DataBinding

DataBinding之executePendingBindings

```
public void setComment(com.looper.android.apps.marukoya.mod
        this.mComment = comment;
        synchronized(this) {
            mDirtyFlags |= 0x2L;
        }
        notifyPropertyChanged(BR.comment);
        super.requestRebind();
    }
```

设置参数之后调用requestRebind

```
    protected void requestRebind() {
        synchronized (this) {
            if (mPendingRebind) {
                return;
                }
                mPendingRebind = true;
        }
        if (USE_CHOREOGRAPHER) {
            mChoreographer.postFrameCallback(mFrameCallback)
        } else {
            mUIThreadHandler.post(mRebindRunnable);
        }

    }
```

SDK_INT > 16 时候使用Choreographer，否则直接将runnable加入到主线程消息队列末尾，执行到任务时执行executePendingBindings

Choreographer Choreographer调用postFrameCallback，理解成handler post callback一样，内部实现postFrameCallback->postFrameCallbackDelayed->postCallbackDelayedInternal->scheduleFrameLocked

```
    private void scheduleFrameLocked(long now) {
        if (!mFrameScheduled) {
            mFrameScheduled = true;
            if (USE_VSYNC) {
                if (DEBUG_FRAMES) {
                    Log.d(TAG, "Scheduling next frame on vsy
                }

                // If running on the Looper thread, then sch
                // otherwise post a message to schedule the 
                // as soon as possible.
                if (isRunningOnLooperThreadLocked()) {
                    scheduleVsyncLocked();
                } else {
                    Message msg = mHandler.obtainMessage(MSG_
                    msg.setAsynchronous(true);
                    mHandler.sendMessageAtFrontOfQueue(msg);
                }
            } else {
                final long nextFrameTime = Math.max(
                        mLastFrameTimeNanos / TimeUtils.NANO
                if (DEBUG_FRAMES) {
                    Log.d(TAG, "Scheduling next frame in " +
                }
                Message msg = mHandler.obtainMessage(MSG_DO_
                msg.setAsynchronous(true);
                mHandler.sendMessageAtTime(msg, nextFrameTim
            }
        }
    }
```

判断是否可以用垂直同步，如果时不是垂直同步，加入消息队列，任务执行时调用Choreographer.doFrame,然后调用callback,执行viewdatabinding里面的framecallback

```
       mFrameCallback = new Choreographer.FrameCallback() {
                @Override
                public void doFrame(long frameTimeNanos) {
                    mRebindRunnable.run();
                }
            };
```

在runnable里面执行executePendingBindings

```
    private final Runnable mRebindRunnable = new Runnable() 
        @Override
        public void run() {
            synchronized (this) {
                mPendingRebind = false;
            }
            if (VERSION.SDK_INT >= VERSION_CODES.KITKAT) {
                // Nested so that we don't get a lint warnin
                if (!mRoot.isAttachedToWindow()) {
                    // Don't execute the pending bindings un
                    // is attached again.
                    mRoot.removeOnAttachStateChangeListener(
                    mRoot.addOnAttachStateChangeListener(ROO
                    return;
                }
            }
            executePendingBindings();
        }
    };
```

如果支持垂直同步，则判断是否是在当前的消息线程，如果是立即执行垂直同步，否则加入到队列里面，最后执行

```
    private void scheduleVsyncLocked() {
        mDisplayEventReceiver.scheduleVsync();
    }
```

调用DisplayEventReceiver的native方法

```
    public void scheduleVsync() {
        if (mReceiverPtr == 0) {
            Log.w(TAG, "Attempted to schedule a vertical syn
                    + "receiver has already been disposed.")
        } else {
            nativeScheduleVsync(mReceiverPtr);
        }
    }
```

对应文件 frameworks/base/core/jni/android_view_DisplayEventReceiver.cpp,最后处理后，调用dispatchVsync->onVsync FrameDisplayEventReceiver.onVsync

```
    Message msg = Message.obtain(mHandler, this);
            msg.setAsynchronous(true);
            mHandler.sendMessageAtTime(msg, timestampNanos /
```

