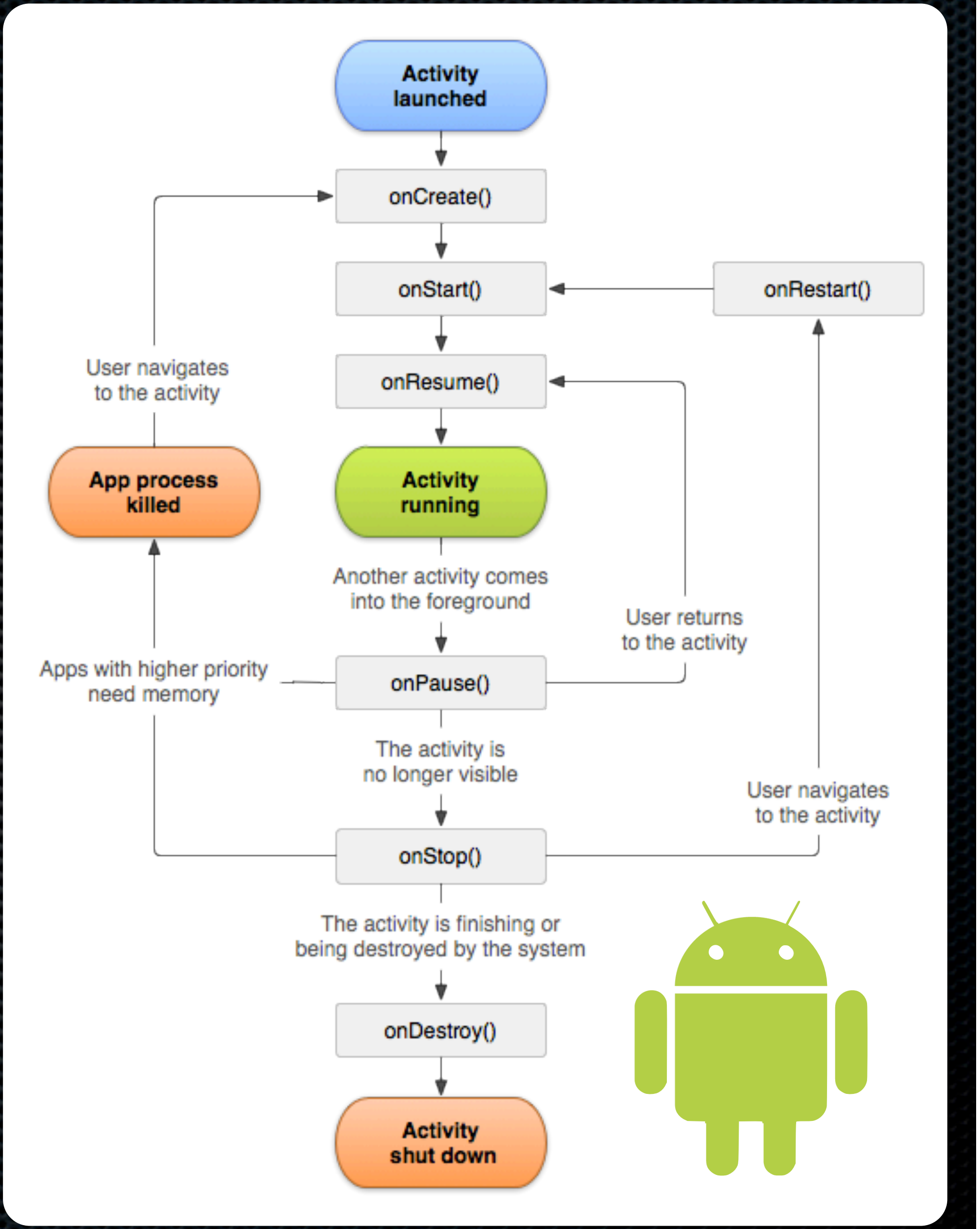
Mobile Application Programing: Android

Services

Activities

- Apps are composed of activities
- Activities are self-contained tasks made up of one screen-full of information
- Activities start one another and are destroyed commonly
- Apps can use activities belonging to another app

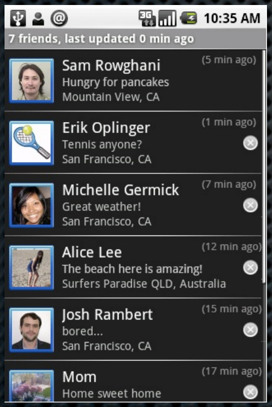

Activity launched
onCreate()
onStart()
onRestart()
User navigates to the activity
onResume()
App process killed
Activity running
Another activity comes into the foreground
User returns to the activity
Apps with higher priority need memory
onPause()
The activity is no longer visible
User navigates to the activity
onStop()
The activity is finishing or being destroyed by the system
onDestroy()
Activity shut down

