

# Build, Deploy and Monitor A Chatbot

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Amazon Web Services

**STAR WARS**

**CHATBOT**

Docker Captain  
Java Champion  
JavaOne Rock Star (4 years)  
NetBeans Dream Team  
Silicon Valley JUG Leader  
Author  
Runner  
Lifelong learner

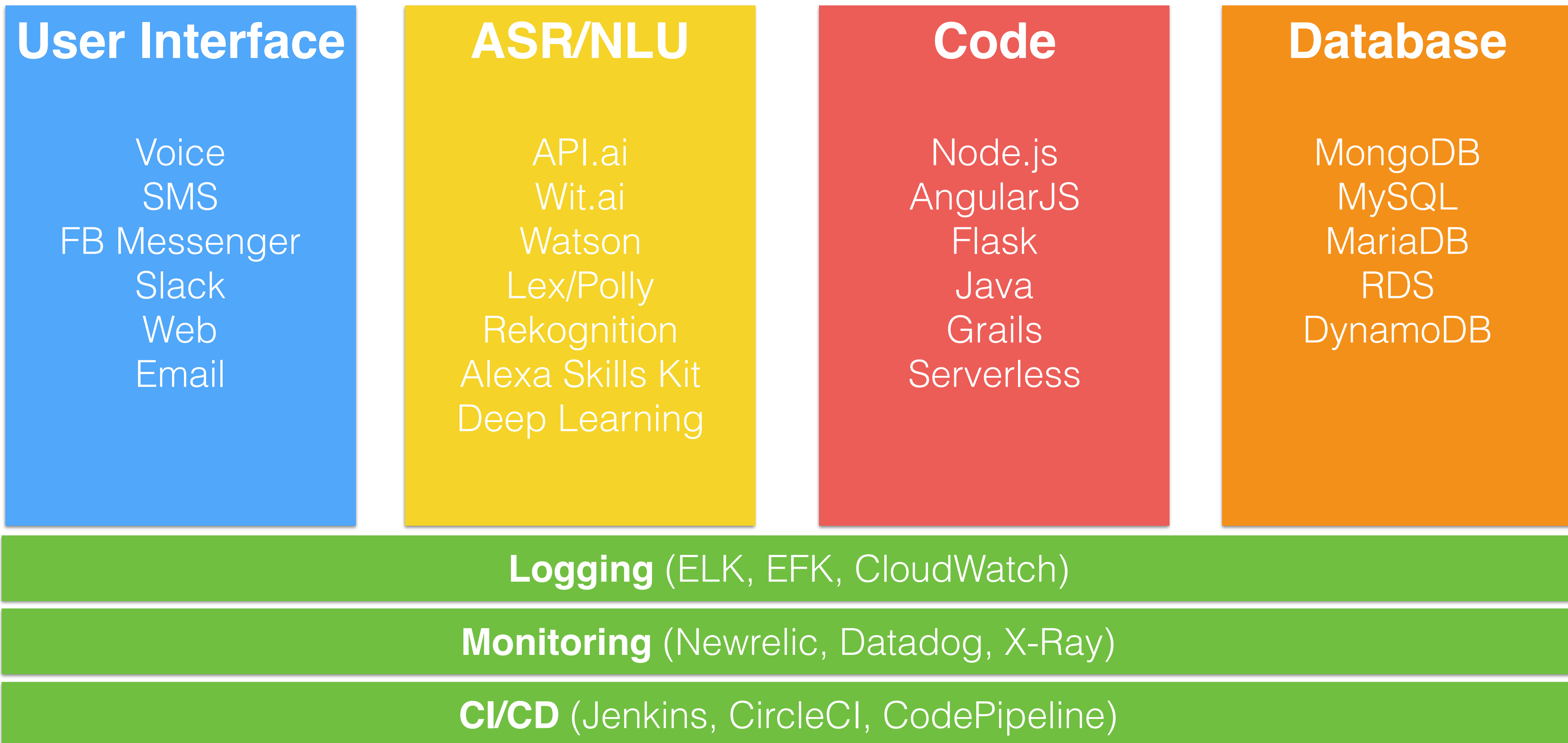


Tell me a Yoda quote

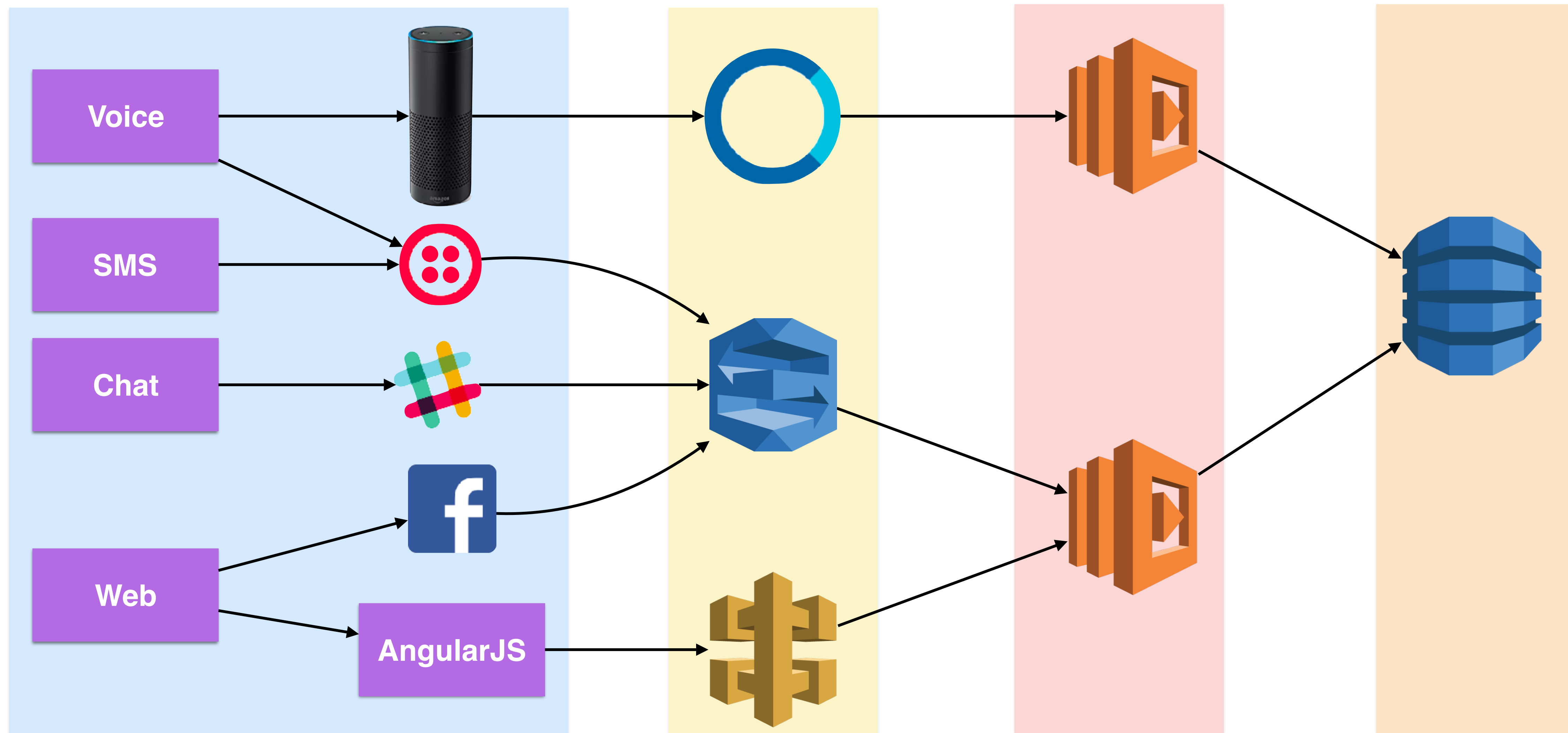


# What is Chatbot?

# Chatbot Components



# Chatbot Architecture





# Amazon Lex



- Service for building conversational interfaces using voice and text
- Provides
  - Automatic Speech Recognition (ASR): speech -> text
  - Natural Language Understanding (NLU): text -> intent
- Powered by the same deep learning technologies as Alexa
- <http://aws.amazon.com/lex>

BookHotel

### Intents

A particular goal that the user wants to achieve

I'd like to book a hotel.

