

Unleashing the Power of Strings

Advocate-Aurora Health Case Study

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Background



With 27 hospitals, 500+ sites of care, and over 3 million patients served across Illinois and Wisconsin, recently merged Advocate-Aurora Health form one of the country's premier, not-for-profit health systems, recognized for clinical excellence in cardiovascular care, neurosciences, gynaecology, oncology, paediatrics, primary care, neurology, geriatrics, and trauma care.

Advocate-Aurora health system strives to create a harmonized Enterprise Imaging (EI) ecosystem that consolidates image archival into a centralized Vendor Neutral Archive (VNA) as a single source of truth, and orchestrates workflow across imaging departments, modalities, and specialties to create a unified and actionable patient imaging record.

Challenges

With such a large hospital system, implementing and managing an EI strategy that addresses the diverse needs of patients, providers, and imaging subspecialties was a challenge for Advocate-Aurora Health. Strategic EI is sometimes not well understood at the executive level, and as such there can be a prevailing thought that radiology PACS should be able to address most needs across the imaging continuum - resulting in a hesitancy to invest in new technologies.

For example, consider the principles of why archiving in a centralized VNA is desirable. Without a clear understanding of the associated technical challenges and empirical data about cost and performance shortcomings of managing disparate imaging systems it is difficult to build a compelling business case to support a shift towards a consolidated EI infrastructure. Advocate Aurora is a recently merged health system; where early EI adoption had been successful for one of the merging organizations, the other faced a number of technical and operational challenges that slowed progress towards a consolidated ecosystem.

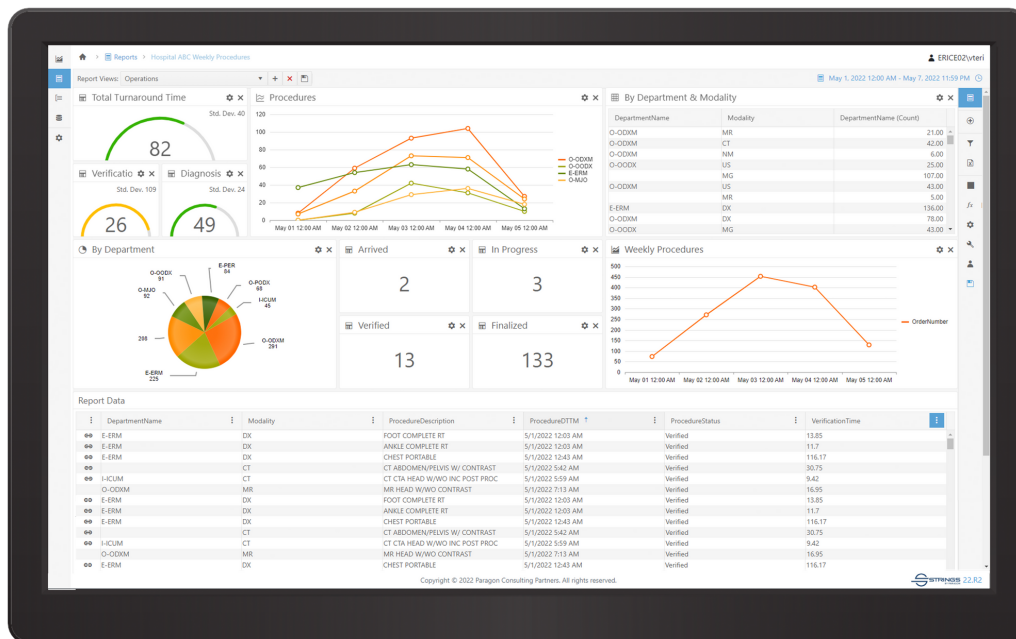
What is needed is an analytics solution that is able to band data from across disparate systems, allowing IT specialists and data analysts to dig into workflow and system problems, efficiently identify root cause, and implement proactive, evidence-based improvements. Such visualizations should not only support technical stakeholders and use cases but should also be able to be modelled in a way that non-technical stakeholders - including executive leadership - can easily consume and understand.

Strings by Paragon

Strings by Paragon is the industry's first fully managed, vendor-agnostic analytics solution for real-time enterprise imaging clinical workflow, applications monitoring, and optimization. Using multi-source data binding and enrichment technology in combination with professional services from Paragon experts, Strings simplifies the management of complex multi-vendor technology ecosystems to enable an actionable approach to performance management.