Application

Application

Model View Controller (MVC)

Sharing Using Application



10:35 AM

7 friends, last updated 0 min ago

Sam Rowghani (5 min ago)
Hungry for pancakes
Mountain View, CA

Erik Oplinger (1 min ago)
Tennis anyone?
San Francisco, CA

Michelle Germick (7 min ago)
Great weather!
San Francisco, CA

Alice Lee (12 min ago)
The beach here is amazing!
Surfers Paradise QLD, Australia

Josh Rambert (15 min ago)
bored...
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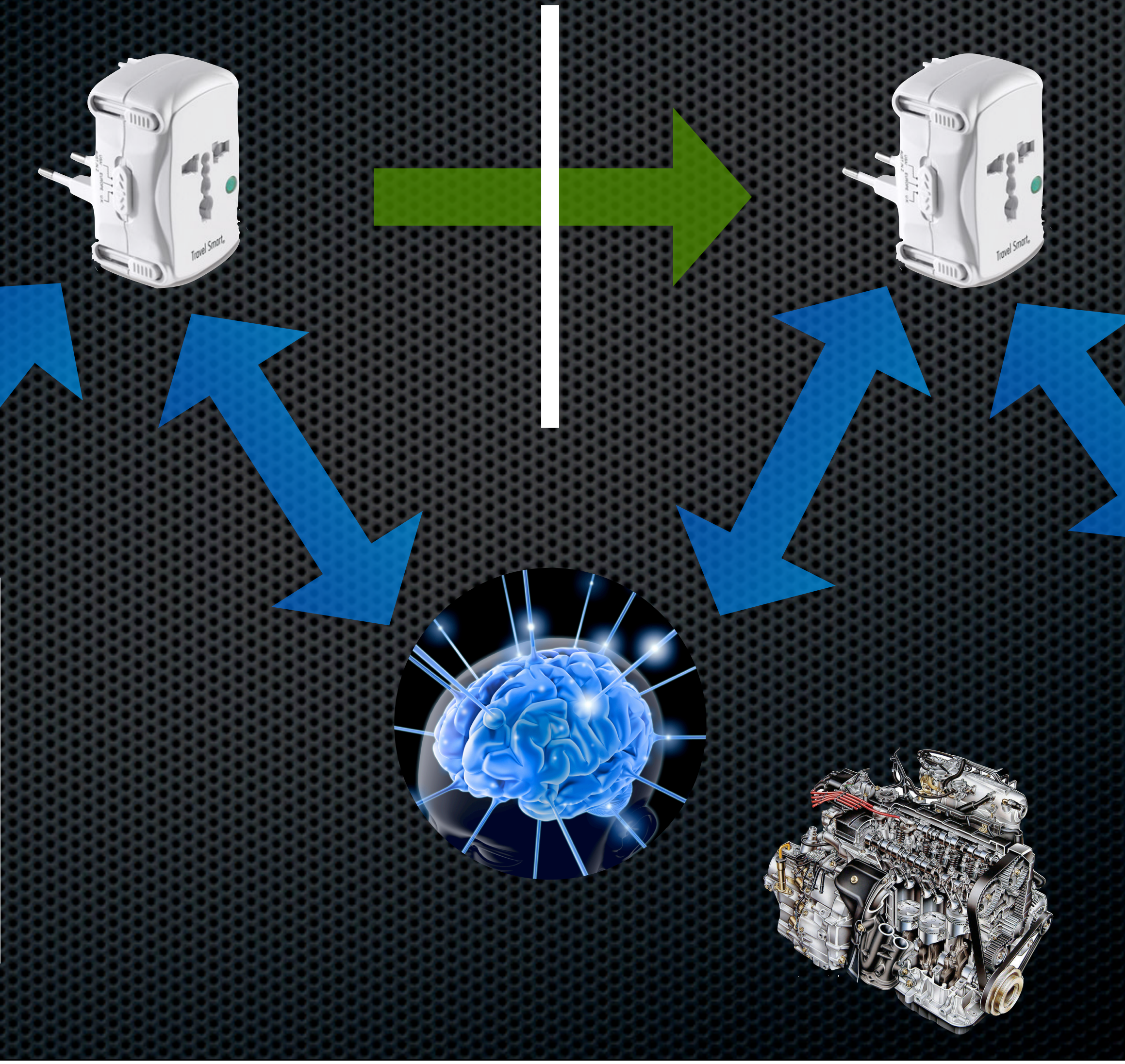
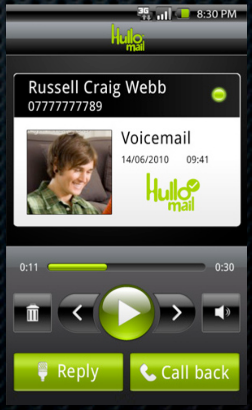
Mom (17 min ago)
Home sweet home





