



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Burdened with an outdated, inflexible IT infrastructure, the Slovak Centre of Scientific and Technical Information (SCSTI) needed to improve the services the scientific community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

“What differentiates us is having a very powerful, modern infrastructure based on IBM software to support the researchers’ work.”

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

Share this



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

Take the next step

To learn more about the IBM solutions featured in this story, please contact your IBM representative or IBM Business Partner.

About Atos SE

Headquartered in Bezons, France and with operations in 73 countries, IBM Business Partner [Atos](#) is a global leader in digital services and cloud, cybersecurity and high-performance computing solutions. The company serves enterprises and small to midsize (SMB) customers in the manufacturing, retail, transportation, financial services, public, health, telecom, media and utilities sectors. Atos was founded in 2010, employs more than 120,000 people worldwide and reported annual revenues of EUR 12.25 billion in 2018.

© Copyright IBM Corporation 2019. IBM Corporation, IBM Cloud, New Orchard Road, Armonk, NY 10504. Produced in the United States of America, December 2019. IBM, the IBM logo, ibm.com, IBM Cloud, IBM Spectrum, BigInsights, and Storwize are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml. This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates. The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions. THE INFORMATION IN THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided. Statement of Good Security Practices: IT system security involves protecting systems and information through prevention, detection and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, misappropriated or misused or can result in damage to or misuse of your systems, including for use in attacks on others. No IT system or product should be considered completely secure and no single product, service or security measure can be completely effective in preventing improper use or access. IBM systems, products and services are designed to be part of a lawful, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products or services to be most effective. IBM DOES NOT WARRANT THAT ANY SYSTEMS, PRODUCTS OR SERVICES ARE IMMUNE FROM, OR WILL MAKE YOUR ENTERPRISE IMMUNE FROM, THE MALICIOUS OR ILLEGAL CONDUCT OF ANY PARTY. Actual available storage capacity may be reported for both uncompressed and compressed data and will vary and may be less than stated.

