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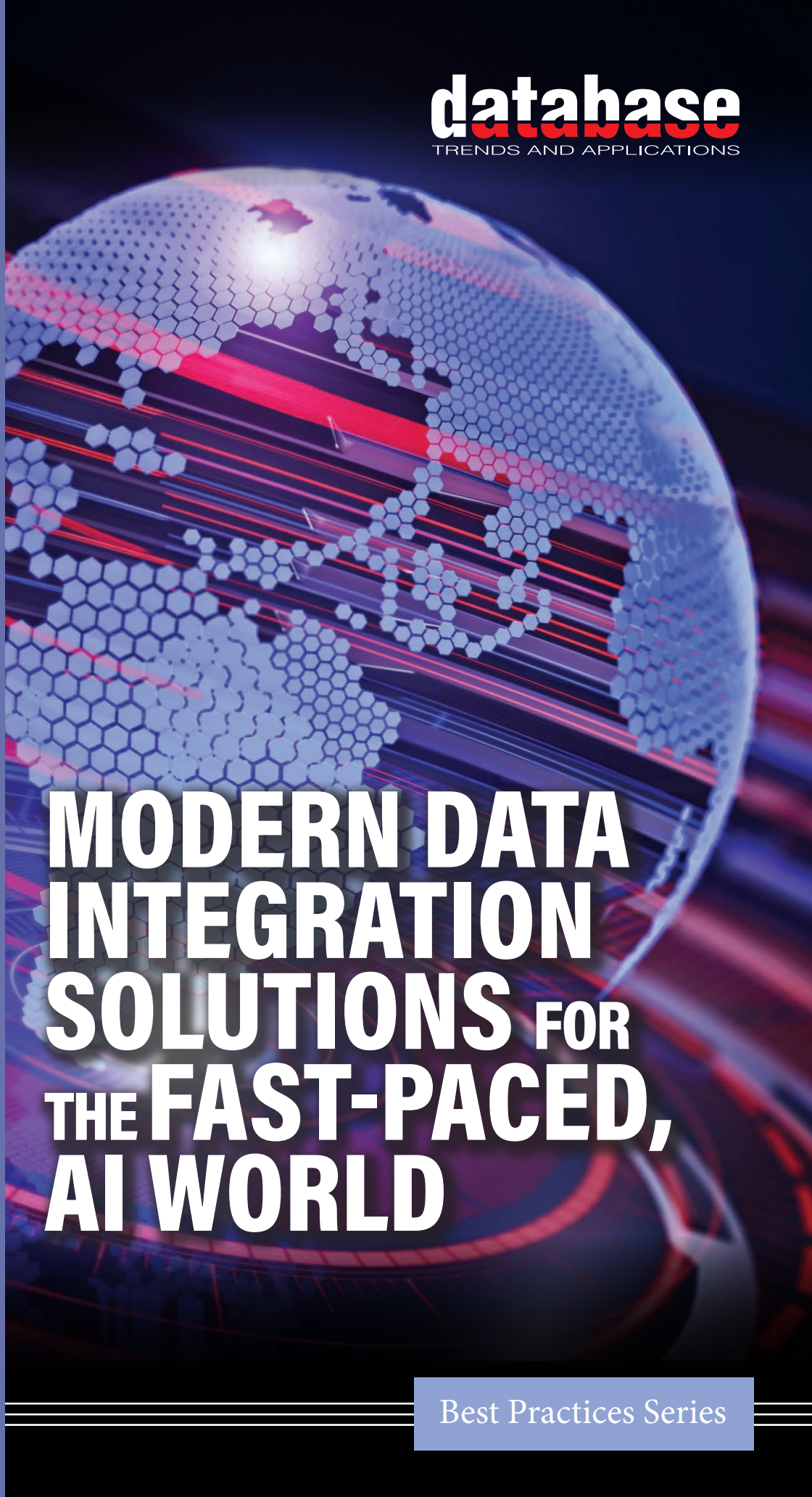
TRENDS AND APPLICATIONS



