Mikhail Belov

Big Data & Machine Learning | Oracle Certified (Exadata, RAC, ASM, Grid, Performance & Tuning, OCI, SQL) | Cloud Solutions | DevOps & ALM | Software Developer | Digital Business Architect (BPM, BSC, OKR, KM) | Associate Professor

Current Location: Russian Federation, Moscow Region

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About

Mikhail Belov (https://belov.global ☕) is a highly accomplished Information Technologies Expert. His expertise includes the engineering of Distributed High-Load Solutions, Software Development, IT Infrastructure Design, Cloud and On-Premise Integration, Scalable Database Administration and Digital Business Architecture (Business Process Modeling, Strategy (BSC, OKR), Knowledge Management). He's the Scientific Director of the Master's degree program «***Advanced Analytics and Big Data Systems***», and Apache, Amazon, Apple, Cloudera, Dell/EMC, IBM, Lenovo, Microsoft, Oracle, Software AG (ARIS) Evangelist, whose graduates are highly demanded not only in high tech industry, but also in leading research organizations including the Joint Institute for ***Nuclear Research (JINR)***, the ***European Organization for Nuclear Research (CERN)***.

For over 19 years, he has been teaching classes at Dubna State University, Higher School of Economics (HSE), Moscow Power Engineering Institute (Technical University); under his leadership, over 200 bachelor's and master's works have been written.

As *Director* of telecommunication center (CTO), he developed the IT infrastructure of Plekhanov Russian University of Economics.

He was the first in Russian Federation 🏆 who created and implemented the Virtual Computer Lab - a specialized educational cloud computing bureau and data center, based on the principles of cybernetics 2.0 and self-organization. Played a leading role in the formation and development of a scientific school for the practical training of IT professionals while enabling remote development and adoption of multicomponent information systems using cloud computing technologies.

Founder and *Developer* of the non-profit *Dictutor* project (https://dictutor.app 🗄), targeted both at a more productive study of foreign languages and partial decrease of the level of the digital divide between the educational technologies in more than 100 world 🌍 countries.

Mikhail's hobby is the creative literary oeuvre, which also found its reader. He created a beautiful collection of poems ***"Azimuth of Dreams"*** (https://azimuth.belov.global 🧭) that motivates, calls for self-improvement and spiritual development, allows them to look on the bright side, set new goals, and achieve them!

Education

DOCTOR OF PHILOSOPHY – PHD (K.T.H.) | 2001 – 2004 | DUBNA STATE UNIVERSITY

- Automated development of e-learning system

MASTER'S DEGREE | 2000 – 2001 | DUBNA STATE UNIVERSITY

- Computer Science «Information Systems»

BACHELOR'S DEGREE | 1996 – 2000 | DUBNA STATE UNIVERSITY

- Engineering Technology

Professional Skills

- Programming languages (application development): C#, Java, Objective C, Swift, TypeScript as well as regular expressions.
- Development of .NET applications (WPF, UWP), mobile applications for Android and iOS.
- Development of REST/WEB API, WSDL/SOAP, WebSocket services using .NET Core, WCF, Spring, Node.js.
- Multithreading programming, asynchronous processing techniques.
- Fundamentals of Web programming: HTML, CSS, Bootstrap, JavaScript, jQuery, Vue, AngularJS, React, PHP, ASP.NET, JSON/XML. SEO essentials, web analytics basics.

- Programming languages (data analysis and machine learning): Java, Python, Scala.
- Big Data analysis in the Hadoop environment (Cloudera, Horton Works) using MapReduce, Spark, and utility tools HUE, HCatalog, Hive, Impala, Pig Latin, Sqoop, Solr, Oozie, Data Science Workbench.
- Designing machine learning algorithms with TensorFlow, Pandas, Keras libraries.
- Deploying web services based on trained machine learning models in Azure ML Studio.

