SmartSequence Technology Overview

Instart Logic's SmartSequence technology dramatically accelerates dynamic and personalized web application performance by optimizing HTML and JavaScript code.

Today, the average web page is:

- More sophisticated and interactive
- 5x larger in the last 3 years
- Migrating towards mobile
- Loading slower due to the increasing use of code and larger page sizes

Nearly 20% of the increased website weight is attributed to scripting code. **The amount of JavaScript code used by the top 100 websites has almost tripled in the last three years and the use of HTML code has doubled.** Recently, several Fortune 100 companies have given their websites a face lift by adding more dynamic content, leading to 3x longer page load time than their previous iteration. Slower loading websites lead to negative user experiences and high bounce rates.

Instart Logic has created a revolutionary new technology, "SmartSequence", specifically designed to load HTML and JavaScript code 3x faster. This new machine-learning algorithm, unique to a cloud-client architecture, learns real user behavior across the entire execution path and optimizes JavaScript and dynamic HTML streaming, leading to a dramatically better user experience.

Key Benefits

Delivers Blazing Fast Web and Mobile Performance with dynamic and interactive content.

Code loads at least 3x faster, leading to a 15-30% improvement in performance.

Greatly Improve page load times, leading to an improved user experience, reduction in bounce rates, and an increase in conversions.

Browsers are choking on the growth of code, which is the leading cause of poor website performance.

SmartSequence: How it Works

JavaScript Streaming: How it Works

Designed to make web pages more dynamic and interactive, JavaScript is browser-agnostic scripting language that has gained popularity in recent years in part due to the constant stream of innovations needed to support the rise of mobile web applications. There has also been a huge boom in the number of JavaScript libraries and frameworks such as jQuery, Angular, Backbone, Ember, etc., which aim to improve end user experiences and time-to-market. Under a normal circumstance, when a browser encounters a JavaScript file, it must download and execute the entire file before continuing to process the remainder of the page. Typically, JavaScript sources contain much more code than is actually used on the page, but is still processed by the browser. Utilizing the SmartSequence machine-leaning algorithm in conjuction with our client side Nanovisor allows us to learn the execution profile of a web page, what functions are always used, and what functions are rarely used and sends that information back to our cloud service. With this, we can send the most frequently used JavaScript functions of the web application and demand load JavaScript outlier functions as needed, **leading to a 15-30% improvement in performance.**

HTML Streaming: How it Works

In tandem with JavaScript streaming, dynamic HTML is also broadly used to help create more interactive web application experiences. With a traditional web delivery approach, personalized dynamic HTML must be generated for each request before any content can be sent back to the requesting browser. The browser makes a request and there is a delay while the back-end servers generate user specific HTML and deliver it over the internet to the browser. Without a cloud-client architecture, only basic network acceleration for dynamic HTML is possible. To overcome this obstacle, the SmartSequence technology determines which portions of the dynamic HTML are truly dynamic. It also determines which sections of the <HEAD> are dynamic versus static and "patches" dynamic data, as needed. Often times, significant parts of the dynamic HTML do not change across users – navigation bar is the same across all users versus user specific content. By being able to load portions of the <HEAD> faster and distinguish between unique and non-unique dynamic HTML, the browser can instantaneously start to render a page faster, **leading to a reduction in browser idle time by 80-90%.**