

Forest fires caught on camera: Infinet Wireless provides high-speed data transfer for Kazakhstan's Nature Reserve video surveillance system.



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Infinet Wireless provides high-speed data transfer in the video surveillance system in the national park of Kazakhstan.

The State National Park “Burabay” is one of the most beautiful nature reserves in Kazakhstan, with magnificent coniferous forests, healing lakes, unique mountain landscapes and rare fauna and flora. The Park is located in the north-east of Kazakhstan, in the Akmola region, and extends over more than 129 thousand hectares.

The core initiative here is to preserve the integrity of the unique ecosystem and restore disturbed natural and historical-cultural complexes and objects.

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The innovative video surveillance system deployed across the territory of the national park is designed to monitor the situation and ensure early detection of forest fires.

It is a hardware and software complex with video monitoring points, special software, a geoinformation system and wireless data transmission links.

Video surveillance cameras are installed on telecommunications masts with a height of 30-40 meters— this provides LOS conditions over long distances. An autonomous power supply is connected to the masts: each tower is powered by solar panels.

Wireless network between the masts and the monitoring central point is

organized on the basis of the Vector 5 Point-to-Point solutions with a bandwidth of up to 450 Mbps. A total of 14 radio links have been installed, which provide coverage of most of the territory of the reserve.

When fire is detected, video cameras equipped with ultra-precise thermal imagers recognize a cloud against a forest background, picking up a signal at distances of up to 13 km, determine the coordinates of the fire source and transmit information to a monitoring center instantly.

When choosing a vendor, the main factor in favour of Infinet Wireless products was the simplified integration of wireless solutions into the existing infrastructure. Additionally, the Infinet Wireless solutions proved to be more affordable than the solutions of competitors.

The required equipment had to withstand the most unfavourable weather conditions of the region (strong winds and rains, temperature changes, fogs) and was able to connect to the ground in case of a lightning strike.

Infinet Wireless solutions have a moisture protection system and a built-in lightning protection. Moreover, uninterrupted operation is guaranteed at extreme temperatures from -40 °C to +60 °C.

Some radio links were deployed across the surface of Lake Borovoe, which is located on the territory of the reserve.

The water surface is known to have a strong influence on the radio links due to multipath signal propagation and amplitude distortion.

The Vector 5 solutions are equipped with all the mechanisms needed to maintain stable radio connectivity — this is an Automatic Retry reQuest feature, activating in case of loss of data during signal propagation (ARQ), minimizing the influence of interference, etc. Also, if there is interference at the operating frequency from other devices, the Instant DFS technology automatically changes the center frequency without interrupting communication.

"It was our first experience of working with the Infinet Wireless company. We were able to deploy a reliable wireless network with impressive functionality in the shortest possible time. Infinet offered us an operator-class solution for consumer-level cost. The solutions of the Russian vendor are able to provide high-resolution video transmission in real time with minimal video transmission delay. We are very pleased that our efforts proved successful, and we were further convinced that with the Infinet solutions we can solve the most complex technical tasks of our customers,"- said Yuri Kim, General Director of Baylanys Telecom and Technology.

"We contacted several wireless solution vendors and checked the quality level of their products, which were often far from perfect. As a result, we chose Infinet Wireless solutions as the most reliable, high-performance and simple in terms of network infrastructure deployment. Our joint expertise and collective experience in the implementation of the project allow us to maximize the use of the competencies of our partners and the manufacturer of high-quality equipment, which led to the successful completion of the first stage of this project of national significance," - Talgat Bizhanov, General Director of Antares Engineering LLP.

Requirements:

- Providing communication between a distributed video camera system and a single monitoring center
- Real-time video data transmission
- Consistent high data transfer rate over the network

- Uninterrupted operation of the equipment in harsh climatic conditions
- Scalable and cost-effective solution

Solutions:

- Vector 5 (V5-23) Point-to-Point solution with up to 450 Mbps throughput

Customer benefits:

- Radio links at a distance of up to 20 km were installed, which made it possible to organize centralized monitoring of extensive forest areas
- Reasonable cost of installation and operation
- High throughput for video surveillance data transmission
- Easy and convenient installation and configuration of solutions
- High scalability of the system deployed with Vector 5 solutions, able to increase functionality by updating the software without dismantling and replacing devices.