iQuila
SOFTWARE DEFINED NETWORKS

iQuila IN MINING

OUR CHALLENGE

As a prominent leader in the mining and mineral exploration industry, our company was in search of a highly reliable and efficient Layer 2 connectivity solution. This solution must be capable of operating seamlessly over our private 5G and Wi-Fi networks, while supporting a 1500 MTU. The connectivity solution is essential for linking our extensive fleet of heavy industrial machinery, which includes state-of-the-art autonomous drilling rigs and large haul vehicles.

To ensure optimal performance and operational efficiency, the solution must support the extension of five native VLAN IDs at Layer 2, all while maintaining minimal latency. Each of our mining sites required comprehensive Layer 2 connections to approximately 400 vehicles and pieces of equipment.

The robustness and resilience of this system was of paramount importance. Any downtime or connectivity issues could lead to substantial financial losses, potentially amounting to millions of dollars. Therefore, we required a solution that guaranteed continuous operations under the demanding conditions of our industry.

KEY CHALLENGES

Fully Layer 2

Exceptionally resilient

1500 MTU

Cost efficiency

THE SOLUTION

iQuila Enterprise was selected for this solution due to its advanced Layer 2 capabilities. Its High Availability (HA) ensures complete redundancy, while its sophisticated Layer 2 features enable seamless Layer 2 connectivity from the core network to IoT devices at the edge. This setup delivers the required VLANs and supports our security, health, and safety protocols. The 1500 MTU is crucial, ensuring constant, low-latency communication regardless of the equipment's location within the mine. This significantly impacts equipment uptime, eliminating shutdowns of autonomous machinery and thereby enhancing production and profitability.

KEY BENEFITS

Full Layer 2
A fully Layer 2 solution provides a seamless and efficient network architecture that enables direct communication between devices within the same VLAN. This is particularly crucial for our mining operations where real-time data transmission and coordination between autonomous drilling rigs, haul trucks, and other heavy machinery are essential. By maintaining Layer 2 connectivity throughout the network, we can ensure low latency and high-speed data transfer, which are vital for the synchronization and performance of our industrial equipment.

Exceptionally resilient
The resilience of our connectivity solution is of paramount importance due to the harsh and demanding conditions of the mining environment. iQuila Enterprise offers High Availability (HA) and complete redundancy, ensuring that our network remains operational even in the event of a hardware failure or other disruptions. This exceptional resilience minimizes downtime and mitigates the risk of costly interruptions in our operations. By ensuring continuous and reliable connectivity, we can maintain consistent production levels and avoid the substantial financial losses associated with equipment downtime.

1500 MTU
The support for a 1500 MTU (Maximum Transmission Unit) is critical for our operations as it allows for the efficient handling of large data packets. This capability is essential for maintaining constant communication between our network core and IoT devices at the edge, ensuring smooth data flow and reducing the overhead associated with packet fragmentation. With a 1500 MTU, we can achieve low-latency communication, which is crucial for the real-time monitoring and control of our autonomous machinery. This ensures that our equipment operates at peak efficiency, contributing to higher productivity and operational effectiveness.

Cost efficiency
Implementing iQuila Enterprise not only meets our technical and operational requirements but also offers significant cost efficiency. By providing a robust and reliable connectivity solution, we can avoid the high costs associated with network downtime and equipment failures. Additionally, the ability to maintain seamless Layer 2 connectivity reduces the need for complex network configurations and expensive hardware, resulting in lower capital and operational expenditures. The cost efficiency of this solution allows us to allocate resources more effectively, enhancing overall profitability and enabling us to invest in further advancements in our mining operations.

In summary, iQuila Enterprise provides a robust, resilient, and cost-effective connectivity solution that meets the demanding requirements of our mining operations, ensuring continuous productivity and profitability.