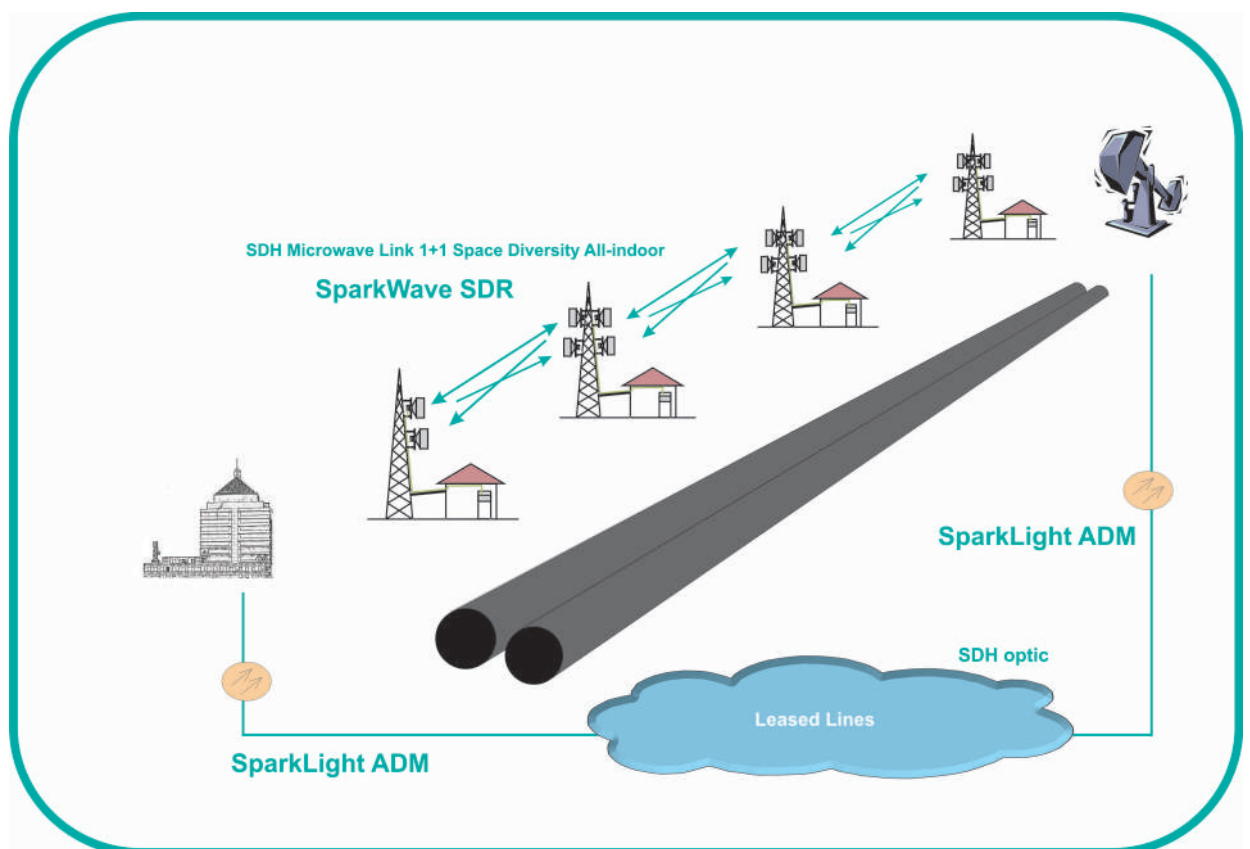


# Oil Gas network solution

Iskra Sistemi is well known in segment of oil, gas and utility networks due to wide range of products developed on demand for the specific needs of this market segment:

- All indoor configuration
- Redundancy 1+1 with different protection schemes
- Redundancy of all interfaces
- Repeaters for wire-line and wireless connections
- Low consumption
- Forward Error Correction features
- Same SDR platform for back up wireless and backbone wire-line connections
- Supported data and voice access channels: FXS/FXO, V.11, V.28, V.35, E1 (G.703), E3, n x STM1, N x STM4, STM16, FE, GE, xWDM
- Single SparkView NEMS
- Supported integration of 3rd party equipment
- Monitoring of power supply, heating and cooling etc

So far Iskra Sistemi is supporting operations on 5000 km of pipelines in Russia and Central Asia.

