MICROOH 麦可网

Android-从程序员到架构师之路

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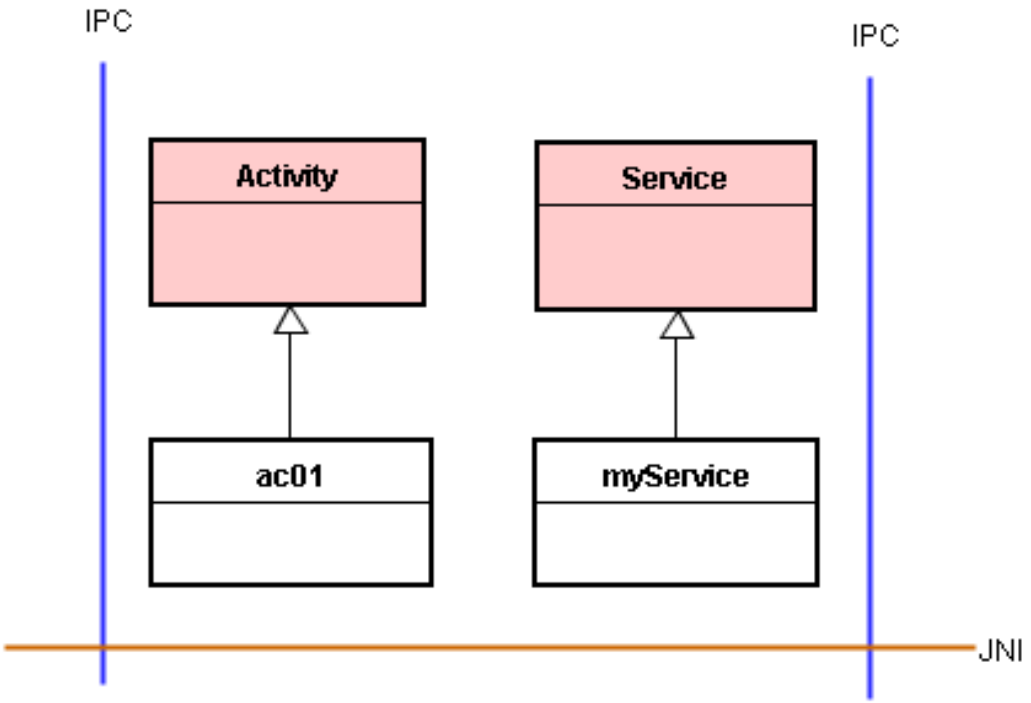
http://www.microoh.com