- Deployment of horizontally scalable clusters for distributed data storage Cassandra, HBase, Riak.
- Deployment of failover clusters Microsoft Failover Cluster, Oracle Real Application Clusters with the Automatic Storage Management option.
- Designing real-time heterogeneous replication solutions in high availability mode using Oracle GoldenGate, Attunity Replicate, Quest SharePlex.
- Deployment of network load balancing clusters HAProxy, Balance, Pound, Microsoft NLB.

- Structured Query Language (SQL) – DDL, DML, DCL, TCL; PL/SQL, JavaScript/JSON in MongoDB.
- Programming techniques and application programming interfaces for accessing database management systems: ODBC/JDBC, ADO.NET, ORM, LINQ.
  Graphical Database Management Tools: DevArt dbForge Studio, EMS SQL Management Studio, Navicat, SQLite Expert, Oracle SQL Developer, Quest (Toad, Spotlight, SQL Optimizer), Attunity Compose, Attunity Enterprise Manager, Oracle Enterprise Manager.

- Database Design: relational data model, aggregate data models (key-value and document models, column-family stores), distribution models (single-server replication, sharding, master-slave replication, peer-to-peer replication, combining sharding and replication), consistency, version stamps, partitioned tables and indexes.
- Experience in Relational DBMS: Oracle Database, Microsoft SQL Server, MySQL (MariaDB), PostgreSQL, IBM DB/2, SQLite.

- Experience in NoSQL DBMS: Cassandra, HBase, MongoDB, LevelDB, Riak, Memcached.
- Experience in Cloud DBMS: Oracle Autonomous Database, Amazon RDS, Amazon Redshift, Amazon DynamoDB, Azure SQL Databases, Azure Cosmos DB, Redis Cache.

- Knowledge of the ARIS business process modeling methodology and its technical implementation at the expert level.
- Use of the BSC method and the theory of Goldratt constraints in optimizing business processes.
- Automation of analysis and documentation of business processes and management of the corporate knowledge.
  Implementation of the process approach when constructing IT management systems of an enterprise.

- Constructing analytical systems based on the principles of multidimensional analysis and OLAP technology.
- Data extraction, transformation, and loading (ETL), Data Warehouse design.
- Experience in BI-analysis and reporting solutions: Oracle Business Intelligence, Microsoft SQL Server Analysis, Microsoft Report Services, Tableau, Telerik Reporting.

- Software Design (selecting methods, selecting integrated development environment, selecting frameworks, developing data presentation, developing algorithms, developing tests, writing specifications, scheduling).
- Designing real-time data pipelines and streaming apps using Apache Storm, Apache NiFi, Apache Kafka (Cloudera DataFlow. ex. Hortonworks DataFlow).
- Developing integration solutions, including experience with Microsoft BizTalk Server.
- Experience in applying graphic notations: UML (Business System View, IT-System View, Integration View), ERM, DFD, BPMN.
- Change management with version control systems: Git (GitHub, Bitbucket, GitLab), Microsoft Team Foundation.
- Understanding the basics of application lifecycle management, including experience with Microfocus and IBM Rational software products.

- Deployment of server virtualization systems VMware vSphere, Microsoft Hyper-V, Citrix VDI and Docker containerization platform.
- Creating hybrid solutions based on integration with cloud services Oracle OCI, Amazon AWS, Microsoft Azure, IBM Bluemix (Watson), Google Firebase.

- IT-infrastructure and service strategy management using ITIL, ITSM, MOF, as well as process approach.
- Use of IT-infrastructure management and monitoring systems IBM Omnibus, Ivanti (ex-LANDesks Management Suite), Microsoft Operations Management Suite, Paesler PRTG, Ipswich WhatsApp Gold, Zabbix, etc.
- Web application security audit: IBM Rational AppScan, Microfocus Fortify Web Inspect, Accunetix Vulnerability Scanner.

- Installation, configuration and tuning of server equipment Lenovo (IBM), Exadata, Super Micro, Dell, HP, Intel, ASUS.
- Linux and Windows Server administration including network services, protocols, public key infrastructure, application policy management, security and vulnerability management, identity, and access management.

