

## Server & Enterprise Software

# Private Perspectives: InfluxDB - Specialized databases are the future

Industry Overview

### What we learned about real-time analytics

Last week, we hosted a web session with InfluxData's CEO Evan Kaplan. Mr. Kaplan shared thoughts on the emerging new database segment (time-series) that is well-suited for real-time monitoring / analysis of large datasets. Time-series databases can be used in many use cases, notably in the Observability infrastructure software category. Our discussion focused on relevant topics such as database types, and implications for powering use-cases such as AI, observability, and enterprise analytics.

### Time-series database vendors likely AI beneficiaries

With the emergence of AI use-cases in the enterprise, customers are looking for places to store data for model-training purposes. A popular solution has been the vector database, which can store and tag various datatypes, much like a document database. Given this similarity, MongoDB was quick-to-market with their Atlas vector solution, and likely has an advantage in the product development and refinement. Given data storage is mission-critical to the proliferation of AI use-cases, we see strong database vendors as AI beneficiaries.

### What we learned: DB offerings are rapidly evolving

The database (DB) industry has fragmented as new use cases have risen. Relational databases (store data in cross-linked tables) started in the 1970s with Oracle dominating the segment. Relational databases were initially architected to run on standalone computers and struggled under Internet applications generating massive volumes of data. Fifteen years ago, open-source databases such as MySQL emerged, enabling greater scalability and better node failure tolerance. These served as the precursor to databases tailored to specific use-cases, such as MongoDB for documents, Neo4j for graphs, Pinecone for vectors, and InfluxDB for time-series. Over time, incremental improvements to tailor databases to specialized use-cases add up, making it unlikely that databases ever become generalized again and consolidate in the future. This database specialization trend supports the view that differentiated and best-of-breed database vendors stand to benefit and likely take share over the medium-term.

### Time-series implications for observability

In addition, we spoke on how time-series databases, such as InfluxDB, are playing a role in the observability space. While many customers will opt for platforms with strong out-of-the-box capabilities such as Datadog and Dynatrace, there are others who can build-out more tailored solutions by ingesting logs, metrics, and traces into an open-source time-series database and generating dashboards using an open-source tool like Grafana. In our view, this is a datapoint affirming that at a certain ARR thresholds or developer expertise, customers can be faced with a build versus buy decision. This could hinder share gains for observability vendors such as Datadog, Dynatrace, and Elastic. Even if a customer does not outright replace existing vendors, a time-series database could be adopted in conjunction, which could slow broader adoption of solutions such as Dynatrace Grail and Datadog Husky, which provide data storage for observability.

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AI: artificial intelligence






## Data lakehouses rising in importance

Connecting data across organizations is critical for insights, productivity, and AI use cases, in our view. The trend of leveraging data lakehouses is being driven from a high focus on big data architectures (e.g., Hadoop) over the last decade which often led to frustration and disappointment in performance and experiences. A new architecture that combines the benefits of data lakes and data warehouses especially for time-series applications are data lakehouses such as Databricks, MongoDB and tools provided by the Public Cloud vendors such as Microsoft Azure, Amazon Web Services and Google Cloud.

## Database taxonomy

We explain the various database types and use-cases for each. As each database type evolves to meet different use-cases, incremental improvements add up over time, making it harder for vendors to expand into other database categories.

**Exhibit 1: Databases have evolved to address disparate use-cases**  
The competitive landscape typically has minimal overlap between different database types

<b>Relational:</b> Store data in rows and columns. Link to other databases using primary keys   Oracle      IBM Db2  MySQL      PostresSQL  MariaDB      CockroachDB  Teradata      Hive  FileMaker      Firebird  Amazon Redshift      Clickhouse	<b>Search:</b> Index data to enable search  Elastic      Coveo Solr      Amazon CloudSearch OpenSearch      Sphinx  <b>Graph:</b> Stores data in nodes and maps relationships between nodes  Neo4j      Memgraph  <b>Time-series:</b> Time stamped data streams for real-time analytics  InfluxDB Timescale      Prometheus	<b>Vector:</b> Transform unstructured data into numbers used by generative AI   Weaviate  Milvus  Qdrant  Elastic  Pinecone  Chroma	<b>Document:</b> Stores semi-structured data as structured documents   Cassandra      DynamoDB  PouchDB      IBM Cloudant  MongoDB      Realm  Amazon DocumentDB      Couchbase  RavenDB      CloudKit  Mnesia      LiteDB
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