futureLAB

IMAGING PLATFORM

FUTURELAB'S IMAGING PLATFORM
GUARANTEES UNEXPECTED FUN FOR USERS AND PERFORMANCE FOR OPERATORS

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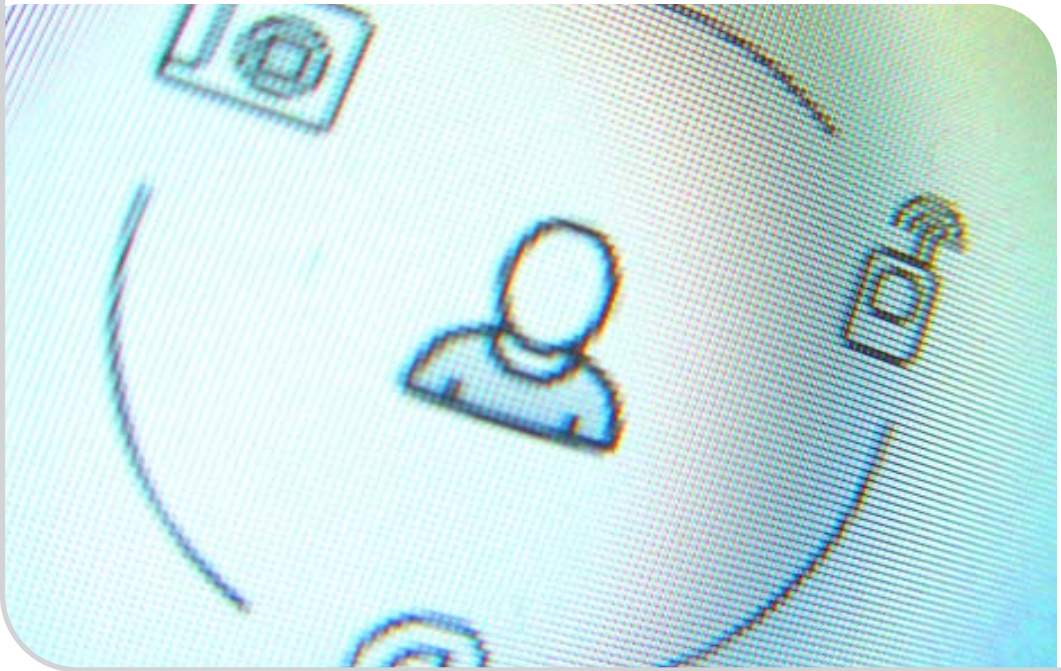
Whatever you call it, the "imageThis" or "photoThat", what end users get with futureLAB's online photo solution is the ability to

* Organize image in collections (hierarchies)
* Edit them
* Share them as web albums, send them as e-cards or MMS
* Print them commercially or locally
* Preserve them

The fact that futureLAB's solution provides all these features in one program is reasonably unique, how we do this is what sets our product apart from all others. From the user interface to the innovative system architecture, futureLAB has no peer.



THE USER INTERFACE IS FUN AND EFFECTIVE

Not only does it support your language of choice, the GUI layout makes all the tasks easy and necessarily fun. Its practical left-to-right workflow and "drag and drop" functionality will be immediately appreciated by anyone who has tried to create an online photo album. It just takes minutes to create an album, not hours! And putting your photos in hierarchical collections makes finding and sharing them a snap.

THE SYSTEM ARCHITECTURE IS SIMPLY ELEGANT

The system architecture is simply elegant. Based on a unique client/server architecture that combines the very resourceful Macromedia's Flash programming language with futureLAB's high performance computing platform, futureLAB's imaging platform guarantees the delivery of unexpected fun for users and performance and scalability for operators. The server platform takes advantage of the on-going enhancements to the load balanced ISP platform that futureLAB pioneered in 1998. It does all the real work, with the client that operates as a "control panel". As the operator, you won't have to care about browser compatibility or the operating system of the PC. After the Flash client software has automatically been downloaded to the users from your site, the servers do the rest.

INTEGRATION AND EXPANSION IS SIMPLE YET EFFICIENT

Integration and expansion is simple yet efficient. With our experience in building and maintaining large ISP service platforms futureLAB has taken special care to ensure easy and effective integration of the online photo solution into an operator's existing environment. The software offers API's to customer database / authorization solutions, to billing platforms and storage solutions. Complete documentation and SDKs are also provided so that the photo album can be further integrated and expanded to make it fit your needs now and in the future.

