

Industrial Placement Presentation

Borqs Beijing Ltd.

Author: Rui Zhang(JMC)
Tutor: Prof. Kin K Leung
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Introduction

- Borqs Beijing Ltd.
 - A core cooperator of China Mobile Ltd (One of the three largest mobile service providers in China. It has a customer base of 522 million, nearly 1/12 of world population.)
 - Produces smartphone operating systems and applications
- OPhone OS
 - Based on Android mobile phone OS
 - Customized for the mobile phones used in China

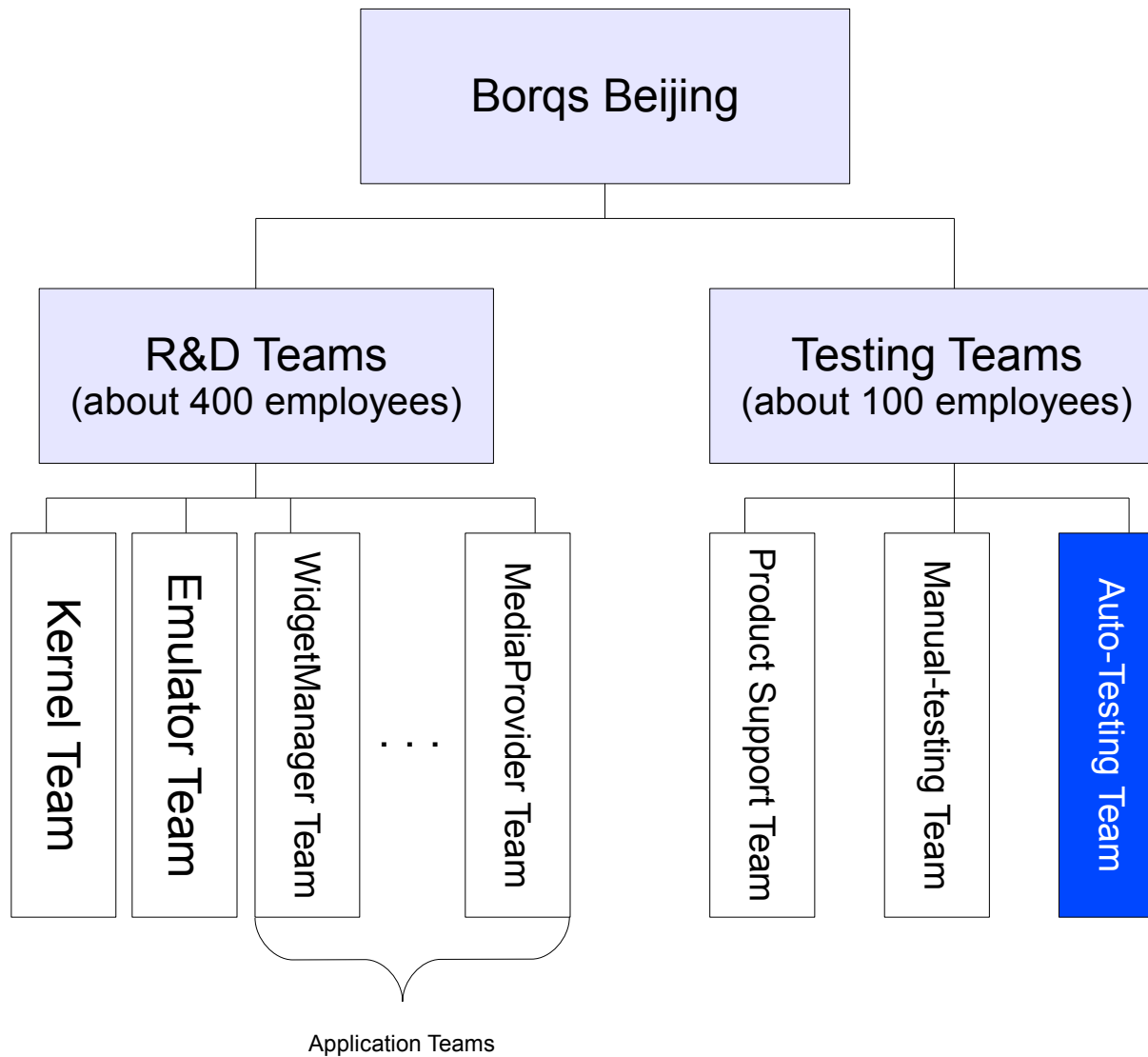
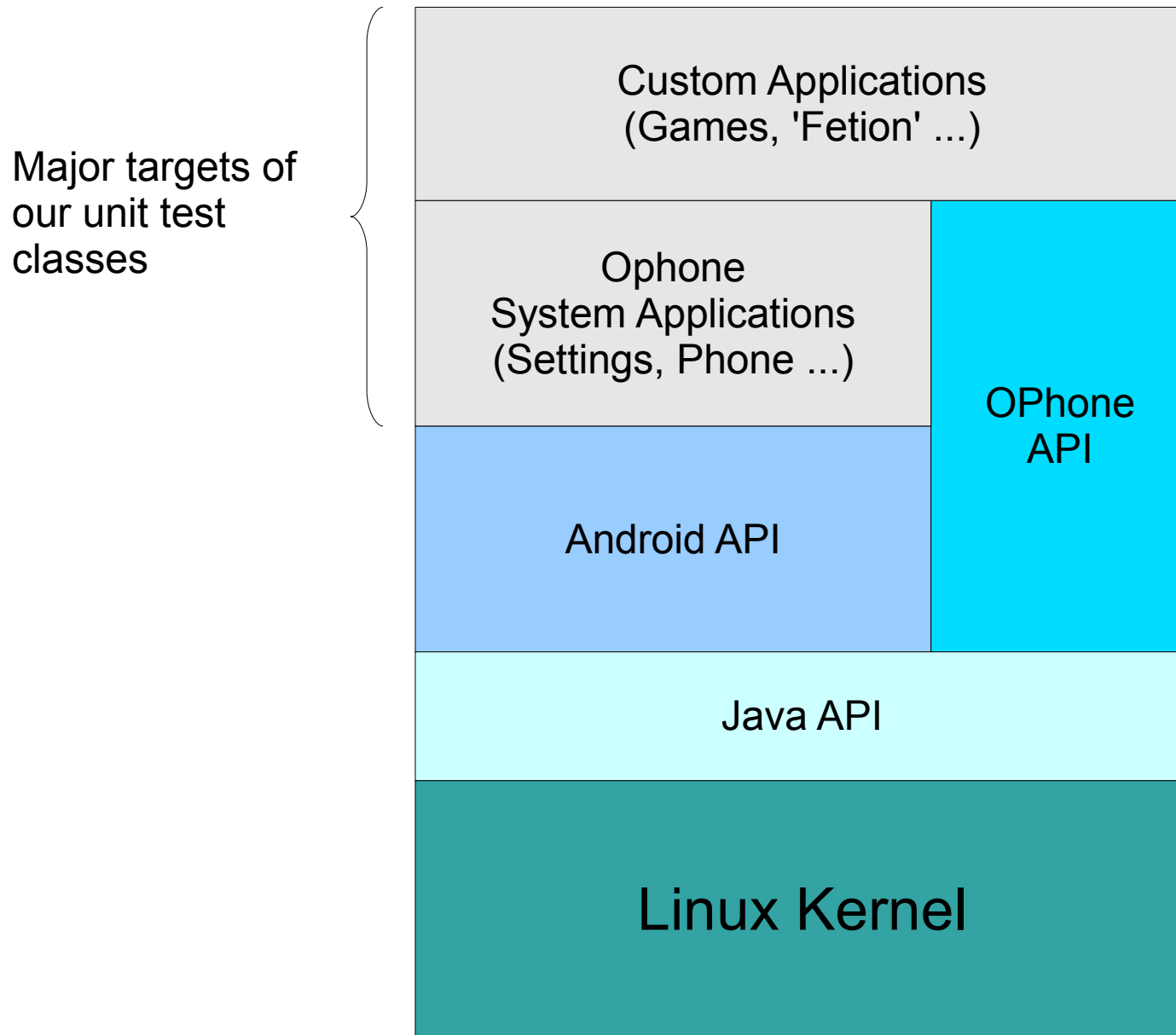


