

Advanced solution for satellite missions

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Estonian start-up company Spaceit has unveiled next-generation service for control and monitoring of satellites. The company offers an alternative approach to satellite ground communications, enabling customers to use their resources more efficiently via a modern and secure software solution.

Software is the key to developing the full potential of space via satellites

providing efficient and effective services. The value of software to space systems has greatly increased over the last decades, reflecting the growing functionality and autonomy of spacecraft and the vast amount of [mission](#) data to be collected and processed.

Under the EU-funded research and innovation programme, the SPACEIT-MCS initiative, the SME Spaceit offers customers a complete turnkey solution. In other words, they provide all the hardware and software necessary to operate, maintain, process, and archive data from satellites. They are focused on providing flawless and automated solutions to satellite missions and system integrators, as well as value-creating activities to ground communication equipment owners.

Mission control as a service

Recently, there has been a bold shift from dedicated data centres to cloud platforms. Following the example of other small or large companies, space companies are moving towards cloud computing due to its pronounced advantages. By utilising virtual machine technology, cloud providers can host ground system software with a significantly smaller footprint.

"Spaceit offers [mission control](#) as a service, a one-stop solution for satellite ground communications," notes Silver Lodi, co-founder of Spaceit in Estonia. Taking a low-cost, scalable approach to space, the company provides a complex solution which includes public cloud and Software-as-a-Service (SaaS) innovations like pay-as-you-go pricing and hybrid infrastructure for space operations. In addition to the flexible software and service upgrades, the customers receive pre-integrated access to a worldwide network of [ground stations](#), professional satellite control and consultation service.

"The cloud-based mission control system is an integral part of our

service. Imagine looking at your satellite telemetry from a mobile device from anywhere and at any time without worrying about software development, data backups or operational risks," notes Lodi. Some features of this new mission control system include satellite command delivery, access to telemetry by remote users, efficient data exchange between systems, payload data delivery, and accurate prediction of the satellite orbit.

Overcoming challenges

Spaceit is simplifying communication services for satellite operators by providing a sophisticated cloud communications platform that enables customers to customise, simplify and scale communications. Although the service can be used on all satellite, regardless of their size, the company targets small satellites that weigh less than 500 kg to enter the market.

"Currently, small satellite missions are spending up to 50 percent of the mission budget to the development, upkeep and operations of mission control systems. Due to the lack of viable alternatives on the market, mission control systems are often built in-house from scratch," notes Lodi. However, these solutions often have limited scalability, a few essential features and limited security. Furthermore, they are typically limited to using a small number of ground stations – mostly one – narrowing down radio coverage.

Spaceit's platform allows users to operate multiple satellite missions simultaneously using a worldwide network of ground stations. By eliminating software development, investments into hardware and extra resources for mission [control system](#) maintenance, the operational costs are decreased by 50 percent, which translates into a 30 percent decrease in the overall budget of the mission.

"Using Spaceit's [service](#), [satellite](#) missions will receive wider radio coverage and higher reliability at a lower cost. At the same time, ground stations will have an open marketplace with an access to a customer base to monetise their operations," notes Lodi. With its innovative cloud platform, Spaceit aspires to become the leading provider of mission management systems for small- and medium-sized satellites in the world over the next five years.

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