Business challenge

Burdened with an outdated, inflexible IT infrastructure, the Slovak Centre of Scientific and Technical Information (SCSTI) needed to improve the services the scientific community needed for research.

Transformation

The SCSTI offers a wealth of knowledge and information. But until recently, its infrastructure lacked the computing power scientists needed to conduct their work. By engaging IBM and IBM Business Partner Atos SE to deploy a private cloud and a host of IBM solutions, the center optimized its IT environment, speeding and enhancing end-user services and flexibility of providing services.

Results

80% faster software provisioning
from five days to one day, using cloud management platform

Enhanced scalability and flexibility
through a centralized server with monitoring and automation capabilities

Increased data storage capacity and archiving
by deploying advanced data protection platform

The Slovak Centre of Scientific and Technical Information

A private cloud for research and development in Slovakia

Located in Bratislava, the SCSTI is a specialized scientific library of the Slovak Republic and a national center for research, development, innovation and education. First established in 1938 as the Slovak technical library, today the SCSTI serves mostly students and researchers. Services include operation of national information systems on behalf of the Ministry of Education, Science, Research and Sport of the Slovak Republic; support services in technology transfer; loaning and retrieving literature related to patents, standards and IT; and others. The SCSTI employs roughly 275 people.

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—Jan Turna, Director General, Slovak Centre of Scientific and Technical Information

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Lacking computing power and scalability

For university students and the scientific community of Slovakia, the SCSTI is the go-to place for research, information and knowledge. Its library offers a plethora of electronic and paper documents from around the world related to technology, natural sciences, social sciences and humanities. Researchers can also access a vast collection of books, periodicals and licensed material, including databases, patent documents, standards, theses, research reports and other records, all stored on various types of media.

To house its library of information, the SCSTI maintains an extensive IT environment and two data centers. However, until recently, the infrastructure lacked the computing power, scalability and hardware scientists needed to conduct their work.

"We needed to give our researchers a more modern, flexible infrastructure," says Jan Turna, Director General at the SCSTI. "We wanted to provide them with all the necessary resources for their research and development, including hardware, software and research applications."

For instance, many scientists rely on very specific applications to run large queries. Providing these applications was a lengthy and difficult process that required understanding end-user requirements, sending requests and provisioning the software on specific servers. What's more, some applications require more computing resources than others. Without autoscaling capabilities or servers powerful enough to support those applications, a query could be inadvertently cut short. As a result, the frustrated scientist would have to start over again after requesting more computing resources.

As the SCSTI continuously adds resources to its library, storage capacity, data archiving and data security were also growing concerns. Older data needed to be stored securely and cost-effectively on the appropriate devices. Scientists' research data and intellectual property needed to be protected from third parties. And because some applications automatically gather data, such as one that collects information about diplomas issued throughout the country, the volume of data grows incrementally each year.

Even though the SCSTI provides its infrastructure for free, it still faces competition from other research facilities. "To attract more researchers, we needed to upgrade our IT environment and provide our services in the best way possible," explains Turna. "After looking at many vendors, IBM and Atos were selected based on a public tender."

Building a modern cloud infrastructure

The SCSTI turned to IBM and Atos SE to deliver hardware services and build a private cloud infrastructure based on a variety of IBM technologies.

As a first step, Atos implemented a storage and data protection platform using an IBM® Storwize® V7000 Gen2 disk system for the central data repository and an IBM Storage TS3500 tape library for backup storage.

To automate data backup and archiving from the disk system to the tape library, Atos also deployed IBM Spectrum® Protect software. The solution, which provides hierarchical storage management (HSM), automatically moves sensitive research data and outputs between different storage devices. This capability, along with audit logging options, helps the SCSTI protect and secure research data.

"It's important to prove that the money invested to do the research is being used according to all the rules, and that the research outputs are available and can be used by other researchers," says Turna. "With Spectrum Protect, we can prove the research projects were done with these outputs and results."

To connect its two data centers, help manage its cloud infrastructure and automate its cloud services provisioning, the SCSTI deployed IBM Cloud™ Orchestrator software. As a high-performance platform, Cloud Orchestrator technology enables the center to create self-service portals where scientists and researchers can select from an array of research and analytics applications. Today the solution orchestrates devices together with 200 processor cores and more than 4 TB of RAM from different hardware vendors.

The SCSTI also uses Cloud Orchestrator technology to integrate its big data analytics solution, IBM BigInsights® technology. Researchers can take advantage of BigInsights software to analyze large volumes of unstructured data, while the SCSTI can use it to classify and tag web content, and to archive websites.

Gaining speed and flexibility

Today the SCSTI boasts an optimized, modularized and virtualized infrastructure. In turn, the scientific community gains a modern and powerful platform with self-service capabilities for research and development.

Supported by IBM technologies, the center's IT environment can scale up and down automatically, according to its researchers' requirements and workloads. "Now, everything is automated, so we can utilize all of the infrastructure in a more optimal way," says Turna. "We can allocate our

computing resources to different applications and when the applications aren't being used, reduce our resources."

Automation also speeds software provisioning. In the past, the process was long and arduous, often requiring as many as five business days. Now, through the use of templates created for the most frequently-used applications, the SCSTI can provide applications to its researchers in as little as one day, or 80 percent faster.

"When someone needs an application, we can deploy the machine and users can start their work immediately, without any delays or additional approvals," adds Turna. In addition, data analysis on the big data platform significantly speeds up different algorithms, helping scientist to focus on interpreting results during their research.

Using HSM capabilities, the SCSTI also increased its storage capacity and archiving systems without the risk of data loss. Consequently, it's

ideally positioned for growth, and to attract and meet future researchers' needs.

"What differentiates us is having a very powerful, modern infrastructure based on IBM software to support the researchers' work," concludes Turna. "Plus, the work is secure, the data is secure, and there's enough room for us to store all of the data and nothing is going to be lost. This is what makes the SCSTI more attractive than the competitor."

Solution components
- IBM® BigInsights®
- IBM Cloud™ Orchestrator
- IBM Spectrum® Protect
- IBM Storage TS3500
- IBM Storwize® V7000

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