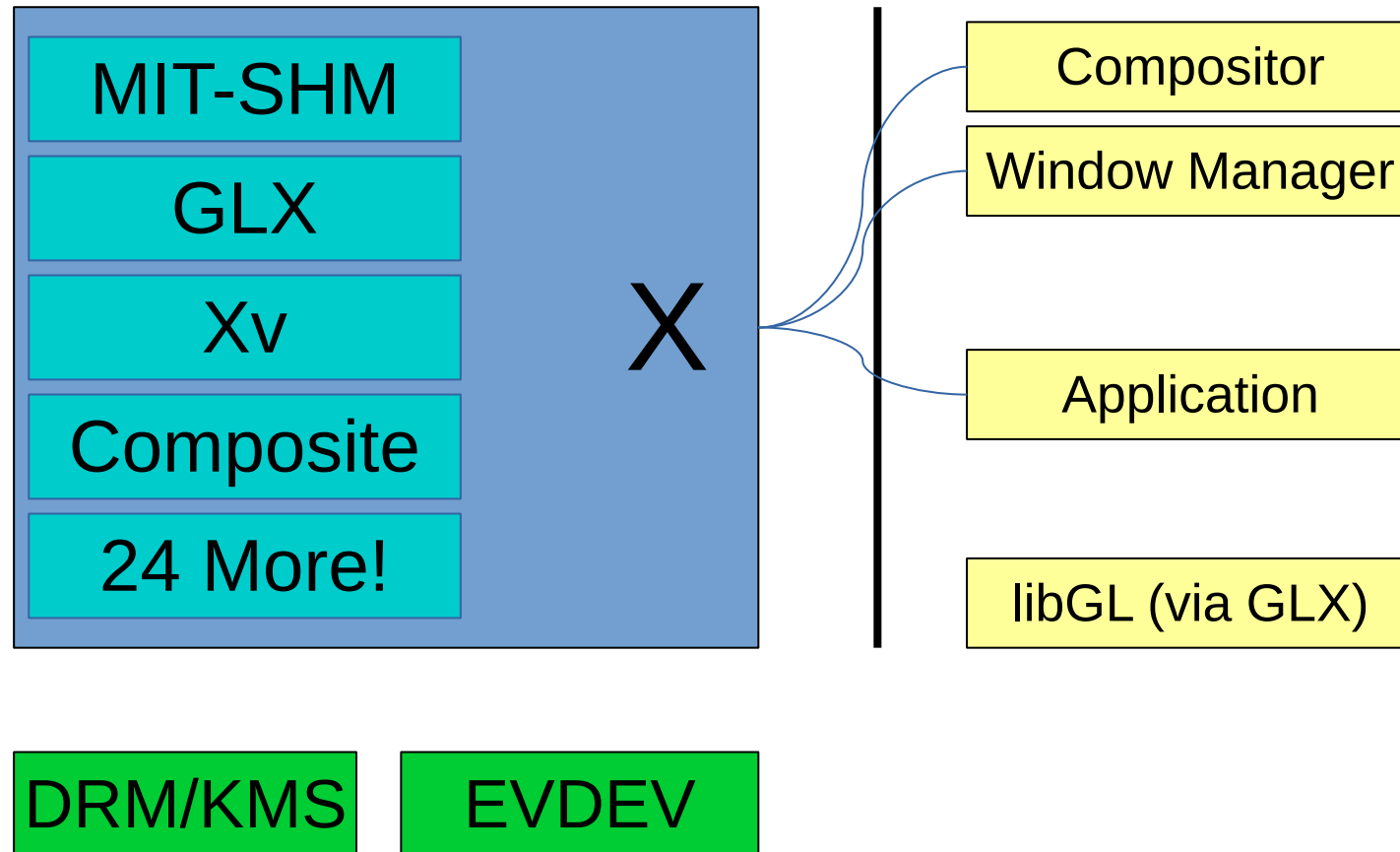
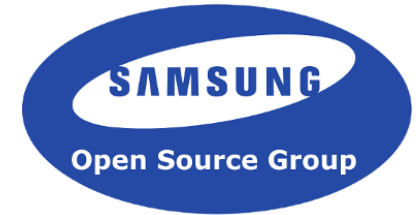


