

Transitioning from on-premises to cloud-based systems requires careful planning, but the benefits and access to innovation are worth it.

Shifting Horizons in Digital Transformation: Navigating the Transition to Cloud-Based EHRs and Health IT

January 2024

Written by: Mutaz Shegawi, Research Director, Provider IT Transformation Strategies

Introduction

Large healthcare provider organizations and integrated delivery networks (IDNs) face labor shortages, changing consumer preferences, financial constraints, and aging IT systems, driving them toward transitioning to cloud-based health IT. IDC predicts that the healthcare industry will experience a significant shift to the cloud, with 70% of healthcare organizations adopting industry clouds by 2025. Industry clouds differ from traditional clouds because of their vertical integration, modularity, collaboration options, and ability to generate network effects. Industry clouds are most popular in healthcare; 59% of providers and 66% of payers use them today — more than any other industry.

Moving from on-premises systems to cloud-based solutions present significant economic benefits, particularly where large health IT initiatives such as electronic health records (EHRs) and enterprise medical imaging are concerned. It reduces the financial burden of maintaining and upgrading physical IT infrastructure, enables more scalable and flexible resource usage, and improves data interoperability. This transition also aligns with the increasing demand for telehealth and virtual care capabilities, providing a more cost-effective and efficient way to manage healthcare data. By adopting cloud-based solutions, healthcare providers can reduce technical debt, respond quickly to market changes, and improve patient care through better data accessibility and integration.

AT A GLANCE

KEY STATS

- » 70% of healthcare organizations will adopt industry clouds by 2025.
- » 59% of healthcare providers use industry clouds today.

KEY TAKEAWAYS

- » Healthcare is moving to cloud-based solutions due to labor shortages, changing preferences, finances, and aging systems.
- » Digital-forward strategies, access to innovation, and increased agility are outcomes driving the transition.
- » Moving to the cloud, especially in the case of EHRs, requires careful planning and should consider factors like TCO, ROI, and regulatory compliance.

Trends

There are several key trends to consider when making the move to cloud solutions. These include the following:

- » **AI everywhere:** The adoption of AI within cloud-based EHRs stands as a catalyst for progress. Leveraging generative AI can autonomously drive accurate and meaningful clinical documentation, enhancing patient care experiences and streamlining healthcare IT operations. However, this integration presents challenges, including potential biases and privacy concerns. To capitalize on AI's benefits in cloud-based EHRs, C-suite executives must implement strict regulatory measures to ensure ethical use and data security, thereby facilitating improved personalization in patient care and fostering innovation.
- » **The drive to automate:** The shift toward automation is crucial in healthcare, particularly integrating it with cloud-based solutions. Automating data management and analysis in the cloud can significantly enhance operational efficiency and drive innovation in care delivery. This move is especially pertinent in addressing workforce shortages and privacy concerns. Automation in cloud-based environments allows healthcare organizations to efficiently navigate the evolving challenges of healthcare, offering new growth opportunities and enhanced patient care.
- » **Cybersecurity and risk:** The transition to cloud-based solutions amplifies cybersecurity risks due to increased interconnectivity. Protecting sensitive healthcare data against sophisticated cyberattacks, such as ransomware and AI-generated phishing, becomes paramount. Implementing robust cybersecurity measures in cloud-based EHRs is essential. The challenge is intensified by the shortage of skilled cybersecurity professionals, necessitating that healthcare organizations develop stringent policies and invest in advanced security technologies to ensure data privacy and protection in the cloud.
- » **The digital business imperative:** For large healthcare providers and IDNs, integrating digital technologies into patient care is essential for competitiveness. The transition to cloud-based EHRs is critical to digital-forward strategies, streamlining clinical and operational processes. This shift not only aims to enhance patient engagement and experiences but also improves the efficiency and effectiveness of healthcare delivery, focusing on patient outcomes and operational resilience.
- » **Dynamic work and skills requirements:** The COVID-19 pandemic has underscored the need for flexibility in healthcare models, necessitating investments in cloud infrastructure and technologies like AI for virtual and home care. This means aligning employee skills with strategic goals to efficiently manage complex, automated patient data management and service delivery processes. The transition to cloud-based systems requires a workforce adept at navigating these advanced technologies, emphasizing the need for continuous training and skill development.
- » **The shifting tech regulatory landscape:** The rapidly evolving technology regulatory landscape, influenced by advancements in AI and cybersecurity concerns, has significant implications for cloud-based EHRs. Healthcare organizations must navigate these regulations, ensuring compliance while fostering innovation and investment in cloud technologies. Compliance with these evolving regulations is crucial for safeguarding patient data and promoting ethical use, benefiting both patients and healthcare providers. Understanding and adapting to these regulatory changes is key to leveraging the opportunities presented by cloud-based solutions.

