

Offscreen WebKit rendering



WebKit

- written in C++, bindings for C (via Gtk+), C#, python, probably other.
- Open source – LGPL and BSD licenses,
- Beginning in KHTML, forked by Apple for Safari,
- Source code structure:
 - WebCore – core of WebKit
 - WebKit – Gtk+/cairo/Qt ports
 - JavaScriptCore – JavaScript engine

Getting the page



- network backend can be libsoup or libcurl, the WebCore can operate on any protocol that is supported by the network backend,
- the code for loading pages resides in WebCore/loading,
- when data is fetched, it goes through the decoder (checks encoding) and then the parser (checks syntax),

Getting the page #2



- after decoding and parsing, WebKit builds the DOM tree („attach“ process),
- during this process the render object for each element is created if the element is visible (has „display“ style) and is attached to the render tree,
- before the page is rendered, the render tree is layed out.

Basic elements



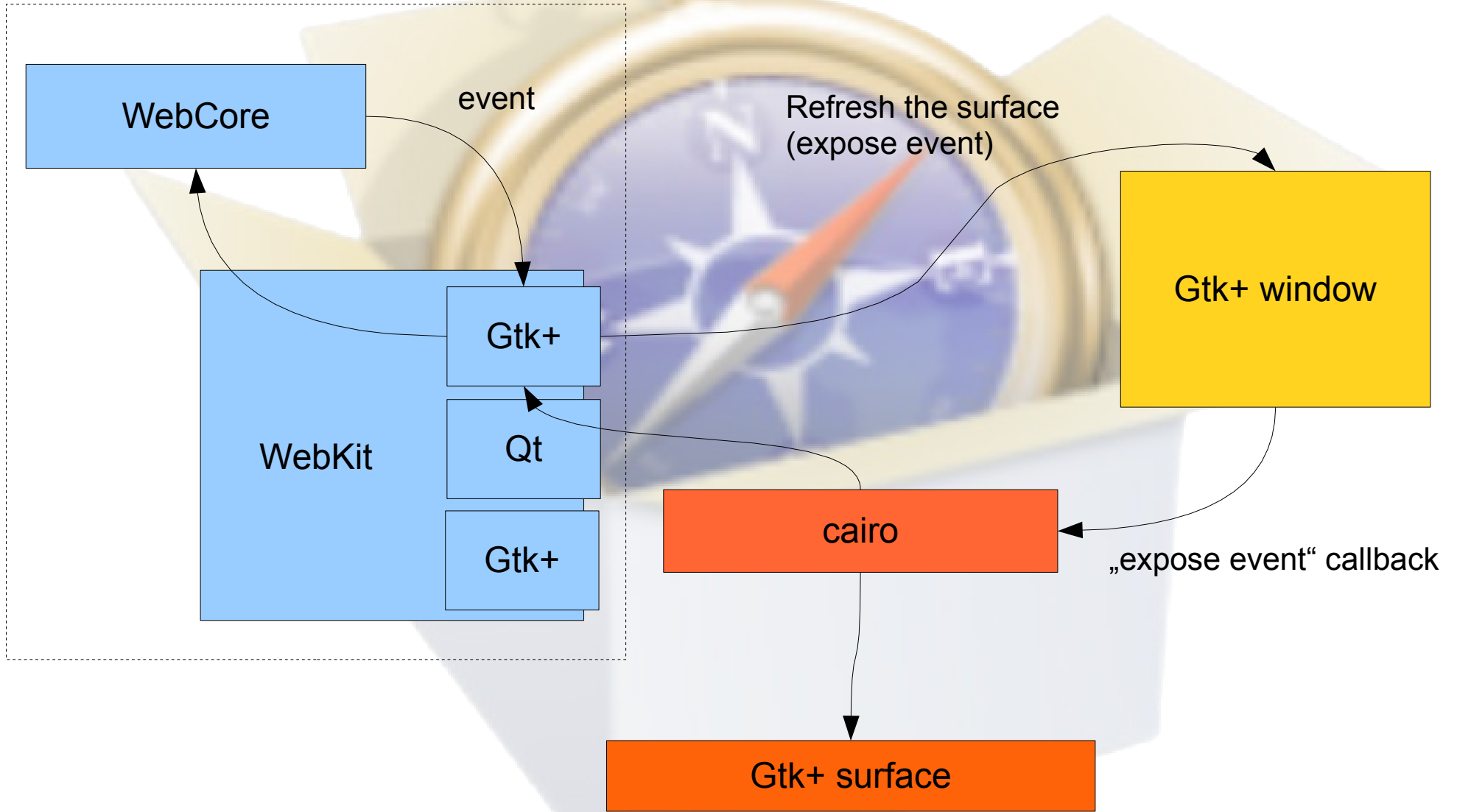
- `FrameView` – responsible for laying out the rendering tree,
- `RenderView` – root of the render tree,
- `RenderObject` – every visible object that has a corresponding DOM element.