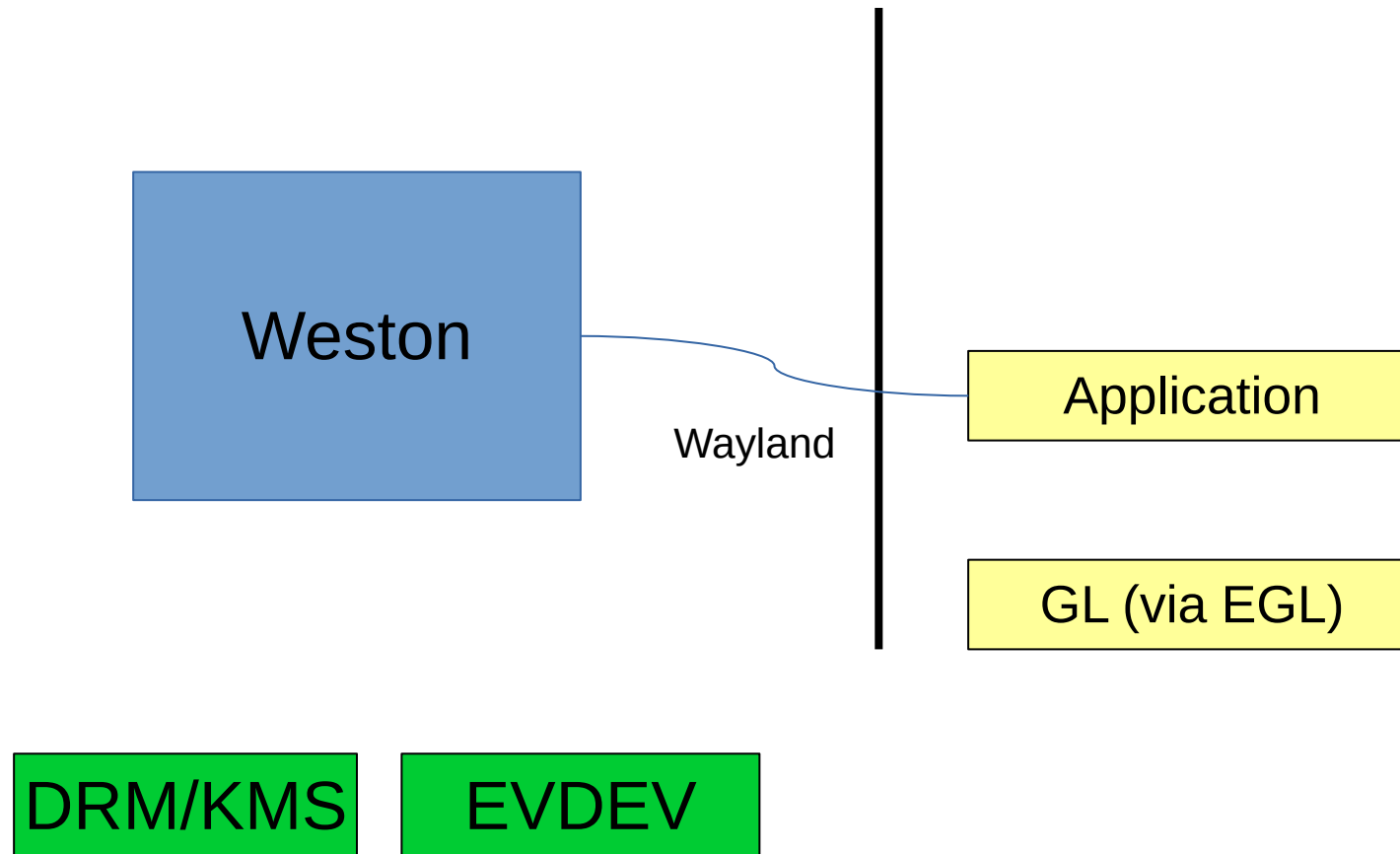
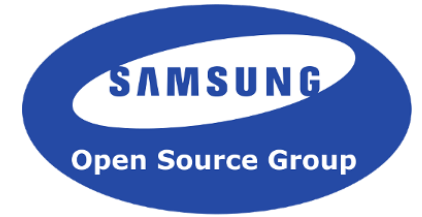
Wayland: Is it Ready?