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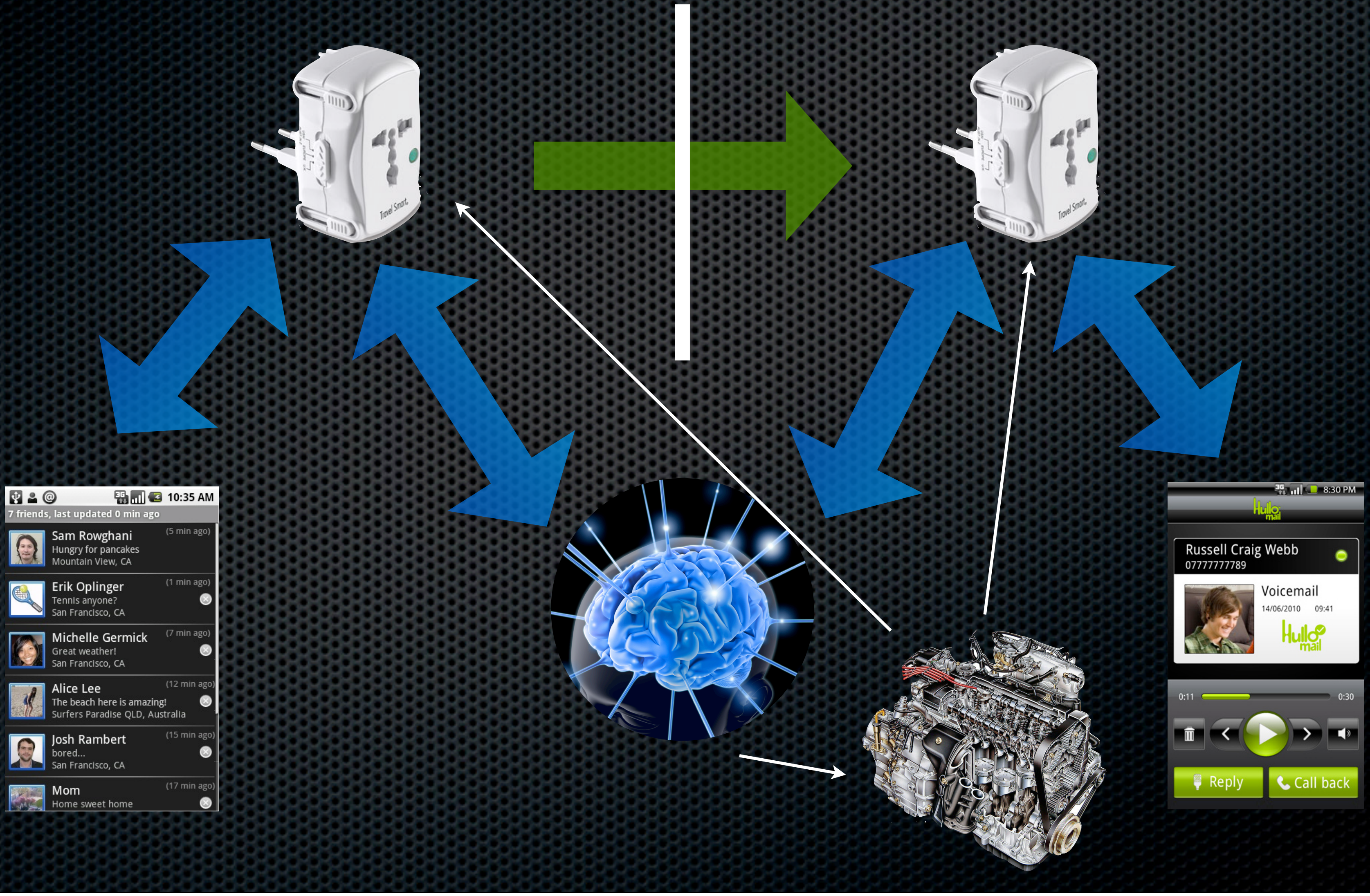
Hullo mail

