

Integrating Kafka with Enterprise Java for establishing a high performant distributed messaging infrastructure

Anamarija Talijanac, Irena Kezić IBM Services 13th May, 2019





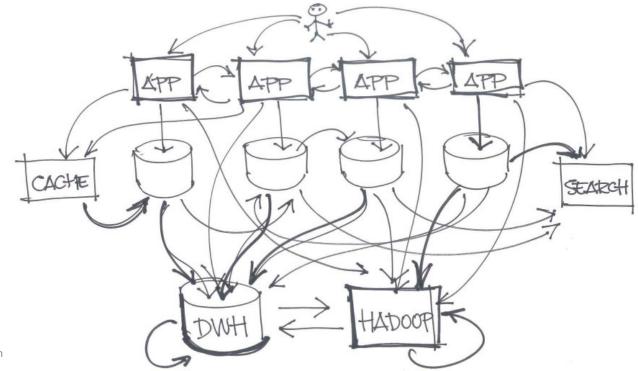
Agenda

- Kafka basics
- Kafka Use Cases
- Java Connector Architecture
- Distributed messaging challenges
- Reliable Kafka Processing
- IBM Event Streams





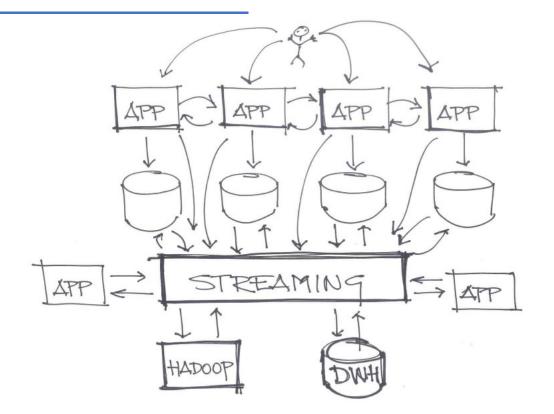
Architectural overview







Architectural overview







Kafka basics

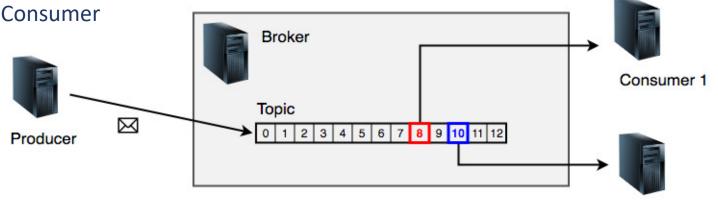






Kafka basics

- Cluster / Broker
- Topic / Partition
- Producer / Consumer









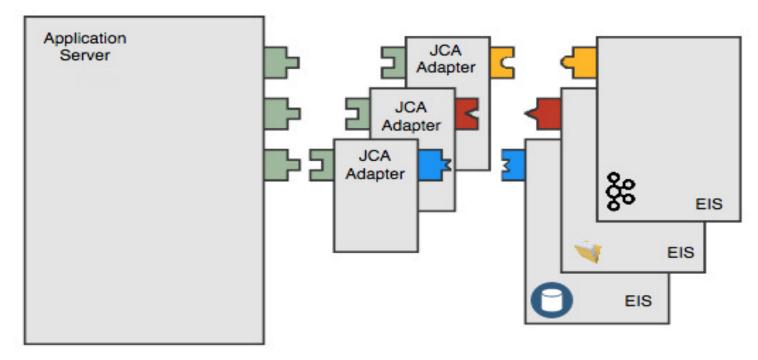
Kafka Use Cases

- Activity tracking
- Commit Log
- Metrics and Logging
- Unit of Order
- Stream processing





Java Connector Architecture



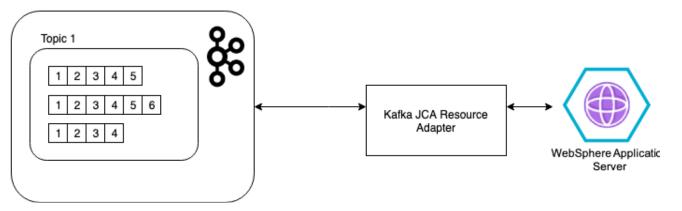




Java Connector Architecture

- The Java EE standard for integrating application servers with EIS.
- Unified common client interface for heterogeneous resource providers

Kafka Cluster





Java Connector Architecture

- Lifecycle management Contract
- Work management Contract
- Connection Management Contract
- Transaction Management Contract
- Security Contract
- Transaction Inflow Contract
- Message Inflow Contract
- Generic Context Contract





Distributed messaging challenges



EXACTLY ONCE DELIVERY

GUARANTEED ORDER RELIA OF MESSAGES

RELIABLE MESSAGING





XA with Kafka



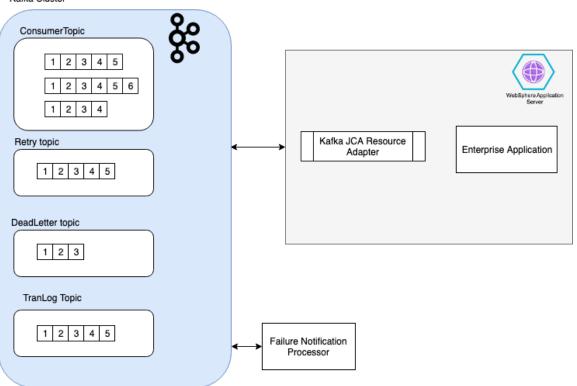
BEGIN TRANSACTION CONSUME MESSAGE FROM KAFKA TOPIC INSERT ROW INTO TARGET DATABASE