END USER FEATURES

Main Screen with Thumbnail Photos within a Film Roll

THE MAIN SCREEN IS AESTHETICALLY APPEALING AND ERGONOMICALLY DESIGNED

Incoming photos are on the left, the workspace in the middle, the user collections are on the right and the tool bar is below. It has a natural workflow, the same way you read, left to right.

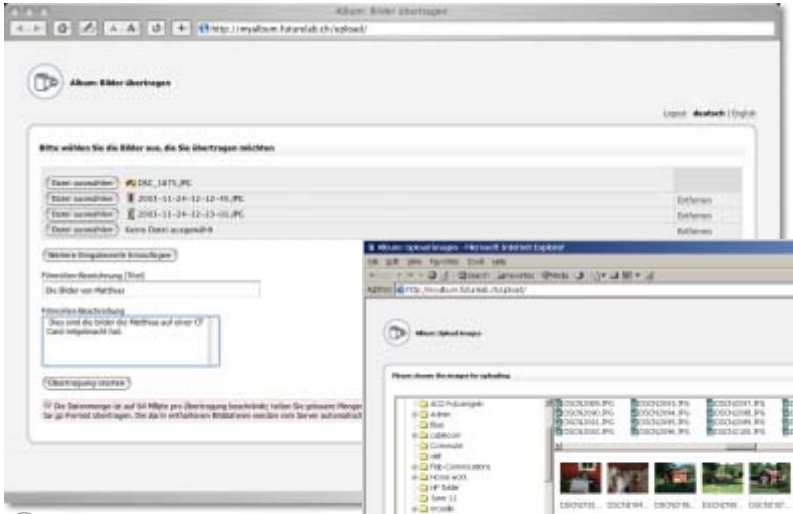
1 Incoming photos, called "Film Rolls" are chronologically arranged on the left, the most recent at the top, the oldest at the bottom, grouped by month and by year. Images can be received by e-mail, uploaded with your browser or Windows or sent via MMS. Photo's received by e-mail use the senders email address as their title. All images have a title and description which can be changed.

2 On the right, images are organized within Collections. The user creates the Collections and keywords (Collection names) are automatically associated with the photos when they are added to a Collection. When a hierarchy is created all the keywords from the respective (nested) Collections are associated to the photos. With drag and drop it's easy to move pictures or entire Collections where you want them. And of course, Collections or groups of Collections can be published to the web, e-mailed, sent as an e-card or printed.

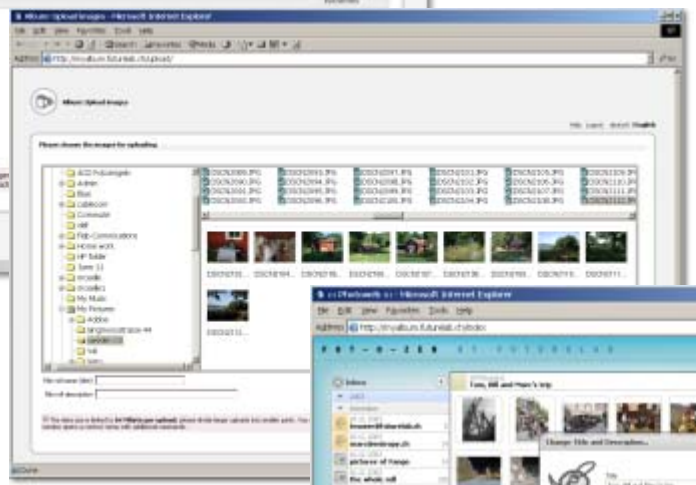
3 Between the incoming Film Rolls and the Collections is the workspace where you can view and edit the images from either. You won't get lost, as you will see a linking path to the Film Roll or the Collection that you are viewing.

4 At the bottom of the window is the Tool Bar. With it you can rotate pictures, send them as e-cards, e-mails, MMS, or print them.