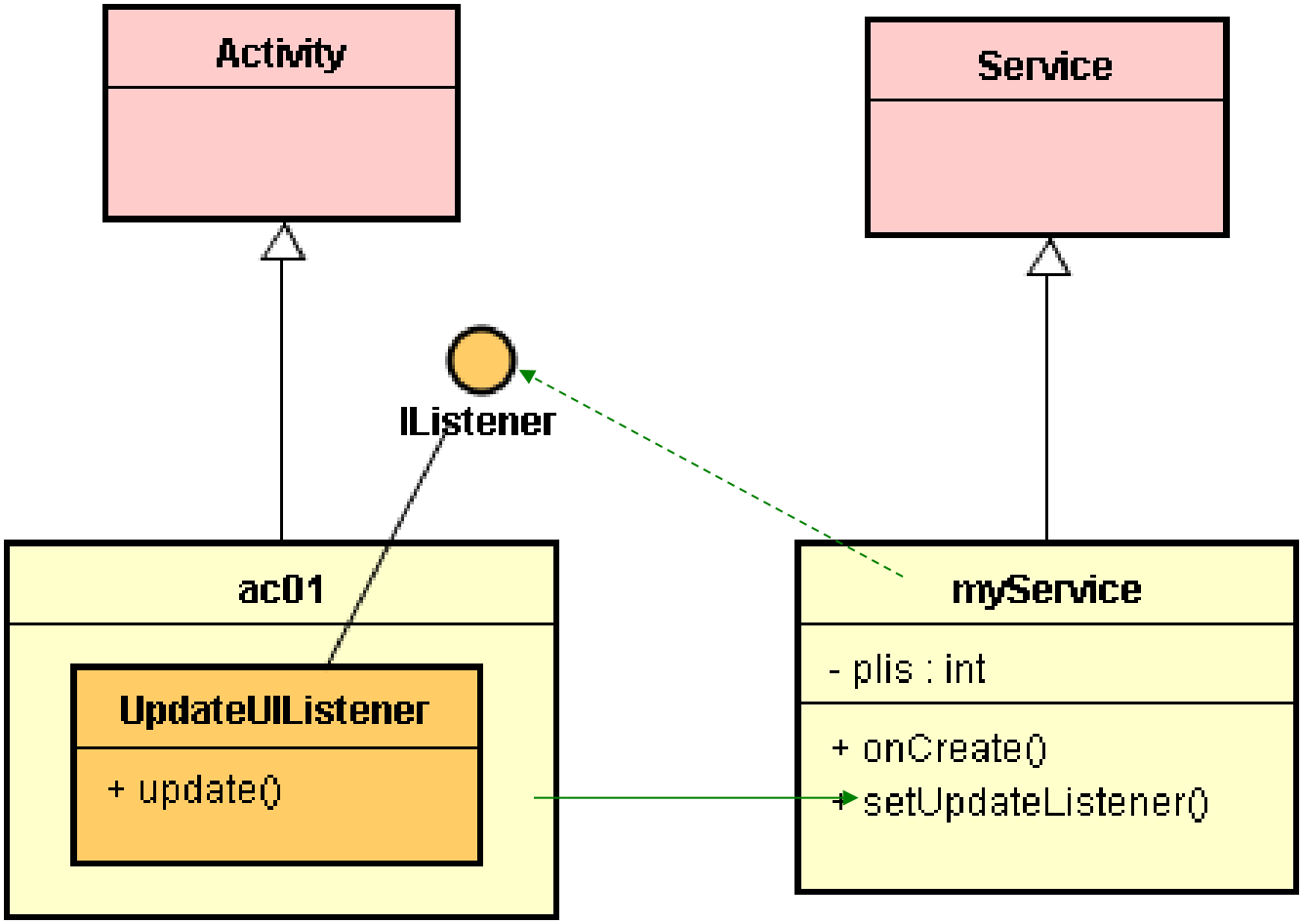
B01_g

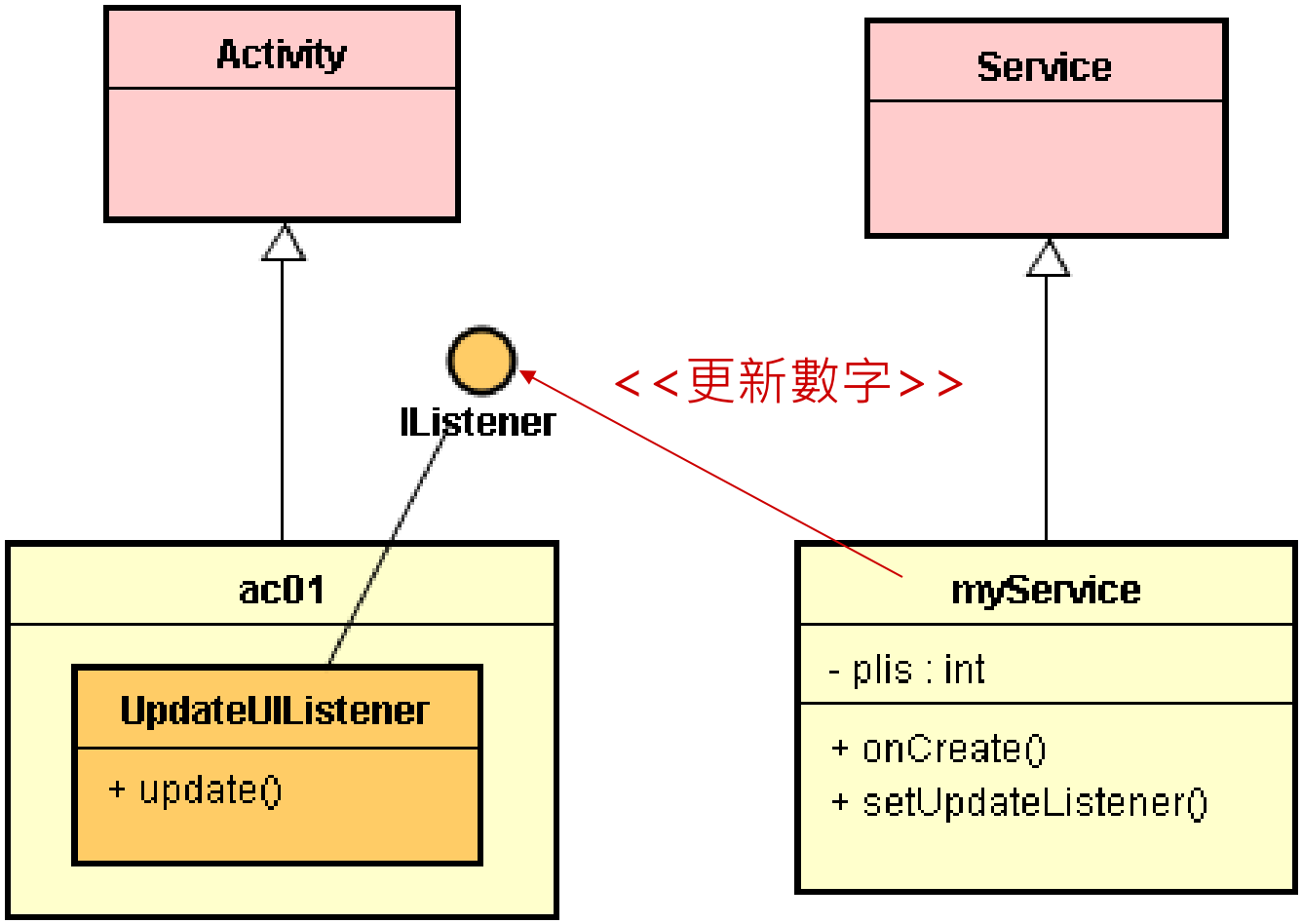
认识进程与IPC架构(g)

