

# Build Your Own Chatbot

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Amazon Web Services

**STAR WARS**

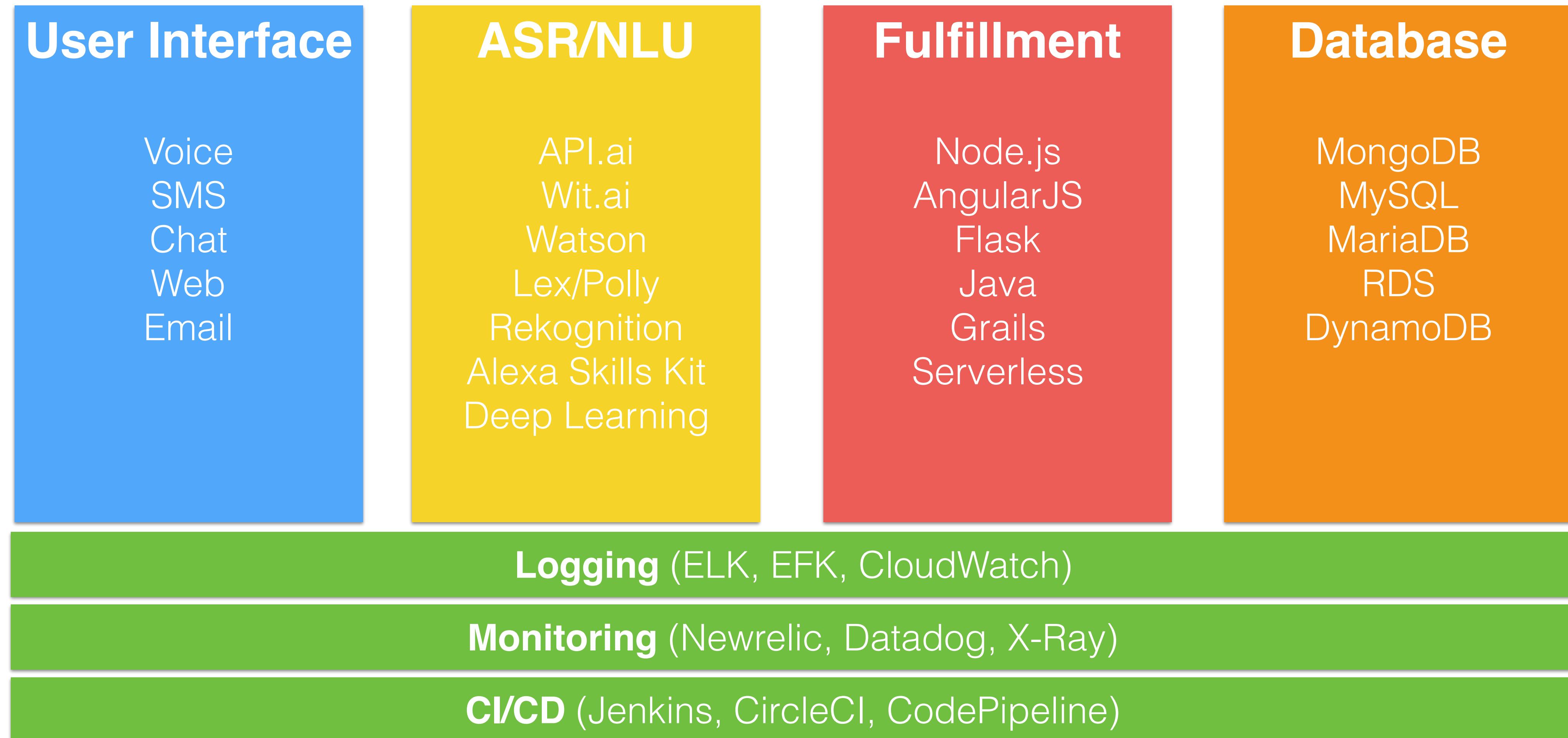
**CHATBOT**

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

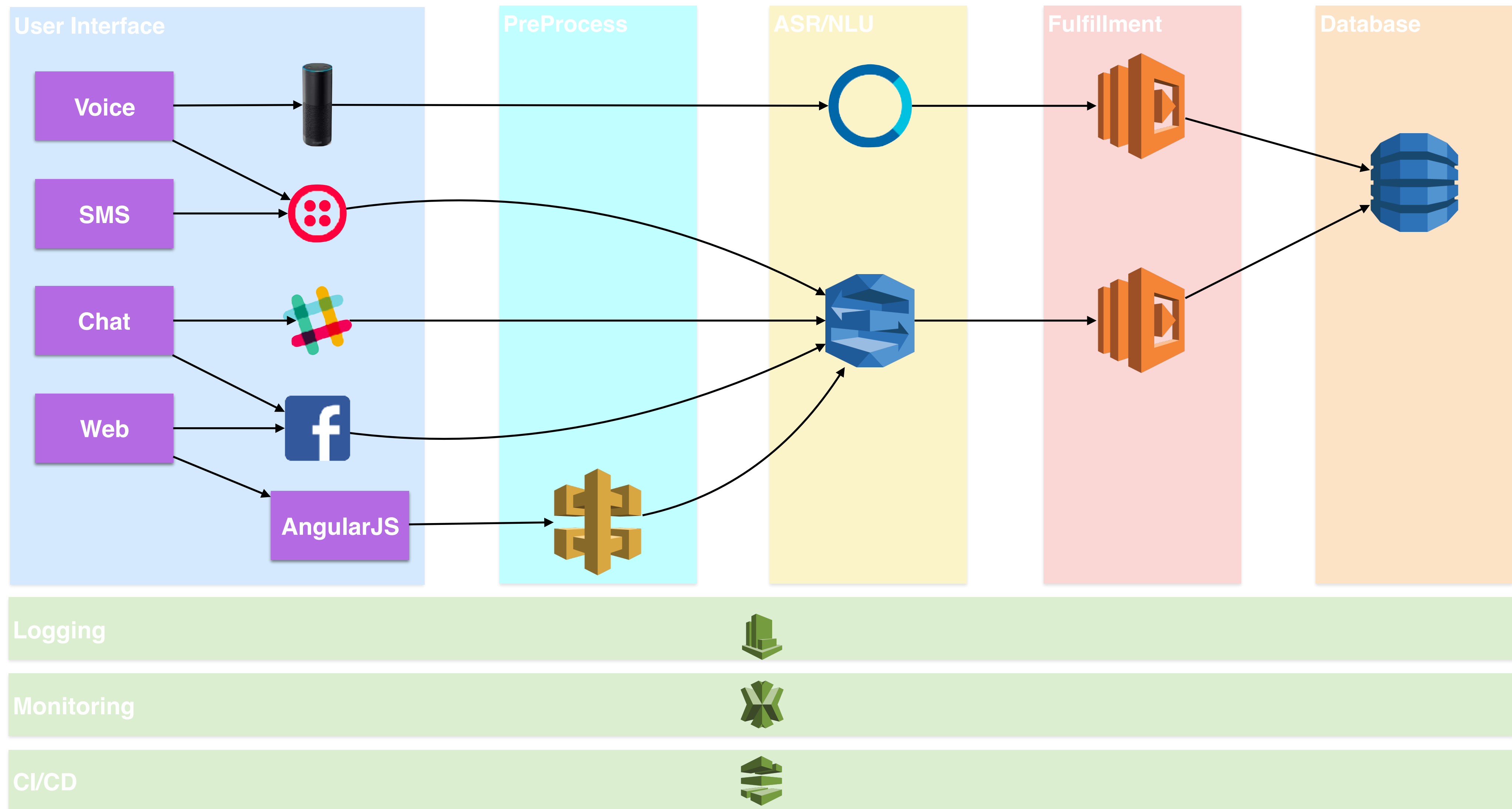


Tell me a Yoda quote

# Chatbot Components



# Chatbot Architecture



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.

Add the flow from getting-started video



# BYOC: Build Your Own Chatbot

## ■ Prepare database

- Add documents to DynamoDB, setup indexes

## ■ Build a Lex bot

- Define utterances, slots, slot-types, prompts, intent
- Write Lambda function for business logic (intent -> database)
- Integrate with Twilio, Slack, Facebook, Web, mobile



## ■ Build an Alexa skill (optional)

- Export Lex bot configuration for Alexa Skills Kit
- Write Lambda function for business logic (intent -> database)

# BYOC #1: Prepare database

```
{
  "dead": true,
  "force-sensitive": true,
  "forceside": "light",
  "id": 1,
  "lightsaber": "green",
  "planet": "Dagobah",
  "quotes": [
    "When nine hundred years old you reach, look as good you will not.",
    "Truly wonderful, the mind of a child is",
    "A Jedi uses the Force for knowledge and defense, never for attack",
    "That is why you fail.",
    "Adventure. Excitement. A Jedi craves not these things.",
    "Judge me by my size, do you?",
    "Fear is the path to the dark side",
    "Wars not make one great",
    "Do, or do not. There is no try",
    "Size matters not",
    "The dark side clouds everything",
    "Impossible to see the future is",
    "Clear your mind must be",
    "Much to learn you still have ... my old padawan"
  ],
  "weapon": "lightsaber",
  "whoami": "Yoda"
}
```