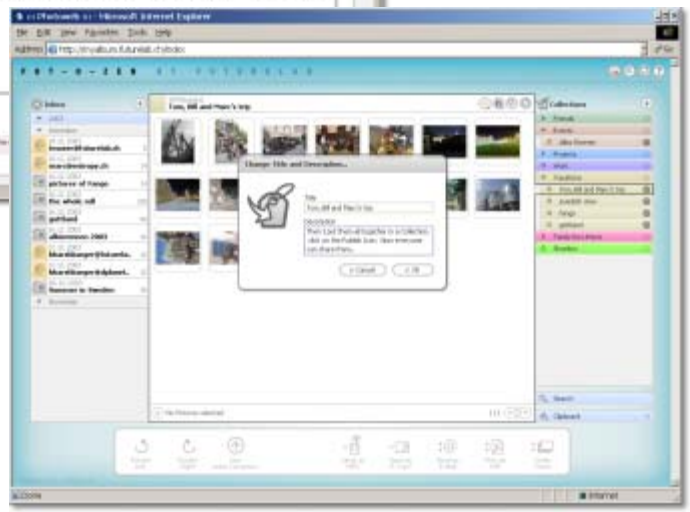
END USER FEATURES



1 apple upload



2 windows active x



3 e-mail...this of course is most unique to futureLAB

GETTING PHOTOS ON-LINE

* Every user gets a photo album address provided by the operator. So one way to get the photos online is to e-mail them. It's a great way to get pictures taken by several "photographers" into one Collection that can be viewed by all participants. And if they are "zipped", un-zip works automatically in the background when the photos are received.

* There's also an HTML photo selection tool for individual images and an Active X batch tool for Windows. Active X allows the pictures to be previewed before they are uploaded. If you are like the rest of us (you know, you leave them with the name the camera gave them), you will know what pictures you are uploading before they are.

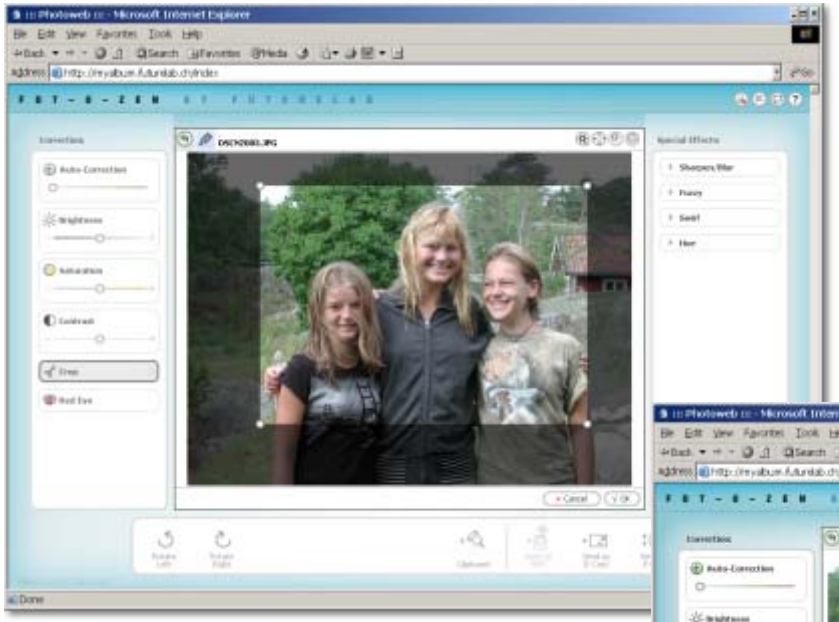
* Pictures can be received from MMS that are sent to the e-mail address and a MMS-only gateway is in preparation.

END USER FEATURES

A COMPLETE SUITE OF PHOTO EDITING TOOLS

* There's a complete suite of photo editing tools to correct and enhance your images. There's also a "make it the best it can be, I don't want to mess around with it" Auto Correction button if you prefer to leave it to the "machines".

