

On-Line Image Management

Proposal for a Designfest problem at OOPSLA 2005.

The proposal involves the design of a system that manages digital images as a Web-service, specifically focused for use by larger or international organizations. The system will be used by professional photographers to deliver their photo's and by print shops, both possibly external to the organization that deploys the image system.

Overview

Many organizations of any size own images to be used for company brochures, advertising material, and internal or external publications. During the last few years these images are increasingly kept on digital media.

The management of these digital images poses problems that are different from managing a set of text-documents:

- Images take much more space than documents, typically the storage space needed for an A4 size image would be 10-40MB. As a contrast, the MySQL manual has over 1000 pages and takes 3MB in PDF format.
- Large amounts of images requires specialized tuning of the database that keeps these images, or complex management if kept in a file system.
- Additional information about an image needs to be stored external to the image to allow searching the collection of images.
- The copyright and ownership of an image may reside outside the company that uses it, for example with the photographer or with the company managing a collection of stock photographs.

New technology and standards make it feasible to provide management of images as a **web-service**. This enables organizations to have loose relationships with image media providers, and allows media providers to offer flexible contracts, customized towards the need of a specific organization.

An *image management web-service* should not be confused with an online photo-gallery. The web-service contains images for professional use. This requires storing of images and additional information, such as IPTC and EXIF, in a database. Customizable ordering procedures, adaptable authorizations for groups of users are needed. We did not find a photo-gallery that could satisfy these requirements.

Within larger organizations there are often procedures to be followed: a person, or group of persons, is responsible for selecting images from those delivered by the photographer. Another person may have the responsibility to authorize a group of images to be ordered, and print-shops, who maybe do not belong to the company itself, must be able to download the ordered images for printing. For invoicing purposes, the photographer must be able to keep track of which images are ordered and downloaded.

Today's digital images in popular formats such as JPEG or TIFF can contain a variety of information besides the picture itself: camera information (EXIF), information added by the photographer about copyrights, a title, keywords, place where the picture was taken, etc. (IPTC or XMP). This information has to be preserved, it should be possible to

update it online by authorized users, and it should be possible to do searches using keywords and maybe other information such as photographer name or title.

Although customers are expected to have broadband connections to the internet and PC monitors with reasonably high resolution to preview images, they may be relatively computer illiterate. The same may be true for the photographers.

This leads to the following set of requirements:

- ❑ The solution should be a web-based system, requiring only a browser at the client PC.
- ❑ Access to the system should be userid/password protected.
- ❑ Groups of users should have a variety of authorities that reflect their role in the image management process.
- ❑ It should be possible to reserve access of certain images to certain groups of people.
- ❑ It is expected that the system has an administrator interface where users can be created/updated with appropriate authorities.

Use Cases

1. A photographer uploads a set of images to the server.
2. The server extracts all meta-information (EXIF, IPTC etc) from the image and stores it in a database.
3. A photographer makes images accessible to a specific customer.
4. An employee from a customer selects a set of images and creates an image order.
5. A manager authorizes an order.
6. A print-shop downloads an image from an order in a format of choice (JPEG, TIFF, EPS...)