By 高煥堂

复习：短程通信




Activity
Service
IListener
ac01
UpdateUIListener
+ update()
myService
- plis : int
+ onCreate()
+ setUpdateListener()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UpdateUIListener
+ update()
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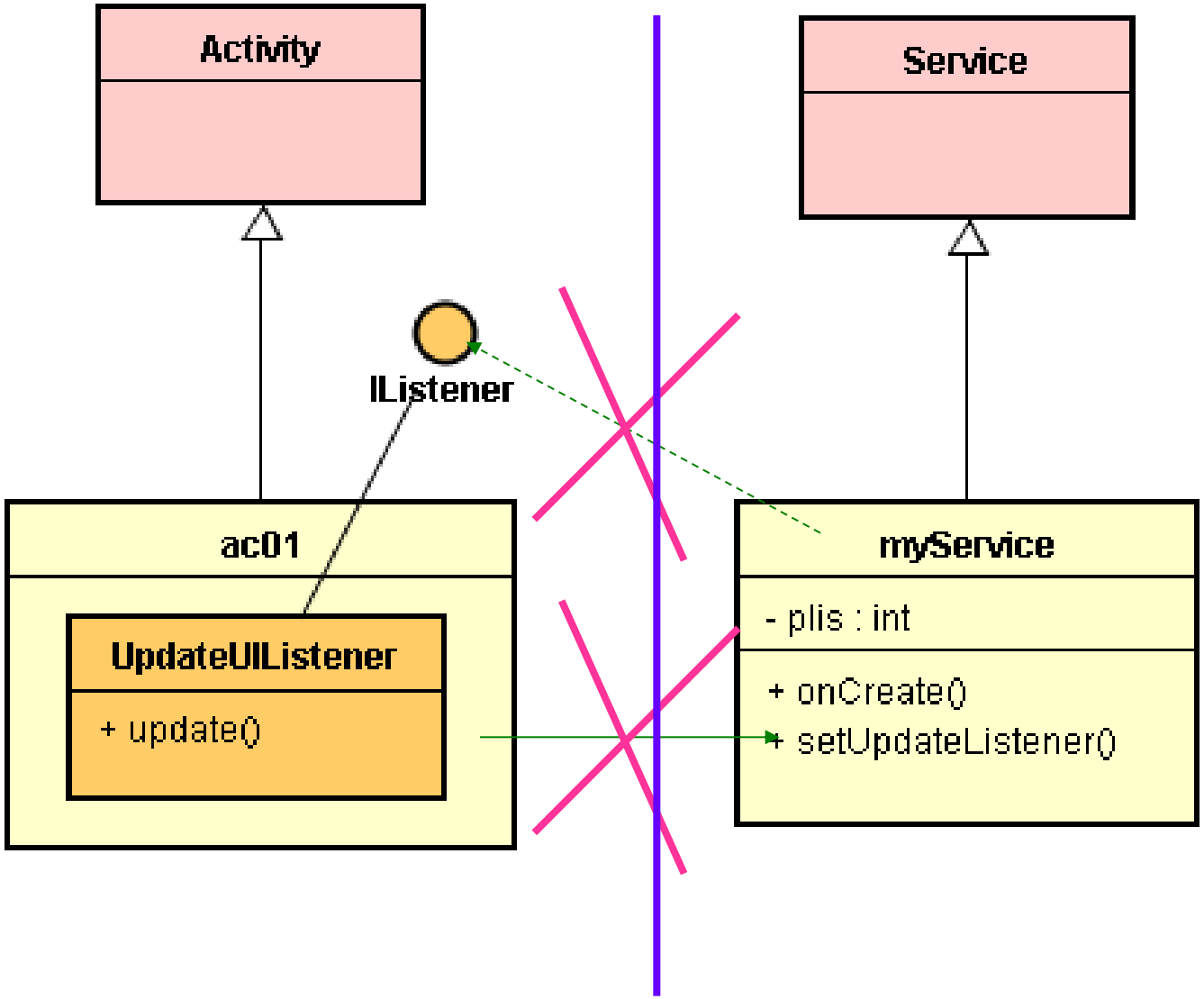
IPC


