

Lecture 28

Web application: Operation and maintenance

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Summary of the previous lecture

- **Technologies for web development**
 - **Communication protocols**
 - **client-side technologies**
 - **server-side technologies**
- **Testing web applications**
 - **Objectives**
 - **Levels**
 - **Web application specifics**
 - **challenges**

Outline

- **Promoting a web application**
- **Content management**
- **Usability analysis**

1. Promoting a web application

- The basic question after launching a web application is
 - How will user find my web application?
- **Investment** in web promotion is extremely important
 - often **neglected** due to budget reasons

1. Promoting a web application...

- **Traditional** advertising channels
 - newspaper ads, TV or radio commercials, posters, direct marketing etc.
- We should focus on **'webvertising'**
 - newsletters
 - affiliate marketing
 - Search engine marketing

1.1 Newsletters

- a **regularly distributed** publication that is generally about one **main topic** of interest to its subscribers
 - generally distributed by **e-mail**
- **Effective way to**
 - **win** new customers
 - **assist** existing customer
- **Largely used to create strong relations with existing and potential customers**

1.1 Newsletters...

- Newsletter should offer **neutral** and **value adding** content
 - information about product
- Proven rules:
 - clear content
 - regular dispatch
 - unsubscribe offer
 - frequent distribution list updates

1.1 Newsletters...

- For **developer's** perspective:
 - **integrate** a newsletter component
 - support **automatic** distribution
 - should include a **link** to the specific page of the web application

1.2 Affiliate marketing

- Affiliate marketing means the revenue **sharing** between **advertiser** and **online sales people** in the way that **products, services or functionalities** of somebody's web application are integrated into an affiliate's web application
 - **lose** of self identity
 - still **efficient** to attract visitor's at low startup cost

1.2 Affiliate marketing...

- **Integration options**
 - simple text **link**
 - product **presentation** containing a link
 - advance **shop module**
 - **entire** process in the look and feel of the affiliate site

1.2 Affiliate marketing...

- **Revenue sharing agreements**
 - pay-per-performance (only if consumer completes a **transaction**)
 - banner exchange
 - pay-per-click (affiliate is paid for a user **click-through**)
 - revenue sharing (**percent-of-sale** commission)

1.2 Affiliate marketing...

- Important success factors:
- Use **customized** version with clear business terms and conditions
 - instead of simple **links** or **banners**
- Strong **affinity** of topics with affiliate website
- **Win-win** commercial contract

1.3 Search engine marketing

- Search engines are most popular service on web
- Search engine marketing **attempts** to win relevant contacts by **appearing** on the search result pages
 - can be **response** of a user's request
 - in form of **ads**

1.3 Search engine marketing...

- Search engines are based on conventional **information retrieval system**
 - storing and retrieving textual **data repositories**
 - documents are acquired by making representation of them (index describing contents)
 - documents are retrieved and listed on the basis of relevance of index
 - **Crawlers** are used to update data repository in search engines

1.3 Search engine marketing...

- Search engine submission:
- Instead of **relying** on crawler we can submit the URL manually
 - most search engines allow **manual submission**
- Search engine ranking:
- **Good ranking** in search list is essential marketing aspect
 - users usually look at first 10-20 results

1.3 Search engine marketing...

- Improving ranking in search list:
- URL should contain description of key words
 - www.travel.com
- Title of the page
 - some search engines include while listing
- Keywords meta tag:
- Description meta tag:
- Content of the web application

2. Content management

- **systematic and structured** procurement, creation, preparation, management, presentation, processing, publication, and reuse of contents
- Content's quality is an **important factor** of application acceptance
- **Up-to-date and rich content**
 - can win customers
 - keep them visiting the web application

2. Content management...

- **In technical viewpoint**
 - should allow **non-technical** persons to manage contents
 - either by using CMS or adding application component
- **Should support multilingual contents**
 - As web applications are **'global'**

2.1 Rate of content change

- **Contents of a web application are subject to change**
 - **rate** of change depends upon nature of application
- **Users need the most recent data**
- **Poor** change management can lose user's confidence

2.2 Content syndication

- Content syndication means the **supply** of content by a **syndicator** for reuse in a Web application by a **subscriber**
- We should consider the subscriber's structure and presentation requirements

3. Usage analysis

- the **process** of assessing and analyzing the use of a web application
- **serves** to measure a web application's success
- **Yields** information about users and their behavior which provides a basis for **improvement**

3.1 Usage analysis techniques

- **Web server log file:**
- **Web server maintains** a log files which record **all accesses** to a website
 - user's IP
 - access time
 - user's request (image or HTML page)
 - referrer (the URL user visited before)
 - user agent (user's browser and operating system)

3.1 Usage analysis techniques

- Page tagging based methods:
- **Live reporting** tools based on page tagging
 - graphic or script **tags** are added on each page of the application which are tracked
- Typically maintained by third-party
 - keep record how many time the **tag is sent** or **script is executed**

3.2 Statistical indicators

- The **success** of a (commercial) Web application is typically measured by the number of **visitors** or **accesses** to the Web application
- Statistical indicators:
- **Hits**: number of elements in a requested page
 - **includes** images, text, interactive elements etc.
 - **not** meaningful because a page can have multiple elements

3.2 Statistical indicators...

- **Page impression:** a single page or combination of pages sent to a user as a result of that user's request
- **Counts pages loaded completely**

3.2 Statistical indicators...

- **Visits:** A **series** of one or more page impressions (within one Web application), **served to one user**, which ends when there is a gap of 30 minutes or more between successive page impressions for that user

3.3 User behavior analysis

- **Statistical indicators are used to measure the success of a web application**
- **Web applications need more complex analysis in order to provide basis for improvement**
 - **E-commerce applications need to specify**
 - **most popular product**
 - **No. of visitors who turned into buyers**
 - **which products are sold in groups**

Summary

- **Promoting a web application**
 - **Newsletter**
 - **Affiliate marketing**
 - **Search engine marketing**
- **Content management**
 - **Syndication**
- **Usage analysis**
 - **Techniques**
 - **Indicators**
 - **Use behavior analysis**

References

- **Chapter 8**, Kappel, G., Proll, B. Reich, S. & Retschitzegger, W. (2006). **Web Engineering**, Hoboken, NJ: Wiley & Son