atmosera.

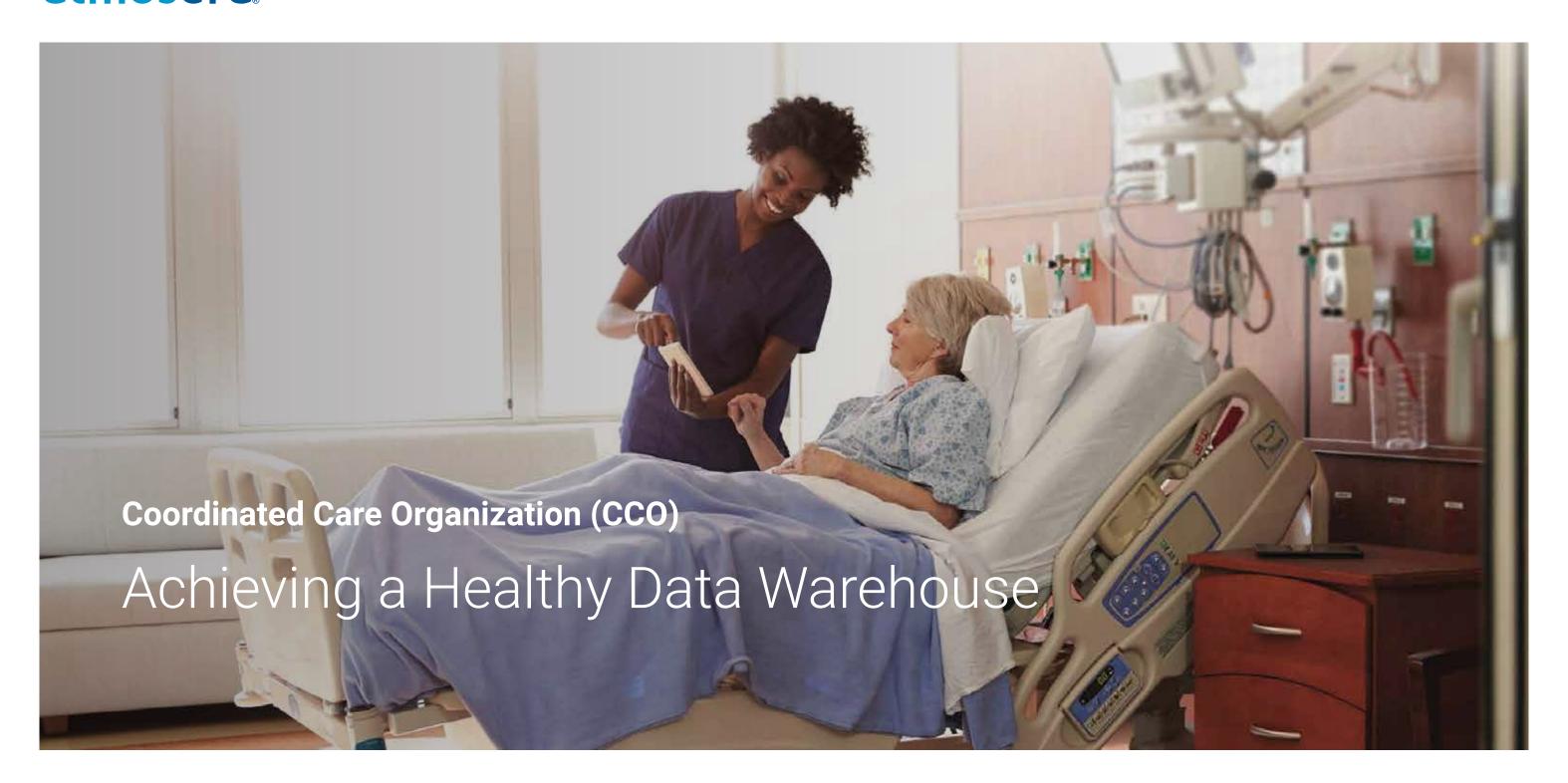**Coordinated Care Organization (CCO)**

Achieving a Healthy Data Warehouse

Establishing a Data Warehouse

Data is the lifeblood of Coordinated Care Organizations (CCOs) as they connect people with doctors, counselors, pharmacies, and other health services. For one particular CCO, the time had come to invest in an Enterprise Data Warehouse (EDW) so they could mine their data with Business Intelligence (BI) software to improve their services and grow their business.

