Department of Biomedical Engineering, VSoE, University of Southern California
Professor: Dr. Brent Liu
BME 527 Fall 2023

HW #6 White Paper

Developing a PACS Request for Proposal (RFP)

PROBLEM STATEMENT

Design and develop a Picture Archiving and Communication System (PACS) request for proposal (RFP) document.

PROJECT GOALS

The underlying motivation of this homework assignment is to provide hands-on experience to students for carrying out real-world engineering in Healthcare Informatics and specifically in Medical Imaging Informatics (MII). Upon completion, students will have gained an understanding of key PACS concepts by charting and building a solution to real-life problems in a particular clinical application. This provides an opportunity to apply knowledge (such as PACS design, the DICOM standard, IHE profiles, innovative new technologies etc) and communication skills.

OVERALL PROJECT DELIVERABLES

- Final Product is a PACS RFP document with the following REQUIRED content:
    a. Your desired PACS design for Tommy Trojan Hospital based on the metrics provided in this assignment.
    b. A baseline workflow of your hospital and what key improvements you would like the PACS to provide.
    c. Key Features that you would like for your hospital PACS (eg, architecture, storage solutions, end-user customization, etc).
    d. New and innovative technologies that you would like implemented in your hospital (eg, backup, disaster recovery, etc).
    e. Your general implementation plan and desired timeline (eg, how long it should take to implement, when is the go-live date, etc)
- A maximum of 5 pages for the PACS RFP from each student.

SPECIAL CLASS HOMEWOKR TIMELINE

Homework Release Date: Tues 11/14/23
Homework Due Date: Fri 12/1/23 @ 5PM

REQUIREMENTS FROM STUDENTS

Logistics:

- Each student is required to perform independent research on the internet to find a PACS RFP document template.
- There is no required specific format but the student is required to reference what template he/she used to generate the document.
- Each student must generate their own deliverables within the requirements listed above. There is no right or wrong answer - only the student's individual thought process.

Grading:

- Grading will be based on the project deliverables listed above. The length of the document should be no longer than 5 pages.

- Grading will NOT be evaluated based on right or wrong answers as long the deliverables are met.
- Effort in the deliverables WILL be evaluated as part of the grading process.

BACKGROUND DATA NEEDED FOR THE SPECIAL PROJECT

Tommy Trojan Hospital:

Tommy Trojan Hospital is a high-profile 200-bed hospital. The referring physicians have many hospitals to choose from to send their patients INCLUDING the hospital across the city to the West, UCLA Medical Center. Tommy Trojan Hospital would like the latest and future innovative technologies for PACS in addition to the current state of the art components to improve overall workflow, patient turnaround time, and quality of service. The following Procedure Volume Analysis (PVA) below shows all the different types of imaging studies that will be acquired PER YEAR. The hospital would like ALL of the imaging exams to be archived within PACS and provide image viewing capability throughout the hospital as well as at the physician's offices which is offsite from hospital across the metropolitan LA area.

Customer: TOMMY TROJAN HOSPITAL

Modality	exams/ year	images/ exam	MB/ image	annual growth	exams/ day	MB/ exam	GB/ day	TB/ year
CR portables	35,000	4	8.00	3%	117	32	3.7	1
CR other	75,000	4	8.00	3%	250	32	8.0	2
DR	0	3	18.00	3%				
CT	0	72	0.50	3%				
CT multi row avg	7,500	300	0.50	3%	25	150	3.8	1
CT multi row 3D	0	1,000	0.50	3%				
MR	15,000	96	0.50	3%	50	48	2.4	1
Digital Fluoro	0	10	2.00	3%				
Digital Angio	5,000	3	2.00	3%	17	6	0.1	0
Nuclear	13,000	12	0.06	3%	43	1	0.0	0
PET	5,000	40	0.13	3%	17	5	0.1	0
Ultrasound (static)	30,000	36	0.90	3%	100	32	3.2	1
Ultrasound (echo 30 sec clips)	0	1	150.0	3%				
Mammo digital	0	4	50.0	3%				
Film Digitizer	0	20	1.00	3%				
Total	**185,500**			**3.0%**	**618**	**35**	**21.3**	**6**

Server and Archive sizing

Prefetching	1	previous exam(s) will be fetched for each new exam
Short term storage	12	months
Long term storage	7	years

Recommended Reading and Resources:

1. 'PACS and Imaging Informatics: Basic Principles and Applications' by H.K. Huang