Russell Craig Webb
07777777789

Voicemail
14/06/2010 09:41

Sharing Using Application



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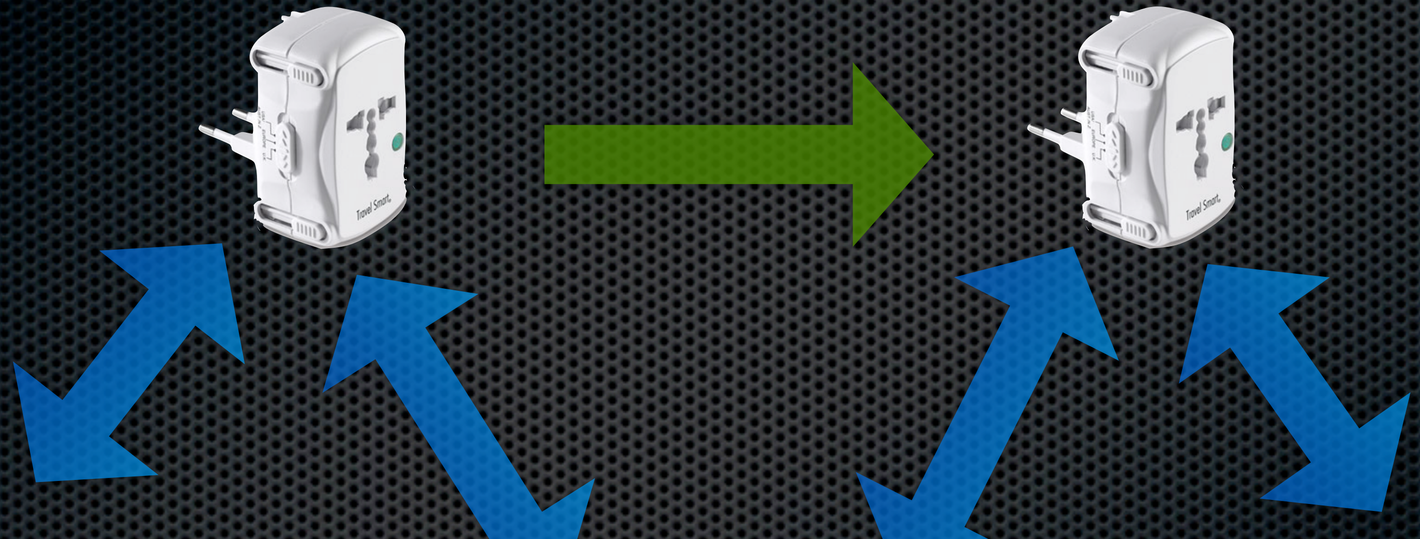
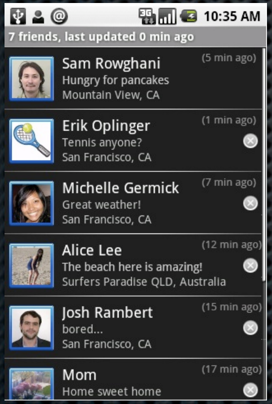
Reply
Call back

Sharing Using Application





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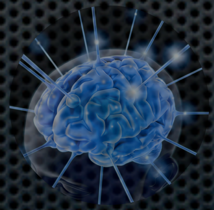

