

Sep, 7 | Kyiv

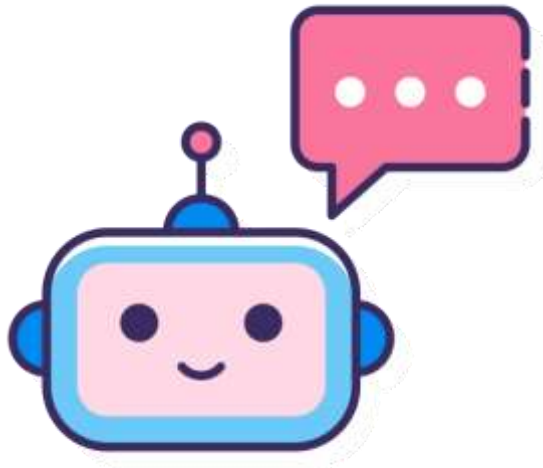


talking to programs: how do chatbots work

by Rinat Akhmedziiev

 **products**

CHATBOTS AND VOICE ASSISTANTS



- This is a program that can assist people with basic tasks, usually using natural language
- Intelligent personal assistants can go online and search for an answer to a user's question or to make an action on behalf of user
- Either text or voice can trigger an action

SAMPLE USE CASES



Informational Bots

Chatbots for everyday consumer requests

- News updates
- Weather information
- Game scores



Enterprise Productivity Bots

Streamline enterprise work activities

- Check stock tickers
- Marketing performance
- Notify on changes



Application Bots

- Interfaces to mobile applications
- Book tickets
- Manage bank account
- Order food

