

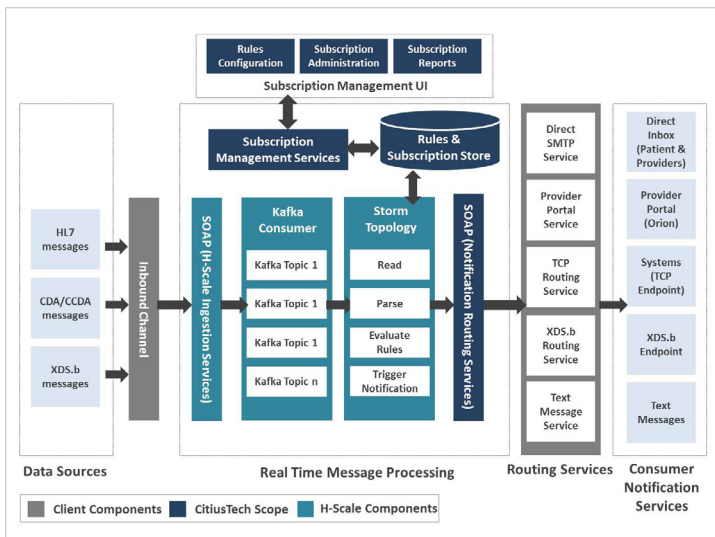
Case Study: Automated Analytics Platform for Real-Time Event Notifications

Client Requirements

Client is a leading not-for-profit health maintenance organization (HMO), providing commercial and Medicare plans to over 2 million members in Pennsylvania.

To ensure collaborative patient management and to drive proactive interventions, client needed a flexible, scalable and automated subscription-based event notification and alert service for its end users. The solution would use community clinical data to alert the appropriate stakeholders - providers, care managers, families, etc., at the point-of-care. The solution would in turn enable care providers to intervene and take preventative measures based on alerts generated and help improve care outcomes.

Given its expertise in clinical workflows and healthcare interoperability, CitiusTech was selected to implement the event notification system. Client also leveraged H-Scale, CitiusTech's big data platform, to build a configurable data model to support large volumes of incoming messages and ensure scalability.



CitiusTech Solution

Requirement Analysis

CitiusTech team conducted a detailed assessment of client's requirements. The solution was required to generate alerts for events such as admissions, discharges,

medication refills, specific diagnosis, radiology and lab results, and enable intervention and communication with the care team to ensure timely treatment.

Solution Design and Development

CitiusTech team of interoperability experts, big data professionals and clinical informatics specialists designed and implemented the solution that included:

- Development of independent modules for subscription administration and notification brokering, while using client's existing infrastructure for notification / message routing
- Leveraging H-scale and its Hadoop-based ecosystem to enable real-time message processing and handling of large volumes of data:
 - **REST / SOAP API** for ingesting HL7, CDA/CCDA and XDS.b messages from various data sources
 - **Kafka Consumer** for a scalable design and supporting distributed message processing
 - **Real-Time Storm Topology** for a fault tolerant architecture and to evaluate complex rules and subscriptions on a real-time basis
- Building HL7 and CDA/CCDA parsers to parse messages and send notifications to subscribed participants using DIRECT email, SMS alerts, FAX, SFTP and IHE messages
- Enhancing UI to manage rules and subscriptions
- Real-time monitoring for interface and network traffic
- Development of executive dashboard to monitor system health
- Support for registry/repository for code value sets and Healthcare Provider Directory (HPD)

Value Delivered

By partnering with CitiusTech, the client was able to:

- Leverage CitiusTech's expertise with big data technology to build a scalable solution and create data assets that can be repurposed for additional use cases
- Build a flexible and robust healthcare data model that could process high volumes of data (300,000-400,000 messages per day)
- Accelerate deployment by reusing existing technology platforms and components, leading to faster go-to-market for the solution
- Leverage CitiusTech's integration expertise to interface with the existing modules and provide standards based solution

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About CitiusTech

CitiusTech is a specialist provider of healthcare technology services and solutions to medical technology companies, providers, payers and life sciences organizations. CitiusTech's services and solutions include healthcare software development, healthcare interoperability, regulatory compliance, BI/analytics, consumer engagement, care coordination and population health management.

CitiusTech helps customers accelerate innovation in healthcare through a number of solutions and accelerators for clinical quality reporting, healthcare big data, cloud computing, mobile health and predictive analytics. With cutting-edge technology expertise, world-class service quality and a global resource base, CitiusTech consistently delivers best-in-class solutions and an unmatched cost advantage to healthcare clients worldwide.

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