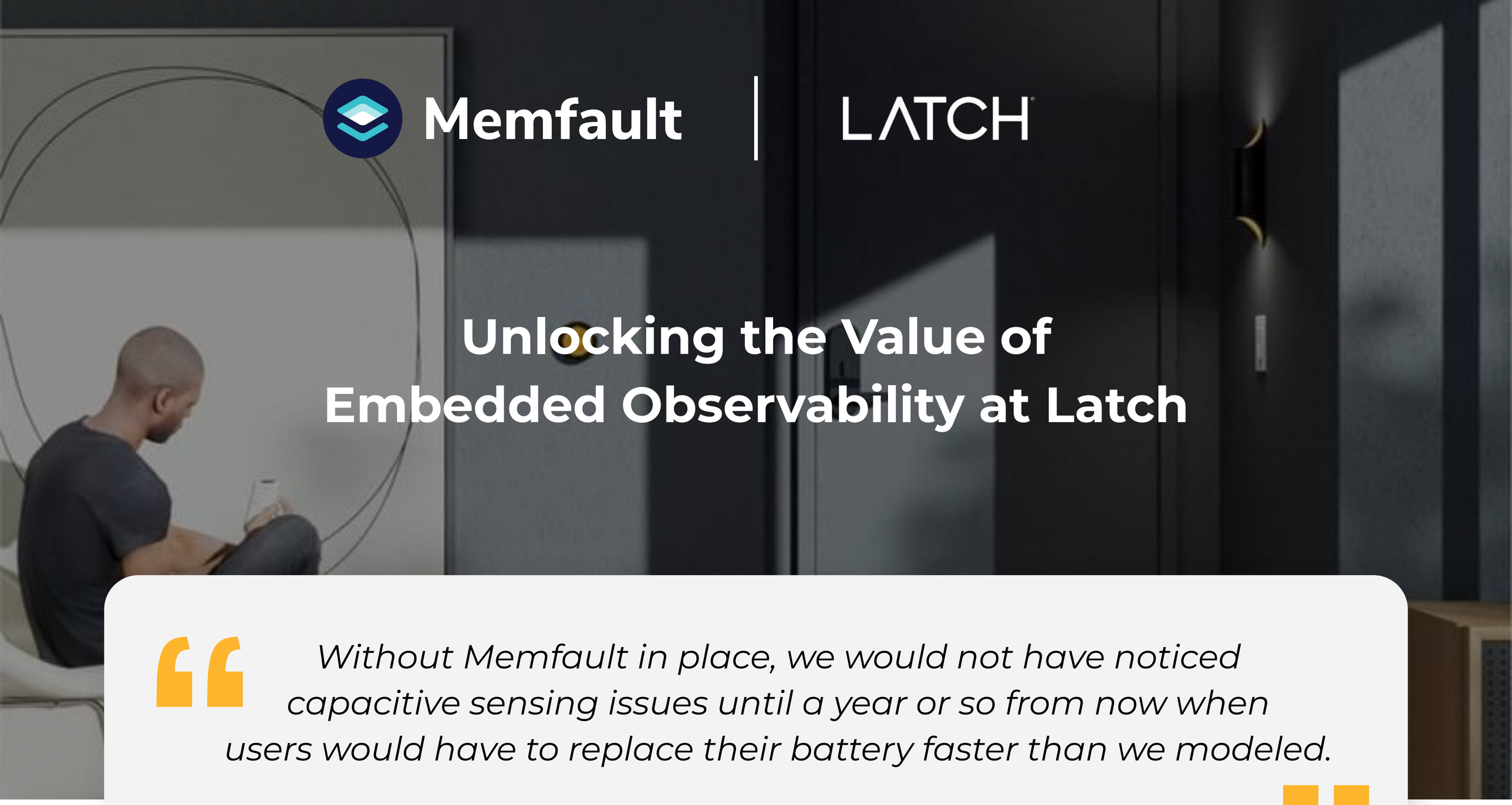


Memfault | LATCH

Unlocking the Value of Embedded Observability at Latch

> *Without Memfault in place, we would not have noticed capacitive sensing issues until a year or so from now when users would have to replace their battery faster than we modeled.*

Sam Friedman
Staff Firmware Engineer, LATCH

About Latch

Latch is reimagining the modern buildings of today and driving evolution that make Latch enabled spaces better places to live, work & visit. Latch delivers a building-wide system designed to help property managers, residents and third parties (e.g., guests, couriers, service providers) seamlessly experience the modern building through integrated products, software and services.

More than one in ten new apartments in the U.S. were being built with Latch products, with multifamily buildings in more than 35 states featuring Latch solutions and supporting millions of unlocks per month.

