
PICTURE ARCHIVING AND COMMUNICATION SYSTEM - PACS

WE PROVIDE ECONOMICAL STORAGE OF AND CONVENIENT ACCESS TO YOUR NEEDS

PHASE : 01

OUR TEAM

CREATIVITY TAKES COURAGE



P.D.C. WEERASENA

P.P.A.S. JAYASUNDARA

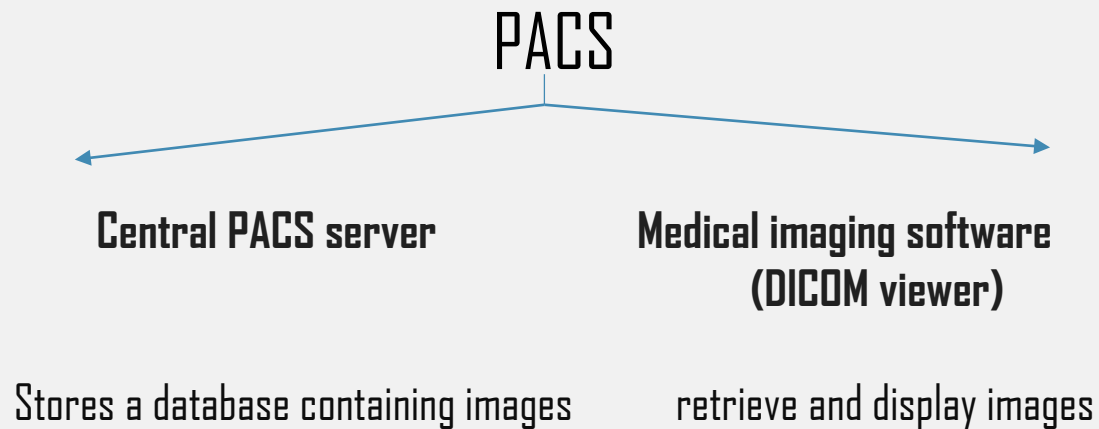
E.G.P.P. SOMAWEERA

S.D.D. AMARATHUNGA

SUPERVISOUR : PROF. KOLIYA PULASINGHE **CO -SUPERVISOUR** : MR. UDARA SAMARATHUNGA

WHAT IS PACS ?

- ▶ Picture Archiving and Communication System is a software product
- ▶ It is a web based system for hospitals in Sri Lanka
- ▶ PACS has a Modular Architecture, Scalable & Platform Independent
- ▶ PACS is the backbone of the analysis of medical images



EXISTING SYSTEMS

PACS	DICOM Viewer
MyFreePACS	RadiAnt
PACSOne	Agnosco
Osirix	Rubo Viewer

WHY WE SHOULD USE PACS ?

Low availability of
Medical images and reports



Higher diagnosing time by doctor

Damage/loss of hardcopies



Large storage areas for bulky
hardcopies

Low security of patients' data



High cost for printing & etc.

More than Single image per a radiographic
film in X-ray !!!

WHY DEVELOP OUR OWN PACS?

- ▶ Inability to match with Sri Lankan requirements
- ▶ Requirement of advanced equipment
- ▶ Lack of technical people in hospitals



EXISTING PAC SYSTEMS IN THE WORLD ARE MOSTLY **STAND-ALONE**

Major breakthroughs in our system

- Image tiling
- Lossless compression
- Latest technologies
 - Spring
 - Hibernate
 - CodeIgnitor
 - DCM4CHE
- Security
 - Transport level