Derek Foreman
Samsung Open Source Group
derekf@osg.samsung.com

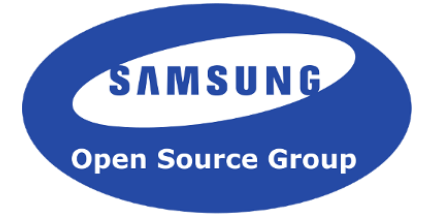
X Server and Friends



Wayland Compositor (Weston)

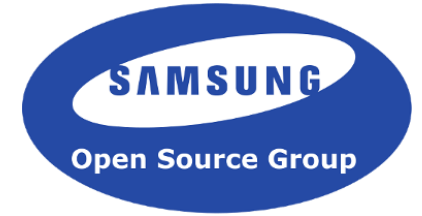


Simple drawing API



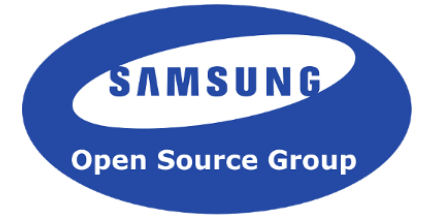
- Wayland has a single drawing primitive
 - wl_buffer
 - Bring your own API
- X has a full featured vector drawing API
 - That nothing uses anymore (really!)
 - Also pixmaps

Simple drawing API



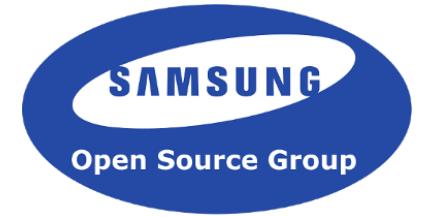
- Wayland has a single drawing primitive
 - Even a video frame is just a buffer
 - DMABUF now supported

The compositor is the server

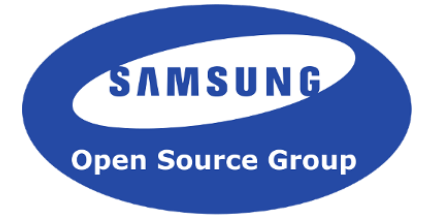


- X – the compositor is a separate process
 - The server doesn't know where it put the windows
- Wayland – compositor is the server and WM
 - Input works regardless of transformation
 - Easier CPU and memory profiling

Wayland design goals

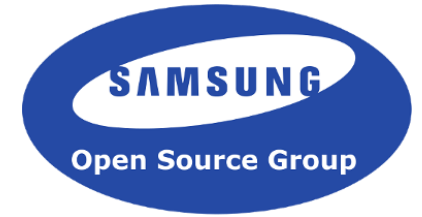


- Every frame is perfect
 - No tearing artifacts
 - No partially rendered frames
- Be descriptive, not prescriptive
 - Provide meta-data, not instructions
 - Compositor makes best handling decisions
 - Coming soon – Atomic mode setting...



Wayland: Is it Ready?

Derek Foreman
Samsung Open Source Group
d.foreman@partner.samsung.com (or
derekf@osg.samsung.com)

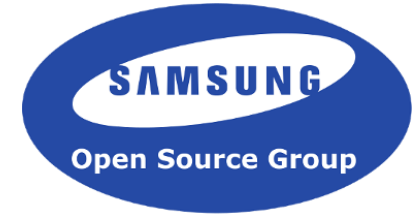


Wayland: Is it Ready?

