Demystifying the Data Lakehouse in Fabric

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  - Power BI UG Denmark (PowerBI.dk)
  - Power BI Cruise, Power BI Next Step and Data Platform Next Step

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40 %
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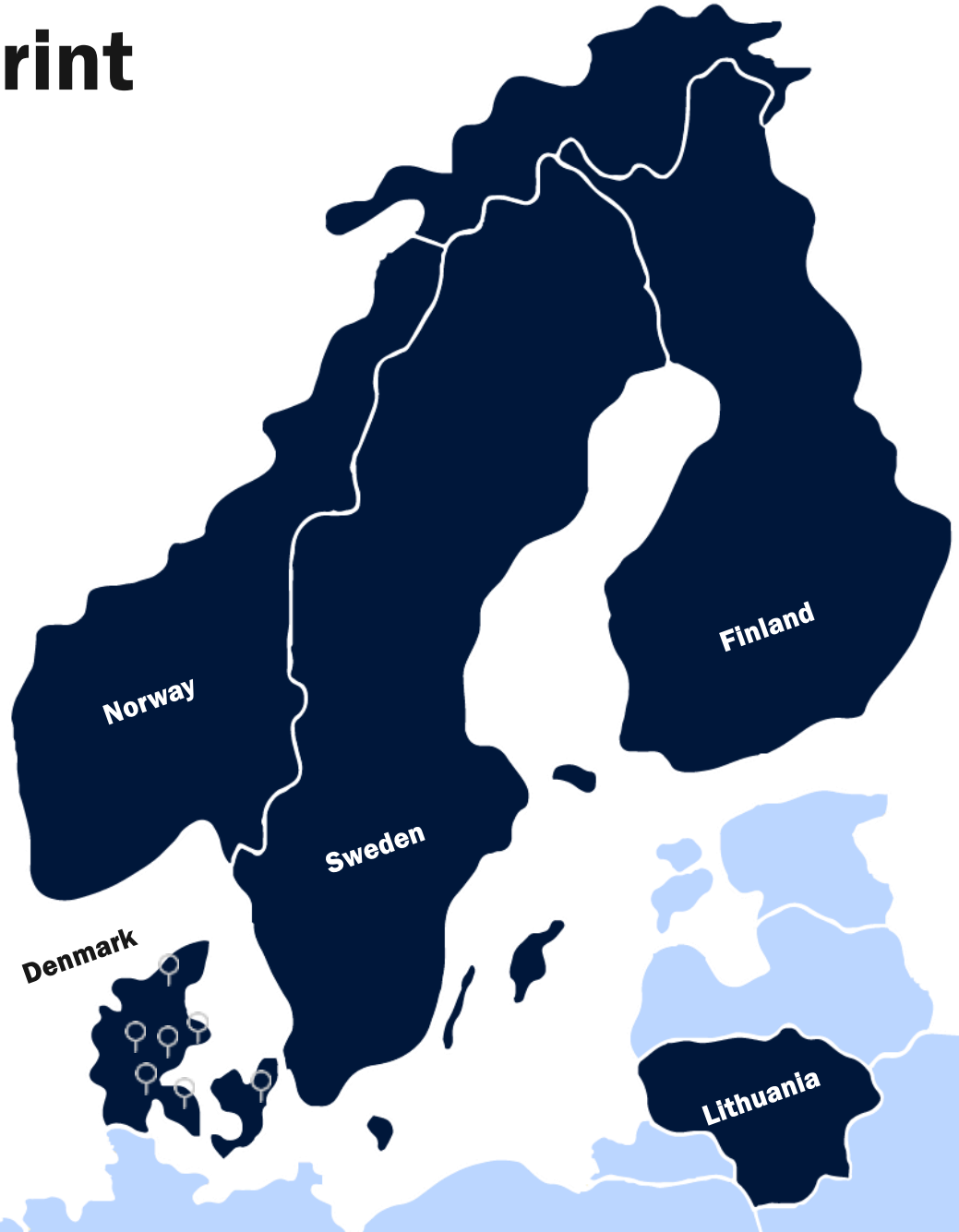

Norway	500 colleagues
Denmark	1,100 colleagues
Sweden	500 colleagues
Finland	700 colleagues
Lithuania	200 colleagues
UAE	15 colleagues

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What is this session all about?

- What is this Data Lakehouse that everyone is talking about now?
- Why Bronze/Silver/Gold now?
- Why decoupling storage and compute now?
- Do we all need to learn Python?
- What about good old SQL?

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From Classic to Modern: Exploring Layered Data Platform Architectures

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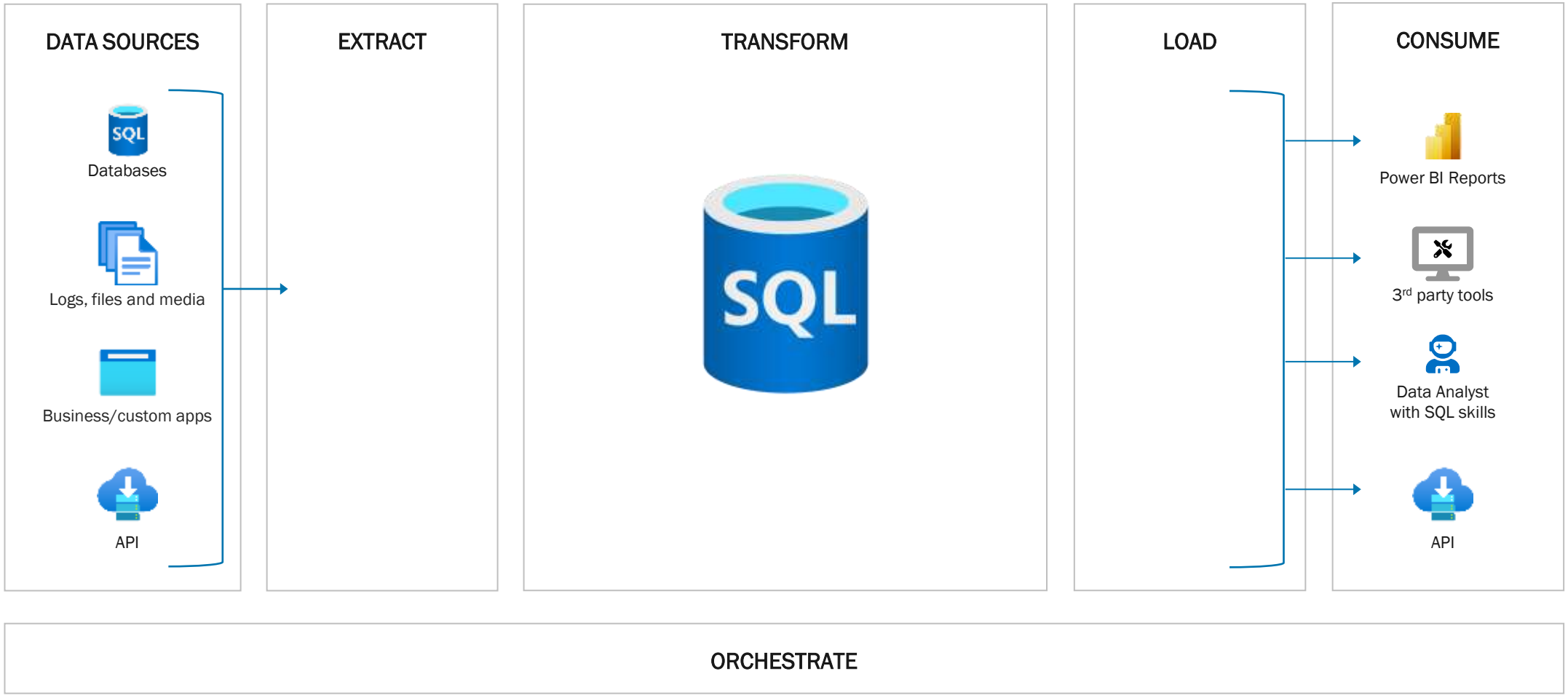
Dataflow in a Classic Data Warehouse



