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Optimization of Grid Resources Utilization: QoS-aware client to storage connection in AliEn

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In a World Wide distributed system like the ALICE Environment (AliEn) Grid Services, the closeness of the data to the actual computational infrastructure denotes a substantial difference in terms of resources utilization efficiency. Applications unaware of the locality of the data or the status of the storage environment can waste network bandwidth in case of slow networks or fail accessing data from remote or inoperational storage elements. In this paper we present an approach to QoS-aware client to storage connection by introduction of a periodically updated Storage Element Rank Cache. Based on the MonALISA monitoring framework, a Resource Discovery Broker is continuously assessing the status of all available Storage Elements in the AliEn Grid. Combining availability with network topology information, rated lists of Storage Elements are offered to any client requesting access to remote data. The lists are centrally
cached by AliEn and filtered in the course of user-based authorization and requested QoS flags. This approach shows significant improvements towards an optimized storage and network resource utilization and enhances the client resilience in case of failures.

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