GoEasyCare conquers healthcare worker scheduling with GenAI

/ AT A GLANCE

GoEasyCare enables healthcare organizations to schedule staff dynamically with Vertex AI, with help from SADA, An Insight company

INDUSTRY
Healthcare & Life Sciences

STREAMLINED
Complex rules-based workflow

ENABLED
State-of-the-art future scheduling project

Caring for people instead of caring for software

Healthcare workforce management in Canada is defined by complexity. For facilities such as hospitals and Long Term Care, optimizing staffing is not as simple as calling up available healthcare workers to fill a shift. Instead, a unionized system assigns hierarchical priority to every worker, as well as shift limitations and other considerations to keep facilities adequately staffed. The mission of healthcare organizations to deliver superior and personalized healthcare has to be balanced with the need to manage dynamic staffing challenges.

GoEasyCare offloads that burden, offering an advanced software solution to streamline healthcare staffing headaches. Their service incorporates all factors of staffing, including time off, payroll, and sick days.

Business challenge

GoEasyCare's original solution is based on unique sets of rule chains that automate building and adjusting employee work schedules. However, since each healthcare organization is unique, GoEasyCare's software must be flexible to accommodate customer-specific needs.

"Workforce management software and 'easy' don't belong in the same sentence," says Paul Wright, CEO of GoEasyCare, explaining his inspiration for founding the company. "I knew there was a better way to do it."

A complex product with a maze of rules

Historically, engineers at GoEasyCare built their product with a maze of rules, UI, criteria, and drop-down menus. Because the system is too complex for non-technicians, GoEasyCare oversees it on behalf of their customers.

The journey of building out these rule chains from the ground up has been no easy feat, and the task load for running it is immense. With the arrival of advanced AI tools, the company saw an opportunity to potentially take the rule-based logic they had toiled on for years to build up and automate it with one click.

Solution

Braving a new world of artificial intelligence

GoEasyCare Engineers didn't have deep AI expertise, so they turned to SADA to orient them on Google Cloud's Vertex AI and its large language models (LLMs). "Our goal was to see if AI could handle our processes," says Matthew Lebrasseur, CTO of GoEasyCare, who was interested in whether the company's unique rule-based protocol was a good fit for GenAI.

Engaging in a two-week proof-of-concept (POC) designed and implemented by SADA, the GoEasyCare team was able to test three use cases that built upon each other, combining to form a total solution. Along the way, they kept their existing system in place so they could cross-reference how the new GenAI solution performed.

"Going into the POC, we wanted to see how we could automate customer processes so they can focus on the business side of things," says Wright. "That means making AI do the work of the person so they can do what they are trained to do: take care of people, not software."

Leveraging Vertex AI's LLM to power an automated schedule filler

SADA AI Engineers, working with the GoEasyCare Team, quickly determined that the workload was complex and would need more than a single GenAI process to solve it. So they broke the challenge into three steps:

1. Filtering data and translating JSON rules into plain English
2. Incorporating different rules based on availability times
3. Adding shift variety, visibility, and output enhancements

Filtering data and translating JSON rules into plain English

GoEasyCare's employee data and active schedule data arrive in separate JSON files, making it incompatible with GenAI prompts, which work in plain English. SADA AI Engineers filtered the data through ETL (i.e., extract, transform, load) processes to arrive at a

plain English output to feed into the AI engine. For the rule translation from JSON to English, there was no ETL. The rule translation had to be done manually.

Next, the solution applied a filter that assigned each employee to a specific group based on rules. This was to keep the input quantities within the limits of the model.

Incorporating different rules based on availability times

The Employment Standards Act (ESA) dictates how much time between shifts, overtime or no overtime, and the maximum hours that can be worked. Shift variations include morning, afternoon, and evening.

In this phase, receiving the employee data that had been sorted in the first group, the GenAI POC generated a schedule. However, the schedule needed further optimization. Additionally, a SADA Senior AI Engineer programmed Python code for some of the complex calculations in order to finalize the scheduling.

Adding shift variety, visibility, and output enhancements

Finally, the GenAI POC evaluated additional factors such as night shifts, added visibility, and added code for checking hours and overtime hours. At the end of this step, the final schedule was produced.

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We'd been trying to deploy these pipelines for weeks and they would fail or take hours to run. The SADA GenAI POC worked it all out in five minutes!

Matthew Lebrasseur | CTO of GoEasyCare

Impact

Reaching post-POC consensus: endless future possibilities

After the POC process concluded, the GoEasyCare team had all the information needed to determine what GenAI could achieve not only for their business but also for healthcare organizations,their patients and residents.

For example, for the GoEasyCare Site Reliability Engineering team working in the trenches, GenAI completely transformed their day-to-day tasks. "There was a lot of overhead in SRE where we were constantly deploying, maintaining, and updating code," says Shane Hughes, Site Reliability Engineer (SRE) at GoEasyCare. "With GenAI, it gives you access to tell it what you want, so it went from massive overhead to basically nothing."

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We have proven Vertex AI is capable of carrying out our complex workloads. For SADA to understand the complexities of our problem in two weeks was a big undertaking, and coming to a successful result is a huge feat.

Matthew Lebrasseur | CTO of GoEasyCare

Propelling GoEasyCare into a new era

Most importantly, the POC put into motion a series of future projects to propel the company into their next era. The POC provided GoEasyCare with a baseline GenAI approach that they can tweak and modify for more complex jobs. In Q2 2024, they hope to launch future scheduling with machine learning incorporated, which wouldn't have been possible without GenAI.

"Future scheduling will involve not just filling shifts for today but also building an automated future schedule for tens of thousands of shifts for multiple locations and departments with no human involved," says Lebrasseur.

Empowering healthcare organizations with GenAI-based software

As for healthcare organizations, the simplicity of GenAI prompts–where each rule is just a single sentence–means customers will be empowered to configure the system themselves, rather than having to outsource operations to GoEasyCare. "Previously, any sort of complex scheduling tasks would've been outsourced to us," says Wright. "Now, customers can log into our platform and interact with it using plain English."

Ultimately, this reimagines how customers see and interact with GoEasyCare. "Being able to offer customers GenAI-enabled scheduling will be a great pitch that further enhances the story we want to tell," concludes Wright.

Overall, as a result of working with SADA on their proof-of-concept, GoEasyCare was able to:

- Verify that Vertex AI is capable of handling complex workloads
- Reduce SRE overhead for deploying, updating, and maintaining code
- Baseline a GenAI solution that can be modified for more complex use cases
- Empower users to change complicated workflows with a single plain English sentence

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Every GenAI process has its own essence. You've got to learn the language and how to work with its quirks. SADA helped streamline all of that for us.

— Matthew Lebrasseur | CTO at GoEasyCare