



# Desktop Virtualization with SPICE

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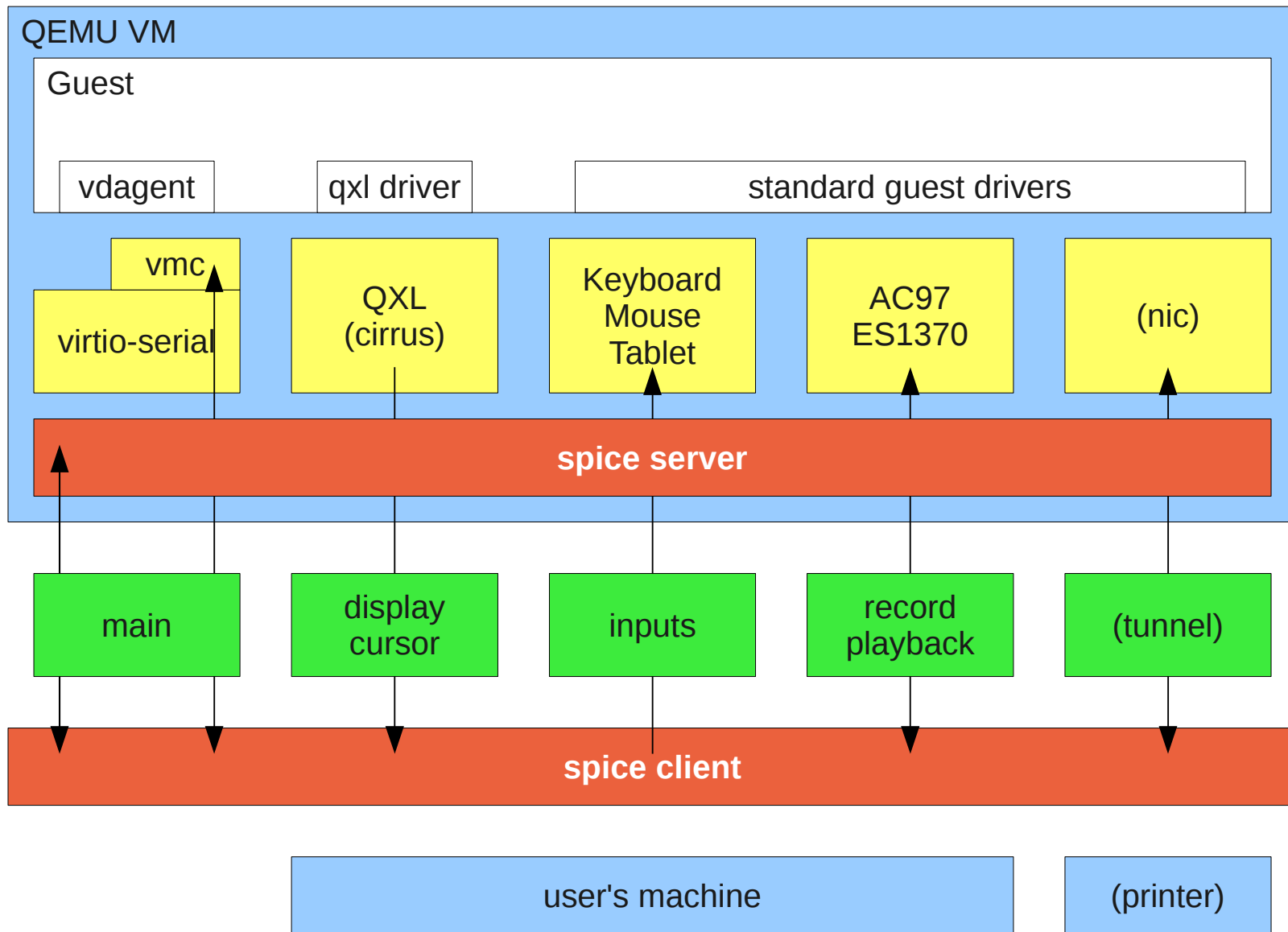
Linux Kongress, Sep 23<sup>th</sup> 2010

# What is SPICE

- Virtual **D**esktop Infrastructure.
- **S**imple **P**rotocol for **I**ndependent **C**omputing **E**nvironments.
- Created by Qumranet.
- freedesktop.org project since January '10.



# Network Protocol & Guest Devices



# VM channel device

- Communication between guest and spice client.
  - Mouse events.
  - Display information.
  - (Cut+Paste).
  - Uses virtio-serial port now days
  - Used to be a PCI device.