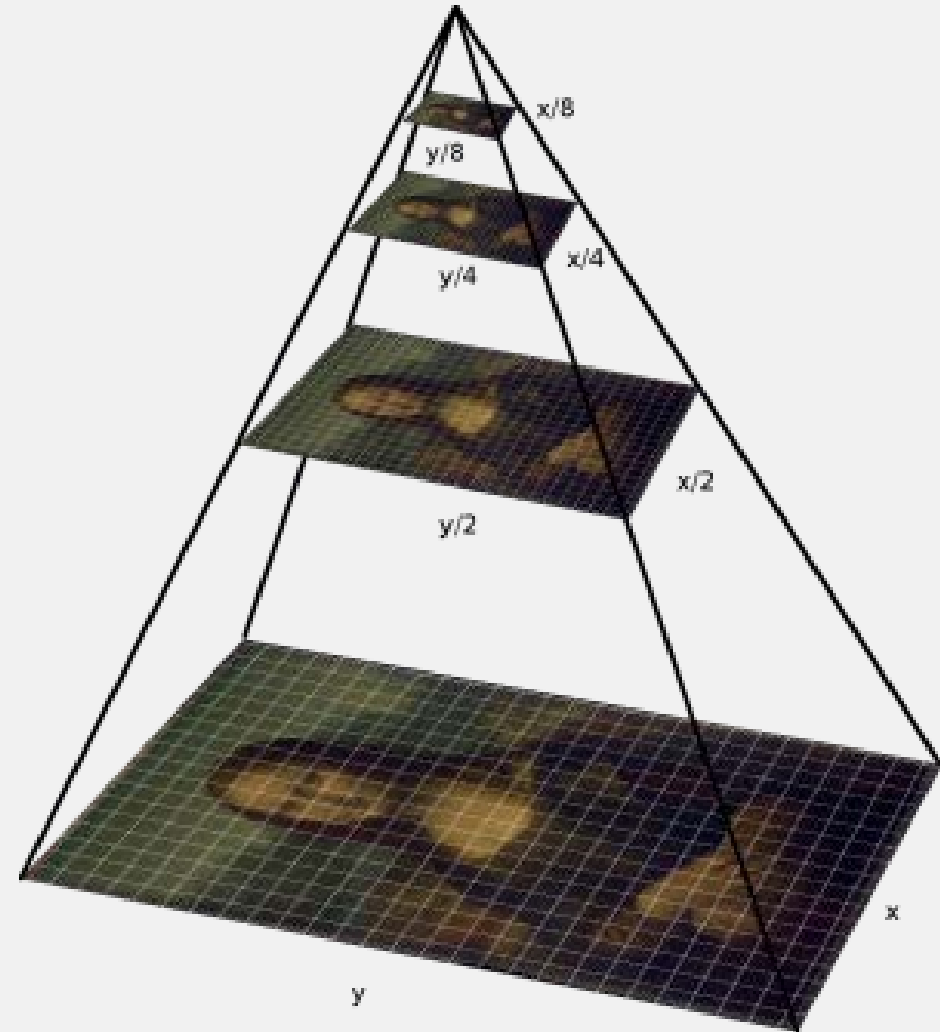
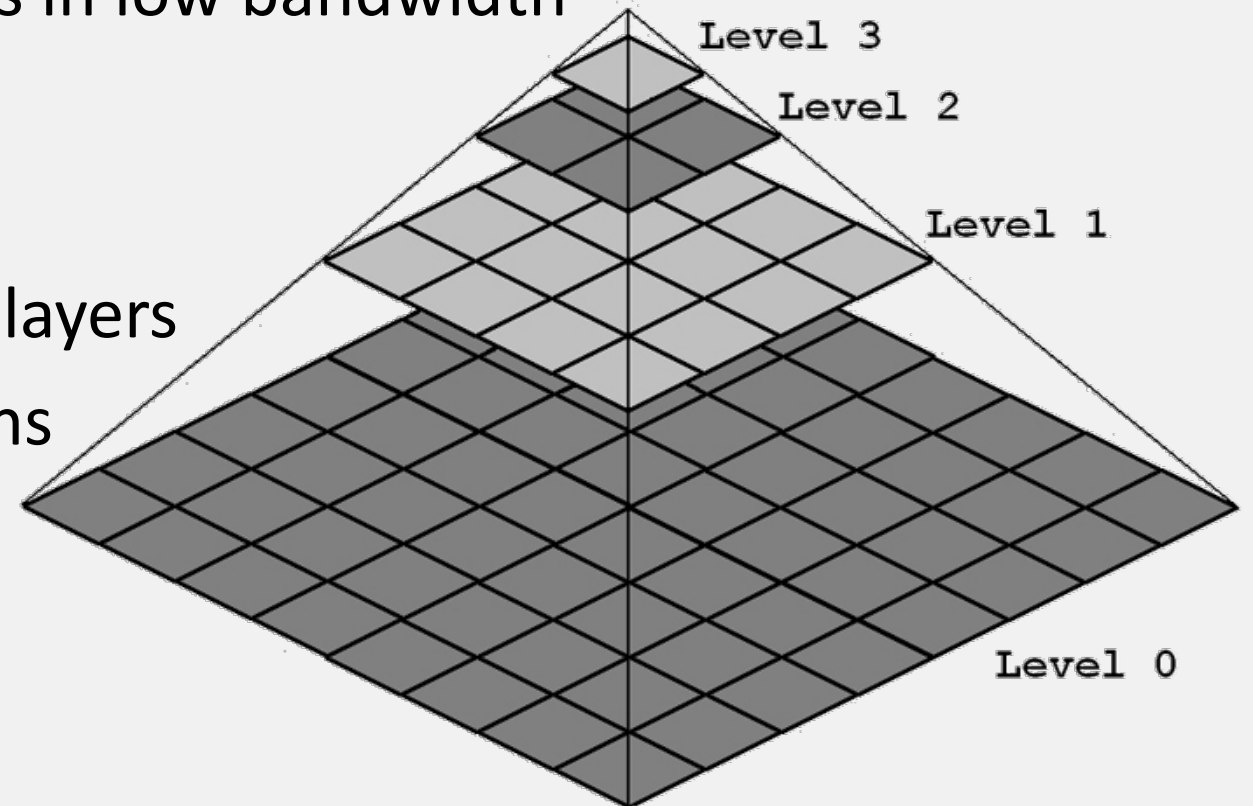


