



X.Org multitouch support

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Timeline: X Server 1.12



basic concepts

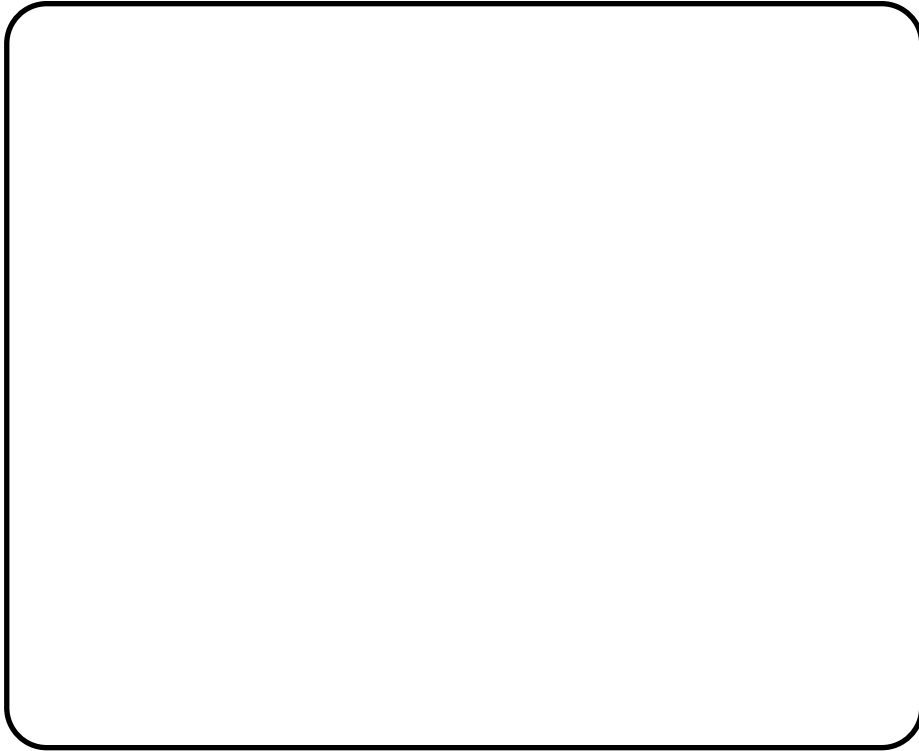