Activity
Service
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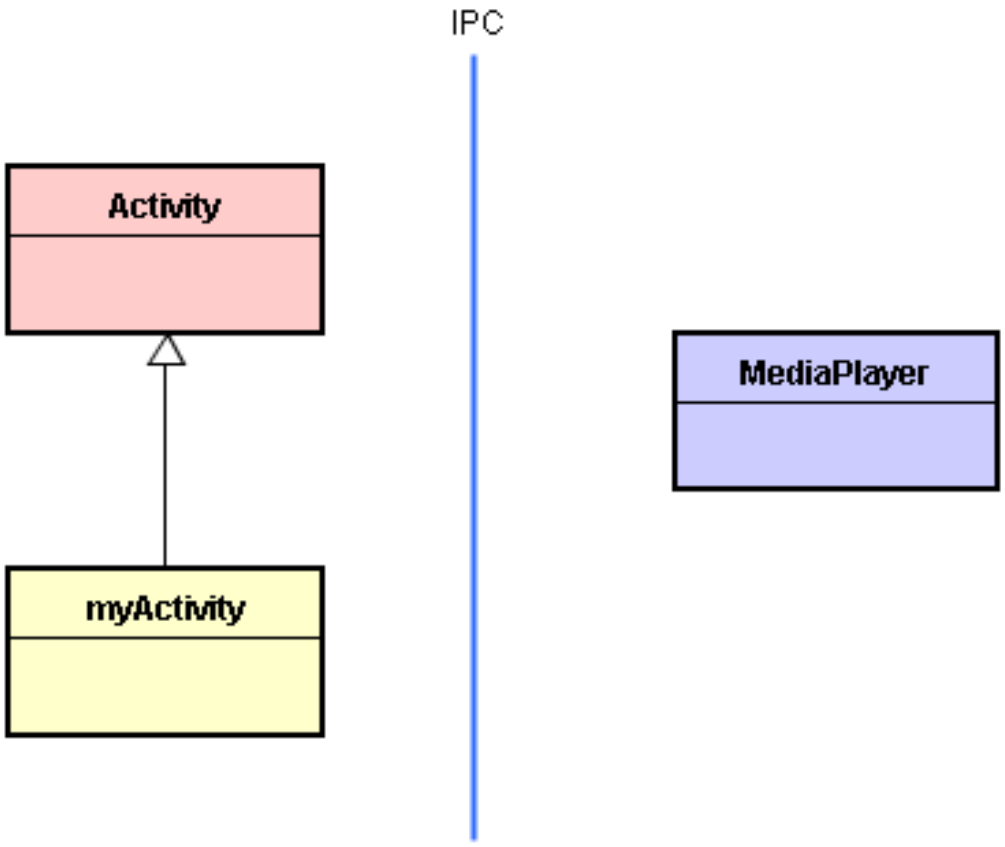
範例：遠程通信

