White Paper

Breaking the Silos:

Implementing Agile Systems for Integrated Healthcare

Five fundamentals to maximize time, resources and resiliency using integration platform as a service (iPaaS) as the foundation for a highly connected and responsive healthcare model.

Dapasoft
A Calian Company

Calian Care Index 2021

In April 2021, a national online survey was conducted among a representative sample of 1,520 Canadians who are members of the Angus Reid Forum. The sample was balanced and weighted on age, gender, region and education.

87%

value communication among their entire circle of care

88%

want more meaningful interactions with healthcare providers

51%

use virtual care and 49% want to continue post-pandemic

53%

take medication for more than one condition

43%

find the healthcare system difficult to navigate

Introduction

Health hubs are part of a growing trend in Canada to provide services that are patient-centred, regionally focused and offer a greater continuum of care. While these multiservice models were in the works before COVID-19, the crisis has been a catalyst for new thinking about how Canadians can access healthcare, accelerating the adoption of virtual care as a delivery choice and raising expectations for increased convenience and on-demand, personalized services.

In the 2021 Calian Care Index survey conducted by Angus Reid, two-thirds of Canadians felt that virtual care was an important part of a resilient and sustainable healthcare system and almost half intended to continue accessing it in the future. Virtual care is just one aspect of the shift towards accessible models that consider the whole patient in a connected circle of care.

Innovation and personalization

While the pandemic created new opportunities for innovation, it also revealed the many gaps in a healthcare system that is fundamentally provider-driven. Making the transformation from disconnected services to fully integrated, personalized care focused on the patient requires a fresh approach to foster collaboration, adapt to changing requirements and leverage existing investments and processes.

In this paper, we look at five fundamentals for implementing an intelligent integration platform as a service (iPaaS) foundation to enable multiservice healthcare models with the patient—and community—at the centre.

#1: Leverage Existing Infrastructure

Healthcare organizations moving towards multiservice, collaborative care models often face significant challenges from a lack of integration between electronic health records (EHRs) and scheduling systems, as well as barriers to data and application interoperability. Consider that the average healthcare portfolio includes hundreds of applications. Ripping and replacing those components costs too much in time, effort, licensing fees—and clinician productivity. Hospital IT innovators are looking for high levels of data integration and interoperability as critical considerations for the adoption of any new technology.

Sustainable and affordable

Building a sustainable healthcare system requires a platform that can integrate existing applications, ingest and use data from a variety of sources, and build on established processes. A smart iPaaS foundation can ensure cost-containment and sustainability:

- Data integration and interoperability: integrate with multiple data and information exchange (HL7, C-CDA) and interoperability standards (IHE, FHIR).
- Application programming interfaces (APIs): make new services accessible to other software, whether those services run in the cloud or on-premise for maximum flexibility. On-premise may need to stay that way or should be easily migrated to the cloud to support the system roadmap.
- Service-oriented architecture: create and run integration logic based on multiple applications, accessed via APIs, respond to events such as patient and resource context, operational intelligence and longitudinal activity, and incorporate graphical tools for defining workflow logic to enable rapid implementation.
- Messaging: enable applications and integration technologies to communicate in a loosely coupled way. Queues hold messages until they can be picked up by the receiver. This lets applications and integration software communicate asynchronously, even across diverse technology platforms.

