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Cloud Migration Strategies for EDI Transactions in Healthcare Payor Ecosystems

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Abstract

For the most authentic, powerful, and reliable system that is being used for data exchange and the whole healthcare industry relies on the Electronic Data Exchange Interchange (EDI). Considering the data security, scalability, and low cost of data security, cloud migration is a brilliant idea for the healthcare industry. The migration of EDI transactions to the cloud and the steps involved during the migration are explained in this study, while focusing on the importance of planning, execution, and after migration efficiency. While going through the planning step, a detailed testing of current EDI infrastructure and stakeholder interest is very important to make a perfect and comprehensive migration plan. The most important part is selecting a suitable cloud service provider (CSP) with data security experience in the healthcare industry. The next step, which is the execution phase, involves the pre-migration assessment, which consists of data migration, smooth system integration, and checking of all security procedures. The key point is to have training staff and having a detailed documentation this will help in the perfect adoption of the system. To get familiar and get the maximum advantage out of it with the Cloud-based EDI System, this step is essential. The principle to improve the system results include regular performance assessment, security checks, monitoring costs, and collecting feedback. The phase in which the future transactions increment will be handled if at any point the organization blooms, is the Scalabilty planning. The upcoming innovations like the Artificial Intelligence (AI), Machine Learning (ML), and Internet of Things (IoT) devices, and any improved process to exchange the data will give a better view of the cloud-based EDI systems.

Index Terms— Cloud Migration, EDI, Healthcare Payor.

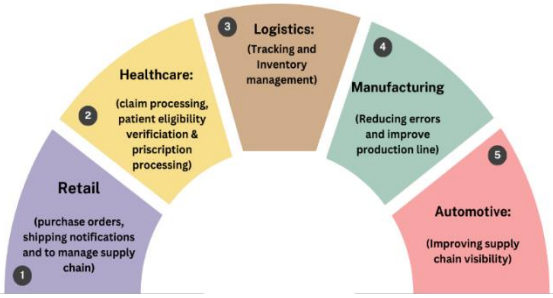
Introduction

A system that can exchange the Electronic Data Interchange (EDI) transactions effortlessly and efficiently, in this digital world is very important in the healthcare industry. The communication gap between the payors, providers, and the stakeholders in the healthcare industry, is filled with EDI transactions, as it provides on time transfer of data like the dues and patient records. As the healthcare industry is evolving the need for a cloud-based EDI transaction is very important, to improve the scalability, security, and cost-efficiency. The strategies that are involved in the migration have technological innovations and also, they are strict in the terms of rules and maintenance of security and changing of data [1].

The Significance of EDI in Healthcare Payor Ecosystems

One of the best systems in the healthcare administration is the EDI, that is made to exchange the information between different systems. The process that are involved in the EDI transactions include the claim processing, verification, and the billing. These helps the administrators to overcome the human mistakes and to fast forward the forwarding of tasks. But the basic EDI systems have a limit in scalability, flexibility, and quick to get use to an update in any form. Adopting a cloud-based system can being an excellent chance for the healthcare payors. The cloud provide several benefits including the customizing, scaling according to the EDI transactions, and to maintain the standard of Health Insurance Portability and Accountability Act (HIPAA). At the end it can also improves the capabilities for the damage recovery, by making sure that the EDI system is working perfectly fine even in the case of a natural or any disaster [2].

Fig.1. Uses of Cloud EDI



Drivers for Cloud Migration in Healthcare Payor Ecosystems

There are many factors that are making the healthcare payors to shift to a cloud migration as they thought of current EDI transactions. The major reason is the issue of scalability. The struggle to keep on site systems are one of the reasons as the number of healthcare information is increasing. And the ability of cloud platforms in the context of scalability can ease of a load of work, making sure that the EDI transactions are working completely fine despite of increased volume.

The other problem is the challenges that are related to cost. It is very costly to maintain and run an on-site infrastructure for EDI transactions. One of the features of cloud platform known as pay-as-you-go rate model, gives the right to the healthcare payors to use their funding strategically to generate a good output out of it. Apart from this the other cost reduction feature that cloud does that it lowers the burden of having extra IT tasks, like it handles the maintenance, updates, and security, and give them opportunity to focus on high goals. The most important thing in the healthcare industry is the security and compliance. Cloud servers are perfect option for such issues as they offer high security terms, that can not be maintained on site. The advanced features of the cloud also involve regular checking to make sure that the EDI transactions are not corrupted or don't have any kind of security issue

Current Challenges: Scalability Issues and Data Security Concerns In Cloud Migration For Edi Transactions

In the world of innovation in the field of healthcare technology, selecting a Cloud based migration for the Electronic Data Interchange (EDI) transactions have both pros and cons, that can be a game changer or can be challenge. The two most challenging features are the scalability and security of information and both of these features can affect the efficiency, reliability, and integrity of the system.

