All India Institute of Medical Sciences (AIIMS) in Delhi is considered to be one of the most prestigious medical colleges in India. It is recognized globally for providing highly specialized and low-cost medical care to a large number of patients who come from across the country. The sheer volume of patients and the range of super specialities offered by AIIMS on any given day can be compared to very few institutions in the country. A typical day at AIIMS sees around two thousand admissions and around fifteen thousand outpatients. There are around 1,600 dialyses and 40,000 laboratory tests done during the day. The Institute has a thousand critical cases handled on a typical day. Doctors at the institute perform about 140 key cardiac procedures and 360 neurosurgeries in a day.

Like any other hospital, AIIMS deals with a large number of documents per patient, ranging from prescriptions to medical reports and billing. Patients also bring in a large volume of reports and referral documents that need to be scanned into the hospital’s patient management system. The volume of documents that AIIMS handles is compounded by the sheer number of patients that it handles each day. The institute has installed base of over 3,000 computers used by doctors, nurses and other hospital staff.

AIIMS is also the torch bearer for introducing the latest Information Technology in Healthcare in India.

The issues
The huge volume of documentation results in the need for large and efficient storage systems that can be scaled as the volume of data increases. The large number of computers in a premise that was open to the public meant that the institute needed a computer network that is easy to access and use as well as to manage. The network had grown disproportionately with no dedicated storage or backup facilities. While the institute’s network hosts over 40 servers, the servers themselves were used to store all the data and to provide backup.

The institute had been using laser printers for its printing needs for more than a decade. Many of these printers are located in public areas. On the backend they connect to the institute’s servers. Given the large volume of printouts that are produced every day, the institute is rightly concerned about the cost per page of print out. With the existing printers, the print cost was prohibitively high. Further, there was no way of tracking or controlling the print volume per user. This opens up the possibility of misuse. As the number of patients went up, the hospital realized that it needed to have many more stations equipped with scanners to scan in the reports being brought by the patients.

Ricoh helps AIIMS, Delhi to optimize its IT investments and reduce costs

The IT infrastructure at AIIMS, Delhi had grown disproportionately and printing costs had become prohibitively high. Ricoh redesigned the network to improve productivity and manageability of the IT assets and also helped optimize printing costs for a five year period.
The employees’ productivity was getting hampered with the existing IT systems because of frequent breakdowns that subsequently led to delays in healthcare delivery. For the printers, breakdowns along with the need to frequently replace cartridges led to further dissatisfaction. The hospital was open to explore the possibility of using multifunction devices in the place of printers as long as the capital cost was not significantly higher and the large volumes could be handled without frequent breakdowns.

The presence of multiple service providers for IT systems compounded the problem and made pinpointing responsibilities and enforcing SLAs (Service Level Agreements) difficult.

The Ricoh Solution
Ricoh did a comprehensive site visit at the institute and mapped the workflows and patterns. Workshops were also organized with all stakeholders to understand their pain points as well as expectations. Finally, a detailed evaluation was carried out in the new emergency ward at the institute, the Dr. Rajendra Prasad Center for Ophthalmic Sciences and the main OPD. Based on these studies, Ricoh redesigned the entire AIIMS network including its printing infrastructure.

A scalable storage infrastructure was put in place with an initial capacity of 500 TB with the ability to scale up to 5 Petabytes (5000 TB). A comprehensive and matching backup infrastructure with appropriate policies was also implemented. PACS (Picture Archival and Communication System) is an important tool for the doctors as the system archives all scans and images of the patients. A robust network with dedicated storage resulting in applications like PACS becoming more responsive and this also increased the productivity of employees.

For AIIMS’ printing requirements, Ricoh suggested AIIMS to use multifunction devices instead of the laser printers. While each unit would cost higher than a plain laser printer, Ricoh demonstrated that AIIMS would actually save on capital costs as they would need a far lesser number of multifunction devices in place of the current laser printers to produce the same volume of output. “We replaced every 10 of the original laser printers with 1 MFP and the investment was recouped in a short time frame of 6 months” says Dr. Deepak Agarwal, Chairman - Computerisation and Head of IT at AIIMS, Delhi.

In order to handle the institute’s concerns about the operational costs of printers, Ricoh offered an operating cost that included consumables and maintenance for a period of five years. This cost was substantially low in comparison to their existing print cost. Networking the printers meant that they could be accessed from anywhere and their management and monitoring was available at fingertips. Based on network printing and the robustness of the equipment, Ricoh was able to commit an average uptime for the entire fleet of over 100 printers in the campus. With this new system, issues of cartridges running out of ink could be preempted. Further, Ricoh’s printing solution enabled the IT team at the institute to track not only the total print volume, but also the user-base print tracker and thereby reducing the misuse of the printers considerably.

On the infrastructure management and services front, Ricoh ensured that clear SLAs were worked out and that there was a dedicated team in place to handle after sales services. A single point of contact for the institution was also put in place to manage the relationship. “We are very happy with Ricoh’s customer services” says Dr. Agarwal.

While the name AIIMS is more or less synonymous with “The” healthcare institute in Delhi, there are a total of seven All India Institutes of Medical Sciences spread across the country. Based on the results obtained at Delhi, Ricoh has started similar analysis at other institutes also. Ricoh has further deepened its engagement with AIIMS and is working with the institute in developing new solutions for the institute and for the healthcare industry. These include mobile Computerised Provider Order Entry (CPOE) systems for direct data capture while the doctors are on their rounds and the development of kiosks that can be deployed across the hospital and from which patients can access information.

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Chairman - Computerisation & Head of IT at AIIMS, Delhi

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