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Reimagining Modern Data Architecture With Innovation & Agility

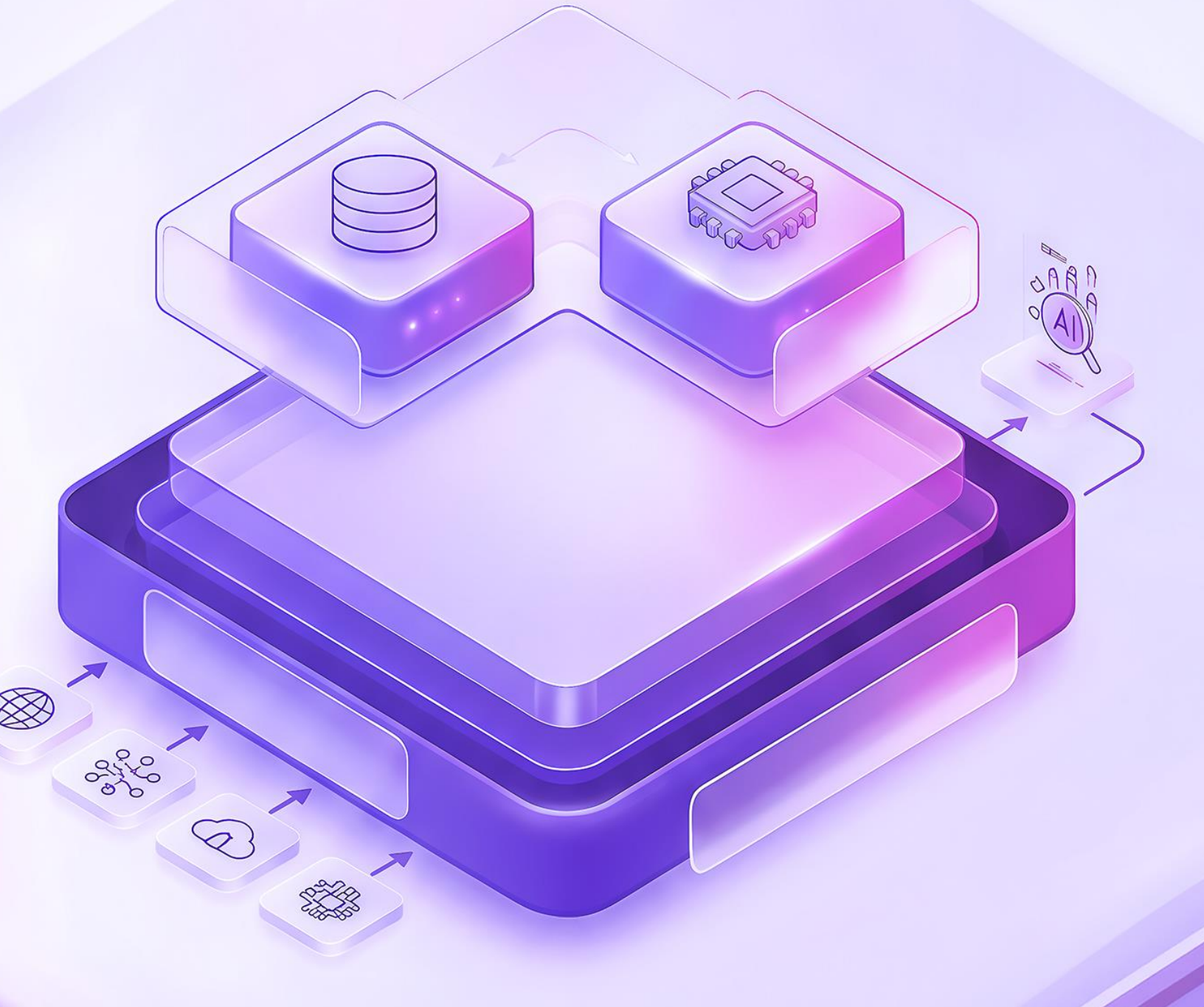


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1. Executive Summary

Today, data is no longer just an operational asset, it is the foundation of competitive advantage. Yet for many organisations, the platforms built to manage it are becoming the very thing holding them back.

