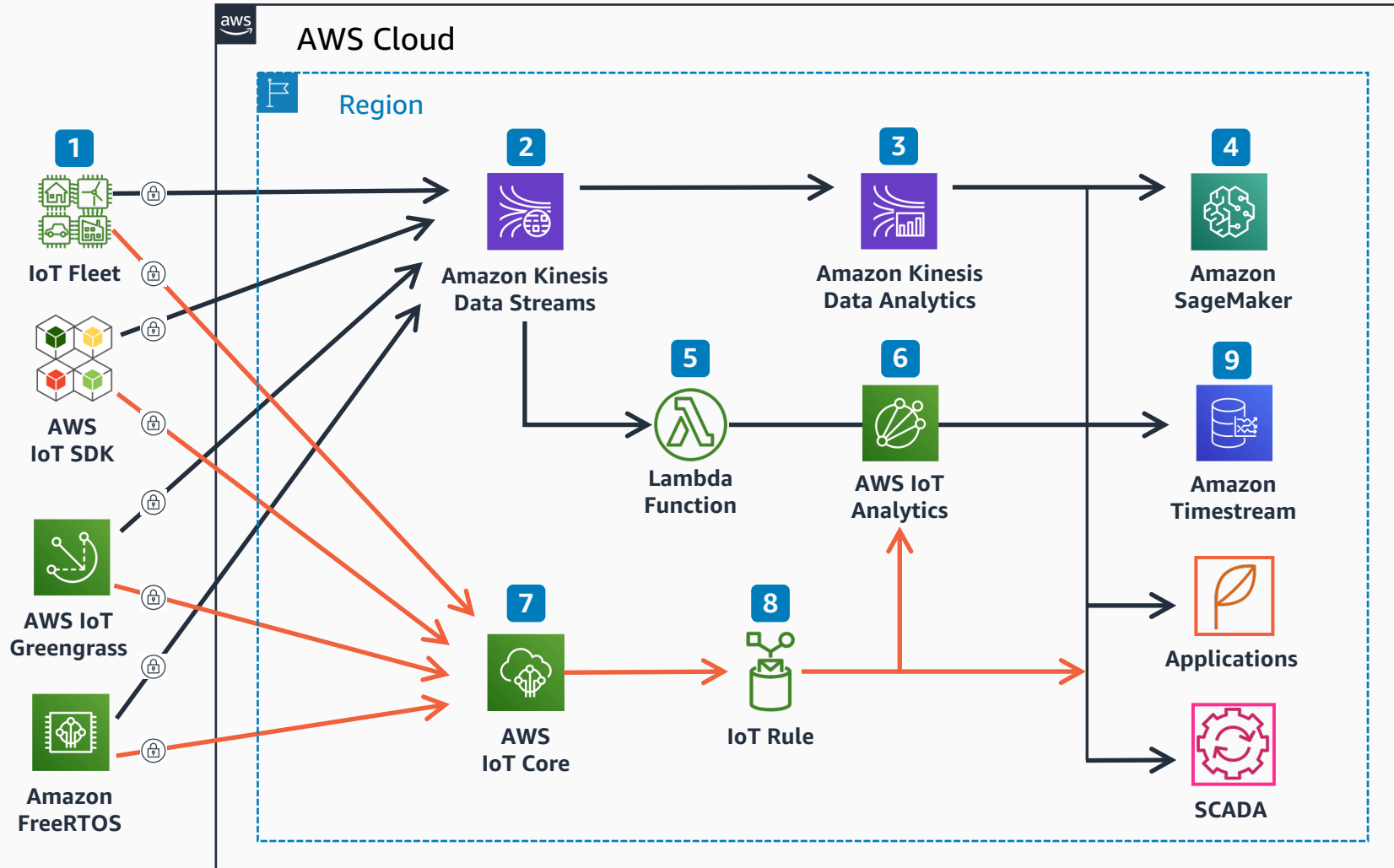


# Time Series Data Processing

## Processing IoT Time Series Data on AWS



- 1 IoT data can originate from your existing **IoT Fleet**, **AWS IoT SDK**, **AWS IoT Greengrass**, or **FreeRTOS** and be sent to AWS securely.
- 2 **Amazon Kinesis Data Streams (KDS)** is a scalable and durable real-time data streaming service. Ingested data can be secured at-rest by SSE (server-side encryption) and AWS Key Management Service (AWS KMS) master keys. Amazon Kinesis Data Analytics, Spark (EMR), EC2, Lambda, and other services extract data for further processing.
- 3 **Amazon Kinesis Data Analytics** enables you to run SQL queries against streaming data, generate time-series analytics, and feed real-time dashboards.
- 4 You can use **Amazon SageMaker** to provision and host Jupyter notebooks with machine learning models. Machine learning models can perform complex analysis on data from both **Amazon Kinesis Data Analytics** and **AWS IoT Analytics**.
- 5 An **Amazon Kinesis Data Stream** triggers a **Lambda** function with custom code to process and store data in **AWS IoT Analytics** for analysis.
- 6 **AWS IoT Analytics** provides more capabilities to enrich and optimize your data. You can run on-demand or scheduled analytics on your time-series data to get immediate results and take actions based on your business processes.
- 7 **AWS IoT Core** enables you to easily and securely connect devices to the cloud. You can reliably scale to billions of devices and trillions of messages. Supported protocols include HTTP, WebSocket, and MQTT. Authentication and end-to-end encryption ensure all data exchanges are secured.
- 8 You can author rules using the SQL-like syntax of the **Rules Engine**, which evaluates and routes messages to **AWS IoT Analytics** and other AWS services.
- 9 All three data flows can be exported to various databases, such as **Amazon Timestream**. Data flows can be consumed by customized applications, as well as SCADA systems.