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CASE STUDY

SOITRON HAS BUILT PIONEERING SERVICES IN A GOVERNMENT CLOUD ENVIRONMENT

CUSTOMER: **MINISTRY OF INTERIOR OF THE SLOVAK REPUBLIC**

CORE BUSINESS: State administration

1 Requirements

- Ensure more efficient use of IT infrastructure resources across the state administration (ministries of the Slovak Republic)
- High availability of government cloud services up to geographical redundancy
- Build a disaster recovery connection between two geographically separate locations of the government cloud
- Effective load balancing down to the level of individual services in the government cloud
- Develop load balancing service and allocate this service under the existing cloud orchestrator

2 Technologies used

- F5 Viprion pre LTM (Local Traffic Module)
- F5 BIG-IP pre DNS (Domain Name System)
- Cloud SDN (Software Defined Network) orchestrator
- Cisco networking components

Before the government cloud started to be built, the Slovak state administration had 250 separate data centers. The vision was to get them gradually all "under one roof". The government intends to save 15 % to 20 % of operating costs representing a saving of EUR 30 million per year.

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Background

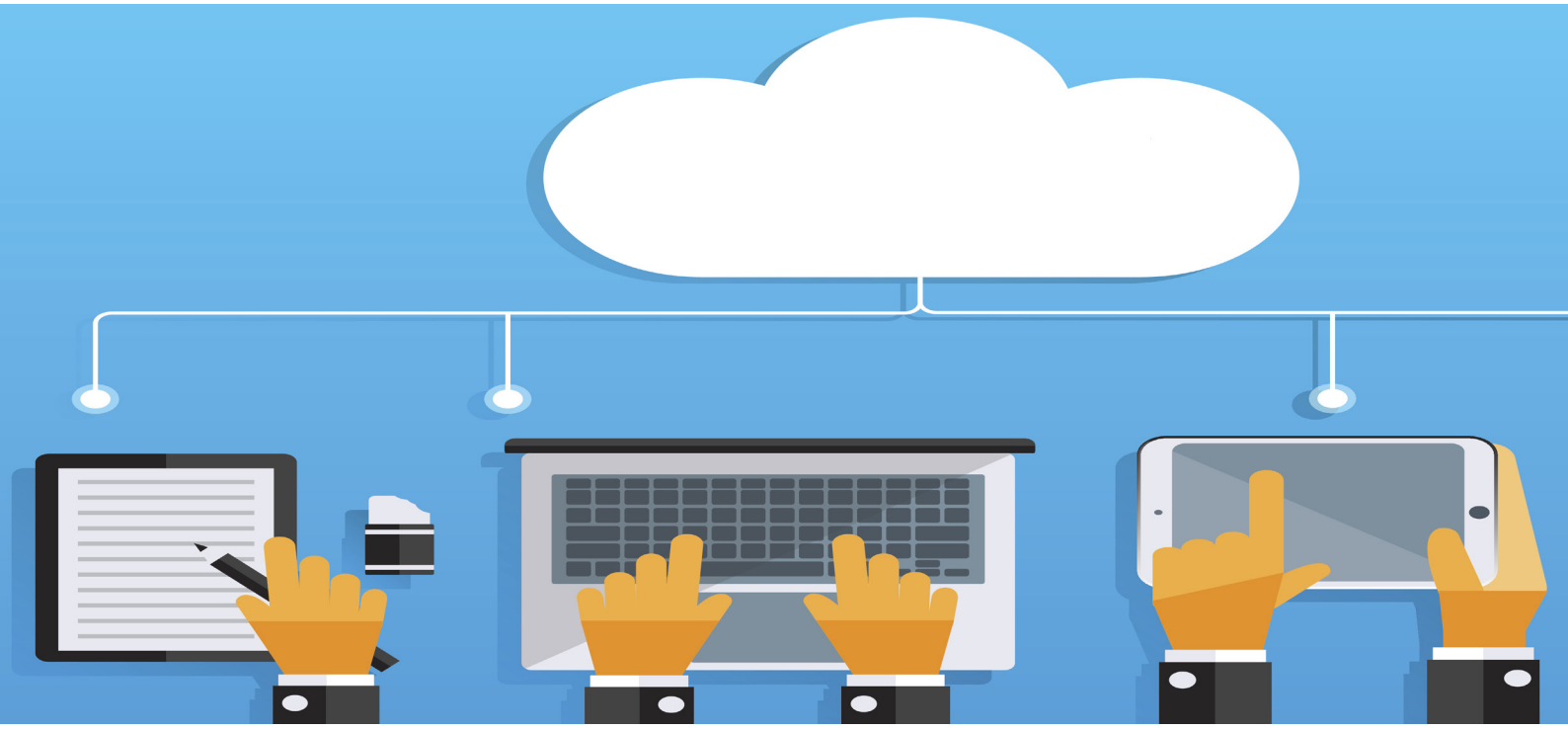
In 2014, the Government of the Slovak Republic approved the strategic document "Proposal for Government Data Centre Centralization and Development" with the view of centralizing numerous governmental data centres to two sites. The goal was to build a private government cloud to provide IT services to individual ministries and government agencies.