NO

Derek Foreman
Samsung Open Source Group
d.foreman@partner.samsung.com (or
derekf@osg.samsung.com)

Conky



- No manipulation of stacking order

A screenshot of a Linux desktop environment. The main window is a terminal titled "bishop - Linux" displaying the output of the Conky utility. It shows system statistics such as uptime, frequency, RAM usage, swap usage, CPU usage, and processes. Below this, it lists file systems and networking status. At the bottom, there is a table of running processes. To the right, a smaller terminal window titled "derekf@bishop:~" shows the command "conky &" being executed, followed by the output "[1] 4088".

```
bishop - Linux
Uptime: 6d 4h 32m
Frequency (in MHz): 801
Frequency (in GHz): 0.80
RAM Usage: 1.00GiB/15.6GiB - 6%
Swap Usage: 0B /18.9GiB - 0%
CPU Usage: 1%
Processes: 177 Running: 0

File systems:
/ 277GiB/447GiB
Networking:
Up: 0B - Down: 0B

Name      PID  CPU%  MEM%
conky     4088   0.75   0.05
Xorg -holisten t 4030   0.25   0.21
bash     4098   0.00   0.03
x-terminal-emula 4096   0.00   0.06
```

```
derekf@bishop:~$ conky &
[1] 4088
derekf@bishop:~$ conky: desktop w
conky: window type - desktop
conky: drawing to created window
[]
```

- Conky wants to be on the bottom

AWESOME

derekf@bishop:~\$

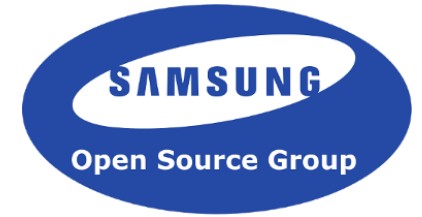
derekf@bishop: ~

derekf@bishop: ~

Guake and Yakuake

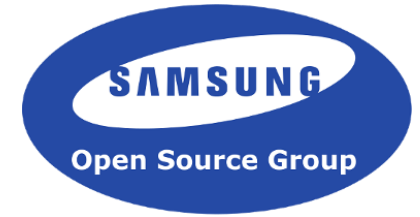
- Not the same problem, really
 - Ok it's the same problem - stacking
- But also another problem
 - No global key bindings

Taskbars

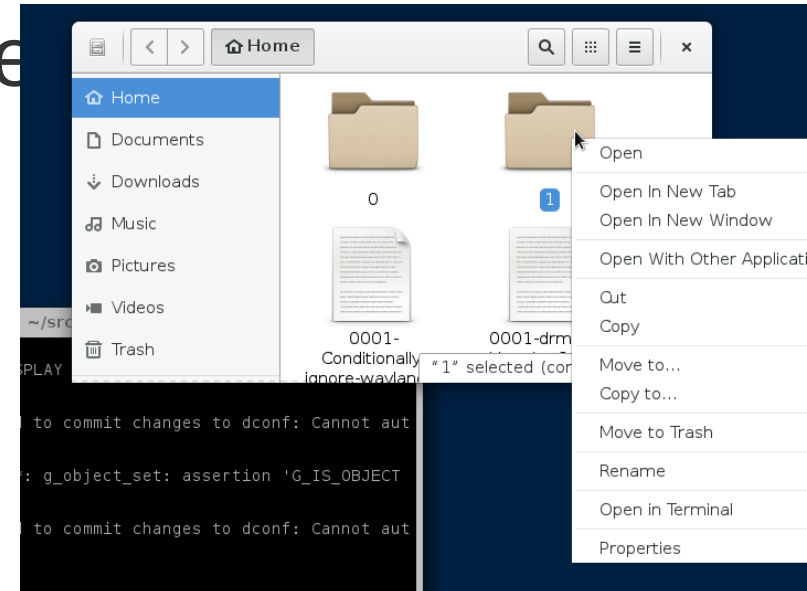


- This again?
 - Want to be at the top of the stack
- See also: Icons (My fault?)
 - And also: notifications
 - Notifications currently being discussed on list
 - And also: pagers

