AI-Augmented Database Migrations: Turning Challenges into Opportunities

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Abstract: *AI-augmented database migration represents a paradigm shift in how organizations approach the challenging process of moving data from legacy systems to modern platforms. This article explores how artificial intelligence technologies are transforming traditional migration workflows through automated schema analysis, intelligent data mapping, predictive testing, and autonomous execution. By examining case studies from financial services, healthcare, and retail sectors, the article demonstrates how AI tools significantly reduce conversion time, improve mapping accuracy, decrease testing cycles, and shorten overall migration timelines. The technical implementation considerations highlight the importance of appropriate model selection, seamless integration with existing workflows, and platform-specific optimizations. While challenges remain in areas such as training data requirements, explainability, edge case handling, and security, the future of AI-augmented database migrations promises fully autonomous operations, cross-platform optimizations, continuous synchronization models, and self-learning systems that could transform what has historically been viewed as a necessary technical burden into a strategic advantage for digital transformation.*

Keywords: Database migration, Artificial intelligence, Machine learning, Digital transformation, Cloud optimization