The leader in AIOps for observability

Challenges In Observability:

Building AI-Ready Data Repositories

riverbed®

Enterprises don’t want AI-hype, they want practical AI that works at scale.

The surge in AI enthusiasm has been undeniable, but as expectations evolve, many organizations are now at a pivotal juncture in their AI journey. The key question is no longer just about embracing AI but understanding how to move beyond the initial hype to implement practical and impactful AI solutions within their organizations. This transitional phase is not a setback—it’s an opportunity. It’s where genuine progress and transformative outcomes take shape.

With the initial wave of excitement and over-promising now behind us, we’re gaining a clearer perspective on AI’s tangible capabilities, as well as its boundaries. This clarity is paving the way for meaningful innovation. Over the next three years, we expect a significant acceleration in AI adoption, driven by leaders seeking pragmatic strategies to execute their AI initiatives effectively. Now is the time to align aspirations with action and turn potential into results.

For IT leaders, leveraging AIOps presents a powerful opportunity to enhance user digital experiences while streamlining operations. By integrating AI-driven insights into IT workflows, organizations seek to prevent, identify, resolve issues and deliver efficient digital services to the enterprise.

1 Source: Riverbed AI Study 2024

Data management has become the leading challenge as AI observability use cases increase in complexity and become more specialized.

Data is at the heart of effective decision-making and operational efficiency. For enterprises, the strategic use of data—collected, processed, and leveraged through Artificial Intelligence (AI)—can offer substantial competitive advantages. However, these opportunities come with significant challenges, especially when data is distributed across various systems and silos.

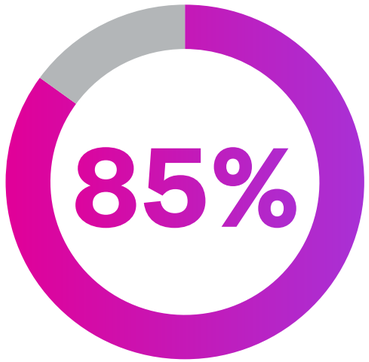
AI techniques can enhance processes such as root cause analysis, anomaly detection, proactive alerting, forecasting, and automated incident response. However, distributed data presents unique hurdles that can hinder the effectiveness of causal AI, predictive AI, and generative AI models. This paper outlines these challenges and introduces the Riverbed approach to overcoming them.

81% of senior business leaders acknowledge that their data was scattered across different silos within the organization.[1]

1 Source: Riverbed AI Study 2024

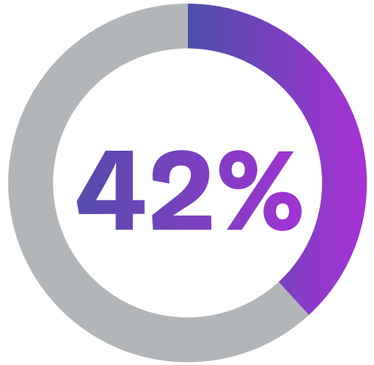
High-quality data empowers AI systems to make informed decisions with greater accuracy and in real time, thus delivering reliable outcomes.

Maintaining high-quality data is also vital for reliable AI outcomes. Data inconsistencies or errors can lead to flawed results, reducing user trust and undermining the business value of AI implementations. Reliable data quality control mechanisms must be in place to mitigate these risks.



of decision-makers agree that data accuracy and completeness is critical to high-quality AI[1]

Lastly, there is the challenge of managing high resource and processing demands. The dispersed nature of distributed data requires significant computational power for effective analysis. These processing needs must be met efficiently to prevent excessive operational costs or compromised performance.



mention that lack of high-quality internal data on which to train AI systems will prevent them from investing more in AI[1]

1 Source: Riverbed AI Study 2024

Inconsistent data formats and structures across different sources make it difficult to maintain data uniformity.

Let's face it, typical enterprise IT departments use lots of tools, most from different vendors, to manage their observability needs. When data is sourced from various systems, it often varies in structure and reliability, making it difficult for AI models to process cohesively and accurately. The discrepancies can result in skewed or misleading insights.

Confounding variables present a significant challenge. When data is collected from specific regions or organizational segments, it can introduce variables that create confusion within AI models. For instance, location identifiers or key metadata may be labeled differently across systems, leading to incomplete or erroneous conclusions if models are trained on non-representative data.