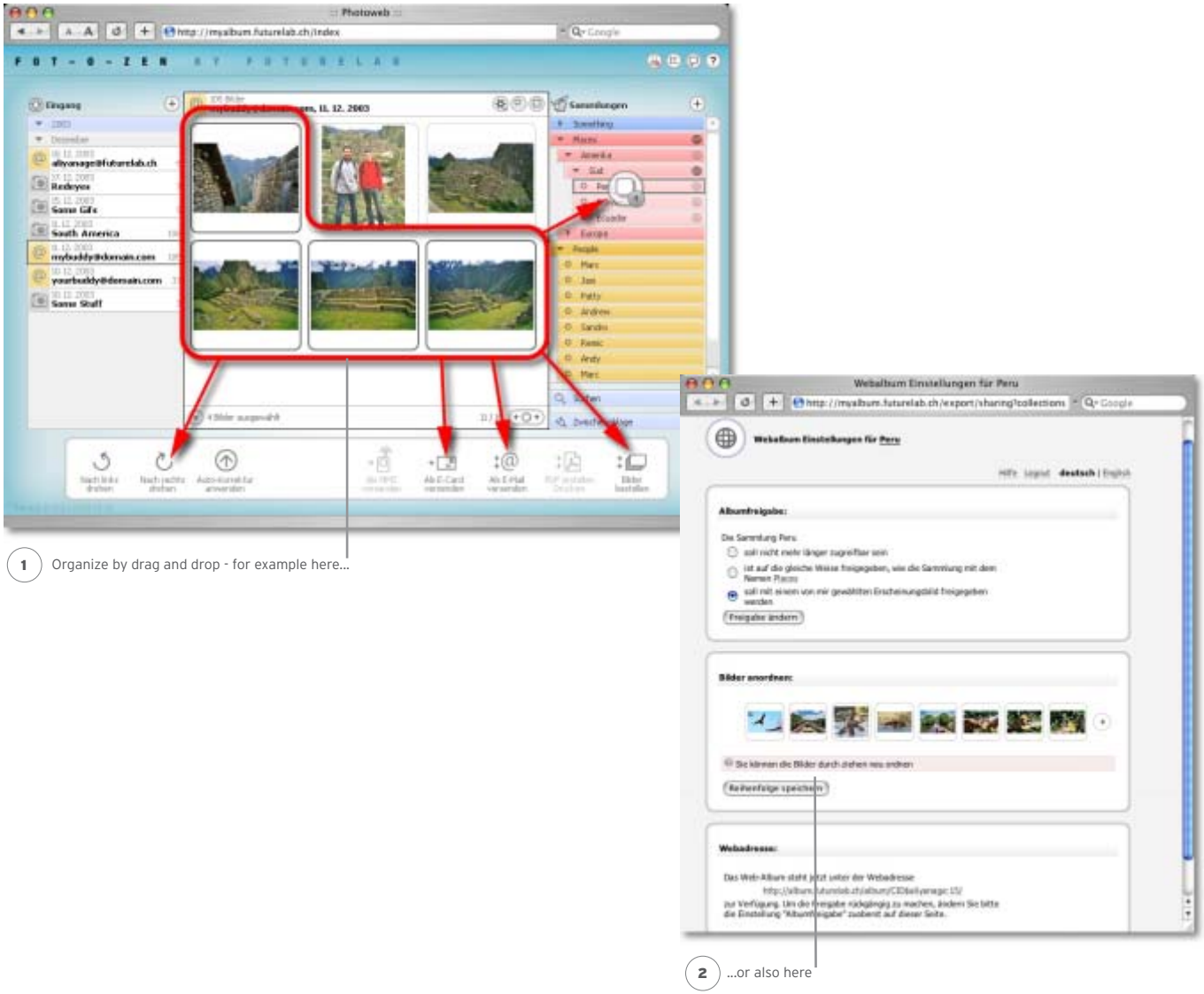
* Originals remain unchanged. All the actions taken are tagged to the original images, in effected the changes are screen overlays. This is particularly important should you want to print images with commercial printers who may require the original image (cropping is retained) as they have their own image optimization solutions.



1 Correct or enhance an image...

2 ...cropping for example

END USER FEATURES



1 Organize by drag and drop - for example here...

2 ...or also here

ORGANIZATION IS A SNAP WITH DRAG AND DROP

* The drag and drop feature makes it as easy as you would expect it to be when making a photo album with a computer. With most online photo albums this is sadly not the norm. And moving images from the Film Rolls to and among the Collections could not be easier.

