

JDC

System Architecture for JDC

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Date	Version	Change History	By
21 Jul 2021	0.1	Initialize	

Baseline Date	Reference Document	Source
21 Jul 2021	https://www.algolia.com/doc/	
21 Jul 2021	https://kafka.apache.org/documentation/	

	Terms	Description
1		
2		
3		

I. GENERAL

1.1 Objectives

A small start-up named "iCommerce" wants to build a very simple online shopping application to sell their products. In order to get to the market quickly, they just want to build an MVP version with a very limited set of functionalities:

- 1. The application is simply a simple web page that shows all products on which customers can filter and search for products based on different criteria such as product category, name, price, brand, colour.
- 2. If the customer finds a product that they like, they can view its details and add it to their shopping cart and proceed to place an order.
- 3. No online payment is supported yet. The customer is required to pay by cash when the product got delivered.

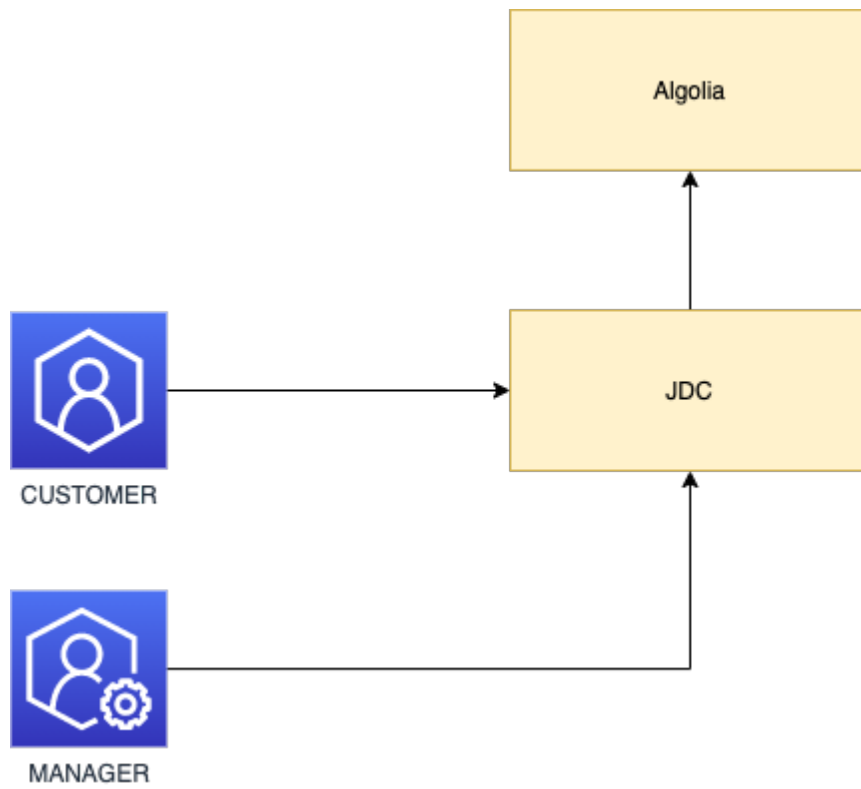
1.2 Scopes

II. KEY ARCHITECTURE DECISIONS

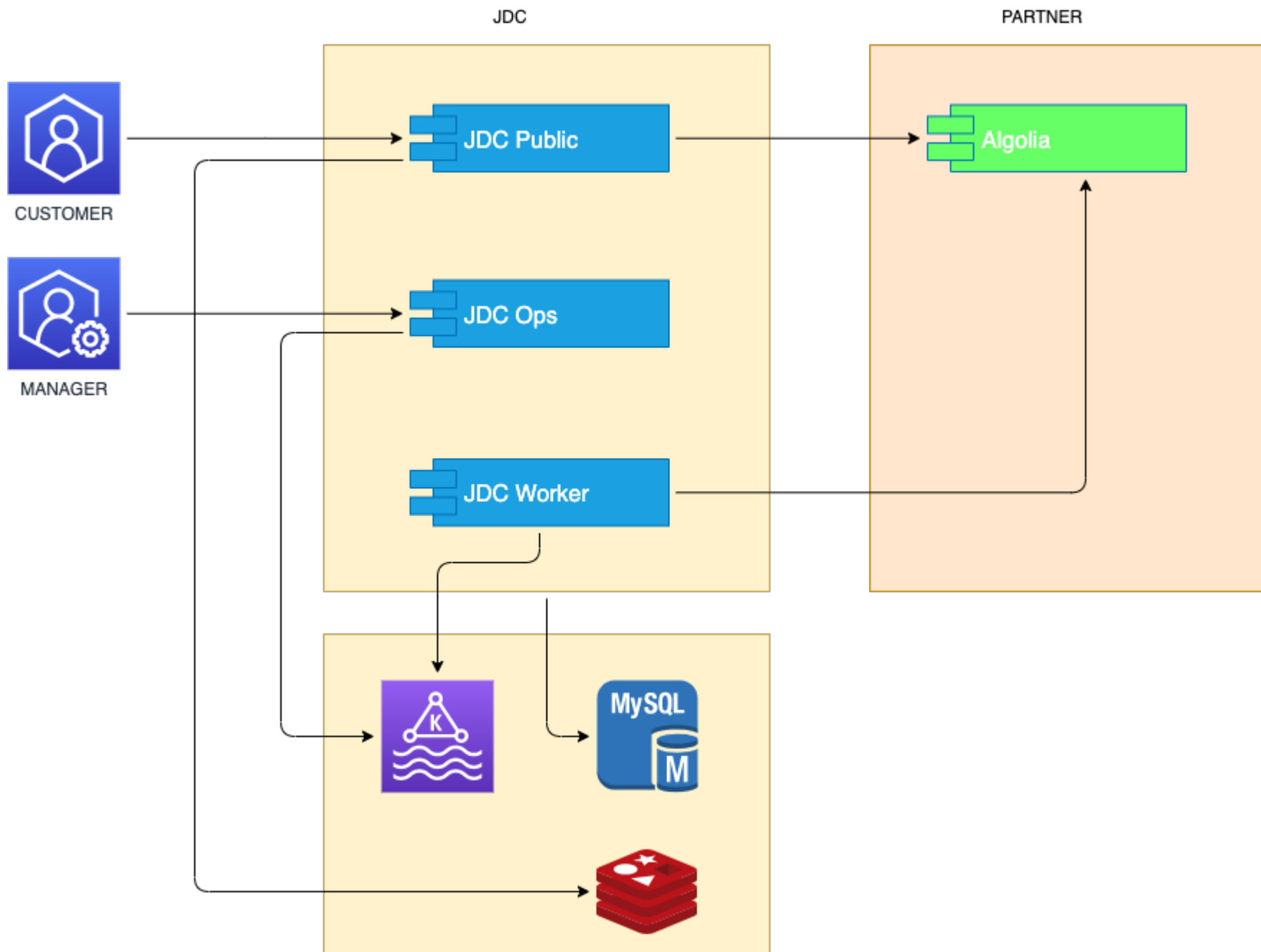
	Group	Key Architecture	Scope	Decisions & Reasons
1				
2				
3				

