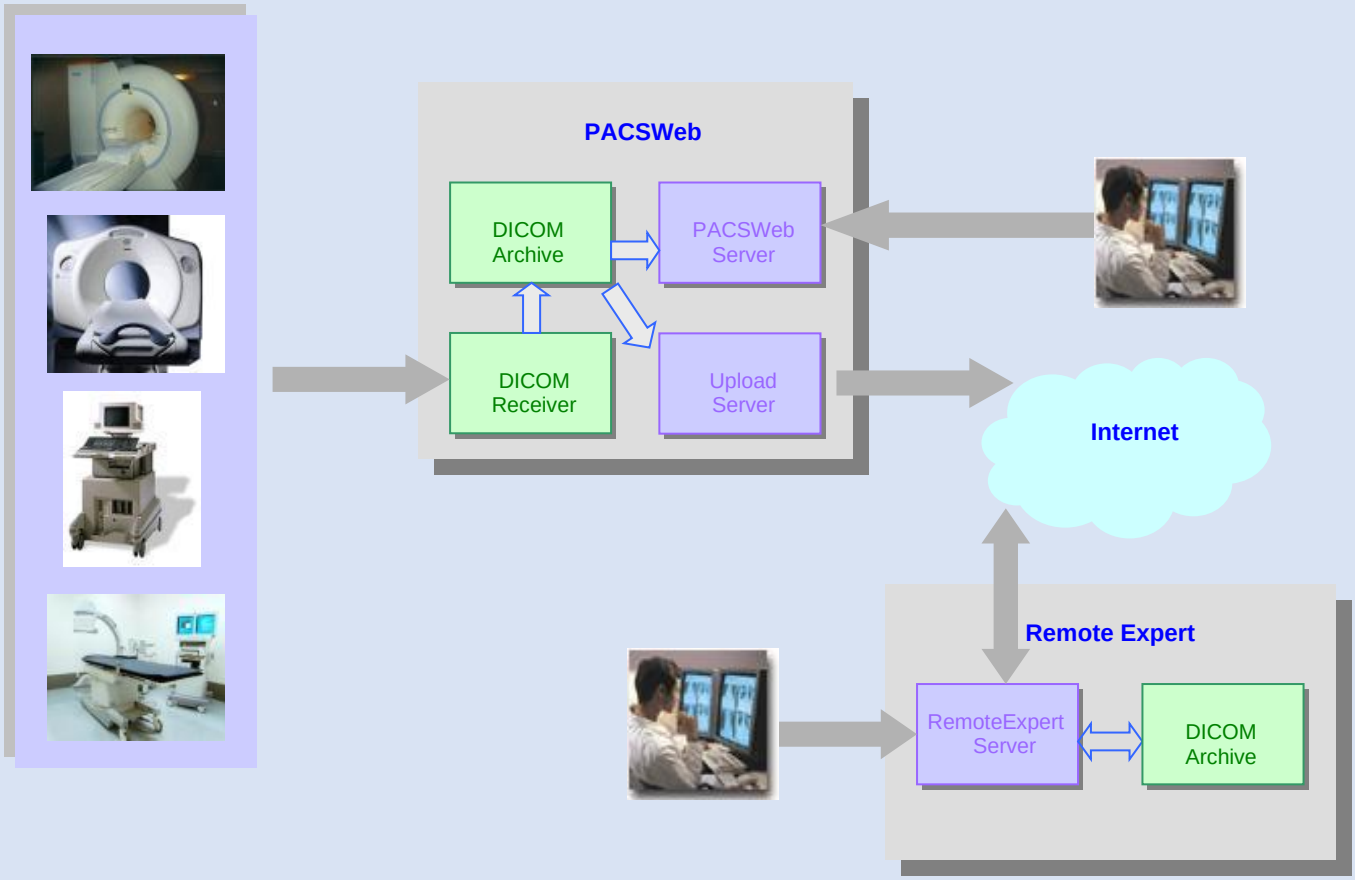
Breeze

Diligence Software provides ***Breeze***, a teleradiology[1] solution, enabling greater access to radiological care. By making radiological interpretation or consultation possible for medical centers, remote or underserved areas, seeking expert opinion or requiring subspecialty consultation, this telemedicine software makes it possible to provide a greater coverage of radiological care.

