Development of hospital-integrated large scale PACS in Seoul National University Hospital

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Abstract

This Paper describes the progress of development of a large scale, hospital-intergrated PACS in Seoul National University Hospital(SNUH).

The SNUH is a representative university hospital in Korea which consists of an adult hospital with 1,100 beds, a children's hospital with 300 beds, and a dental hospital with 100 beds. The SNUH started a project for the development of a large scale, hospital integrated PACS in January, 1995. The SNUH PACS project has three main goals : to develop a fully hospital-integrated PACS, to develop a cost effective PACS using open systems architecture, and to extend PACS' role to the advanced application such as image guided surgery, multi-media assisted education and research. To achieve these goals, a task force team was organized and has been operational, being in charge of the system design, development, installation and integration. SNUH PACS will support the access from not only 75 dedicated PACS workstations, but also 320 general purpose clinical computers and 280 hospital staff's personal desktop computers. To enable to support this large scale work-load, SNUH-PACS is designed to have distributed computer architecture which taskes full advantage of ATM communication network, computing power of up-to-date high-end PC, and image processing technique.

Currently, 3 MRs, 3 CTs, 8 USs, and 4 CRs are connected via ether direct DICOM or in-house developed DICOM gateway, yielding 8 GB of image data a day. We have implemented PACS workstations using high-end PC and Windows NT operating system. Diagnositic workstations use 2K line mionitors, and clinical workstations use 1.6K line monitors. 4 diagnostic workstations and 20 clinical workstations were installed in radiology department and in-patient wards, respectively. The acquired images are distributed to the workstations over the 155 Mbps and 25 Mbps ATM network. We are now testing work flow and workstation functionality with our system.

A large-scale PACS project is in progress for the development of hospital-integrated PACS in SNUH. Basic modules have been successfully developed. SNUH PACS is in partial scale now, and will be expanded to full scale by the end of 1998.

Keywords: PACS, Workstation, ATM, DICOM