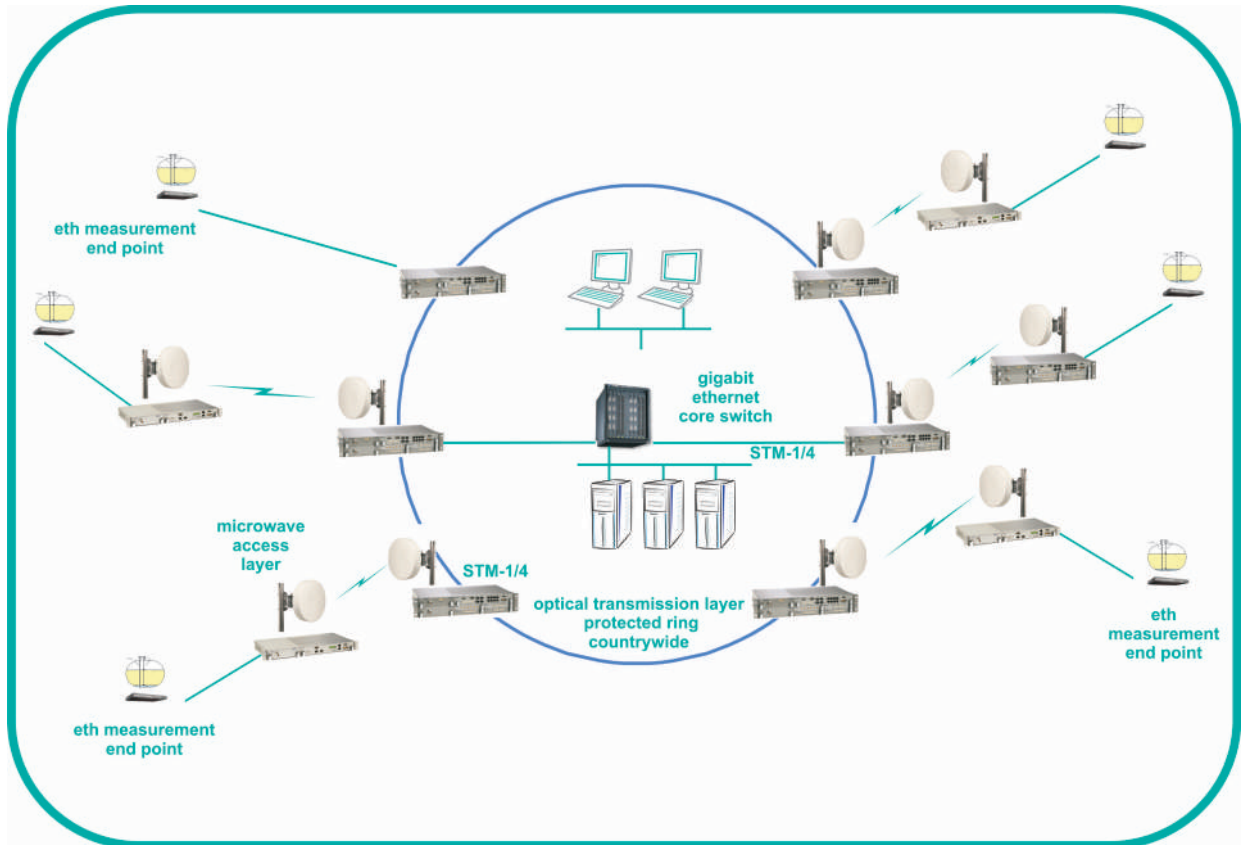


In industrial environments, such as gas or oil pipes, there is nothing more important than reliability and availability. Iskra Sistemi has implemented thousands of kms of microwave links in most hostile environments, such as Siberia, operating as low as at -50°C. Line protection is guaranteed by using frequency or space diversity. Super long hop span is provided with by providing high power output to the antennas, enabling hops of over 70 km. Extreme temperatures and tempests in winter are fight against by using split-mount technology, where the radio part of the device is mounted indoor, along with the system unit inside the cabinet, and waveguide is used to bring the signal from the cabinet at the foot of the tower to the antenna on the top of the tower.





# Oil Gas network solution



SCADA systems require a solid network infrastructure. In case of countrywide process control, such as control of oil tanks, a 3-tier network is a good solution. The core IP based services are interconnected into a countrywide protected optical ring with STM-4 or STM-16 interfaces on the trunk. The distribution from the regional locations is done through microwave links of STM-1 155 Mb/s or PDH 34 Mb/s, ending in Ethernet local interfaces. The probes, local servers and measurement devices are again implemented in local area Ethernet switches. It is more than easy to implement video surveillance, based on IP cameras, too.