* The Collections allow you to really organize your pictures so that you can share them (or find them) when you wish. You can flexibly create your own Collection names and "nest" them. Change, rearrange to your hearts content. When you put a photo into a Collection, the name of the Collection automatically becomes a "key word" of the photo. And of course it is possible for a picture to be in many Collections.

* There's also a Clipboard that allows you to select and temporarily store the images from multiple Collections or Film Rolls for a later action (like printing or sharing).

* Keyword search allows you to find what you need when you need it. In addition to entering your own keywords, the Collections that you put your photos in automatically associate their names as keywords, which change when you move them to another Collection.

END USER FEATURES

ALL THE SHARING OPTIONS THAT ARE EXPECTED

Collections can be published and presented to visitors in a web-album or sent as an MMS, e-card or e-mail.

* Default album templates allow users to quickly create great looking albums. There's also an SDK that operators can use to make their own templates when desired.

* Albums can be Private, Shared or Public. Only the account holder can view private albums. Shared ones are password protected with multiple passwords if needed. Anyone may view a Public album. In all cases visitors must know the link to view an album.

* Visitors see a webalbum with the presentation options that were assigned by the owner of the pictures. They don't see the environment in which they were created.

* Those people that are invited to view an album will receive invitations that look like an invitation-they are in fact, inviting! Alternatively the account owner can simply send a "link" associated with the album. There is a handy reference so that users are not required to "send" an invitation again and again as they forgot to write the link down.

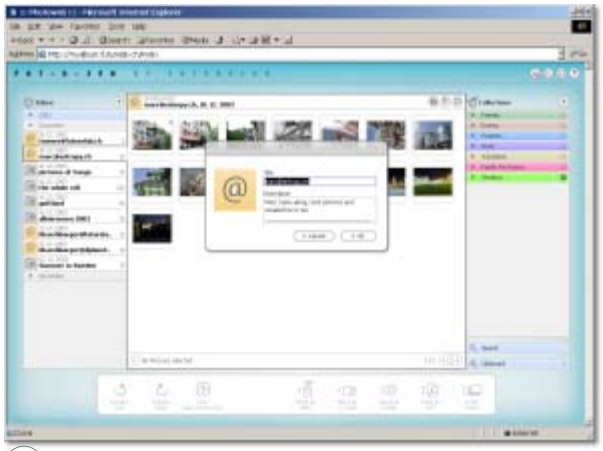
* Invitees have the option (if you give it to them) of viewing the full image resolutions or printing the image locally as well as using a commercial printing service.

* Comments can be recorded from visitors.

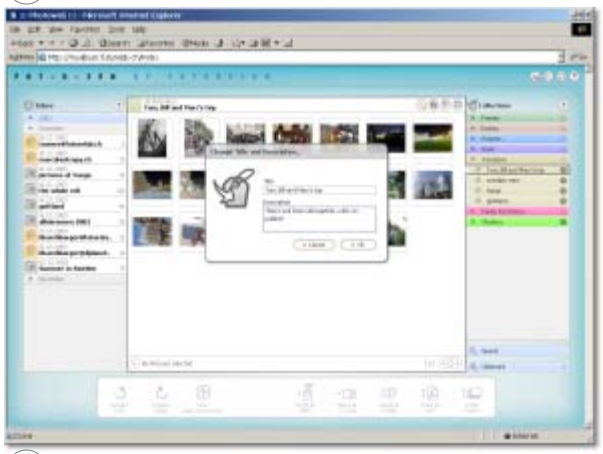
* Photos can be shared within an e-card. We have created some unique and entertaining ways to package your photos within an e-card using Flash that haven't been seen elsewhere. You can't spend time selecting the stamp design, however (sorry).

END USER FEATURES

1 Incoming photos from here...



2 or here...



3 combined...

4 now online.

CELEBRATE THE "EVENT" AGAIN WITH COLLABORATION

Create a group album, no problem. Just have the contributors e-mail the pictures to your account's email address. From the Film Roll inbox, the end user selects the pictures he wants to move to the Collection. If the Collection is "published", any new pictures added will be as well. It's a great way to get everyone's pictures online, where everyone can see and share them.

