

CASE STUDY

Biotech Company Strengthens Security and Compliance While Cutting Network Costs by More than 50%

Genomic sequencing plays a pivotal role in the future of medicine, from guiding the search for cures for diseases to developing custom treatments and preventative measures that improve patients' health outcomes based on their DNA. And Complete Genomics, a San Jose, California-based company, is poised to support the biotech industry through all these developments.

"Complete Genomics develops, manufactures, and sells genome sequencers," explains Maxim Hudaley, the company's CISO. "Most of our clients are academic institutions, healthcare and clinical laboratories, biotech and pharmaceutical companies, government and nonprofit research organizations, and commercial genomics companies."

As the chief information security officer, Hudaley is tasked with safeguarding Complete Genomics' critical business systems and information, ensuring their protection and effective management. "While Complete Genomics does not store or retain customer data, in alignment with our strong commitment to data privacy and security, our use of Fortinet's solutions, including FortiGate data loss prevention, ensures that no customer data is stored at our facilities and that our internal data remains secure," Hudaley says. "This approach is integral to our policy of protecting sensitive information and managing it in compliance with all applicable regulations."

Fortinet Solutions: Easiest to Use for a Lean IT Team

In addition to corporate headquarters in San Jose, Complete Genomics has offices in Sunnyvale, California; Boston, Massachusetts; and Montreal, Quebec. In the past, each office operated separately, creating a disparate technology infrastructure.

"As a company, we used a variety of solutions, including both well-known brands and homegrown systems," Hudaley says. "Previously, our network infrastructure was developed to be highly complex, meeting the needs and strategic goals of that era. Over time, as our operational requirements have evolved, we've noticed that some components of this legacy network are no longer clearly aligned with our current objectives. Understanding and adapting these elements to better suit our modern requirements is a key focus for our team, ensuring our system's efficiency and security without delving into overly technical specifics."

As the previous firewalls in the San Jose location reached end of life, Complete Genomics decided to rebuild the network from the ground up at all locations and link locations together for a seamless user experience and central management. Priority one was centralization and cybersecurity.



"Our compact IT team required a network that was easy to manage. In evaluating several vendors, Fortinet came out on top for its ease of implementation and manageability."

Maxim Hudaley
CISO
Complete Genomics

Details

Customer: Complete Genomics

Industry: Technology

Headquarters: San Jose, California

Business Impact

- Improved visibility of security events dramatically accelerates threat response
- 75% reduction in local area network complexity vs. legacy environment, streamlining management

Hudaley had previously worked with Fortinet solutions and understood that tight integration within the Fortinet Security Fabric streamlines network and security management. “With a compact IT team, our goal was to establish a secure and easily managed network and remote access to internal resources. After evaluating various vendors, Fortinet emerged as the clear choice due to its straightforward implementation and manageability. We were particularly impressed by how seamlessly Fortinet’s solutions integrated with each other and the convenience of managing devices entirely through the graphical user interface. The wide range of solutions offered by Fortinet also significantly influenced our decision,” he adds. “We have successfully completed phase one of our network rollout, which included integrating all core systems. In the next phase, we’ll evaluate further enhancements with Fortinet to strengthen our network security and adapt to our evolving requirements.”

“Greatly Improved” Security in a Network That Is 75% Less Complex

Now, Complete Genomics applications and data are stored in the San Jose office. As users throughout the company access these resources, traffic passes through FortiSwitch secure Ethernet switches and FortiAP access points that are managed and secured by a FortiGate Next-Generation Firewall (NGFW) and VPN, providing connectivity in each office location. At the same time, FortiGuest facilitates guest Wi-Fi access, and the FortiAuthenticator and FortiToken solutions support access control with multi-factor authentication for all users. Complete Genomics is rolling out the FortiClient endpoint security solution to provide VPN users access, antivirus capabilities, and mobile device management integration.

Although they eliminated many legacy VLANs, Hudaley’s team built some segmentation into the new network using the FortiGate NGFW. “Previously, our network was centered around core switches managing all VLANs,” he says. “After a thorough evaluation, we migrated the essential VLANs to our FortiGate, which now oversees our VPN, Wi-Fi access, and VLANs. The connectivity from our two ISPs also routes through the FortiGate, and our distributed switches are linked to it. This strategic consolidation has significantly simplified our network infrastructure, reducing its complexity by approximately 75%.”

The FortiGuard AI-Powered Security Services Enterprise Protection Bundle protects the NGFW. “All the services within the Enterprise Bundle are useful,” Hudaley says. “Their integration has notably enhanced our security posture and support capabilities across the board.”

Complete Genomics has also implemented FortiGuard SOC-as-a-Service, a cloud-based managed service that serves as an outsourced security operations center. Fortinet security analysts monitor the Complete Genomics network and endpoints 24×7×365 and provide alerts for and full visibility into any security events.