Company Profile

- Industry: Access Control
- Location: New York City
- Chipset: PSoC6 (Latch Lens)
- Operating System: FreeRTOS
- Connectivity: Bluetooth Low Energy

Benefits

- More robust observability without increasing engineering overhead
- Improved issue detection and resolution time for better customer experience
- Reduced onsite technician visits and customer support calls

Challenge

Latch values security and efficiency in their award-winning smart access products making device reliability and performance top priorities. Latch ships firmware updates at a regular cadence to ensure new and improved customer experiences, as well as enhanced reliability and security, are available to their customers.

When Latch decided to build a new keyless product that demanded higher levels of reliability, they realized they would require better monitoring capabilities for their devices in the field. The battery-level metrics collected from their mobile app that they had in place for the previous device would not be robust enough. Firmware engineers had very little visibility into device data, and product managers lacked fleet-wide metrics to report and forecast device health. Latch realized they needed to expand visibility into their new devices and transform their issue discovery, debug and resolution flow.

Solution

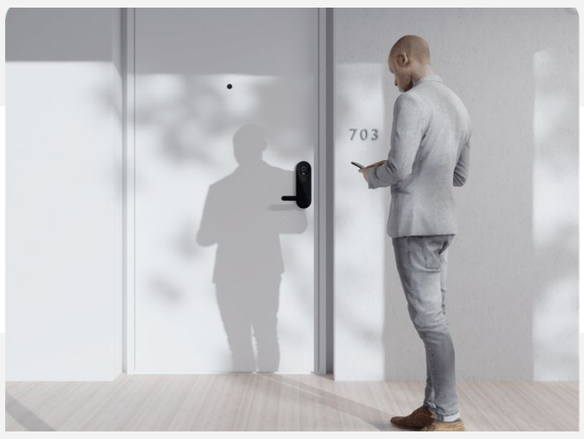
With the desire to focus on their core, Latch decided to look externally for remote monitoring capabilities to empower firmware engineers and product managers to maintain the health of their device fleet more efficiently.

After researching external solutions, they found that Memfault's range of capabilities far out-performed others options in the market. Memfault offered Latch twenty times more visibility into their fleet, helping them collect over 100 events per device, a vast improvement on the previous solution. As an added bonus, they no longer need to commit valuable engineering resources to maintain and improve an internal solution. With Memfault, Latch can proactively identify issues, remotely collect all the needed information to quickly debug, and then push out a fix before a customer ever notices the problem, inevitably reducing the total number of customer support cases and leading to more positive customer experiences.

Results

By partnering with Memfault, Latch has reduced the number of support calls, caught bugs that would have only been found at scale, and fixed issues that impacted customer experience.

Memfault enabled Latch to adopt a more proactive approach to solving bugs, helping them decrease the number of required site visits to solve customer complaints and increase customer happiness. Latch used Memfault data to reduce their worst-case NFC and Capsense scan time by over 80%.



> *Memfault gives us the hard data to be confident in the reliability of our firmware and proactively take action, resolving issues before our users are impacted. These real-time device-level metrics and alerts have streamlined engineering processes and improved the overall health of our devices immensely.*
>
> ***Raman Thapar, VP of Engineering***

> *The Memfault engineering team is very, very responsive. If we find a bug or have any issue, it quickly gets fixed. It's been a really, really fruitful relationship so far*
>
> ***Sam Friedman, Staff Firmware Engineer***

If a device experienced the worst case, its battery life would be reduced by about 50% compared to a device that had never experienced this condition. The root cause was due to environmental conditions that were difficult to reproduce on the bench, which is why Latch could not see it in testing and only caught it once it hit the field. Without Memfault's data from devices in the field, Latch could not have 100% confidence that their solution would work in all environmental conditions. Memfault facilitated an ideal monitoring closed loop of detection, debug, fix, deployment and validation.

As an innovative technology leader, Latch understands the importance of continuously releasing new firmware updates giving their customers the best product that gets even better over time. By partnering with Memfault, their team can now see that their updates are improving the devices by comparing the same metrics across different versions. For example, by monitoring the amount of time the CPU is active, they can see a decrease across the fleet in each firmware version which helps extend the battery life of the product.

Using Memfault instead of developing a home-grown solution, Latch dramatically improved fleet observability while saving the cost of creating, maintaining and scaling an internal system across their firmware and cloud teams. Memfault helped Latch gain visibility into their device fleet while saving time and resources by dramatically reducing the need to go on-site for debugging, allowing them to quickly catch and fix crashes they otherwise might not have seen. Since integrating Memfault into their firmware, Latch has sped up issue resolution and improved their release management, creating more reliable products and customer experiences.

Learn more about Latch **here.**

"The Latch firmware team uses Memfault on a daily basis: both to proactively monitor for issues in the field and to actively debug issues occurring in our QA and alpha environments. Generally, when a firmware-related issue is reported from the field, we already know about it due to Memfault data and can use Memfault to quickly start digging in to get more context to jumpstart our debug.

Tyler Wickenhauser, Firmware Manager