CUSTOMER SUCCESS STORY

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Clover

Clover monitors thousands of Internet of Things devices with VMware Tanzu Observability™

About Clover

Clover builds integrated point-of-sale devices for merchants, from customized hardware to cloud-based software. It's deployed more than 100,000 smart payment terminals, primarily serving small- and medium-sized businesses, and is growing quickly. Since 2013, the firm has been a subsidiary of First Data, the world's largest credit card processor.

The challenge

With customers depending on Clover's terminals to do business, reliability is key. Three years after launching, the start-up found it increasingly difficult to track the health of its growing fleet of devices. It was relying primarily on customer service reports and analysis of field returns to identify problems. This reactive approach was expensive, slow and imprecise. Most importantly, it diminished merchant satisfaction.

The solution

Clover co-founder and president of engineering John Beatty oversaw a rollout of the VMware Tanzu Observability data analytics platform. Previously, data from sensors on the company's devices wasn't being captured, let alone analyzed. Now, with more 100,000 devices in the field collecting data from the OS, application and hardware, engineers had unprecedented visibility. By enabling metrics they cared about, they could easily track everything from temperature fluctuations to software failures, identifying and fixing issues before customers noticed.

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For example, engineers quickly noticed that four percent of devices were sluggish for four hours a day. Using the platform, they isolated a faulty software component that was causing light sensors to go haywire in certain lighting conditions. "Before [Tanzu Observability], we would've had no clue what was going on," Beatty says. "We were able to fix the software bug and validate that it had exactly the effect we intended."

Once Clover had insights into performance, it began using Tanzu Observability to inform project management decisions. For instance, the team tracked how often merchants were charging Clover's mobile devices to help understand optimal battery size, ensuring new devices were as compact and inexpensive as possible. The data has fed into requirements for a product currently in development.

Clover has also used Tanzu Observability to speed up and improve the quality of software releases. Employing phased rollouts, Clover has used metrics to quickly validate whether new releases cause any problems in updated devices. "It's an absolutely critical tool for us to release software confidently. If we didn't have it, we'd be slower and more conservative and make more mistakes in production," Beatty says.

Tanzu Observability is optimal for Internet of Things companies such as Clover, because "historically devices aren't terribly well-instrumented, and there's a lot of guessing," Beatty says. Devices in the field often operate on low-bandwidth connections, so they don't pump out massive amounts of logs. In addition, many of the data points companies like his care about —from system load to CPU utilization—are classic metrics. For Clover's part, "We continue to add metrics anywhere and everywhere," Beatty says.

The results

Adopting Tanzu Observability has reduced Clover's support calls, leading to both happier customers and higher profit margins. It's also curtailed outages and prevented revenue loss. According to Beatty, improved performance correlates directly with how many of Clover's devices are sold in First Data's distribution network, which also markets earlier-generation competitors. The visibility that Tanzu Observability offers is a critical foundation for the company's plans to scale up, including future international expansion. And it's allowed Clover to move faster, with better products and speedier software releases. "It's critical for the pace of innovation," Beatty says.

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>
> JOHN BEATTY
> CO-FOUNDER AND PRESIDENT OF ENGINEERING, CLOVER