***Component Technologies V1.2***

***JSON (JavaScript Object Notation)***

Previously XML was the method of choice for structured internet data transfer, however the cumbersome and verbose nature of XML and its DOM (Document Object Model) dependencies drew criticism.

JSON’s context is as a subcategory of JavaScript and it leverages JavaScript configurations to characterize data in a structured form. JSON was initially parsed by the eval() function thereby precluding any DOM dependencies. A key aspect to realize with JSON is that it is not a programmable language, rather a means of presenting structured data for transfer. It is not exclusively used by JavaScript.

JSON facilitates 3 different value types; Simple Values, Arrays and Objects.

Simple Values include, numbers, strings, booleans, and null and leverage JavaScript syntax. Objects are characterized by systematic key value pairs. Arrays are considered to be a complex data structure which can contain simple values, objects, nested arrays or a mixture of same.

It is important to note that JSON does not contain any instances of objects, variables or functions. Even though it has shared syntax with JavaScript it is strictly for the purposes of a means of presenting structured data for transfer.

***AJAX (Asynchronous JavaScript and XML)***

Ajax evolved with the XMLHttpRequest object, which allows an efficient interface to allow the processing of server requests and responses. This is the essence of asynchronous interaction with the server. This object could be used to fetch data and then return it to the the DOM. The name is a little misleading as many Ajax pages do not use JavaScript/XML.. Ajax is web service platform agnostic and we will be using it with JSON.

Ajax is not a new technological development as such, rather a new way of using existing technologies. It delivers a higher level of responsiveness and interactivity and is an approach to building webpages that allows users to continue working on a page instead of having to wait for a full page refresh and response.

Ordinarily when a request for information is made from a server, the whole application goes on pause until a response is sent. A fresh HTTP request is required each time. Essentially Ajax, by making asynchronous requests, allows only the relevant part of the web page to update, allowing other parts of the page to be available for use. This precludes the requirement for a fresh HTTP request each time. Ajax leverages the asynchronous nature of the browser to achieve this.

*Reference - Professional JavaScript® for Web Developers, Third Edition Nicholas C. Zakas Published byJohn Wiley & Sons, © 2012*