Experience

ASSOCIATE PROFESSOR, SCIENTIFIC DIRECTOR OF THE MASTER'S DEGREE PROGRAM «ADVANCED ANALYTICS AND BIG DATA SYSTEMS», ARCHITECT & ADMINISTRATOR OF TRAINING DATA CENTER | DUBNA STATE UNIVERSITY | 2001 – PRESENT

- *Department of System Analysis and Control; Department of Information Technologies; Department of Distributed Computing Systems*: Educational courses – «Scalable and Failover Database Architectures», «Batch and Streaming Big Data Analytics», «Machine Learning and Data Mining», «Business Intelligence and Advanced Analytics Toolkits», «Cloud Computing Technologies for Big Data Processing», «Distributed Information Systems», «Audit of Information Infrastructure», «Design and Development of Information Systems», «Service-Oriented Architectures and Applications», «Modeling in UML», «Cloud Services and Virtual Environments», «Management of Business Processes and Services», «Information Technologies in Business», «Information Processes Modeling», «Business Analysis Technologies», «Knowledge Management».

- *Training Data Center for Distributed Information Systems & Big Data (Virtual Computer Lab)*: Played a leading role in the formation and development of a scientific school for the practical training of IT professionals while enabling remote development and adoption of multi-component information systems and IDEs using cloud computing technologies. Was the first in Russia to create an integrated hardware and software facility «Virtual Computer Lab», which allowed to train a significant number of high-demand graduates during the 12 years of successful work. Also, I perform the roles of a solution architect and principal system administrator.

- *Oracle Academy Membership*: The extensive use of Oracle solutions such as GRID, RAC, OCI, GOLDEN GATE, DATA GUARD allows me to train students how to create and run high available, fault tolerant systems with load balancing and geo-steering.

- *IBM Competency Center*: Implementation of IBM software products and services into the process of IT specialist training, conducting open lectures and webinars. Participation in joint research on the design of digital workspaces.

FOUNDER, DEVELOPER | DICTUTOR | 2014 – 2020

- Development of the concept and architecture. Technical design. Implementation of functionality. Formation of content. Building and releasing application versions. Development and support of the project site.

ASSOCIATE PROFESSOR | NATIONAL RESEARCH UNIVERSITY — HIGHER SCHOOL OF ECONOMICS (HSE) | 2007 – 2014

- *Department of Modeling and Optimization of Business Processes; IDS-Scheer Department of Vocational Relationships*: Training courses on business process modeling, strategic management, risk analysis, and business architecture using ARIS software suite.

- *Department of Corporate Information Systems; HSBI (MBA)*: Training courses on IT infrastructure management, IT audit, integration of information systems.

ASSOCIATE PROFESSOR | MOSCOW POWER ENGINEERING INSTITUTE (TECHNICAL UNIVERSITY) | 2009 – 2010

- *Department of Informational and Economic Safety*: Training courses on ensuring the security of e-business.

DIRECTOR OF TELECOMMUNICATION CENTER (CTO) | PLEKHANOV RUSSIAN UNIVERSITY OF ECONOMICS | 2002 – 2003

- Development and implementation of IT strategy; optimizing IT infrastructure costs; provide reliable operation of equipment; implementation of software and technology solutions; providing technical support; development and coordination of schedules, as well as financial and project documentation; participation in the formation of the budget and control of its implementation; improvement of internal business processes.