STATISTICS THAT INFORM

End users can tell

* With whom they have shared an album or e-card
* Who has viewed the shared item, and when it was viewed
* How much storage space is used

PRINT COMMERCIALLY OR LOCALLY

Of course end users can print pictures at a commercial printer or locally. If enabled, visitors can as well. Commercial providers offer a full suite of things that can be made from the simplest 10 by 15 cm prints to bound photo albums and many things in between. The futureLAB online album solution provides finished interfaces to several of these providers. Using the integrated plugin-architecture you may even develop your own.

SYSTEM FEATURES

ARCHITECTURAL OVERVIEW

The image platform is an open-source software, component-based Internet Services Platform. This approach keeps costs low with maximum flexibility.

Inexpensive physical servers are grouped together into powerful "virtual" servers using dedicated, high-performance load balancing hardware. This allows you to grow your hardware platform in small increments as usage of the service grows.

The redundant load balancers not only ensure the optimal distribution of incoming requests among available processors but also do regular health checks on every server and inform administrators immediately should one component fail.

If a physical server does not respond properly it is immediately removed from the virtual server group. This mechanism guarantees continuous availability of all applications.

In general, the servers all share one or more large NFS file storage areas. As the photos can potentially consume vast amounts of storage wherein retrieval times are critical, futureLAB has developed a low cost – high reliability solution for storing pictures safely and securely. Let us know if you want to hear more about it.

Information about the users including their configuration data is stored in a central LDAP directory or any other database you operate for user authentication already.

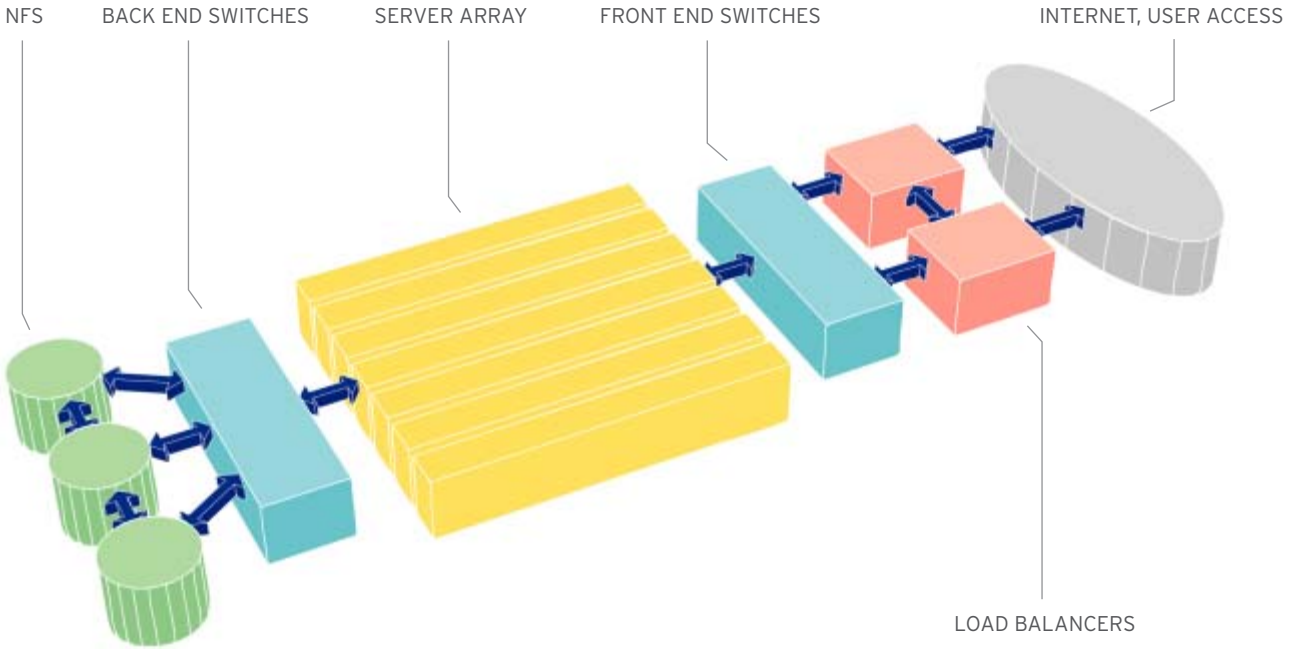
HIGH RELIABILITY

All system components are fully redundant, ensuring the highest possible reliability. There is no single point of failure in the entire system.