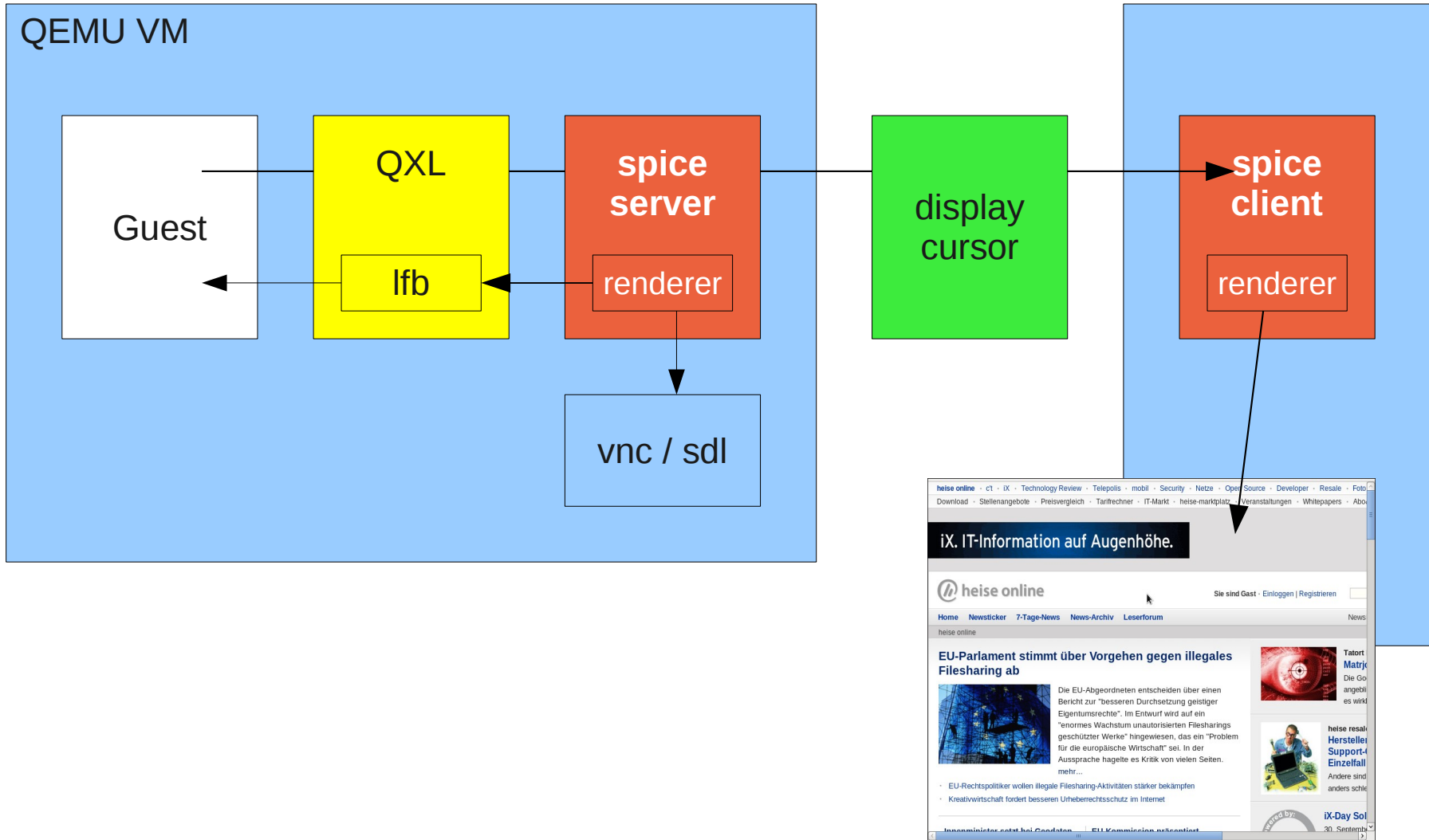
# QXL Device

bar 0 ram	VGA framebuffer (8M)
	rendering commands, command data
	cmd rings, control fields (8k)
bar 1 vram	surfaces: offscreen pixmaps (textures)
bar 2 rom	qxl device info (8k)
bar 3 io	initialization + reset