Breeze aims to provide improved efficiency in radiological care at a reduced cost by taking advantage of contemporary technology – allowing healthcare facilities to expand their coverage in radiology by gaining access to central expertise, enabling timely consultation and dissemination of subspecialty. This is especially appealing to Imaging Centers serving external requesting physicians, clinics and hospitals.

Breeze has the following major components:

- ***Breeze*** - **PACSWeb**
- ***Breeze*** - **DICOM Viewer**
- ***Breeze*** - **Remote Expert**



[1] Teleradiology is the electronic transmission of radiological image data from one location to another for the purpose of interpretation or consultation.

Diligence Software
http://www.diligence-software.com

Breeze – PACSWeb & DICOM Viewer

Breeze - **PACSWeb & DICOM Viewer** is a secure, web-based PACS[2] solution providing both browser and rich-client access to medical images acquired as DICOM[3] files from modalities for consultation or second opinion.

STATE OF THE ART TECHNOLOGY

- DICOM compliant
- provides access to medical images acquired through various modalities (MR, CT, US, PET, etc.)
- during image transmission
  - uses lossless compression technique
  - allows bandwidth optimization
- web-based – allows access to medical images through intranet if installed locally or through internet if installed at a different physical location
- uses state of the art technology to manage medical images acquired as DICOM files in an archive
- image management in an SQL[4] database
- possibility of querying Patient / Study data
- HL7 Integration with HIS/RIS

EASY-TO-USE

- intuitive user-interface
- short initial training for users
- possibility to locate a patient's record using various criteria (e.g., name, birth date, referring physician, etc.)

RICH FUNCTIONALITY

- preview (thumbnail) of images of a patient in Study / Series hierarchy in the order of most recent
- arrangeable screen space by showing/hiding display panels
- a rich tool set for display and analysis purposes
  - split the view area vertically or horizontally to allow the display of two series side by side
  - 1x1, 1x2, 2x1, 2x2, 3x3, 4x4 display modes
  - move to the previous/next frame within a multi-image series with the help of mouse-wheel
  - mouse-driven zooming
  - mouse-driven panning
  - flipping; horizontal and vertical
  - rotation - in 30º increments
  - manual & auto-windowing
  - invert of the image
  - support for annotations with the option of hiding; rectangle, ellipse, line, arrow, text
  - support for measurements with the option of hiding; distance measurements (in pixel and milimeters), rectangular and elliptical area measurements (in pixels and square milimeters), angle measurements
- access to full DICOM data for diagnostic use
- attach the results of expert interpretation in the form of a voice or document file in the preliminary and final stages of consultation
- for Referring Physicians, immediate access to the voice and document files providing the results of expert interpretation
- printing of DICOM images in different layouts
- cine-loop all frames in a DICOM file or all images of a series with manual looping and user control of frames/second
- burning of DICOM images onto CD/DVD including the ***Breeze*** DICOM Viewer whose functionality is described above
- generating soft-copy (pdf), printing on paper or film of selected images
- sending e-mail and/or SMS notifications to Referring Physician when the radiology reports become available
- archival of DICOM images
- facilities for site administrators to maintain user profiles

SECURE

- secure access with browser
- role-based access[5] to system services disallowing unauthorized access to patients' data

FLEXIBLE

- its infrastructure allows Medical Specialists (Radiologists, Nuclear Medicine Specialists, Cardiologists etc.) to view and evaluate images in their field of specialization.
- can work with existing PACS installations
- images stored in the archive are made available to authorized personnel in different ways; can be viewed as JPEG[6], or a selected subset (per patient) can be downloaded and worked on a local workstation.
- built with a scalable technology that can be extended with growing needs
- can be deployed with Open Source components or with the most sophisticated RDBMS[7] and Application Server platforms
- for server-side products, hardware and software vendor-independent
- fully localisable to different languages

SELF-CONTAINED SOLUTION

- can work with existing PACS installations as an extension for a teleradiology solution or can be used as a PACS solution itself
- possibility of uploading the images on to the server for archival
- on paper printing of DICOM images in different layouts to save film costs
- possibility of downloading the images on to the local workstation for interpretation