COMMIT TRANSACTION



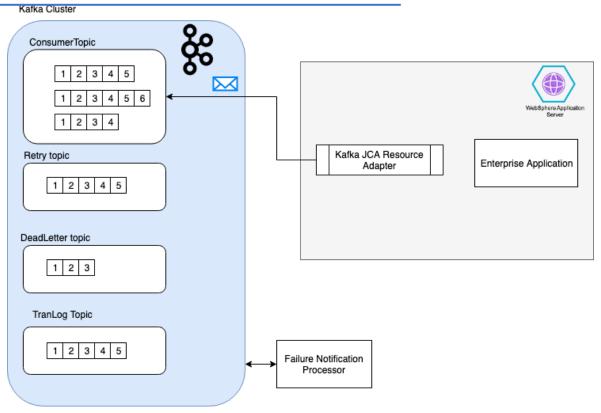


Kafka Cluster





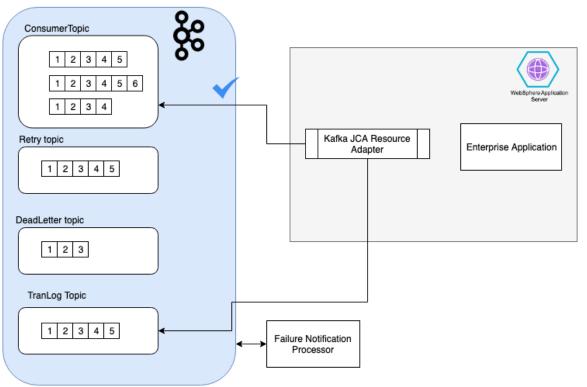








Kafka Cluster





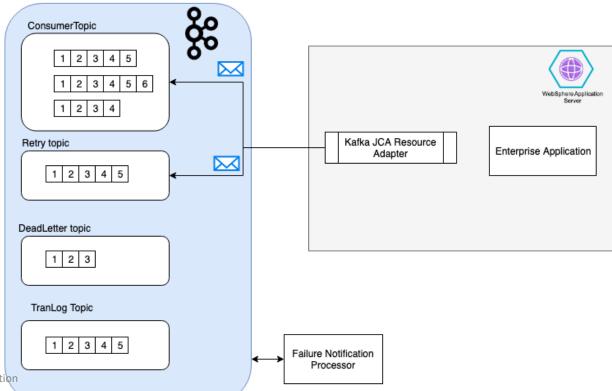


Kafka Cluster နို ConsumerTopic 1 2 3 4 5 2 3 4 5 6 WebSphere Application Server 1 2 3 4 Kafka JCA Resource Retry topic Enterprise Application Adapter 1 2 3 4 5 DeadLetter topic 1 2 3 commit TranLog Topic 1 2 3 4 5 Failure Notification Processor





Kafka Cluster



IBM

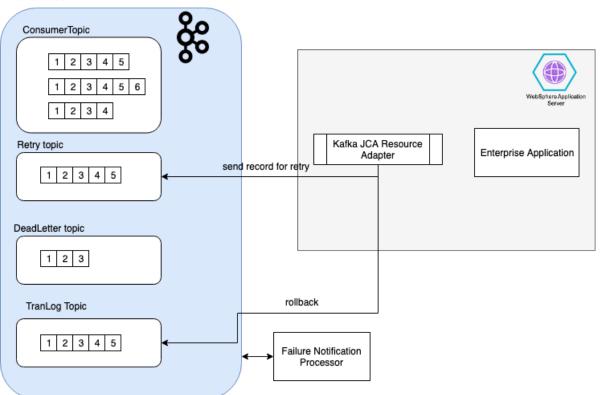


Kafka Cluster နိုး ConsumerTopic 2 3 4 5 3 5 6 2 4 WebSphere Application Server 1 2 3 4 Kafka JCA Resource Retry topic Enterprise Application Adapter 1 2 3 4 5 DeadLetter topic send poison record 1 2 3 rollback TranLog Topic 1 2 3 4 5 Failure Notification Processor





Kafka Cluster

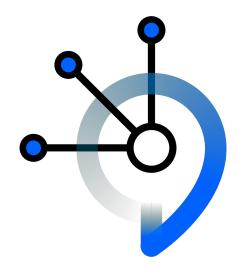






IBM Event Streams

- IBM has years of operational expertise running Apache Kafka for Enterprises
- Event Streams makes Kafka easy to run, manage & consume, reducing skill requirements and raising speed of deployment for faster time to value
- Support you can Trust IBM has decades of experience supporting the World's toughest environments







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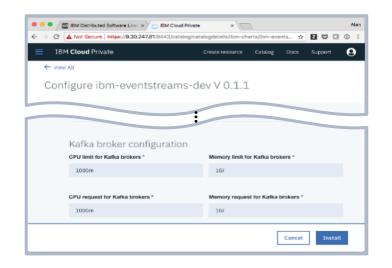
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IBM Event Streams



Tools to boost productivity

Visualisation of your topic data

IBM Event Streams				🕘 admin 👻 🔂 👻
- Topics				
Airling delays				
Airline_delays				
Messages Consumer groups Connect	ion information			
All partitions - Showin	g 871 message(s) across all partitions			Find message
19 September 2018, 15:42:18				
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View live data 🕨 🕨	Timestamp	Partition	Offset	
Select timeframe of data to display	19/09/2018, 15:04:52	0	0	
Hours -	19/09/2018, 15:04:56	0	1	
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	19/09/2018, 15:04:57	0	1	
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