



Categories of Web Applications and Characteristics: A Review

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Abstract:

Web applications are applications accessed over a network based on technologies and standards of the World Wide Web Consortium. These software systems are used through the Web browser as the user interface. Web Applications are usually broken into logical chunks called "tiers", where every tier is assigned a role. Traditional applications consist only of 1 tier, which resides on the client machine, but web applications lend themselves to an n-tiered approach by nature. Though many variations are possible, the most common structure is the three-tiered application. In its most common form, the three tiers are called presentation, application and storage, in this order. A web browser is the first tier, an engine using some dynamic Web content technology, CGI, JSP/Java, PHP, Perl or Spring) is the middle tier, and a database is the third tier. The web browser sends requests to the middle tier, which services them by making queries and updates against the database and generates a user interface.

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Keywords: Web Applications, Web Application Characteristics, Traditional applications, software etc.

Introduction:

Web applications are software designed to execute on web with web specific resources. Web applications vary from small scale solution to large scale ERP. Web applications have evolved and turned to complex according to time. This complexity may be in terms of dynamic nature, use of multimedia, performance or in many other ways.

Traditional applications were simple, less complex, static content, limited use and level of security was minimal. There were no scope of timely update, had limited functionality and interactivity. Advanced web applications comes with dynamic contents, contain large information, easy to integrate, schedule and plan. Perform better with more security.

Characteristics of web applications:

1. Product related characteristics
2. Use related characteristics
3. Development related characteristics
4. Evolution related characteristics

1. Product related characteristics

It is the integral part of web application. It consists of: Present, Hypertext, and Content.

- **Present:** Presentation plays an important role in product marketing and survival. Looks and feel is the first impression for the success and failure of application in this competitive market. The application must be attractive, impressive and according to fashion trend going on in market.



- **Hypertext:** Hypertext is the base of web application. The basic elements of hypertext are: link, node and anchor. It implements Non linearity, cognitive overload and Disorientation features in applications that makes the application highly interactive and improve the performance. Path
- **Content:** Content is the informational part. Content generation, integration and updating and availability is an important factor. It contains document, table, text, graphics, and multimedia. It must be of high quality, reliable, consistent and up-to-date. The documents must be properly arranged.

2. Use related characteristics

It is difficult to predict the usage frequency of a web application because it varies according to the user, devices used by the users etc. we can divide the user related characteristics of web application as: Natural content, Social content and Technical content.

- **Natural Content:** It includes the geographical location from where the web applications are accessed and availability of the web application. Global accessibility of web application with 24*7 availability improves the performance, stability and demand of the web application.
- **Social Content:** It is related to user specific aspect. There are thousands of competitive web applications around the globe, the user need spontaneous and immediate benefits. Scalability and multiculturalism are extremely essential feature required for web application.
- **Technical Content:** It is related to network of web application and the devices where web applications are used. Connection bandwidth, stability, reliability etc. are some essential features that affect the performance of web application. Device specification, browser configuration, version etc. are responsible for web application performance and accessibility.

3. Development related characteristics

It includes: Development team, Development process, Technical infrastructure and Integration.

- **Development Team:** Development team must be highly knowledgeable in their field. There must be proficient designers, database developers, IT experts, hypertext experts, application developers. The team members must be knowledge freaks, willing to work, innovative and interested in latest technology and tools.
- **Development Process:** The development process must be flexible. There must be parallel processes of development.
- **Technical Infrastructure:** The web application must be bugs free and development should be under time limit. Server and Browser are the two external components that should be considered at the time of development. As the use of browser is not exactly known, it depends on user preference, server is usually configured and operated as desired.
- **Integration:** The web application must have support for integration with already existing system or with external content and services.

4. Evolution related characteristics



As per the changes in requirements there occurs some changes or upgradations in the web application. This evolution may concern all the other three characteristics viz. Product, Use and Development. Market competition or short time development may cause the changes.

Categories of Web Applications:

We can categorize web applications as follows:

1. Document centric web application
2. Interactive web application
3. Transactional web application
4. Work-flow based web application
5. Collaborative web application
6. Portal-oriented web application
7. Ubiquitous web application
8. Knowledge-based web application

1. Document centric web application

Document centric web sites are static html documents stored on web server that is sent directly to the client on request. The web pages are manually updated with the help of respective tools. These applications are static, simple, stable and take less time to respond. These applications are costly to maintain (at the time of update), having inconsistency problem because of being static, no timely update of information.

2. Interactive web application

Interactive web applications are offered by CGI, HTML Forms. It includes radio buttons, selection menus, forms etc. These applications are simple and fast. In this kind of application the web pages and links are generated according to user input.

3. Transactional web application

These kind of web applications have facility of modification by user. These applications are more interactive and support structured queries from database. The database system handle data consistently and efficiently.

4. Work-flow based web application

These kinds of web applications are capable of handing the workflow among companies, private authorities or public authorities. Web services are included for interoperability. It is robust, reliable and flexible to handle workflow with autonomy of companies. B2B e-commerce solutions are best example of such applications.

5. Collaborative web application

These kinds of applications are mainly used as group applications where group communications are important part. Chat rooms, online forums, e-learning websites or websites where information are shared with option of editing like Wikipedia are some examples of such web application.

6. Portal oriented web application

These kinds of web applications are those where single access point is there to separate different sources of information and services. Search engines, community portals etc. are best examples of portal oriented application.



7. Ubiquitous web application

These kind of applications provides customized facilities for any device from anywhere at any time. It has limited interaction facility and support limited device. It requires advance knowledge of context where the web application is being used for dynamic adjustment. A service based on location is an example of such web application.

8. Knowledge-based web application

This kind of application is used for providing knowledge for both human and machine. The knowledge management is based on semantic web technologies. Mining the web, linking and reusing knowledge are a few examples.

Conclusion:

When compared to a traditional application, a web application's characteristics describe a wider range of stakeholders, a wider range of tasks and interaction styles, more complex technological infrastructure, and a broader range of contextual issues. The usability attributes can be determined based on the web application characteristics, and conversely the usability attributes that are important can dictate possible characteristics that need to be considered by a web application. Future research will be conducted to derive the relationships between web application characteristics and usability attributes for a web application.

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