“We have more than 100 remote employees, among a total staff of more than 250,” Hudaley reports. “Our San Jose, California, office serves as a central resource hub for employees who frequently travel globally. Given the scope of our IT team, it is essential to monitor who accesses these resources. Utilizing FortiGuard SOC-as-a-Service has been instrumental in maintaining this oversight effectively.”

Better Visibility, Streamlined Compliance

The tightly integrated Fortinet solutions and services have dramatically improved Complete Genomics’ visibility into security issues. “Our main goal with the move to

Business Impact (cont.)

- Network and security administration tasks that previously took hours or days now take minutes
- Maximized time spent on strategic initiatives by outsourcing compliance tasks
- \$200,000+ in estimated cost savings on staffing
- 50% more cost-effective solution than legacy infrastructure

Solutions

- FortiGate Next-Generation Firewall
- FortiSwitch
- FortiAP
- FortiClient
- FortiAuthenticator
- FortiGuest
- FortiToken

Services

- FortiGuard AI-Powered Security Services Enterprise Protection Bundle
- FortiGuard SOC-as-a-Service

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Maxim Hudaley
CISO
Complete Genomics



Fortinet was to have full transparency to what is going on with our network,” Hudaley says. “We achieved that. We have better visibility without having to go into every system to monitor what is going on.”

This dramatically accelerates his team’s response in the event of a security incident. As an example, Hudaley describes a recent scenario: “An employee once connected an unauthorized third-party access point to create a local wireless network in the lab,” he says. “While this was not a data breach or an attack, it still constituted a security incident due to the lack of IT authorization. In our previous environment, such an incident might have gone unnoticed, or if detected, it could have been days later and likely by chance. However, thanks to our updated Fortinet infrastructure, we identified the issue immediately, responded within minutes, and promptly shut down the unauthorized connection.”

By the same token, Hudaley continues, the Fortinet-based network enables Complete Genomics to better meet compliance requirements. “As a biomedical company, we have to meet certain HIPAA and FDA requirements, and we use NIST, CIS, and OWASP frameworks,” he says. “The Fortinet solutions are the perfect fit for our compliance needs.”

Even better, Fortinet services streamline compliance efforts. “FortiGuard SOC-as-a-Service not only enhances our security but also provides compliant documentation that meets regulatory standards,” Hudaley says. “Generating these reports internally would be quite labor-intensive. By outsourcing the data collection and documentation creation for FDA and HIPAA compliance to Fortinet, we significantly streamline our processes and improve efficiency.”

Dramatically Improved Infrastructure at Less than Half the Cost

Streamlined network and security management is a key benefit of the new Fortinet infrastructure. “Management has greatly improved with the adoption of central management, which allows us to oversee operations from anywhere,” Hudaley says. “This setup eliminates the need for IT personnel at each location and does away with the cumbersome process of logging into multiple devices to manually analyze logs and monitor events. By moving away from a complex multibranch syslog system, we’ve significantly simplified our operations.”

“All Fortinet solutions are built on the FortiOS operating system, so there is a familiarity across the different tools,” he adds. “If you know how to use one, you can use them all. The Fortinet devices are intuitive to manage, and their similarities make it easier to unify configurations. When we switched to the Fortinet Security Fabric platform, my first thought was, ‘Wow, this is so easy!’”

Most network administration tasks take less staff time compared with the complex legacy environment. “For example,” Hudaley says, “Previously, making changes to VLANs across all subnets could take several hours. Today, we can complete the task in just a few minutes. There’s no longer a need to manually configure each switch, check cables, or trace connections. Now, we simply assign the VLAN to the port, and the job is done quickly and efficiently.”

Ultimately, the Fortinet infrastructure provides enterprise-grade security to the lean Complete Genomics team. “The Fortinet solutions will enable us to operate at our current staffing level,” Hudaley says. “If we encounter a situation that necessitates specialized support, we have the option to hire a contractor. This approach allows us to forego the need for a full-time network engineer on our payroll, resulting in a cost savings of several hundred thousand dollars this year.”

Plus, he adds, “The direct costs of implementing Fortinet solutions, along with their support and maintenance, are less than half of what we were paying for our previous infrastructure. Overall, the transition to Fortinet has resulted in significant cost savings for us.”

Adherence to U.S. Laws and Cybersecurity Best Practices

Complete Genomics is dedicated to adhering to U.S. laws and maintaining cybersecurity best practices. This commitment involves compliance with regulations such as HIPAA and FDA requirements and the implementation of security frameworks like NIST, CIS, and OWASP to establish robust security measures. Fortinet supports Complete Genomics efforts by providing essential security technologies and expertise. Additionally, with the aid of Fortinet Cybersecurity Training, Complete Genomics places a strong emphasis on human resources to maintain its cybersecurity posture, ensuring that its staff is well-trained and informed about the best practices.



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