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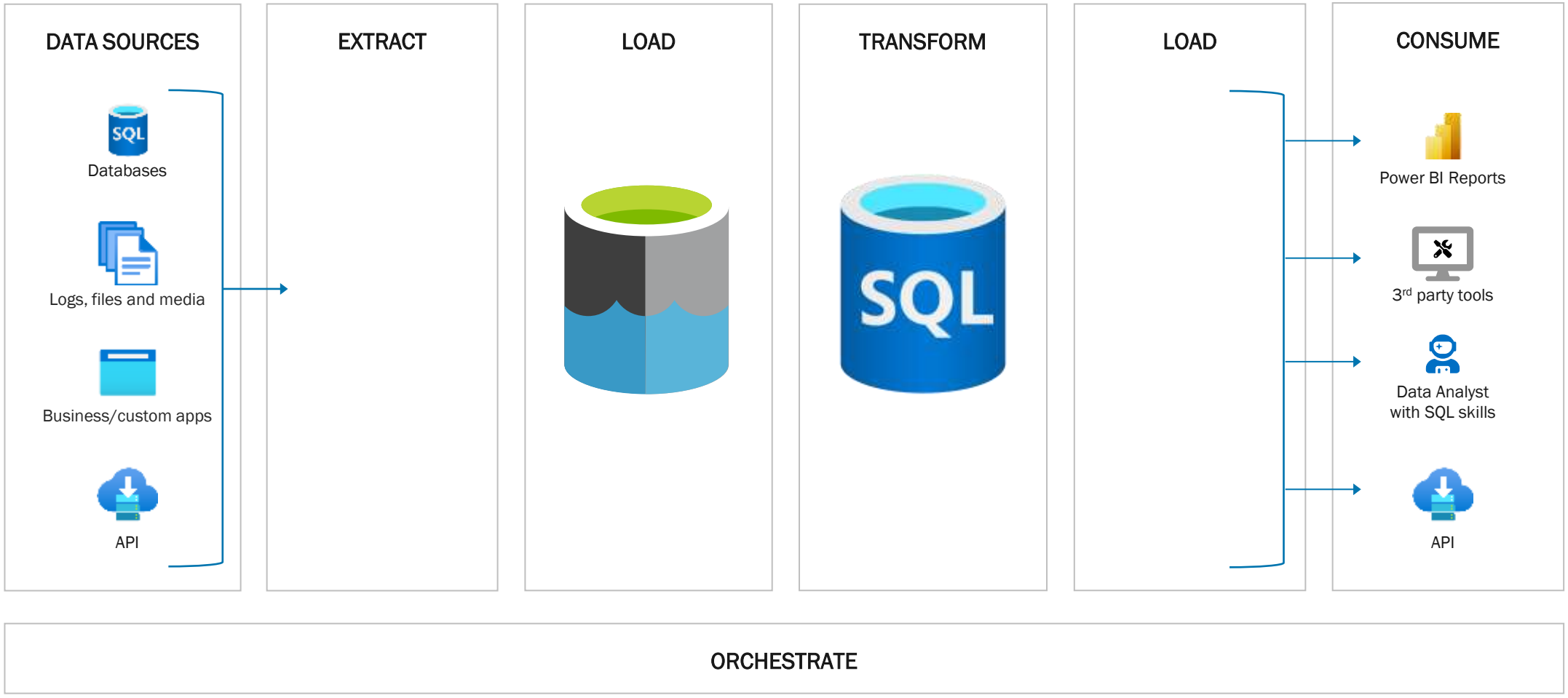
Dataflow in a Modern Data Warehouse



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Dataflow in a Modern Data Warehouse

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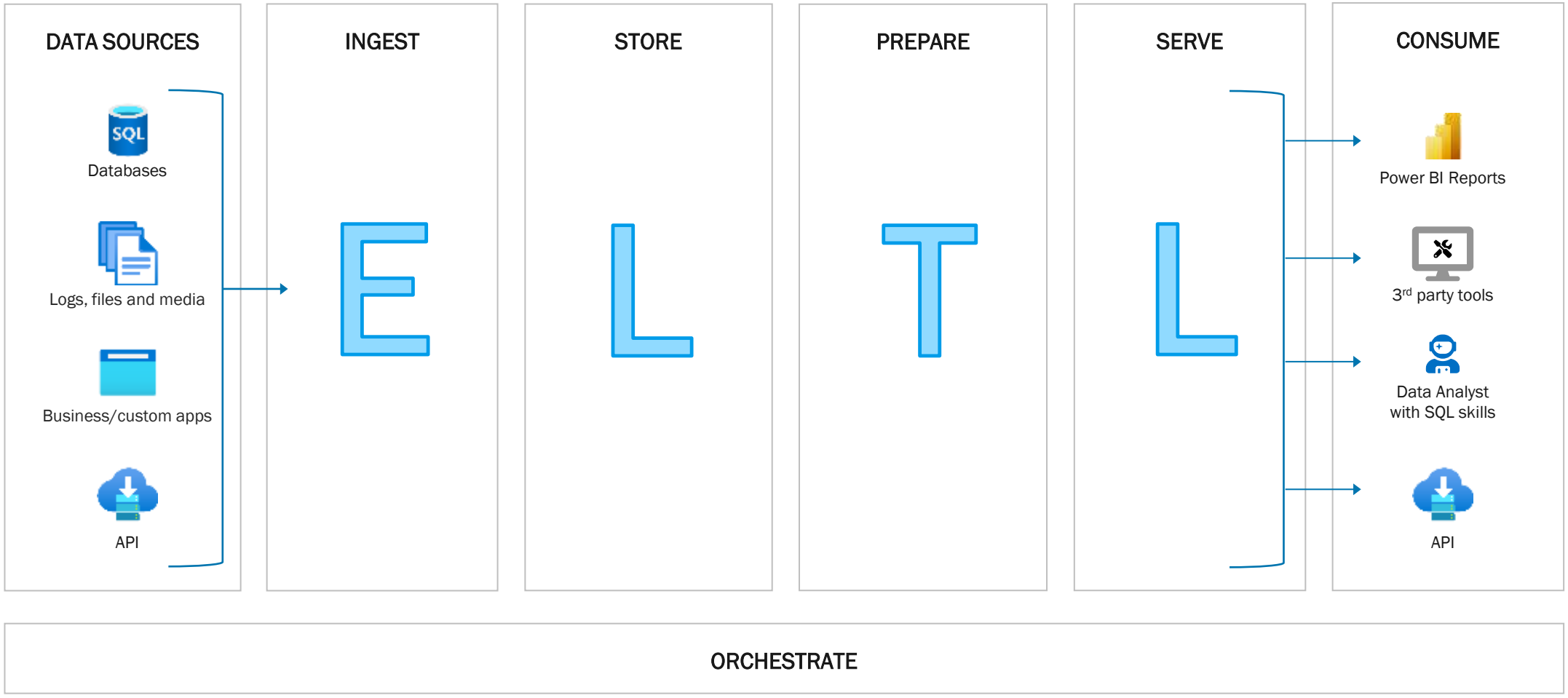
Dataflow in a Modern Data Warehouse



