SNS COLLEGE OF ALLIED HEALTH SCIENCES

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DEPARTMENT OF RADIOGRAPHY AND IMAGING TECHNOLOGY
III YEAR

COURSE NAME : EQUIPMENTS OF ADVANCED IMAGING MODALITIES

TOPIC : PICTURE ARCHIVING AND COMMUNICATION SYSTEMS

INTRODUCTION

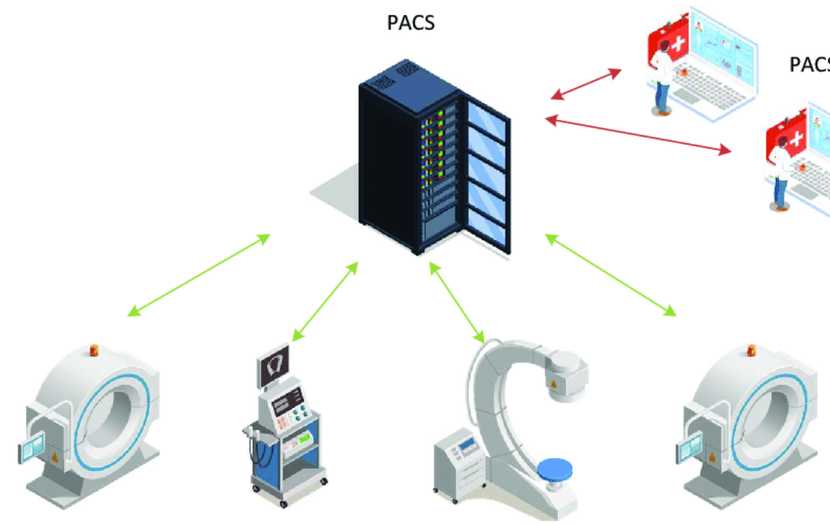
- The Picture Archiving and Communication System (PACS) is a provision, used in medical imaging technology.
- It provides cost effective and easy access to images from multiple imaging tools.
- Radiological images and reports are transmitted digitally through PACS.
- It eliminates manual filing, retrieving and transport of films.
- DICOM (digital imaging and communications in medicine) is the universal format for image storage and transfer, which is used in PACS.

COMPONENTS OF PACS

- Basically, PACS require four components namely,
  - imaging device
  - network system
  - workstation, and
  - storage.

- It delivers the images timely and provide easy access to images and interpretations.

- It avoids traditional film based image retrieval, distribution and display.



USES OF PACS

- The PACS finds variety of uses that includes:
- Replacing hard copy such as films
- Providing remote access, including distance education and teleradiology
- Providing electronic image integration platform with easy access to HIS (hospital information system) and RIS (radiology information system)
- Helping radiology workflow management such as patient examinations.

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- The imaging tools include CT, ultrasound, MRI and PET, etc.
- The images from the modalities are sent to the quality assurance workstation, called PACS gateway.
- It checks the patient demographics as well as attributes of the study.
- If the study information is correct, images are passed to the archive for storage.

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- Then, the radiologists review the images through their workstations and make the final report.

