CASE STUDY

Dreem gains insight into infrastructure and protects customer health data

dreem

Challenges

- Had a single DevOps engineer to handle all alerts
- Needed to protect patient data and meet HIPAA compliance standards
- Aimed to reduce attack surface by improving cloud compliance

Solutions

- Used Polygraph® Data Platform to streamline DevOps engineer's workload
- Simplified compliance process with dashboards showing prioritized events
- Monitored security infrastructure with comprehensive, easy-to-use Platform

Results

- Received four to five critical alerts per week, ordered by severity
- Demonstrated HIPAA compliance to protect patient data and unlock new healthcare business
- Strengthened visibility into infrastructure

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OLIVIER TRANZER, DIRECTOR OF ENGINEERING, SOFTWARE, DREEM

About Dreem

Founded in 2014, Dreem is a healthcare company and a holistic sleep solution. Their offerings include Internet of Things (IoT) products, such as a headband worn at night to monitor brain activity and improve sleep quality. Most recently, Dreem has been developing a digital sleep clinic that screens, diagnoses, and treats the two main sleep pathologies: chronic insomnia and obstructive sleep apnea. To counter the complexities of the United States healthcare system, Dreem leads each patient through the entire process, from beginning to end. "We want to make our patients' lives easier, so we serve as a single point of contact," explains Olivier Tranzer, Dreem's Director of Engineering, Software. "We offer a digital experience, which means our patients don't have to travel for testing. Our software solutions also simplify the experience for our providers and medical assistants."

Tranzer heads up two teams, totaling around 20 people: the product and design team, and the software development team. "The product and design team is responsible for providing the best experience possible for our users, which include our patients, providers, and the pharmaceutical companies that run clinical trials using our headbands," Tranzer details. "The software development team ensures that we effectively develop the solution we've designed, and that it's bug-free, compliant, and secure." Within the software team, Tranzer oversees several sub-teams, including backend, frontend, mobile, DevOps, and machine learning.

Under Tranzer's direction, Dreem prioritizes security. "I have always seen security as a topic that should be integrated into our development," Tranzer says. "I ask the developers working with me to put security first while they build. Security should be a development principle for every company, but it's especially important for Dreem because we are dealing with health data." Even though Dreem doesn't have its own diagnostic device, Tranzer adds, "We are able to see sensitive information about pathologies. People trust us with their information, so we have a responsibility to secure their data."

For their cloud environment, Dreem is hosted in Amazon Web Services (AWS). Their backend uses a microservices architecture, and they are deployed on AWS with Kubernetes. "We mainly use the AWS resources for our cloud hosting," Tranzer states. "We use around 10 different AWS services, and we've made sure that we are using the right tools for each situation." For Kubernetes hosting, they use Amazon Elastic Kubernetes Service (EKS) and Amazon Elastic Compute Cloud (EC2), plus Amazon Simple Storage Service (S3) for static hosting and Amazon Relational Database Service (RDS) for the database.