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Unleashing the Power of Decoupled Storage and Compute

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Dataflow in a Modern Data Warehouse

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Dataflow in a Data Lakehouse architecture

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Fabric as an end-to-end unified analytical platform

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Separation of Compute and Storage

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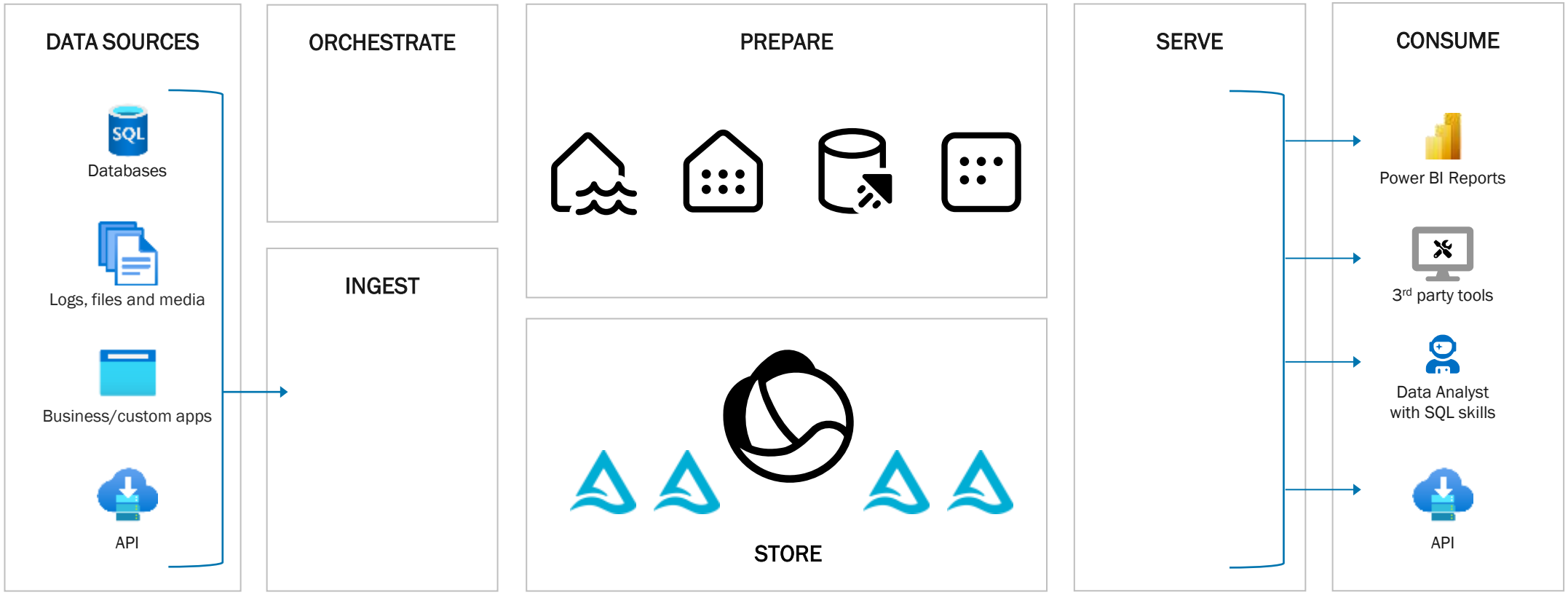
Separation of Compute and Storage



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Separation of Compute and Storage

1. Storage is Cheap, Compute is Expensive
   - Decouple to scale compute only when needed, reducing costs by avoiding over-provisioning.
2. Scalability Across Multiple Compute Engines
   - Handle big data processing with Spark, analyze real-time events with Eventhouse, and scale each engine independently for maximum efficiency.
3. Tailor Compute Resources to Workloads
   - Optimize performance by assigning the right compute engine—Spark, Data Warehouse, Eventhouse, or Analysis Services—to the appropriate tasks.
4. Always-On Storage with OneLake
   - Keep your data accessible even when compute is inactive, ensuring persistent storage with minimal downtime.
5. Run Compute Where it Makes Sense
   - Leverage compute engines in different environments while keeping your data centralized in OneLake, enabling seamless cross-cloud operations.

Delta Lake: The Magic Behind OneLake

- **The Backbone of Fabric's Lakehouse Architecture**: Delta Lake is the open-source storage layer that powers the Lakehouse, seamlessly integrating with engines like Spark for ultimate flexibility.
- **Default Storage Format for All Workloads in Fabric**: No matter what you're doing—streaming, batch processing, or analytics—Delta Lake is your go-to format.
- **ACID Transactions & Scalable Metadata Handling**: Go beyond Parquet! Delta Lake adds a transaction log for ACID compliance and robust metadata management, making it perfect for massive data environments.
- **Time Travel Made Easy**: Effortlessly access and revert to previous data versions for audits, rollbacks, or historical analysis. Delta Lake brings time travel to your data!
- **Turn Files into Relational Tables**: Files are no longer static! With Delta Lake, your files behave like relational tables, allowing for seamless querying and data manipulation.
- **"It’s Parquet, but Better!"**

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Delta Lake: The Magic Behind OneLake

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When PySpark Steals the Show: Key Scenarios for Success

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Dataflow in a Data Lakehouse Architecture