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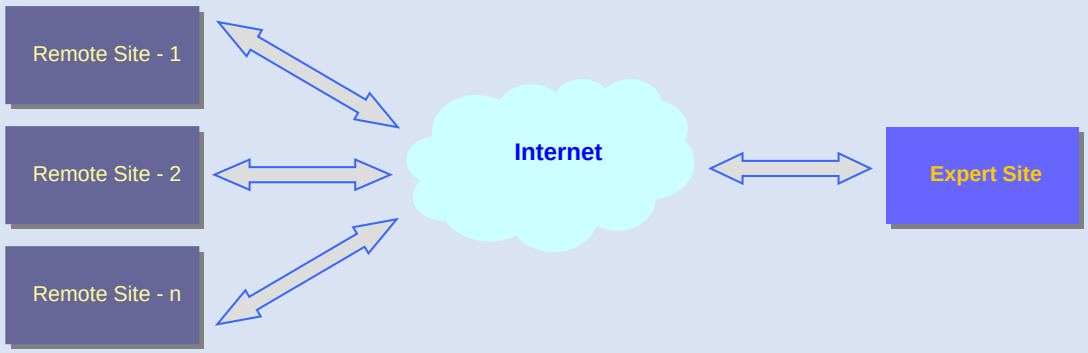
[2] PACS - Picture Archive and Communication System; computers or networks dedicated to the storage, retrieval, distribution and presentation of images
[3] DICOM - Digital Imaging and Communications in Medicine; a standard for handling, storing and transmitting information in medical imaging
[4] SQL - Structured Query Language; a language providing an interface to relational database systems where data is organized and accessed according to the relationships between data values
[5] role-based access is an approach where particular product functions are accessed by authorized users, assigned to specific roles depending on their job functions
[6] JPEG - Joint Photographic Experts Group; a common image file format for storing compressed images
[7] RDBMS – Relational DataBase Management System; a type of DataBase Management System in which database is organized and accessed according to the relationships between data values.

Breeze - Remote Expert

Breeze* - Remote Expert** is the complementary component of ***Breeze making it a unique teleradiology solution when used in conjunction with ***Breeze* – PACSWeb.**

***Breeze* - Remote Expert** is a web-based solution which allows the provision of expert consultation or second opinion from a geographically different location.



STATE OF THE ART TECHNOLOGY

- DICOM compliant
- unattended transfer of the DICOM files from the site of ***Breeze*-PACSWeb** to the site of ***Breeze*-Remote Expert** - achived through ***Breeze*-PACSWeb** Upload Server
- during image transmission
  - uses lossless compression technique, preventing any compromise in image quality
  - allows bandwidth optimization
- web-based – allows access to medical images through intranet if installed locally or through internet if installed at a different physical location
- management of Consultation Requests through an SQL database
- possibility of querying Patient / Study data
- sending e-mail and/or SMS notifications to requesting site when the radiology reports become available

EASY-TO-USE

- intuitive user-interface
- short initial training for users
- possibility to locate a patient's record using various criteria (e.g., name, birth date, referring physician, etc.)

EFFICIENT USE OF TIME

- upon registration of a Consultation Request
  - automatic transfer of the DICOM files from Remote Site to Expert Site
  - unattended transfer of these DICOM files in the background – no necessity for the expert's downloading
- compression of files at Remote Site prior to the transfer and decompression upon successful transfer in the Expert Site

SECURE

- secure access with browser
- role-based access to system services

WORKFLOW MANAGEMENT

- introduces a proper workflow management - request owners can monitor the progress of their request and get an e-mail notification once the expert report becomes available, together with a copy of the report itself

FLEXIBLE

- its infrastructure allows Medical Specialists (Radiologists, Nuclear Medicine Specialists, Cardiologists etc.) to view and evaluate images in their field of specialization.
- built with a scalable technology that can be extended with growing needs
- can be deployed with Open Source components or with the most sophisticated RDBMS and Application Server platforms
- for server-side products, hardware and software vendor-independent
- fully localisable to different languages

REDUCED OPERATIONAL COST

- by providing support to several Imaging Centers from an Expert Center, uplifts the local expert requirements
- for Hospitals or Imaging Centers with modalities installed in several different geographical locations, becomes an efficient solution