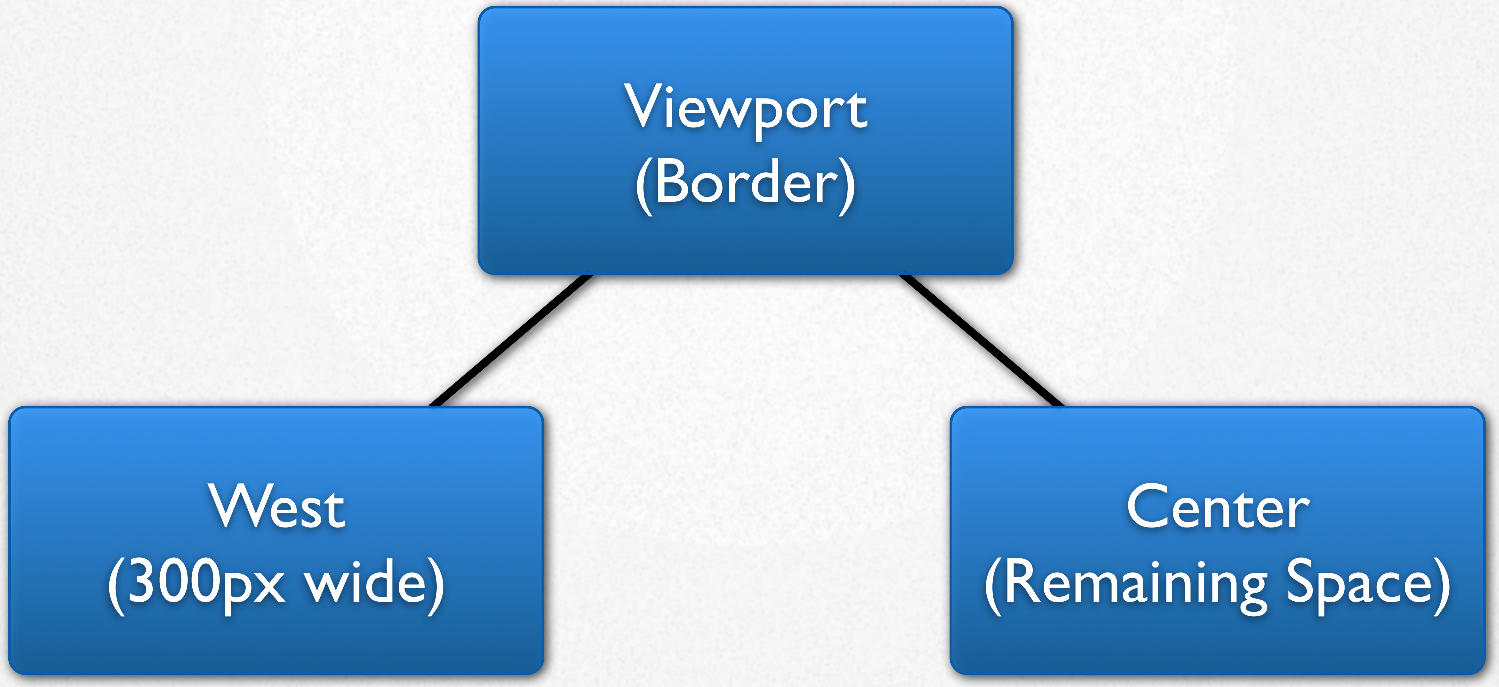
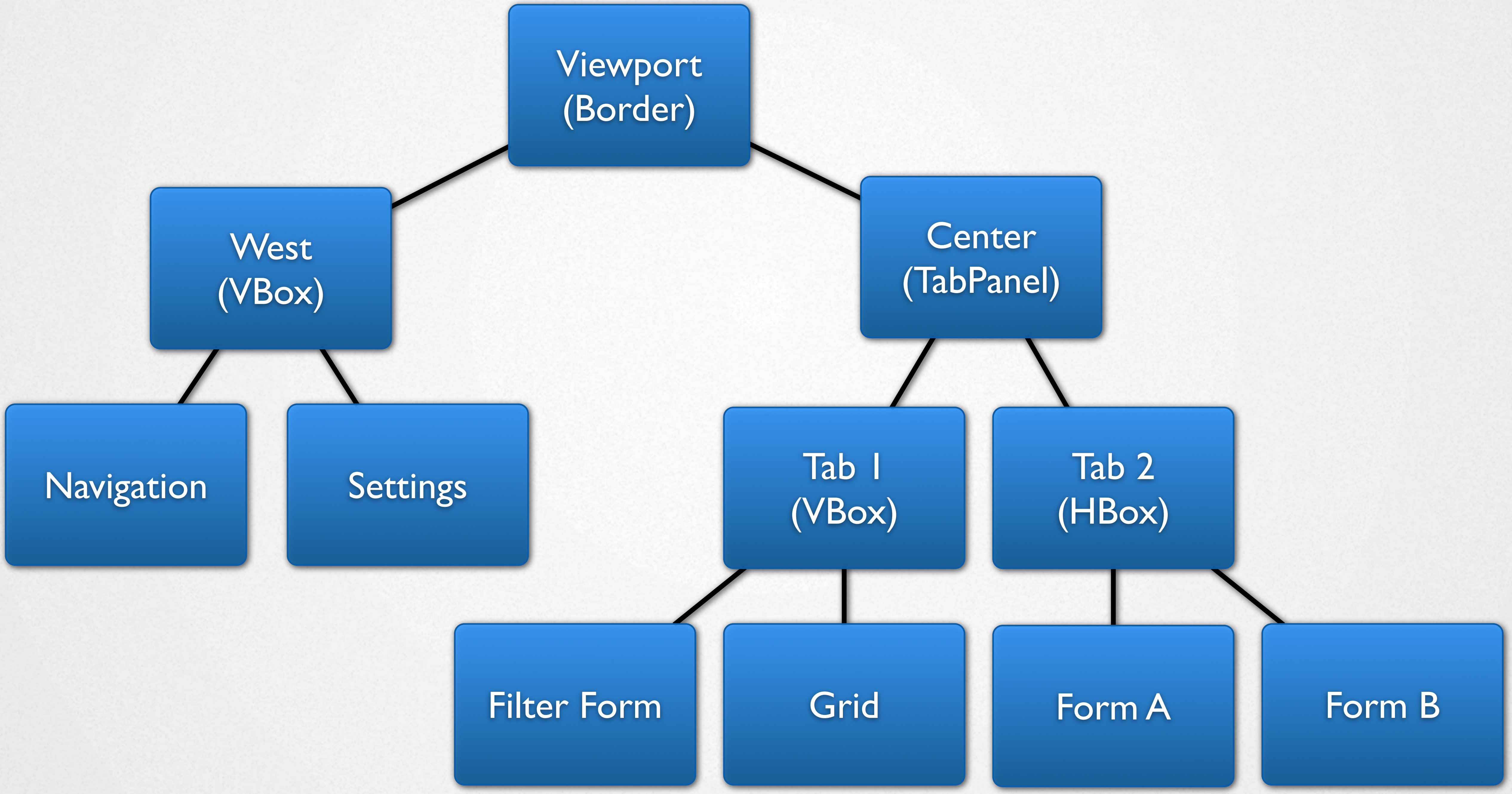
Ext 4 Layouts

Layouts - How They Work

Layouts define how a container sizes its child items.



Visualizing a Layout Tree



Viewport (Border)

West (VBox)

Center (TabPanel)

Navigation

Settings

Tab 1 (VBox)

Tab 2 (HBox)

Filter Form

Grid

Form A

Form B

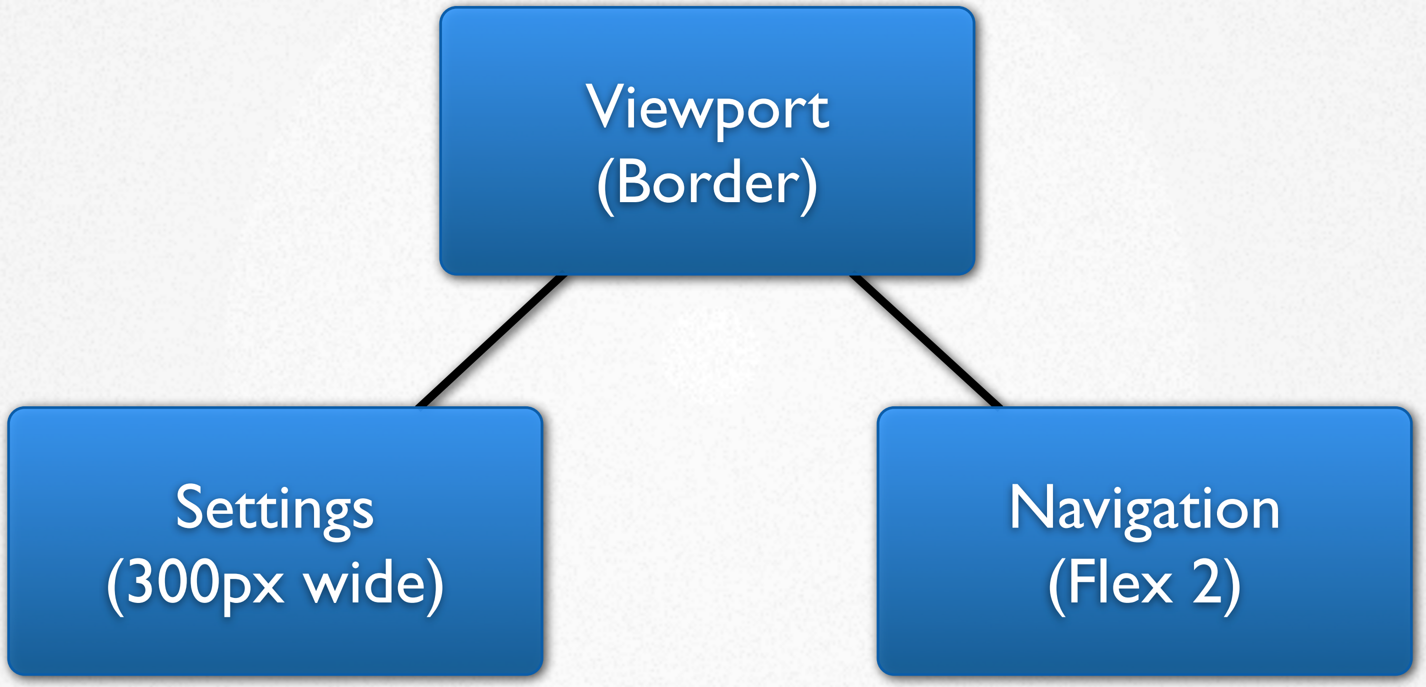
doLayout()