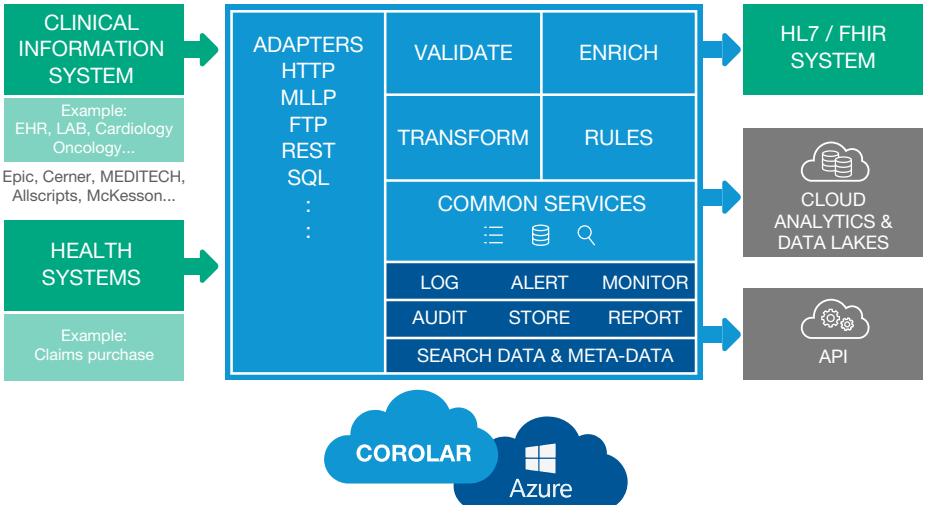

Figure 1: Smart iPaaS foundations make it easier to integrate systems and processes into a single, unified environment.

#2: Spin up New Services on Demand

A critical component of personalized care is the ability to monitor and respond to evolving needs from the community. Tracking service usage, gathering patient and clinician feedback, and utilizing analytics data are examples of inputs that can drive a responsive, agile system.

For example, consider a diabetes clinic that offers consultation, education and follow-up services for patients living with Type 1 and Type 2 diabetes. Clients filled in a survey about their experiences and indicated a high interest in anxiety management programs. Clinicians who are signed up to deliver the service require role-based access to scheduled appointments and the ability to review notes from other practitioners in the patient's circle of care.

Responsive and real time

An agile iPaaS system makes it possible to rapidly spin up new clinics and services with features that are unique and customizable.

To enable real-time service agility, the iPaaS foundation needs to support:

- Customizable workflows: adjust in real time to respond to patient demand and feedback, tailor intake forms, offer online and kiosk-based check-in, schedule virtual and in-person appointments and design care pathways that are unique to each service and user population.
- Realtime configuration: modify service features and implement on the fly without affecting other services, adding complexity to the system or increasing the operational costs.
- Data interoperability: ingest clinical and operational health data for service awareness, use role-based access control.
- Analytics: add on clinician dashboards for daily monitoring and predictive analytics to improve services and patient outcomes.

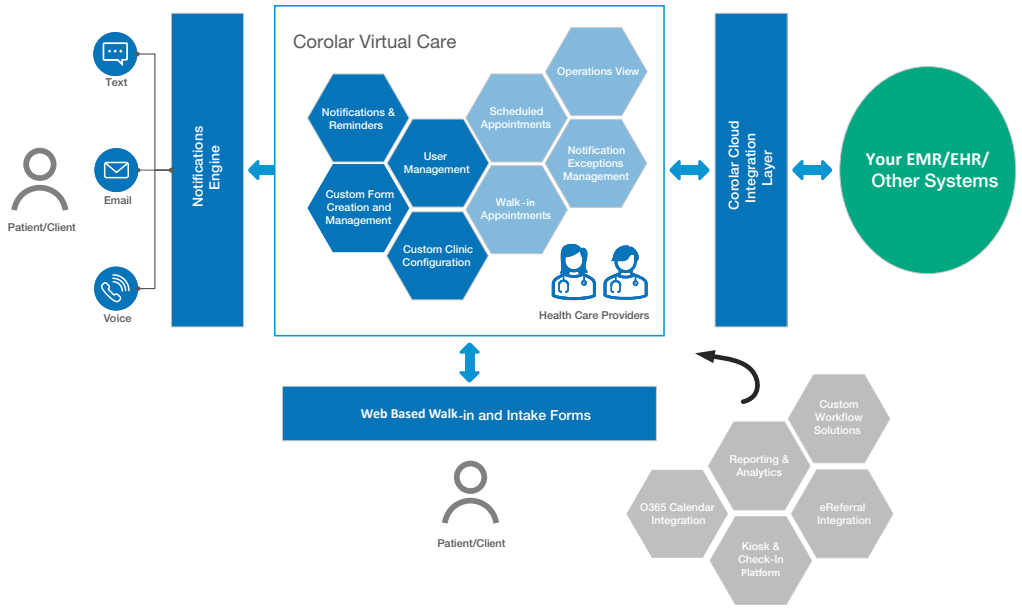

Figure 2: Customizable workflows and modular architecture enable service agility.

