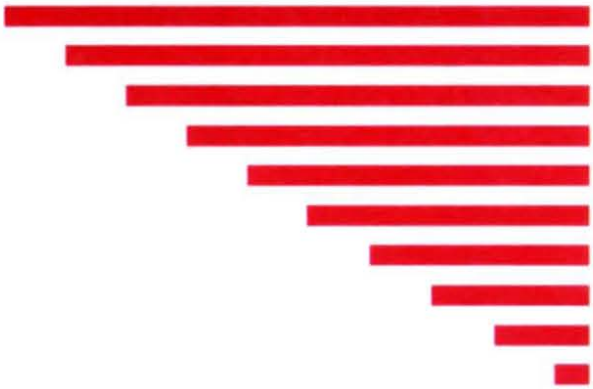
MASSACHUSETTS GENERAL HOSPITAL

RADIOLOGY PACS GROUP



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MGH RADIOLOGY PACS
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JAIME TAAFFE
Director of Radiology Computing
Director, PACS Project

Dear Colleagues,

Radiological imaging is the premier diagnostic methodology today. But, with tremendous growth in utilization of radiological imaging in medicine, serious operational and logistical problems have arisen. An interesting question is - 'Has the enormous success of diagnostic imaging caused radiology to begin failing in its primary mission: the timely delivery of high-quality interpretations to the physicians and patients?' Can we do better?

Health professionals planning new hospitals now accept the need for physical plant and for a computerized hospital information systems. In a few years, these same professionals planning a radiology department will accept the necessity for an electronic image management system. Many Radiologists are convinced of this need today. The opportunity facing radiology is to improve service, as well as to find new avenues for service by using image management computer systems and networking technology.

It may be argued that systems whose purpose is to aid in the work-flow and management of a radiology department are best developed within the environment of a radiology department. The MGH Radiology PACS (Picture Archiving and Communications Systems) Group, started in 1985, has been developing and deploying PACS technology with the involvement and support of the entire department -- radiologists, researchers, technologists, film librarians, and management staff. The group has enjoyed unprecedented opportunity and freedom to fully study and understand the problems associated with PACS in a working environment unrushed by commercial pressures.

RSTAR (Radiology Storage Transfer Analysis and Reporting) a high-performance, high-resolution, multimodality, multimedia system, is now being deployed throughout the department, and the hospital. The response to the system has been positive and encouraging. In fact, numerous requests have been received to make this technology available to other hospitals and imaging centers. Consequently, it has forced the Group to consider in great depth the role of an academic institution in the development and commercialization of products. We now find ourselves engaged in the formation of strategic alliances with corporations whose task it will be to promulgate and disseminate the technology.

The intention of these few pages is to give a brief introduction to the project and the MGH Radiology PACS Group. We believe that the proper PACS technology appropriately deployed will transform Radiology departments in a positive manner.

This is an exciting time for the Group and we extend an invitation to all to participate with us and to share our excitement.

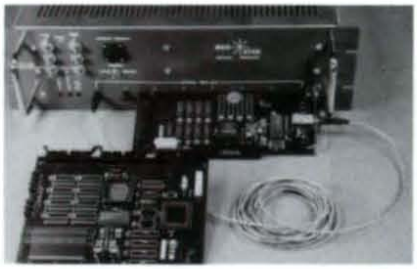
Cordially,

Jaime Taaffe
Director, Radiology PACS Project

MGH - Radiology PACS Group, The RSTAR Project

PROGRAM

The Massachusetts General Hospital (MGH) Radiology Picture Archiving and Communication System (PACS) Group was established in 1985. It is involved in basic electronic image research and management, as well as committed to the development and deployment of a quality, full, diagnostic, clinical PACS. The project entails design and development in the areas of advanced computer software (image processing, database management, expert-systems, user interface, high speed networking, and work-flow management algorithms) and leading-edge hardware (ultra high resolution display technology, fiber-optic communications, and pixel processors).



Q-RSTAR (Radiology Storage Transfer Analysis & Reporting), our second generation system now in the deployment phase, has been in development since late 1988. Q-RSTAR incorporates multiple 2K x 2.5K displays and utilizes 100 megabit/second optical LAN technology. Q-RSTAR is capable of displaying at any workstation a 2K squared image in one second from Q-RSTAR's central archive.

LOCATION

The MGH Radiology PACS Group is located on the 9th floor of One Cambridge Center in Kendall Square with additional facilities (office space and computer room) at the main MGH campus.

FACILITIES

Software Development Environment.

- Dedicated VAX 6430 with 90-megaflop vector processor
- Macintosh workstations (running C and Lisp)
- Digital Equipment workstations
- 10+ Q-RSTAR 2K imaging workstations
- Optical image archive, 100+ gigabyte jukebox
- DECTalk text to speech processor

Network Environment

- Hospital wide dedicated 100 megabit/second Optical LAN
- Metropolitan area T1 & DS3 WAN (Boston, Cambridge, Somerville, Burlington, and Charlestown)

Hardware Development Environment.