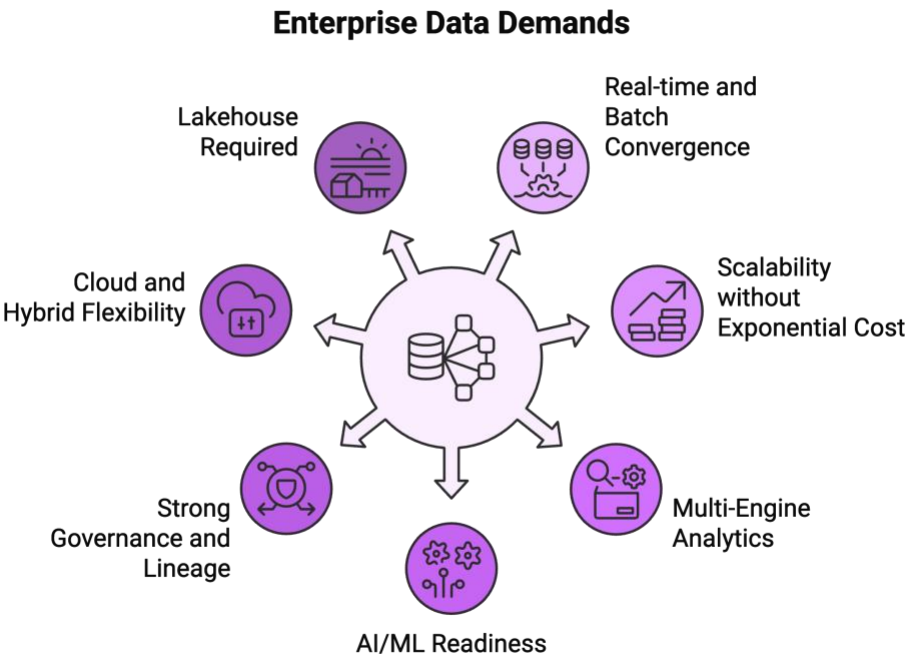
The data architecture conversation has shifted. The question is no longer *which vendor*, but *how to design*. Future-focused enterprises are building composed platforms, making considered choices at every layer based on the enterprise data journey and requirements.

This is a strategic reset.

The organisations winning with data are those that combine the agility and innovation of open technologies with the reliability, support, and governance strength of enterprise solutions, exactly where each delivers most value.

This whitepaper is a practical guide for that journey, whether you are modernising a legacy estate, evaluating cloud-native options, or simply seeking clarity on where the industry is heading and what it means for your organisation.

2. Modern Data Requirements



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These demands are not new, but the urgency has intensified. Organisations are processing more data, from more sources, at greater speed than ever before, and majority legacy platforms are not designed for this reality.

The convergence of open-source innovation and mature enterprise technology means organisations can now architect platforms that deliver on all these demands, if they make the right choices at each layer.

No single technology or vendor has it all. The organisations getting this right are adopting a composable, best-fit approach, drawing on open-source strengths where they are most powerful, and proprietary solutions where enterprise-grade support genuinely matters.

This raises a critical question: why are so many organisations now reconsidering their existing vendor relationships, and what is driving the shift?