this指FrameDisplayEventReceiver这个runnable实现，故调用

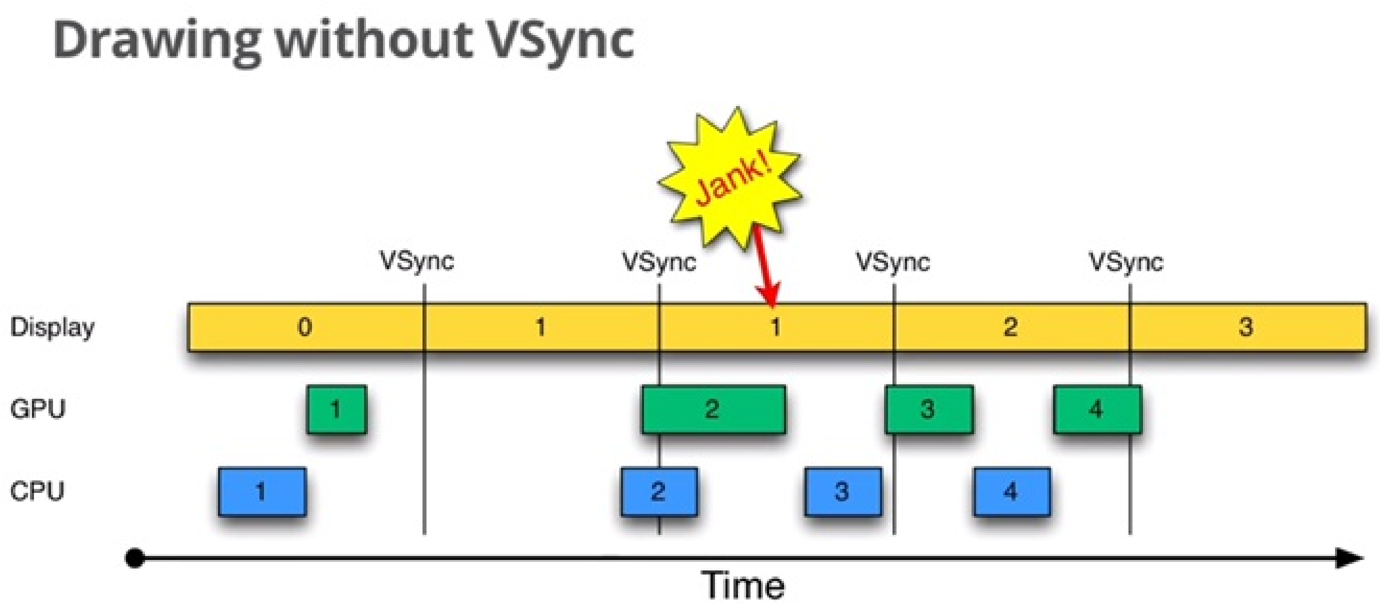
```
    @Override
```

```
        public void run() {
                mHavePendingVsync = false;
                doFrame(mTimestampNanos, mFrame);
            }
```

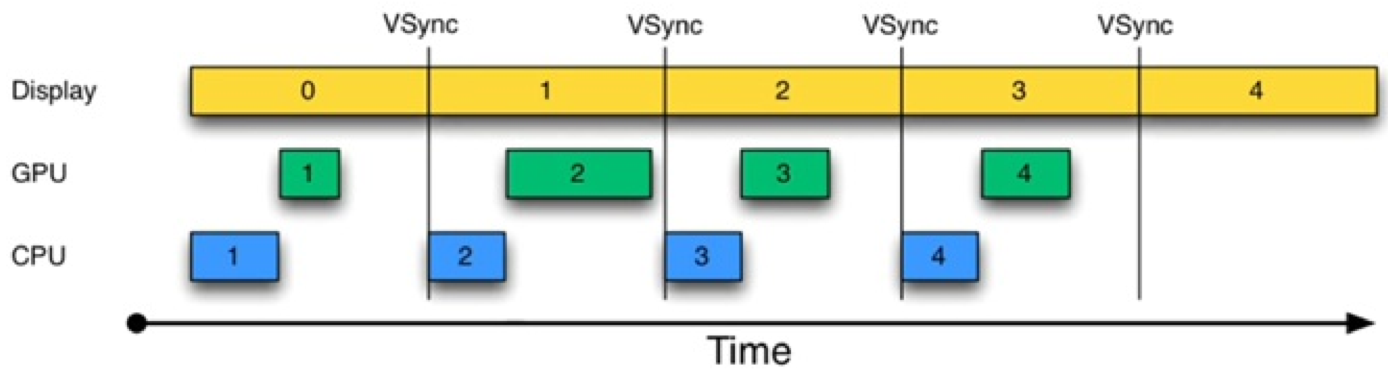
doFrame也会最后调用framecallback，执行到executePendingBindings，最后调用executeBindings执行绑定，所以如果是setVariable而不加executePendingBindings时，中间会因为垂直同步而，至少一帧的去延时bind数据，这样，在recyclerview里面造成了抖动，所以需要在setVariable后面调用executePendingBindings，这样立即调用executeBindings，最后一起渲染到视图上。

Vsync原理

大致意思是大多数设备是每秒刷60帧，这样每帧就有16ms的处理时间，如果超过这样的时间就会造成卡顿。假如一个绘制过程是8ms,但是这个处理，在即将刷新之前4ms开始处理，这样明显处理不完，所以下帧刷新时只有显示之前上一帧的图像，这样就造成了卡顿。所以有一个解决方案就是VSync，把每一次刷新的点看着是一个VSync pulse垂直同步脉冲，我们将下一帧显示的内容定在上一次脉冲时间点来处理，这样上面的情况就会大大减少。



Drawing with VSync


VSync
VSync
VSync
VSync
Display
0
1
2
3
4
GPU
1
2
3
4
CPU
1
2
3
4
Time