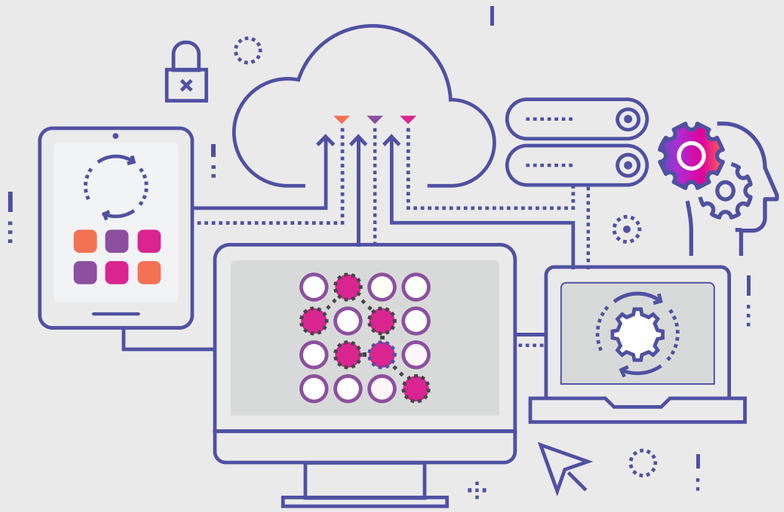
Privacy and security concerns are also paramount. Integrating data from multiple sources often means handling sensitive information, which must be done with strict adherence to privacy and security protocols. Balancing comprehensive data analysis with privacy compliance can be complex but is essential for trustworthy AI operations.

Cross-model accuracy is another hurdle faced by IT teams. AI models that perform well on a single data source may fail to deliver consistent results when applied to more diverse data sets. Ensuring that these models maintain performance across different environments is crucial for actionable insights.

Performance latency is a key concern when data is scattered across different locations. The time required for data retrieval and processing can slow down the real-time decision-making that many AI-driven operations rely on. Reducing these delays is important to maintain the high responsiveness needed for mission-critical tasks.

Most AI projects fail to deliver on their promises because organizations struggle to establish a data repository[2].

Without this foundation, AI initiatives lack the high-quality, unified data necessary for accurate insights, scalable models, and actionable outcomes. Within enterprise IT environments observability data is in isolated pools across the organization, usually captured by a wide variety of tools. None of these tools were ever designed to work together. This means IT departments must build their own data repositories to feed their AI models.



Building a large data repository is hard work and usually the failure point for AI initiatives. **The Riverbed Data Store** is designed to overcome these challenges. We've done the hard work for you. We give you access to the data you need, including third party data, without having to build your own data structure.

Our patented approach leaves the data in place and with our proprietary AI decision engine, we access just the right data, at just the right time, and with the right quality to fuel your AI operations. Whether for causal, predictive or generative AI, this is the innovation that AI has needed.

Riverbed Data Store is designed to overcome these challenges

[2]Source: Gartner Group, 2024 | Patented

The Riverbed Solution: A Unified Approach to Distributed Data.

Riverbed offers a robust solution for managing the challenges associated with distributed data through the Riverbed Data Store. This innovative technology indexes all data sources, eliminating the need to move the data and build your own data structure—we've done the hard work for you.

Handle diverse data types with the Riverbed Data Store by integrating sources such as network flow, infrastructure, and telemetry data. Its flexible query interface standardizes data access across cloud and on-premises environments, addressing the inconsistencies commonly found in distributed data.

Aggregate and map data. By implementing sophisticated mechanisms, Riverbed minimizes confounding variables and inconsistencies. This allows IT teams to manage and reconcile data identifiers that may be labeled differently across systems for accurate analysis.

Prioritizes privacy and data security through secure communication channels and encrypted edge services. These features allow data to be mirrored safely in the cloud, reducing the need for raw data centralization and supporting compliance with data privacy regulations.

Minimize latency and support real-time access to distributed data with Riverbed Data Store's edge processing and cloud-based query capabilities. This design is ideal for applications that require quick data retrieval and decision-making, ensuring minimal lag in operational responses.

Data quality control is reinforced using precedence rules and validation processes, ensuring that only the most accurate and relevant data is processed. The system's data filtering and correlation mechanisms further enhance the reliability of AI outcomes.

Efficient data management and computational resource. Riverbed's Data Store combination of edge processing and cloud-based analytics allows organization to manage their data and computational resources efficiently. This scalable approach ensures processing for AI that is practical and works at scale.