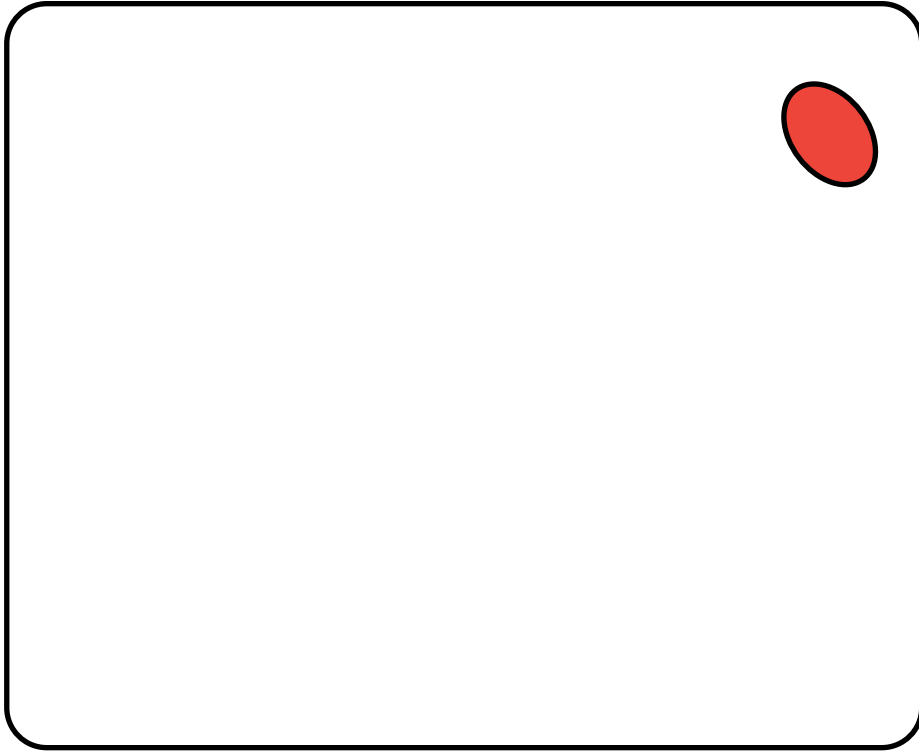
touch != pointer

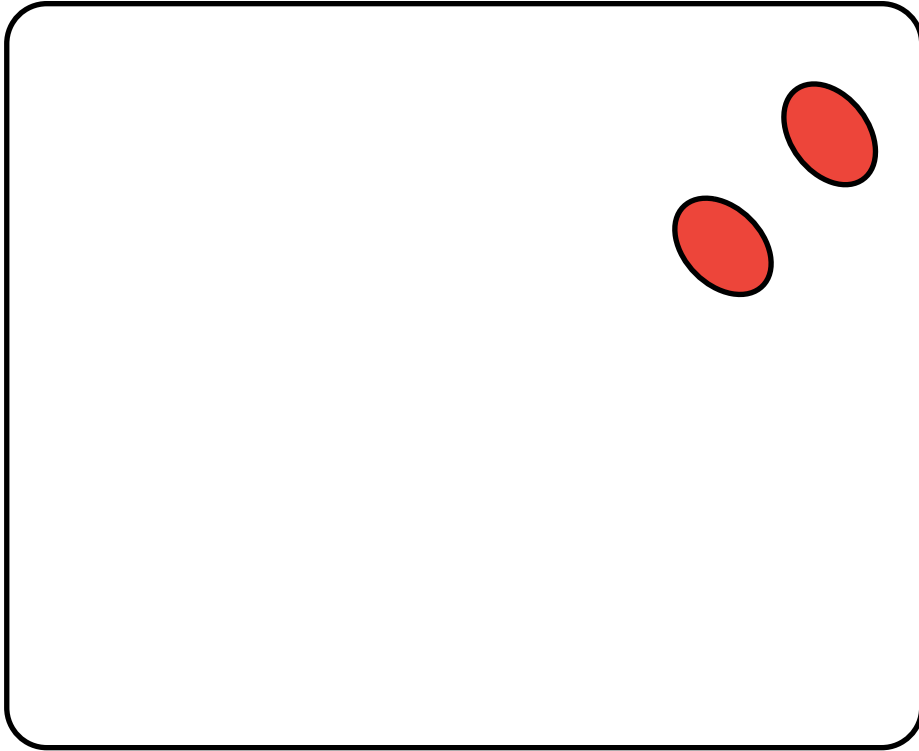


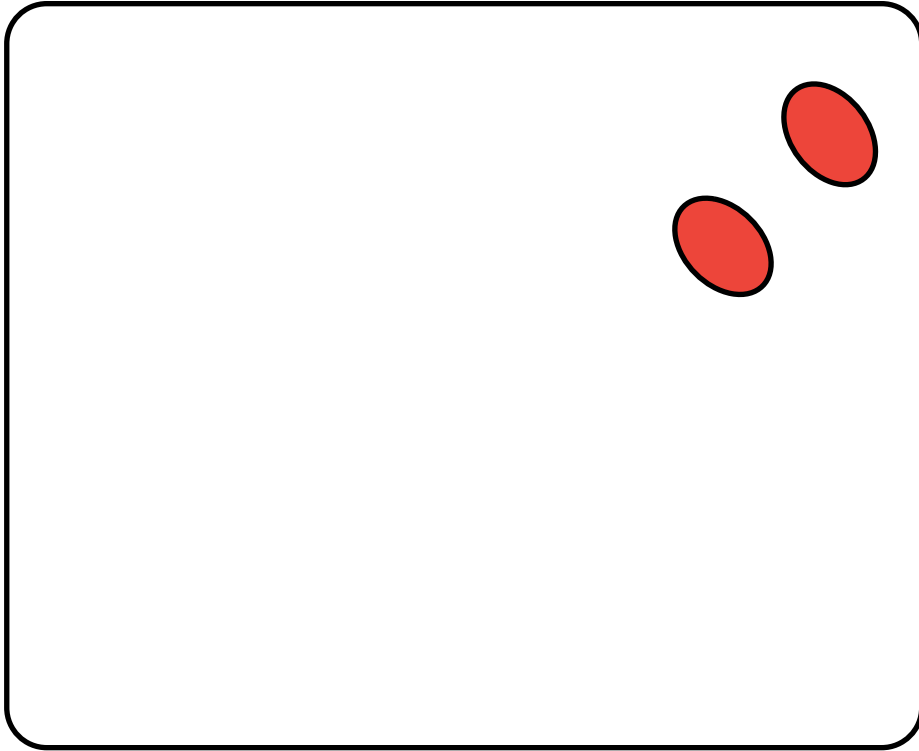
there is no state
but there is plenty of user context