This concept is intended to allow individual institutions to make use of IT easier and more cost effective. Rather than owning and operating their own infrastructure and having all the troubles and costs associated therewith, government bodies will now be able to simply click to select desired services through a web interface (number of servers, network connectivity, software licenses, etc.), and the requested resources will be made available. Almost in real time, rather than in a few days.

Behind the seemingly simple model of hardware, software and data service use is a robust infrastructure comprising two geographically separate data centres that form the so called government cloud. At the time it started to be built, the Slovak state administration had 250 separate data centres. The vision of the project is to get them all "under one roof". The government wants to save 15 % to 20 % of operating costs representing a saving of EUR 30 million per year.

For such large data centres to work and be managed effectively, they need a sophisticated system of automating resource allocation automation and data flow routing optimisation.

> "Building services in such huge data centers with five million potential end users is unparalleled around here. That's why we had to come up with a pioneering solution."
>
> **MARIANNA RICHTÁRIKOVÁ**
> Soitron, Network Business Unit Manager



Cloud orchestrator

One of the major tasks is to solve the load-balancing (request allocation) of individual hardware and software resources. Thanks to a cloud orchestrator, this process is actually fully automated through a user interface. The cloud orchestrator uses Software Defined Network (SDN) principles, where the traditionally manual administration processes are fully automated. It is a software that integrates end-user and system administrator communication interfaces into a graphical interface and automatically configures servers, networks and other systems.

Finally, it is necessary to "teach" two independent platforms (the load balancer and cloud orchestrator) to communicate with each other so that the resources requested by individual institutions through the graphical interface (the service catalogue) are correctly responded to by the load balancer technology.

"Building services in such huge data centres with five million potential end users is unparalleled around here. That's why we had to come up with a pioneering, innovative solution," says Marianna Richtáriková, the head of the Networking Business Unit at Soitron.

Solution

The government cloud itself is physically located in two sites distanced over 200 km away from each other and built by two different institutions. These are two independent robust infrastructures where services are provided either by one, or the other or both nodes (data centres) of the government cloud at the same time. High availability must be ensured for these sites from the network level down to the application environment.

The central element of this design is the F5 BIG-IP and F5 Vipron platform by F5 Networks, which technology maximizes load routing optimization and the use of computing resources. High availability is designed in two levels. While the F5 BIG-IP GTM addresses it at a "global" level and divides the load between geographically independent data centres, the easily scalable F5 Viprion solution utilizing an LTM module addresses the availability within a single data centre. The F5 platform also allows for encryption and decryption of communication, which significantly reduces the load of individual servers.

The solution is fully virtualized, i.e. every institution in the government cloud has guaranteed performance and a possible failure of any one institution would not adversely affect the rest of the system.

As a result, fully automated processes are achieved that fit the requirements of the government agencies using the government cloud, as well as end-users using the government services.

> "The government cloud project was considered a challenge because a similar software-defined network solution in cooperation with F5 Viprion had not been implemented anywhere in Slovakia or across the EMEA region before."

MARTIN KYRC
Soitron, Network Specialist

> "What is unique about this project is the combination of a software-defined network solution and an effective load balancing and failure protection system."

MARIANNA RICHTÁRIKOVÁ
Soitron, Network Business Unit Manager

Outcomes and benefits

- The benefit of the process automation for the user is faster resource allocation – it will be a matter of minutes or, if subject to an approval process, hours rather than days, as used to be the case traditionally.
- Significantly more effective data centre management and savings in operational cost and human resources.
- High availability of data centre services, including at the geographic location level, which allows for expanding the use of the government cloud in the future.
- More effective operation of government cloud data centres, which may complement each other and take over the operation tasks depending on their availability and momentary load.
- Such system design allows a very effective definition of data links directly between the systems of individual government institutions.
- Simple scalability of the F5 modular solution.
- The F5 solution allows easy functionality expansion in the future.

> "Soitron's requests and comments have had a great value for us. Thanks to them we have received very good feedback on the implementation of our F5 BIG-IP and F5 Viprion solution in real-life operation."
>
> **JAKUB ŠUMPICH**
> F5 Networks, Territory Manager Eastern Europe

F5 Networks

F5 Networks is a global leader in solutions for application operation optimisation. Hardware, software, and virtual solutions help organizations address the ever growing voice, video and data transmission demands to better support mobile workers and apps - in data centres, networks and clouds. F5's expandable architecture allows application optimization, application and network protection, and enhanced application reliability.

The company is based in Seattle, Washington, and has offices around the world.

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