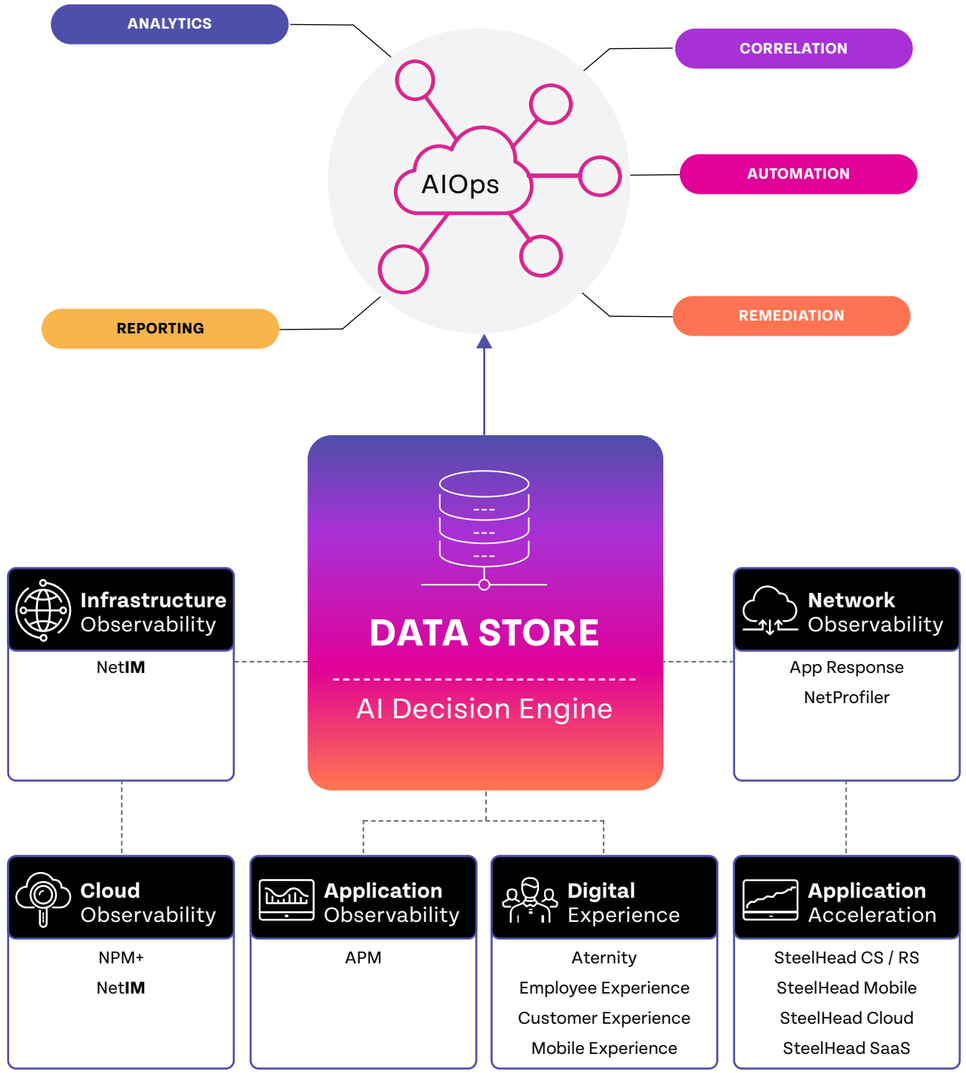
Making AI actionable requires an efficient data repository, and building one on your own is nearly impossible.

With the **Riverbed Data Store**, all islands of data feed into a connected repository. Because the data stays in place until requested and most data is never transferred, it's very efficient.

What's different for us is you can do this on a single product basis, as you can connect all your Riverbed and third-party products together into a single powerful data engine.