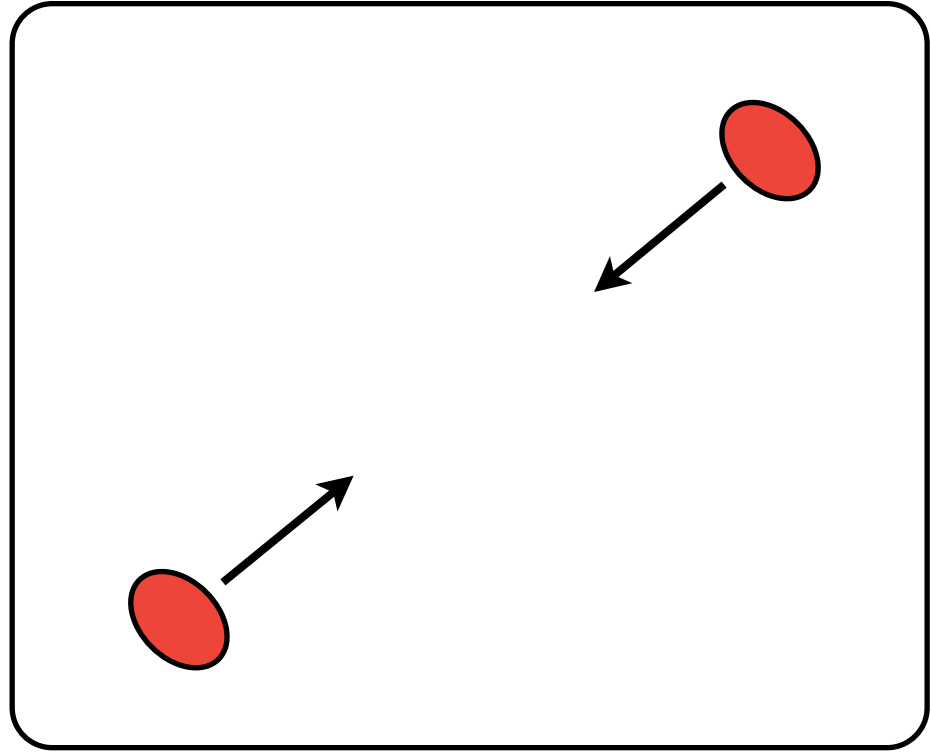


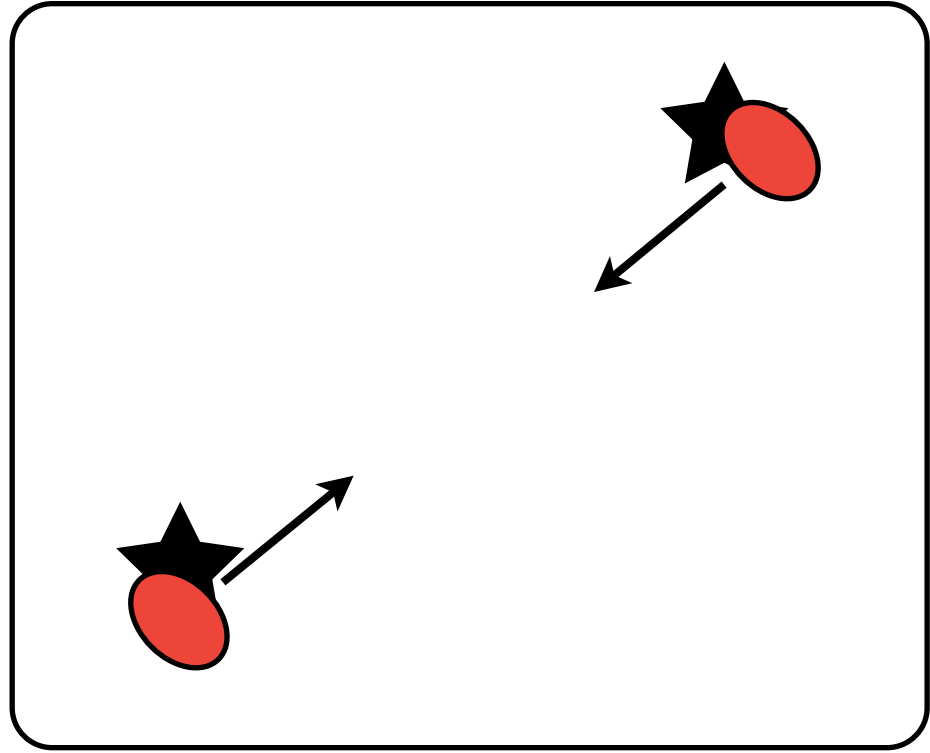














X Input Extension v 2.2

kernel MT protocols

- . Protocol A in 2.6.31

devices *without* hardware tracking,
mtdev does the tracking for us

- . Protocol B in 2.6.36

devices *with* hardware tracking



One device, multiple input points



Direct Device vs. Dependent Devices



Three new events:

- . TouchBegin
