Success Story

SGI at Czech Armed Forces

The Challenge

To maintain its obligations within the NATO community, the Czech Army needs accurate and instantaneous information as to the availability and location of its troops and material. Its existing Logistics Information System could no longer provide its disparate field commanders reliable, rapid access to the Army's ever-growing data sets.

The Army wanted to upgrade its data management system with a solution that included backwards compatibility with its legacy solution, minimal down times, and redundant, affordable storage.

The Solution

SGI supplied the Czech Army with a fully redundant solution based on SGI® Origin® 350 server architecture and the IRIX® operating system and a SAN fabric based on Brocade® switches. Data is stored using the IBM Informix® database solution. Storage is managed through the AppIQ StorageAuthority® Suite. EMC Legato NetWorker® preserves a backup of data to disk and tape libraries.

The Result

The Czech Army's new Logistics Information System provides immediate access to all the military's resources, through a backwards-compatible system that easily integrates with technologies used by other NATO members. Proven systems and partners minimize downtime and reduce both capital and operational expenditures. In the event of any operating issues, SGI is ready to respond in a matter of minutes.

Building a Reliable, Easy-to-Manage Information System for Logistics

The 1968 "Prague Spring" ushered in more than an attempt to establish democratic institutions. It represented Czechoslovakia's quest to forge its own destiny, both politically and economically.

While a short-term failure, the brief movement sowed the seeds for 1989's Velvet Revolution, a seismic shift in Czechoslovak life. Today, the Czech Republic and Slovakia are free from Soviet influence, and have regained their place in the community of nations. Its countries' citizens now have the rights as well as the responsibilities of a modern, technological society.

In 1999, the formerly-Communist nation became a member of NATO—the North Atlantic Treaty Organization—pledging itself to militarily defend the security of its fellow member states, many of whom had been its enemies for over 30 years.

To fulfill its obligations to its partners in this highly advanced technological age required a fighting force that was competent, able to be rapidly placed, and equipped with the most up to date materiel.

But deploying armed forces in times of need is not a simple task. Calling up troops at a moment's notice requires a precise knowledge of all an army's resources, as well as its whereabouts. One must be able to pinpoint with exact certainty the location of its forces, plus a wide variety of weapons, transport, tanks, planes, and spare parts.

To do so requires an advanced and highly reliable computer system, one that not only can access information rapidly, but that has the necessary architecture to make the entire system fail-safe. During a crisis, an army must know, without a

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shadow of a doubt, that its information will be constantly accessible with the minimal amount of delay.

As a member of NATO, whatever system the Czech Army chose for its technology would have international as well as domestic ramifications. The system would have to be completely interoperable with those of its sister states, and be able to operate seamlessly and transparently to rapidly access and deliver data to thousands of users spread across a wide geographic area.

To create this new upgrade to its Logistics Information System database backbone, the Czech Army has once again put its trust in solutions from SGI.

In 2004, the Ministry of Defense chose to upgrade its existing logistics system by employing SGI Origin 350 servers from SGI. The multimillion dollar contract ensured that a new system would be installed that would guarantee that logistics data would always be available throughout the country and abroad. In case of failure, the system was designed to be brought back online in just minutes.

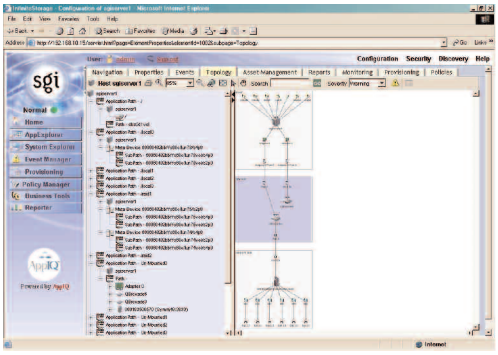
This is not the first time that the Czech Army has chosen SGI; the partnership actually stretches back to the last decade. In 1999, the company was awarded its first contract, a project to create the infrastructure for the nation's original Logistics Information System. To do so, SGI then installed SGI Origin 2400 servers, as well as a host of application and management software.

The Czech Army chose the SGI Origin 2400 due to its highly expandable features; customers can easily add processors as their needs grow; they can scale the single shared-memory system from 2 to 16 processors in a single rack. And each module supports two to eight MIPS® processors, allowing it to manipulate vast amounts of data.