Drawing



- fetching and parsing HTML,
- building the DOM tree,
- building the render tree,
- drawing the page through the render tree with proper layout.

Drawing to Gtk+

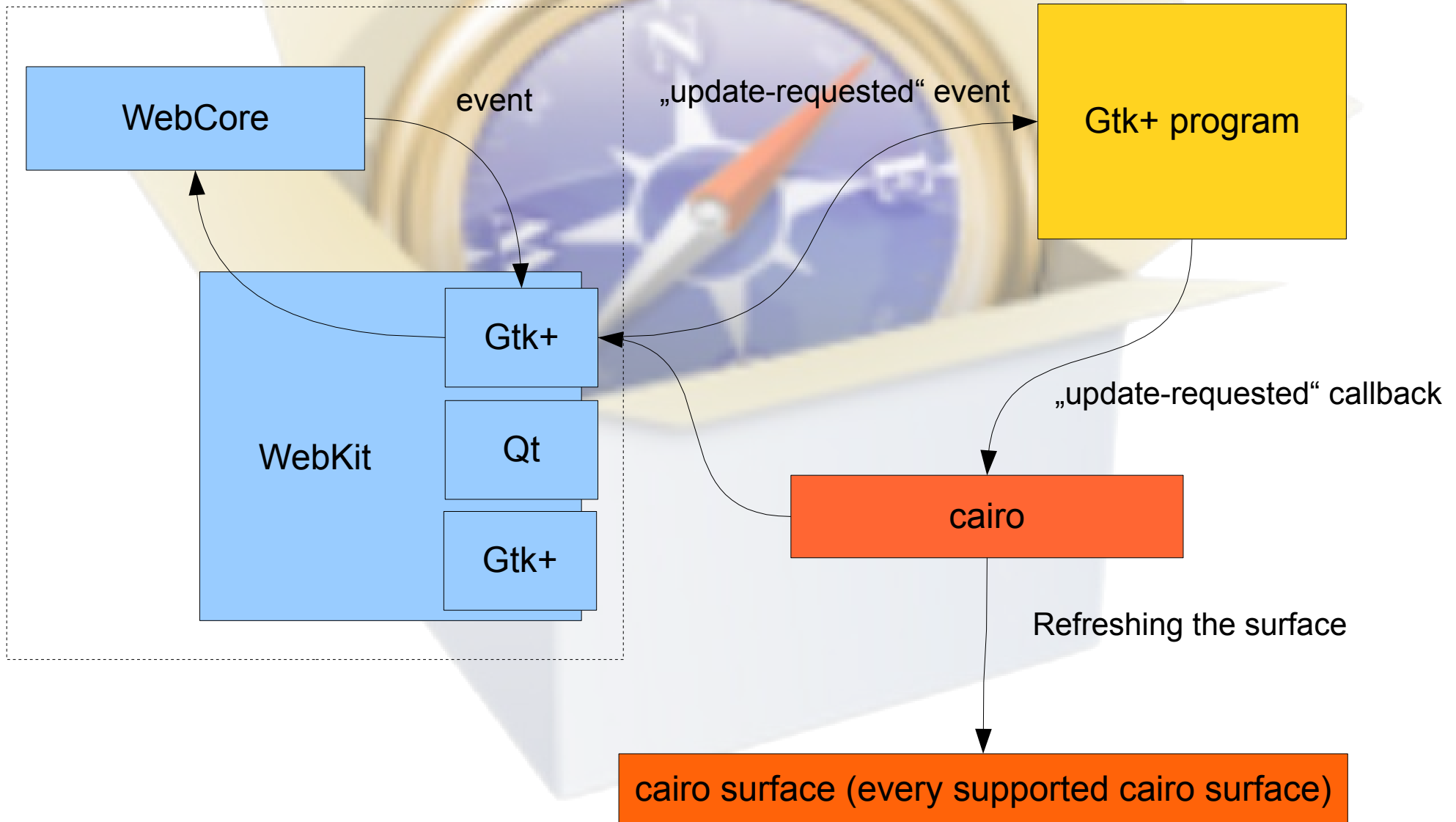


Drawing to a custom surface



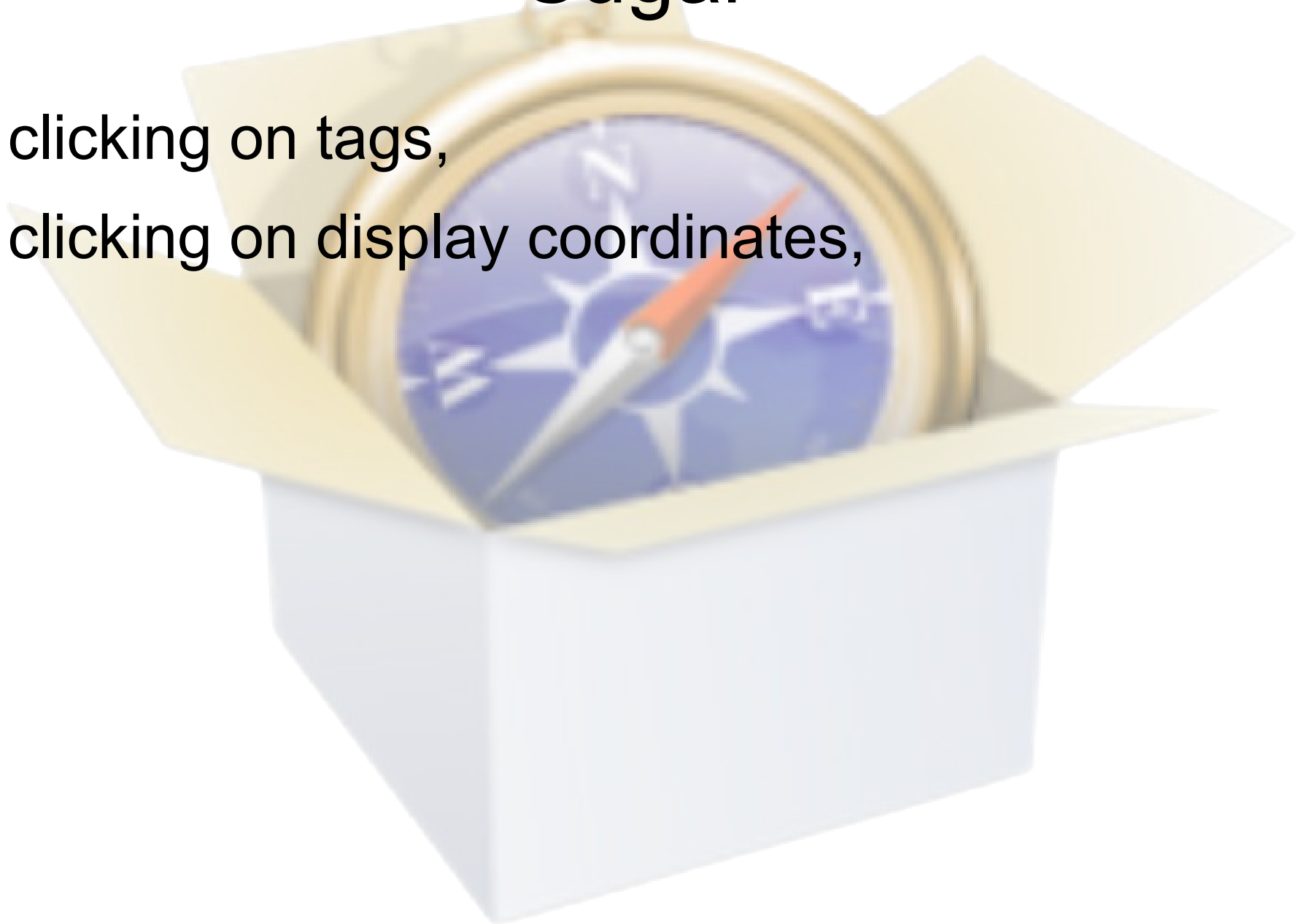
- the „expose“ event can't be triggered, because there's no visible surface,
- a new event called „update-requested“ is introduced that triggers on page events (JavaScript events, page loads),
- the callback can trigger a function that creates a visual snapshot of the current page (traversing the render tree).