3. Why Organizations are Moving Away from Traditional Vendors (Legacy Systems)

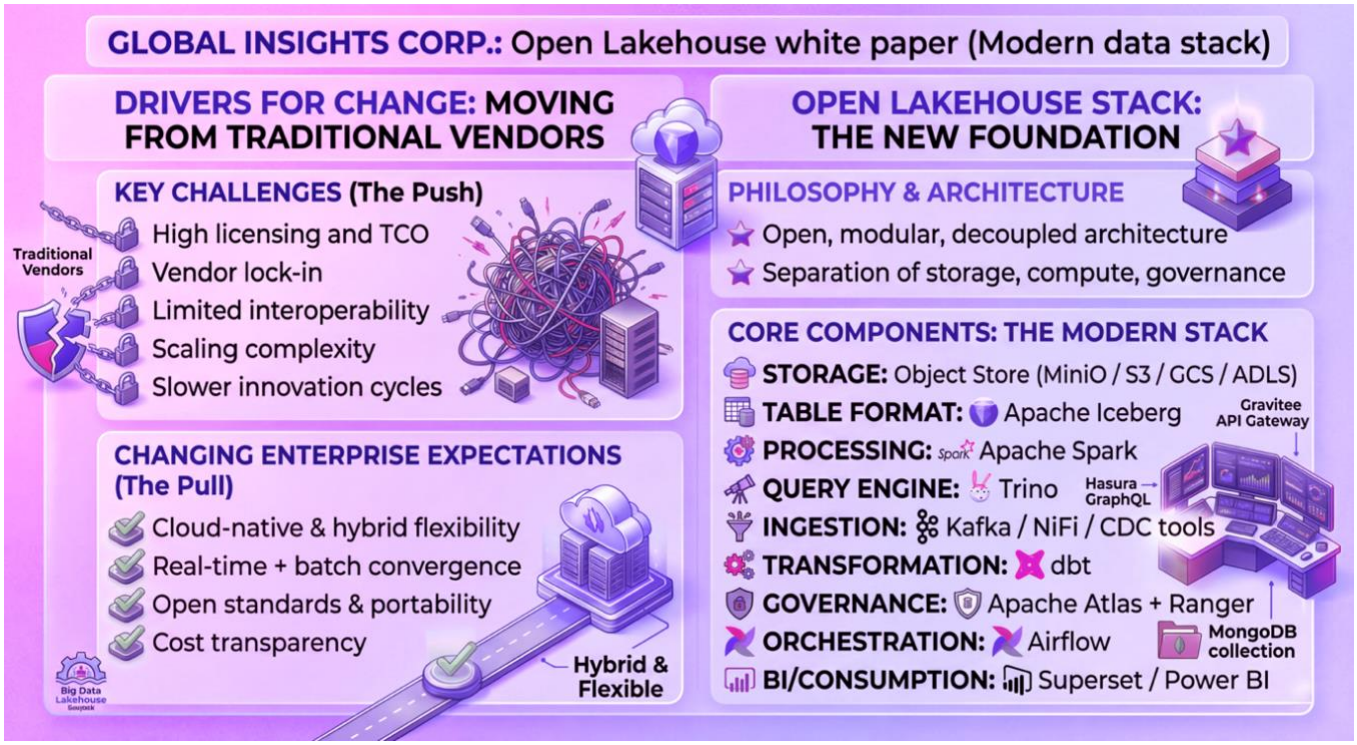


Fig : Whitepaper: Modern Data Architecture with Open-Source Lakehouse

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4. Why Opensource technologies are a Game Changer

Challenges of Tradition Data Lake	Opensource Capabilities	Business Impact
• NO ACID GUARANTEES • DATA INCONSISTENCY • POOR PERFORMANCE • LACK OF SCHEMA GOVERNANCE	• ACID TRANSACTIONS AT SCALE • SCHEMA EVOLUTION & PARTITION EVOLUTION • TIME TRAVEL & VERSIONING • HIDDEN PARTITIONING • ENGINE INTEROPERABILITY	• RELIABLE ANALYTICS • REDUCED DATA ENGINEERING EFFORT • FASTER QUERY PERFORMANCE • MULTI-ENGINE FLEXIBILITY

5. Value Delivered at Every Layer

Business benefits	Technical Benefits
• REDUCED TOTAL COST OF OWNERSHIP (TCO) • ELIMINATION OF VENDOR LOCK-IN • FASTER TIME-TO-MARKET • SCALABILITY AND FLEXIBILITY • FUTURE-READY AI/ML ENABLEMENT	• DECOUPLED ARCHITECTURE (STORAGE VS COMPUTE) • MULTI-ENGINE SUPPORT • HIGH PERFORMANCE AT SCALE • OPEN STANDARDS AND INTEROPERABILITY • OBSERVABILITY AND GOVERNANCE BUILT-IN

6. Use Case 1 – Telecom (Abstracted)

Context	Challenges	Lakehouse Solutions	Outcomes
• MULTIPLE SOURCE SYSTEMS (BSS/OSS, NETWORK, CRM) • HIGH DATA VOLUMES (10M+ RECORDS/DAY) • BATCH + NEAR REAL-TIME REQUIREMENTS	• SILOED DATA PLATFORMS • LONG BATCH WINDOWS • LIMITED REAL-TIME INSIGHTS	• UNIFIED INGESTION (BATCH + STREAMING) • ICEBERG-BASED STORAGE • TRINO FOR LOW-LATENCY ANALYTICS	• REDUCED BATCH WINDOW • REAL-TIME ANALYTICS ENABLEMENT • IMPROVED DATA GOVERNANCE

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7. Use Case 2 – Banking (Abstracted)

Context	Challenges	Solution	Outcomes
• REGULATORY REPORTING + CUSTOMER ANALYTICS • STRUCTURED + SEMI-STRUCTURED DATA	• DATA DUPLICATION ACROSS SYSTEMS • GOVERNANCE AND LINEAGE GAPS • SLOW REPORTING CYCLES	• UNIFIED GOVERNED DATA PLATFORM • ATLAS + RANGER FOR GOVERNANCE • ICEBERG FOR AUDITABILITY (TIME TRAVEL)	• FASTER REGULATORY REPORTING • IMPROVED DATA LINEAGE • ENHANCED RISK ANALYTICS