Diagram 1 :Borqs Beijing Ltd Employee Distribution

Responsibilities

- Developing test packages for the OPhone OS components and applications
 - Developing unit test classes
 - Find bugs and errors in source code
 - Our test classes should cover at least 80% of the executable source code in the classes tested
- Research about auto-testing mechanism on android system
 - Systematic ways of implementing unit test classes for the key components of android applications (Activities, Services, ContentProviders and BroadcastReceivers)

Structure of OPhone OS



Android Unit Test Environment

- Android provides programmers with unit test API
 - `Android.test.InstrumentationTestCase`
 - `Android.test.ActivityUnitTestCase<T>`
- Test cases are collected and executed by `Android.test.InstrumentationTestRunner`
- Problems of using Android unit test API
 - Android unit test API might be upgraded when new versions of android SDK is released
 - Limitations

Sample Test Class

```
public class WidgetUpdateActivityTest extends InstrumentationTestCase{
    private Instrumentation mInst;
    private Context mContext;
    private WidgetUpdateActivity mInstance;
```

```
@Override
```

```
protected void setUp() throws Exception {
    super.setUp();
    mInst = getInstrumentation();
    mContext = mInst.getTargetContext();
}
```

Override setUp method of InstrumentationTestCase, this method will be executed before every test case, in this class, is executed.

```
@Override
```

```
protected void tearDown() throws Exception {
    if(mInstance != null) mInstance.finish();
    mInstance = null;
    mContext = null;
    mInst = null;
    super.tearDown();
}
```

Override tearDown method of InstrumentationTestCase, this method will be executed before every test case, in this class, is executed.

```
/**
```

```
 * Start a WidgetUpdateActivity without inputting a uuid.
```

```
 */
```

```
public void testStartActivity(){
    Intent intent = new Intent("android.intent.action.VIEW");
    intent.setFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
    intent.setClass(mContext, WidgetUpdateActivity.class);

    mInstance = getInstance(intent);
    assertNotNull(mInstance);
}
```

Sample test method.

```
...
```

Summary

- Challenges of this placement
 - Understanding the code written by other programmers
 - Learning android system structure and API
- Relevant courses
 - Software Engineering Courses
 - Java Programming Courses

Thank you very much for listening!
Any questions?