# MODERN DATA INTEGRATION SOLUTIONS FOR THE FAST-PACED, AI WORLD

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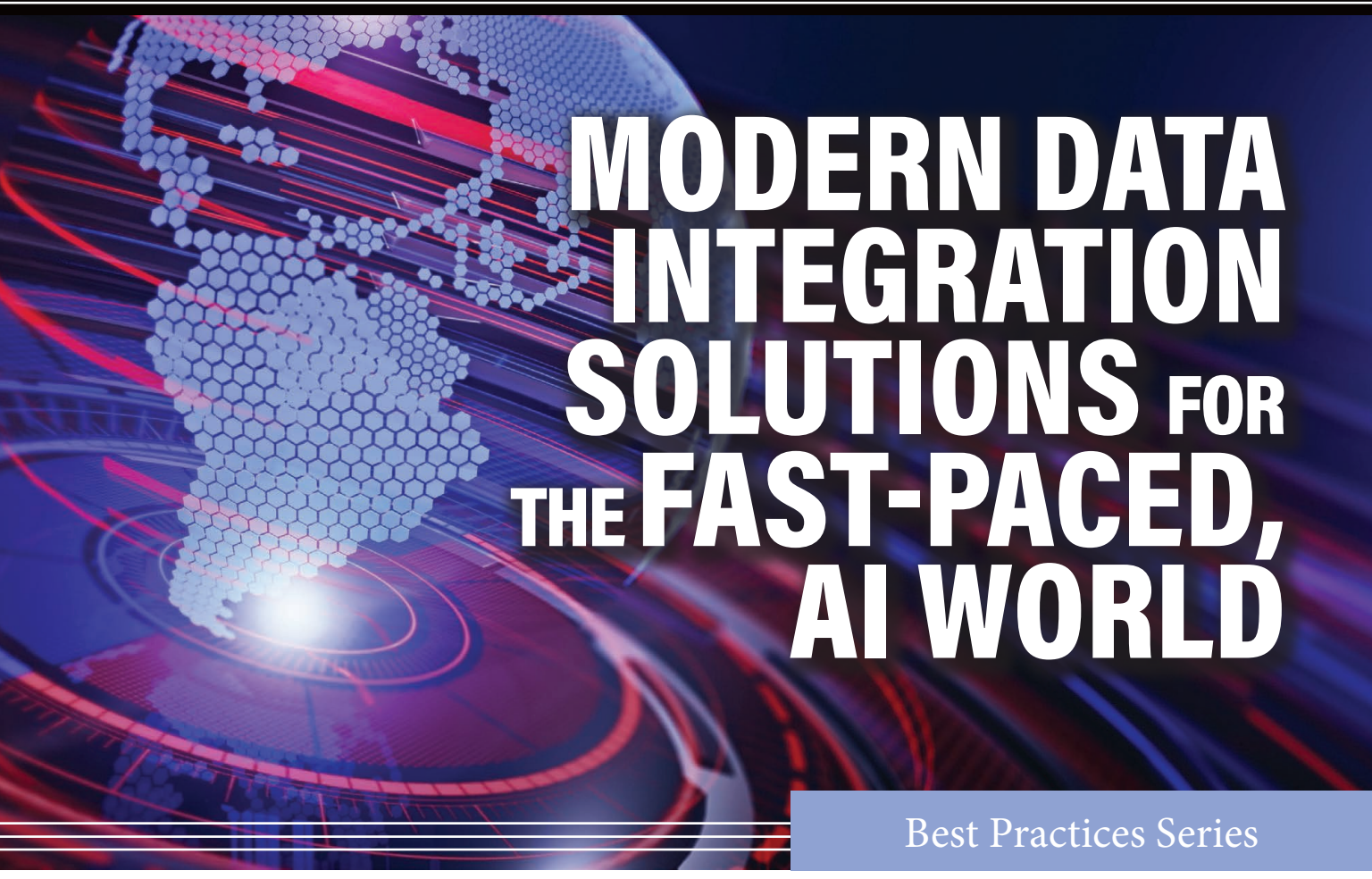
TRENDS AND APPLICATIONS

Best Practices Series



# MODERN DATA INTEGRATION SOLUTIONS FOR THE FAST-PACED, AI WORLD

Best Practices Series

Without data, AI has no value, but with the right data, it's a game-changer. At the same time, AI increasingly plays a role in enabling data systems to effectively deliver intelligence to the enterprise. The time is now to prepare data architecture and infrastructures to measure up to this new relationship.