#3: Build a Collaborative Ecosystem

Health networks across Canada are rapidly evolving to incorporate partnerships beyond the traditional hospital setting. Multiservice health hubs can bring together medical, family and wellness programs under one shared space with a broad range of allied providers tailoring services from infancy to end of life. The underlying vision is a healthy community at the local level contributing to overall population health management—improving the patient experience and outcomes while maximizing access to specialty care. The model creates a collaborative ecosystem for knowledge and resource sharing that enriches the experience for both patients and clinicians.

Breaking silos

When health data is scattered across multiple silos, all we can see is an isolated "snapshot" of a person's health. Achieving sustainable care collaboration means redesigning both the processes behind the healthcare delivery model and shattering the silos that get in the way of true collaboration.

An intelligent iPaaS foundation can service multiple partners in a single environment. Capabilities include:

- Data and system integration: A service-sharing digital platform breaks silos from disparate systems using common APIs and enables the seamless transfer of data in a secure environment.
- Shared licensing models: Many of the allied services are smaller organizations that benefit from both a shared physical space and common tools that would otherwise be out of reach. A cloud-based, multi-tenant platform lets allied care providers share services at a lower cost.
- Service customization: Modular, easily customized applications and workflows help to quickly expand new service offerings with features that support each program.
- Rapid onboarding: The use of common tools, user-friendly interfaces and a robust training program get practitioners up and running quickly and increase adoption across the ecosystem.

Figure 3: Multiservice health hubs can offer a range of value-added services on a shared platform.

#4: Increase Personalization and Choice

Research has shown that health improves when people are actively engaged in it. A patient-centred ecosystem facilitates collaboration on the clinician side to open the door to more personalized services. For patients, the best experience incorporates the preferences of each individual and increases access to both the desired services and choice in the modality of delivery.

Many Canadian healthcare organizations are working to expand their ability to support face-to-face and virtual services as part of a connected care pathway. Matching the needs of the individual and the community requires the ability to capture, analyze and build responsiveness into the system.

Patient-centred systems

A lack of interoperability and common systems along with limited budgets and resources create significant barriers for organizations trying to move to an integrated healthcare model.

To drive patient-centred services, the platform needs to enable:

- Connected care pathways: manage the full range of the care experience in a single environment for both patients and clinicians. Virtual and in-person options, mobile and kiosk intake forms, coordinated scheduling, virtual queuing and mobile appointment reminders.
- Multi-provider access: book virtual or in-person appointments with multiple practitioners in one session for the convenience of the patient; enable coordinated care using data dashboards and clinic management tools that capture the visit history for each patient.
- Personalized education: provide patient-centred access to information for disease prevention, understanding health risks and learning about outcomes for patients who have followed similar treatments.
- Precision medicine: ingest data from disparate sources, such as provider EHRs, lab systems, and patient generated data to build patient profiles that drive custom treatment plans.