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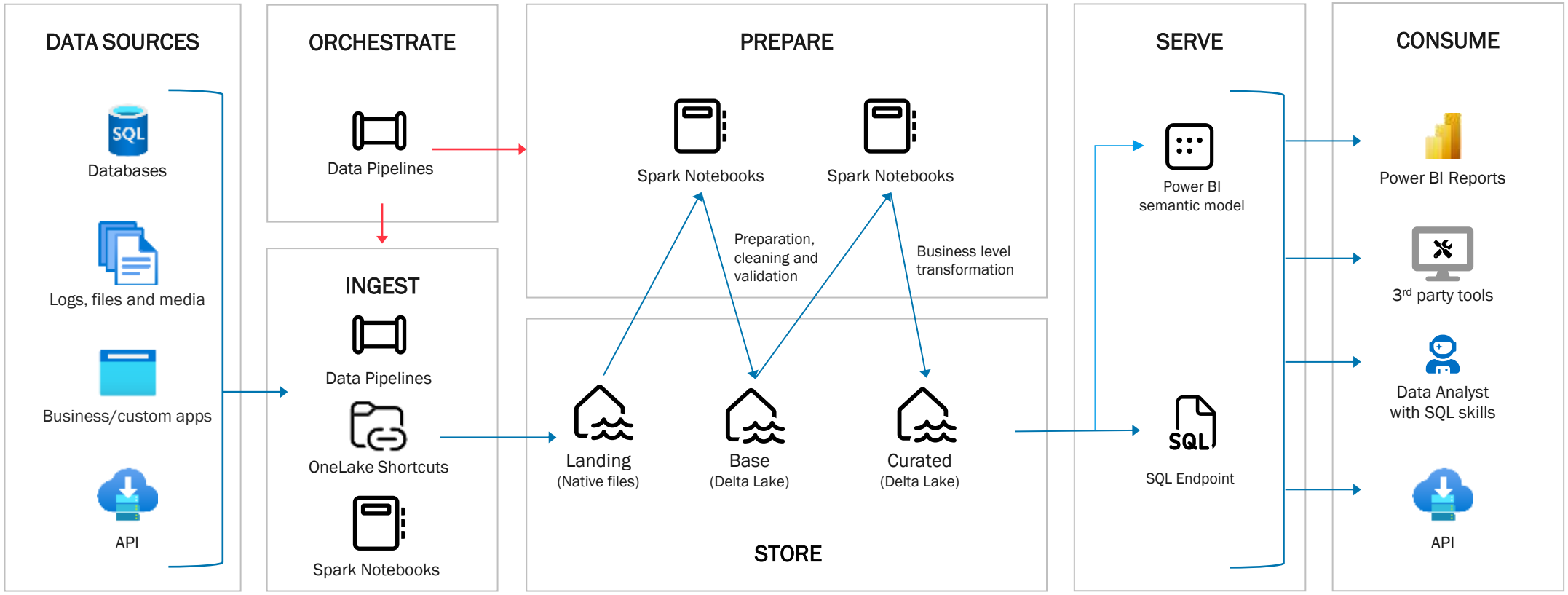
Dataflow in a Data Lakehouse Architecture



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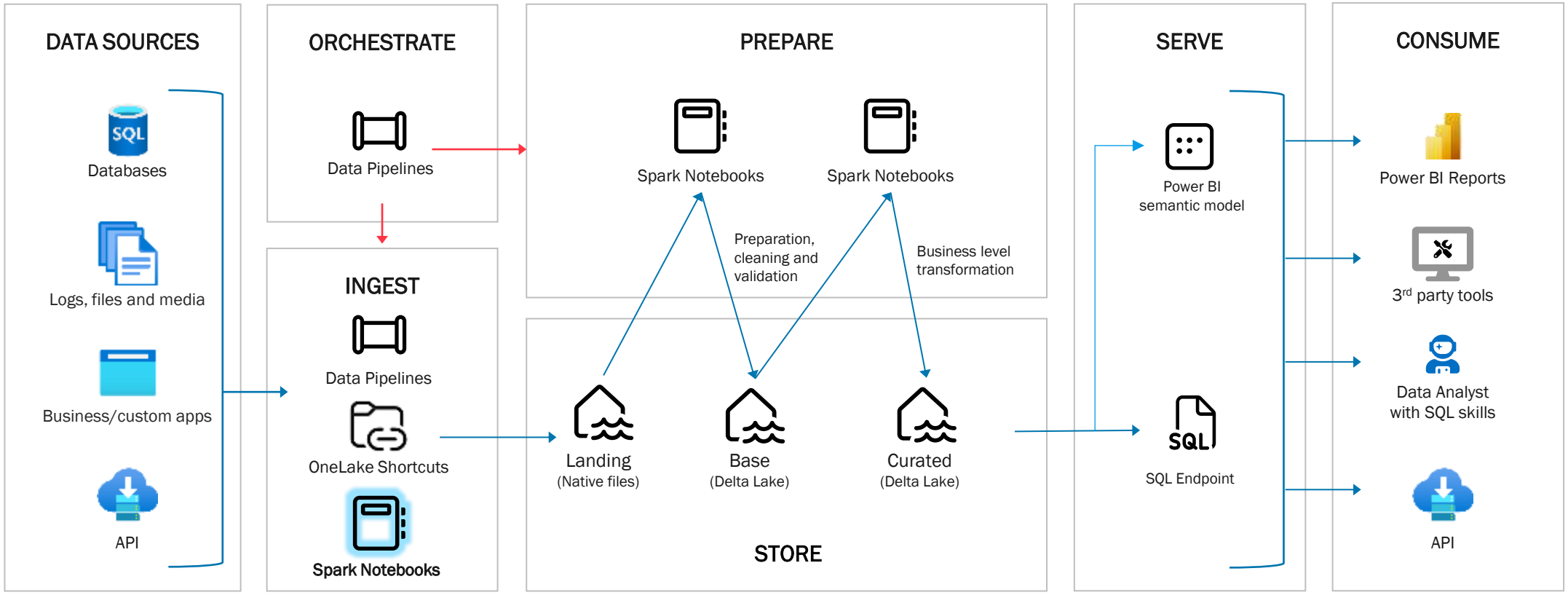
Scenario 1: Integration with API-Based Sources



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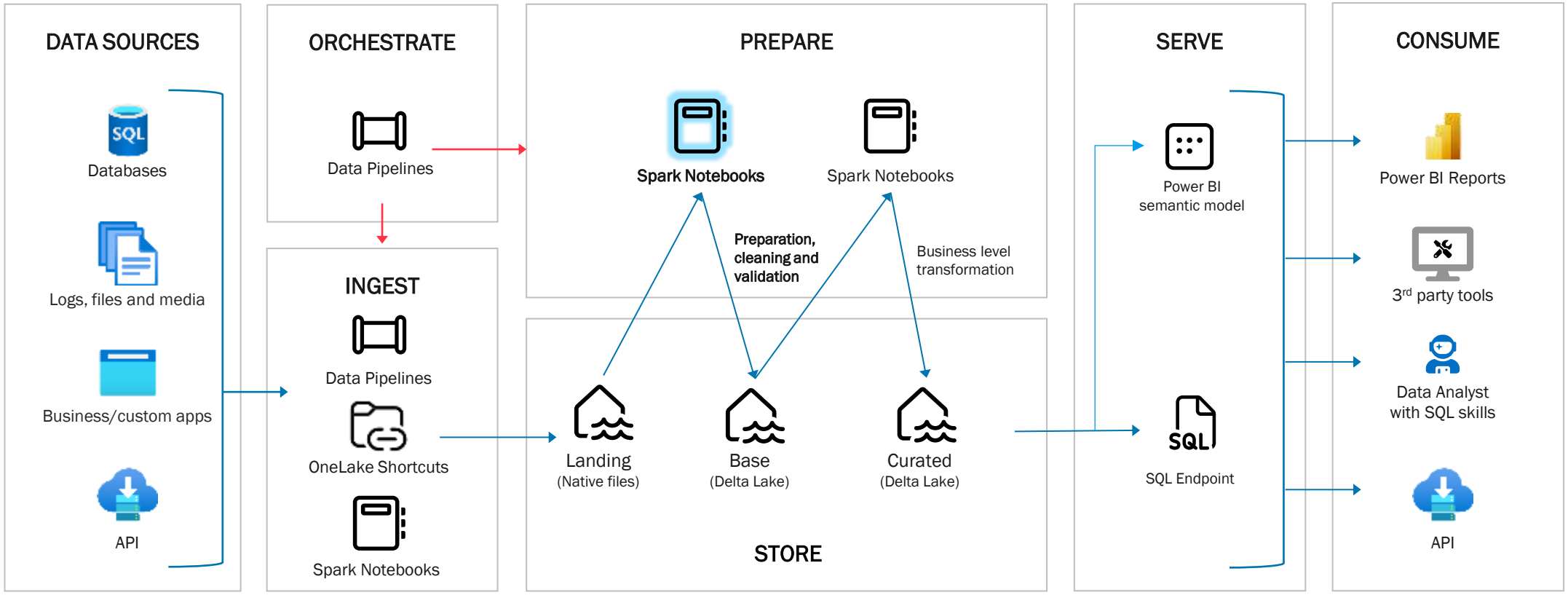
Scenario 2: Automated Data Cleaning and Validation