Scalability Issues

The most complex is the scalability in the migration of EDI transactions to a cloud-based EDI transaction. As there is a huge amount of information that is being shared among the healthcare payors, providers, and other stakeholders, and this is causing the flood of data. The management of such huge data is not an easy job on on-site infrastructure as it can bring errors and will not be enough efficient. The most problematic part in a healthcare sector is the delay in the exchange of information like the verifications, patient's attendance or any kind of billing, it brings delay in any form. This will be the issue that will be faced if on time scalability doesn't take place while processing the EDI transactions. These problems can lead to administrative burden and lack of patient care. The benefits of using cloud platforms are that they improve these problems that are related to scalability and will allow us to adjust in any situation. But to achieve this level of scalability is not easy, as it need some time and effort to show the compatibility and perfect results. Apart from this it is not always the case, as some of the cloud server providers don't offer the best or the required level of scalability that the system or situation requires. So, these factors should be kept in mind while selecting a cloud service provider [4].

Data Security Concerns

Due to the sensitive information the security of data is also a very important factor. The points like the personal health information (PHI), data that is related to finances, and any other data that is confidential are included in EDI transactions, that should be protected at any cost. Health Insurance Portability and Accountability Act (HIPAA) and the General Data Protection Regulation (GDPR) are the points that should be kept in mind while migrating. One point of concern is the data breaches. As the cloud service provider uses a lot of investment in the context of security, but at the same time according to the shared responsibility model means that the healthcare payors should take the equal responsibility to uphold the security measures, like making sure the data is encrypted when it is being exchanged or even at rest, high access protocols and daily testing and checking to uncover any suspicious activity.

The next problem is the loss of data and its prevention. While migrating a huge amount of data on the cloud from the system that are present on the site, can cause data corruption or loss, if not supervised correctly. Healthcare payors should have a backup plan or have a recovery plan to cover such situations [5].

Strategic Approaches to Cloud Migration

In order to migrate EDI transactions successfully to the cloud, a proper strategic plan so that these challenges can get covered and after that the benefits of cloud can be of any use. If follow proper step by step guide to migration can cover these factors. The very first step is the testing phase in which the healthcare payors test their current EDI systems, check their efficiency and accuracy rates and develop an migration plan.

The next step involves the selection of perfect cloud service provider and the cloud platform. The important points that should be kept in mind are the provider security information, their standards and the scalability and the ability to get going with the current system. The next step is the migration of data, that the payors need to confirm that are data is transferred with

accuracy to the cloud, with no to less disruption. The last includes the management and optimization of the EDI transactions after the get migrated. This step involves daily checking of cloud environment, security related tests and efficiency testing to check the system is working completely fine

Cloud Migration Benefits: Cost-efficiency, Scalability, Enhanced Data Security

The migration of EDI transactions in the field of healthcare industry offers several benefits that cannot be achieved if they are done using the systems that are present on the site. The premium advantages of such migration include the low cost, scalability, and the high data security features. By achieving such factors, the system will become efficient, secure, and reliable for the healthcare functions.

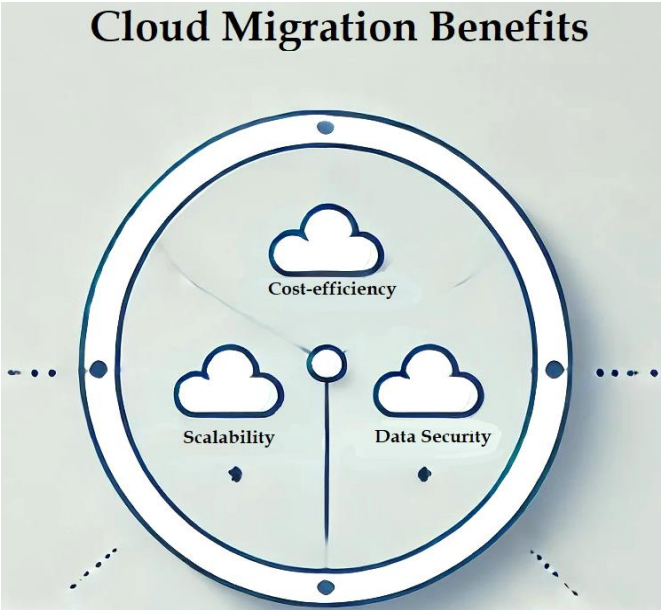


Fig.2. Cloud Migration Benefits

Cost-efficiency

The main reason behind the migration of standard EDI transactions to the cloud-based EDI transactions is the importance of less expense. The on-site system need a lot of expense as they have to cover the expense of hardware, software, and the maintenance charges of the infrastructure. Along with such expenses there are the expense of to keep up with the daily technology innovation and charges. However, the cloud platforms work with the pay-as-you-go prices model, which gives payors an easy way to strategically plan their funds. This also terminates the need of a large fund at a time to land their hands on the current IT technology [7].