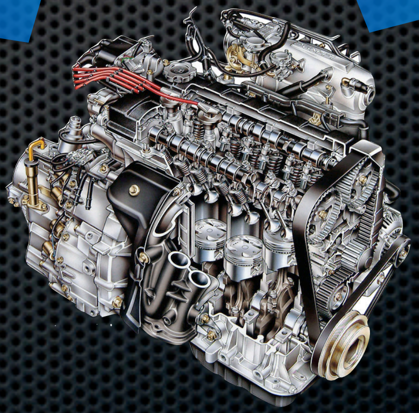

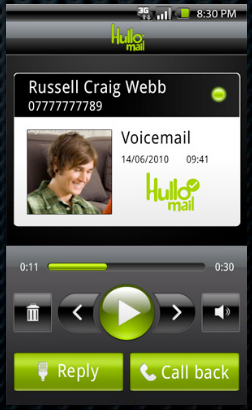

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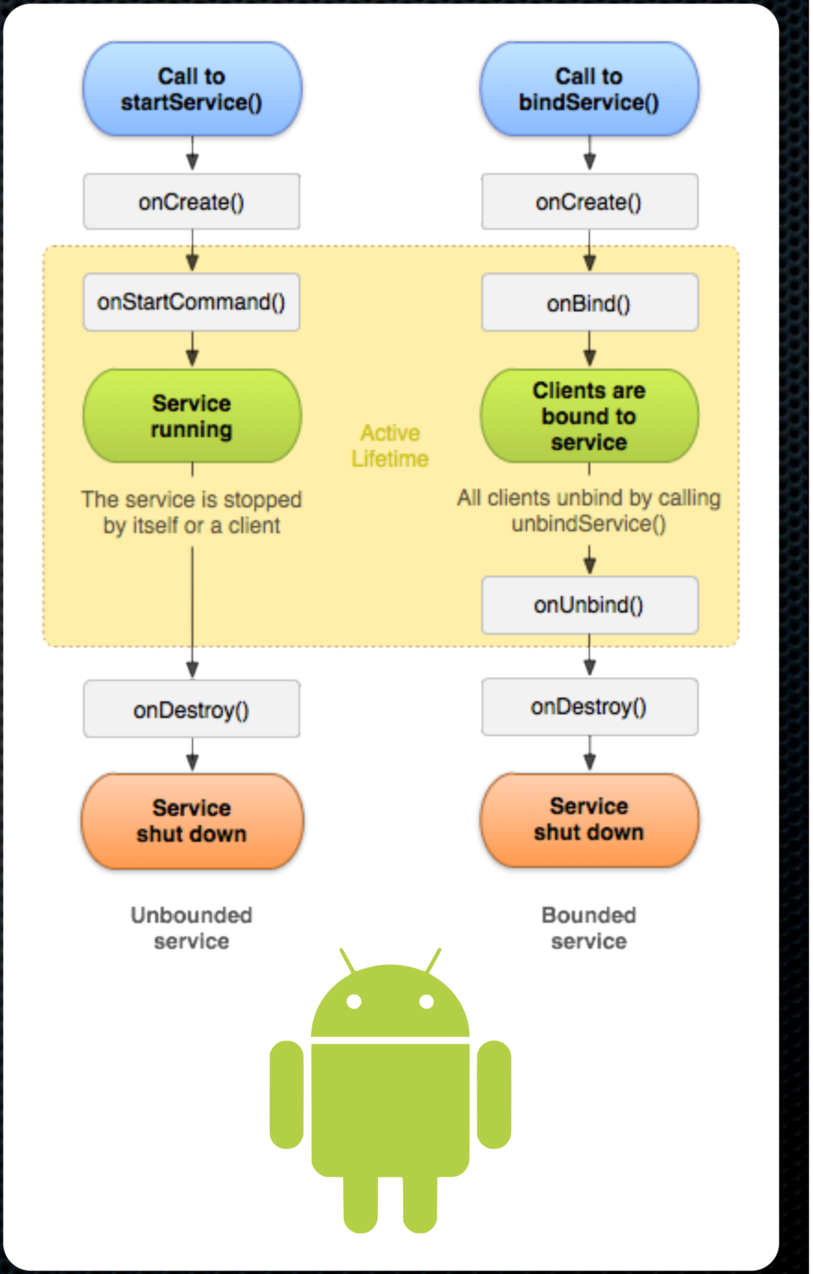
Reply | Call back