Ambiguous
Recursive by default
Often triggers other calls to doLayout()

Container Modification

Changing items in a container
Trigger a layout by default
Passed Arrays will only trigger a single layout
Behavior can be manually overridden

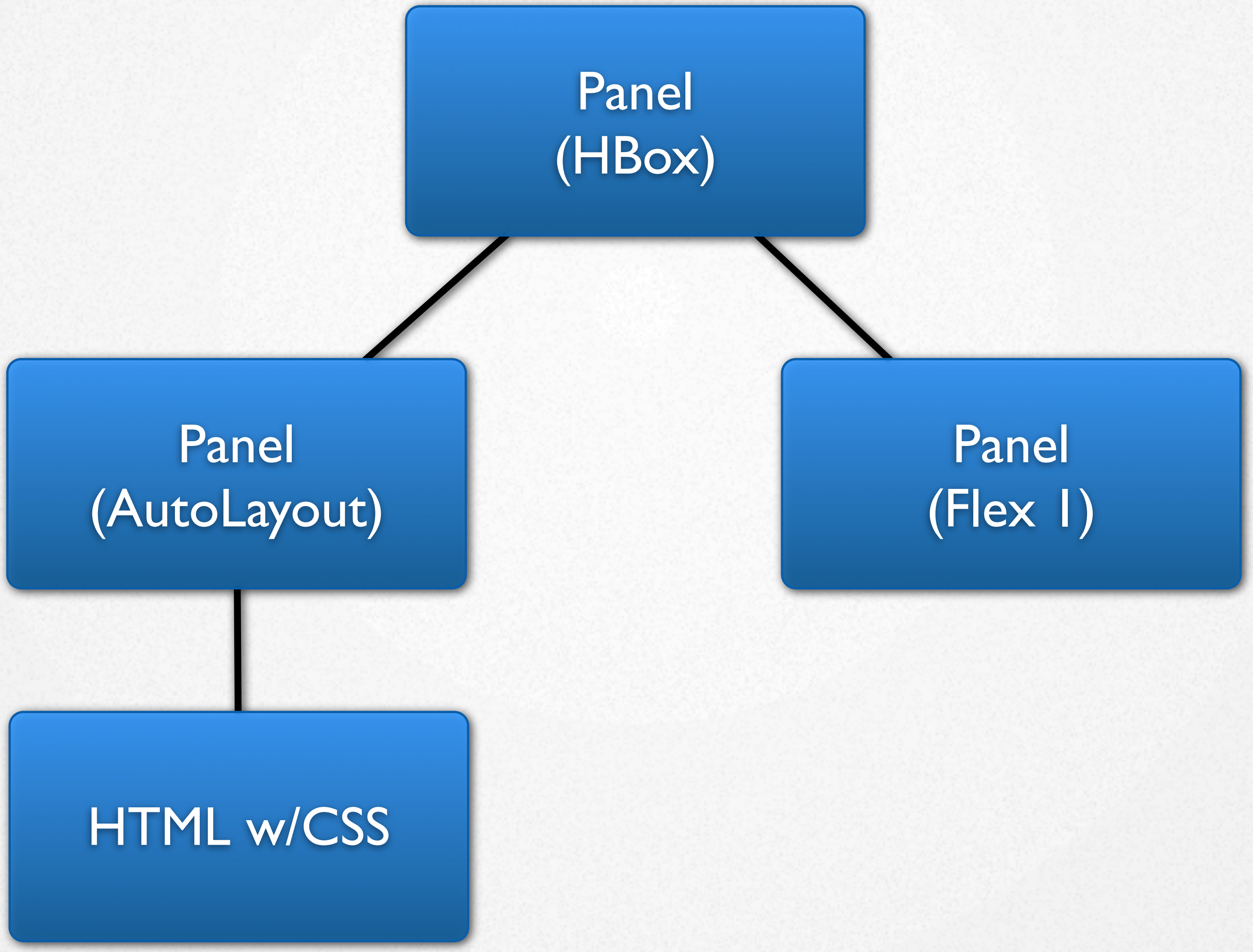
BoxLayout issues


Viewport (Border)

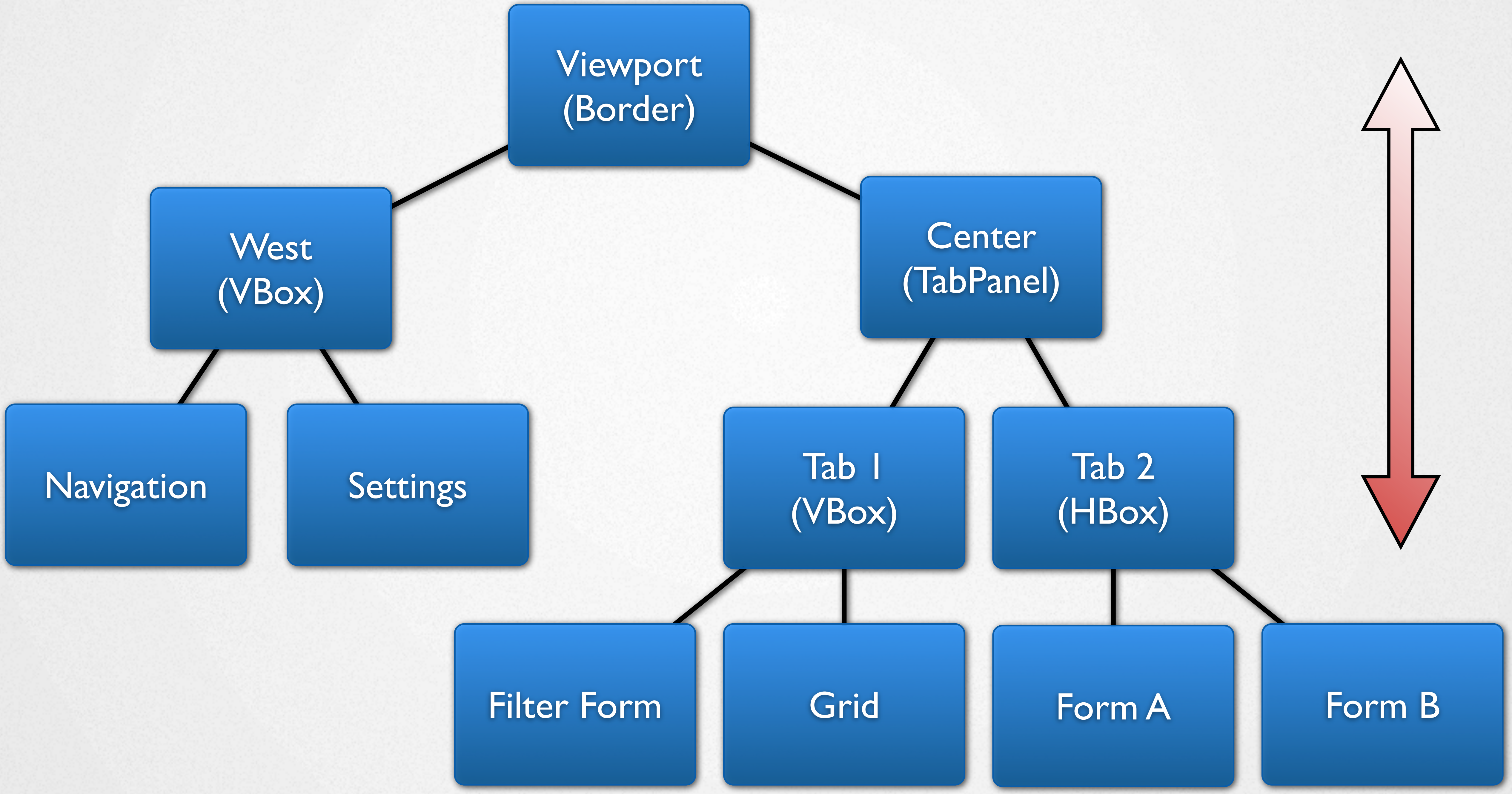
Settings (300px wide)

Navigation (Flex 2)

AutoLayout issues



Layouts are Bidirectional



Size Properties w/ Layouts

When a container sizes a component, that sizing is permanent. In Ext 4, layouts will no longer alter a component’s sizing properties.