Menus

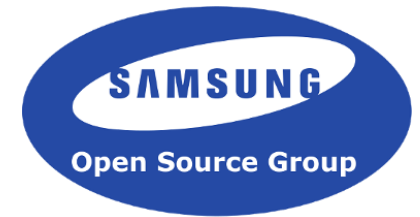


- Why is that menu cut off at the

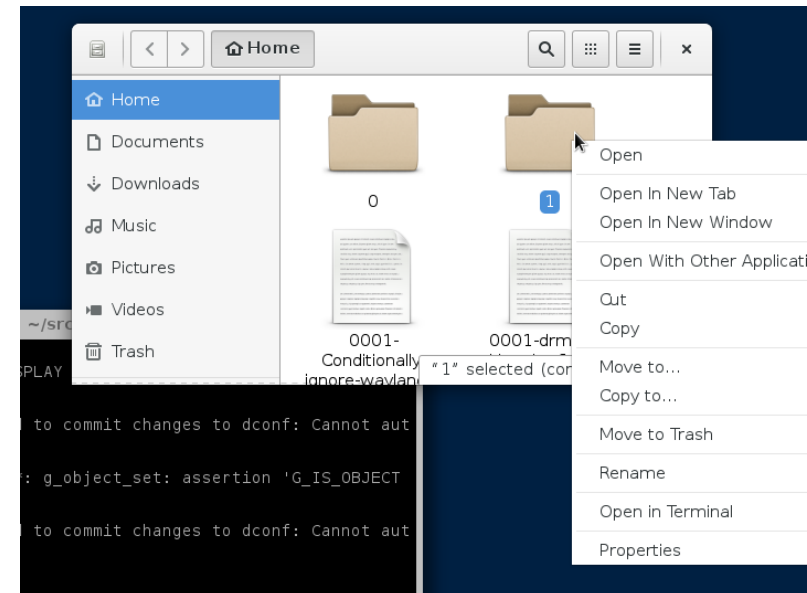


- Apps don't know where they are
 - This is by design

Menus



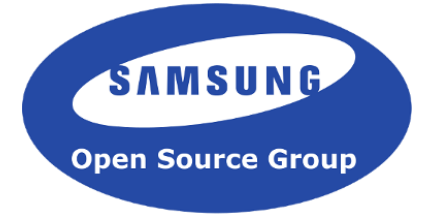
- Solved problem
 - wl_probe extension



- The solution re-introduces the root problem
 - Can be abused to get absolute co-ordinates

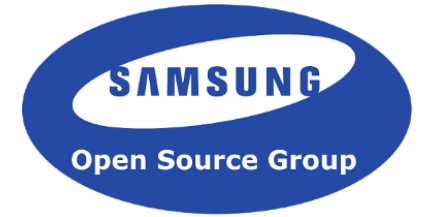
- No client can reconfigure display positions
- No client can change display resolution
 - Half true – full screen mode is pretty clever
 - Resolution change can't outlive client

Screenshots

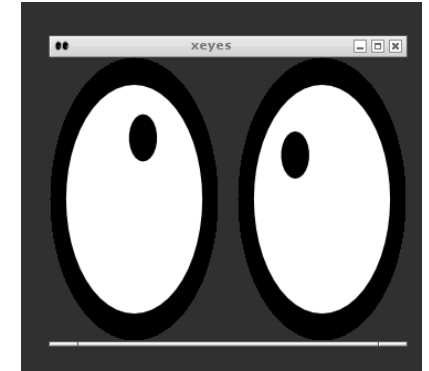


- But we saw one earlier
 - No screenshots taken by external applications
- See also: No color picker
 - Design goal – no client can see other client buffers