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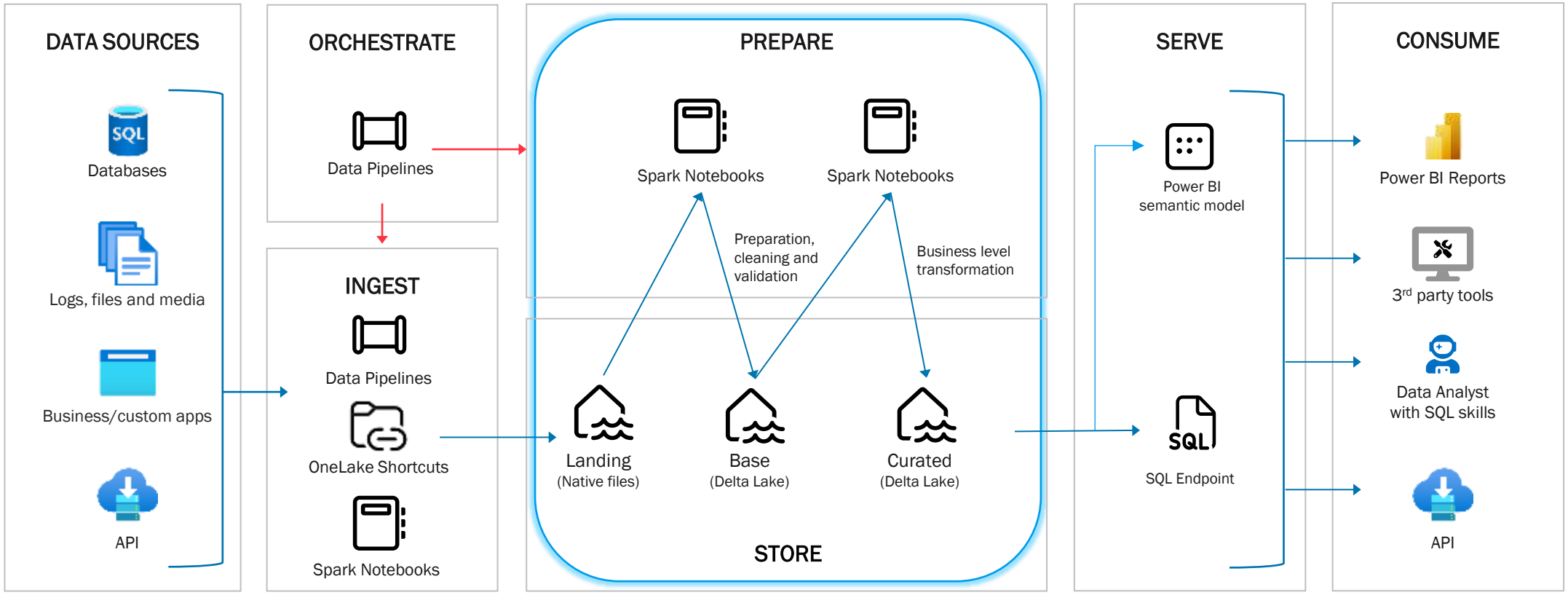
Scenario 3: Breaking Free from SQL Constraints



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SQL is Still Cool: Why It's Here to Stay

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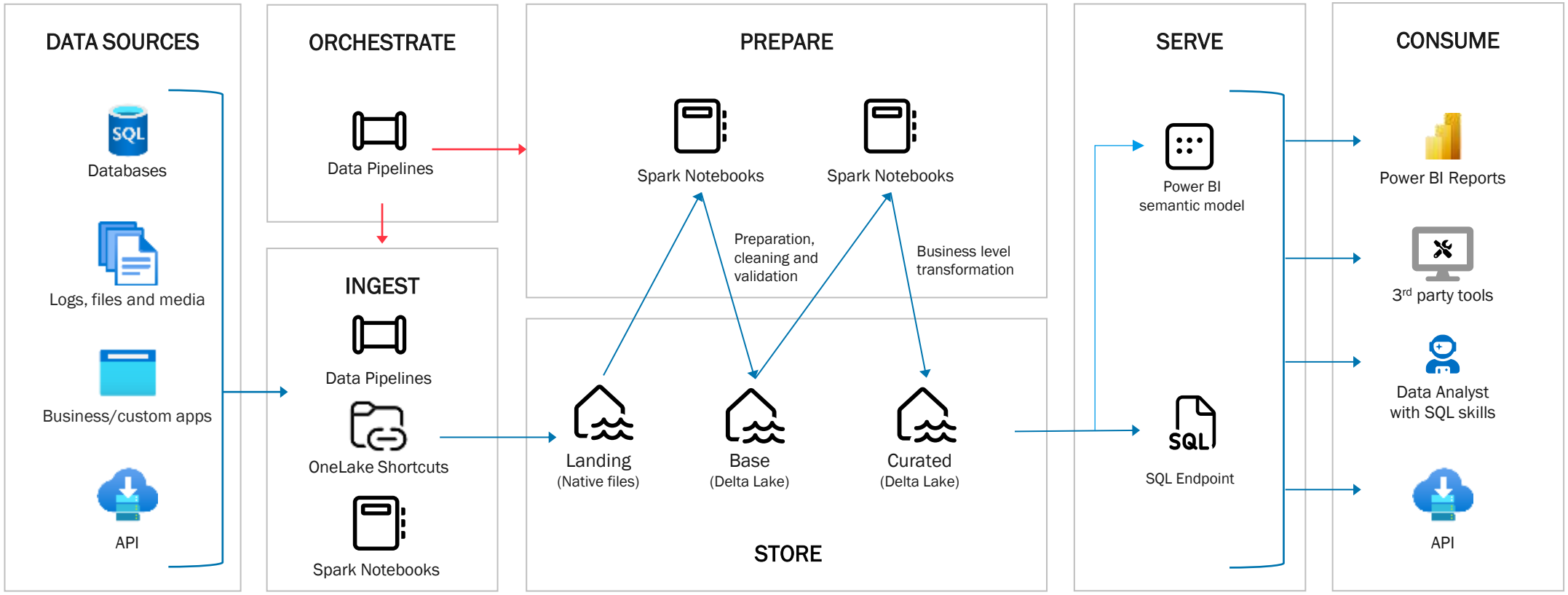
SQL's Cool Factor



