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A highly reliable network topology at JINR. Monitoring. Vulnerabilities.

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Providing reliable Internet connection is the key to success of any network. In the current paper questions about highly reliable network topology for data transfer between nodes in JINR are considered. The big challenge for the network service is to integrate between the two GRID sites Tier 1 and Tier 2 data centers together with the backbone JINR LAN and upscaling data rates to 100G, and in some cases up to $x \cdot 100G$. Today, the network factory built in 2013 for Tier 1 and Tier 2 data centers using TRILL technology requires modernization. A decision was made to gradually integrate with the new factory, built on the Cisco Application Centric Infrastructure technology, which already integrates the JINR backbone with all laboratories and departments. Great importance is attached to the monitoring system of sites involved in the processing of data from experiments at the LHC. A detailed description of the creation of the monitoring service GRID sites data center Tier 1 and Tier 2 is given. Also paid attention to the service for monitoring the physical devices of the backbone network. Then, problems of network vulnerabilities are considered. A plan is given to improve network security, which is currently being implemented. The main purpose of the article is to demonstrate the complexity and urgency of correctly designing a network topology based on new data transfer protocols, taking into account all possible aspects of vulnerabilities.

Summary

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