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From IoT Devices to Analytics – Generic Data Flow

ARCHITECTURE

IOT & CLOUD ARCHITECTURE

Big Data Architecture

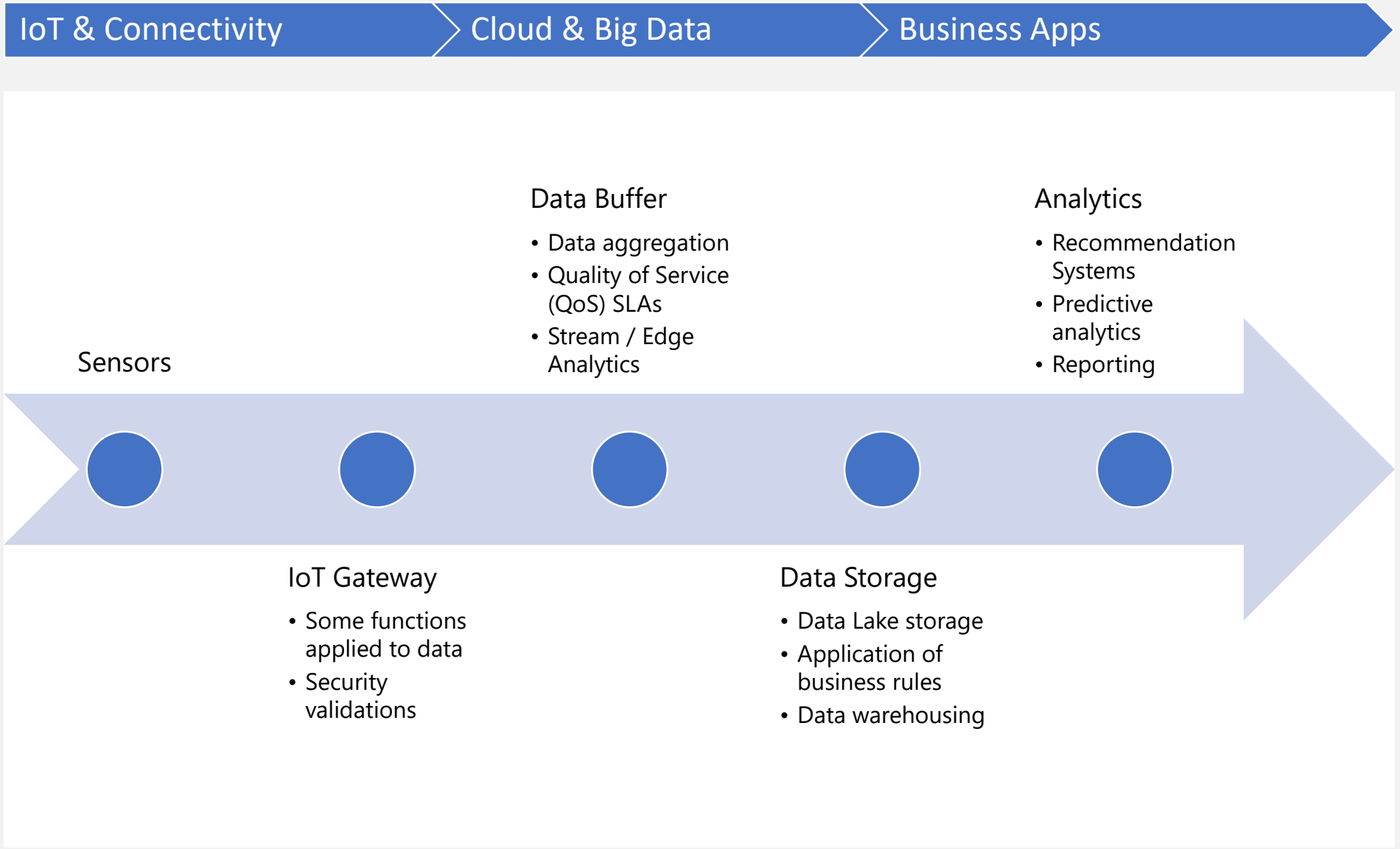
Storage & Analytics Architecture

Analytics

Clustering

Recommendation Systems

Discussion of Results



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From IoT Devices to Analytics – Azure IoT Serverless Architecture