AI has already become a critical element within many data management operations. Sixty-three percent of data managers consider the constellation of enterprise AI initiatives—generative AI (GenAI) with large language models, including retrieval-augmented systems and knowledge graphs—to have strategic value to their enterprises, a recent survey of 259 data managers by Unisphere Research and Radiant Advisors finds. In addition, approved budgets for AI-connected data projects increased by 17% from a previous survey, while uncertainty declined substantially ("2025 Market Study: Modern Data Architecture in the AI Era," Unisphere Research, June 2025).

The rise of AI and its insatiable appetite for data means data integration—once a backroom and deliberative process—needs to happen in real time and be able to scale to enterprises and their networks of partners.

*Real-time data integration is the future. Decision makers or their applications need to be able to act on data upon its initial creation, regardless of source.*

Modern data integration introduces many technologies, including real-time data streaming, data virtualization, API-led connectivity, AI-driven automation, and data lakehouses among many other technologies.

Facilitating the growth and success of modern data integration in today's AI environment requires the following best practices:

- **Keep it strategic to the business.** It's important to note that modern data integration is a strategic project. Business leaders are turning to AI to drive them forward into a new era dominated by automated interactions and real-time transactions.
- **Keep track of AI activity across the enterprise.** As we are still in the beginning stages of AI and GenAI, there is a lot of experimentation and proofs of concept being explored and tested within many departments and among third-party contractors. It's incumbent upon data managers to understand the data requirements

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for these various projects and whether the right data is being trained and deployed among such disparate efforts. Data managers need to keep in touch with business and technology leaders across their organizations to understand what is needed. Part of this means determining where AI needs to be judiciously applied to the enterprises, or maybe if it isn't required at all.

- **Adopt a "lean integration" approach.** Just as lean principles revolutionized manufacturing, the way data is produced and moves through enterprises can benefit immensely from these same principles—produce the final product faster, better, more collaboratively, and cheaper. First explored by David Schmidt and David Lyle in their seminal work, *Lean Integration: An Integration Factory Approach to Business Agility*, the main point is that lean integration is an architectural pattern that emphasizes repeatable processes. They state, "Like any architectural pattern, you can improve and refine integration into something more productive and informative. The approach of addressing data quality within lean integration means you can finally treat data as an asset. This will help mark the end of chaotic integration practices and the beginning of continuous improvement."
- **Make it real time.** Real-time data integration is the future. Decision makers or their applications need to be able to act on data upon its initial creation, regardless of source. To get there, data needs to be timely and up-to-the-minute, if not sub-second. AI is typically employed as a predictive instrument, as well as a virtual advisor to both employees and customers. A real-time data streaming environment leverages low-latency processing.
- **Automate data operations and delivery.** As mentioned above, increasingly sophisticated and real-time AI environments need data as it becomes available, meaning the manual processes behind data management need to be automated. Of course, this means employing AI to assist in this process. AI can significantly speed up tasks such as schema matching and data transformation, which often were cumbersome manual tasks in years past. GenAI can even be deployed to create SQL queries, or to oversee extract, load, and transform processes.
- **Promote collaboration and agile practices.** AI—and the data that supports it—involves the entire enterprise. Many stakeholders touch it along the way—from managers at its sources to data administrators, data analysts, data scientists, and its ultimate consumers, to name a few. This includes embracing collaborative methodologies such as DataOps, AIOps, and DevOps. While DataOps applies continuous integration and continuous deployment to data moving through pipelines, DevOps assures that the efforts of application developers and operations teams are synchronized to the needs of the business. AIOps employs AI to manage and optimize IT systems. These methodologies ensure transparency across all the systems that handle data.
- **Keep things secure.** Data security always needs to be at the top of all priorities, and this is heightened when data integration is involved. The interchange between disparate systems, disparate stakeholders, and business users all depends on trust in the data feeding AI systems. Compliance mandates also play a key role here requiring regular audits of the viability and security of the data. Here, data quality, visibility into data provenance, and data governance are introduced in a big way to ensure the data is protected and aligned with the needs of the organization.