Scalability

The other problem is the scalability that the payors have to deal with. As they often get huge number of information due to any change in the policy or any daily requirement. The systems that are present at the site can not handle such amount of huge data at once, which can lead to delay in tasks and efficiency. The cloud platforms allow the payors to increase or decrease the scalability according to their needs and adjust their resources according to their needs. This feature allows them to maintain a consistent efficiency of the system regardless of the size of the data [7].

Data Security

The security of data is the most important component for the payors, as the information that is involved is highly confidential. While switching to the cloud platform regarding this issue can be very beneficial, it will boost the system as compared to the system that are present on site. The reason behind such efficient point is that the cloud service provider spends a lot of money on the security concerns that can protect any kind of cyber attack or data breaches. The features that are included in the security measures include the encryption methodologies, duel authentication and regular checking. By utilizing such features, the payors can lower the risks that are associated with data security [7]

Implementation Steps: Planning, Execution, and Post-Migration Optimization

It is not an easy process to migrate the Migrating Electronic Data Interchange (EDI) transactions to cloud as it need a lot of attention, planning, mindful processing, and daily checks to make it a success. Below is the detailed process of migrating a Migrating Electronic Data Interchange (EDI) transaction to cloud [8].

Planning

The most important phase that makes this task of migrating to cloud based migrating EDI transactions successful is the planning. This phase has different that are needed to complete in order to get the best results, the very first step is to test the system deeply and list down the points to achieve after migrating. It is important to go the current EDI system to check its information storage and other factors and set some points that should be achieved after migration like to reduce the cost, improve the performance, or to get better security. The next step is the involvement of stakeholders, to show them the clear view of the current system and the future goals that will be achieved. Also discussing any political factors or any concerns that they might have. Than selecting the perfect cloud service provider (CSP), as all the factors that are being considered a plus point for the migration can take a complete opposite turn. The last is to form a thorough migration plan that is very important, by marking and writing the details of every single step, strategies, communications, risks, achievements, and resources [8].

Execution

The next phase is the execution phase in which the actual process of migration of EDI transactions to the cloud platform is done and this phase can be broken down into many different steps. The first step is the migration assessment, which is very important step in order to test the data migration, the integration of the system, and the efficiency of the upcoming processes. While migrating the data from the onsite EDI system to the cloud base EDI system should be done in complete supervision, so that the data loss and corruption can be prevented. The data can be prevented by using any automatic tool or codes, to maintain the efficiency and the accuracy of the data. The integration of the system is also very important step, as it shows the connection between the system and the cloud. An order to get the best security features, the payors should consider the best security measures that can be used to prevent the data loss during the migration. The training and the documentation of the process is also important for the training of staff on the new cloud-based EDI system [8].

Post-Migration Optimization

The very last phase consist of the regular checking of the system for the best results and utilize all the benefits that were noted in the first phase by migrating from one site EDI system to cloud based EDI system. The performance checking is the next step of this phase, it is very important to check on regular basises in order to calculate the success of the system. The performance checking can be done by using any tools that shows real time statistics and performance. The next step is the feedback gathering, feedback is very important in order to refine the system and check the efficiency. The next step is the planning for future scalability, it is also very important for the future prospect in case of any high volume of data. As the data in the field of healthcare industry is growing day by day [9].

Conclusion

The migration from the Electronic Data Interchange (EDI) transaction to the cloud based shows a innovation in the healthcare payors ecosystem, while making sure to achieve the required efficiency, scalability, and security. Anthem, Blue Shield of California, Humana, and Aetna shares a successful study of migration of on site EDI system to cloud based EDI system can help organizations to cover complex issues, that can result in better tasking and low expenses. This concludes that it is beneficial to migrate to the cloud, inorder to follow the future trends.

Considerations for Adopting Cloud-Based EDI

The advantages that are associated with the migration to the cloud system are clear. The healthcare payors should consider the different factors in order to achieve the efficient transition. The planning and testing are very important to deliver a thorough evolution of the current EDI system and processes to form a detailed migration process that indicates all the factors, goals, and phases to develop a timeline. The decision of selecting the perfect cloud service provider is also one of the most important steps. For this the need of a cloud-based EDI system should be clear and the goal should be kept in mind. After the migration process, make sure to have regular assessments to check the achievements and any issues in the system. The training of staff is the only thing left. The training can be efficient and effective only if the process is documented properly and thoroughly. It will help the staff to go through each step in depth and understand the concept.

Future Trends

Migrating to the cloud is the best option, as the healthcare industry is growing and stepping into the IT world. Working with the Artificial Intelligence (AI) and Machine Learning (ML) technologies is a great option inorder to opt for the most efficient system, as they play a very important role in automating the EDI system. The future is full of Innovations and the more the time is passing the more technologies will be exposed. In order to keep up with the digital world the healthcare industry needs to get involved in this, for developing more efficient versions amf systems for the betterment of public health.

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