

DP-201T03: Azure Real-Time Processing Reference Architectures



Lesson Objectives

- Lambda architectures for a Real-Time Mode Perspective
- Architect a stream processing pipeline with Azure Stream Analytics
- \cdot Design a stream processing pipeline with Azure Databricks
- Create an Azure IoT reference architecture

Lambda architectures from a real time mode perspective

Speed Layer

The Speed layer processes data streams in real or near real time. This works well when the aim is to minimize the latency of the data ingestion to analysis.

- 1. New data ingested from sources
- 4. Real time views of the data created.

Serving Layer

The serving layer is optional in the realtime architecture and acts as the storage output of either the Batch or Speed layer that is used by client applications to access the results of the data-sets.



Architect a stream processing pipeline with Azure Stream Analytics



Design a stream processing pipeline with Azure Databricks



Create an Azure IoT reference architecture



Lab: Azure Real-Time Processing Reference Architectures



Lab overview

The students will use the case study to identify which business and technical requirements relate to a Lambda architecture from a real-time perspective. The student will then architect a streaming pipeline with Azure Stream Analytics and Azure Databricks. Finally, the students will attempt to design an IoT architecture as it relates to the meeting of the AdventureWorks business requirements.

Lab objectives

After completing this lab, you will be able to:

- 1. Architect a stream processing pipeline with Azure Stream Analytics
- 2. Design a stream processing pipeline with Azure Databricks.
- 3. Create an Azure IoT reference architecture

Lab scenario

You are the senior data engineer of AdventureWorks. You are designing and architecting a solution that will deal with the real-time processing of data. You have been advised that the solution architecture should take a holistic view of all the business requirements and your proposal should be presented in a Word document.

You will first identify which AdventureWorks requirements fits into real-time processing of a Lambda architecture. You will then provide an architecture for a stream processing pipeline with Azure Stream Analytics and Azure Databricks. You will also design a first pass on an IoT architecture.

After completing this lab, you will be able to:

- 1. Architect a stream processing pipeline with Azure Stream Analytics
- 2. Design a stream processing pipeline with Azure Databricks.
- 3. Create an Azure IoT reference architecture

Lab review

- \cdot Exercise 1 Review the architectures
- Exercise 2 Are there any differences in architectures between groups?
- Exercise 3 How does the holistic architecture for real-time processing looks?

Module Summary

In this module, you have learned about:

- Lambda architectures for a Real-Time Mode Perspective

- Architect a stream processing pipeline with Azure Stream Analytics

- Design a stream processing pipeline with Azure Databricks

- Create an Azure IoT reference architecture

Next steps

After the course, consider visiting <u>the Azure</u> <u>Reference Architecture site</u> to view a wide range of architectures that can be implemented based on scenario.