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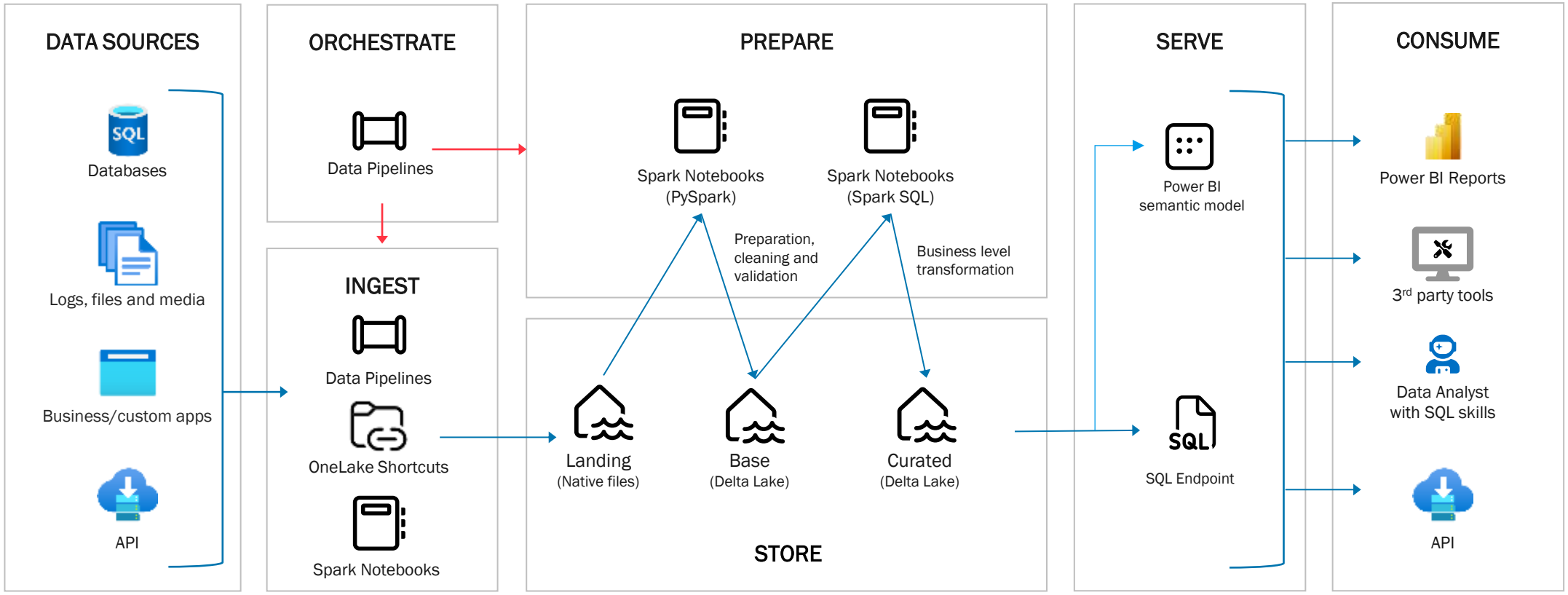
SQL's Cool Factor



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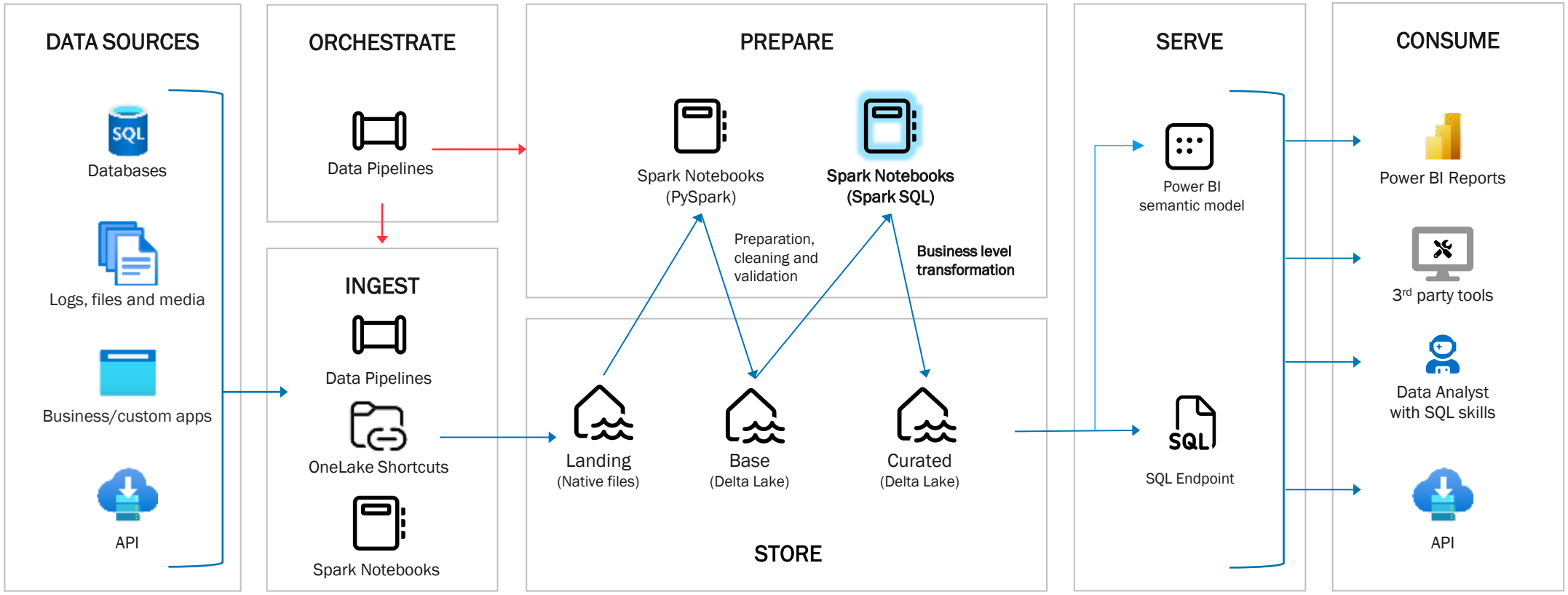
SQL's Cool Factor