III. SYSTEM ARCHITECTURE

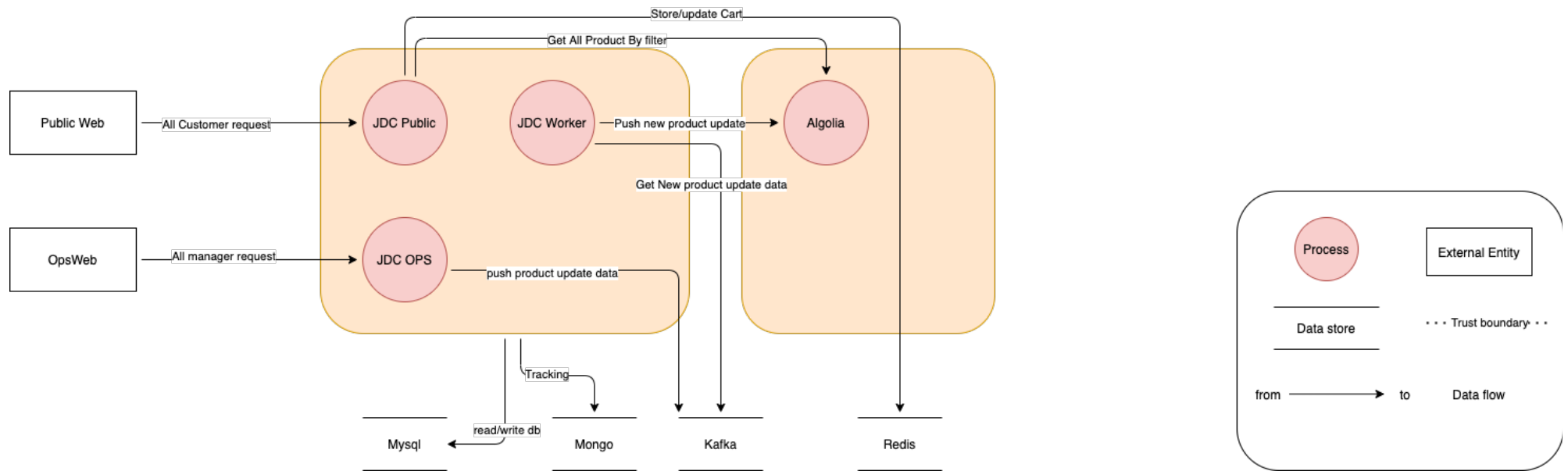
3.1 System Landscape



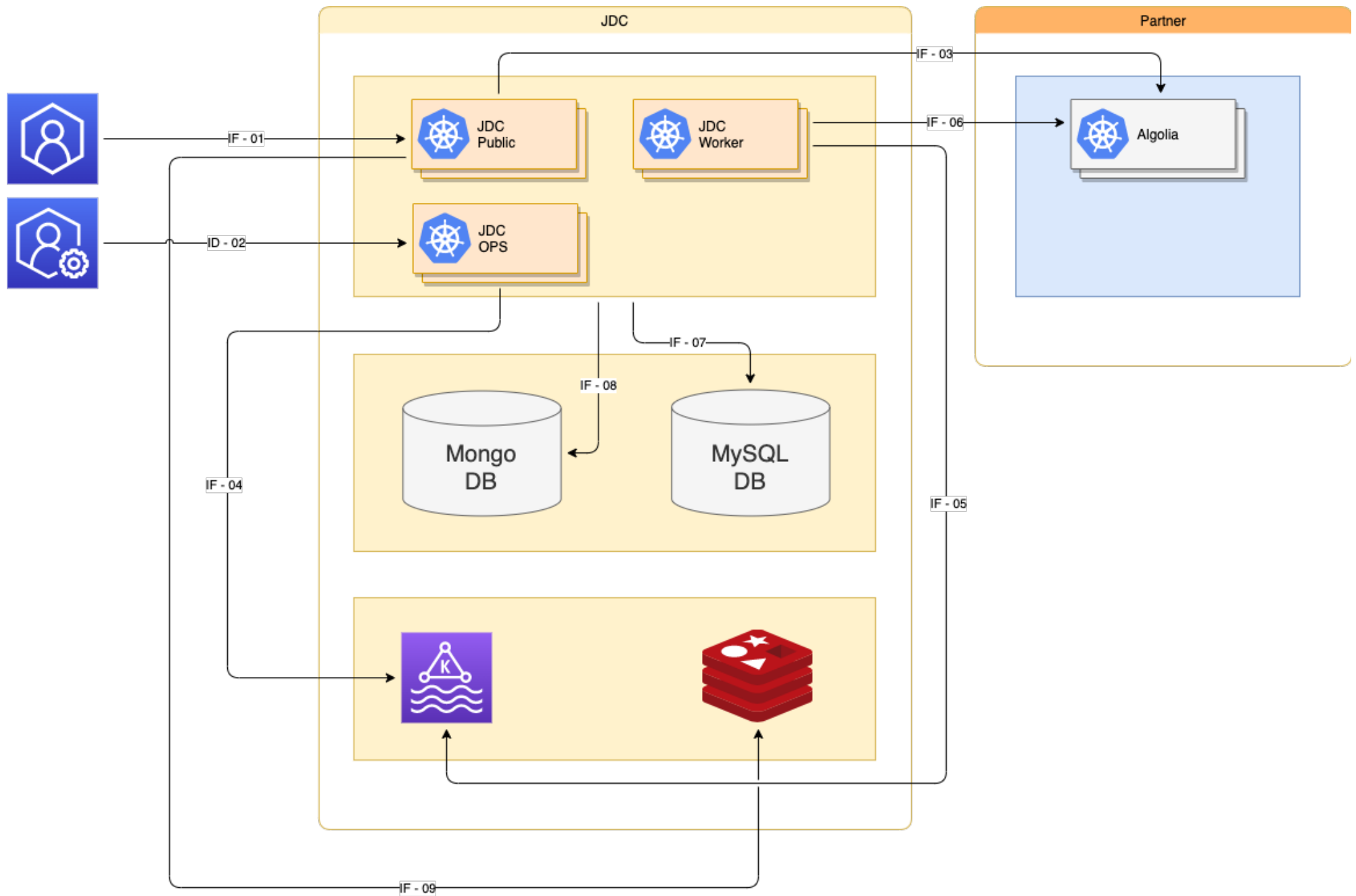
3.1.1 Logical Model



3.1.2 Data flow diagram



3.2 Physical Model



3.3 Services List

	Service / Module	Description	Git	Deployment	URL (DEV, QC, UAT /Sandbox, PROD)	Scalability	Volume / Traffic	Security
1	JDC Public				localhost:8080/api	Instance >= 2	<ul style="list-style-type: none"><10K / requestREAD: 2000 TPSWRITE: 100 TPS	Basic authen
2	JDC OPS					instance = 1	<ul style="list-style-type: none"><10K / requestREAD: 2000 TPSWRITE: 100 TPS	Basic authen
3	JDC Worker					instance = 1	<ul style="list-style-type: none"><10K / requestREAD: 2000 TPSWRITE: 100 TPS	No authentication

3.4 Infrastructure Resources - Nonprod

	Cluster	Service	Configurations	Min Cost	Max Cost	Descriptions
1		Micro Integrator		1 VM	1 VM	we are deploy on local. so no need more VM to balance.
2						

	Name	Specifications/Description	Result
1	SQL	Type: Mysql Spec: <ul style="list-style-type: none">CPU: 2 coreMEM: 4GBDISK : HDD 100GB + 200GB mount data DB name: jdc_dev Timezone: <i>Default = GMT+7</i> Description: database	

