

A seagull is shown in flight, wings spread wide, against a dramatic sky with orange and blue clouds. The seagull is white with dark wingtips and a yellow beak. The sky is a mix of deep blue and vibrant orange, with scattered white clouds.

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Framework Overview



Framework Overview

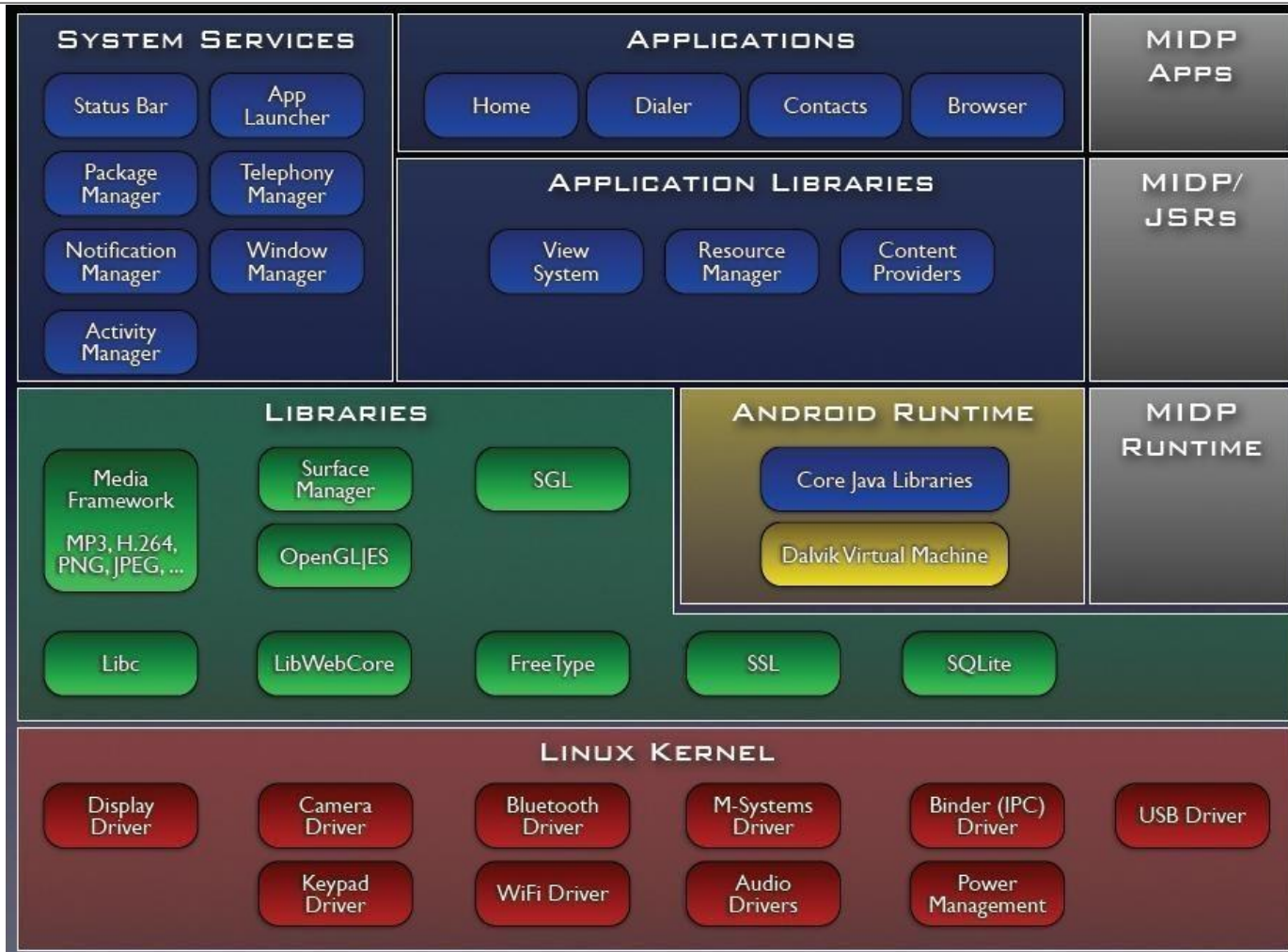
♣ Topics to be covered in this session:

- Anatomy of Android Application: APK File
- Android Application Components
- Introduction To Android Manifest

Hardware Platform

- Android is a complete package of hardware starting from boot loader to the applications
- It is a complete end to end software platform that can be adapted to work on any number of hardware configurations

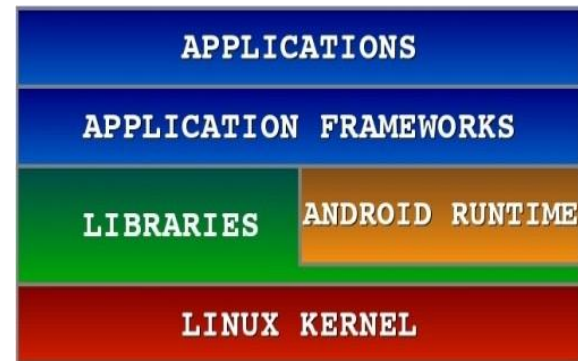
Android System Architecture



Android Software Stack Application

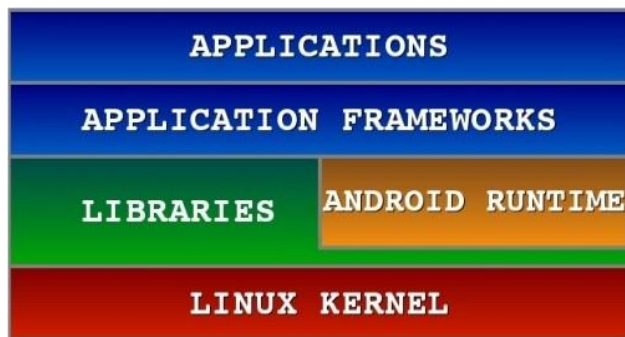
Android provides a set of core applications. They are written in Java. The applications include:

-  Email Client
-  SMS Program
-  Calendar
-  Maps
-  Browser



Application Framework

Most of the application framework accesses these core libraries through the Dalvik VM, the gateway to the Android Platform



Application Framework Contd..

| Feature | Role |
|----------------------|---|
| View System | Used to build an application, including lists, grids, text boxes, buttons, and embedded web browser |
| Content Provider | Enabling applications to access data from other applications or to share their own data |
| Resource Manager | Providing access to non-code resources (localized string , graphics, and layout files) |
| Notification Manager | Enabling all applications to display customer alerts in the status bar |
| Activity Manager | Managing the lifecycle of applications and providing a common navigation back stack |

Application Fundamentals

- ┌ An Android package (.apk file) holds an application
- ┌ No single entry point. The system can instantiate and run components as needed

Android's Component Model

- Activity Components
- Service Components
- Intent Receiver Components
- Content Provider Components

Activity Components

- A concrete class that may be subclassed
- It represents a single full screened window
- One focused endeavor
- It has a well defined life cycle

Activity Components

- Each activity usually represents a single screen
- One activity may start another within the same application
- User's interaction takes place through views
- An application consists of several activities
- Views consists of buttons, text fields, scroll bars and are organized in a hierarchy

Service Components

- 1 A service has no visual user interface. It runs in the background for some indefinite period of time. A service may expose an interface.
- 2 Using a service component, we can expose functionality to other application. Services may be started by an activity and may continue after the activity leaves the screen

Intents


- System picks best components for an action
- Client component makes a request for a specific action
- New components can use existing functionality

Intent or Broadcast Receiver Components

- | The Intent receiver component does nothing but react to announcements. Many announcements originate in system code — for example, announcements that the time zone has changed or that the battery is low
- | Applications can also initiate announcements — to let other applications know of some change in state

Content Provider Component

- | content provider makes a specific set of the application's data available to other applications
- | If sharing of data is not desired then database can be used via SQLite Database

A dark, stylized silhouette of a bird, possibly an eagle or hawk, is shown in flight. The bird's wings are spread wide, and its tail is visible. The background is a dark, textured surface with subtle variations in color, ranging from deep blue to black, giving it a moody and atmospheric feel. The bird is positioned centrally, with its head facing left and its tail pointing right.

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