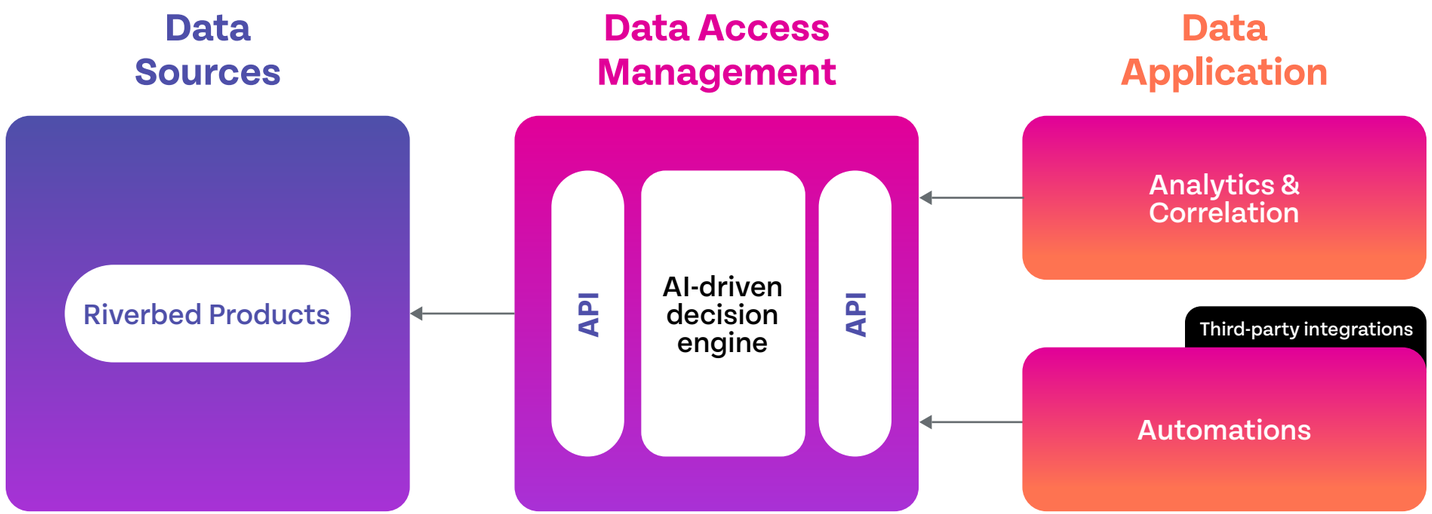
The more data you feed in, the better the results—and we scale to handle it. From there you can analyze the data, and apply AI techniques to prevent, identify and resolve issues.

The Riverbed Data Store isn't something you can buy, because we provide it free of charge with the Riverbed Platform.



Riverbed Data Store High-Level Architecture.

Scalable, Intelligent, Open



Data stays in place until requested, with the vast majority of data never transferred, making it scalable.

Utilizes an AI-driven decision engine to determine required and relevant data located in each observability data source. This makes it intelligent.

Analytics and correlation use data for causal and predictive AI. Riverbed automations use APIs to access additional data from Riverbed data sources as needed and well as exchange data with third-party sources. This makes it open.

IT Leaders demand AI that's safe, secure, and accurate.

First and foremost, IT leaders pursuing AI strategies for observability are driven by the need to mitigate risks, safeguard sensitive data, and ensure that AI outcomes are trustworthy, ethical, and consistent with organizational goals. Riverbed's AI is:

Safe

All data remains in a closed looped system controlled by the customer

We only use customer provided data

We don't intermingle with outside data

Secure

We don't access company data or personal data—only the IT data attributes that are agreed upon

Accurate

We offer the industry's most comprehensive telemetry across the IT landscape and using real data— we never use synthetic data created by generative AI so your results will be more precise

Conclusion

IT teams aiming to leverage AI's full potential must address the challenges posed by distributed data. The Riverbed Data Store provides an integrated solution that simplifies data management while ensuring security, consistency, and speed.

By standardizing diverse data types, supporting privacy, and enabling real-time processing, Riverbed helps organizations unlock meaningful insights and make data-driven decisions with confidence.

Riverbed is the leader in AIOps for observability. We are ready to help you deploy AI that works--at scale.

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Riverbed – Empower the Experience

Riverbed is the only company with the collective richness of telemetry from network to app to end user that illuminates and then accelerates every interaction so that users get the flawless digital experience they expect across the entire digital ecosystem. Riverbed provides two industry-leading solutions: the Riverbed Unified Observability portfolio, which integrates data, insights, and actions across IT to enable customers to deliver seamless digital experiences; and Riverbed Acceleration, which offers fast, agile, and secure acceleration of any application over any network to users, whether they are mobile, remote, or on-premises. Together with our thousands of partners, and market-leading customers across the world, we empower every click, every digital experience. Learn more at riverbed.com.