Title: "Looking at the history and future direction of PACS in Japan."

Purpose: Projecting the ideal data management model of PACS in near future for suggesting several tips what a system administrator needs to consider when introducing PACS.

Method: Firstly looking back the history of PACS data management models in each decade, defining the existing problems on PACS, and then considering about to-be model of PACS data management.

Result: In the 1980s, PACS was stand-alone and stored image data to optical disks which has only a few Giga Bytes capacity. In the 1990s, RAID storage has been much familiar but still it was expensive so used for Short-term-storage (STS) and CD/DVD was used for Long-term-archive (LTA). It called "2 tier" storage model. In the 2000s, RAID storage has been much more affordable with its density growth and decreasing unit price per capacity. Therefore PACS storage model moved from 2tier to 1tier. In 1tier PACS, all image data must be existed on STS. LTA was only as a backup. Users can access to all data immediately from STS. This improved the efficiency of image diagnose. As a result, in the late 2000s, film-less has been quite popular. However image data explosion caused by modality evolution exceeded the projection of RAID storage price erosion. Thus from the 2010s, 2tier storage is expected to replace 1tier storage for PACS. The new generation 2tier storage (NG2S) has clinically enough capacity for STS, rarely access to LTA. Sadly we Japan had the Great East Japan Earthquake in 2011, 2tier storage with cloud archiving has attract the so much attention that the Disaster recovery (DR) by cloud archiving would become common in the coming years.

Consideration: Until 2002, in Japan, it's thought of as the Medical records have to be archived within the Medical facilities. But from February 2010, MHLW loosen the regulation that medical facilities are able to archive medical records to the cloud (Internet Data Center) which are provided by private-sector firms. After that, Major PACS providers started to prepare the cloud-archiving service for medical images. As of Oct. 2012, all of the Top 5 market share PACS providers in Japan have been started to provide the cloud-archiving service. In 2013, it will be accelerated.

Conclusion: The Cloud-archiving service for medical image will be becoming much more popular to manage medical image data efficiently and archive it safely.

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