Image Segmentation

Why Image Segmentation ?

To transfer large sized images in low bandwidth through a network.

- Original Image is segmented into layers
- Each layer has different resolutions



WHAT IS OUR SPECIALITY ?

HOW OUR SYSTEM IS DIFFER FROM OTHER SYSTEMS ?...

- ▶ Magnification on processed image
- ▶ Comments on the image
- ▶ Infinite zooming
- ▶ Quality of Service(QOS)
- ▶ Download images in .png & .svg formats
- ▶ Voice Recorder
- ▶ Image sequence playing



TECHNOLOGIES USED



HTML5

To design the Web-GUI



JAVASCRIPT

To implement the functions of web



JQUERY

To implement the functions of web



SPRING

Control container for the java platform



JAVA

For backend programming



MYSQL

Database system that runs on a server



PHP

Server scripting and making dynamic, interactive pages



HIBERNATE

Relational mapping and query databases



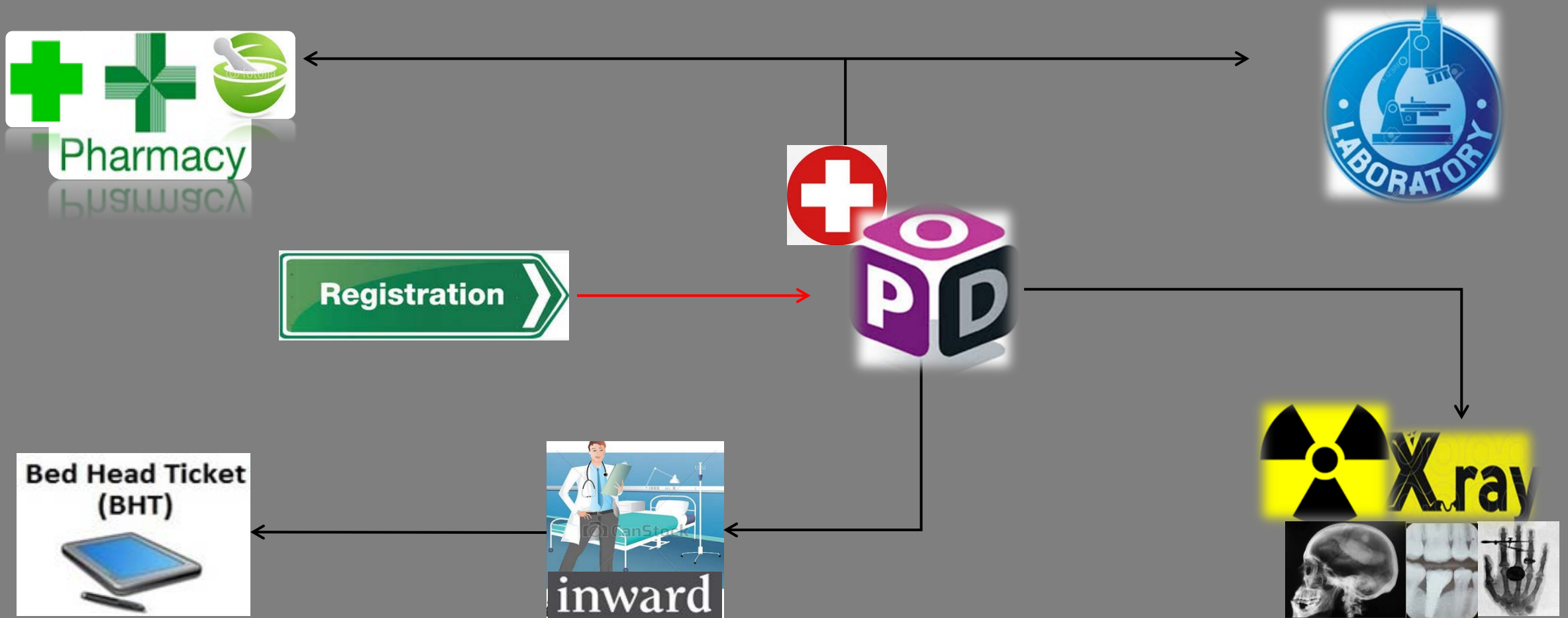
TOOLKITS

Imagej , pixelmed , dcm4che, etc
To extract data from DICOM



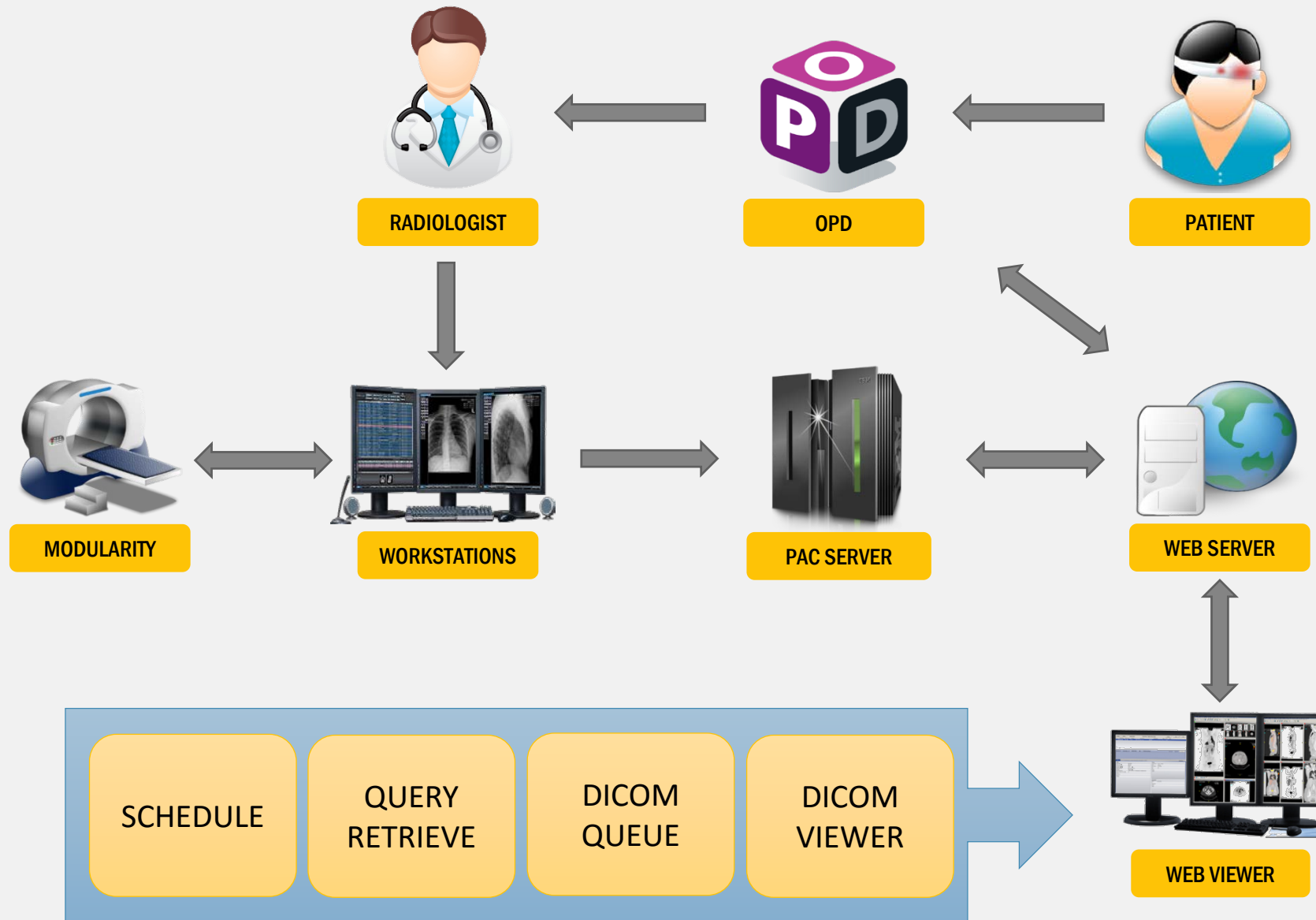