- 兹拿刚才的MP3播放范例，来说明其详细步骤。Activity类想跨进程去调用MediaPlayer播放引擎，如下图所示：


IPC
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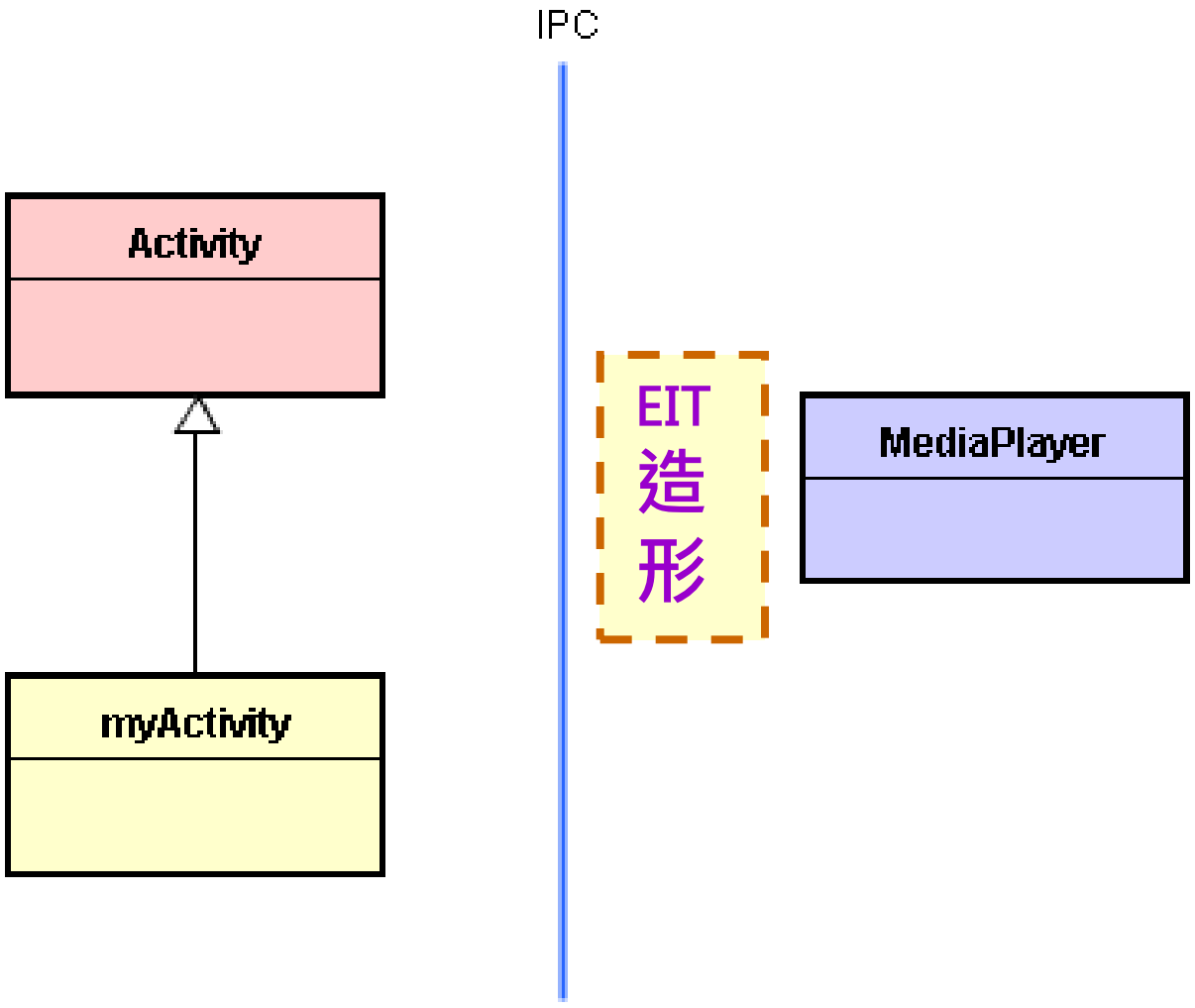
MediaPlayer
