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Cloud Fax: The Data Interoperability Backbone of Healthcare

Chris Larkin is the Chief Technology Officer of Concord Technologies in Seattle. He has held top positions in technology companies, including GE Healthcare and the Healthcare Group Program Manager at Microsoft. HealthManagement.org spoke to Chris about Cloud Fax and how it can help address the challenges of data interoperability in healthcare.

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The manual analogue version of faxing is a technology of the past. Cloud Fax is the backbone of the exchange of healthcare information and addresses the challenges of data interoperability. Can you explain how the two differ?

Analogue, or physical, faxing results in reams of printed documents that then have to be manually scanned and/or retyped into an EHR or other system before their data can become part of a patient record or billing system, as just two examples. Physical fax can also suffer from equipment failure, dropped calls, and other impediments to a secure and efficient operation.

Cloud faxing, on the other hand, electronically receives, stores, and transforms unstructured information on the document into structured, digital data and does so securely and verifiably in huge volumes. When one considers that there are many billions of pages of healthcare information where valuable data needs to be extracted and redirected for immediate use, then one can get a sense of its importance as an essential information technology. With an internet connection and an active account with a cloud faxing provider, healthcare organisations can become much nimbler and efficient clinically and operationally.

Why is Cloud Fax so relevant in healthcare?

More than 70% of healthcare providers still exchange medical information via fax. Fax remains the de facto standard and most ubiquitous method for exchanging healthcare information. You touched on the fact that it is helping to solve one of the most critical challenges in healthcare information technology today — interoperability. While emerging standards such as HL7® FHIR® are working toward closing the interoperability gap, fax remains the common communication thread between disparate EHR and HCIT systems that otherwise would not be able to exchange data.

It is also ubiquitous. The smallest to the largest HIPAA-compliant providers can safely and securely exchange data at a low cost on the order of pennies per page of information. This solves the problem of sharing data between healthcare providers - sharing records or sending and receiving referrals and, for example, communications between labs, payers, and pharmacies. So, the cloud is the limit, if you will, which is to say it's unlimited in its potential to receive, store, capture, extract, structure and share data.

Consider that a given hospital must interact with many electronic health record systems in their service



region every day. These EHR vendors are not usually incentivised to interoperate. For the majority of EHRs, their only certain ability to send and receive a patient's record is fax.

What are the key Cloud Fax use cases, and what are some of the applications that are emerging?

For years, healthcare organisations of all sizes have used Cloud Fax vendors to manage the flow of documents containing patient information and integrate those documents into the patient record in the EHR. Using data extraction and classification, aided by AI which we refer to as our “practical AI”, we can extract specific and customisable data fields, such as patient demographics, name, date of birth, etc., from unstructured documents — typically fax pages — to facilitate automated document processing, data integration and standardisation.

efficient exchange of documents. By categorising and routing documents accurately, we help ensure that the right information gets to the right place or person at the right time.

Because the cloud fax servers see the inbound data “first,” we can apply our Practical AI™ approach to look for keywords and phrases in the patient record and ensure that the record is treated appropriately within seconds after arrival, rather than waiting for administrative personnel to find it. We can automatically route the document to the appropriate queue within the hospital — all without human touch.

This way of separating the 80% of straightforward transactions that no person needs to see or touch, from the 20% of complex or difficult cases that need a clinician or admin's analysis, provides real cost savings for the health system.

More than 70% of healthcare providers still exchange medical information via fax – it remains the de facto standard for exchanging healthcare information

This technology is used for intake and referral processing, prior authorisations, prescription processing and more. Looking ahead, sophisticated vendors are looking at ways our Practical AI solutions can further solve data integration and interoperability challenges within Continuity of Care Documents (CCDs) and leverage the Consolidated Clinical Document Architecture (C-CDA) standard for integrating unstructured data from fax documents into clinical care summaries.

So Cloud Fax can serve as a platform for data exchange not just intra-institution but also inter-institution. Is that correct?

Yes, and that exchange can be between any parties and as bespoke as one wishes because the information has been digitised and thus can be configured and shared broadly. The technology is versatile and adaptable to different healthcare environments. Whether it's large acute facilities, healthcare systems, or smaller ambulatory centres, our advanced systems ensure a secure and

Let's look at a use case/application that you have experience with. We understand that your patient referral application is particularly useful in behavioural health. How does it benefit providers and patients?

This is a clinical application that consolidates inbound referral documents from multiple sources (faxes, email, call centres, and soon direct secure messages) onto one screen, eliminating the confusion and lost time that comes from managing those inbound referrals in disparate systems. It allows intake teams to make faster, more informed decisions. The result is streamlined intake processes, improved collaboration and productivity among intake teams, and faster access to patient care. Key features include actionable analytics and insights, which allow organisations to quickly identify referring facilities with the highest percentage of accepted referrals and better understand the cause of lost referrals.

This solution has saved intake departments some 2-3 hours per day through automated analytics and reporting and boosted bed capacity by up to 60% in certain healthcare



facilities. This is possible because the technology can rapidly identify suitable beds across multiple facilities so that patients can receive timely and appropriate care. This enhanced efficiency can, therefore, have a positive impact on patient outcomes.

How do you and those in your sector plan to leverage AI?

This is a long answer, so stay with me. While there is plenty of buzz around AI and its future impact on the delivery of healthcare, there is also a fair amount of uncertainty, scepticism, and, dare I say, fear when it comes to deploying AI-based technology that replaces human decision-making in the delivery of patient care. On the contrary, we are delivering pragmatic solutions today that support —not replace — the end-users critical decision-making needs and processes by accessing, managing, and integrating data from unstructured documents (e.g., fax documents) into customer administrative, clinical, and operational workflows.

These solutions are proven, quick to deploy and yield tangible and measurable improvements to customer operations. They support humans in making human decisions. An example is our *document classification process*, which automatically detects what type of inbound document is being received and uses that information to determine which queue the document should be routed to for data extraction and/or advanced capture. This provides automated routing capabilities to ensure that inbound faxes can be routed to the right place via the use of AI instead of a hard-coded approach of routing faxes just based on fax number or other fax transactional metadata.

Another example is our *data extraction and advanced capture* capability. This feature leverages Artificial

Intelligence, specifically machine learning, generative AI, and Natural Language Processing, to extract specific and customisable data fields — such as patient demographics, name, date of birth, etc. — from unstructured documents, typically fax pages, to facilitate automated document processing, data integration and standardisation.

In addition, *shared queues* allow organisations to set up multiple separate inbound document queues and configure the system so that only specific employees can view and access each queue. This allows an organisation to create a seamless approach to managing individual and shared workloads. Finally, there is page streaming for inbound fax documents provides immediate access to fax pages as they are being received, on a page-by-page basis. This feature accelerates inbound fax processing capabilities in environments where time-to-decision is extremely important.

Security is always a major concern. How do you ensure that in healthcare data exchange?

This is paramount for both patient protection and IP security. Secure telecommunication protocols are employed to exchange information, ensuring that patient data remains confidential. Providers need to be certain that vendor servers, policies, and procedures are designed to meet stringent healthcare security standards and protocols, which will effectively safeguard patient and institutional information throughout the process.

Conflict of Interest

None.