Drawing to a custom surface #2



Sugar

- clicking on tags,
- clicking on display coordinates,



Usage



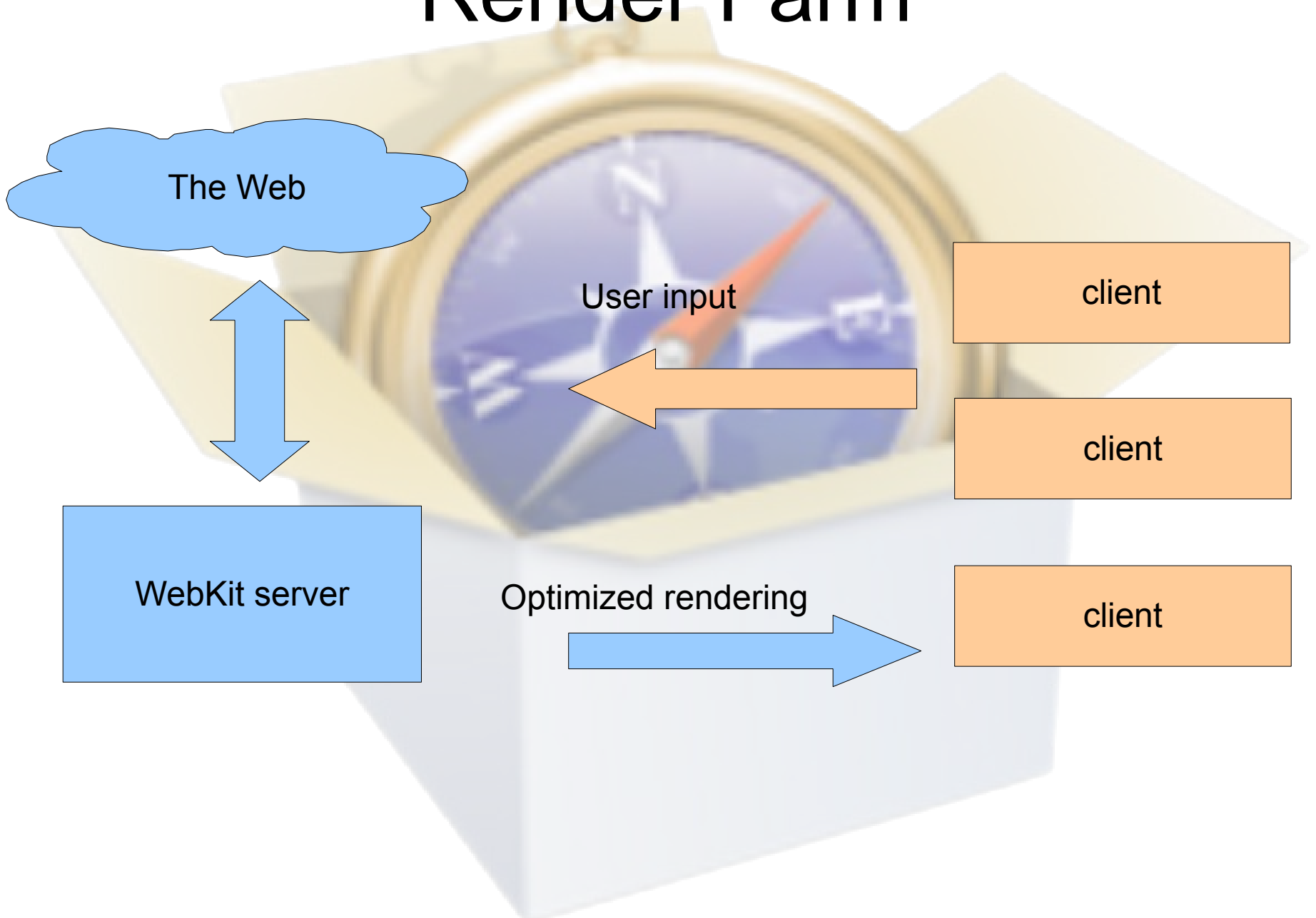
- HTML thumbnail generator,
- creating content for thin clients,
- to get the patch google for „visionect-webkit patch“,
- the patch is for WebKit SVN rev. ~38000

Render Farm

- using WebKit to generate Web content,
- preparing content,
- distributing contents to clients,



Render Farm



Render Farm #2

- Distributed service,
- Security



Thank you for your attention

