Geoscience Applications Projects Tracking and Analysis for Efficient Management and Resource Optimization

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ABSTRACT

Geosciences analyses are a combination of complex multi-domain interpretation processes, large datasets and computing resources. The data volume has increased exponentially in the last two decades as conventional interpretation workflows transformed into three dimensional (3D) model-centric workflows. Projects created for geosciences analyses are therefore resource demanding requiring proper management for its efficient and effective use. This study analyzes geosciences well logs, seismic interpretation and geological modeling projects with several million data attributes of multiple domains. Advanced application project tracking tools used to collect the metadata from the storage resources, applications projects and geosciences data objects metrics inside the project. Needs for optimization are identified and applied at three levels: infrastructure, applications projects and geoscience multi-domain data. At the infrastructure level, all the projects are consolidated based on business process which provide an opportunity to optimize and analyze the growth of same type of projects. At the applications projects level, it is observed that limited number of projects are in the last two versions and remaining are in the old versions. The reason for this is the standalone architecture of the application projects. This also links with application users' behavior of creating copies of project as a backup and then left on the network forever. One of the major challenges is to perform geoscience multi-domain data optimization and analyze data inside the projects to get the true picture of the projects. In projects, seismic 2D lines and 3D cubes are one the major shared data type with most shared links from master files. This indicates that seismic interpretation is one of the major workflow with exponential growth with massive amount of intermediate volumes produced during interpretation. A joint strategic team reviewed and classified every single project as an asset; active, inactive, duplicate or obsolete. The optimization action included archival, upgrade and deletion based on the classification. Additionally, strict infrastructure controls were implemented at the infrastructure level to control duplication. This study helped to reduce the huge number of operational projects and significantly reduce data storage requirements.