myActivity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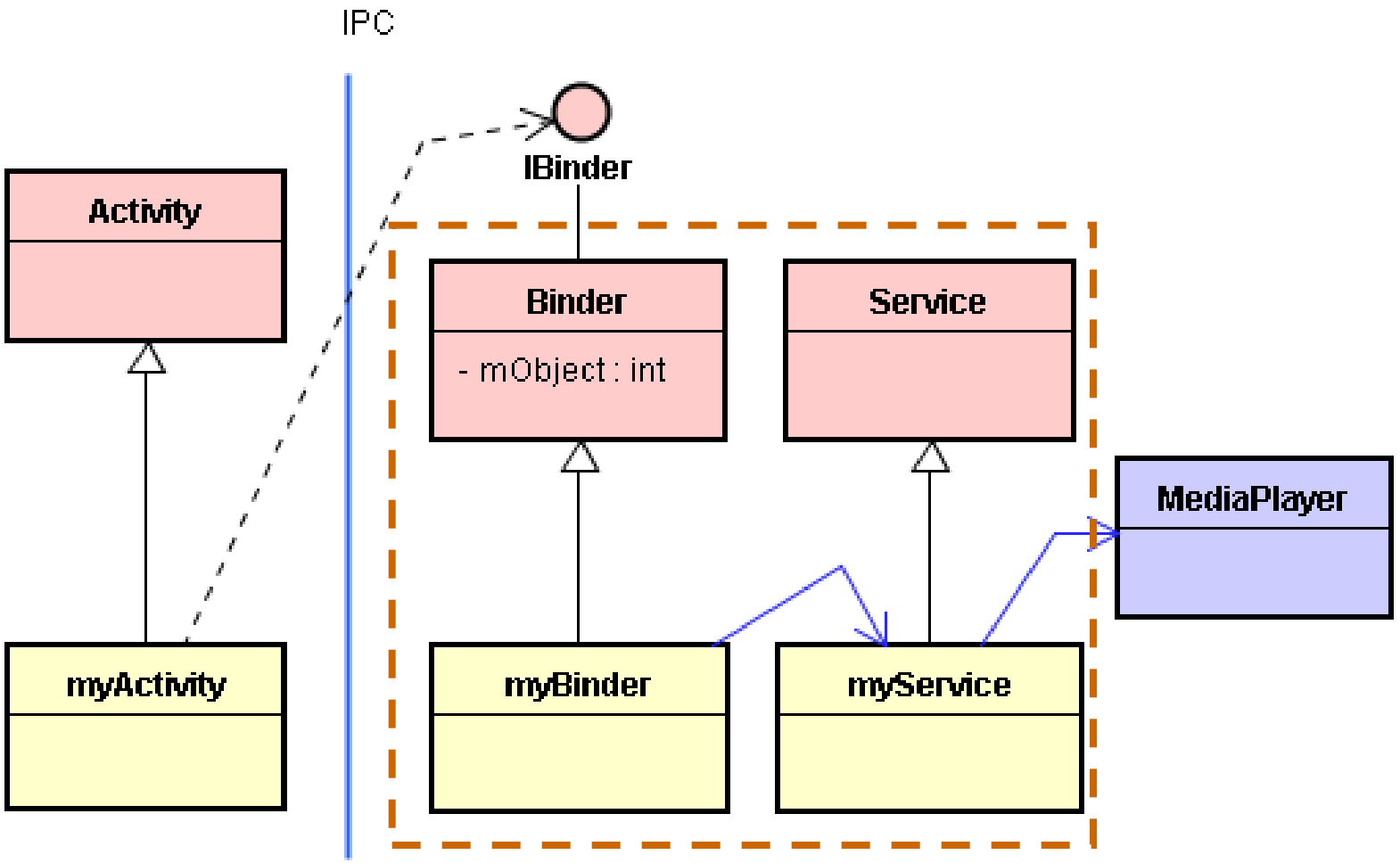

IPC
IBinder
Activity
Binder
- mObject : int
Service
MediaPlayer
myActivity
myBinder
myService