As with many SGI products, the company's Origin servers utilize the rock-solid IRIX operating system, ensuring that breakdowns will be minimal. With IRIX, systems can run for months or years at a time, without failure.

That extraordinary reliability minimizes support issues. But if support is ever necessary, SGI is there with rapid-response, round-the-clock assistance.

"Access to our data—at all times—is not just a nicety; for the defense of our country and of our NATO colleagues, it's a necessity," said Colonel Jaroslav Reha, head of the Army's Logistics Information System operations. "With SGI we know that any system problems will be, and indeed have been, corrected as quickly as humanely possible."



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For its database software, the Army chose IBM's Informix solution and hired Aura, a local development company in Brno, to port the application. The Army also used EMC storage solutions, and utilized EMC Legato NetWorker to preserve a backup of data to tape libraries.

"The 1999 solution worked well: database and backup tools easily integrated with SGI's hardware," said Colonel Reha. "But over the next few years, our increased international security involvements necessitated that we take our logistics system to the next level."

Specifically, the Army was not satisfied with its tape backup system. When the system went down, data was not available again for a while, a situation that was becoming increasingly untenable.

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The Czech Republic's entrance into NATO brought with it another, albeit technical, responsibility. Its communications and database solutions needed to meet international standards, using NATO parts numbers, and able to be integrated into a larger organization-wide system.

Four years after the initial ISL implementation, the Czech Army issued another bid for an updated system that could meet its current needs and obligations.

Specifically, the Army's RFP demanded these rigorous standards:

- In case of any hardware failure, the system had to be up and running within one hour.
- If the Informix database went down, it had to be capable of being restored within one hour.
- All storage had to be redundant.
- The system had to be easy to use.
- All hardware and software had to be completely backwards compatible with all existing technology.

The Army considered aggressive bids from a number of world-class, international competitors. In the end, it once again chose SGI.

"SGI proved itself in four years of real-world, unforgiving applications," said Colonel Reha. "As a segment of society charged with guarding the security of our citizens, we could not afford to make a mistake with the systems that enable us to operate in today's highly-technological world."

The new upgraded package includes SGI Origin 350 servers, SGI's IRIS FailSafe® High Availability solution for unplanned outages, integration with EMC's Software for Remote Storage Replication and EMC Legato NetWorker backup and recovery solution.

To efficiently manage the Czech Army's large database of personnel and materiel, SGI included the AppIQ StorageAuthority Suite. Developed by AppIQ, the world's leading provider of SAN storage management solutions, AppIQ StorageAuthority Suite gives system administrators the ability to monitor both SAN and other activities on all servers.

Other compelling features of AppIQ StorageAuthority Suite include the ability to monitor performance and capacity utilization in real time; in-depth file system, switch and storage reporting; the automatic discovery and topology rendering of the SAN infrastructure; plus the use of software wizards to automate provisioning tasks.

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The solution operates via a standards-based platform and provides IT personnel with reports using predefined templates, offering information such as infrastructure management, asset management chargeback and historic trending.

"SGI and AppIQ have given us the ability to easily optimize and manage usage, which in turn has helped the Czech Army to dramatically reduce capital and operating storage costs," said Colonel Reha. "We operate under a limited budget; AppIQ's SAN storage management solutions proved to be second to none."

The SGI Origin 350 gave the Army the ability to deploy an optimal solution in the smallest possible space. Thanks to the NUMAflex™ architecture, modules could easily be added to the SGI Origin 350 to expand the system from a standalone, two-processor technical server to a high performance computer with up to 32 processors, 64GB of memory and 62 PCI-X slots.

The small footprint of the SGI Origin 350 meant that an entire ground station (including server components, archive recorders, and a storage area network) could all be combined into a single rack.

In addition to its high acquisition data rates and shared memory architecture, the Origin 350's low power consumption made it an ideal component to operate in poorly-ventilated, diesel-powered rooms, as may be required from time to time in defense applications.

Both the original and this newly upgraded Logistics Information System have earned the essential approval certificate from the NBU, The Czech Republic's National Security Authority.

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"When it comes to national security, the SGI-based systems we now have in place guarantee that in a national or NATO emergency, the Czech Army will be able to respond in as short a period of time as possible, and with all our resources at our disposal. This gives us the confidence that we can do our part for the Alliance and our country."

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