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Author: Mr. Salah Buraiky
Saudi Space Commission (SSC), Saudi Arabia, salah.buraiky.1@aramco.com

Mr. Mostafa Al Amer
Saudi Space Commission (SSC), Saudi Arabia, mostafa.amer.1@aramco.com

EXPLORING SPACE SOLUTIONS TO ENABLE OIL & GAS OPERATION

Abstract

The operation at Saudi Aramco is relatively harsh and firm due to enormous amount of remote facilities which are geographically dispersed across the kingdom of Saudi Arabia. Offshore fields and deep in the desert sites give an idea about how challenging the operation is. Providing communication solution, optical or terrestrial radio connectivity services, to such remotes sites is not always economically feasible. Therefore, exploring space technologies to evaluate the potential space solutions that could address the connectivity challenges experienced in such remote facilities.

This paper highlights multiple pilots conducted by Saudi Aramco with different Space technology providers to evaluate various space technology capabilities in connecting and enabling Oil and Gas facilities.

One pilot was conducted to explore the LEO satellite capabilities for connecting IoT devices over the space. Another Pilot was conducted to explore the capabilities of LEO satellite solutions to provide broadband connectivity for connecting remote operation facilities. This paper further explains each concluded pilot and highlights the strength and weaknesses of each technology.

Additionally, edge computing and space-based data center are being examined to explore the opportunities to move intelligence and storage capacity to space. The advancement in aerospace technology along with recent studies and use-cases showed that low earth orbit (LEO) satellites can play a role, not only as a communication solution, but in future computing and application processing resources.