EIT造形的<組合>

牛郎与织女的约会三步骤：

Step-1. 配对。

Step-2. 建乔。

Step-3. 相会。

1:10 PM
kx02_c
play
stop
exit
Ready

```
// myActivity.java
// ........
public class myActivity extends Activity implements OnClickListener
    {
    private final int WC =
          LinearLayout.LayoutParams.WRAP_CONTENT;
    private final int FP = LinearLayout.LayoutParams.FILL_PARENT;
    private Button btn, btn2, btn3;
    public TextView tv;
    private IBinder ib = null;

    public void onCreate(Bundle icicle) {
          super.onCreate(icicle);
          LinearLayout layout = new LinearLayout(this);
          layout.setOrientation(LinearLayout.VERTICAL);
          btn = new Button(this);   btn.setId(101);  btn.setText("play");
           btn.setBackgroundResource(R.drawable.heart);
          btn.setOnClickListener(this);
```

```
        LinearLayout.LayoutParams param = new
                LinearLayout.LayoutParams(80, 50);
         param.topMargin = 10;
         layout.addView(btn, param);
        btn2 = new Button(this);  btn2.setId(102);  btn2.setText("stop");
         btn2.setBackgroundResource(R.drawable.heart);
         btn2.setOnClickListener(this);
         layout.addView(btn2, param);
         btn3 = new Button(this); btn3.setId(103);  btn3.setText("exit");
         btn3.setBackgroundResource(R.drawable.heart);
btn3.setOnClickListener(this);
         layout.addView(btn3, param);
          tv = new TextView(this);  tv.setTextColor(Color.WHITE);
         tv.setText("Ready");
          LinearLayout.LayoutParams param2
               = new LinearLayout.LayoutParams(FP, WC);
          param2.topMargin = 10;
```

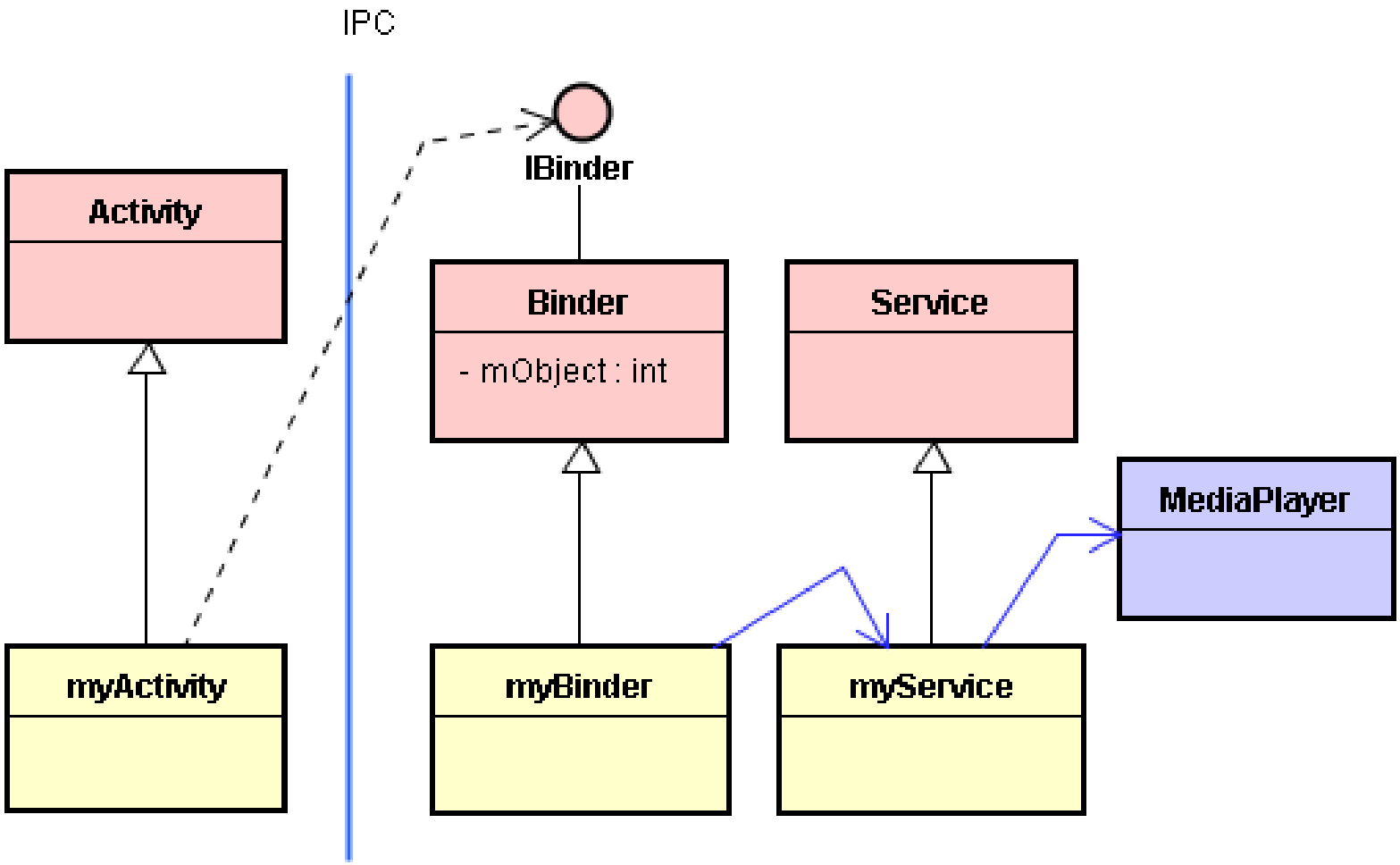
```
 layout.addView(tv, param2);
setContentView(layout);
 //-------------------------------------------------------------------------
 // startService(…)
 bindService(new Intent("com.misoo.kx02c.REMOTE_SERVICE"),
                          mConnection, Context.BIND_AUTO_CREATE);
 }

 private ServiceConnection mConnection =
     new ServiceConnection() {
            public void onServiceConnected(ComponentName
                       className,  IBinder ibinder) {
               ib = ibinder;
             }
           public void onServiceDisconnected(ComponentName
                       className) {}
 };
```

```
public void onClick(View v) {
    switch (v.getId()) {
     case 101:
         Parcel pc = Parcel.obtain();
         Parcel pc_reply = Parcel.obtain();
         pc.writeString("playing");
         try {
                ib.transact(1, pc, pc_reply, 0);
                tv.setText(pc_reply.readString());
         } catch (Exception e) {  e.printStackTrace(); }   break;
    case 102:
        pc = Parcel.obtain();  pc_reply = Parcel.obtain();
        pc.writeString("stop");
        try {  ib.transact(2, pc, pc_reply, 0);
        tv.setText(pc_reply.readString());
        } catch (Exception e) {  e.printStackTrace();  }
       break;
   case 103:      finish(); break;
}}}
```