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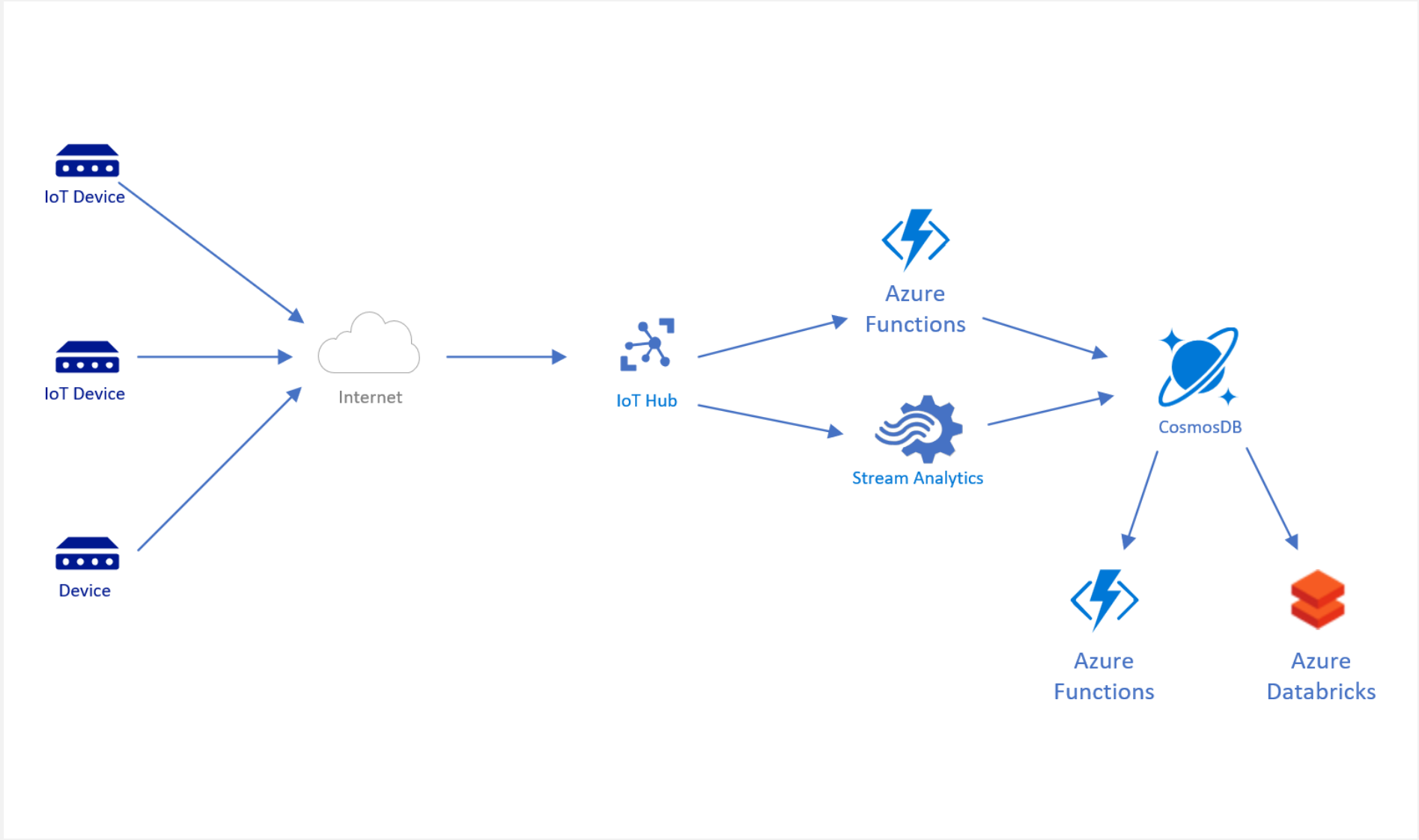

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Big Data – Why Azure Databricks?