LOW COST

Three factors ensure very low overall costs for the platform:

* Initial investment expenses are minimized because most of the hardware components like the servers and network switches are "off the shelf", low cost components.
* futureLAB can provide a Linux based storage solution, that is fully redundant with a cost of €20'000 – €30'000 per Tbyte.
* The system is engineered for a high degree of automation and fault tolerance which keeps operation expenses low.



MODULAR SOFTWARE DESIGN

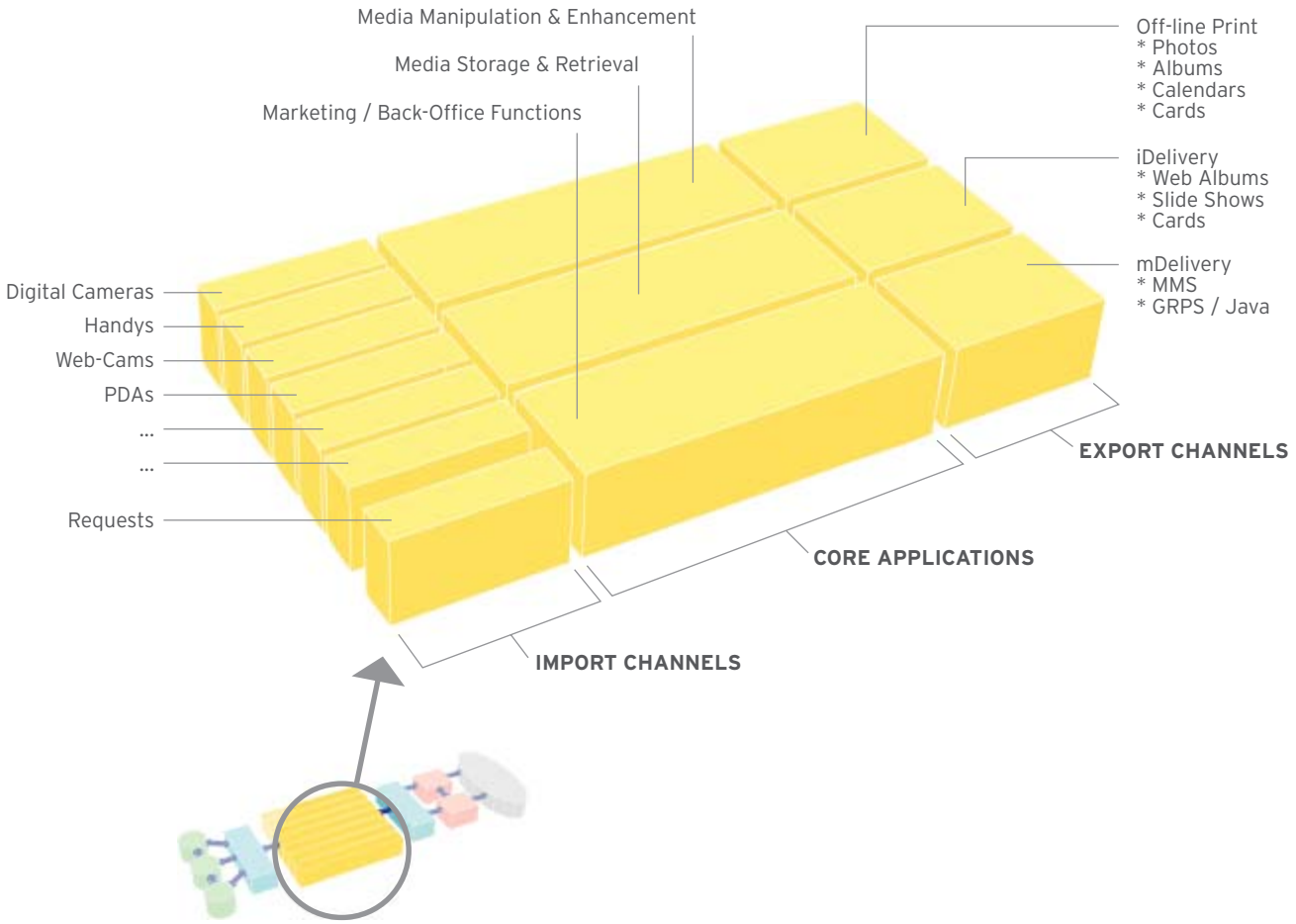
futureLAB's photo solution is based on a group of core functions that have import and export modules attached to them. It is straightforward to add additional input or output modules to customize the application.