- Viewlogic computer aided design system
- PADS-2000 printed circuit board design package
- Maxroute automatic printed circuit board design system
- Xilinx programmable gate array design package
- High speed test equipment to 1 GHz (Scopes, logic analyzer, etc.)

PEOPLE

The MGH Radiology PACS Group, consists of over 25 full time scientists, engineers, and technicians. They have enjoyed an unprecedented opportunity to freely and fully study the problems associated with PACS in an environment unrushed by commercial pressures, and resources seldom afforded in a research environment. Working closely with the Radiology Department over the past 5+ years, the group has written over 500,000 lines lines of code as well as designed state-of-the-art hardware.

FUNDING

Radiology PACS Group is a multi-million dollar per year effort supported by a number of sources.

FOR MORE INFORMATION, CONTACT:

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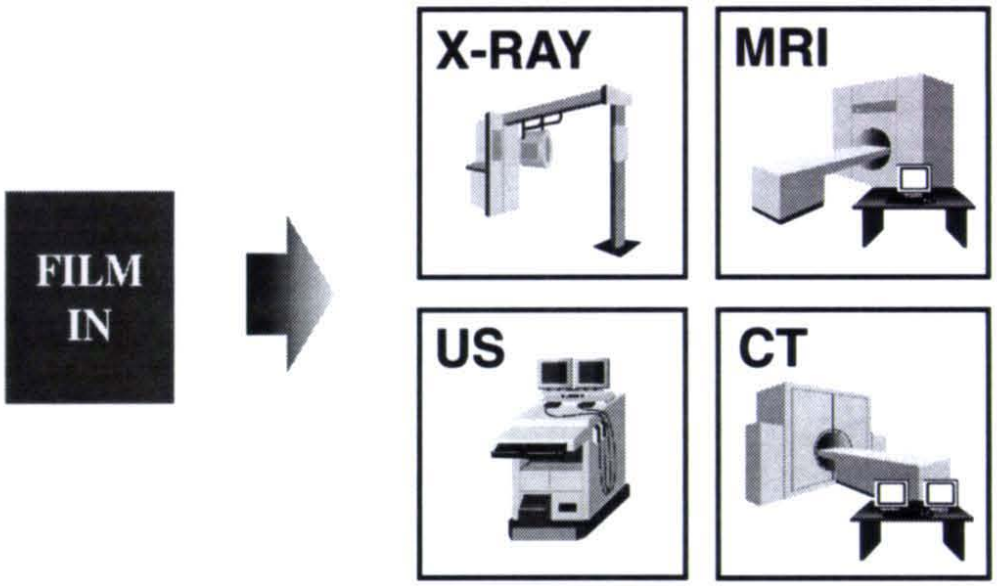
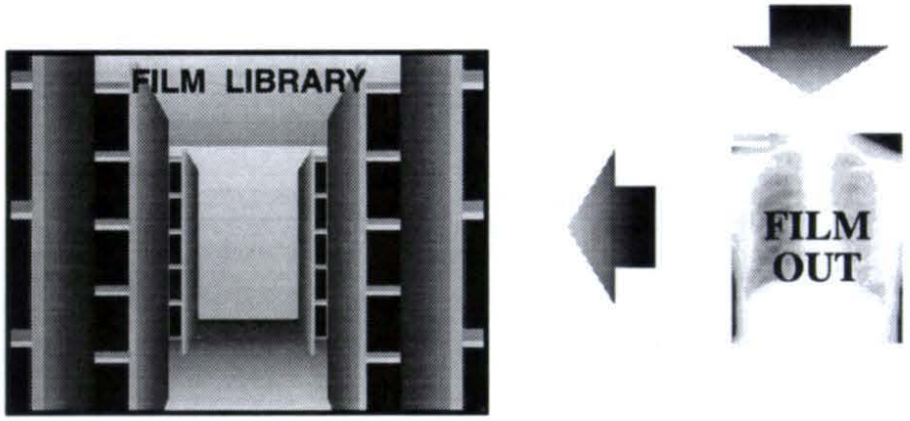
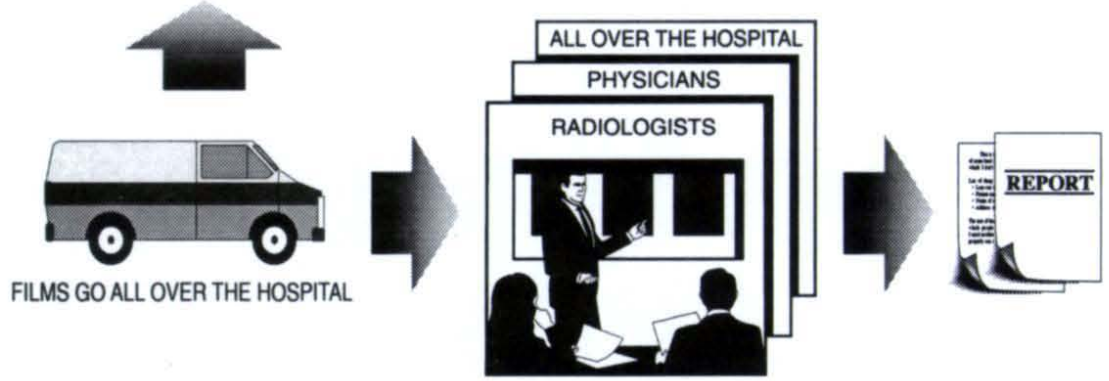
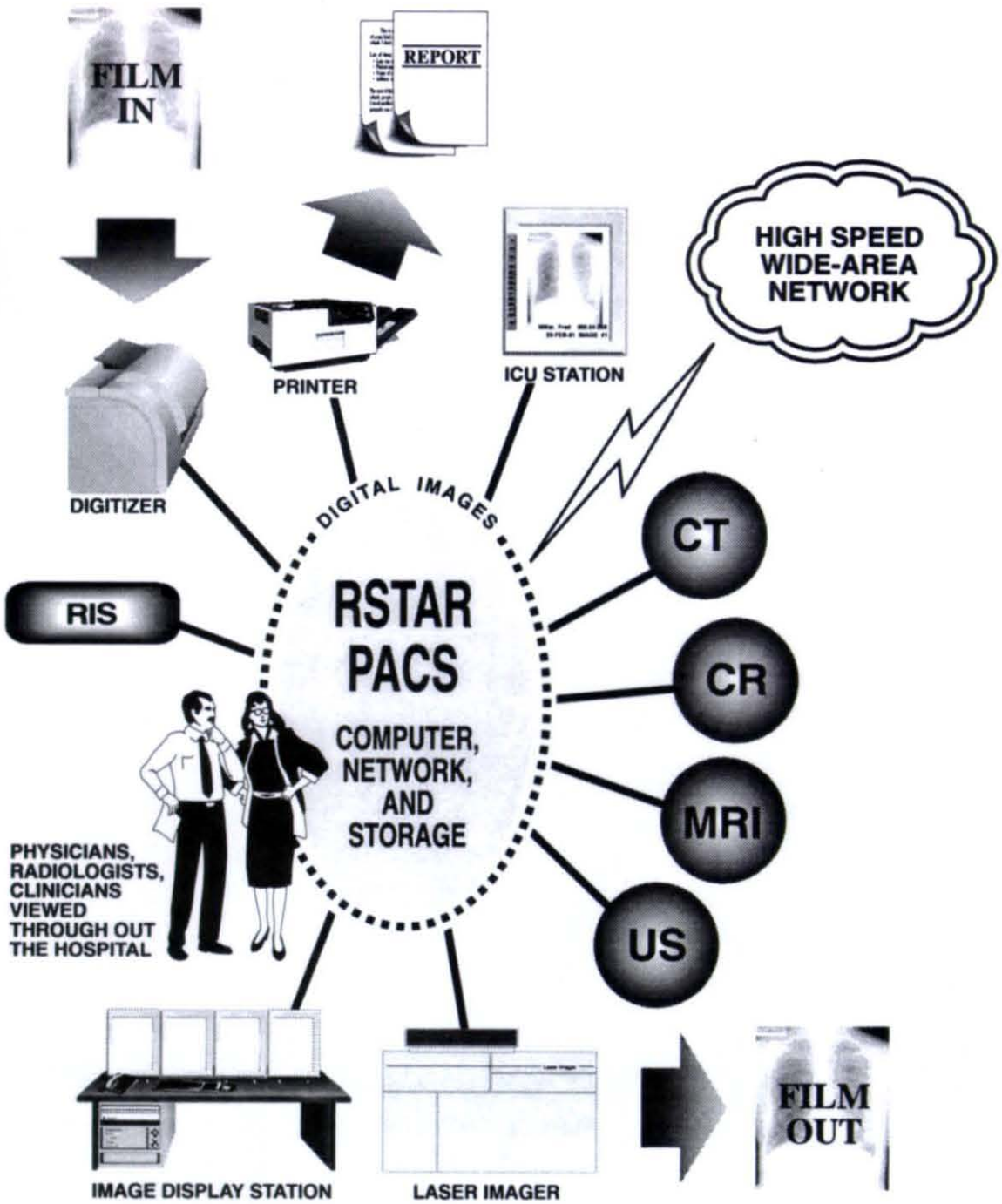
RADIOLOGY TODAY







RADIOLOGY TOMORROW



THE MGH SYSTEM