For the CCO, there were three primary concerns. First, they needed a high-performance solution, since Tableau, the BI software they intended to deploy, was very resource-intensive. Second, they needed the solution to be HIPAA (Health Insurance Portability and Accountability Act of 1996) compliant, as Personally Identifiable Information (PII) would be stored in the EDW. Third, they needed to improve their productivity, since their current database had not been designed to handle the huge volume of healthcare data being generated. Nightly data imports were taking too long and often were not completed in the time required, which had a negative impact on business operations.

Architecting a Solution

The CCO reached out to Atmosera to design and architect the infrastructure for the EDW based on Atmosera's technical expertise, high performance capabilities, and security and compliance knowledge.

The Challenge

A Coordinated Care Organization (CCO) needed an Enterprise Data Warehouse (EDW) to deliver high performance, HIPAA compliance, and superior productivity.

Solution

Atmosera engineered and deployed the infrastructure for the EDW, collaborating with the CCO's IT staff and external application vendors to address all system requirements and improve operational efficiencies. Information Security was addressed from both a technology and a training standpoint to ensure robust and holistic compliance.
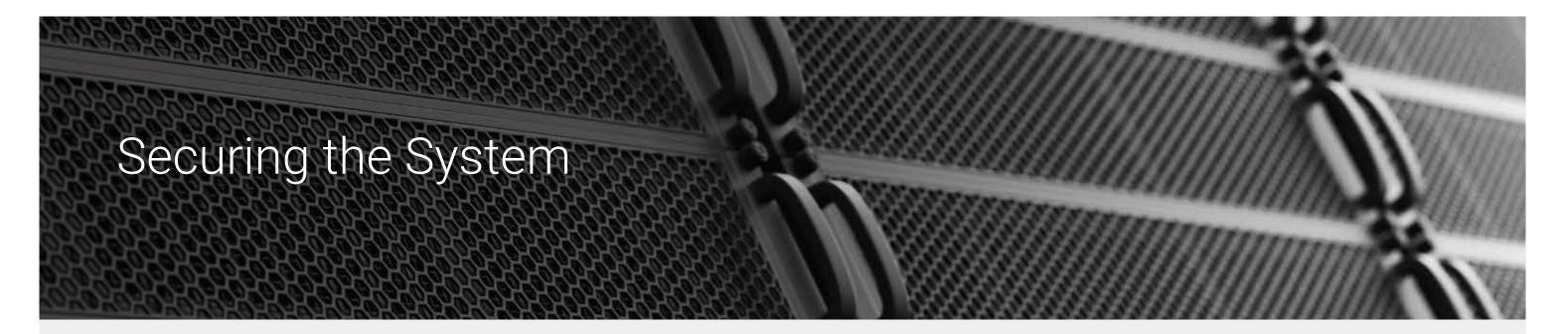
Benefits

The high-performance EDW streamlined business operations by automating manual tasks and removing redundancies. Cost savings have been realized in areas such as licensing and storage. The CCO is now positioned for strategic growth, having a secure and scalable technology foundation.

Ryland Bowles, Technical Account Manager at Atmosera, explained Atmosera's approach: "Some IT vendors will ask customers, 'What would you like us to build?' However, that puts an unreasonable burden on the customer by asking them to be the IT expert, often resulting in sub-optimal systems and performance. We take a collaborative approach and bring the wealth of our experience and best practices to the table. Our solution is formulated as we work together to determine a customer's precise technical requirements, get to know their application vendors, and define how security and compliance will influence the design and sustainability of the deployment."

Atmosera collaborated with the CCO's IT staff to determine what was needed in terms of Virtual Machines (VMs), storage, RAM, CPU, etc. They also worked with the CCO's multiple application vendors to understand their requirements. "We are responsible for the stability, performance, and compliance of our systems," stated Clayton Siemens, Systems Engineer at Atmosera. "We therefore build the vendors' requirements into our design, checking with the vendors at various points throughout the build process to ensure compatibility with their applications." Notably, Atmosera collaborated directly with personnel from Tableau to guarantee a smooth and seamless deployment of the BI software.

