

# Network bandwidth guarantee of data transmission in high energy physics experiment

*Friday, 25 March 2022 14:00 (30 minutes)*

High energy physics experiment has the characteristics of remote construction. It is often necessary to transfer a large number of experimental data from high energy physics experiment equipment to data center with the help of network link. The network links supporting the data transmission of high energy physics experiments often have the characteristics of sharing. The data from different experiments compete for link resources in the transmission. Therefore, this report mainly focuses on how to provide transmission guarantee for the data generated by a certain high-energy physics application in a certain period of time, that is, to ensure that it occupies enough available bandwidth so that it can transmit the experimental data to the data center of IHEP as soon as possible. On the high-energy physics experiment data transmission chain, a bandwidth estimation model is established for the experimental data generated by specific high-energy physics applications, and a supervised machine learning method is adopted to provide guidance and suggestions for specific applications to retain the specific amount of bandwidth when transmitting data, and verify it. The research on the network bandwidth guarantee of data transmission in high-energy physics experiment can improve the transmission efficiency of experimental data and promote the production of high-energy physics experiment results and have certain practical significance.

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**Session Classification:** Network, Security, Infrastructure & Operations

**Track Classification:** Track 7: Network, Security, Infrastructure & Operations