Benefits

There are several benefits to be reaped in shifting to EHR and health IT cloud-based solutions:

- » **Cost efficiency:** Cloud-based solutions shift the financial burden from capital expenditure (capex) to operational expenditure (opex), reducing the need for large up-front investments in hardware and infrastructure. Subscription-based models provide more predictable ongoing costs, aiding in accurate budgeting and financial planning. In addition, the responsibility for system maintenance and upgrades shifts to the cloud service provider, reducing the internal costs and resource allocation for these tasks while keeping technology current.
- » **Scalability and flexibility:** Cloud solutions offer easy scalability, allowing organizations to scale up or down based on demand. This flexibility in resource allocation is particularly beneficial for large IDNs that experience fluctuating needs. Resources can be reallocated quickly and efficiently in response to changing operational demands, improving overall responsiveness.
- » **Data security and compliance:** Cloud providers typically offer advanced security measures that may be more robust than an individual IDN can implement. In addition, cloud providers ensure their systems comply with relevant healthcare regulations, such as HIPAA, reducing the compliance burden on the IDN.
- » **Access and collaboration:** Cloud-based EHRs provide remote accessibility from anywhere, enabling telehealth services and remote work. In addition, the enhanced data-sharing capabilities of cloud-based EHRs improve collaboration across different facilities within the IDN, ensuring seamless and efficient communication among healthcare providers.
- » **Access to innovation:** Cloud-based solutions in healthcare enable rapid deployment of advanced features, crucial for areas like predictive analytics and ensuring EHRs can evolve and introduce next-generational capabilities over time. Regular updates by cloud providers ensure access to the latest tools, offering scalable, flexible platforms to accommodate fluctuating demands and large data sets. These solutions also promote interoperability, facilitating seamless data sharing across healthcare systems, thus improving care coordination and patient outcomes.
- » **Disaster recovery and data backup:** Cloud services typically include robust data backup and recovery processes, ensuring data integrity and continuity in case of local failures or disasters.
- » **Focused growth:** With a reduced need to manage IT infrastructure, IDNs can focus more resources on patient care and organizational growth. Cloud solutions provide a platform for seamlessly integrating new technologies and innovations, keeping pace with industry advancements. Therefore, IDNs can shift their focus to core competencies and embrace innovation and adaptation to enhance patient care.
- » **Data consolidation and optimization:** Cloud-based EHR and health IT solutions offer centralized data management, which is crucial for large IDNs and healthcare provider organizations. This centralization improves data accessibility and integrity across multiple locations, enabling advanced analytics for informed decision-making and enhanced patient care strategies. In addition, cloud computing reduces costs and IT overhead, allowing organizations to pay only for resources used, aiding in cost efficiencies.

Strategic Planning for Cloud Transition

Assessing the current IT infrastructure is crucial for large healthcare provider organizations and IDNs transitioning to cloud-based solutions. This evaluation primarily focuses on existing EHRs and other associated health IT platforms, systems, applications, and resources. It is essential to ensure that these systems and resources are compatible with cloud-based solutions and can be seamlessly integrated to achieve optimal results. The assessment has significant economic implications. Many IDNs have deployed on-premises EHR systems, which involve a lot of capital expenditure and sunken costs, including in the EHR itself, as well as hardware costs, maintenance, and a dedicated IT workforce. However, the shift to cloud-based EHRs brings about a move toward operational expenditure models. This transition allows IDNs to utilize scalable, flexible, and often more secure IT infrastructure, potentially reducing overall costs and improving financial predictability.

