

Guest lecture on

Designing Data-Intensive Application System for Production Plans Data Processing and Near Real-Time Analytics

Abstract

Production plans processing benchmarking, data storage and analytics is carried out using Open-Source Big Data technologies. We present the functional and components architecture of the digital framework for production plans files processing, with special attention to the performance analysis of the plans data processing, by measuring processing time for each data volume and memory used. Proposed data processing application software architecture consists of digital services starting from loading data from hundreds of production plans files, processing these files, transforming them into JSON objects and inserting SQL into in-memory database for real-time queries, where they are analyzed using KPI-based methods. Proposed system allows for near real-time production plans processing and analysis which gives opportunity for decision makers to check and monitor production plans status in real-time and undertake required actions when needed and on time. Proposed Digital Framework was tested on data collected from real production plans of a truck manufacturing company.

Biography of Alexander Suleykin, PhD Candidate, ICS RAS, Moscow, Russia



Alexander Suleykin was born in Moscow, Russia. He received bachelor's degree in economics from National University of Science and Technology MISiS (NUST MISiS), Russia in 2016, the M. Eng. degree in Big Data Systems from National Research University "Higher School of Economics" (HSE University), Russia in 2018. Since September 2018, he has been with the V.A. Trapeznikov Institute of Control Sciences of Russian Academy of Sciences (ICS RAS), Moscow, Russia, where he is a 4th year PhD student conducting R&D work in the field of automation and management of technological processes and production. Alexander's research interests are distributed systems design, big data architecture, control systems and data pipelines development. He has more than 15 Scopus / WoS publications in the last 3 years. He received the FESTO Prize Award in 2017 and 2020 for the best research paper presented at annual DAAAM International Symposium on Intelligent Manufacturing and Automation. Alexander has a wide experience in implementing large scale software projects for customers from various industries including communication, railway transportation, automotive, to name a few. From 2017 to 2018, he worked in the Russian mobile telecommunication company MTS (PJSC MTC) as a Big Data Project Manager and from 2018 to 2019, he was with the Humans.net (Big Data) startup company as a Head of Data Department. From 2019 to 2021, he served as a Big Data Solution Architect for the Korus Consulting Company where he was responsible for developing data pipelines and warehouse for digital reporting solution to top management. Since 2021, he has been with the Arenadata company, where he is currently a Big Data Solutions Architect.