Handling Visibility

Visibility checks are now recursive and avoid the DOM

Collapsed panels are considered visible, but their collapsed content isn’t

Improving Flexibility

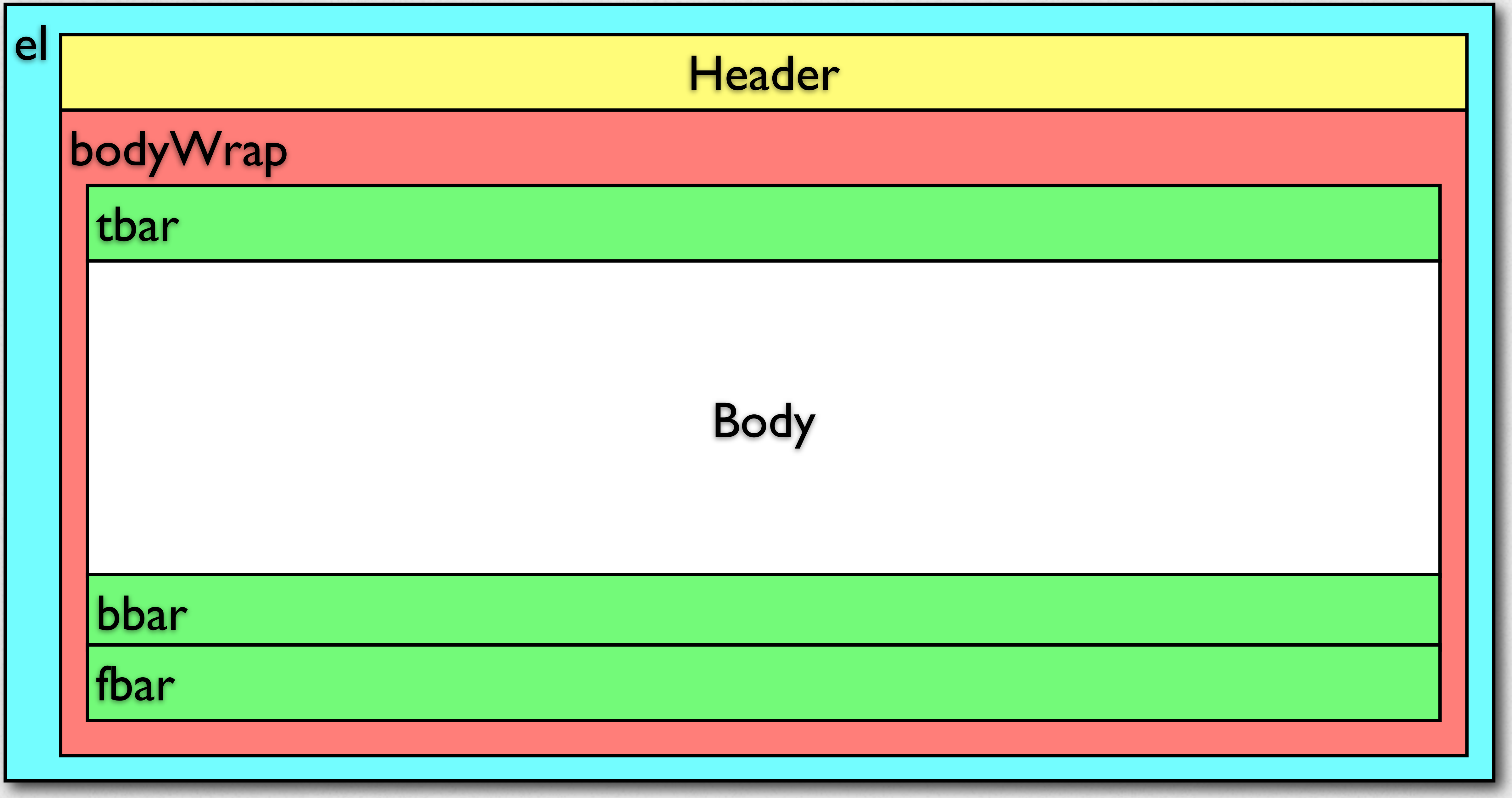
Component Layouts

Component Layouts define how a component sizes its child items.

Replaces static sequence of setting resizeEl, calling onResize(), and firing “resize” event.

Easier to Extend and Customize how a component resizes

3.x Panel Structure



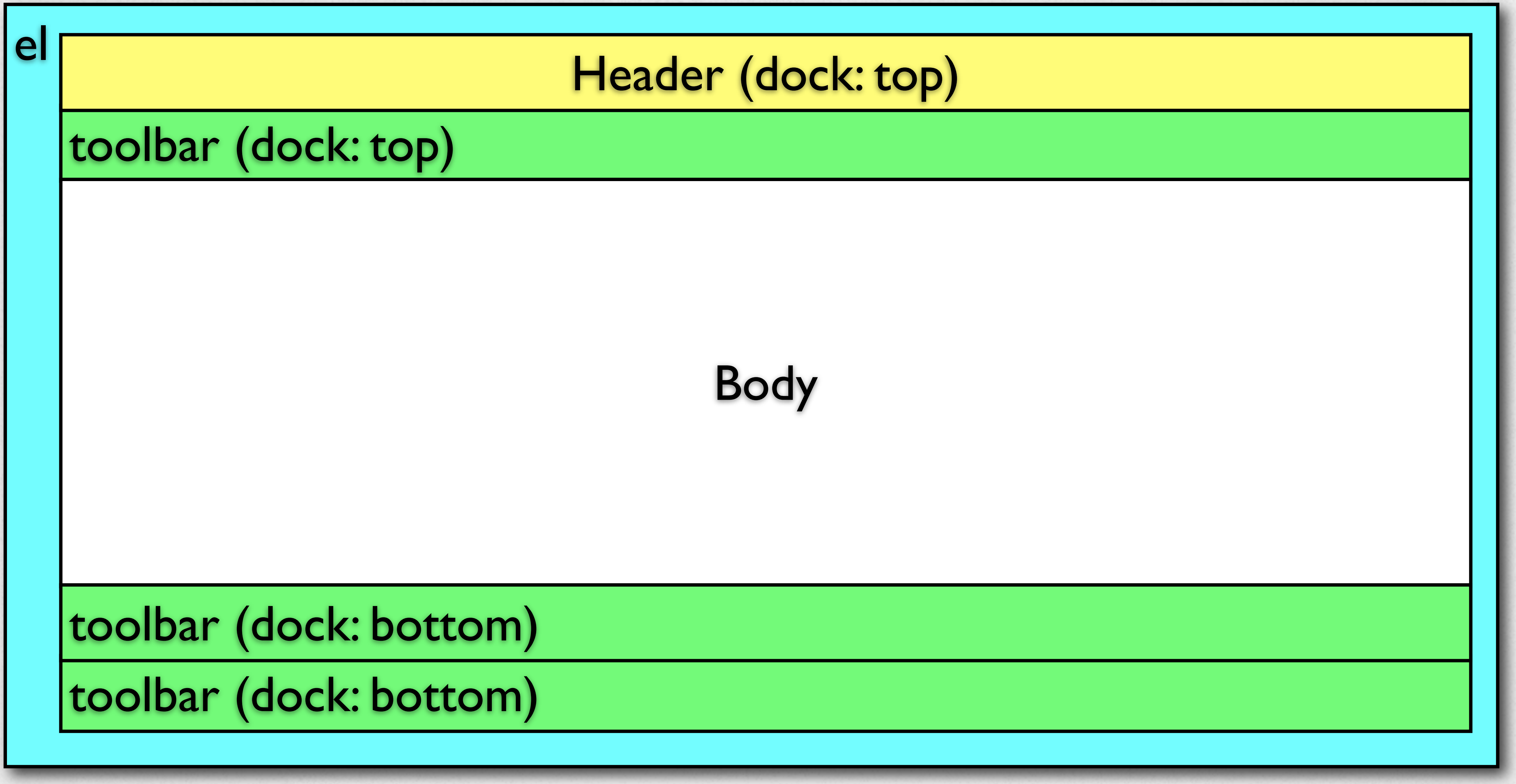
DockLayout

Headers are now true containers and are docked

tbar, bbar and fbar are deprecated and handled as docked items

Tools are now true components

Ext 4 Panel w/DockLayout



el

Header (dock: top)

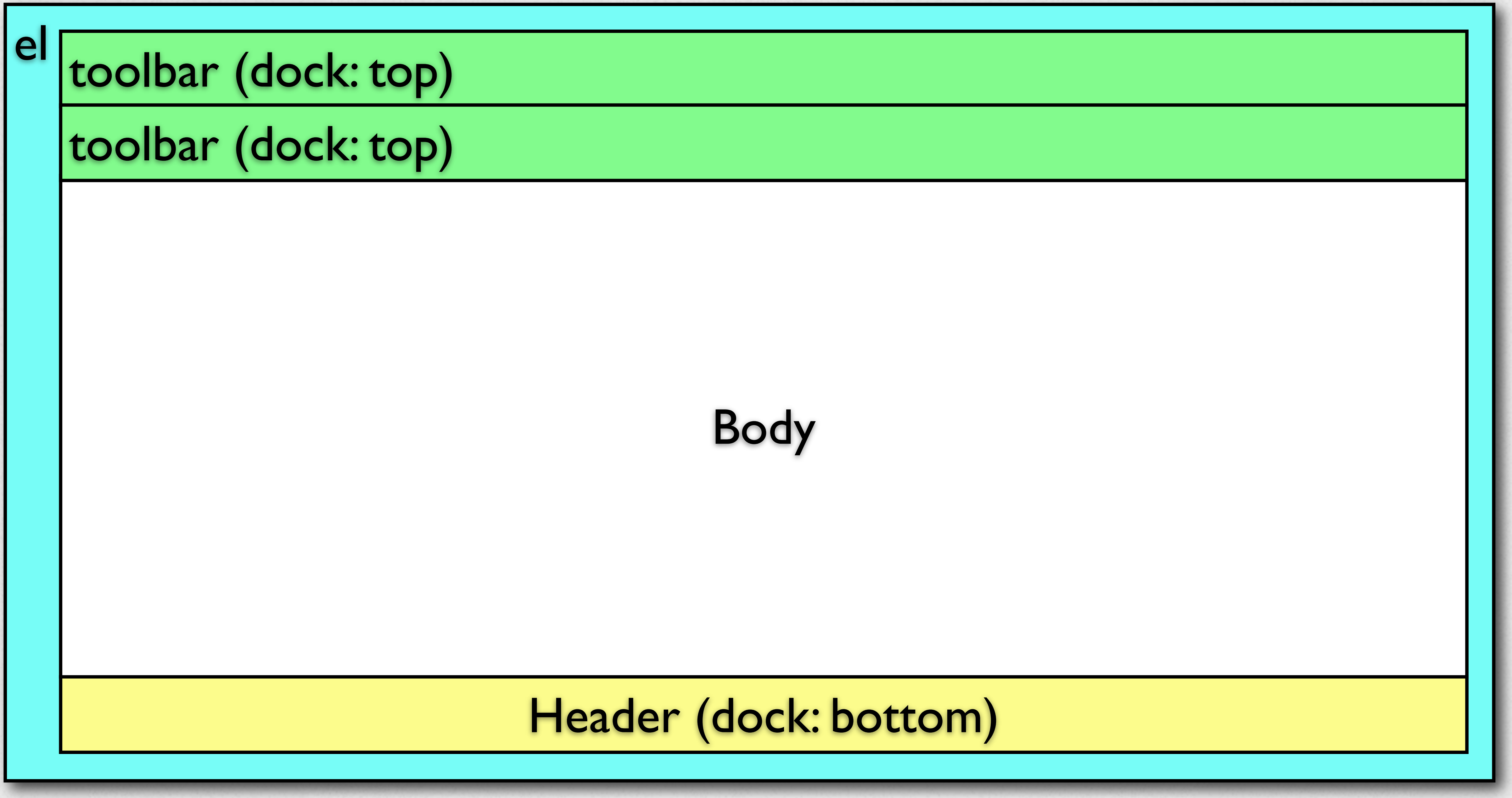
toolbar (dock: top)