To support these central building blocks, there are four virtual server groups; Web-, Image manipulation, Album and e-mail servers. Every virtual server provides exactly one service or application, and there are multiple physical servers per virtual server. The Load Balancers group sets of physical servers with the same function into one virtual server to which the user and external and internal systems connect.

As a result of the modular design, the system components providing the end-user services operate independently from one another, so there are no central "bottlenecks" which can limit the performance of the overall system.

And because there are no complex dependencies between services, it is possible to scale up available processing power by simply increasing the number of server units for a particular service.

Client/Server
Using a Flash client that runs on any machine using a current desktop operating system and browser simplifies life. No more concerns about what version of Explorer or Netscape or what operating system or version is used. Further, a slow user machine will not affect the overall viewing experience. With the Flash client providing the window with command controls, the image servers do all the complex image transformation. Whether cropping, turning or adding a special effect, the servers do this and quickly render the image to the end user machine.



LINUX OPERATING SYSTEM

The servers run a stripped down version of the Linux operating system. Linux allows optimal configuration and precise tuning to the specific needs of this environment. It has proven to be an efficient and reliable platform for providing Internet services for years.

OPEN SOURCE SOFTWARE

The system is based on "best of breed" open source software components specifically Apache and Sendmail, which provide the following benefits:

* The software packages are of exceptionally high quality and reliability because they are engineered by a world-wide team of developers and tested and used by millions of customers at some of the largest ISPs.

* They can be tailored and customized to specific needs, like close integration with the central LDAP directory.

* They are secure because the development community usually provides a solution to newly discovered security problems within hours or days instead of weeks or months.

Complete documentation for all software components is provided.

SYSTEM ADMINISTRATION

MONITORING, ALARMING AND STATISTICS

The servers provide standard log file reports that can be interpreted and acted upon.

The measurement data can be collected for monitoring and continuously aggregated into graphic statistics. Administrators can see and act upon long-term trends like changing usage before they affect the performance of the system.

AUTOMATIC SERVER CONFIGURATION

Additional servers can be added with minimal effort by installing a generic base system onto the machine and defining an associated function in a central location. When the new server is brought online for the first time, it automatically loads and installs the specific software packages and configures data needed to provide its service.

USER ADMINISTRATION

It is one of the goals of the futureLAB system to offer an easy to use interface for end users to administer themselves in order to minimize administration overhead. Still some people prefer to talk to someone on the phone or are not able to do it themselves. For this cases an Administraton Interface provides the necessary functionality for customer care agents and system operators to query end user settings, check their usage statistics and make changes to the settings where needed.

SYSTEM'S INTERFACE

futureLAB's solution can be integrated seamlessly with an operator's existing systems because it makes no assumptions about how or where user data or any other kind of operator-specific information is stored, or how to interface with billing systems etc.

All of these system-specific dependencies are designed into a set of simple interface modules. For each installation, this small set is implemented specifically for the systems used. This allows a perfect fit and the ability to adapt to changes in the environment.

It doesn't matter if an operator uses LDAP directories, flat files, SQL databases etc. for user information, custom-built interface modules can be adapted to any environment.

IMPLEMENTATION

To implement the online photo solution futureLAB uses a clear and proven multi-step approach to structure the project of integrating the solution with your existing systems and services.

REQUIREMENTS ANALYSIS

General requirements and specific information about existing systems and interfaces are collected. Services to provide and the workflow are defined together with the customer.

SIZING AND LAYOUT

Based on the expected number of users, the system capability is defined and the physical and logical layouts are planned in detail.

IMPLEMENTATION AND INTEGRATION

The system components are integrated. Server hardware and network elements are installed and configured. Open source software is customized and custom software is developed as necessary. Components are tested and integrated.

TESTS AND DEPLOYMENT

The complete system is thoroughly tested and subsequently handed over to operations.