By adopting the Strings solution, Advocate-Aurora's ability to interpret data coming from existing systems across the imaging service lines drastically improved. By providing new, actionable information about their VNA, Strings allows EI and IT specialists to compare system performance and data accuracy before and after changes in the technology stack are made, thus ensuring the ability to quantify the positive or negative impact of specific change sets and identifying and monitoring trends to drive further decision making such as:

- 1 Storage utilization, archival performance, and growth trends
- 2 Data volume trends and retrieval times
- 3 Database load and performance trends
- 4 Workflow efficiency KPIs





Storage & Archival Performance

With Strings, Advocate-Aurora was able to gain insight into specific data points like the data retrieval volumes and trends, and monitor the behaviour and performance of disparate systems across the enterprise. This information has identified actionable opportunities for improvement that demonstrated tangible cost savings. For example, historically storage volumes had been growing by a costly 25% annually. Now, with the insights provided by Strings the Advocate-Aurora team was able to leverage three Petabytes of existing, under utilized storage - therefore supporting growth of the imaging service line without increasing storage, and realizing significant cost savings as a result.

Additionally, Strings visualizes findings in a way that can be easily understood by a variety of stakeholders, making crucial information accessible across all levels of the organization and empowering collaborative discussions and informed decision making - something that was previously difficult to achieve for non-technical executives or clinical stakeholders.

Historically storage volumes had been growing by a costly 25% annually. With the insights provided by Strings the Advocate-Aurora team was able to leverage existing, under utilized storage to support continued growth of the imaging service line while realizing significant cost savings.

Data Trends & Data Performance

In addition to monitoring storage utilization and server performance, Strings is also able to monitor database performance and proactively identify problems that could result in performance degradation or service interruptions.

Advocate-Aurora was experiencing persistent problems with database deadlocks. Using Strings they were able to pin-point specific services and data thresholds as root causes. Using this information, the Advocate-Aurora team was able to configure targeted KPIs to alert the team as critical thresholds were approached so that performance issues could be mitigated. This drastically reduced database deadlocks, allowing them to increase throughput.

Workflow Optimization

In order to improve the efficiency of the organization, and delivery of care, Healthcare IT leaders require insights into historical clinical workflow patterns. Using Strings as a driving force within the organization, Advocate-Aurora leverages Strings to enable a greater level of understanding into these patterns, and how they must change to push towards an enhanced and streamlined EI workflow. Looking towards the future, the Strings platform is positioned to continue expanding its ability to gather various data points from across the workflow to continuously improve its ability to identify the bottlenecks and slowdowns within the existing workflow.

Strings-as-a-Managed Service

Because Strings by Paragon is offered as a managed service, Advocate-Aurora technical and leadership teams are able to leverage the decades of industry experience offered by Paragon imaging professionals to interpret the insights provided by Strings, and develop actionable short, mid, and long-term optimizations to clinical and operational workflows.

In the short term, having isolation from the day-to-day noise, tickets and questions, allows for the Advocate-Aurora engineering think-time to digest and correlate the findings from the logs - something that would be in-feasible for the internal team, and in many cases even supporting vendors!

Looking to the medium or longer-term, the Strings team apply their decades of collective industry experience to interpret and identify workflow or technological challenges from the Strings data and reports. The team then works side-by-side with Advocate-Aurora departmental and organizational leadership to review priority problems and identify high impact optimizations.

Realizing the Full Value of Strings by Paragon

With such a large hospital system, creating a harmonized EI ecosystem that addresses the diverse needs of patients, providers, and imaging subspecialties seemed to be an insurmountable challenge. What was needed was an analytics solution that reduces noise and allows specialists and analysts to efficiently identify the root causes of constraints to implement proactive solutions.

By adopting the Strings solution, the ease in ability to interpret and easily digest data to drive decision making in areas such as storage utilization, growth trends, archival performance, data volume trends and retrieval items, database loads and performance trends, and workflow efficiency KPIs has well positioned Advocate-Aurora to continue reaching for their goals of streamlining strategic EI.

Having such isolation from the day-to-day noise allows room for the engineering team to digest and correlate findings, which is what sets the Strings solution apart. With the managed service aspect, the hard data is greatly enhanced by applying industry experience to interpretation, allowing the engineering team to focus on the high impact problems. This data helps the team to sort out the raw feelings of frustration by uncovering real evidence of where problems and constraints lie, ensuring the issues can be both identified and addressed.

Additionally, by providing well-structured empirical data in the form of operational and financial KPIs, the Strings solution is able to provide tangible evidence of the time and cost savings achieved through various workflow, staffing, or technology changes. This not only enables effective continuous improvement, but also provides organizational leadership with the evidence needed to make informed and impactful decisions about short- and long-term EI investments.

We help leading healthcare organizations develop effective strategies for optimizing the transition to Enterprise Imaging.

Contact us to learn how!



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