Body

toolbar (dock: bottom)

toolbar (dock: bottom)

Ext 4 Panel w/DockLayout



el

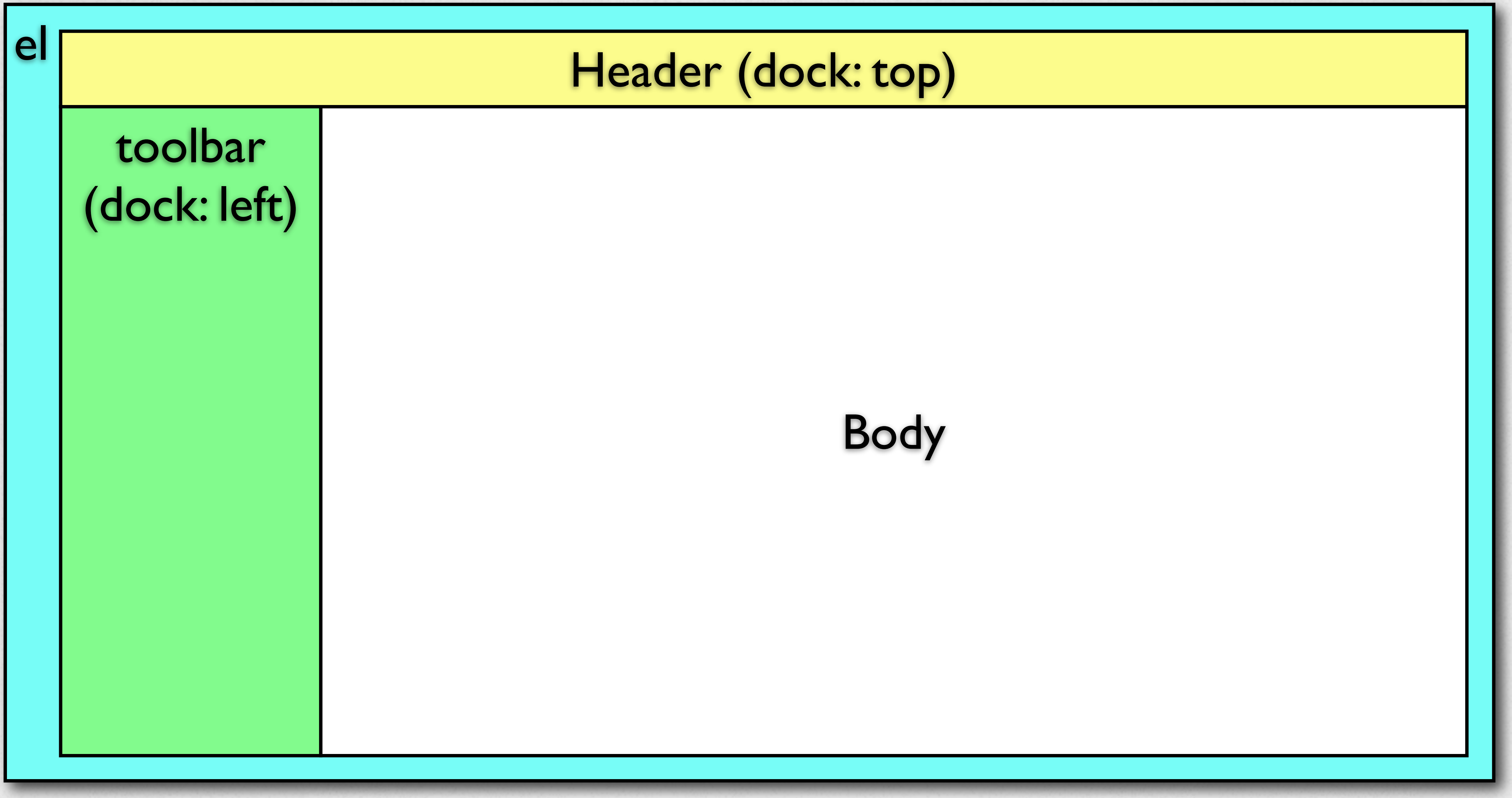
toolbar (dock: top)

toolbar (dock: top)

Body

Header (dock: bottom)

Ext 4 Panel w/DockLayout



el

Header (dock: top)

toolbar (dock: left)

Body

ToolbarLayout

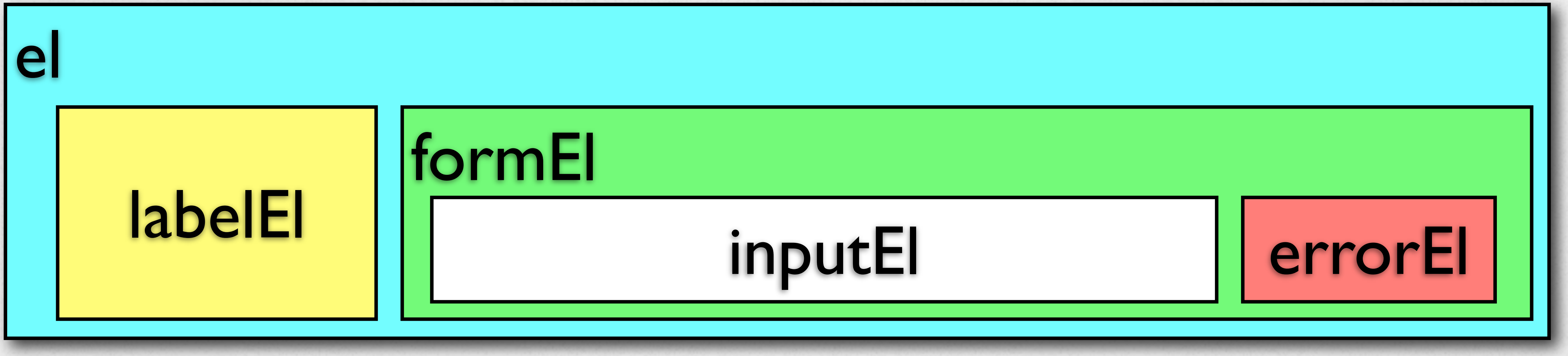
Extends hbox/vbox

Supports horizontal and vertical toolbars

Versatile overflow methods

FieldLayout

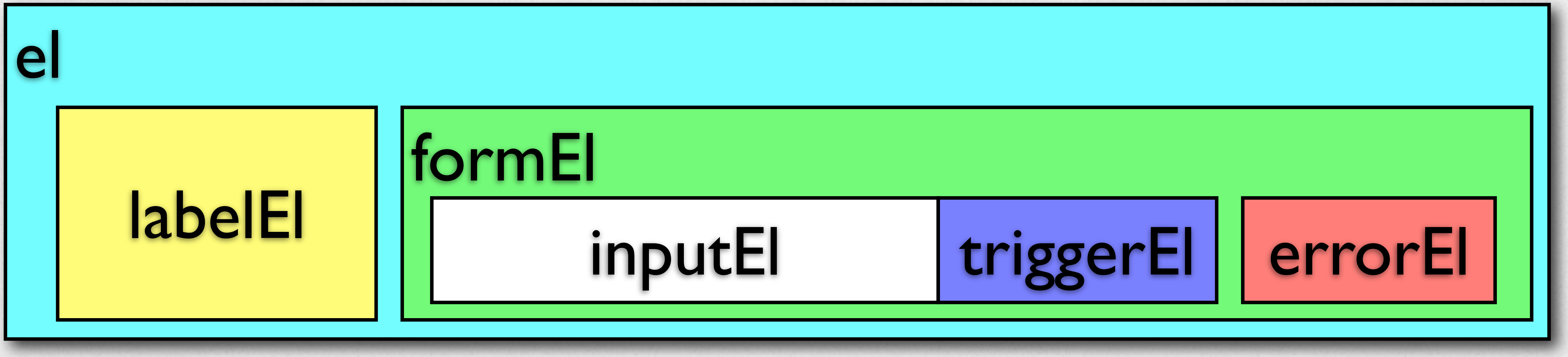
Replaces FormLayout
Handles Label and Error display