- . TouchUpdate
- . TouchEnd

... well, sorry, four:

- . TouchOwnership



Touch events are delivered like pointer events



Direct devices:

to the window underneath the touchpoint

Dependent devices:

to the window underneath the cursor



Grab delivery behaviour depends on
TouchOwnership mask



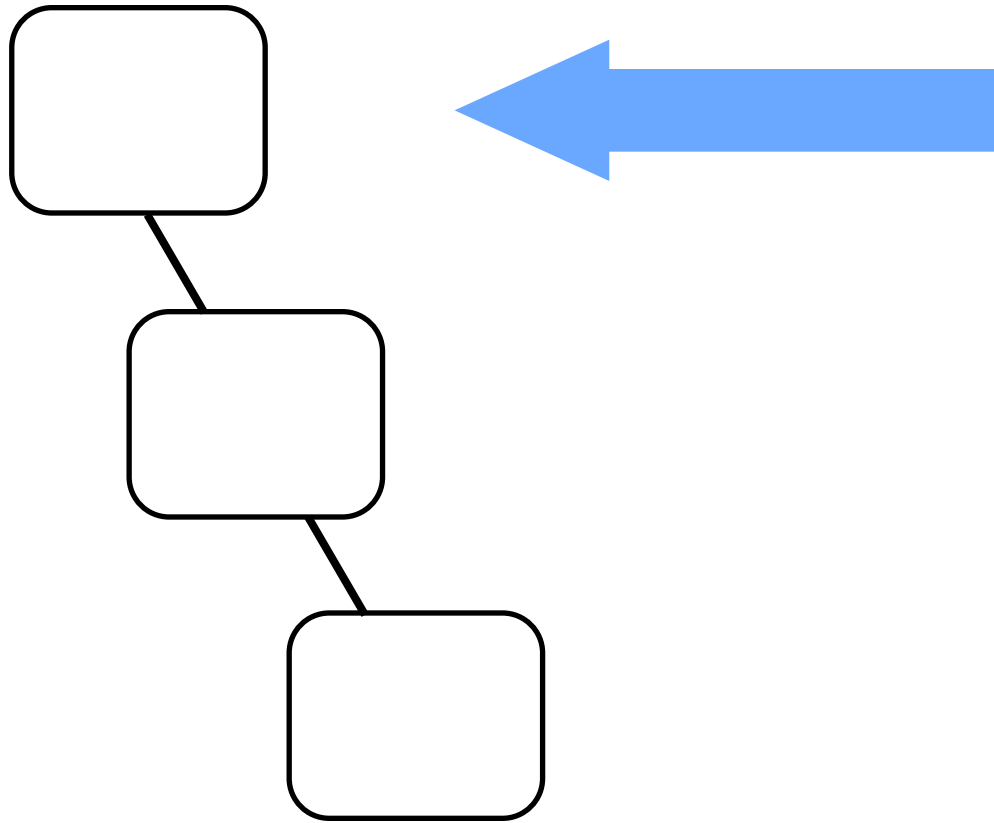
A passive grab intercepts events before the
delivery to the true target



