MobServ Notes

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1. Mobile app landscape

APPLICATION = APPLICATION SERVICES (COMPUTE,STORAGE)+MANAGEMENT SERVICES(NETWORK,DB)

- **Native app** = written specifically for some platform (Java, Swift). (+) performances, UX and security (-) users limited to specific platform, high cost and long time of development
- **Web app** = Written using web standards and compatible across platforms. (+) Good UX, low cost of development, maximize users and quick to develop (-) not high quality and security relies on browser
- **Hybrid app** = Write once, compiled everywhere using webkit to link with specific API. (+) Large user base, low costs and quick to develop (-) Bad UX and quality

Revenues approaches: Paid, in-app purchase, advertising, freemium **Context aware**: User, Device,Time/space and environment to make the app aware of the context and improve the experience.

2. Android

Based on custom Linux OS, including new libraries, custom VM and java application framework.

Development phases=Setup, develop, debug and test (iterating) and publish.

Features: Application framework (reuse of components), integrated browser, 2D and 3D graphics libraries, media support, connectivity, sensors..

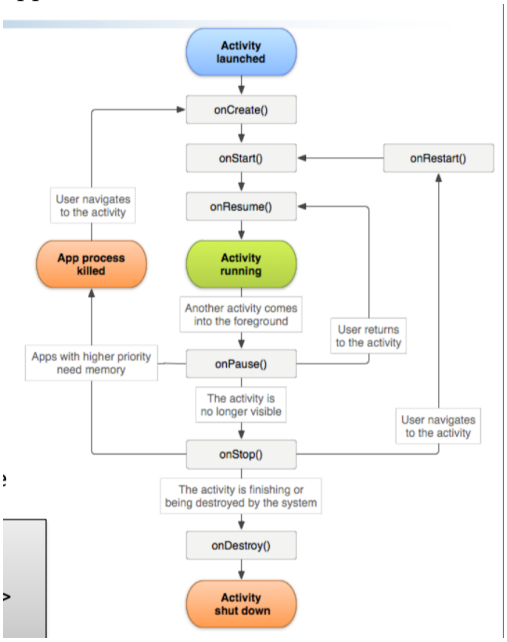
Android stack 1. Apps (system and not), each in its sandbox 2. Java API framework = Content provider, view system and Managers (Activity manager, package manager, location manager, notification manager...) 3. Native C/C++ Libraries (SQLite, Libc..) + Android runtime ART, every app has its own process and instance of Dalvik VM. 4. Hardware abstraction layer (audio, camera, bluetooth..) 5. Kernel (drivers)

Android components

- Activities: object which has a life cycle and perform some actions. It provides a screen (view) for the user interaction. Task is a collection of activities that user interact with when performing a certain job (from home to LIFO)
- Services: Component without UI used in the background (ex. media player). It can be part of its own process or in the context of another application's process.
- Content Providers: Manages access to data on the device and share data between applications (ex. list of contacts). Use of unique URI to identify data in a provider.
- Broadcast receivers: a component that responds to system-wide broadcast (even handler) initiated by other application or by the system (ex. battery is fully charged).

Other important stuff

- Views: object that knows how to draw itself on the screen.
- Fragments are used for a more dynamic and flexible UI designs. Represents a behavior or a portion of user interface in an Activity. A fragment must always be embedded in an activity and the fragment's lifecycle is directly affected by the host activity's lifecycle.
- Intent: used to start activities, *"intention to do something"*. Can be **implicit** (specify an action) or **explicit** (specify a target). Data can be added to the intent using `setExtra`. In the manifest, every app can declare the intent that can be handled using *intent filters*.



4. Golden rules

1. Decide what to build focusing on the user's needs.
2. Visit app stores to get insights of competitors. What can be improved?
3. Explore possible solutions, test and improve. Focus on targeted user base.
4. Sketch, mock-up, stories, interviews to gather feedbacks from users. The more you do, the better it is.
5. Build a basic prototype and use feedbacks.
6. Iterate the process.
7. Start coding from the interface, than backend -> Top-down approach.
8. Beta test the app and study the usability -> test before submit
9. Release and fix the bug.