ARCHITECTURE

- IoT & Cloud Architecture
- **BIG DATA ARCHITECTURE**
- Storage & Analytics Architecture

Analytics

- Clustering
- Recommendation Systems
- Discussion of Results

Big Data Environment for fast Spark development and low maintenance costs

- Reduces the need for cluster management
- Ensures the compatibility of code history and Spark Versions
- Very extensive API for app development
- Integration with a wide variety of data stores and services such as Azure SQL Data Warehouse, Azure Cosmos DB, Azure Data Lake Store, Azure Blob storage, and Azure Event Hub

Storage – Why Azure Cosmos DB?

ARCHITECTURE
IoT & Cloud Architecture
BIG DATA Architecture
STORAGE & ANALYTICS ARCHITECTURE
Analytics
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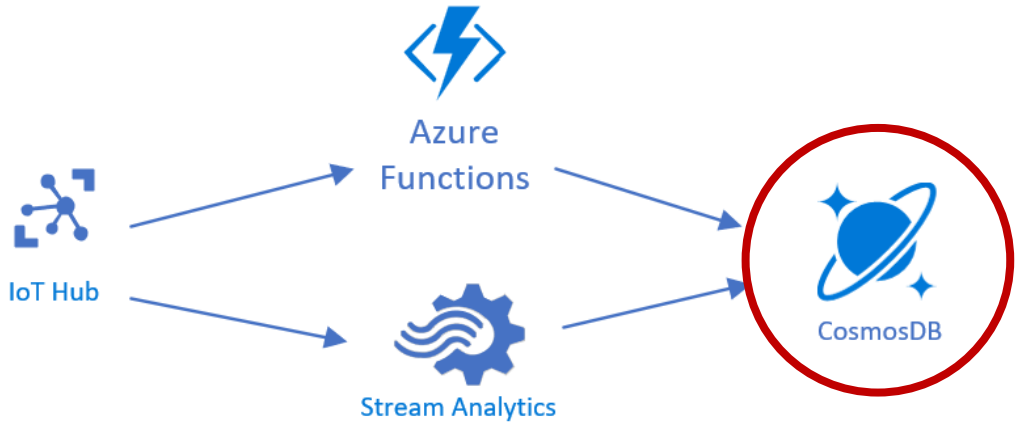
In our serverless architecture, Azure Cosmos DB provides the ideal integration to store IoT data. Azure provides a straightforward cloud solution for IoT scenarios:

- IoT Hub (getting the data from IoT devices)
- Azure Functions (to apply some kind of logic to data or to identify the database)
- Azure Cosmos DB, to store the data

Cosmos DB in short:

- A globally replicated and scalable database
- A complete SDK available in multiple programming languages
- An API oriented towards modern web app development
- Connectivity to Databricks (both read and write)



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Analytics – Power BI and connectivity to Databricks

ARCHITECTURE
- IoT & Cloud Architecture
- BIG DATA Architecture
- **STORAGE & ANALYTICS ARCHITECTURE**

Analytics
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Power BI is a business analytics service providing interactive visualizations with self-service business intelligence capabilities.
In our context:

- Power BI can turn insights stored in Databricks into easy-to-set visualizations which can be shared across the entire organization
- Clustering and recommendation systems can be built via scripting in R or Python
- Power BI can be embedded in web applications, easing the development time and cost of analytical solutions
- Power BI itself is very easily extendable through its marketplace and API
- If needed, Power BI also provides a high-level ELTL framework via its “Query Editor” and the M language