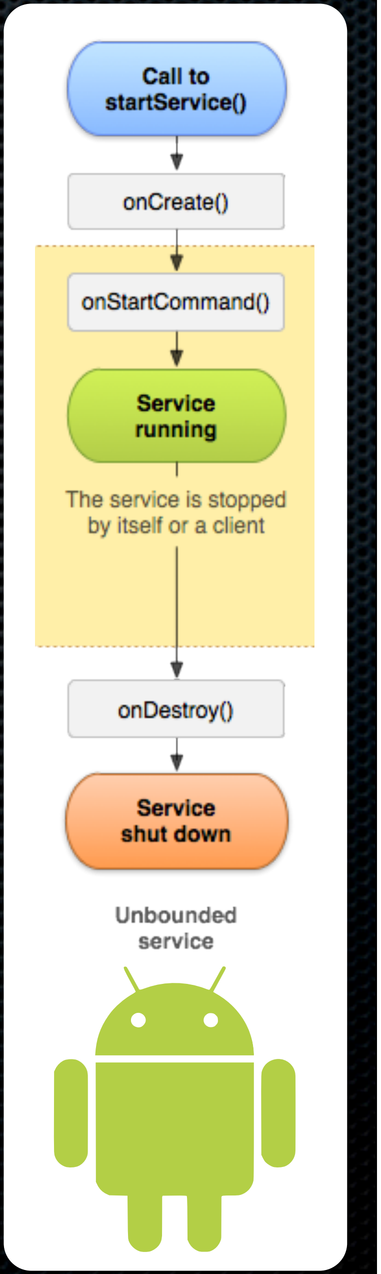
Services

- An application component that can perform long-running operations in the background and does not provide a user interface.
- Can be started and potentially run indefinitely or be bound to and run until the operation the service provides is no longer needed.
- Apps can use services belonging to another app
- Can be unbound or bound



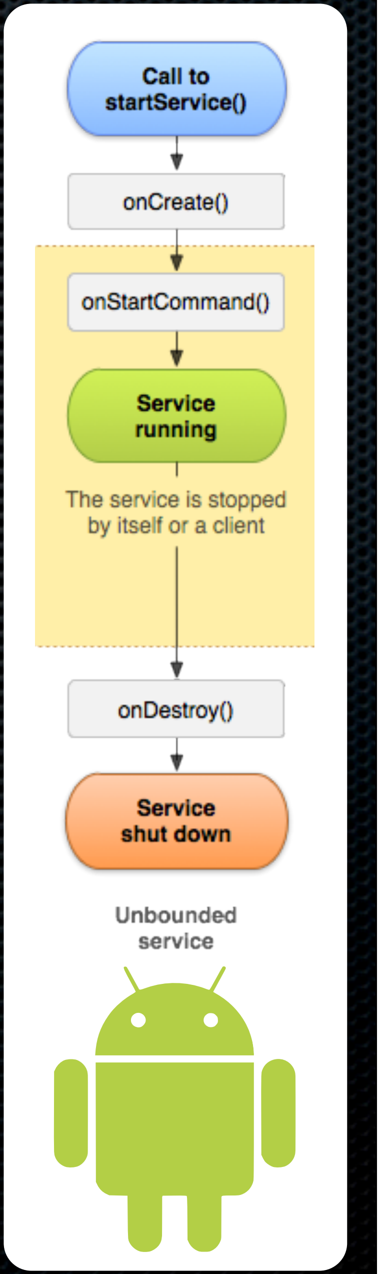
Unbound Services

- Started by calling startService
- Can potentially run indefinitely
- Meant to allow a background task to run to completion, even if the application is closed
    - Compare to AsyncTask
- Should start a new thread to perform work, as onStartCommand is executed on the main thread
    - See IntentService for queueing



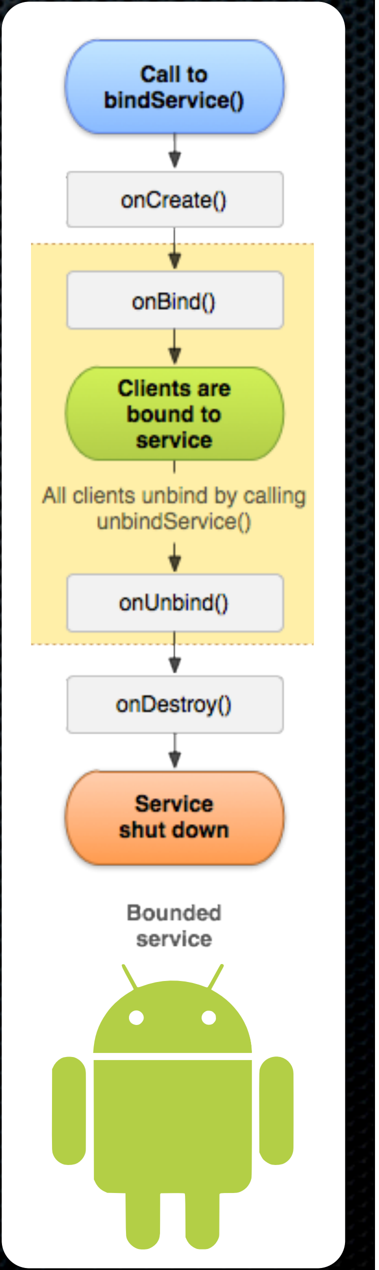
Unbound Services

- Communication is limited: the only communication between the starting application component and service is through Intent passed to onStartCommand
- Add PendingIntent objects as extras to the Intent object passed to onStartCommand to allow the service to broadcast results to the starting application component
- When more complicated communication is needed between the service and the starting application component, use a bound service