Certifications & Licenses

- **ORACLE CERTIFIED EXPERT, ORACLE EXADATA X5 ADMINISTRATOR.** The certificate shows mastery of a collection of skills including ***Exadata specific database admin***, ***ASM admin***, ***Network admin***, and ***Linux admin*** as they relate to the database machine. It also shows fluency and a solid understanding of the skills required to configure, install, and administer an Exadata Database Machine. Candidate is familiar with ***Oracle Database, Oracle RAC***, ***Database Machine Architecture, First Time Deployment, Patching, Smart Storage Ops, Storage Indexes***, the ***I/O Resource Manager, Smart Scan***, & more. Link

- **ORACLE CERTIFIED SPECIALIST, AUTONOMOUS DATABASE CLOUD 2019.** The certificate shows ability to provision, manage, and migrate to ***Autonomous Transaction Database*** and ***Autonomous Data Warehouse***. Candidate ***understands the features and workflows*** of Autonomous Database; provisioning and connecting, migration using ***SQL Developer***, ***Data Pump*** and ***Golden Gate***, ***manage backups and restores***, manage and ***monitor***, and understands tools, reporting and analytics using Autonomous Data Warehouse. Link

- **ARCHITECT PROFESSIONAL, ORACLE CLOUD INFRASTRUCTURE 2019.** The certificate shows hands-on experience and knowledge required to plan, design, implement and ***operate solutions on Oracle Cloud Infrastructure*** (OCI). The abilities validated includes: ***Plan and design solutions***; implement and operate solutions; ***Design, implement and operate databases***; ***Design for hybrid cloud architecture***; ***Migrate on-premises workloads to OCI***; ***Design for Security and Compliance*** Up-to-date training and field experience are recommended. Link

- **ARCHITECT ASSOCIATE, ORACLE CLOUD INFRASTRUCTURE 2019.** The certificate shows a ***strong foundation knowledge in architecting infrastructure using Oracle Cloud Infrastructure*** (OCI) services and covers cloud computing concepts (***HA, DR, Security***), regions, availability domains, OCI terminology and services, ***networking***, ***databases***, ***Autonomous Database***, ***load balancing***, FASTCONNECT, ***VPN***, Compartments, Identity and Access Management, and tagging. Link

- **ORACLE CLOUD INFRASTRUCTURE 2019 CLOUD OPERATIONS.** The certificate shows hands-on experience and knowledge required to ***Automate Cloud tasks***, ***Tune Performance***, ***Troubleshoot***, manage ***cost***, manage ***security*** and compliance policies, **Monitor and Alert** OCI,

Implement ***Data Retention and Archival***, ***creating shell scripts*** with the Command Line Interface (***CLI***) and design Cloud-scale Agility on OCI. Link

- **ORACLE CLOUD INFRASTRUCTURE DEVELOPER 2020.** The certificate demonstrates knowledge of ***developing***, securing, ***testing,*** and operating applications in OCI & ability to use the OCI service ***APIs***, ***CLI***, & ***SDKs*** to write applications. Link

- **ORACLE CLOUD INFRASTRUCTURE FOUNDATIONS 2020.** The certificate validates a foundational level knowledge around core OCI services. Link

- **ORACLE DATABASE SQL CERTIFIED ASSOCIATE.** The certificate validates fundamental ***SQL concepts needed to undertake any database project***, a ***depth of knowledge of SQL*** and its use including queries, insert, update and delete SQL statements as well as Data Definition language and Data Control Language, the optimizer, tables and indexes, ***data modeling and normalization***. Link

SUCCESSFULLY PASSED EXAMS (in the process of gaining OCP status to activate badges):

- 1Z0-064: Oracle Database 12c: ***Performance*** Management and ***Tuning***
- 1Z0-068: Oracle Database 12c: ***RAC*** and ***Grid*** Infrastructure Administrator

Patent

- Integrated Virtual Computer Lab Management System based on Cloud Computing Technologies (Virtual Computer Lab Management Information System).
  Patent date: issued Feb 17, 2012. Patent issuer and number: ru 2011660171
  ИНТЕГРИРОВАННАЯ СИСТЕМА УПРАВЛЕНИЯ ВИРТУАЛЬНОЙ КОМПЬЮТЕРНОЙ ЛАБОРАТОРИЕЙ НА ОСНОВЕ ТЕХНОЛОГИЙ ОБЛАЧНЫХ ВЫЧИСЛЕНИЙ (ИСУ ВКЛ).
  "Date of receipt Dec 29, 2011.