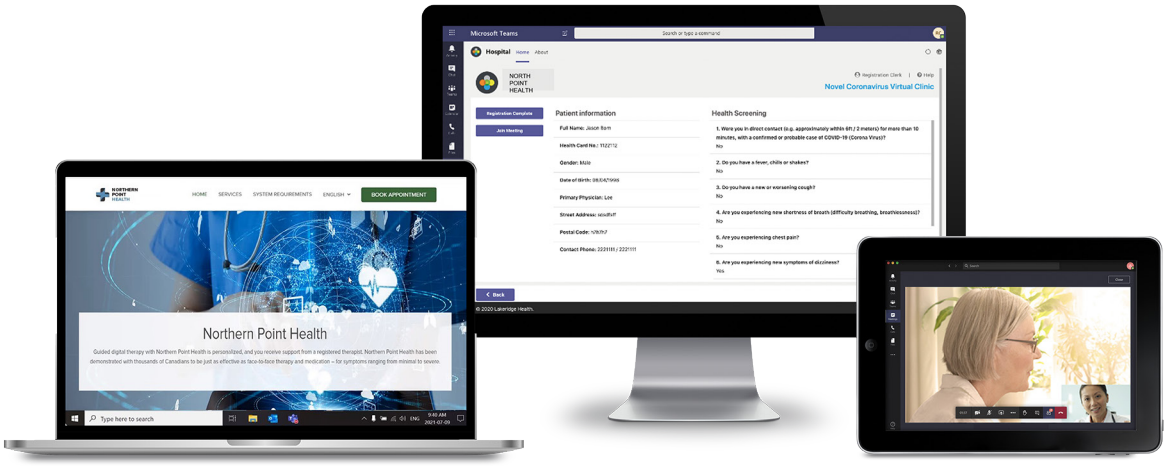

Figure 4: Patient-centred systems offer convenience, choice and care continuity.

#5: Ensure Secure, Convenient Access

Providing a seamless flow of information and interaction within a healthcare system increases patient engagement, improves access to services and has the potential to dramatically improve health outcomes. Disparate, disconnected applications and outdated systems have a negative effect on productivity and can significantly increase the risk of data breaches from using an ad hoc approach. For example, a hospital that has six different video calling tools in use by clinicians has to support all of them and ensure that the security certification is up to date and compliant with the hospital policies.

Productivity and quality

Moving towards a common platform that enables collaboration and seamless access helps to reduce costs, streamline operations and manage security risks. Capabilities for secure iPaaS systems include:

- Secure data: store and process data in secure data lakes, generate analytics across platforms and languages; standardize on highly secure cloud platforms such as Azure.
- Role-based access: assign clinicians to specific patients, clinics or appointments and assign care teams that can share data and assign new providers in a secure environment.
- Enriched video: leverage user-friendly, secure tools such as Microsoft Teams for video consultations that can increase engagement and accuracy while allowing multiple care providers and family members to participate in appointments.
- Care collaboration: manage clinic attributes, share case histories and forward referral information using secure mobile and online tools; update case records and attach care plans to clinician and patient communications.

Figure 5: Clinicians and patients benefit from using familiar tools in a secure environment.

Summary

Intelligent iPaaS systems can help IT leaders develop a roadmap that aligns with their organization's vision for greater integration and collaboration across the healthcare ecosystem. As siloed services give way to personalized care and a broader array of allied partners under one umbrella, an agile iPaaS infrastructure can provide a flexible, sustainable and cost-effective approach to creating a truly integrated and responsive system.

Unified and adaptive

Interoperability and data integration are the basis for creating dynamic healthcare systems that can easily scale out and spin up for real-time service agility. The evolution of 5G and Internet of Things (IoT) networks will require even greater data integration while artificial intelligence (AI) will help to realize the promise of precision medicine and predictive analytics that can prevent disease and tailor treatments for each individual.

An extensible and adaptive iPaaS foundation is a key capability for designing highly integrated, real-time systems that can support the development of healthy communities today and into the future.

About Dapasoft, a Calian Company

Dapasoft is pioneering the future of healthcare applications and health data interoperability. Headquartered in Toronto, Dapasoft is trusted by North American healthcare providers, payors, and application developers to power their solutions every day, integrating a wide variety of EHR, EMR, clinical and analytics systems.

About Calian

Calian employs more than 4,500 people in its delivery of diverse products and solutions for private sector, government and defence customers in North American and global markets. The company's diverse capabilities are delivered through: Advanced Technologies, Health, Learning, and IT and Cyber Solutions. Advanced Technologies provides innovative products, technologies and manufacturing services and solutions for the space, communications, defence, nuclear, government and agriculture sectors. Health manages a network of more than 2,400 healthcare professionals delivering primary care and occupational health services to public and private sector clients across Canada. Learning is a trusted provider of emergency management, consulting and specialized training services and solutions for the Canadian Armed Forces and clients in the defence, health, energy and other sectors. IT and Cyber Solutions supports public and private sector customer requirements for subject matter expertise in the delivery of complex IT and cyber security solutions. Headquartered in Ottawa, Calian offices and projects span Canada and international markets. For further information, please visit our website at www.calian.com.

Interested in learning more about Corolar iPaaS and collaborative care solutions? Learn more at dapasoft.com

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