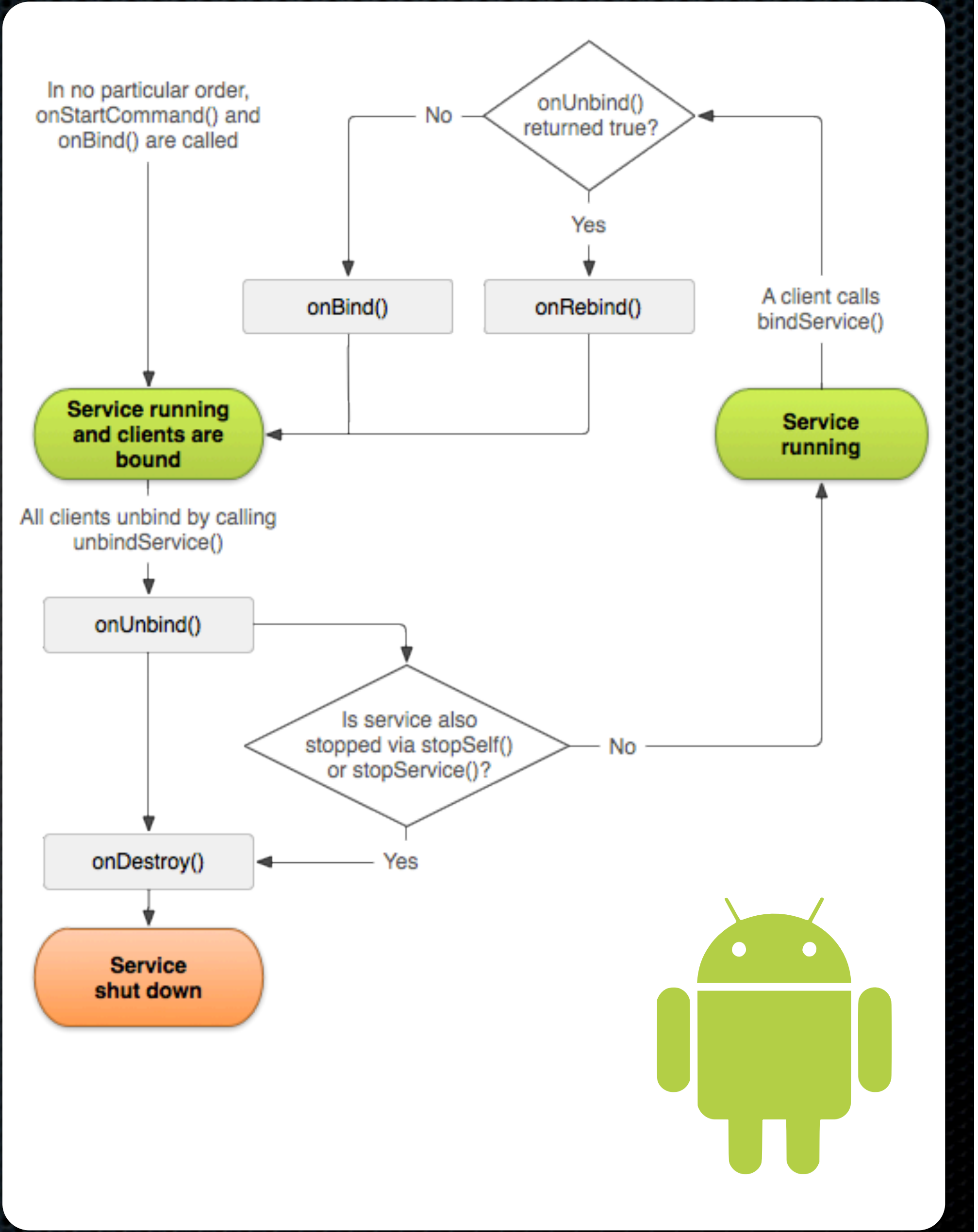
Bound Services

- Binding to a service by calling bindService allows another application component (eg. Activity) to communicate with it
- bindService requires a ServiceConnection object, which contains an onServiceConnected method
- When onServiceConnected is called, an object conforming to IBinder is returned. This object can be used to communicate with the service.
- If the bound service and the binding application component are in the same process, the IBinder object can share a pointer to the service itself, making communication very easy by using public methods defined on the service