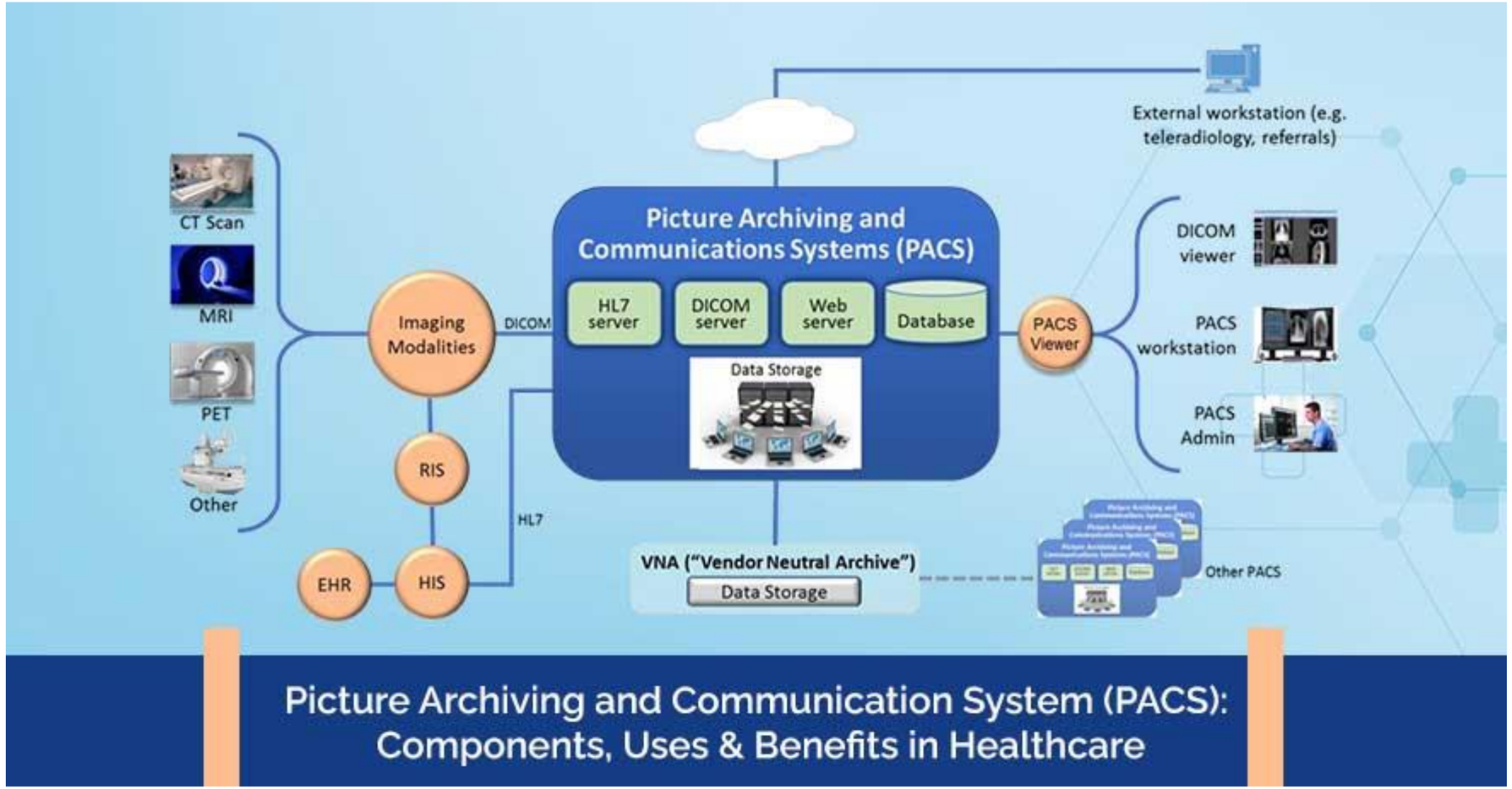
- The workstation and archive is a bidirectional transmission.

- PACS uses web based interfaces to use internet or wide area network (WAN) as their way of communication, via VPN (virtual private network) or SSL (secure sockets layer).

- The client side software includes Activex, Javascript and Java Applet.

- Very good backup for patient images is required, in case of loss of images from PACS. Hence, the images are automatically sending their copies to a separate computer for storage.

PACS AND ITS COMPONENTS,USES & BENEFITS



TELE RADIOLOGY

- Teleradiology (TR) is the transmission of patient images from one location to another location.

- The images include X-ray, CT, ultrasound and MRI, etc.

- The main purpose is to share the images or study with other radiologists and physicians.

- Since the number of radiologists is lesser than the imaging procedures, teleradiology fill the shortage of radiologists.

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- Teleradiology improves patient care, by allowing radiologist services, who is physically not present at that location.

- This is highly true in specialist such as MR radiologist or Neuroradiologist, or Periodic radiologist, etc., who are available only in urban cities.

- Teleradiology allows round the clock service of the specialists without interruption.

- Teleradiology uses internet, telephone, wide area network (WAN) and local area network (LAN). Specialized software is used to transmit images.

- Advanced technologies such as graphic processing, voice recognition, and image compressions are also used in teleradiology

REFERENCE

- Basic Radiological physics (2nd edition) by Kuppusamy Thayalan.