

ZehnTek

Biotech Firm Expands Focus on Data Science by Relying on ZehnTek for Linux and Windows Expertise

Partnership streamlines operations by refreshing the IT infrastructure while also eliminating the need to hire full-time IT resources



SeqCenter offers gene sequencing services and accompanying data analysis to a global customer base for any organism from most sample types. Based in Pittsburgh, the company partners with academic and industry professionals to facilitate and expedite research on DNA and RNA sequencing, microbiome sequencing, SARS-CoV-2 sequencing, full flowcell runs, and bioinformatics.



THE CHALLENGE

Collin Kessler is a scientist. As the Director of Bioinformatics at SeqCenter, he's also responsible for IT. Naturally, Kessler wants to spend as much of his time as possible on DNA and RNA sequencing.

"The time our internal team spends on IT takes us away from our main focus," Kessler says. "The company is better served when we work on initiatives to support data analysis for our clients. But at the same time, we need to keep things running as far as IT is concerned. IT supports our mission of analyzing sequencing data."

Adding to Kessler's challenge is the on-premises Linux high-

performance computing environment that provides CPU, memory, and storage resources to process the extremely large amount of sequencing data. "Providing Linux support is a unique skillset that's not easy to find," says Kessler. "As our company has grown, we have needed more and more compute firepower, and that requires strong expertise in managing Linux resources so that applications continue to run smoothly."

Another area where SeqCenter needs IT support is its back-office Microsoft Windows environment. Kessler wanted to add single sign-on (SSO) capabilities so users could log in just once to access all their applications. He also needed to strengthen the firm's security posture across both the Linux and the Windows environments to streamline audits and log collection—a requirement of many SeqCenter customers.



THE SOLUTION

To solve these challenges, Kessler and SeqCenter turned to ZehnTek, a technology provider that designs, implements, secures, and operates solutions for complex IT environments. "ZehnTek offers a unique combination," Kessler points out. "Their team includes experts in both Linux and Windows, and they can provide support for everything that happens in both of our environments."

For refining the on-premises Linux environment, which features a server cluster with multiple CPUs and terabytes of memory, ZehnTek stabilized application performance and configured the open-source Slurm tool (a simple Linux utility for resource management) to effectively schedule the array of Linux compute resources.

The ZehnTek team also tuned storage access by converting the Linux server nodes running on virtual servers to nodes running on the physical machines. To add the Linux server user log-on to the SSO interface, it appeared SeqCenter would need to upgrade the Linux OS. However, ZehnTek applied a third-party solution that enabled SSO and MFA—without having to go through a time-consuming Linux upgrade.

For refreshing the Windows infrastructure, ZehnTek first configured a cloud-based Active Directory to establish SSO and MFA and then migrated the on-premises settings to this cloud environment—where system maintenance is less costly and front-end applications can take advantage of modern hardware. In the cloud, SeqCenter can also leverage this federated identity manager for licensed applications.

Moving to the cloud makes it easy to add new applications to the SSO interface. This is a big plus for SeqCenter since users previously had multiple logins. It was difficult to manage and cumbersome for the users. Now, when it's time to change a password, they just change their SSO password.

As part of the migration to cloud federated access, ZehnTek migrated the on-prem NAS storage to SharePoint, which makes it easier for users to collaborate. In addition to connecting the on-premises PCs to cloud federated access, ZehnTek configured a four-gig telecom circuit to improve bandwidth. ZehnTek also worked with another SeqCenter IT partner to improve the performance of the firewalls protecting the SeqCenter infrastructure.

"Throughout all IT enhancements, the way we work, we are changing the wheels on a bus that's moving," says Kessler. "We don't have a sandbox environment. So all the changes we make are live changes. ZehnTek has been great in helping us make quick changes. Our customers don't see a performance hit, and our employees barely notice the changes. There has been almost no downtime, and our team has been impressed by how smoothly the software implementations go."



THE RESULTS

To help SeqCenter prepare for security audits, ZehnTek added enhanced virus scanning to check for malware and common vulnerabilities. ZehnTek also implemented a monitoring solution for Linux server log tracking and intrusion detection.

With SSO, SeqCenter users can log in just once to access all their applications—data analysis, collaborative email, the VPN, and the wireless network. Access occurs transparently, so users only need to remember their SSO credentials.

"All of our servers now report critical vulnerabilities and malware-related problems," says Kessler. "With SSO, we can more finely control company PCs and computers, making sure they're secure and up to date."

The performance of both the Linux and Windows environments has stabilized, and the workloads are backed up consistently.

"By partnering with ZehnTek, we have avoided the need to hire an IT staff, even as the company continues to grow," says Kessler. "Having a consistent IT support system like ZehnTek grants us confidence in our system, and we know there will be reliable support as personnel move or advance in SeqCenter. This allows us to take on ZehnTek to supplant one or two IT professionals, without the risk."

When ZehnTek applied the resource management changes to the Linux environment and the security changes to the Windows environment, they did so without impacting application performance for customers, scientists, and employees. "It was business as usual," says Kessler.

ZehnTek currently provides managed services for the Linux environment, including security. "Partnering with ZehnTek and utilizing their managed services gives us more time to focus on the science of sequencing data analysis," Kessler emphasizes. "Anytime we need help, they're very fast, and they make it easy to engage with their ticketing system. And that ultimately keeps IT running smoothly so we can enhance the services we provide to our customers. That's what a business partnership is all about."

Key ZehnTek Technology Expertise for SeqCenter

- ✓ High Performance Computing support
- ✓ Linux system support
- ✓ Single Sign-On (SSO)
- ✓ Federated licensing
- ✓ Multi-Factor Authentication (MFA)
- ✓ Virtual Private Network
- ✓ Wireless network support
- ✓ Firewall support

Connect with Us

ZehnTek is a premier technology solutions provider, committed to offering comprehensive IT services tailored to meet the diverse needs of businesses.

- ✉ sales@zehntek.com
- ☎ 1-800-856-1335
- 🌐 www.zehntek.com