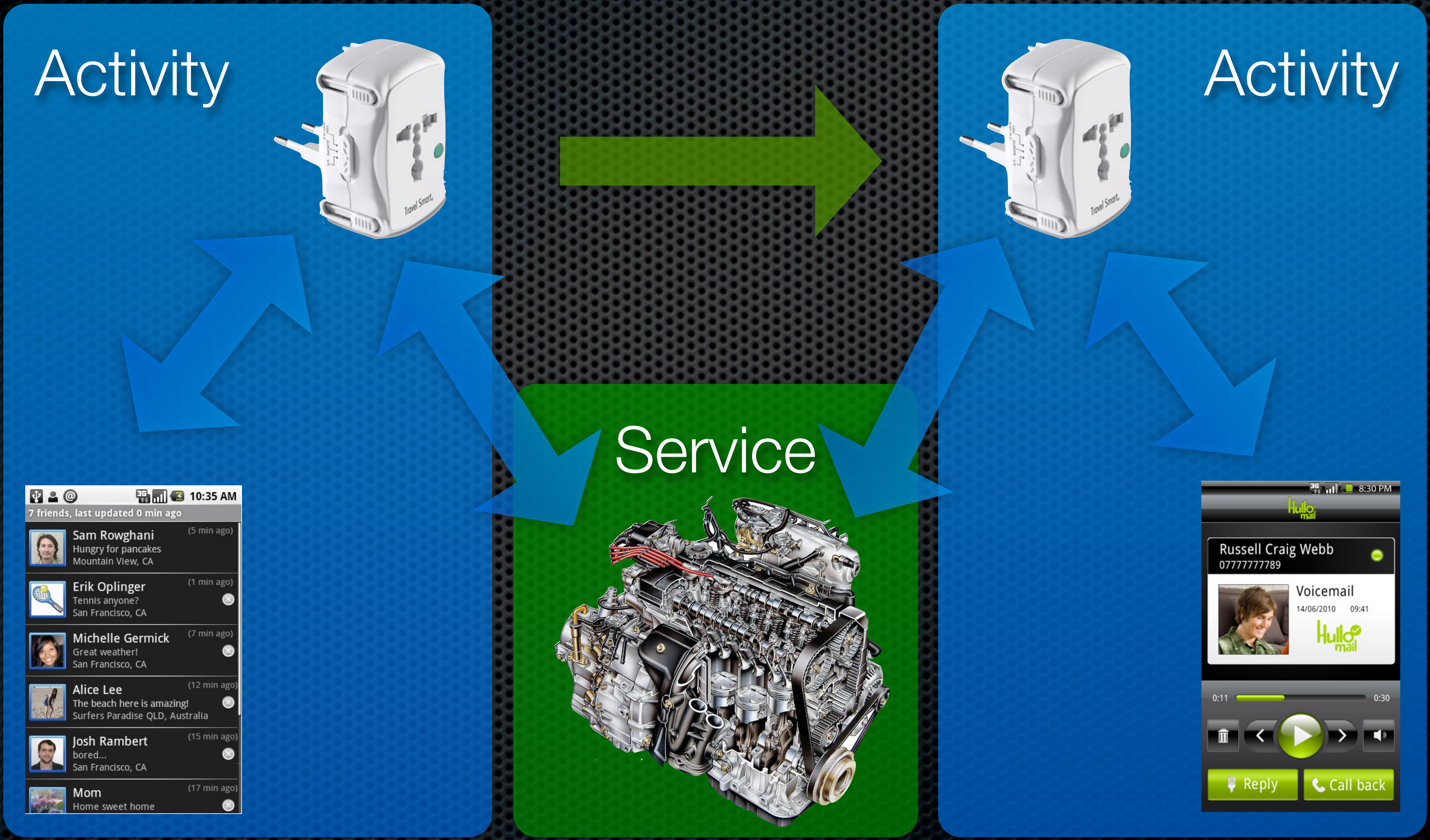
Bound Services

- Binding to a service starts the service if it has not already been started by a previous call to bindService or startService
- Bound services started by bindService run until all clients of the service call unbindService
- Bound services that were originally created by a call to startService run until stopService is called by the client or stopSelf is called by the service on itself



In no particular order, onStartCommand() and onBind() are called
No
onUnbind() returned true?
Yes
onBind()
onRebind()
A client calls bindService()
Service running and clients are bound
Service running
All clients unbind by calling unbindService()
onUnbind()
Is service also stopped via stopSelf() or stopService()?
No
onDestroy()
Yes
Service shut down

Services in MVC



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