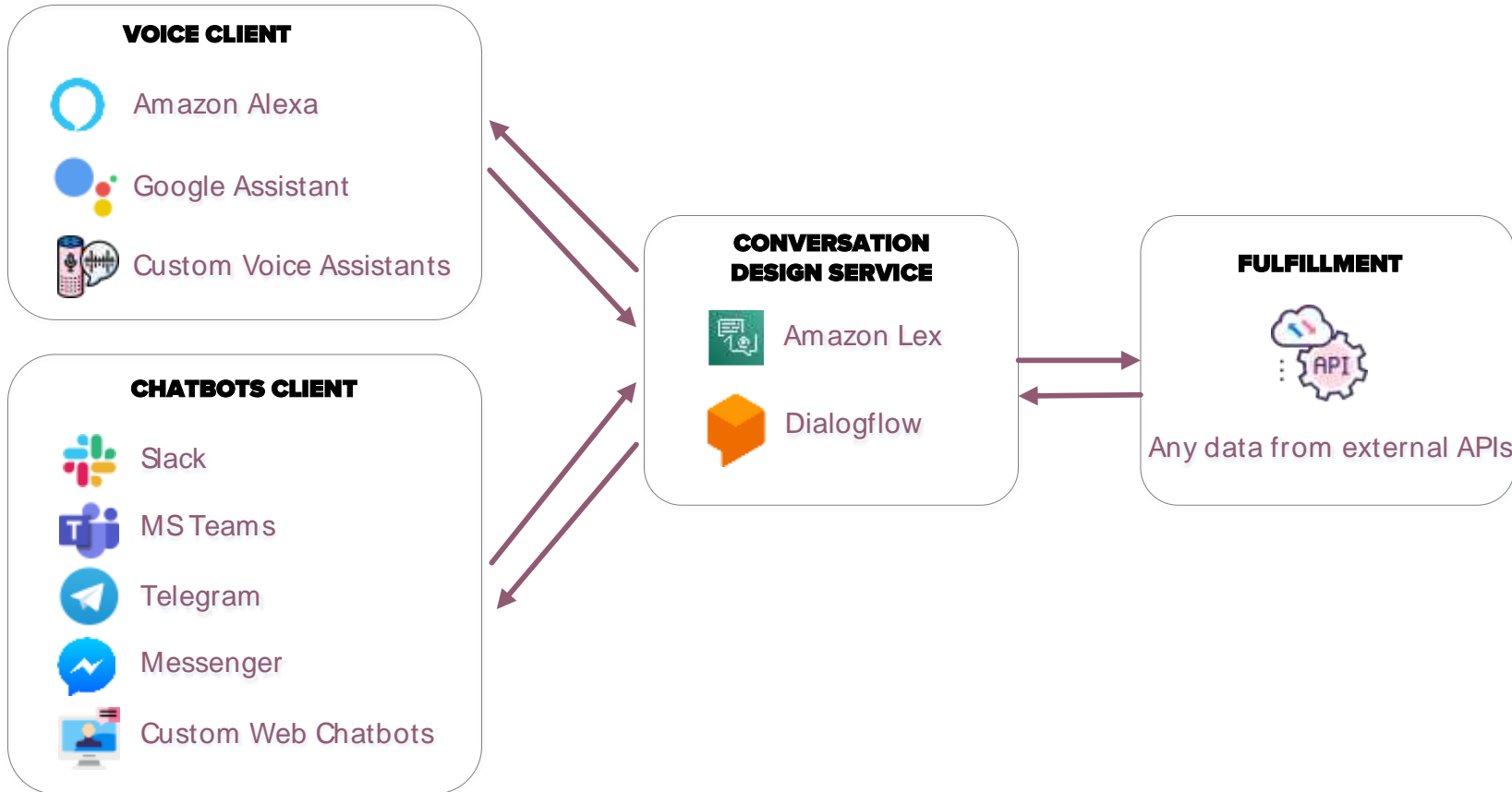


Internet of Things Bots (IoT)

Conversational interfaces for devices

- Wearables
- Auto
- Appliances

INTEGRATION WORKFLOW



- Conversational interface is specially designed for natural language human-computer interaction
- Managing session context between interactions makes assistants more human-like
- Serverless architecture gives all advantages of fully-managed cloud services

CONVERSATION DESIGN

 BookHotel

I'd like to book a hotel.

Sure, which city?

Austin.

What date do you check in?

September 7th.

Are you sure you want to book the hotel in Austin?

Yes.

Thank you. The reservation went through successfully.

Intents

A particular goal that user wants to achieve

Utterances

Spoken or typed phrases that invoke your intent

Slots

Data the user must provide to fulfill the intent

Prompts

Questions that ask the user to input data

Fulfillment

The business logic required to fulfill the user's intent

HOTEL FULFILLMENT LAMBDA

```
@app.lambda_function()
def book_hotel_fulfillment(event, context):
    slots = event.get('currentIntent').get('slots')

    city = slots.get("destinationCity")
    check_in_date = slots.get("checkInDate")
    room_type = slots.get("roomType")

    # Implement any business logic here

    return {
        "sessionAttributes": {
            "city": city,
            "check_in_date": check_in_date,
            "room_type": room_type
        },
        "dialogAction": {
            "type": "Close",
            "fulfillmentState": "Fulfilled",
            "message": {
                "contentType": "PlainText",
                "content": f"Fulfillment is done! {room_type} hotel room in {city} "
                           f"for {check_in_date} has been booked for you!"
            }
        }
    }
```