- App启动时(就会把App的 load到内存里，此刻通称为loading-time。在这个时刻，就会创建了mConnection对象。

- 因为mConnection对象不是属于特定函数内的对象，而是属于类的对象，各函数都可用的公用对象。这种static对象(或变量)都是loading-time就创建了。
- App被load进来之后，才会启动(创建)myActivity对象，之后才会调用myActivity的onCreate()函数。


IPC
IBinder
Activity
Binder
- mObject : int
Service
MediaPlayer
myActivity
myBinder
myService

```
// myService.java
// .......
public class myService extends Service {
    private IBinder mBinder = null;
    @Override    public void onCreate() {
            mBinder = new myBinder(getApplicationContext());
           }
    @Override    public IBinder onBind(Intent intent) {
            return mBinder;
    }
}
```

```
//  myBinder.java
// ........
public class myBinder extends Binder{
    private MediaPlayer mPlayer = null;
    private Context ctx;
    public myBinder(Context cx)
                { ctx= cx; }
    @Override   public boolean onTransact(int code,
                        Parcel data, Parcel reply, int flags)
        throws android.os.RemoteException
        {
            reply.writeString(data.readString()+ " mp3");
            if(code == 1)
                    this.play();
          else if(code == 2)
                    this.stop();
          return true;
}
```

```
    public void play(){
        if(mPlayer != null) return;
        mPlayer = MediaPlayer.create(ctx, R.raw.test_cbr);
        try { mPlayer.start();
        }catch (Exception e)
            { Log.e("StartPlay", "error: " + e.getMessage(), e);}
     }
    public void stop(){
        if (mPlayer != null) {
            mPlayer.stop();   mPlayer.release();  mPlayer = null; }
     }
}
```

Q&A

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