

# UNIVERSIADE 2019 INFRASTRUCTURE MONITORING SYSTEM



Partner  
**KRIS**  
Country  
**Russia**



## PROJECT DESCRIPTION

On March 2-12, 2019 Winter Universiade 2019, world sports contest for youth and students, was held in Krasnoyarsk. There were 76 medal events in 11 different sports.

In preparation for the Universiade, 34 sporting and non-sporting objects were built or reconstructed. The task was to arrange all objects monitoring, real-time information gaining as well as to ensure functional areas and departments operational alignment in standard and emergency situations.

ALS «Infrastructure monitoring and management» based on Aggre-

Gate IoT-platform has become one of the key systems for continuous ICT infrastructure monitoring of Universiade 2019 objects. The solution managed to cover all the engineering and IT systems of Universiade (53 objects, 620 systems).

The project is distinguished by a number of features. The main of them is in-parallel parameter monitoring of IT-infrastructure, engineering and safety systems.

Besides, every Universiade system (about 50 on the whole) was in charge of a separate contractor — integrator or developer, which implied each participant's service volume and quality control.

As part of the project, two systems have been implemented.

**Infrastructure monitoring system** — a "low level" system, responsible for information acquisition from the systems under control, its analysis, processing, failure root cause detection and automatic transmission to the upper level system.

"Main screen" was installed in the Central Universiade Operations Office to visualize general ICT services health with the help of color-coded indication. Real time evaluation is based on thousands of parameters.

Each controlled service is represented by a detailed service and resource model in the form of graphs. A service and resource model takes into account configuration items influence on the service, as well as backing-up.

**Upper Level System — Service Desk** — consolidates collected monitoring information, generates orders for maintenance (troubleshooting, fine-tuning, setting, etc.) and distributes them between the contractors. For each order failure cause detection and fixing time is registered, same for fine-tuning.

Thus, Service Desk is synonymous to a production system (MES-systems) implementing order management, order performance monitoring, SLA control and service settlements with contractors.

## HARDWARE / ENVIRONMENT

### Application IT Systems

- Unified information system with more than 30 programmable modules and functional components
- AIS "Transportation Management"
- IS "Medical Support"
- Hardware and software complex "Contact Center"
- AIS "Technical Support"

### Network and telecommunication equipment as part of hardware systems

- Backbone data network
- On site active equipment
- On site telecommunications network
- On site wireless communication Systems (Wi-Fi base station communication network, controllers and authorization systems)

### Datacenter hardware and software (of both main and back-up datacenters of Universiade)

- Server chassis
- Data storage systems
- Data back-up systems
- System software (DBMS, application servers and web-portals), necessary for Universiade application IS

### Engineering network equipment

- Access control systems
- Uninterruptible power supply (UPS)
- Diesel-generator units
- Air conditioners
- Climate control systems

## BENEFITS

Thanks to its flexibility, broad functionality, support of most data exchange protocols, various sources data collection ability, as well as non-standard driver development kit, AggreGate IoT-platform helped to successfully meet the project main purpose — information acquisition from a huge number of diverse systems with different interfaces and protocols, including non-standard ones.

This, in turn, has made it possible to monitor and ensure smooth operation of all the Universiade objects, except emergencies, quickly respond to any event, eliminate malfunction, etc.

The system continues to monitor sporting and non-sporting objects built for the event.

## SOLUTION IT & Network Management + Industrial Automation