CodeIgniter

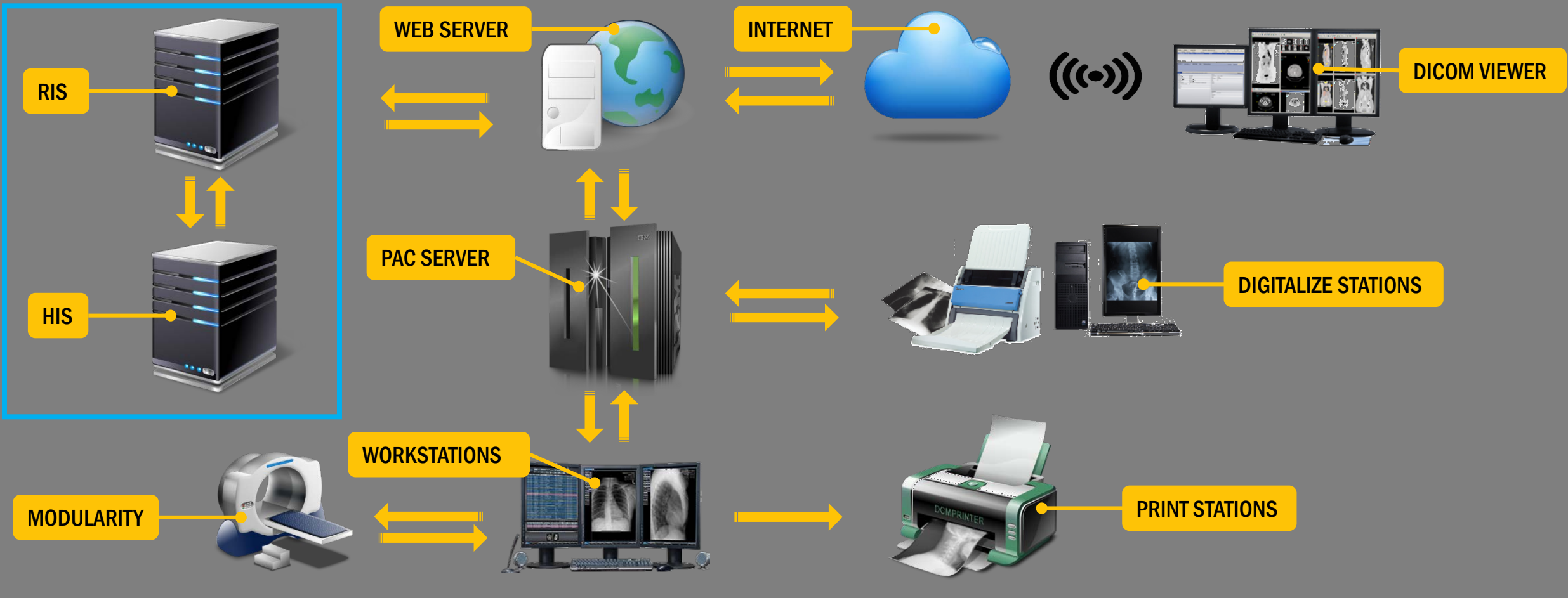
Framework for frontend programming



COMPONENTS DIAGRAM OF HIS

FLOW DIAGRAM OF PACS

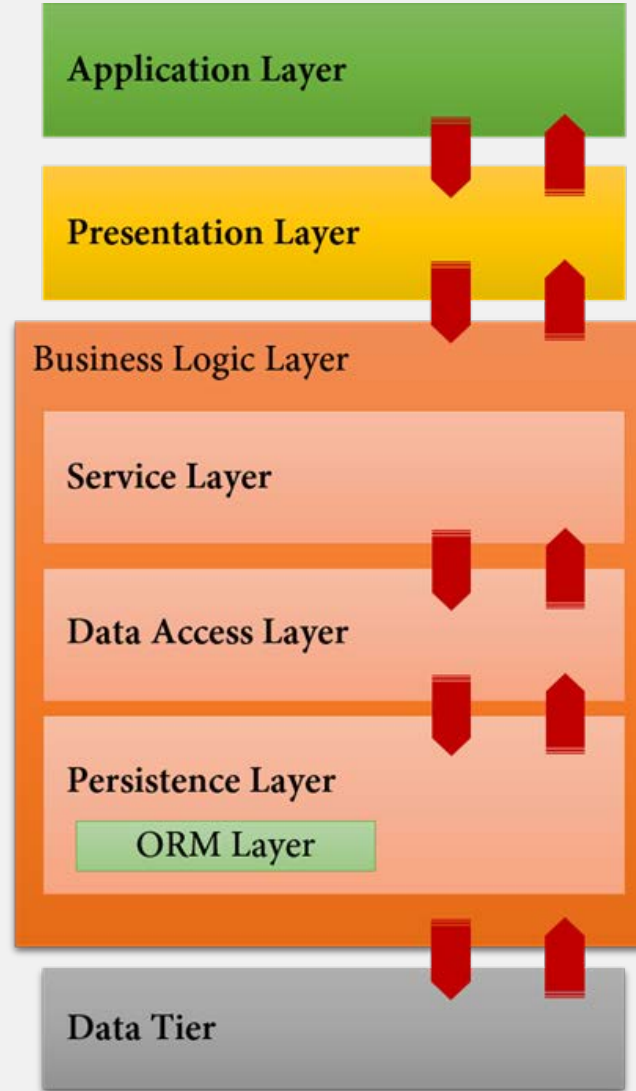




HIGH-LEVEL ARCHITECTURE DIAGRAM PACS

INSPIRE OUR PRODUCT BEHAVIOUR AS A SINGLE COMPONENT.

System Architectural Diagram



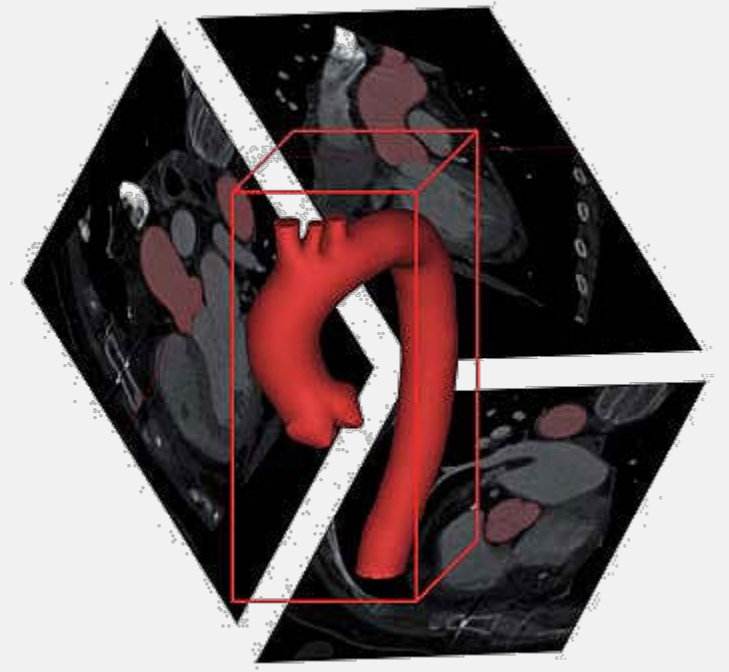
DEMONSTRATION

ADVANTAGES OF PACS

- ▶ Decrease costs
- ▶ Quick and easy access to patient images and reports
- ▶ Replacing the roles of conventional radiological film
- ▶ Reduce the number of duplicate images
- ▶ Images manipulation, annotating and processing
- ▶ Chronological view of patients' radiology histories
- ▶ More user-friendly for staff and beneficial to patient care
- ▶ High security of patient information

FUTURE GOALS

- Search by annotations
- Categorize images
- Predictions using data mining techniques
- 3D modeling using images
- Advanced image processing techniques



THANK YOU FOR YOUR ATTENTION

EVERY ACCOMPLISHMENT STARTS WITH THE DECISION TO TRY