To determine the best solution for their organization, executives should consider comparing the long-term costs of on-premises infrastructure with the subscription-based cloud services model. Factors to evaluate include the total cost of ownership (TCO), return on investment (ROI), cost per user or application, and up-front costs versus ongoing costs. Other costs to consider include those for maintenance and upgrades, power and cooling, scalability and flexibility, security and compliance, downtime, and the labor and expertise required to manage the infrastructure. Cloud solutions for healthcare data must meet strict regulatory compliance, privacy, and security standards due to the sensitive nature of the information involved. Therefore, cloud solutions catering to the healthcare industry must adhere to stringent regulatory standards, such as HIPAA in the United States, to maintain the confidentiality and integrity of patient data. Developing a comprehensive road map for transitioning to a cloud-based solution is a strategic imperative that should involve a clear, step-by-step strategy that aligns with the organization's specific healthcare IT needs and economic objectives.

For executives, planning for and delivering the economic advantages of cloud adoption, such as operational efficiency, scalability, and innovation potential, is vital. These advantages often translate into improved patient care outcomes and operational agility, vital for large healthcare provider organizations.

Key considerations include:

- » **Phased implementation:** Breaking the transition into manageable phases reduces operational disruption, particularly important for large IDNs where abrupt system changes can impact patient care and revenue cycles.
- » **Cost-benefit analysis:** Transitioning to cloud solutions can have significant financial benefits, including increased ROI and improved patient revenue streams. A detailed analysis is necessary to understand these benefits fully.
- » **Stakeholder engagement:** Involving clinical IT leadership (e.g., CMIOs and CNIOs) in the planning process ensures clinical workflows are enhanced, not hindered, by the transition.

Shifting from on-premises to cloud-based EHRs requires thoroughly analyzing existing IT infrastructures and a well-planned road map. This transition not only aligns with the latest technological advancements in healthcare but also contributes to the economic and operational efficiencies crucial for these large-scale healthcare providers.

Challenges in Migrating EHRs to Cloud

Moving from on-premises to cloud-based solutions in large IDNs, especially in relation to EHRs, involves a careful balance of economics. The long-term benefits of scalability, operational efficiency, and enhanced data management must be weighed against the initial costs and complexities of data security, systems integration, and migration. C-suite executives

overseeing IT, finance, and clinical informatics must adopt a strategic and holistic approach to navigate these transitions. This approach should align the technological capabilities with organizational goals and regulatory requirements:

- » **Data security and compliance:** Moving to cloud solutions raises significant concerns, particularly for healthcare providers. Given stringent regulations, cloud providers must offer robust security measures, such as advanced encryption and intrusion detection systems. It is also critical to ensure compliance with regulations and address data sovereignty issues, as noncompliance can lead to significant legal and financial consequences. While cloud solutions can reduce up-front costs related to data security infrastructure, ongoing investments in compliance management and data protection measures remain necessary for economic reasons.
- » **Integration with existing systems:** Ensuring seamless operation during and after the transition to cloud-based EHRs poses a significant challenge. The new cloud systems must be interoperable with existing healthcare applications and databases to ensure continuity and efficiency of care. This can be particularly challenging in large IDNs operating on complex, heterogeneous IT environments, often including legacy systems that may not easily integrate with cloud solutions. The costs associated with achieving this integration, including potential upgrades or custom solutions, must be carefully balanced against the possible long-term savings and operational efficiencies cloud solutions offer.
- » **Downtime and data migration issues:** Transitioning to a cloud environment requires meticulous planning, as it involves critical aspects that can significantly impact patient care and revenue streams if not executed properly. There are risks of operational disruptions that can cause downtime, which can be minimized through a comprehensive migration plan with contingency strategies. This plan requires close collaboration between IT, clinical stakeholders, the organization's core EHR and application providers, and the cloud provider. Efficient data migration is essential to ensure data integrity and security while transferring sensitive patient data. This process involves additional costs related to data cleansing, migration tools, and the potential need for parallel systems during the transition. In addition, ensuring that staff are adequately trained and supported during the transition is vital to minimize operational disruptions.