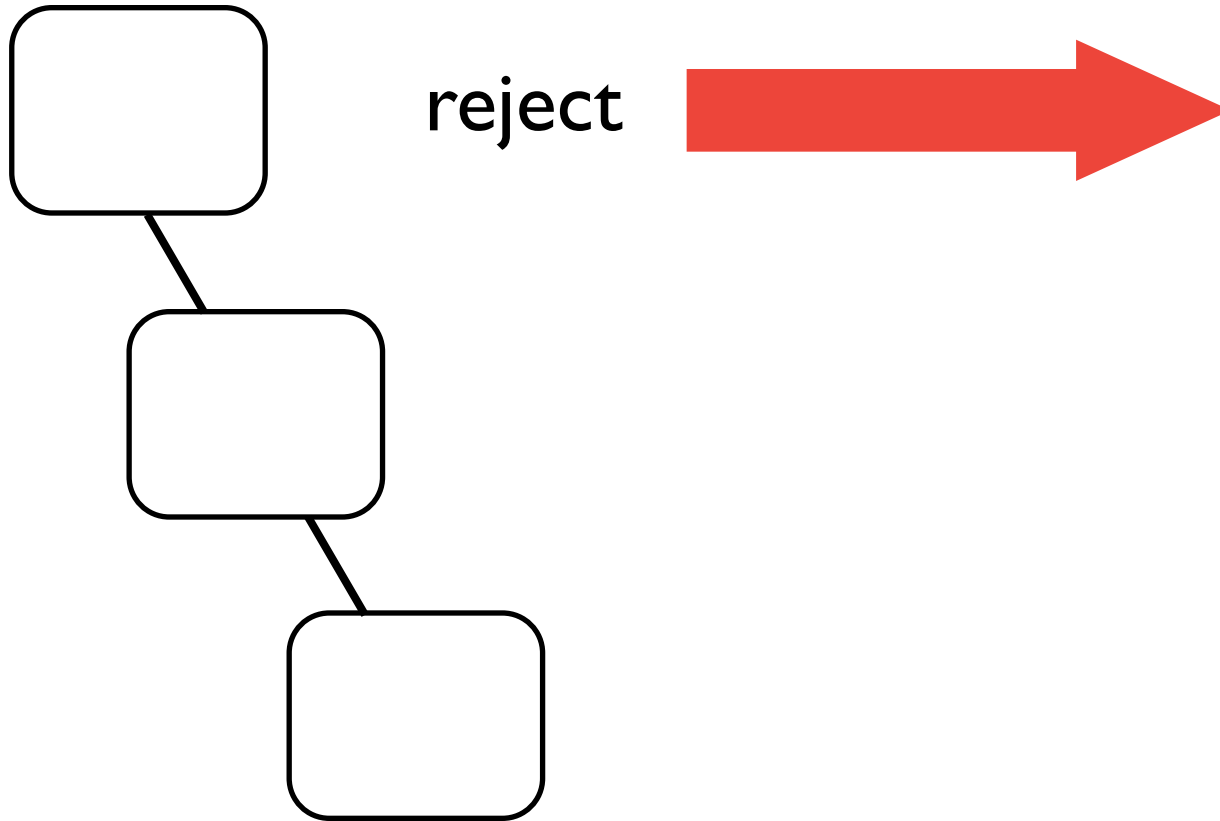
A grabbed touch must be accepted or rejected



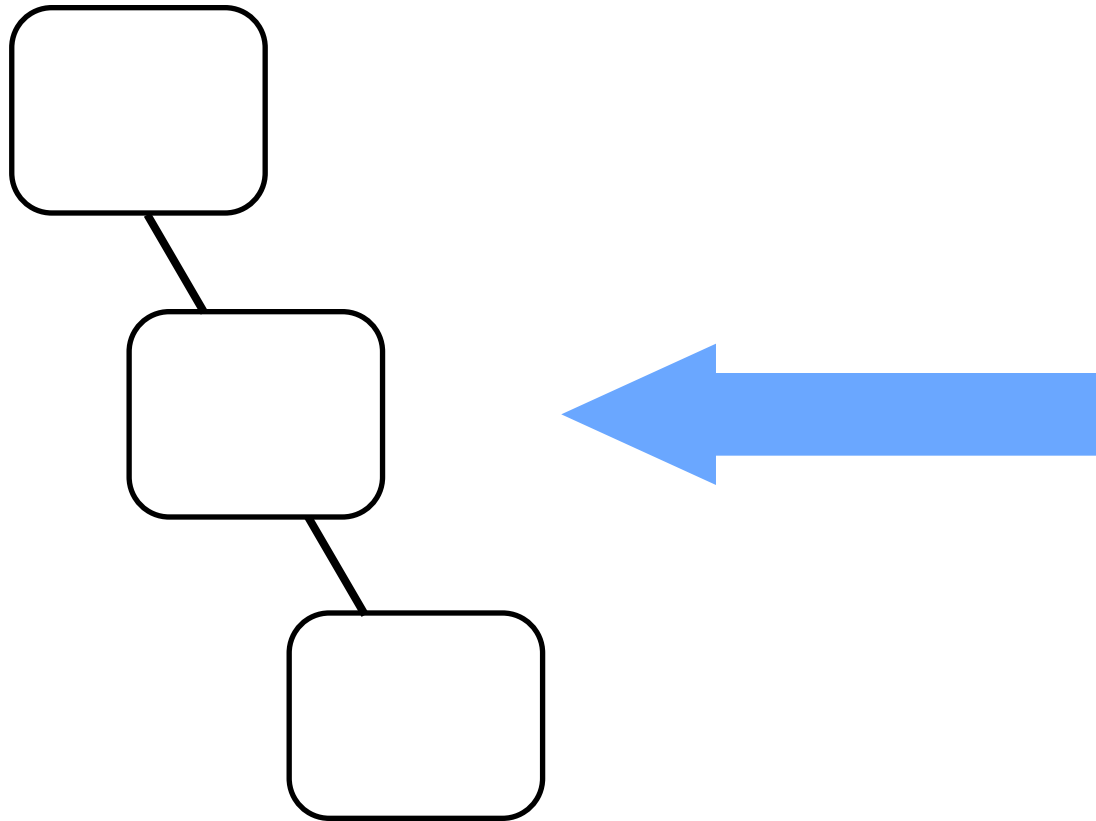
Touch event passive grab delivery:



Touch event passive grab delivery:



Touch event passive grab delivery:



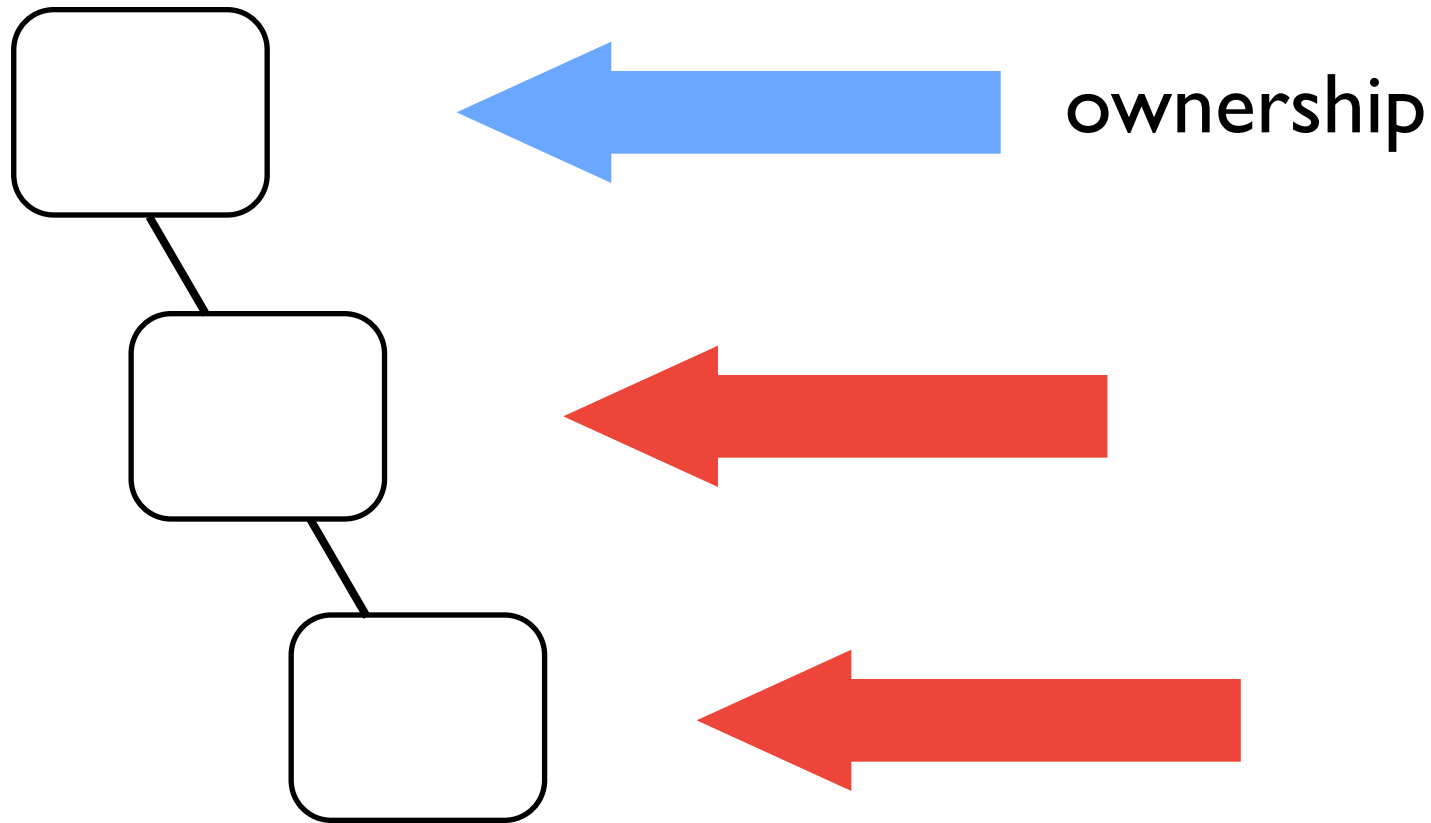
TouchOwnership changes event delivery