TriggerFieldLayout

Extends FieldLayout

Accounts for triggerEl

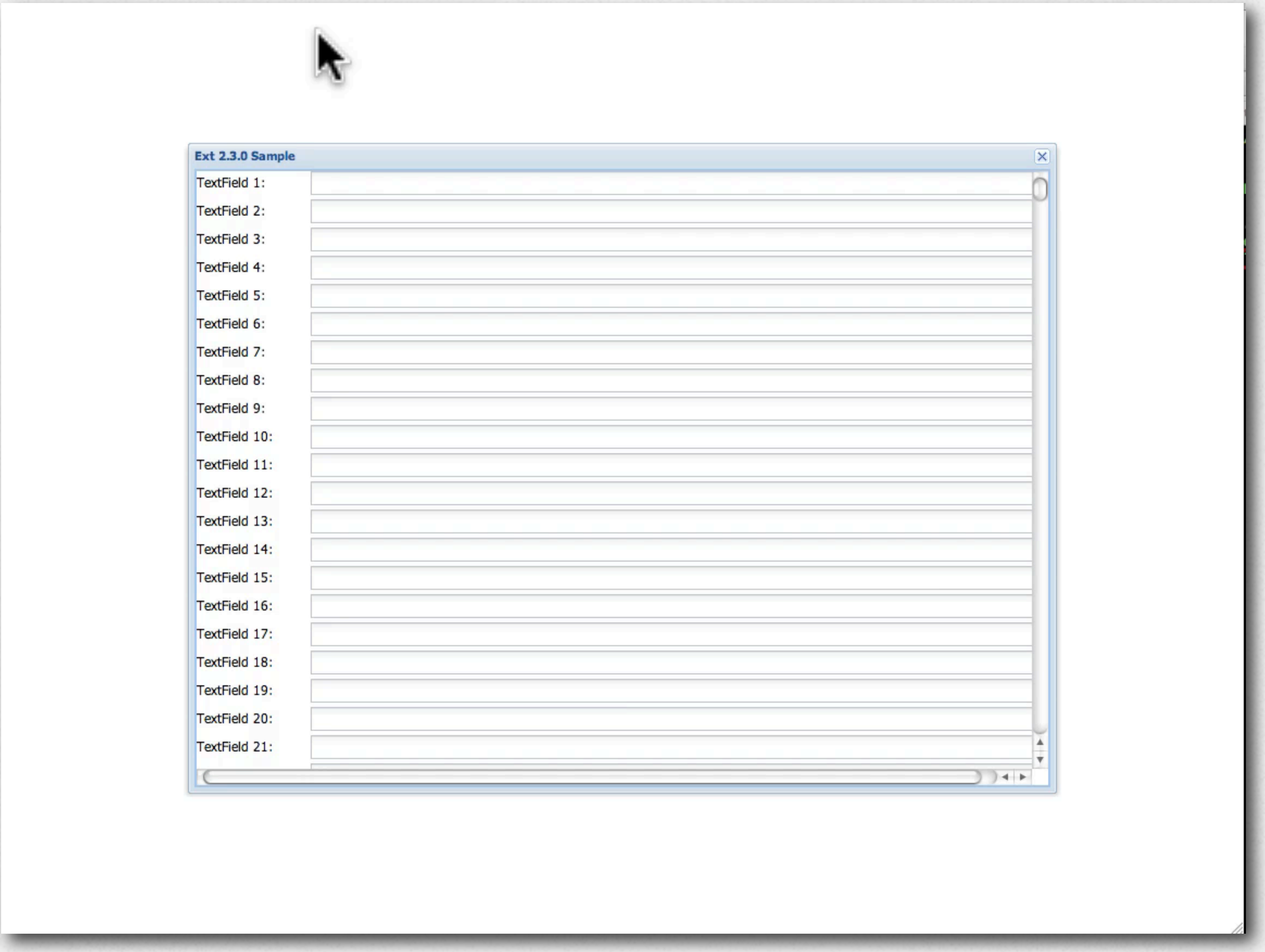


Improving Performance

Improving Performance

Firebug Profiler
Chrome SpeedTracer

Scaling Test: 500 TextFields - Ext 2.3.0



Ext 2.3.0 Sample

TextField 1:

TextField 2:

TextField 3:

TextField 4:

TextField 5:

TextField 6:

TextField 7:

TextField 8:

TextField 9:

TextField 10:

TextField 11:

TextField 12:

TextField 13:

TextField 14:

TextField 15:

TextField 16:

TextField 17:

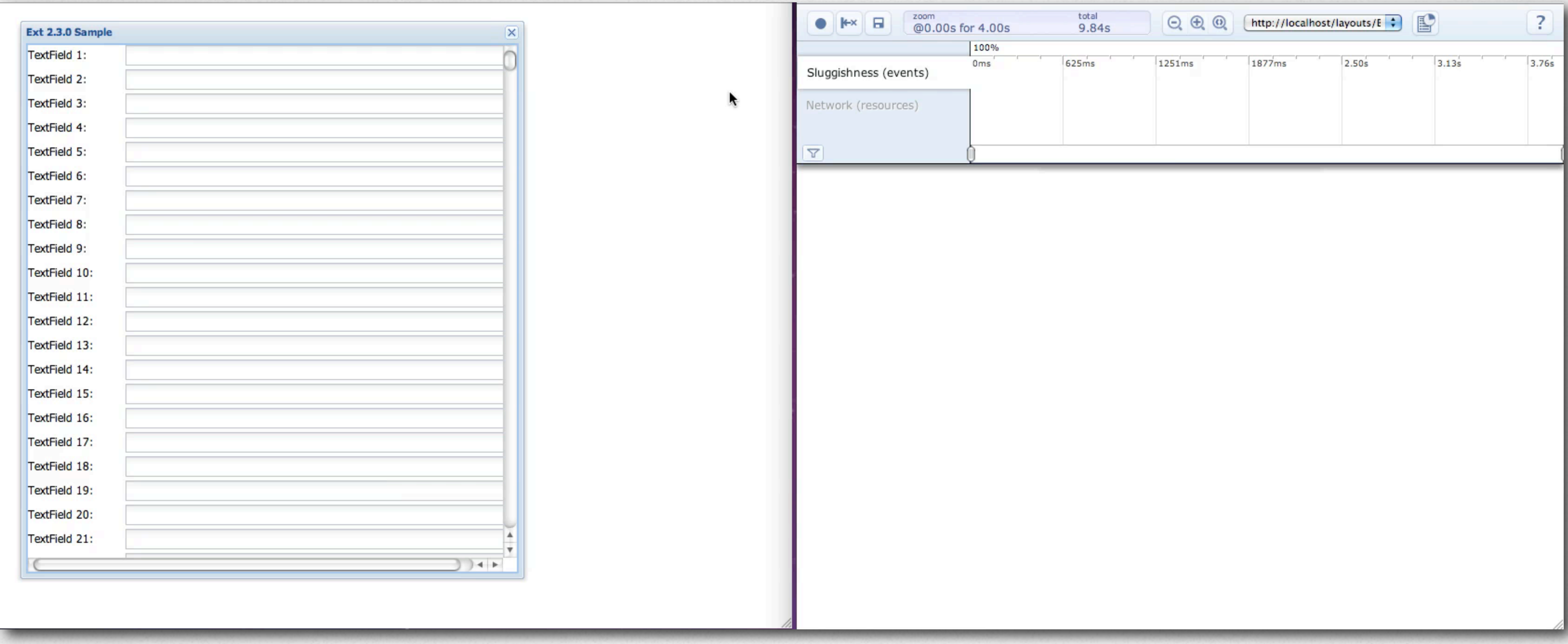
TextField 18:

TextField 19:

TextField 20:

TextField 21:

Using SpeedTracer



Ext 2.3.0 Sample

TextField 1:

TextField 2:

TextField 3:

TextField 4:

TextField 5:

TextField 6:

TextField 7:

TextField 8:

TextField 9:

TextField 10:

TextField 11:

TextField 12:

TextField 13:

TextField 14:

TextField 15:

TextField 16:

TextField 17:

TextField 18:

TextField 19:

TextField 20:

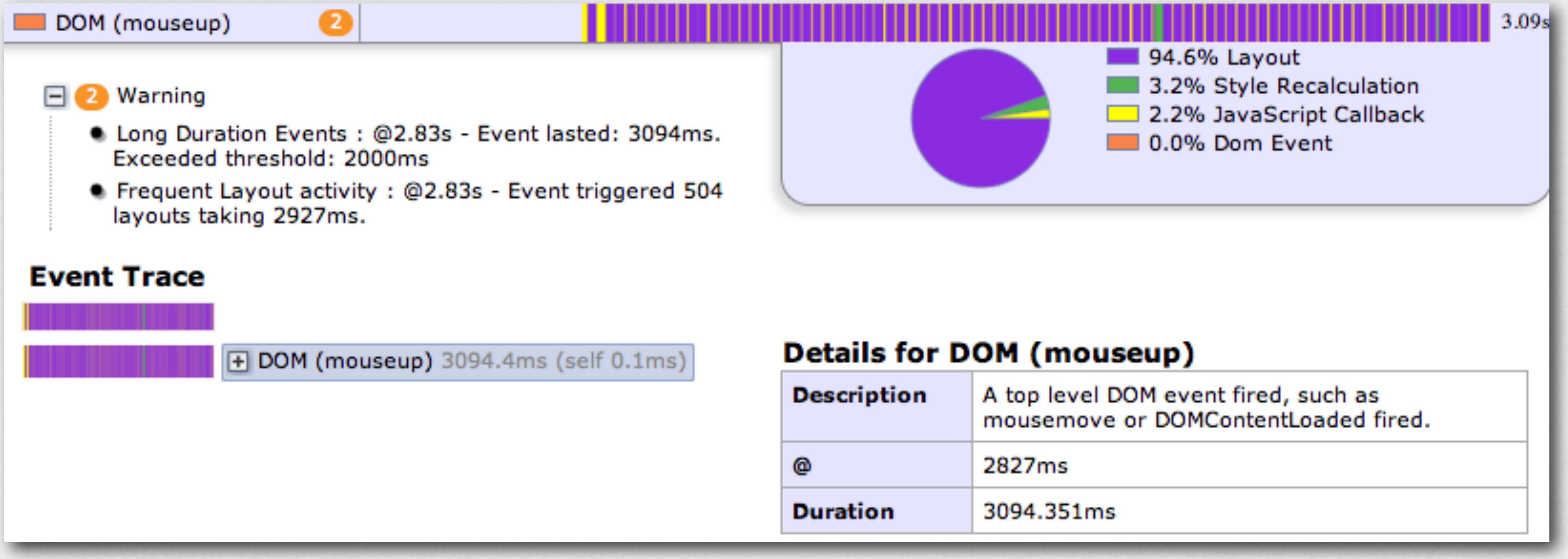
TextField 21:

zoom @0.00s for 4.00s

total 9.84s

http://localhost/layouts/E

Scaling Test: 500 TextFields - 2.3.0



🟧 DOM (mouseup) 2

3.09s

🟪 94.6% Layout

🟩 3.2% Style Recalculation

🟨 2.2% JavaScript Callback

🟧 0.0% Dom Event

⊟ 2 Warning

- Long Duration Events : @2.83s - Event lasted: 3094ms. Exceeded threshold: 2000ms
- Frequent Layout activity : @2.83s - Event triggered 504 layouts taking 2927ms.