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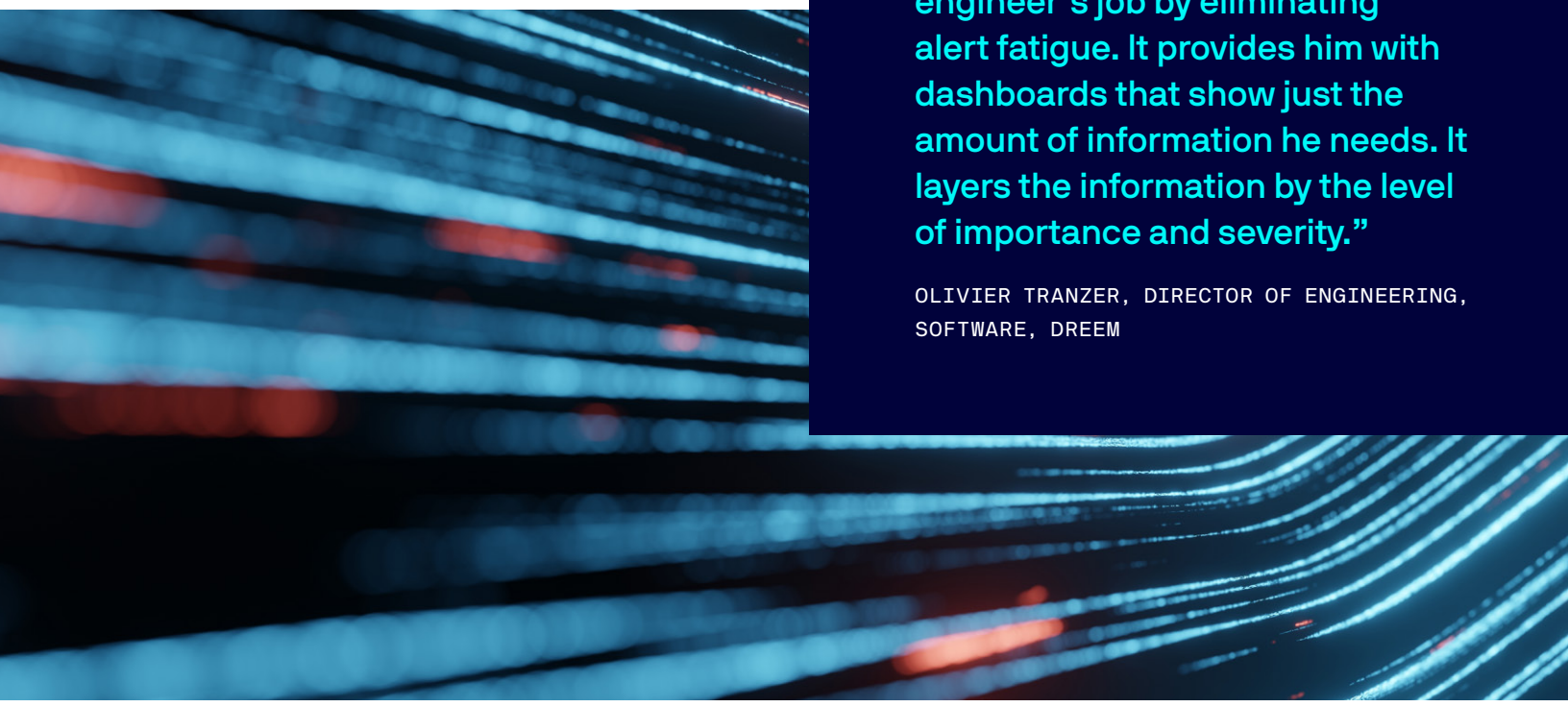

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Challenges

Dreem wanted to bring in a cloud security platform to provide comprehensive protection for their environment. "Security in the cloud is paramount for us," Tranzer says. "That's where our data is stored. The brain of Dreem is in the cloud." In particular, Dreem needed a solution that could empower their lone DevOps engineer. "We had to find a solution that could help him make sure we're secure in the cloud with a limited amount of resources," explains Tranzer. "Even though we have a small team, we want to make sure our security posture is strong."

Dreem also aimed to reduce their attack surface by improving their overall cloud compliance. With the introduction of their digital sleep clinic, notes Tranzer, "We needed to lay the groundwork for HIPAA compliance, because we are dealing with data from our American patients. That was a really important challenge we had to solve." Dreem had also started partnering with pharmacies for their sleep clinic. To support this shift from a business-to-consumer (B2C) to a business-to-business (B2B) model, they required proactive security investigation capabilities. Once they achieve compliance, Dreem hopes to easily produce reports that would provide evidence to auditors that they were meeting the standards for HIPAA.

Additional challenges included a lack of tools for file integrity monitoring (FIM), host-based intrusion detection system (HIDS), vulnerability scanning, and Kubernetes workloads. "We especially wanted to make sure that we found a system that could detect any external IP address," notes Tranzer. In order to support their new sleep clinic offering and address all of these needs, Dreem sought a platform solution that could tackle everything at once.

Solution

In their search for a cloud security platform, Dreem discovered Lacework. "We quickly realized that we wanted to engage in a proof of value (POV) with Lacework to see how its capabilities could work for us," Tranzer recalls. "During our initial setup for the POV, Lacework helped us design a solution tailored exactly to our needs."

The POV also enabled Dreem's DevOps engineer to see how the Lacework Polygraph Data Platform could streamline his daily responsibilities. "Lacework simplifies our DevOps engineer's job by eliminating alert fatigue. It provides him with dashboards that show just the amount of information he needs," Tranzer states. "It layers the information by the level of importance and severity." The POV also demonstrated the Platform's ability to detect external IP addresses. "Lacework alerted on new and unexpected IP addresses during the POV, and then surfaced alerts ranging from low to critical," Tranzer observes. With that, Dreem validated that the Platform offered everything they needed to better understand their environment and infrastructure.