2	NoSQL	<p>Type: MongoDB</p> <p>Spec:</p> <ul style="list-style-type: none"> CPU: 2 core MEM: 4GB DISK : HDD 100GB + 200GB mount data <p>HA: Enable/Disable → <i>Default= Disable</i></p> <p>DB name: jdc_dev</p> <p>Timezone: <i>Default = GMT+7</i></p> <p>Description: db for tracking</p>	
3	Kafka	<p>Topic: c1.jdc.product.dev</p> <p>Description:</p> <p>Replication Factor:2</p> <p>Partitions: 2</p> <p>Retention (day) : 2</p> <p>Producer Service: JDC Producer SSL: none</p> <p>Consumer Service: JDC Consumer SSL: none</p> <p>Consumer Group: c1.jdc.product.dev</p> <p>Frequency:</p> <ul style="list-style-type: none"> 5 KB/message Avg: 200 msg/min Max: 6K msg/min <p>Partition Key: transaction_id</p>	

3.5 Infrastructure Resources - Production

	Cluster	Service	Configurations	Min Cost	Max Cost	Descriptions
1		Micro Integrator		1 VM	1 VM	
2						

	Name	Specifications/Description	Result
1	SQL	Type: Mysql Spec: <ul style="list-style-type: none">• CPU: 2 core• MEM: 4GB• DISK : HDD 100GB + 200GB mount data DB name: jdc_prod Timezone: <i>Default = GMT+7</i> Description: database	
2	NoSQL	Type: MongoDB Spec: <ul style="list-style-type: none">• CPU: 2 core• MEM: 4GB• DISK : HDD 100GB + 200GB mount data HA: Enable/Disable → <i>Default= Disable</i> DB name: jdc_prod Timezone: <i>Default = GMT+7</i> Description: db for tracking	