Event Trace

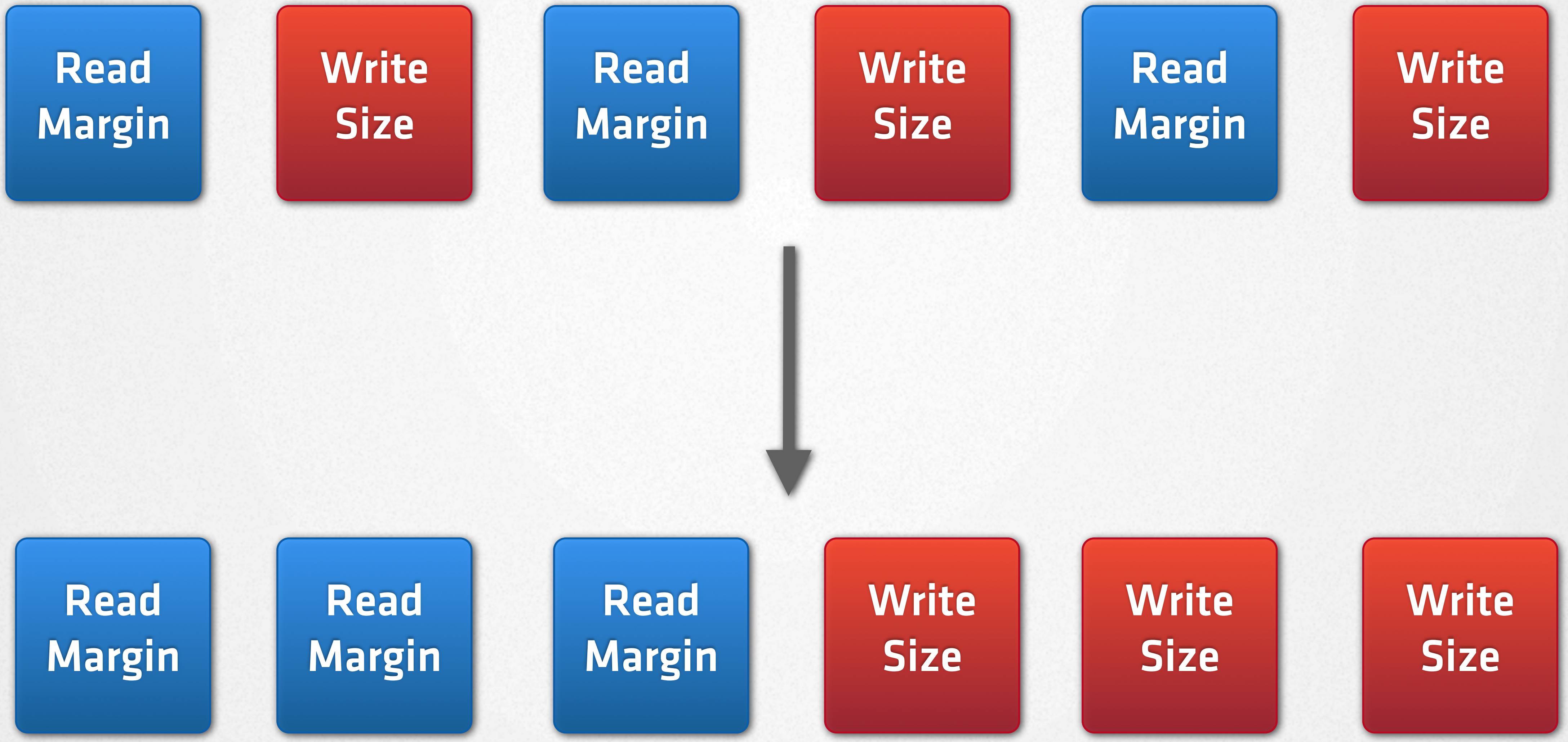
⊞ DOM (mouseup) 3094.4ms (self 0.1ms)

Details for DOM (mouseup)

Description	A top level DOM event fired, such as mousemove or DOMContentLoaded fired.
@	2827ms
Duration	3094.351ms

504 Layouts - 3094 ms

Redundant Reflow



Read Margin

Write Size

Read Margin

Write Size

Read Margin

Write Size

Read Margin

Read Margin

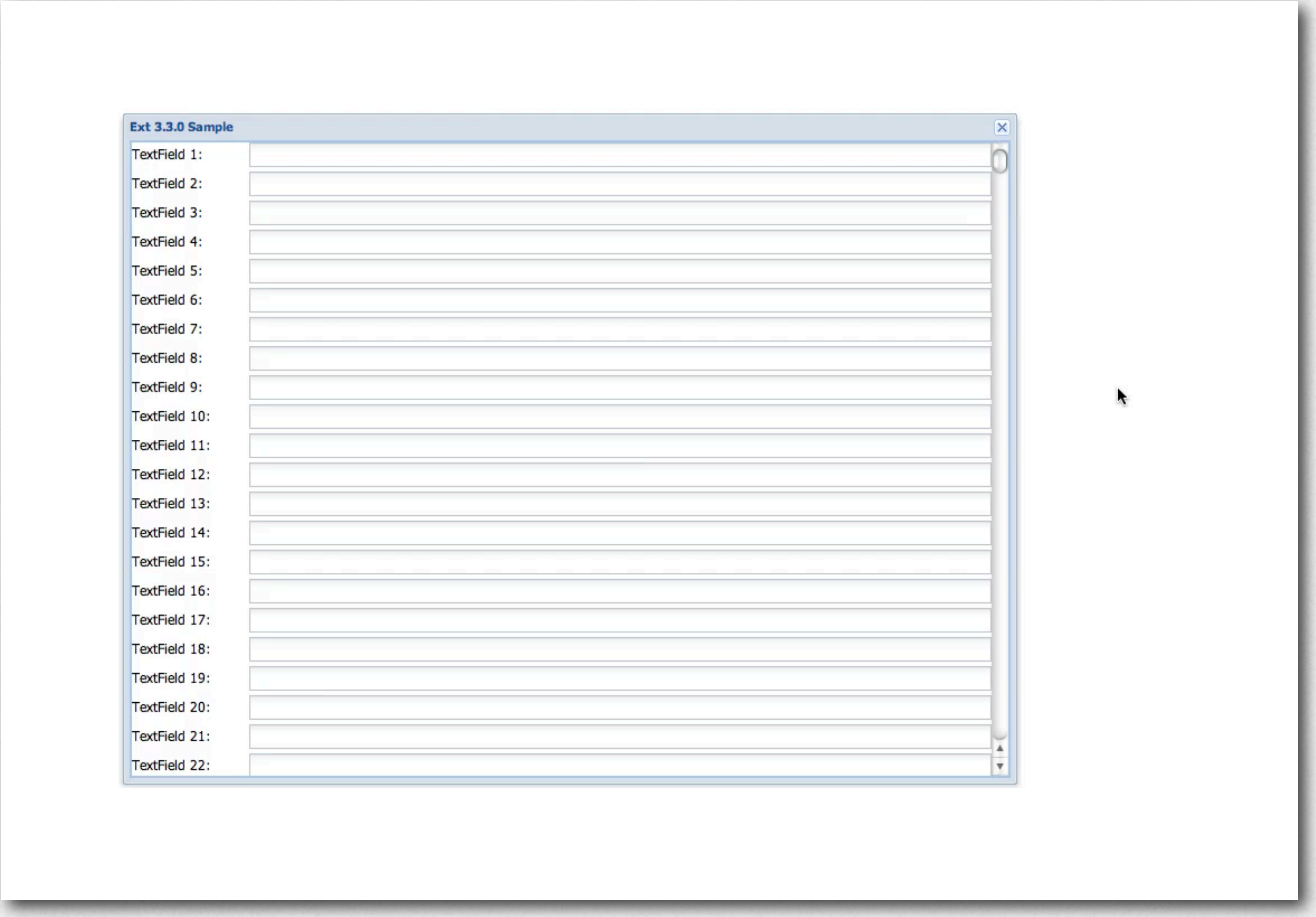
Read Margin

Write Size

Write Size

Write Size

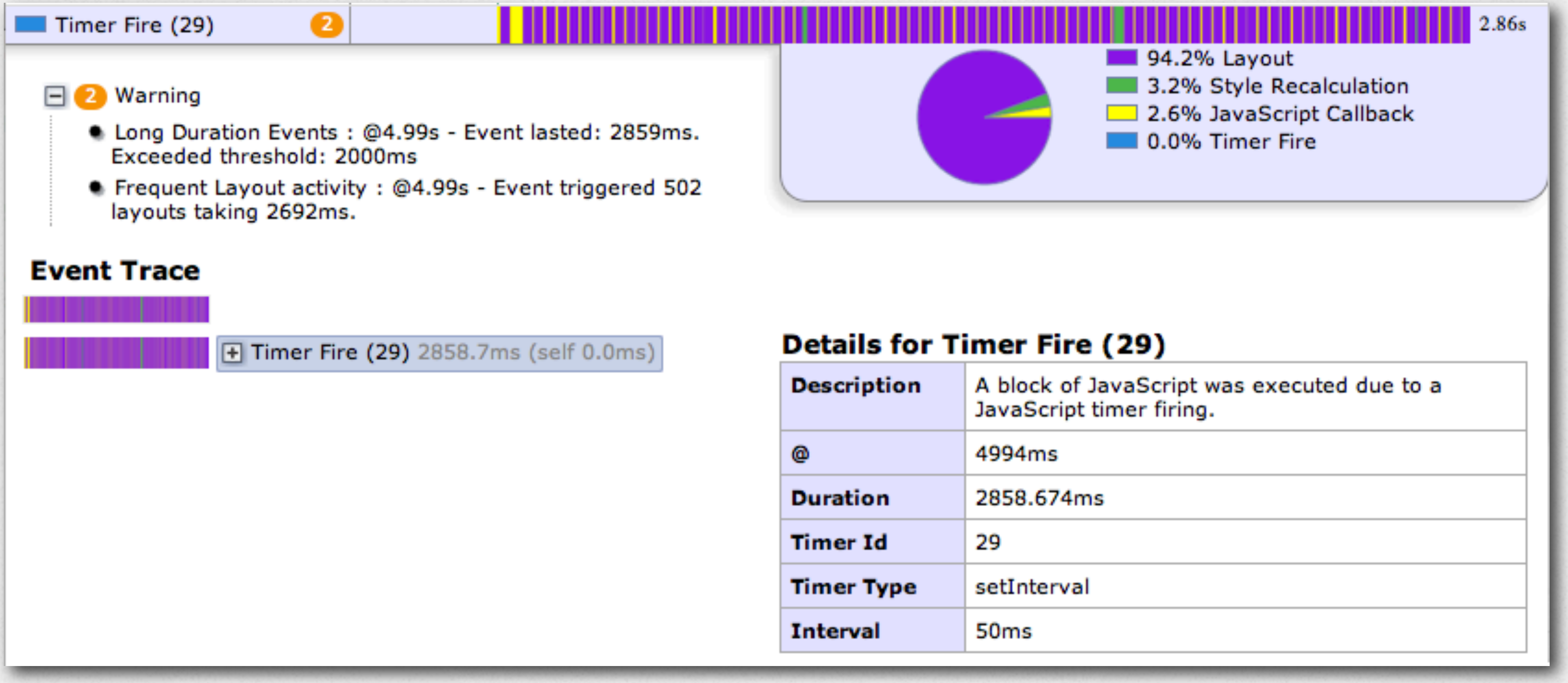
Scaling Test: 500 TextFields - Ext 3.3.0