Once all requirements were understrood, Atmosera recommended a specific infrastructure to the CCO capable of meeting their EDW needs. With the architecture approved, Atmosera set about preparing the VMs, web servers, data warehouse servers, active directory, networking, and storage. They also established a secure network tunnel so that the CCO would have a direct connection to the Atmosera host environment. User Acceptance Testing (UAT) was then completed, and the EDW fully deployed. Atmosera retains the operations and day-to-day management of the environment, maintaining, patching, and further optimizing the system as necessary.

Securing the System

Ensuring security and HIPAA compliance played a huge role in architecting the EDW solution, particularly given the rise of cyberattacks on healthcare organizations. Atmosera made certain that the CCO was secure, both from a technology and a training standpoint.

Siemens explained, "In the design stage, we reviewed how we would establish a group policy to lock down access and rights, and how we would segregate our network. This involves establishing network layers that dictate how people get to access protected data. We also have an application layer that all their application servers can access, thereby securing the data layer below it. On top of that, we have a demilitarized zone – a DMZ, or perimeter network – that acts as the only layer where external sources such as the Internet can be accessed. This was all a significant change for the CCO, which had previously used a flat design in their infrastructure."

With security in place from a technology perspective, it was vital to address the human element. Leslie Golden, Chief Information Security Officer (CISO) at Atmosera, stated, "Technological compliance without human compliance is meaningless. The two depend on one another to create a truly secure environment. With very few exceptions, companies tend to have a good understanding of what a technically compliant environment is, but their workforce doesn't have a robust understanding of and adherence to the best practices and behaviors that ensure information security."

Atmosera provided consulting and training regarding the policies, processes, and procedures that would need to be implemented internally to maintain HIPAA compliance and an audit-ready state. Every level of data interaction was addressed, from the systems administrator to the engineers to the staff accessing PII for their daily tasks. Vendors were also included, to be sure that they understood how processes needed to work to protect confidential data.

"Technological compliance without human compliance is meaningless."

Leslie Golden
Chief Information Security Officer
for Atmosera

Reaping the Rewards

With the EDW in place, the CCO immediately began seeing a return on their investment. "Having the data warehouse has tremendously improved their productivity," affirmed Jason Kirkwood, Software Engineer at Atmosera. "They are now equipped to better manage their data, perform analytics, and mine the data for business intelligence that can help them enhance their services and be more agile in the marketplace."

For example, whereas nightly data imports were previously not being completed in a timely manner, the new EDW streamlined processes so that imports happened as scheduled. "Employees used to be hampered in their daily tasks because the data they needed wasn't available," Kirkwood said. "Now, the data is ready to go when they arrive at work each day."

Automation of manual processes has also caused a surge in productivity and efficiency. Siemens noted, "A data warehouse allows a company to programmatically manipulate a huge amount of data. This replaces the work Database Administrators (DBA) previously did on a number of different databases to sort data and structure it in a consumable form."

With automation in place, analysts no longer duplicate efforts by running the same queries or pulling the same data into Excel. "Now, jobs are running overnight," said Kirkwood. "Analysts don't have to spend time doing foundational calculations – they can get right at the core of whatever they are trying to accomplish."

"We always plan for growth. The company will be able to plan strategically, knowing that they have the technology and support they need to accomplish their business goals."

Ryland Bowles
Technical Account Manager
for Atmosera

Atmosera also helped the CCO to realize cost savings as part of the overall solution. For instance, moving to the Microsoft Cloud Platform stack saved on Windows licensing costs. Plus, with the EDW, Atmosera was able to reclaim the "white space" that had accumulated in their original database over time. "They had orders in process to buy more storage space, but we were able to improve performance and space allocation to save them this cost," commented Kirkwood.

The CCO will continue to see a return on their investment as time progresses, since the new EDW is designed to scale with their business. "We always plan for growth," said Bowles. "The company's old database was holding them back since it was unwieldy and unable to handle the volume of data generated today. Now, the company will be able to plan strategically, knowing that they have the technology and support they need to accomplish their business goals."