

Flow Diagrams

Technical guidance lines and rotations (Internal Data Flow)

The comprehensive technical document for architectural design and code structure
Engineering & Operations Team (WSS)

Technical Application Profile

Project : NotificationPublisher Ecosystem

Paths (Endpoints) : Email (Single/Bulk), SMS, WhatsApp, FCM

Data protection (Secrets) : HashiCorp Vault KV v2

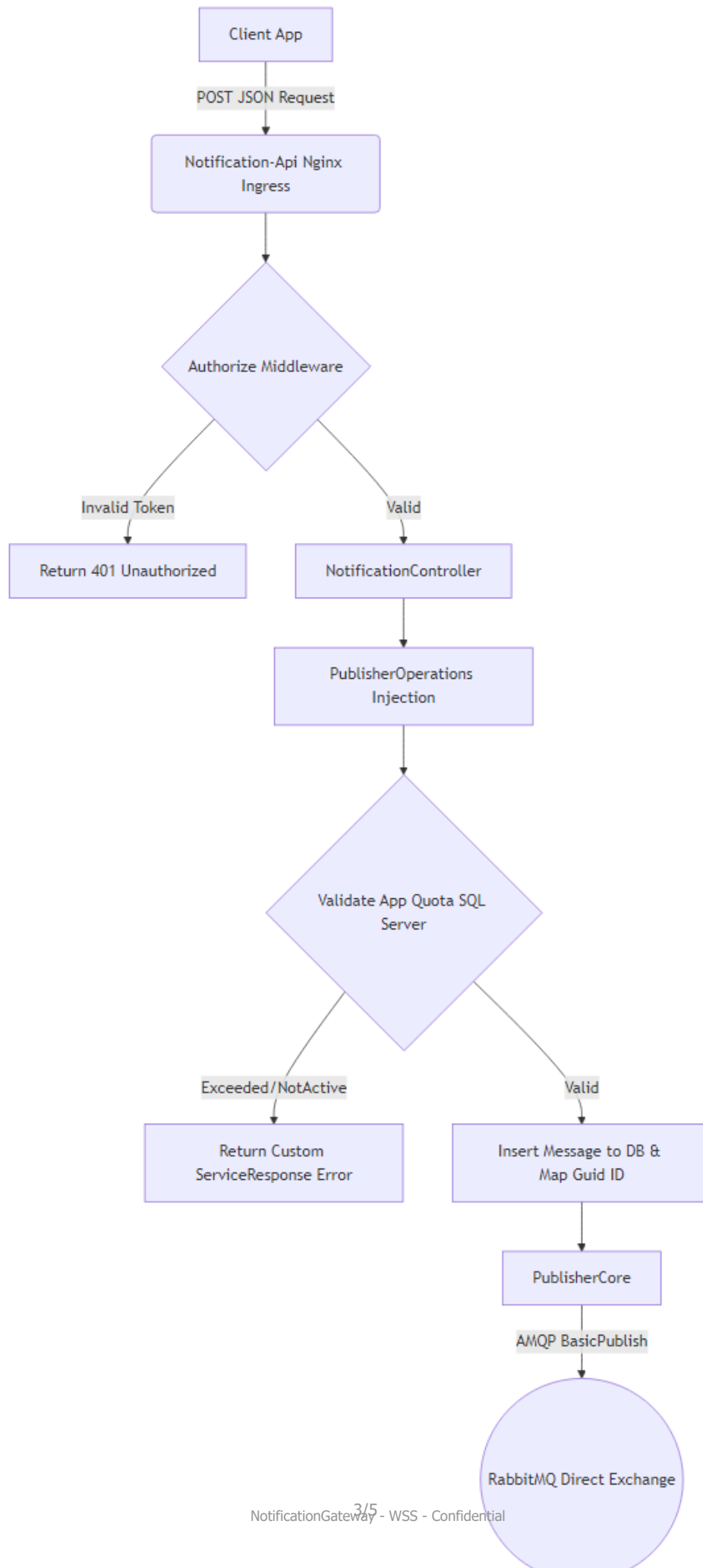
Implementation stage : Production - OKE Cluster

Core Tech : ASP.NET Core 8.0, RabbitMQ

1. End-to-End Flow Chart

The entire sequence is monitored from receiving the order until delivery:

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Overall system flow chart from Client to Consumer

2. Detailed SMS flow

```
Client -> BasicAuth -> NotificationController.SendSMS()  
-> PushSmsMessage()  
-> GetApplicationData(AppId, MsgTypes.SMS)  
-> Sender fallback (if null -> appData.Sender)  
-> ValidateReceiverNumberLengthAndGetListOfNumbers()  
-> Loop: for each batch of receivers  
-> CountMessage() -> Calculate cost per batch  
-> InsertSMSMessage() -> Get MsgId  
-> IsActive check -> FailMessage() if inactive  
-> ValidateQuoata() -> Check SMS balance  
-> PublisherCore.PublisherSend() -> RabbitMQ
```

3. Detailed WhatsApp flow

```
Client -> BasicAuth -> NotificationController.SendWhatsApp()  
-> PushWhatsAppMessage()  
-> GetApplicationData(AppId, MsgTypes.WhatsApp)  
-> If Meta Provider:  
-> GetWhatsAppBusinessAccount()  
-> Sender override -> PhoneNumberID  
-> If TemplateName/TemplateId provided:  
-> CreateWhatsAppMessageTemplate()  
-> GetWhatsAppTemplate() from DB  
-> Build Header component  
-> Build Body params (comma-split)  
-> Build URL Button (if defined)  
-> JSON serialize template  
-> InsertWhatsAppMessage() -> Get MsgId  
-> ValidateQuoata() -> Check balance  
-> PublisherCore.PublisherSend() -> RabbitMQ
```

4. Error Boundary Mapping

Each error code is generated at a specific point in the flow:

Condition	Operating point	Response code
WaitForConfirms + UpdateStatus succeeded	After confirmation	Success (100)
AppId not available	GetApplicationData()	NotFound (-3)
The request is empty	The beginning of the function	BadParameter (-7)
DB Insert failed	InsertXxxMessage()	FailDBSaved (-2)
The application is down	result.IsActive	AppNotActive (15)
The channel is down	result.IsSettingActive	SettingNotActive (16-19)

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The balance is insufficient	ValidateQuoata()	ExpireQuoata (11)
Confirmation of the RabbitMQ terminal	WaitForConfirms(5s)	PushFail (-5)
RabbitMQ is offline	ConnectionExists()	ConnectionNotExists (-6)

5. Failure Isolation Matrix

Each consumer running in a Pod is completely independent with its own queue:

FCM	WhatsApp	Email	SMS	Malfunction scenario
OK	OK	OK	FAIL	SMS Gateway down
OK	OK	FAIL	OK	SMTP relay timeout
OK	FAIL	OK	OK	Meta API 504
FAIL	OK	OK	OK	Firebase down
FAIL	FAIL	FAIL	FAIL	SQL Server down
FAIL	FAIL	FAIL	FAIL	RabbitMQ down