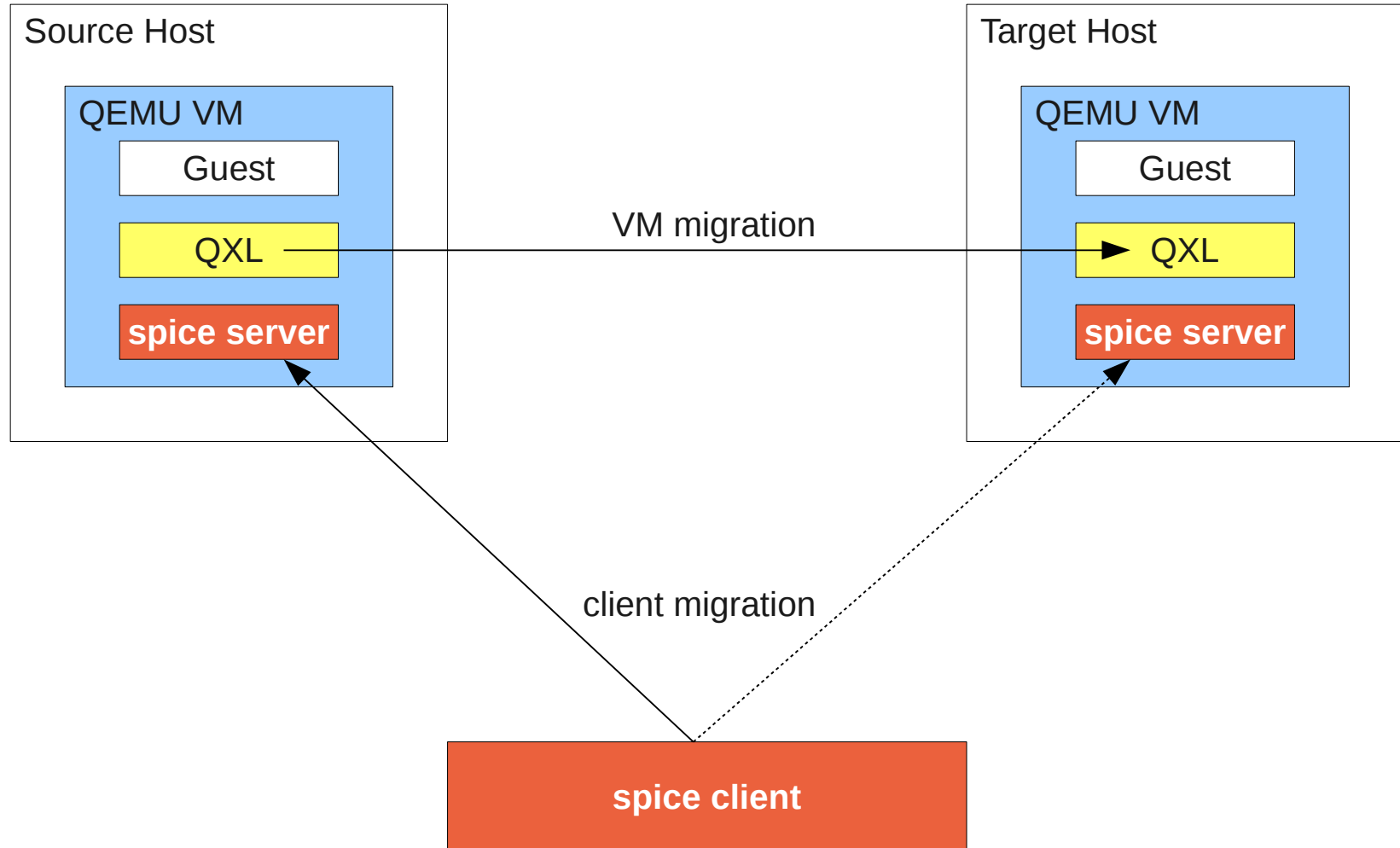
- Paravirtual graphics device.
- Two QXL device revisions
  - Rev 1 – spice 0.4
  - Rev 2 – spice 0.6