WEATHER FULFILLMENT LAMBDA

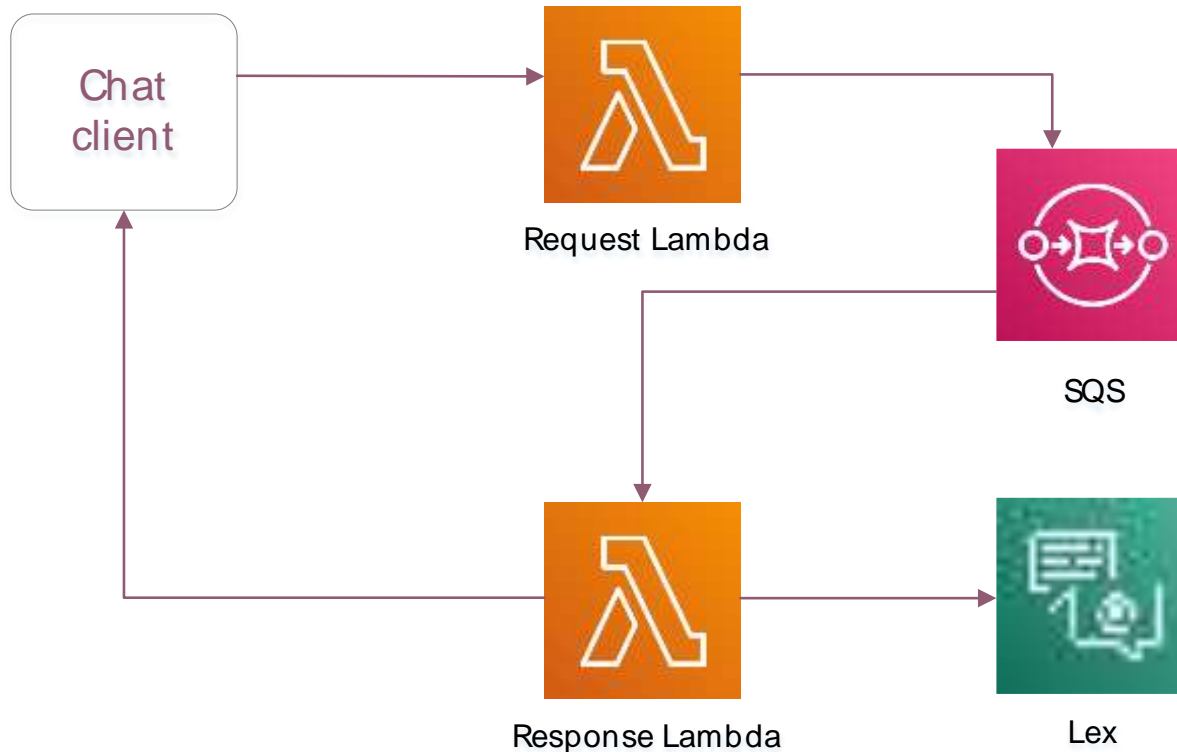
```
@app.lambda_function()
def weather_fulfillment(event, context):
    session = event.get('sessionAttributes')

    city = session.get("city")
    check_in_date = session.get("check_in_date")

    # Implement any business logic here

    return {
        "dialogAction": {
            "type": "Close",
            "fulfillmentState": "Fulfilled",
            "message": {
                "contentType": "PlainText",
                "content": f"The weather in {city} on {check_in_date} will be hotter, when you arrive!"
            }
        }
    }
```


