CODING CHALLENGE

EVENT BASED ARCHITECTURE

Consumer engagement & Traffic

#Web & Mobile | Consumer engagement & Traffic

ARCHITECTURE PRINCIPLES

AT ADIDAS, WE CARE ABOUT SERVING CONSUMERS (IN THE SENSE OF APPLICATIONS MAKING USE OF OUR DATA AND SERVICES) BY SERVING MORE (HIGH VOLUME) , SERVING BETTER (LOW LATENCY) OR SERVING MORE RELIABLY(HIGH RESILIENCE). IN GENERAL, THE TOPIC OF HIGH AVAILABILITY IS VERY IMPORTANT TO BE READY FOR THE FUTURE AND DEAL WITH THE CURRENT STATE WITH CONFIDENCE.

IN A NUTSHELL, THE BASIC ARCHITECTURE PRINCIPLES ARE:

- ARCHITECT SOLUTIONS IN A WAY THAT MAKES THEM RE-USABLE
- COMPONENTS ARE DESIGNED TO SCALE BASED ON INCOMING LOAD.
- ALWAYS CARE ABOUT DATA & IT SECURITY
- ALL SOLUTIONS SHOULD TREAT CORE OPERATIONAL DATABASE AS A COSTLY RESOURCE THAT NEEDS TO BE USED ECONOMICALLY
- DESIGN FOR FAILURE – YOUR SOLUTION HAS TO ASSUME AND HANDLE EXCEPTION CONDITIONS

HIGH LEVEL OVERVIEW

The diagram on the right shows an eCommerce mobile application integration architecture. Here, an embedded SDK is emitting stream of json format messages (1) containing behavioural information (eg product viewed by a consumer logged into) as consumers use the app.

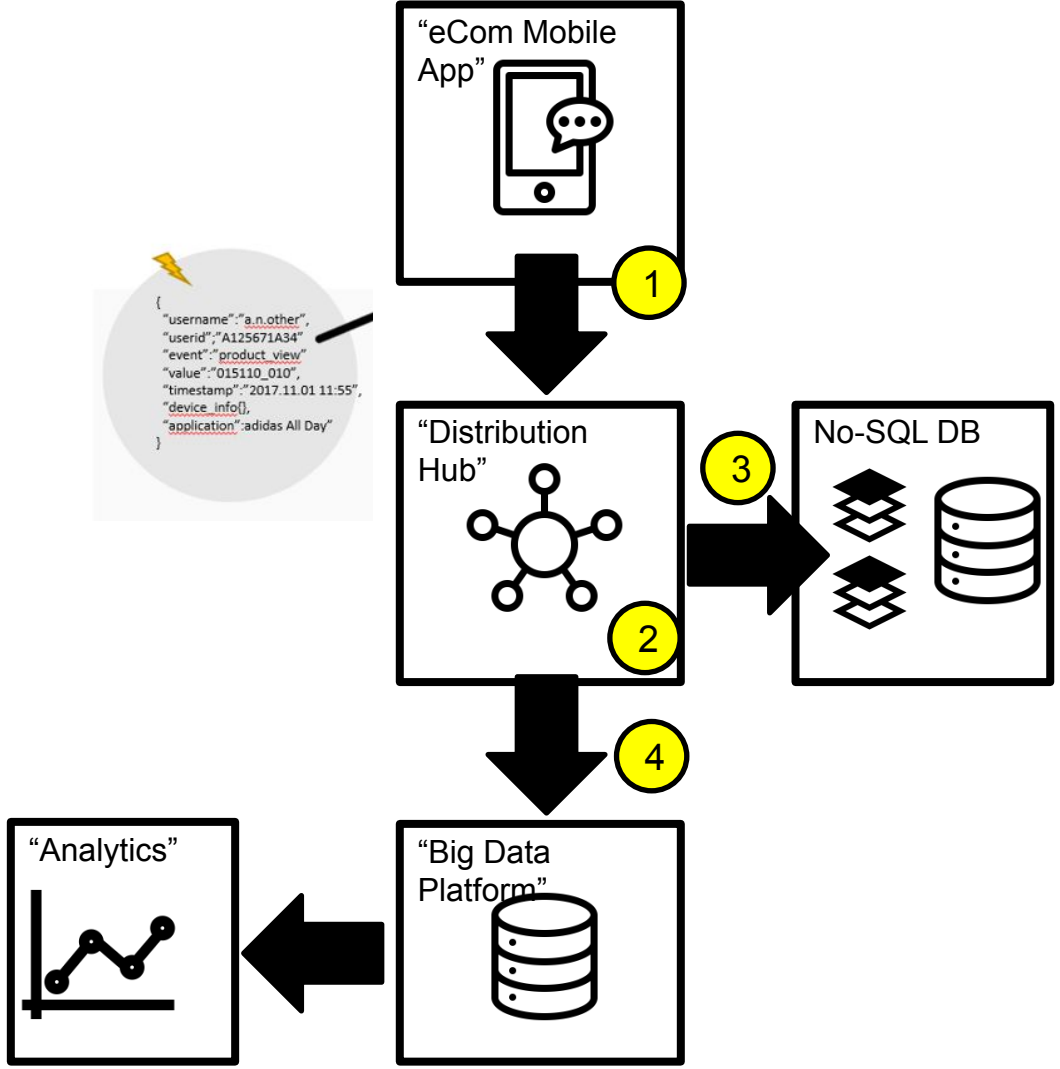
The eCommerce company owning the app would like to:

1) Reliably capture the incoming message stream where there could be large fluctuations in the number of messages being received at a given time (eg sales on Cyber Monday). Be able to distribute this to multiple downstream systems

2) Queue the data for further processing

3) Parse the data to data structures in a NO-SQL database

4) Also forward the data streams in a data warehouse or Hadoop based big data platform where data can be used in a tabular data mart for analysis and reporting teams



adidas GROUP

CHALLENGE

1. Give an overview of possible tools / technologies you think could support these steps and explain how they would work in this Event-driven pub/sub architecture.

   - **USE SLIDES / DIAGRAMS / VIDEO TO SHARE YOUR IDEAS.**

2. After the JSON message is captured, by an API (to be developed in any preffered technology or framework), data needs to be stored in a No-SQL database document. We ask you to:

   - **DEFINE THE STRUCTURE OF THE JSON MODEL DOCUMENT,**
   - **DEFINE AND EXPLAIN DATA SCHEMAS AND DATA MAPPINGS,**
   - **CREATE CONNECTOR(S) & WORKER(S) TO PARSE AND SERIALIZE THE KEY/VALUE PAIRS TO BE PUBLISHED IN A TOPIC BY PUBLISHER,**
   - **CREATE CONNECTOR(S) & WORKER(S) TO PARSE AND SERIALIZE THE KEY/VALUE PAIRS TO BE CONSUMED BY A SUBSCRIBER.**

Bonus points:

- **DEVELOP THIS APPLICATION WITH A MICROSERVICE APPROACH, ALL (FUTURE) SERVICES MUST RUN INDEPENDENTLY FROM EACH OTHER,**
- **CREATE AN ERROR TOPIC FOR INCORRECTLY STRUCTURED JSON DATA OBJECTS,**
- **CREATE 1 SLIDE WITH A CI/CD PIPELINE PROPOSAL FOR THE APP.**

WHAT WE EXPECT FROM YOU

- Develop this application within 5 business days after the confirmation of receipt
- Name each framework/library/tool you use in your README
- When you are done, check in your project into any public repository (github, bitbucket, etc) including readme and rest. Please send us the link and any other documentation you want by email.