### Utterances

Spoken or typed phrases that invoke your intent

Sure, which city?

New York City

### Slots

Data the user must provide to fulfill the intent

What date do you check in?

### Prompts

Questions that ask the user to input data

...

### Fulfillment

The business logic required to fulfill the user's intent



November 30th.



Are you sure you want to book the hotel in New York City?



Yes.

Thank you. The reservation went through successfully.

# Chatbot in 3 steps

- Build a Lex bot
  - Integrate with Twilio
  - Integrate with Slack
  - Integrate with Facebook
  - Integrate with Web
  - Mobile client
- Export Lex bot configuration for Alexa Skills Kit
  - utterances, intent, slots, slot-types and prompts
- Build Alexa skill

# Build a Lex Bot

 Services ▾ Resource Groups ▾ 

Lex

Bots

Intents

Slot types

Bots

Create

Actions ▾

Filter:

	Name	Status	Last updated
<input type="radio"/>	<a href="#">OrderFlowers</a>	READY	September 3, 2017 at 6:59:18 PM UTC+2
<input type="radio"/>	<a href="#">StarWars</a>	READY	September 9, 2017 at 3:31:22 AM UTC+2

# Facebook Messenger

< StarWars Latest ▾

EditorSettingsChannelsMonitoring

Chatbots

- Facebook
- Slack
- Twilio SMS

Name\*

Description

IAM Role

AWSServiceRc

Automatically cre

KMS key

Alias\*

Verify Token\*

Page Access Token\*

App Secret Key\*

Activate

StarWarsChatbot (starwars)

Endpoint URL: https://channel

S

Star Wars Chatbot

1 person likes this

Movie

5:21PM

tell me a yoda quote

S

Here is a quote from Yoda: When nine hundred years old you reach, look as good you will not.

6:27PM

tell me a yoda quote

S

Luke Skywalker's lighsaber is blue

what is the color of luke skywalker lightsaber

S

Darth Vader is from Tatooine

what planet is darth vader from?

# Slack

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ChatbotsFacebookSlackTwilio SMS

IAM Role AWS Auto

KMS key aw

Alias\* Ali

Client Id\* Cli

Client Secret\* Cli

Verification Token\* Ve


Success Page URL Su

Callback URLs

StarWarsSlack (starwars)

Postback URL: http

OAuth URL: http




star\_wars\_chatbot ●  
star\_wars\_chatbot

This is the very beginning of your direct message history with star\_wars\_chatbot.


[🔗 How does star\\_wars\\_chatbot work?](#)

Today




arungupta 9:14 PM

tell me a yoda quote




Star Wars Chatbot APP 9:14 PM

Here is a quote from Yoda: That is why you fail.




arungupta 9:14 PM

what color is Luke skywalker lightsaber




Star Wars Chatbot APP 9:14 PM

Luke Skywalker's lighsaber is blue



arungupta 9:14 PM

which planet is DARTH Vader from



Star Wars Chatbot APP 9:14 PM ☆

Darth Vader is from Tatooine

14



# Twilio

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Editor Settings **Channels** Monitoring

Chatbots

- Facebook
- Slack
- Twilio SMS**

Fill in the form below and click activate to get a callback URL to use with Twilio. You can generate multiple callback URLs

