Hello Frame, Bye Bye Frame

Terry Yin

January 16, 2015

The <frame> tag in the early version of HTML was an attempt to separate the concerns on the web page W3School (n.d.*a*). It divides a single web page window into several areas (which is collectively under a <frameset> tag). Each of of these areas, or frames, only provide part of the information, e.g. the navigation menu, the sidebar and the main content. Put it in another word, the <frame> tag was a try of decoupling.

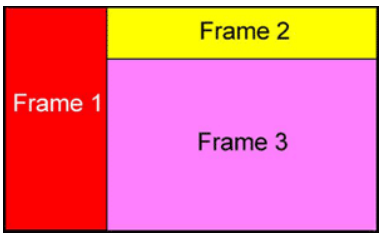

Figure 1: How frameset and frame split a page

If we look at the evolution of the web technology, it's almost aways about how to separate the concerns. One classic example is the separation of HTML, CSS and JavaScript (Deitel et al. 2011, page.6). HTML, CSS and JavaScript are three complementary languages running in a browser. HTML is for the content, CSS is for the presentation and JavaScript is for the interaction.

A good design does not only need lower coupling, but also high cohesion, which means that things belong together should stay together. The <frame> tag, quite often, couldn't decouple the web page properly and that led to many problems Nielsen (1996):

- You cannot correctly bookmark a page with frames. Because each frame is an individual browser window, a user could just navigate to other pages within a frame. The parent page has no knowledge or control about each frame's state or current url. So when you bookmark a page at a certain state, it's hard to guarantee that you can go back to that state via the bookmark or link.
- It makes printing very hard. As shown by Figure 1, it might look nice in a browser, but it's very hard to fit the same layout on a different type of media, e.g. a printing paper.

Which might not be known by the author of Nielsen (1996) in the year of 1996 is that frame also introduced security risk. The Cross Frame Scripting is a type of security attack that is utilizing the frames in a web page (Grossman 2007, p.262). If an attacker could get control of any of the frames in the page, it is possible to access information in the top and sibling frames that belong's to a site that requires authentication.

Because of these drawbacks, <frame> and <frameset> has been obsoleted in HTML 5. Another tag <iframe>, which is similar to <frame> has been kept in HTML5 W3School (n.d.*b*). <iframe> also embeds another page within the current page, but it's also essentially different from <frame>. <iframe> takes a box in the parent page instead of taking a slice. And <iframe> is holding content in a sandbox environment and that reduces the security risk.

In today's Web application design, the decoupling of the parts in a web page layout is often handled on the server side, e.g. a template with many "partials". And from the clients, or the browser's view, it's a single, cohesive page.

I don't miss the tag <frame> at all. But I think the emerging and obsolete of <frame> is a good example of design evolution.

References

Deitel, H. M., Deitel, P. J. & Nieto, T. R. (2011), *Internet & world wide web: how to program*, Prentice Hall.

Grossman, J. (2007), *XSS Attacks: Cross-site scripting exploits and defense*, Syngress.

Nielsen, J. (1996), 'Alertbox for december 1996: Why frames suck (most of the time)'.

W3School (n.d.*a*), 'Html ¡iframe¿ tag'. [Online; accessed 16-January-2015].
URL: *http://www.w3schools.com/tags/tag_frame.asp*

W3School (n.d.*b*), 'Html ¡iframe¿ tag'. [Online; accessed 16-January-2015].
URL: *http://www.w3schools.com/tags/tag_iframe.asp*