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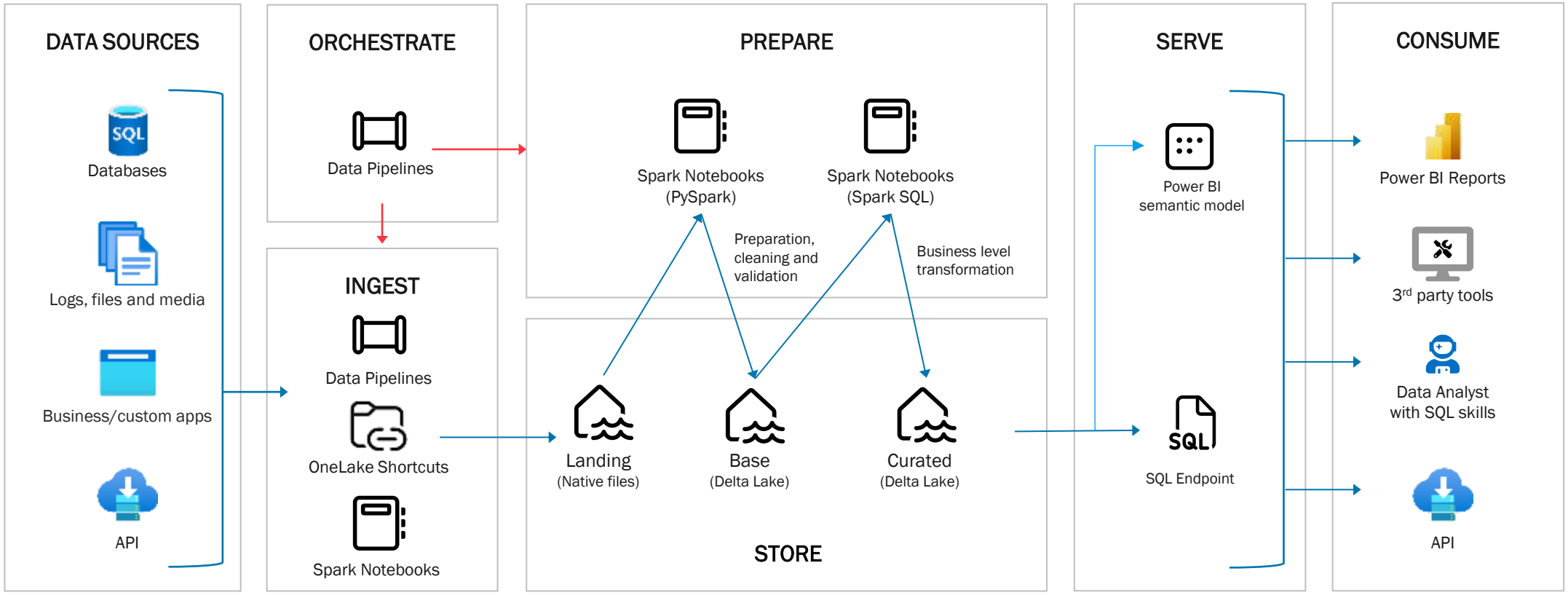
SQL’s Cool Factor

- **Familiarity and Simplicity:** Leverage the power of a language you already know—SQL’s declarative syntax is intuitive and widely adopted, making it easy for developers and analysts alike.
- **Seamless Transition to Modern Platforms:** SQL fits right into modern data ecosystems like Microsoft Fabric, allowing you to build on existing skills without the steep learning curve of new languages.
- **Powerful Performance with Spark SQL:** Execute SQL queries at scale with Spark SQL, merging the flexibility of SQL with the processing power of distributed systems like Spark.
- **Perfect for Business Logic:** SQL remains the gold standard for defining, refining, and executing business logic, ensuring clarity and precision in your data workflows.
- **Cross-Platform Portability:** SQL makes it simple to port business rules and queries across platforms, reducing the need for rework and ensuring consistency.
- **Integration with Modern Tools:** From Delta Tables to PySpark and Power BI, SQL plays well with today’s most advanced tools, keeping it relevant and versatile.
- **SQL: The Glue for Data and Analytics:** SQL continues to bridge the gap between raw data and actionable insights, making it the connective tissue in any data architecture.

SQL is Still Cool



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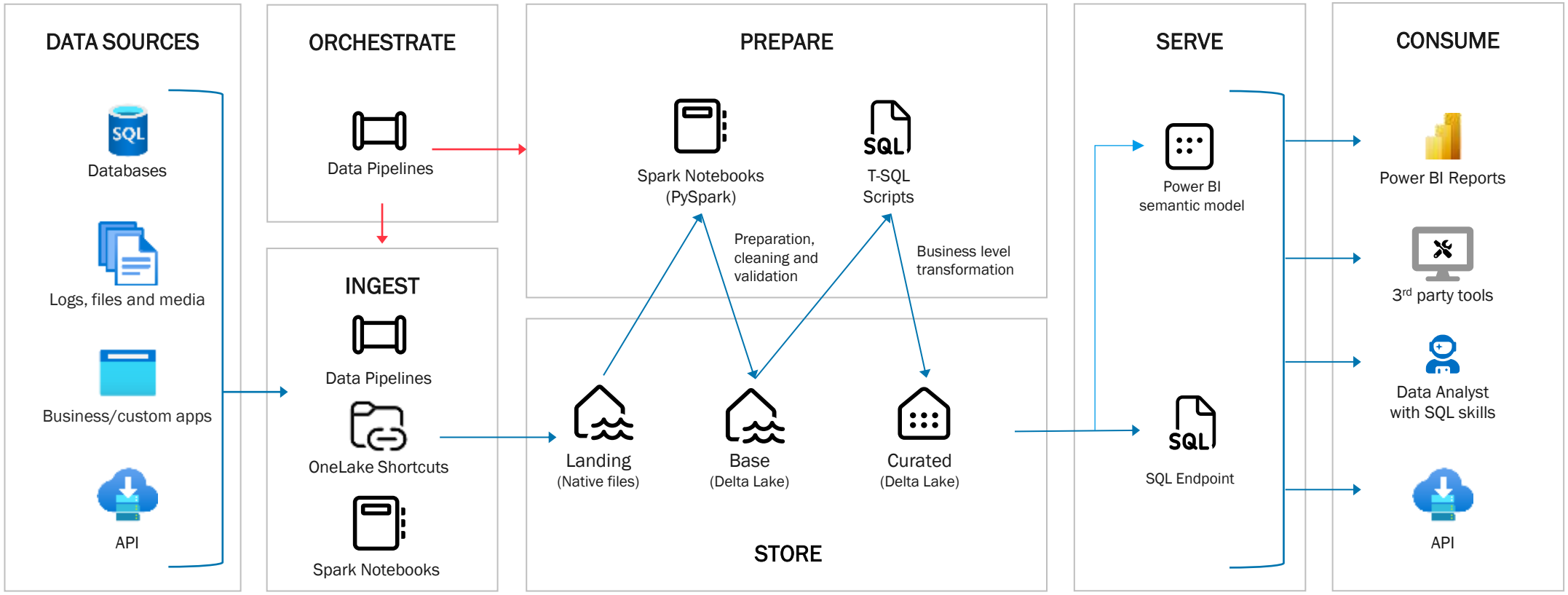