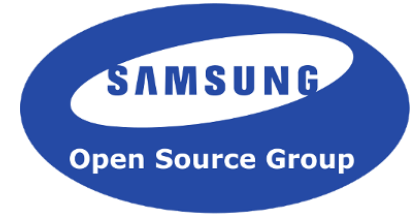
Other Really Important Stuff



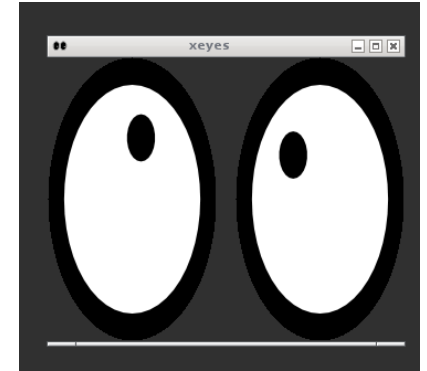
- Xeyes
 - No global pointer tracking



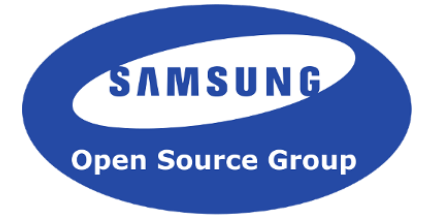
Other Really Important Stuff



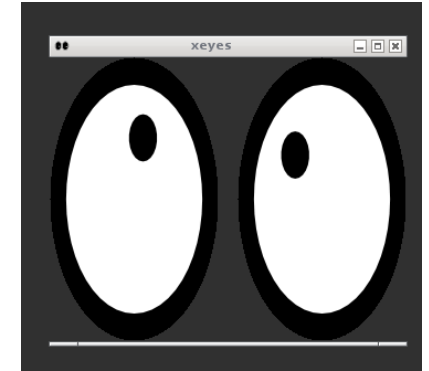
- Xeyes
 - No global pointer tracking
- Devil's Pie
 - No X Properties



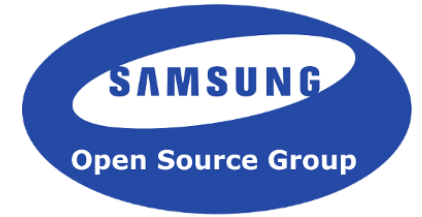
Other Really Important Stuff



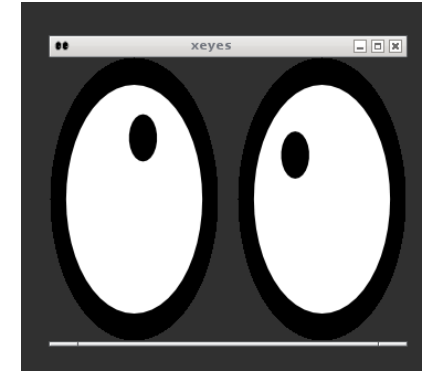
- Xeyes
 - No global pointer tracking
- Devil's Pie
 - No X Properties
- Xroach
 - No access to the window tree



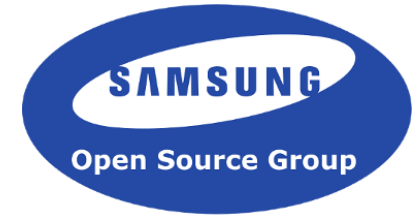
Other Really Important Stuff



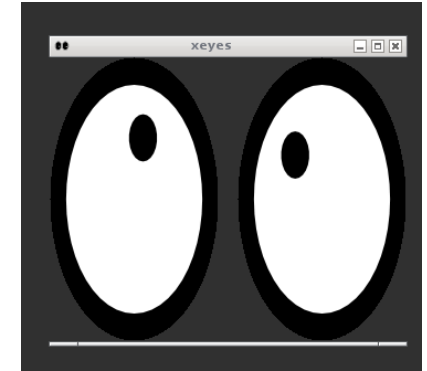
- Xeyes
 - No global pointer tracking
- Devil's Pie
 - No X Properties
- Xroach
 - No access to the window tree
- `xmodmap -e "keysym F1 = Pointer_Button1"`
 - What?



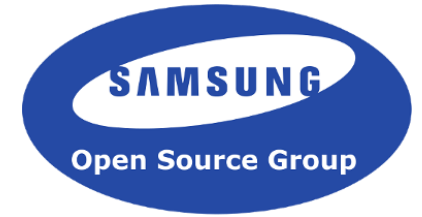
Other Really Important Stuff



- Xeyes
 - No global pointer tracking
- Devil's Pie
 - No X Properties
- Xroach
 - No access to the window tree
- `xmodmap -e "keysym F1 = Pointer_Button1"`
 - What?
- Network transparency

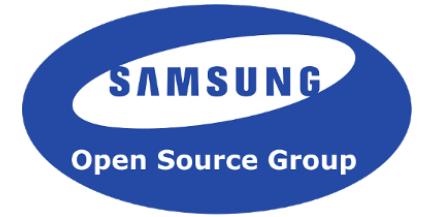


Video Games



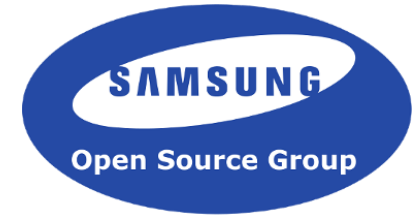
- Relative pointer motion
- Pointer confinement
- Controller input
- Patches under review...
 - (Since December 2014)
- Release blocker for Weston 1.10

What's the Delay?

