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CLOUD-BASED SOLUTIONS CONTRIBUTING TO THE OPERATIONAL CONCEPT OF THE NEW
UAE'S VERY HIGH-RESOLUTION SATELLITE (MBZ-SAT)

Abstract

The Mohammed Bin Rashid Space Centre (MBRSC) has embarked on a groundbreaking initiative, partnering with multinational technology company GMV, to develop advanced data services systems for the UAE's MBZ-SAT Earth observation satellite. This collaboration not only aims to enhance the quality and efficiency of satellite imagery but also revolutionizes the operational framework by implementing cloud-based solutions for mission operations. The deployment of GMV's existing products, such as Prodigy for data processing and Flexplan for mission planning, underscores a strategic shift towards cloud-centric approaches in satellite mission operations.

One distinctive aspect of this mission is the operational concept applied to the ground segment, characterized by total automation and a cloud-native solution, . The seamless integration of ground segments facilitates the extraction of actionable information from satellite data, propelling the commercial Earth observation (EO) market forward. Emphasizing a collaborative environment with end-users and market stakeholders at its core, this initiative sets the stage for enhanced synergy and innovation in the satellite industry, as well as to create regional ecosystem sharing data facilitated by the adoption of cloud services.

This paper delves into the multifaceted challenges and critical aspects associated with migrating to cloud-based operations in the satellite industry. A central focus is placed on the maturity of data processing methodologies, highlighting the parameters crucial for determining the suitability of hybrid, fully cloud, or fully on-premise solutions. Additionally, the discussion encompasses the identification of mission operations functions/services best suited for cloud adoption, exploring the nuances of hybrid versus fully cloud versus fully on-premise approaches.

The analysis extends to the advantages of operating in the cloud, encompassing aspects such as cost-effectiveness, scalability, security, accessibility, disaster recovery, compliance, interoperability, reusability, and automation. Moreover, the significance of multi-cloud or multi-region approaches in achieving mission success is examined, highlighting the need for robust and adaptable operational frameworks in an increasingly dynamic environment.

Looking towards the future, GMV envisions extensive utilization of cloud solutions for satellite mission operations, both in hybrid and exclusive configurations. This necessitates a paradigm shift in operational concepts, requiring organizations to adapt to the evolving landscape of cloud-based technologies. Addressing the long-term operational challenges of cloud adoption demands a concerted effort to cultivate organizational resilience and expertise in cloud-based operations.

In conclusion, the integration of cloud-based solutions in satellite mission operations represents a pivotal advancement in the industry, offering unprecedented opportunities for innovation and collaboration.