Permafrost Monitoring

wanwave's permafrost monitoring system offers a comprehensive solution for monitoring permafrost conditions, mitigating risks associated with permafrost thaw, and protecting infrastructure. By deploying the system, stakeholders can enhance their understanding of permafrost dynamics, improve infrastructure resilience, and mitigate the environmental impacts of permafrost degradation.

Key aspects of using wanwave's permafrost monitoring system include:

1. **Real-Time Monitoring:** **wanwave**'s permafrost monitoring system continuously monitors key parameters such as ground temperature, active layer thickness, and permafrost stability in real-time, providing stakeholders with immediate insights into permafrost conditions and trends. This real-time monitoring capability enables stakeholders to detect permafrost thaw, assess ground stability, and respond promptly to changes in permafrost conditions to mitigate risks to infrastructure and ecosystems.

2. **Infrastructure Protection:** The permafrost monitoring system contributes to infrastructure protection by monitoring ground temperature and permafrost stability near critical infrastructure such as roads, buildings, and pipelines. By detecting permafrost degradation and ground subsidence, stakeholders can identify potential risks to infrastructure, implement preventive measures such as insulation or reinforcement, and mitigate risks of infrastructure damage or failure due to permafrost thaw.

3. **Seamless Integration:** **wanwave**'s permafrost monitoring system offers APIs for integration with other environmental monitoring networks, climate modeling platforms, and decision support systems. Integration allows stakeholders to centralize permafrost data, analyze trends, and forecast future permafrost

Hardware Components Used in this Solution

MULTI-CHANNEL TEMPERATURE RECORDER
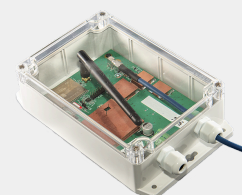
WNG-20 NETWORK GATEWAY

conditions, enabling informed decision-making and adaptive management strategies to address permafrost-related challenges.

Mode of Operation

The sensors are completely autonomous, with a built-in battery designed to support the transmission of 50,000 messages, which is equivalent to 5 years of operation when transmitting messages once an hour.

The transmitted information is received by the network gateways which automate the reception and transmission of messages between end devices and the **wanwave** server.

Network Gateway
Serves > 100,000 sensors within a radius of up to 10 km in cities and up to 50 km in rural areas (in open space)

Multi Channel Temperature Loggers
Recorded data is stored regardless of battery charge until the moment of its reading.

Server

wanwave Cloud Service

Software
Cloud service with an API for seamless integration with external systems
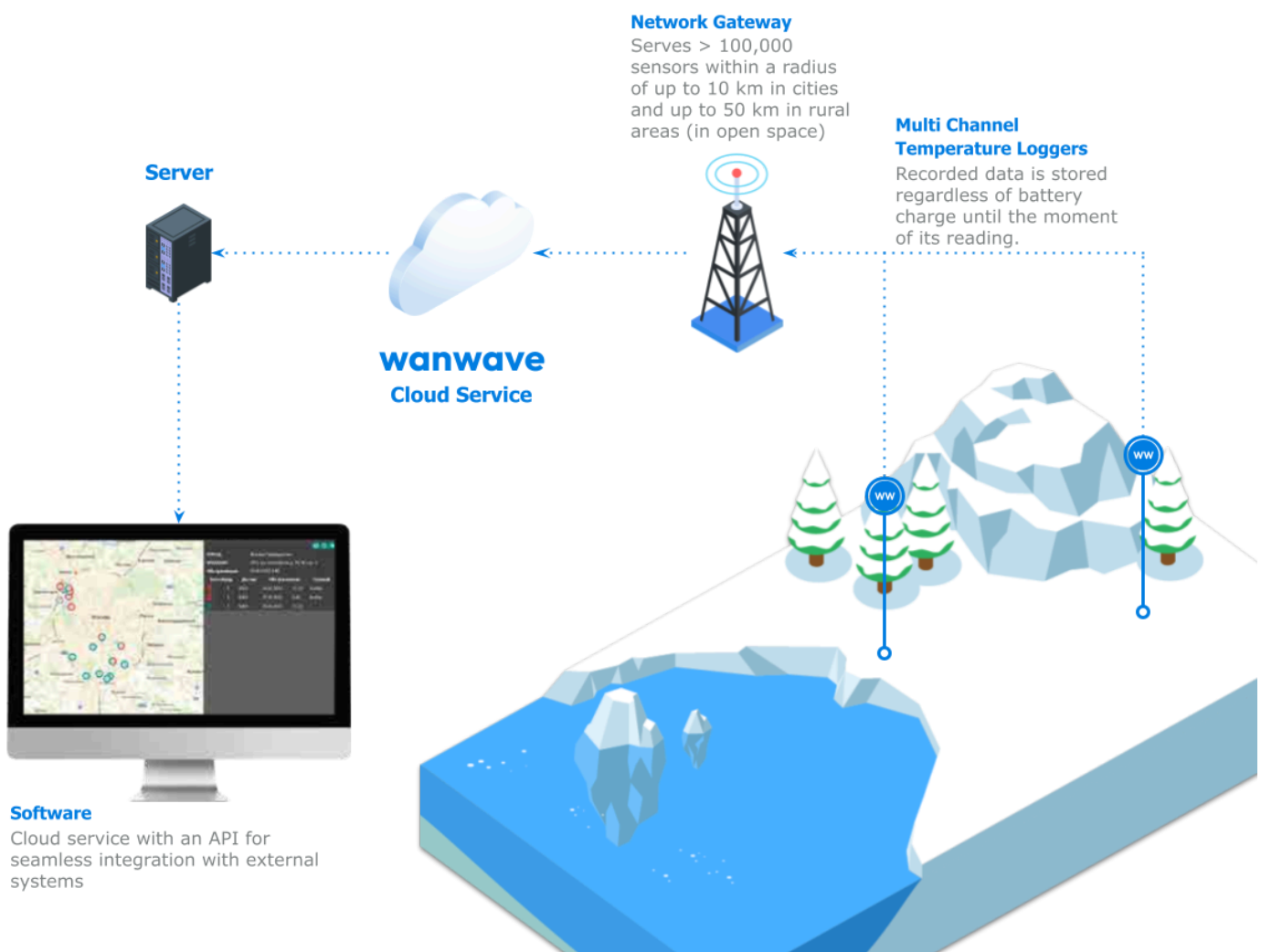
Learn more at wanwave.com