Ext 3.3.0 Sample

TextField 1:
TextField 2:
TextField 3:
TextField 4:
TextField 5:
TextField 6:
TextField 7:
TextField 8:
TextField 9:
TextField 10:
TextField 11:
TextField 12:
TextField 13:
TextField 14:
TextField 15:
TextField 16:
TextField 17:
TextField 18:
TextField 19:
TextField 20:
TextField 21:
TextField 22:

Scaling Test: 500 TextFields - Ext 3.3.0



🟦 Timer Fire (29) 2

2.86s

🟪 94.2% Layout
🟩 3.2% Style Recalculation
🟨 2.6% JavaScript Callback
🟦 0.0% Timer Fire

⊟ 2 Warning

- Long Duration Events : @4.99s - Event lasted: 2859ms. Exceeded threshold: 2000ms
- Frequent Layout activity : @4.99s - Event triggered 502 layouts taking 2692ms.

Event Trace

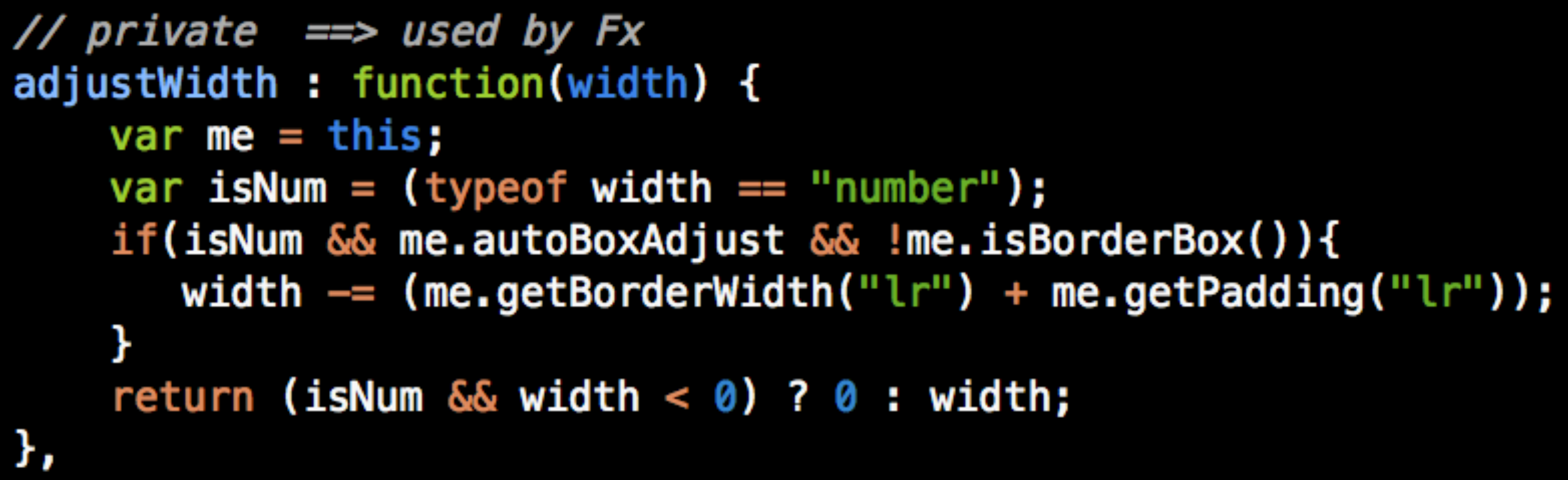
⊞ Timer Fire (29) 2858.7ms (self 0.0ms)

Details for Timer Fire (29)

Description	A block of JavaScript was executed due to a JavaScript timer firing.
@	4994ms
Duration	2858.674ms
Timer Id	29
Timer Type	setInterval
Interval	50ms

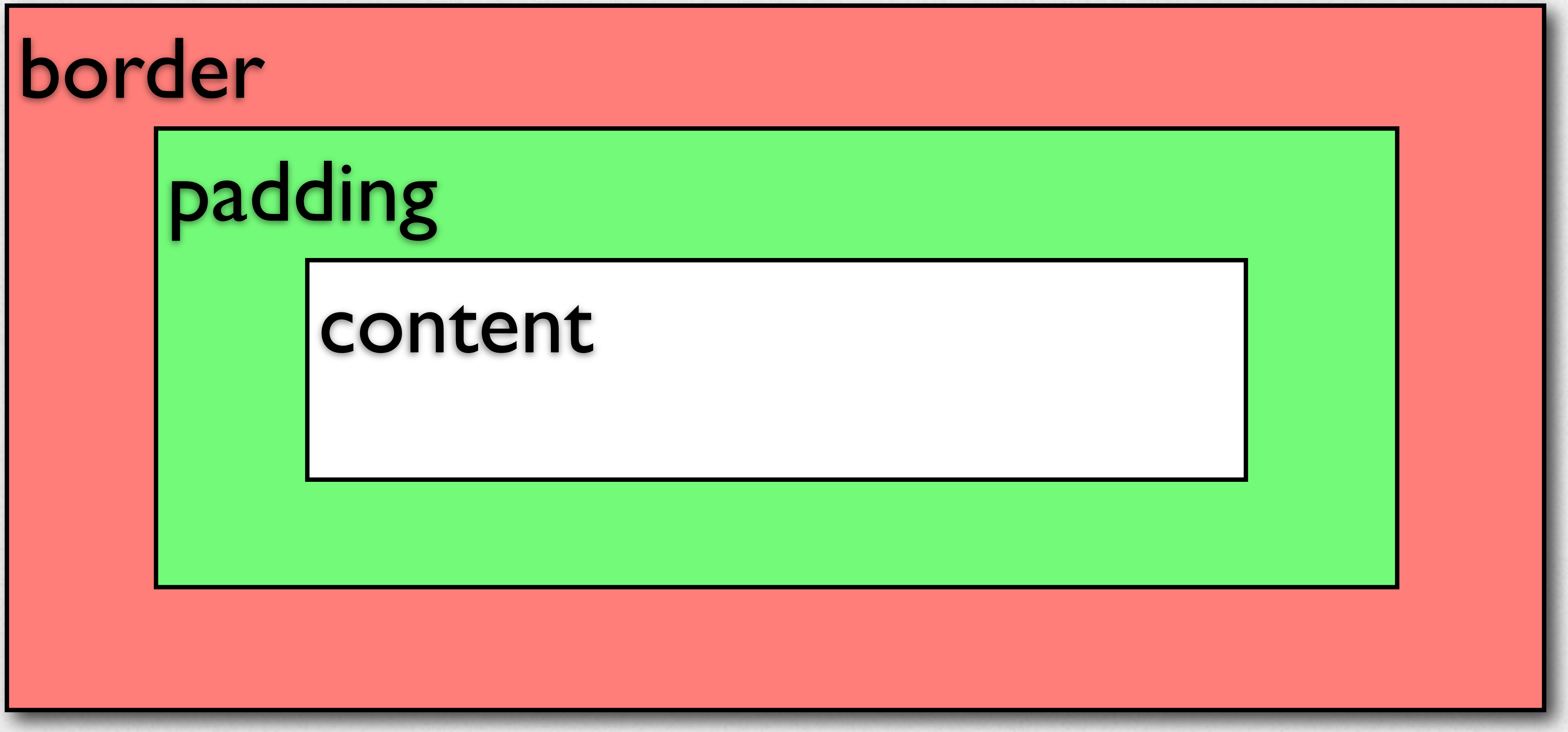
502 Layouts - 2858 ms

adjustHeight()