8. Migration Approach

Migration Approach	Key Design Principles	Call To Action
• ASSESSMENT OF CURRENT PLATFORMS • WORKLOAD CLASSIFICATION • MIGRATION WAVES • CO-EXISTENCE STRATEGY • TOOL-ASSISTED MIGRATION VS RE-ENGINEERING	• OPEN STANDARDS FIRST • MODULAR AND EXTENSIBLE • CLOUD-AGNOSTIC • SECURITY BY DESIGN • OBSERVABILITY-FIRST ARCHITECTURE	• WHY NOW IS THE RIGHT TIME • STRATEGIC ADVANTAGE OF OPEN LAKEHOUSE • HOW ORGANIZATIONS CAN START THEIR JOURNEY

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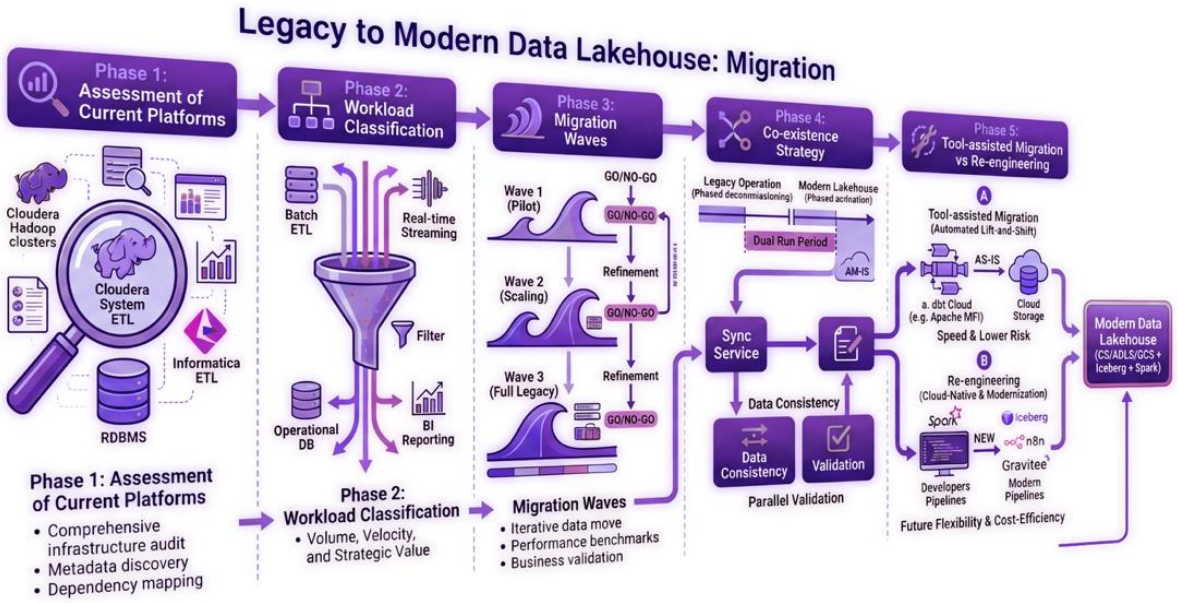


Fig : Approach & Next Steps

9. Building the Right Data Architecture for You

Every organisation's data landscape is different. Legacy investments, regulatory constraints, team capabilities, and growth ambitions all shape what the right architecture looks like in practice. There is no universal blueprint.

At Edgematics Group, we work with the top enterprises to design the right data architectures that turn data into business value. We evaluate open-source and proprietary options on their merits, weighing total cost of ownership, operational complexity, ecosystem maturity, and strategic fit.

Our engagements begin with an honest assessment of your current data journey: what is working, what is constraining growth, and where architectural debt is accumulating. From there, we help you chart a migration path that is phased, low-risk, and tied to measurable business outcomes.

Whether you are looking to modernise a legacy data estate, evaluate a move to a cloud-native lakehouse, introduce real-time data capabilities, or simply gain clarity on your options, we bring the technical depth and industry perspective to help you make confident decisions.

The right architecture is not the most modern one, it is the one that serves your business best. We are here to help you find it. Connect with us at www.edgematics.ai/contact-us to start the conversation.

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