- **Remember, people first—always.** Importantly, modern data integration is all about maintaining a people-first approach. As Schmidt and Lyle point out, a modern data integration methodology cannot "be bought—it must be cultivated and evolve from the ground up." Such an approach must center around "establishing the processes to sustain solutions indefinitely in a production environment. Integration requires a specific methodology that is distinct from project management, software development, or application architecture methods."

We have entered a new era, which requires a new way of looking at data. Modern data integration will get us there. With businesses engaged in a fast-moving, real-time digital economy, data integration is more than work that takes place in the background within a data warehouse or analyst domain. Automation and AI are capable of taking on much of the heavy lifting associated with such tasks, bringing information from disparate sources to an observable pipeline that can be employed to instantly sense and respond to changes in the business environment. ■

—Joe McKendrick

# One-Stop Data Integration for AI

IRI Voracity
An Insatiable Appetite for Data

As AI shifts from proof-of-concept to everyday business driver, the speed and quality of data integration can mean the difference between leading the market and playing catch-up. The challenge? Making integration not just faster, but smarter, more secure, and aligned with how real organizations work.

That's where platforms like IRI Voracity find their moment. Rather than adding another point tool to an already complex stack, Voracity takes an all-in-one approach—combining data discovery, integration, migration, governance, and analytics under a single roof. The result: less time stitching together systems, more time turning data into actionable intelligence.


## FROM STRATEGIC VISION TO DAILY VALUE

Modern data integration is no longer a background task—it's a strategic function directly tied to business goals. Voracity's unified environment means teams can connect, cleanse, and prepare data in the same place they secure and analyze it. That translates into measurable gains for leaders seeking faster, more reliable insights without expanding infrastructure costs.

## VISIBILITY ACROSS AI INITIATIVES

One challenge of the AI era is knowing where, and how, data is being used. Voracity addresses this with built-in metadata management that lets data teams trace lineage, check quality, and confirm compliance—whether datasets feed centralized AI pipelines or department-level experiments. This transparency supports both innovation and governance.

## LEAN, EFFICIENT INTEGRATION

Drawing from lean manufacturing principles, Voracity minimizes unnecessary steps by performing data transformation, cleansing, masking, and analytics (or wrangling) in a single pass. This "do it once, do it right" method shortens processing times, reduces system load, and enables repeatable workflows—hallmarks of an integration practice that improves with use instead of accumulating inefficiencies.

## REAL TIME, NOT JUST BATCH

Real-time intelligence is now a requirement. Voracity supports streaming IoT data, clickstream log analytics, and RDB change data capture, enabling organizations to process and act on information at sub-second speeds. For AI-driven operations—from predictive maintenance to personalized customer experiences—Voracity enables immediate decision-making and continuous intelligence.

## AUTOMATION AS A STANDARD

Automation in Voracity goes beyond job scheduling. From assisted schema mapping to pre-built transformation logic, the platform reduces the time between data arrival and readiness. For teams that once spent days on manual preparation, this frees talent for analysis, modeling, and strategy.

## COLLABORATION ACROSS THE DATA LIFECYCLE

Disciplines like DataOps, DevOps, and AIOps depend on shared workflows and transparency. Voracity's open architecture supports version control, CI/CD integration, and multi-user development, enabling data engineers, analysts, and governance teams to work in sync instead of silos.

## SECURITY AT EVERY STEP

Whether through encryption, anonymization, pseudonymization, or audit logging, Voracity builds the protection of PII in structured, semi-structured, and unstructured data sources into the process. For regulated industries and global enterprises, these capabilities ensure integration moves forward without compromising compliance.

## PEOPLE FIRST

Voracity is approachable for both technical and non-technical users. A visual, drag-and-drop interface lowers the barrier to entry, while a scriptable backend serves advanced developers. This adaptability helps sustain modern integration practices without creating bottlenecks.

As these best practices remind us, data integration today is an enterprise-wide capability—strategic, real-time, automated, collaborative, and secure. IRI Voracity shows that meeting these goals doesn't require juggling a dozen tools or drowning in complexity. Instead, it can mean a single, unified environment where data is not just integrated, but ready to fuel the next wave of AI-powered business. Learn more at https://www.iri.com/voracity. ■

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