Best Practices

Large healthcare provider organizations and IDNs must follow industry best practices to transition from on-premises to cloud-based solutions. This is particularly essential for C-suite executives who oversee IT, finance, and clinical informatics. While navigating the complexities of healthcare IT, it is important to remember that the cloud is not merely a destination but a continuous journey of adaptation and improvement. With the right cloud strategy, strong leadership, and a focus on best practices, healthcare providers can transform their operations, improving patient care and operational excellence. Organizations should look to the following best practices for a successful transition:

- » **Perform market research:** Thoroughly research and compare various cloud service providers, focusing on those with expertise in healthcare-specific solutions.
- » **Define clear SLAs:** Negotiate specific service-level agreements detailing uptime, support, and security measures with the chosen provider.
- » **Create customized training programs:** Develop training initiatives tailored to different user groups to facilitate effective use of new cloud-based systems.

- » **Set up continuous support and feedback mechanisms:** Establish ongoing support and encourage staff feedback for system improvement and adaptation.
- » **Adopt blended learning strategies:** Use diverse learning methods to help staff adapt to the new cloud-based technology.
- » **Implement regular system performance reviews:** Utilize key performance indicators for consistently monitoring and evaluating cloud systems.
- » **Conduct frequent security audits:** Regularly assess system security to safeguard against evolving cyberthreats.
- » **Plan for imaging solutions' unique needs:** Recognize specific requirements for cloud-based imaging solutions, such as storage and access speed.
- » **Ensure scalability of solutions:** Select cloud services that can accommodate the organization's growth and evolving needs.
- » **Achieve seamless system integration:** Ensure new cloud solutions integrate effectively with existing EHRs and IT infrastructure.

Considering Kyndryl and Microsoft

Kyndryl is an IT infrastructure services provider specializing in designing, running, and managing modern, efficient, and reliable technology infrastructures. The company has become a significant player in supporting mission-critical technology environments across the globe. Microsoft is a world-renowned technology and innovation leader that has played a pivotal role in transforming various industries with its cutting-edge technological solutions. With decades of experience, Microsoft has become a trusted partner for businesses and organizations all around the globe, including the healthcare sector. The two companies have formed a partnership to support cloud-based healthcare technology initiatives.

Kyndryl's expertise in specialized and tailored services for the healthcare sector, such as hybrid cloud solutions, network services, and essential applications, will complement Microsoft for Healthcare. Working closely with hospital operators, revenue cycle management firms, and supply chain advisors, Kyndryl aims to enhance patient experiences, reduce costs, and improve workflows. Meanwhile, Microsoft's advanced technological solutions aim to streamline healthcare operations, elevate patient care, and enable healthcare providers to make better, data-informed decisions. Together, Kyndryl and Microsoft can integrate cloud-based approaches with value-added technology and services to help healthcare organizations improve efficiency and outcomes.

The partnership between Kyndryl and Microsoft brings together several synergistic strengths:

- » **Cloud computing:** Kyndryl's cloud services for healthcare organizations and Microsoft Azure cloud solutions can support effective patient data management, infrastructure modernization, and core application support while offering secure and personalized experiences for patients. Together, these offerings can enable healthcare organizations to manage large data volumes securely, supporting hybrid care models through the cloud.

- » **Data and AI solutions:** By combining their expertise, Kyndryl and Microsoft can help enhance predictive analytics and personalized medicine approaches. Kyndryl's AI technology extracts valuable insights from healthcare data, including EHRs and imaging systems, while Microsoft's tools process and interpret this data. Together, these can unlock the potential of healthcare data to drive better patient outcomes.
- » **Digital work model:** Kyndryl's digital workplace and security solutions work in concert with Microsoft Teams for Healthcare to create a seamless and secure communication platform for healthcare professionals. With a focus on strong cybersecurity measures, these solutions work in tandem to protect sensitive healthcare data from cyberthreats.

Kyndryl's effectiveness is highlighted in its work with healthcare clients facing critical challenges. For a large IDN, Kyndryl said it improved availability to "six-nines" for mission-critical applications with significant automation and discipline including change control. For another large IDN, Kyndryl is working with Microsoft with a commitment to quality as the imperative. Leading with improving clinical experience, Kyndryl and Microsoft are migrating applications to Azure, which will also improve their IT architecture and resiliency.