# QXL Rendering



# Migration



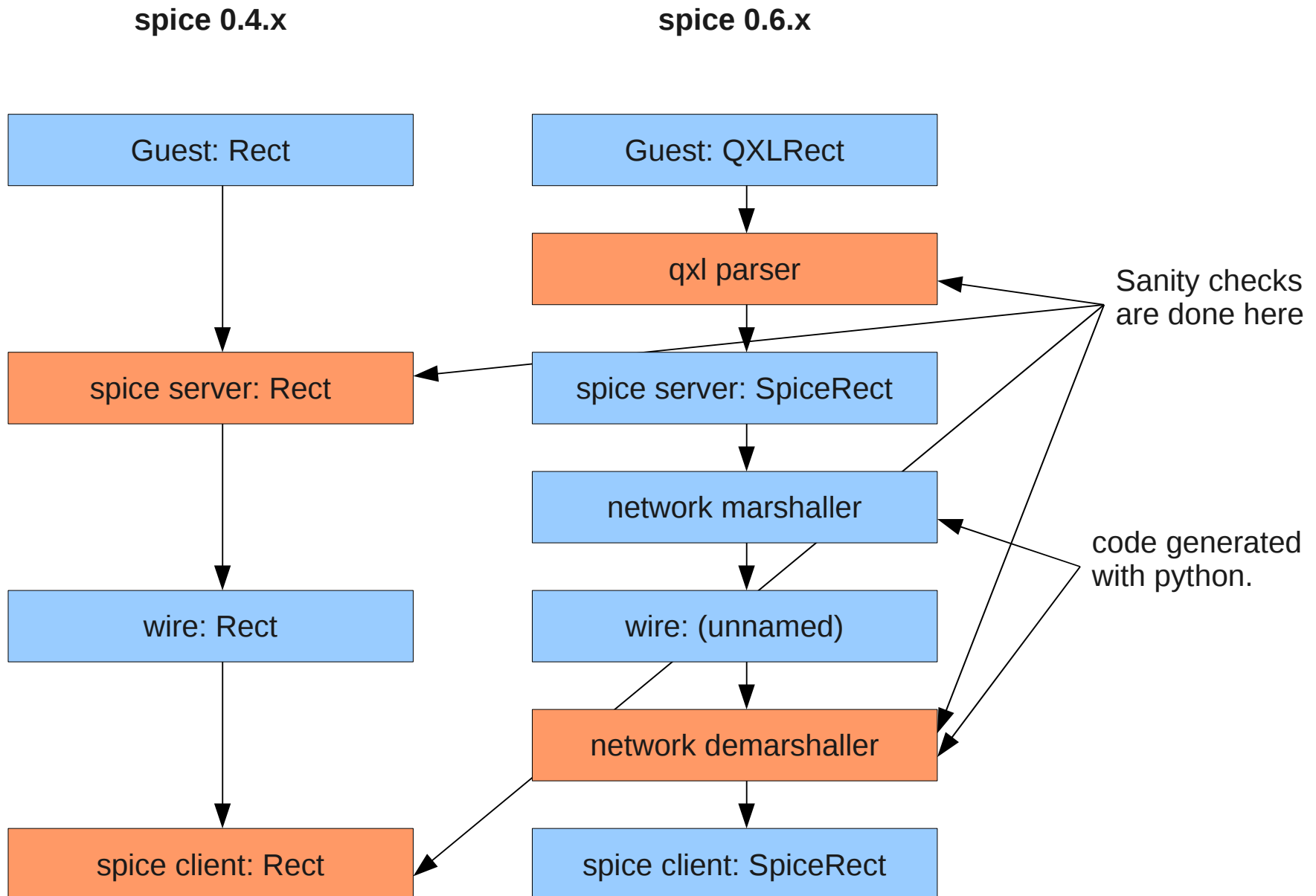
# Recent Changes (0.4 -> 0.6)

- Simplify build.
  - Merge pixman changes upstream.
  - Ditch dependency on patched cairo.
  - Ditch dependency on ffmpeg.
- New libspice-server API.
- Fixup data structures (next slide).
- QXL/Display: Surfaces, WAN compression.
- Network protocol optimizations.





# Data structure fixups



# TODO List

- Merge into upstream qemu.
  - plan: early in 0.14 devel cycle.
- Create libspice-client, gtk widget.
  - at alpha stage now.
- Portability fixes.
- More cleanups.
- Tunnel & Printing.
- USB forwarding.



# Using spice: getting started

- `qemu -spice port=1234,disable-ticketing -vga qxl -usbdevice tablet`
- `spicec -host localhost -p 1234`
- linux guest:
  - `yum install xorg-x11-driv-qxl`
  - <http://cgit.freedesktop.org/xorg/driver/xf86-video-qxl>
- windows guest:
  - [spice-space.org](http://spice-space.org) has qxl drivers



# Using spice: with guest agent

- qemu:
  - add “-device virtio-serial -device spicevmc”
  - remove “-usbdevice tablet”.
- linux guest:
  - <http://cgit.freedesktop.org/~jwrdegoede/vdagent-linux/>
- windows guest:
  - install virtio-serial driver from [spice-space.org](http://spice-space.org).
  - fetch+unpack vdagent zip, run “vdservice.exe install”.



# Ressources

- [www.spice-space.org](http://www.spice-space.org)
  - Wiki, docs & downloads
- [cgit.freedesktop.org](http://cgit.freedesktop.org)
  - spice git repositories.
  - also qemu with spice patches (branches spice.v\$nr).
- [spice-devel@lists.freedesktop.org](mailto:spice-devel@lists.freedesktop.org)
  - developer mailing list
- Packages: Fedora 14.