Projects

VIRTUAL COMPUTER LAB | HTTPS://BELOV.GLOBAL/VCL.PNG | 2007 – PRESENT

- Student Segment of the Virtual Computer Lab on VMware vSphere Software Platform, Jul 2019, State Dubna University, System Analysis, and Control Department.

- The Virtual Computer Lab provides a set of software and hardware-based virtualization and containerizations tools that enable the flexible and on-demand provision and use of computing resources in the form of cloud Internet services with an integrated knowledge management system based on the principles of self-organization, functioning as a homogeneous environment with elements of cognitive representation of internal operational resources based on visual models and partial automation of fundamental technological operations with the expert system for carrying out research projects, resource-intensive computational calculations and tasks related to the development of sophisticated corporate and other distributed information systems. The service also provides dedicated virtual servers for innovative projects that are carried out by students and staff at the Institute of System Analysis and Control. The main features of the Virtual Computer Lab are the principles of self-organization, which make the transition from a complex system of granular group security policies with a large number of restrictions to the formation of personal responsibility and

respect for colleagues, which should be a solid foundation for strengthening and developing classical cultural values in the educational environment.

DICTUTOR | HTTPS://DICTUTOR.APP | 2014 – 2020

- Offline multilingual dictionaries with the e-tutor for English, Chinese, Czech, Dutch, Finnish, French, German, Greek, Hindi, Indonesian, Italian, Japanese, Korean, Malay, Polish, Portuguese, Russian, Spanish, Swedish, Thai, Turkish, Vietnamese.

AZIMUTH OF DREAMS | HTTPS://AZIMUTH.BELOV.GLOBAL | 2017

- The beautiful collection of poems that motivates calls for self-improvement and spiritual development, forcing to look at life with optimism, set new goals, and achieve them!

Volunteer Experience

PROGRAM COMMITTEE MEMBER | HTTP://SECRUS.ORG | 2019 – PRESENT
Software Engineering Conference Russian.

EDITORIAL BOARD MEMBER | HTTP://ERSICT.ORG | 2016 – PRESENT
International Journal of Emerging Research and Solutions in ICT, Faculty of Information and Communication Technologies, St. Kliment Ohridski University – Bitola.

Languages

ENGLISH

- Professional working proficiency.

RUSSIAN

- Native proficiency.

Publications (57)

1) Design of hardware-software systems in the educational process with the use of Virtual Computer Lab, 2020
2) The Architecture of the Compact Data GRID Cluster for Teaching Modern Methods of Data Mining in the Virtual Computer Lab, 2020
3) Methodical aspects of training Data Scientists using the Data GRID in a Virtual Computer Lab environment, 2019.
4) Virtual infrastructure management based on visual models in the Virtual Computer Lab environment, 2019.
5) Essential aspects of it training technology for processing, storage and data mining using the Virtual Computer Lab, 2018.
6) The concept of cognitive interaction with the Virtual Computer Lab based on visual models and expert systems, 2018.
7) Training of Big Data processing and analysis with the use of the Virtual Computer Lab at the Dubna State University, 2018.
8) Improving the efficiency of mastering distributed information systems in a virtual computer lab based on the use of containerization and container orchestration technologies, 2018.