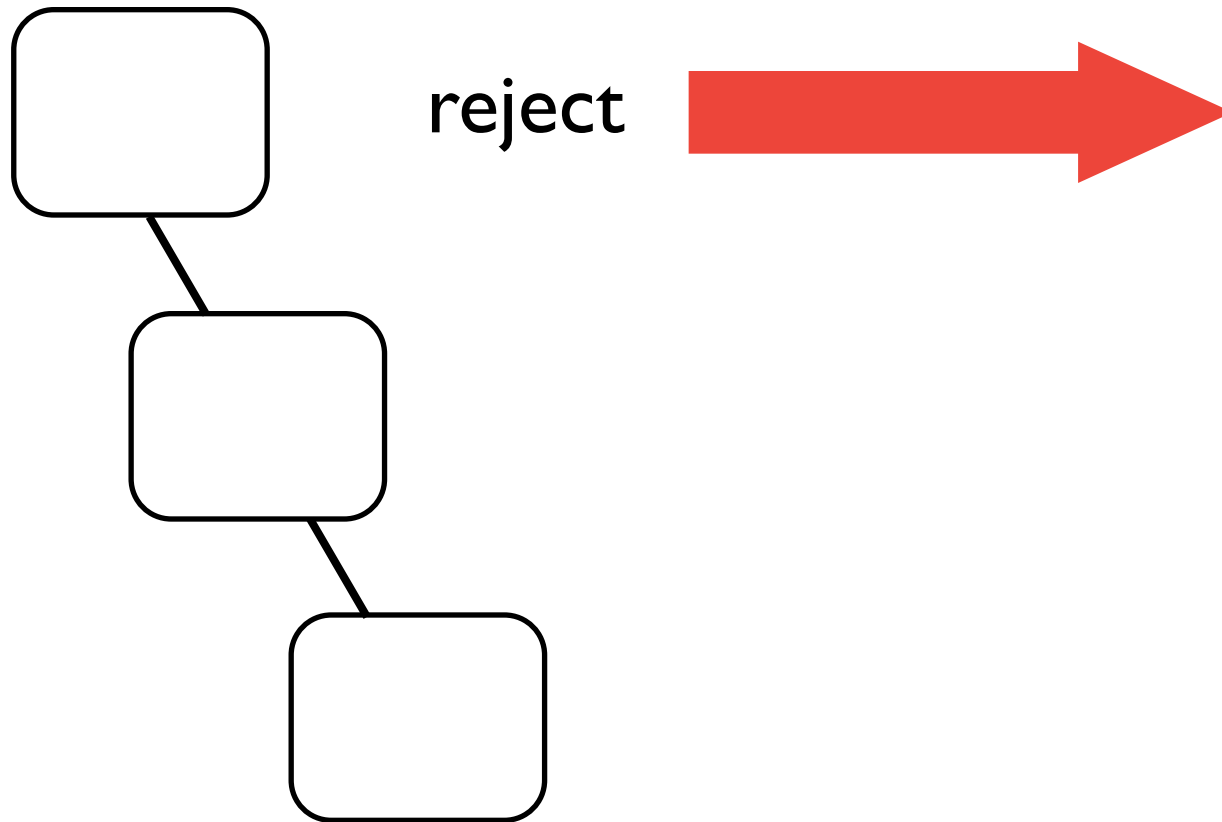
Multiple recipients, but only one client “owns”
the grab at any point in time