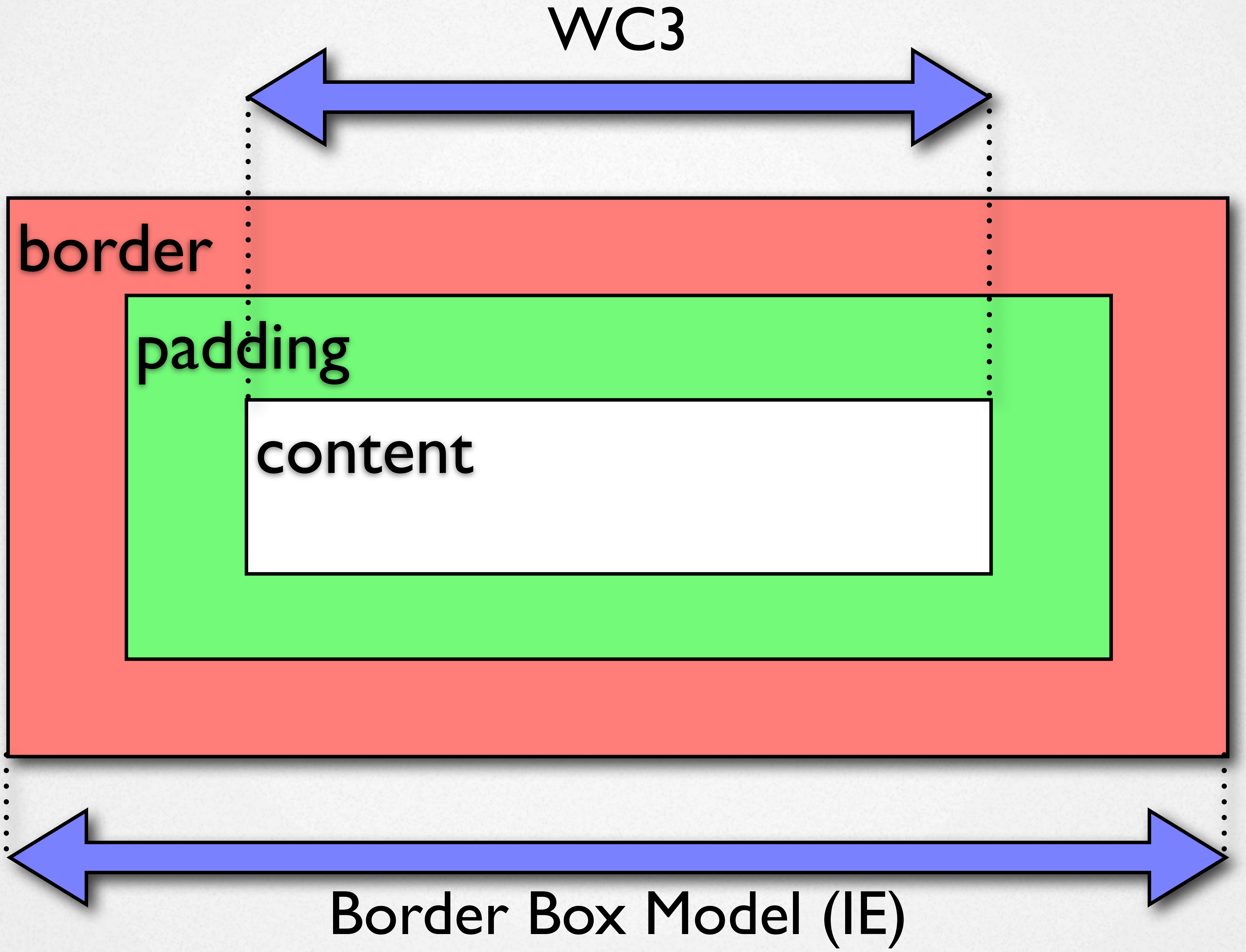


```
// private  ==> used by Fx
adjustWidth : function(width) {
    var me = this;
    var isNum = (typeof width == "number");
    if(isNum && me.autoBoxAdjust && !me.isBorderBox()){
       width -= (me.getBorderWidth("lr") + me.getPadding("lr"));
    }
    return (isNum && width < 0) ? 0 : width;
},
```

Box Model: Defines how Elements are measured



Two different measurements



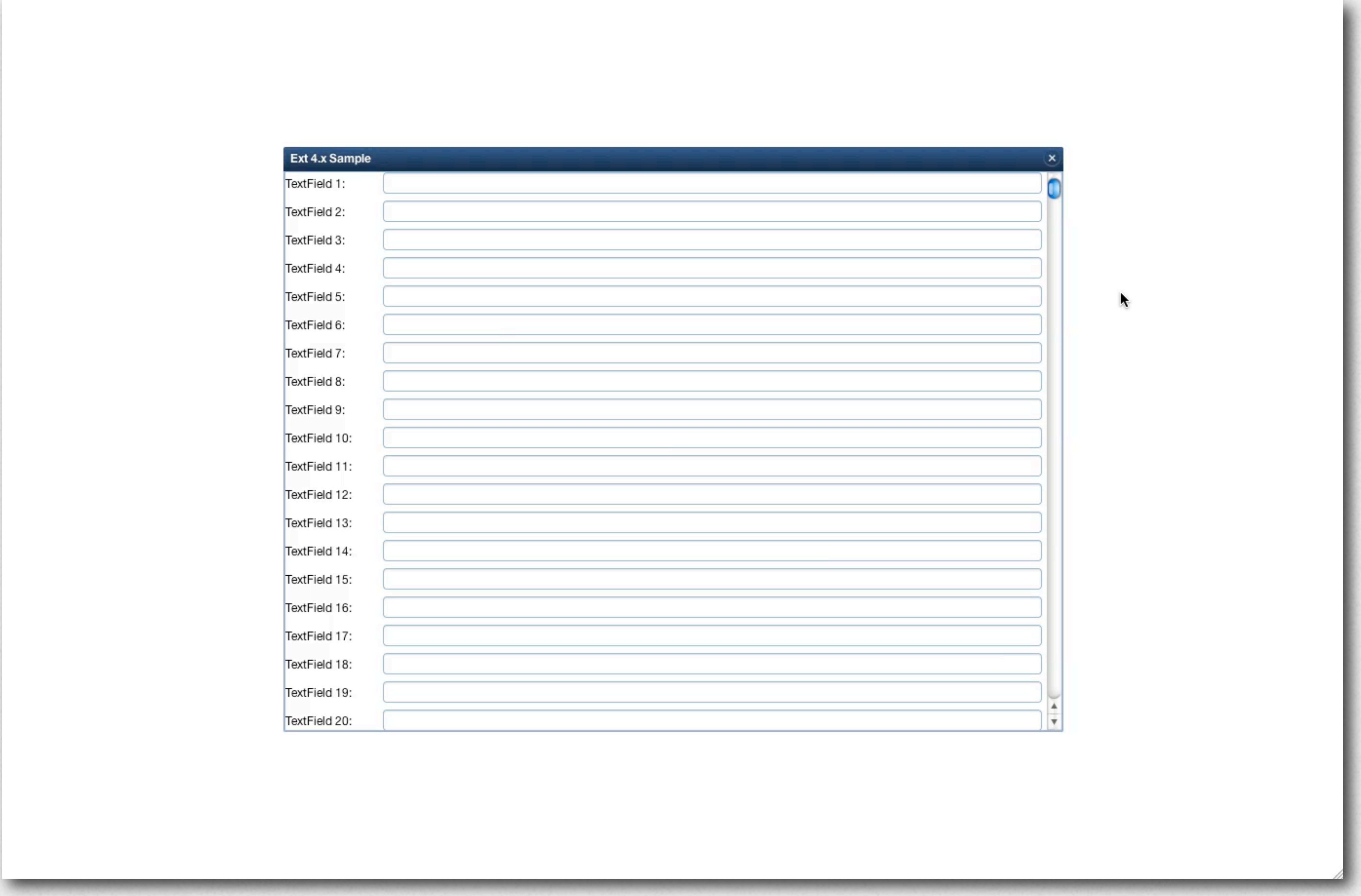
Unifying box models

One set of browsers have to do extra work to convert measurements.

No extra calculations for IE6/7 in “quirks” mode

Ext 4/Sencha Mobile uses “box-sizing” CSS where available

Scaling Test: 500 TextFields - Ext 4



Ext 4.x Sample

TextField 1:

TextField 2:

TextField 3:

TextField 4:

TextField 5:

TextField 6:

TextField 7:

TextField 8:

TextField 9:

TextField 10:

TextField 11:

TextField 12:

TextField 13:

TextField 14:

TextField 15:

TextField 16:

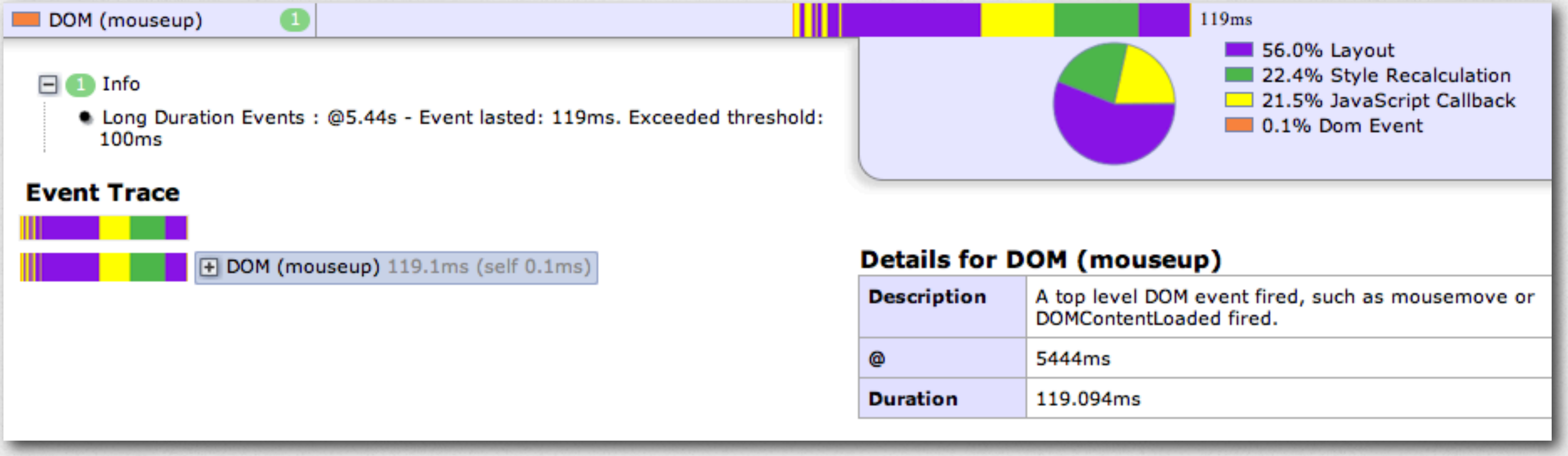
TextField 17:

TextField 18:

TextField 19:

TextField 20:

Scaling Test: 500 TextFields - Ext 4+



DOM (mouseup) 1 — 119ms

- 🟪 56.0% Layout
- 🟩 22.4% Style Recalculation
- 🟨 21.5% JavaScript Callback
- 🟧 0.1% Dom Event

⊟ 1 Info

- Long Duration Events : @5.44s - Event lasted: 119ms. Exceeded threshold: 100ms

Event Trace

⊞ DOM (mouseup) 119.1ms (self 0.1ms)

Details for DOM (mouseup)

Description	A top level DOM event fired, such as mousemove or DOMContentLoaded fired.
@	5444ms
Duration	119.094ms

6 Layouts -119 ms

Thank You!

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