CHAT CLIENT INTEGRATION



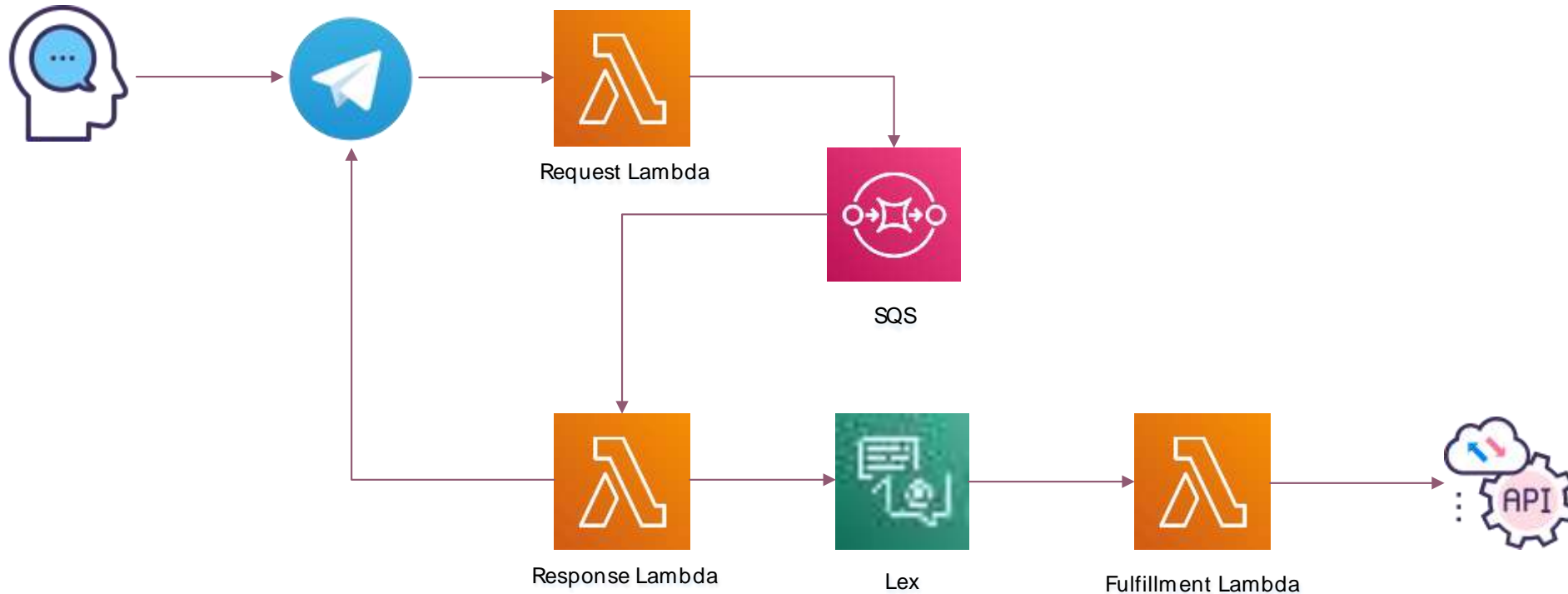
Request Lambda

- Validates request (check signature)
- Authenticates user (using IAM solution)
- Sends task to queue
- Responds 200 OK to prevent retry from client

Response Lambda

- Process task
- Send async response to chat client

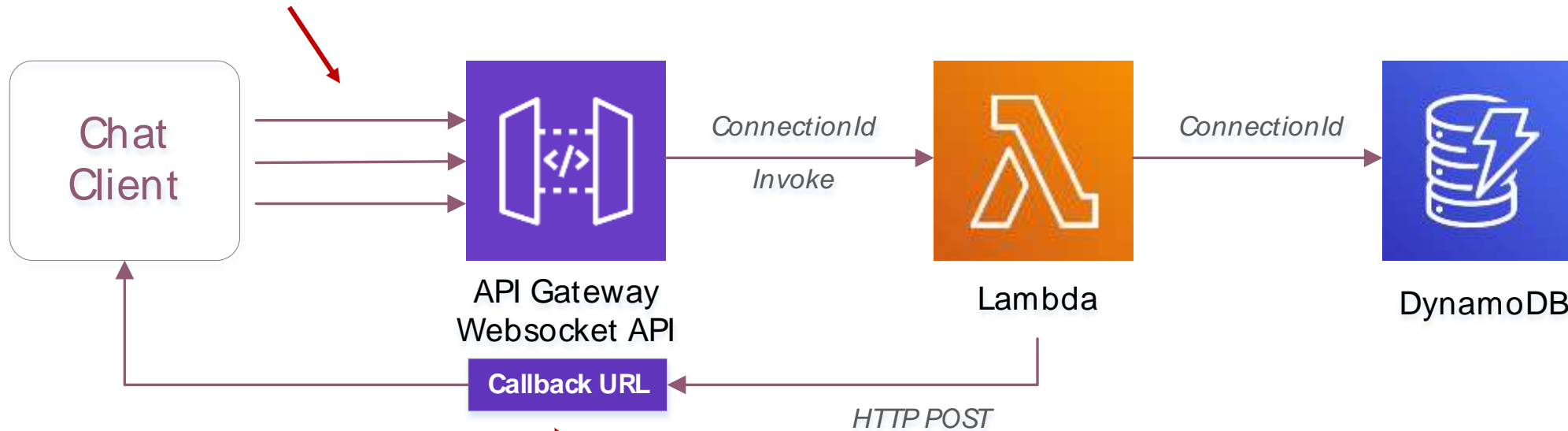
CUSTOM MESSENGER INTEGRATION



SERVER TO CLIENT MESSAGING

WebSocket URL:

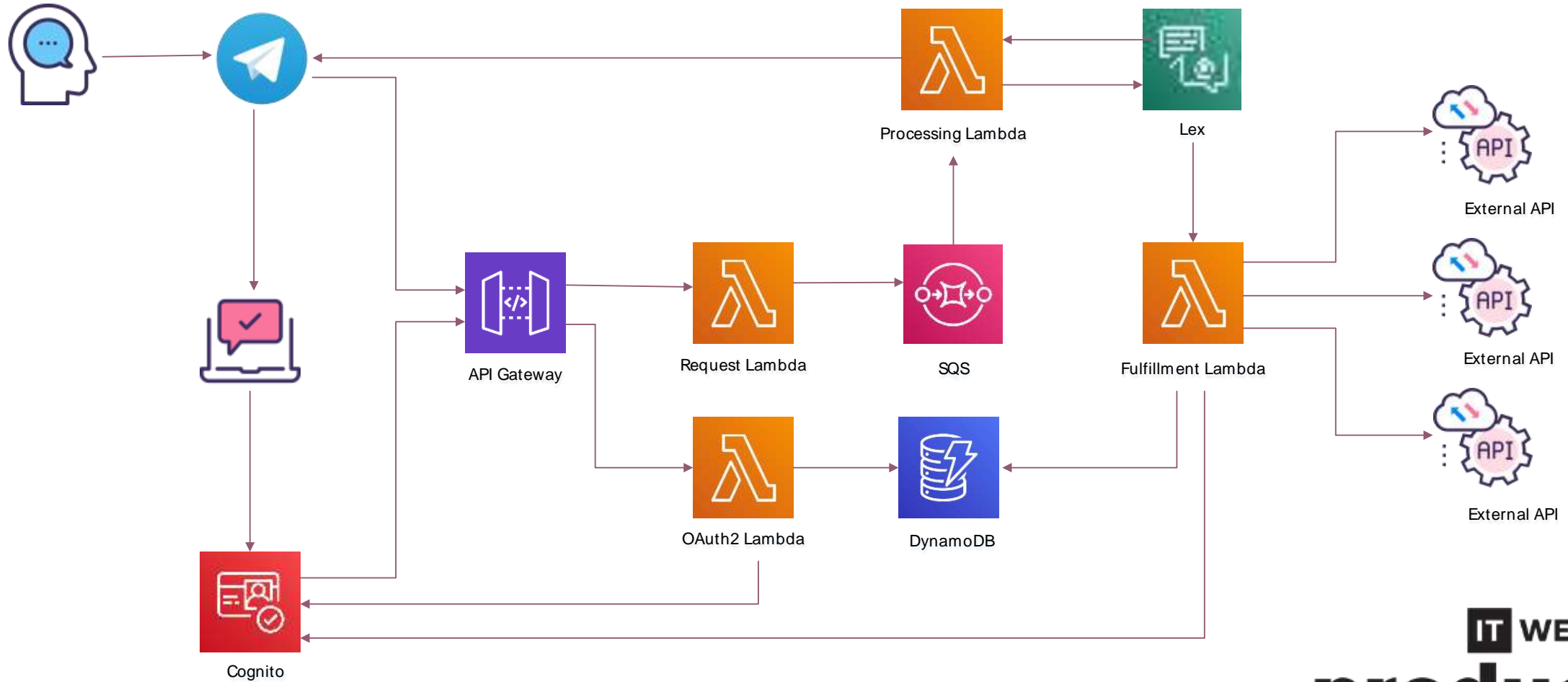
wss://**abcdef**.execute-api.us-west-1.amazonaws.com/env



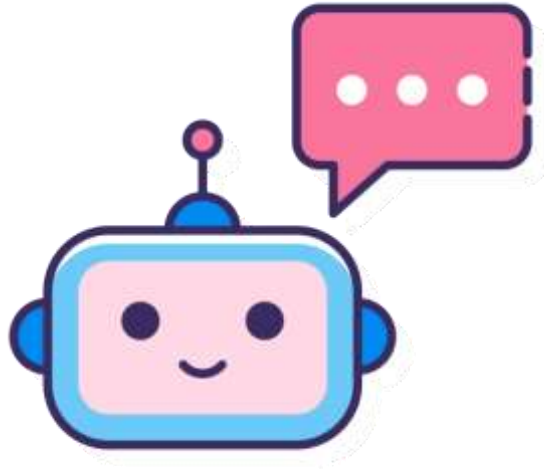
Callback URL:

https://**abcdef**.execute-api.us-west-1.amazonaws.com/env/@connections/**connectionID**

SERVERLESS ARCHITECTURE



SUMMARY



- Chatbots can be not only informative but helpful
- Conversational Interface is a real power of chatbots
- Fulfillment logic is just a chatbot back-end
- You can create custom integrations with chat clients or websites
- Keep in mind the benefits of serverless architecture
- Secure your chatbot with OAuth2
- Enjoy chatbots! :)

questions?



IT WEEKEND
products