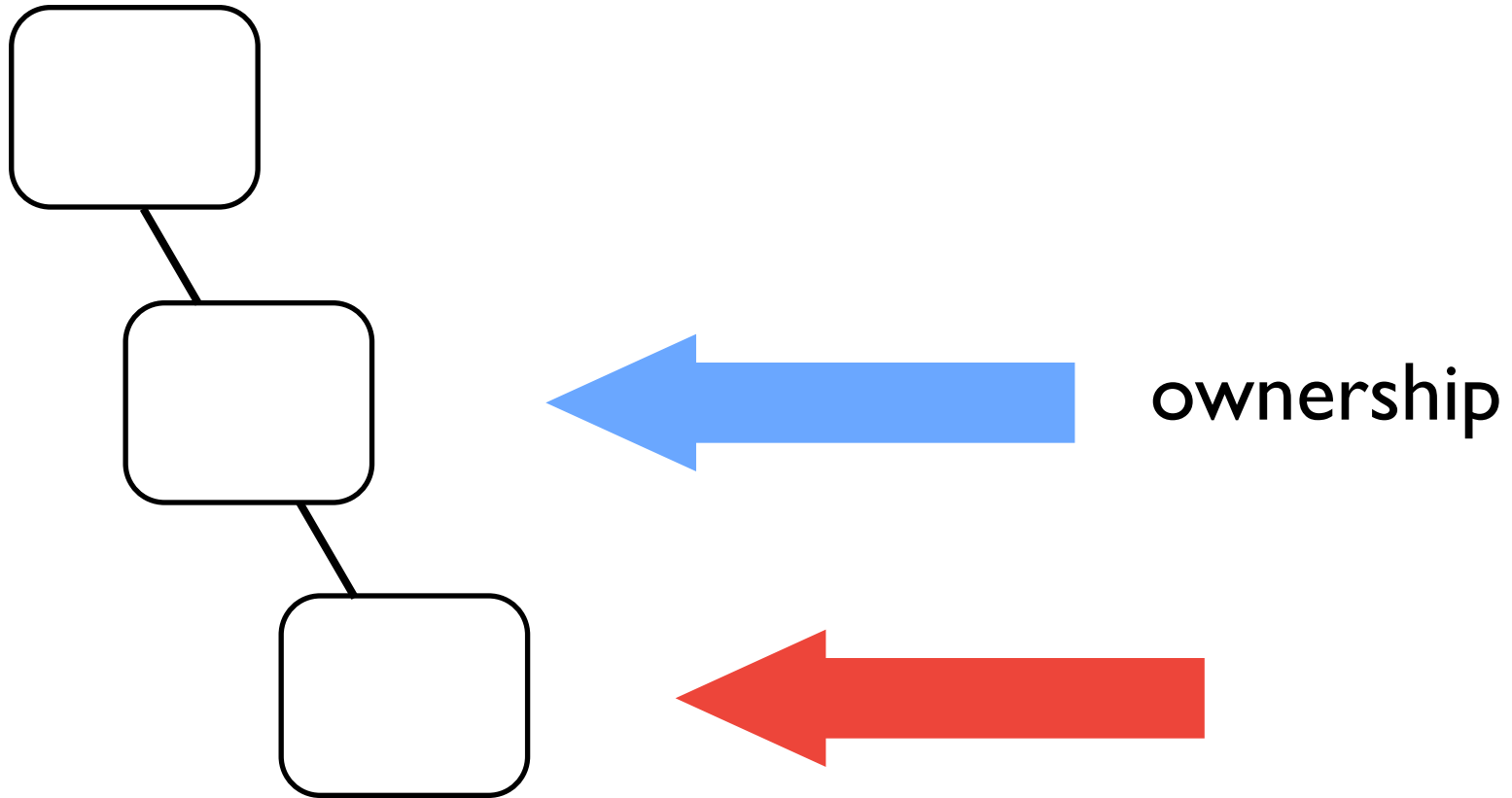
Touch event passive grab delivery:



Pointer event passive grab delivery:



Pointer event passive grab delivery:



You can process touches that are not owned
by you - **but at your own risk!**



Pointer emulation on the first touchpoint,
emulated pointer events are marked





demo time!

XI 2.2 new events:

- . TouchBegin, TouchUpdate, TouchEnd
- . TouchOwnership

Touch grabs must accept or reject events

TouchOwnership changes event delivery

Pointer emulation handled automatically