9) The use of the Virtual Computer Lab in the training of IT-professionals in the field of storage, processing, and mining Big Data, 2018.
10) The use of cloud bot services in the Virtual Computer Lab environment to improve the cognition of the educational process, 2018.
11) Embedding of containerization technology in the core of the Virtual Computing Lab, 2017.
12) The concept of advanced architecture of the Virtual Computer Lab for practical training of specialists in the field of distributed information systems and DevOps, 2017.
13) The practice of using containerization technology in the training of IT professionals, 2017.
14) Distance learning through distributed information systems using a Virtual Computer Lab and knowledge management system, 2016.
15) The introduction of container virtualization (containerization) technologies in the process of training of IT-professionals, 2016.
16) The experience of deploying the Virtual Computer Lab in education — running failover clusters in a virtualized environment, 2016.
17) Educational experience of using the knowledge management system based on Virtual Computer Lab on the platform of cloud technologies, 2015.
18) Conceptual model of a knowledge management system for training professional IT-skills in the Virtual Computer Lab, 2015.
19) Virtual Computer Laboratory 2.0. 3D Graphics as Service. Methodological aspects of the use in research and education, 2015.
20) Implementation of knowledge control elements into educational environment of «Dubna» university. Experiences and perspectives, 2014.
21) The concept of innovative training for IT professionals using the Virtual Computer Lab based on cloud computing technologies and virtual knowledge space, 2014.
22) From Virtual Computer Lab to knowledge management. Results and prospects, 2014.
23) The role of IBM Academic Competence Center in the training of demanded IT-professionals at the Dubna University, 2014.
24) Research of crucial activities of the life cycle of knowledge management in the university and the development of a conceptual model of the architecture of the knowledge management system, 2013.
25) Technology of application lifecycle management for satellite in-orbit tests, 2013.
26) Comprehensive e-learning systems as the tools for evaluating students' skills, 2013.
27) The innovative practice of computer education at the Dubna State University using the Virtual Computer Lab based on cloud computing technologies, 2012.
28) The gauging system for evaluating the quality of learning in the Virtual Computer Lab, 2012.
29) The role of Virtual Computer Lab based on cloud computing technologies in contemporary IT-education, 2012.
30) The technology of using the Virtual Computer Lab in the training courses of a university, 2012.
31) The cloud-based Virtual Computer Laboratory - an innovative tool for training, 2012.
32) Tutorial «Practical system analysis. Building a model of concepts in projects to improve the efficiency of business processes in an organization», 2012.
33) The architecture of the virtual computer laboratory for training of IT-specialists, 2011.
34) The problems of the process approach and balanced scorecard in the management of the high-tech instrument engineering enterprise, 2011.
35) New approaches to performance management of commercial and industrial companies based on Business Intelligence and BPM, 2011.
36) Deployment and maintenance of the Virtual Computer Class as a component of the Virtual Computer Lab using servers of the blade architecture, 2011.

37) Tutorial «Information systems in administrative management», 2011.
38) Experience of using open source software in the Virtual Computer Lab based on cloud computing technology, 2010.
39) Software components of the core of the virtual computer lab and the virtual computer class, 2010.
40) Development and deployment of a hardware and software platform of the Virtual Computer Lab in the educational process of higher education, 2010.
41) The role of a virtual computer class as a component of the Virtual Computer Lab in the contemporary educational process, 2010.
42) Virtual Computer Lab as an innovative tool in IT-education, 2010.
43) Overview of business process modeling tools for generating requirements for the knowledge management system on the example of the System Analysis, and Control Department of Dubna State University, 2007.
44) Development of Internet-based knowledge management system on SharePoint Portal Server, 2007.
45) Implementation of ARIS Web Designer in the e-learning system, 2005.
46) Metadata management in e-learning system based on software agent technology, 2005.
47) Validation and verification of software on the example of the core of the distance learning system, 2004.
48) E-learning as a critical element of the knowledge management system, 2004.
49) Generating requirements for the development and support of e-learning courses on CALS, 2004.
50) Information provision in the e-learning system, 2004.
51) General approaches to the e-learning system development, 2004.
52) Fundamentals of designing a e-learning system, 2004.
53) Semantic model of e-learning system, 2004.
54) Technology of preparation of test tasks to check knowledge in the e-learning system, 2004.
55) The technology of software requirements development on the example of the core of the e-learning system, 2004.
56) Measurement and quality control of e-learning, 2002.
57) The project of the e-learning system for the course "Theory of systems", 2001.