**Name\***  ⓘ

**Description**  ⓘ

**IAM Role** [AWSServiceRoleForLexChannels](#) ⓘ  
Automatically created on your behalf

**KMS key**  ⓘ

**Alias\***  ⓘ

**Account SID\***  ⓘ

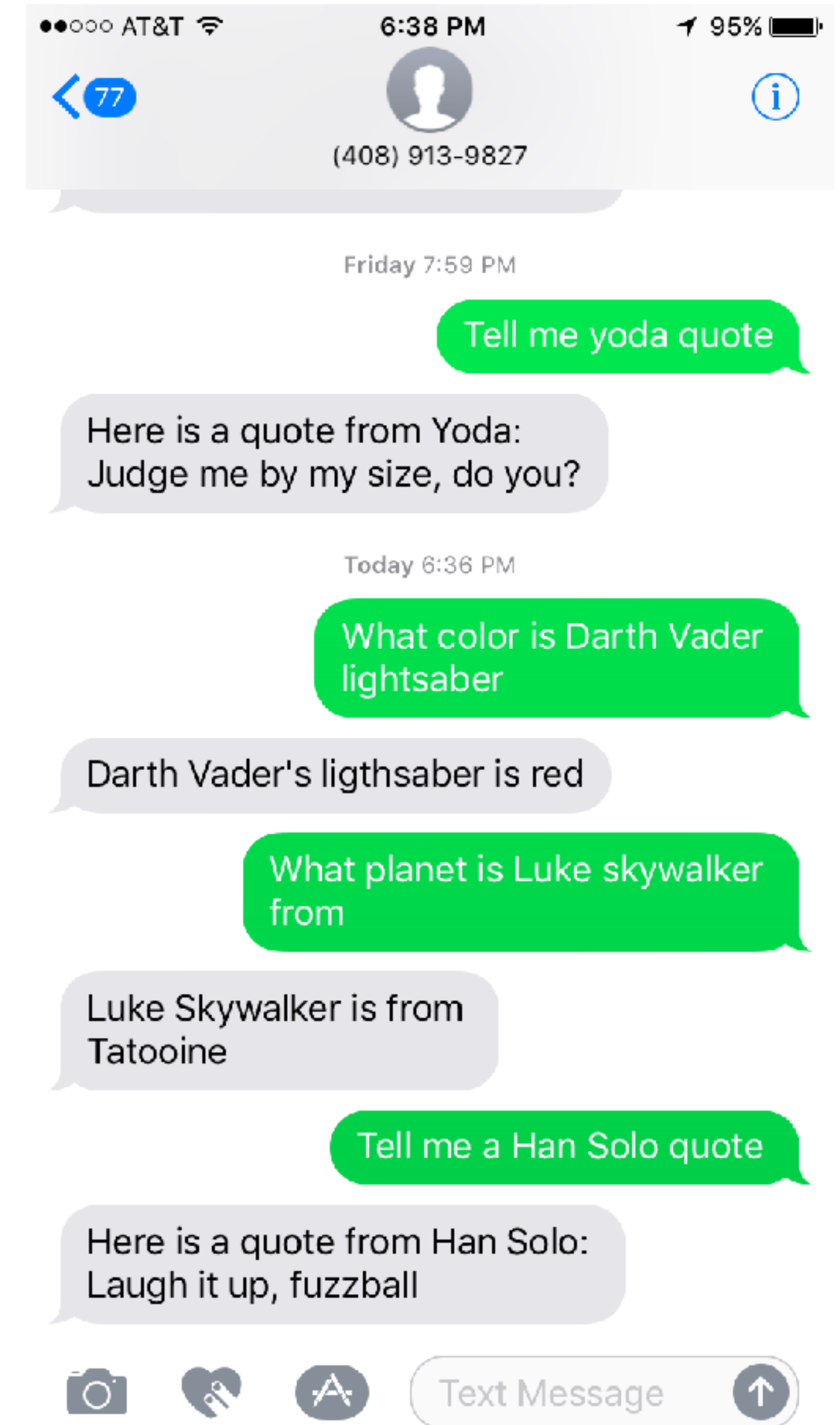
**Authentication Token\***  ⓘ

[Activate](#)

Callback URLs

starwars\_sms (starwars) [Delete](#)

**Endpoint URL:** <https://channels.lex.us-east-1.amazonaws.com/twili...> [Copy](#)



# Steps to Build a Skill

- Design a Voice User Interface
  - Define intent schema
  - Map utterances to intent
  - Handle intent in Speechlet
- Setup the Skill in Developer Portal



# Security

- AmazonServiceRoleForLexBots

# Monitoring

- CloudWatch
- CloudTrail
- X-Ray

# CI/CD Pipeline

# References

- Amazon Lex: [aws.amazon.com/lex](https://aws.amazon.com/lex)
- Developer Portal: [developer.amazon.com](https://developer.amazon.com)
- Slides & code: [github.com/arun-gupta/chatbot](https://github.com/arun-gupta/chatbot)