farm







Android Compatibility

Test Suite



AWS Device Farm

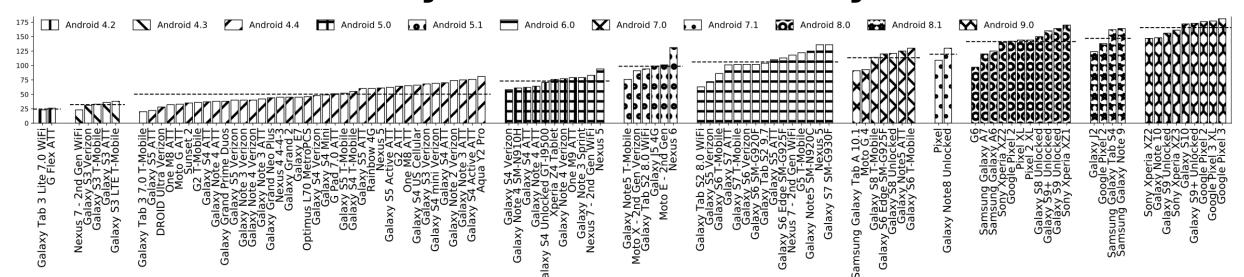
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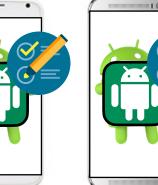
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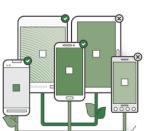






Could Testing Infrastructures

AWS Device Farm







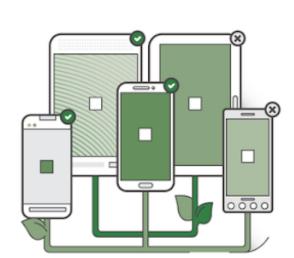


Android

Compatibility
Test Suite



AWS Device Farm



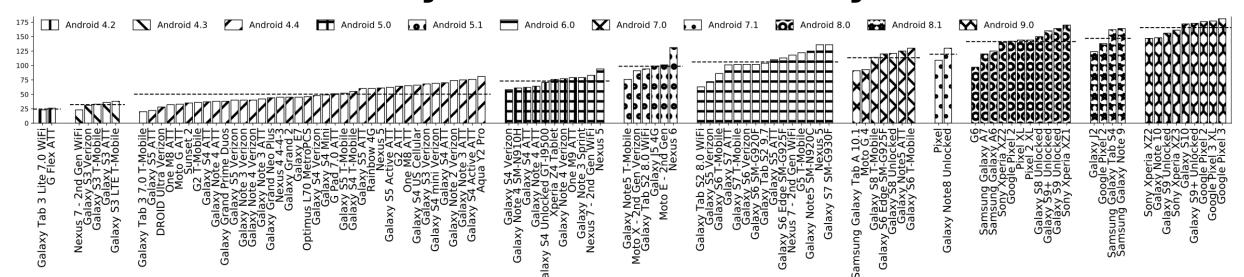
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