3	Kafka	<p>Topic: c1.jdc.product.prod</p> <p>Description:</p> <p>Replication Factor:2</p> <p>Partitions: 2</p> <p>Retention (day) : 2</p> <p>Producer Service: JDC Producer SSL: none</p> <p>Consumer Service: JDC Consumer SSL: none</p> <p>Consumer Group: c1.jdc.product.prod</p> <p>Frequency:</p> <ul style="list-style-type: none"> • 5 KB/message • Avg: 200 msg/min • Max: 6K msg/min <p>Partition Key: transaction_id</p>	
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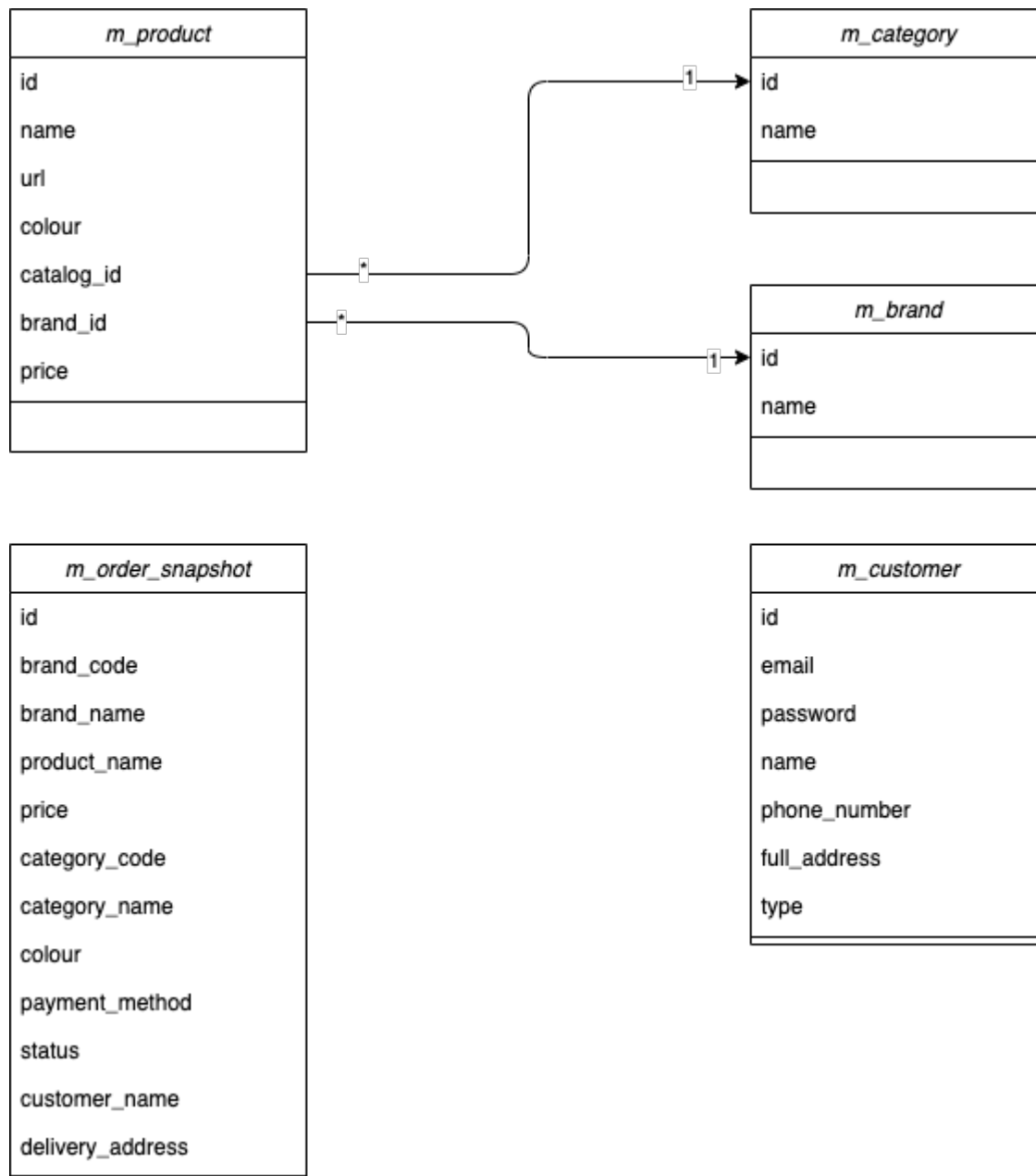
IV. INTEGRATIONS

	ID	Integration Interface	Provider	Consumer	Interface Method	Integration Documents	Sizing and Frequency	Security	Note
1	IF - 01	All request from website to JDC system	JDC Website	JDC Public	https			Basic Authen	
2	IF - 02	All request from ops website to JDC	JDC OPS Website	OD OPS	https			Basic Authen	
3	IF - 03	Get, Search and filter all product request	JDC Public	Algolia	https			Algolia Token	
4	IF - 04	All request for manage product, brand, category	JDC OPS	Kafka	socket			Producer SSL	
5	IF - 05	Worker collect all data from Kafka and handle	Kafka	JDC OPS	socket			Consumer SSL	
6	IF - 06	Worker push all update product /brand/category to Algolia	JDC Worker	Algolia	https			Algolia Token	
7	IF - 07	All handle data get/update to db	JDC	Mysql	socket			Mysql authentication	

8	IF - 08	All tracking data from JDC	JDC	MongoDB	socket			MongoDB SSL	
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V. TECHNICAL SPECIFICATIONS

5.1 Database



5.1 Database

5.2 Entity Diagram

5.3 State-flows

5.4 API Specs

5.5 Message Queues

5.6 Worker Process

5.7 Performances

VI. RISKS & ASSUMPTIONS

6.1 Risks

	Category	Risk	System	Probability	Impact	Mitigation & Plan
1						
2						

6.2 Assumptions

	Assumption	System	Status/Confirmation
1			
2			

VII. APPENDIX

n/a