Once Dreem wrapped the POV, they were eager to continue using the Platform. "The implementation after that was very fast because most of the installations were done," says Tranzer. "There were just a few extra configurations, but we had everything ready to go within a few days." Tranzer also praises the ongoing support that Lacework has offered his team. "Lacework set up a Slack channel where we could reach out in case we have questions or need any guidance, and we know that their team will continue to be available for us," he adds.

Above all, Lacework stood out to Dreem for the Platform's single interface and the Polygraph technology that helped the DevOps engineer focus on what matters most. "We didn't have any way to monitor our security infrastructure before, but Lacework has helped us stay secure with a solution that's really easy to use and comprehensive," says Tranzer.

Results

The right amount of critical alerts

Dreem didn't have an alerting system in place prior to deploying Lacework, which meant that their DevOps engineer had to use his own judgment when determining what to investigate. Thankfully, the Platform has given them a scalable, automated solution that surfaces the right alerts at the right time. "Since Lacework uses machine learning to prioritize alerts by severity, our DevOps engineer knows exactly what to focus on. He doesn't need to spend much time on minor incidents, and when a critical alert comes in, he knows to drop everything and work on it," Tranzer explains. "Before, he was using his gut feeling. Now, instead of the gut feeling, we have the Lacework dashboard to help us."

On average, Tranzer estimates, "We receive four or five critical alerts per week from Lacework." This number includes alerts on compliance. "Most of the time, these alerts are flagging something manual that we have done, like if we give a new employee access to our VPN when they connect to our system," states Tranzer. "These alerts are actually just confirming that Lacework is watching what's happening, which is good to know."

The pathway to HIPAA compliance

The Platform has also played a key role in helping Dreem demonstrate their HIPAA compliance. "Since we're dealing with sensitive healthcare data, Lacework has helped us identify noncompliant components of our infrastructure and tells us how to fix them," Tranzer notes. "The dashboard lets us see what is not HIPAA compliant, and what we need to improve. It ranks problems by severity, which helps us prioritize tasks." Once these issues are solved, Tranzer predicts, "Lacework will continue to help us in the future by checking that we are still compliant with all of the HIPAA controls."

So far, Dreem's DevOps engineer has actively focused on IAM (identity and access management) in AWS misconfigurations. He's used the Platform to ensure that access key rotation occurs at the proper frequency, that MFA (multi-factor authentication) is enabled where it should be, and that IAM password policy requires the appropriate complexity level. With these actions, he has succeeded in reducing non-compliant resources by 20%.

Achieving compliance — and HIPAA certification in particular — is essential for Dreem's continued success as a member of the healthcare industry. As Tranzer says, "We're dealing with the data of American health patients, so achieving HIPAA compliance has been critical for us. Before we discovered Lacework, we didn't have a way to monitor our compliance, so this capability has been really important." Plus, successfully demonstrating compliance has helped Dreem move forward. "By helping us with HIPAA compliance, Lacework has helped us unlock more healthcare business in the United States," Tranzer says. As their customer base grows, Dreem will continue to protect customer data with the help of Lacework.

A single platform to secure infrastructure

Beyond helping Dreem achieve HIPAA compliance, Lacework enables the DevOps engineer to tackle another major security concern: vulnerability management in both containerized environments and virtual machines. The existing dashboards allow Dreem to actively track critical and high CVEs (common vulnerabilities and exposures) and active images over time. By planning the required remediation actions, Dreem can also lower their risk and reduce their attack surface.

By adopting a single-platform solution, Dreem has made it easy to shore up their security practice. "Lacework offers a very comprehensive solution with an excellent user experience," explains Tranzer. "The machine learning algorithms make the Polygraph Data Platform stand out. They know what to trigger and what should be sent as an alert, which provides us with exactly the amount of data that we need. This combination of features is something that we have not seen elsewhere."

In addition to helping Dreem's DevOps engineer, the Platform has brought confidence to Tranzer's entire team. "We now have peace of mind knowing that our infrastructure is secured, and that Lacework has eyes on everything in our environment," Tranzer states. "Using this solution has helped us internally emphasize the importance of security. I think it's sending a good message to every team."

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