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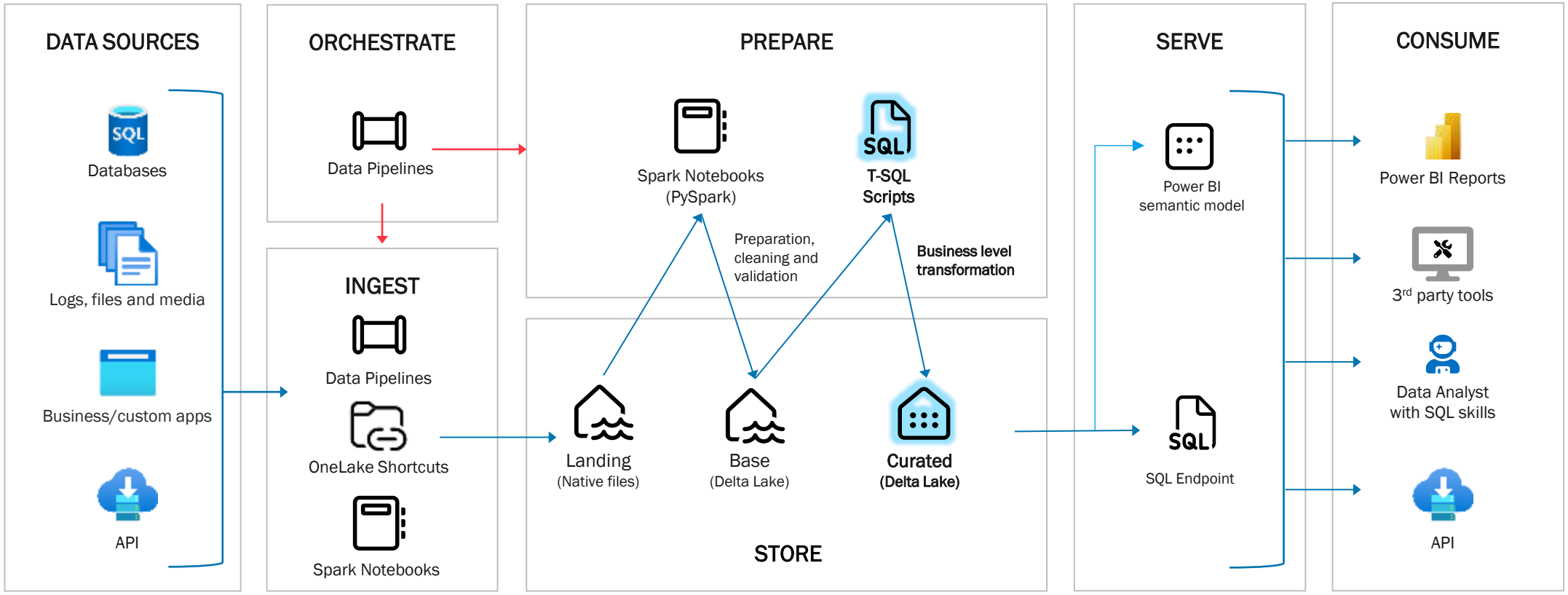

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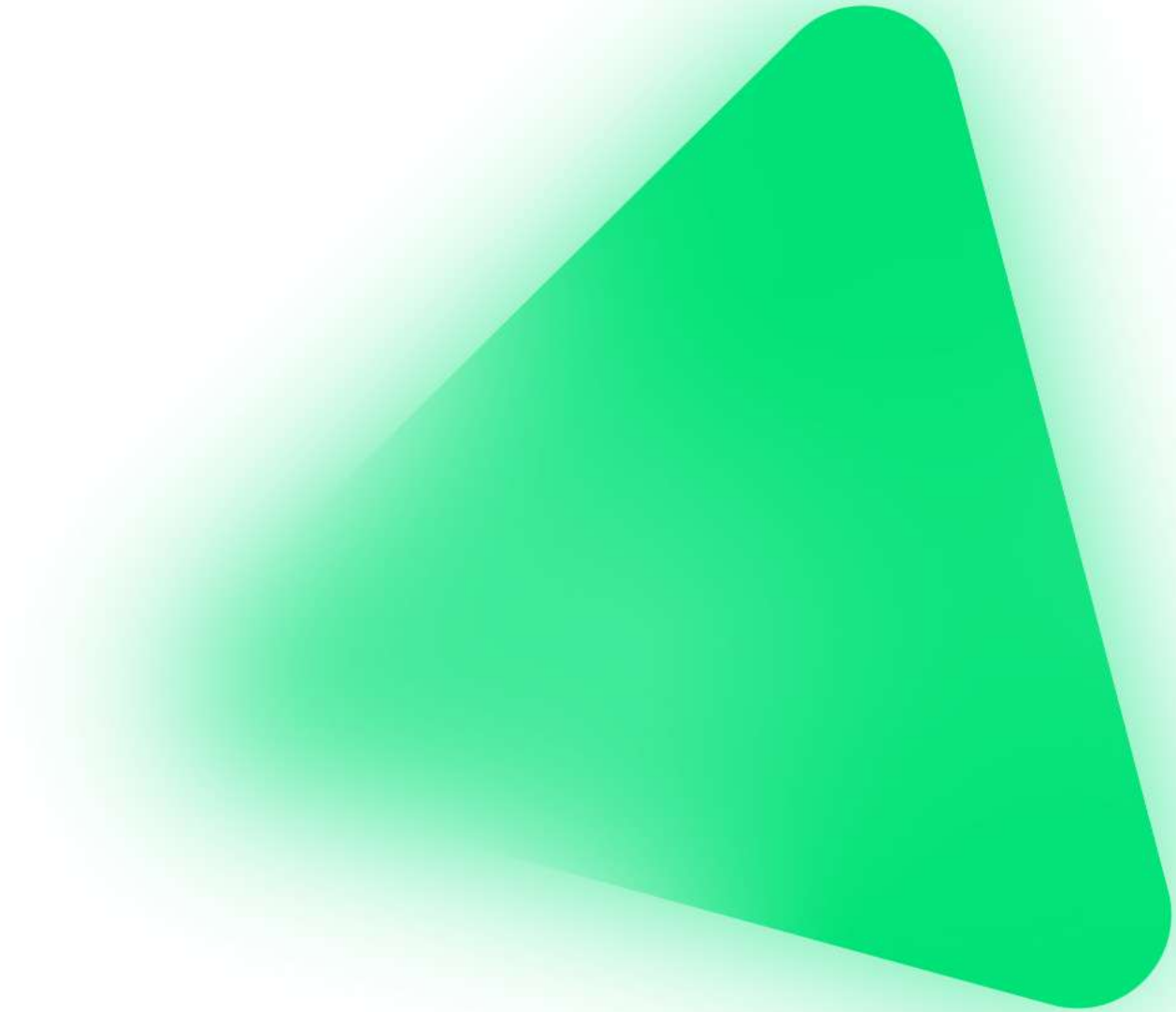
Q&A



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