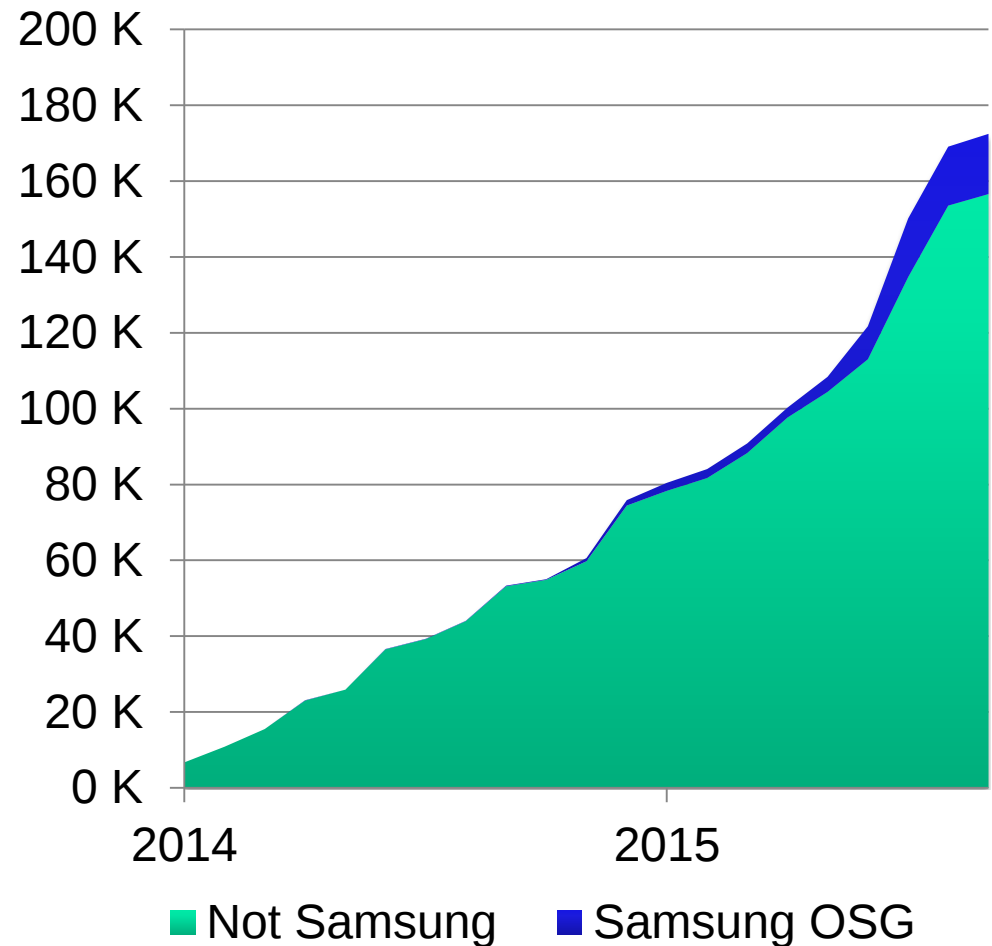


- Need more (many more) reviewers
 - Nobody knows all areas of the code
- Need more participation from Big Desktop
 - GNOME and Enlightenment are getting on board
- Need more developers – come join us!
 - <http://wayland.freedesktop.org/>
 - IRC: irc.freenode.net #wayland
 - ML: wayland-devel@lists.freedesktop.org

The Open Source Group at Samsung Wayland Contributions



- Samsung's upstream contributions to Wayland have gone from zero to 10% of all lines committed.
- Our group is responsible for most of the lines of code added, and is helping other teams get involved.





Thank You!