The partnership between Kyndryl and Microsoft is set to drive innovation and the development of joint solutions that leverage the strengths of both companies. By integrating Microsoft's Azure cloud-enabled products with Kyndryl's expertise in application migration and modernization, this partnership can help provide healthcare providers with more versatile and robust cloud solutions and EHRs, enhancing operational efficiency and the delivery of healthcare services.

Challenges

The healthcare industry is a complex and highly competitive market, with a variety of players offering IT infrastructure services. Technology constantly evolves, particularly when it comes to the cloud and AI, which require continuous adaptation. For Kyndryl and Microsoft, staying ahead of the game in the industry can present challenges, especially in large provider organizations and IDNs. Integrating advanced technologies such as Azure cloud services and AI platforms with the legacy systems still prevalent in many large provider organizations and IDNs marks a complex landscape that both Kyndryl and Microsoft must navigate through their partnership. Seamless integration is essential to ensure reliability, efficiency, and scale. Also, Kyndryl, having spun off over two years ago from a large technology company, is still establishing its identity in the health IT market to a degree, while Microsoft must continue to showcase the advantages of its healthcare solutions and position them distinctively against established competitors, ranging from other vertical health IT players to other tech giants. Finally, healthcare is highly regulated, requiring constant adaptation to compliance standards. Keeping pace with these evolving regulations presents a persistent challenge to technology suppliers and buyers alike.

Conclusion

The healthcare industry is increasingly adopting cloud-based IT solutions to tackle challenges like labor shortages, outdated IT systems, and financial constraints. IDC predicts that by 2025, 70% of healthcare organizations will have industry clouds that offer better scalability, flexibility, and data interoperability, which is critical for improving patient care and operational efficiency. However, transitioning from on-premises to cloud-based solutions requires careful planning, particularly assessing current IT infrastructure and ensuring compatibility with the cloud. Therefore, the move to cloud-based solutions in healthcare demands meticulous attention to factors like cost, return on investment, and regulatory compliance, given that there is no room for error. Kyndryl's partnership with Microsoft to provide cloud-based solutions in healthcare highlights the potential for both innovative and efficient cloud-based solutions, especially for EHRs and related health IT areas. This collaboration shows promise by offering integrated services and technological capabilities that position the two companies to take advantage of the growing demand for cloud-based health IT solutions, indicating a significant opportunity for success in this evolving market.

The move to cloud-based solutions in healthcare demands meticulous attention to factors like cost, return on investment, and regulatory compliance, given that there is no room for error.

About the Analyst



Mutaz Shegawi, Research Director, Provider IT Transformation Strategies

Mutaz Shegawi leads the Worldwide Healthcare Provider Digital Strategies research practice at IDC Health Insights covering topics of most relevance to healthcare provider organizations looking to digitally transform and become more digitally native than their competition. Mutaz advises the executive, clinical, and technical leadership of the world's foremost health information technology supplier and buyer organizations by producing data-driven research and thought-leadership insights that help to navigate strategic challenges in health information technology and transform complexity to clarity in decision-making that would decrease costs, enhance quality, optimize access, improve patient safety, and champion patient experience.

MESSAGE FROM THE SPONSOR

Meeting you where you are on your healthcare IT modernization journey

Kyndryl offers a unique vantage point working with some of the largest organizations in a complex healthcare ecosystem, and we recognize that proper planning and details are paramount to success. Kyndryl and Microsoft partner to deliver state-of-the-art solutions in a practical way to help our healthcare customers accelerate hybrid cloud adoption, modernize the delivery of EHR and ancillary applications and processes, support mission-critical workloads, and enable seamless and intuitive experiences for caregivers and patients: <https://www.kyndryl.com/us/en/contact-us>.



The content in this paper was adapted from existing IDC research published on www.idc.com.

IDC Research, Inc.
140 Kendrick Street
Building B
Needham, MA 02494, USA
T 508.872.8200
F 508.935.4015
Twitter @IDC
idc-insights-community.com
www.idc.com

This publication was produced by IDC Custom Solutions. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC, unless specific vendor sponsorship is noted. IDC Custom Solutions makes IDC content available in a wide range of formats for distribution by various companies. A license to distribute IDC content does not imply endorsement of or opinion about the licensee.

External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2024 IDC. Reproduction without written permission is completely forbidden.