# BYOC #2: 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

# Amazon Lex



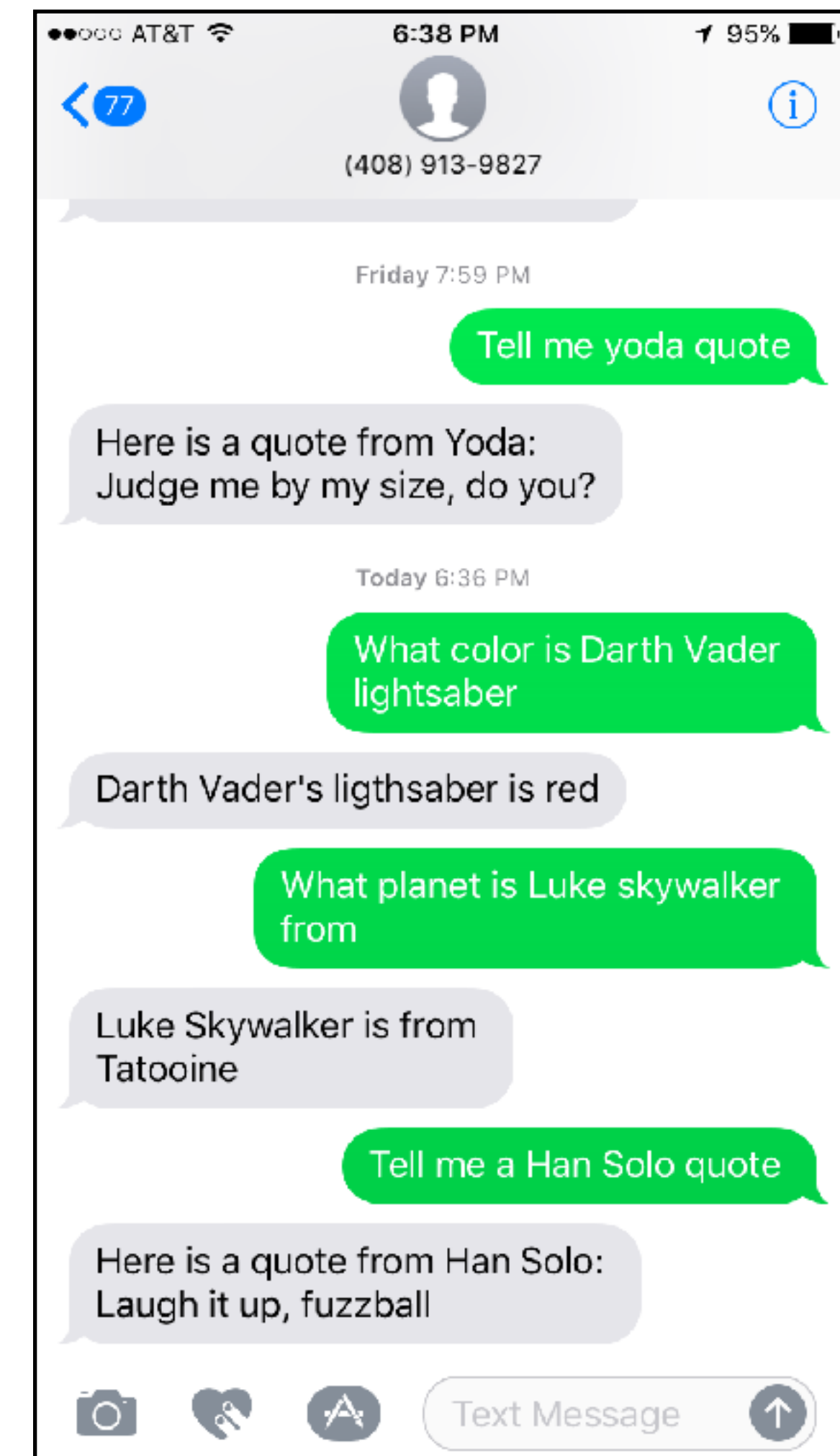
- Service for building conversational interfaces using voice and text
- Provides
  - Automatic Speech Recognition (ASR): speech -> text
  - Natural Language Understanding (NLU): text -> intent
- Powered by the same deep learning technologies as Alexa
- <http://aws.amazon.com/lex>

# BYOC #2: Twilio

The screenshot shows the Twilio console interface for a channel named 'StarWars'. The 'Channels' tab is selected, and the 'Twilio SMS' channel is highlighted in the left sidebar. The main form contains the following fields:

- Name\***:
- Description**:
- IAM Role**: [AWSServiceRoleForLexChannels](#) (Automatically created on your behalf)
- KMS key**:
- Alias\***:
- Account SID\***:
- Authentication Token\***:

An **Activate** button is located below the form fields. Below the form, the 'Callback URLs' section shows a single entry: 'starwars\_sms (starwars)' with a 'Delete' button. At the bottom, the 'Endpoint URL' is displayed as 'https://channels.lex.us-east-1.amazonaws.com/twili...' with a 'Copy' button.





# BYOC #2: Slack

< StarWars Latest ▾

Editor Settings Channels Monitoring

Chatbots

Facebook

Slack

Twilio SMS

IAM Role [AWSServiceRoleForLexChatbot](#)  
Automatically created on your behalf

KMS key

Alias\*

Client Id\*

Client Secret\*

Verification Token\*

Success Page URL


Activate

Callback URLs

StarWarsSlack (starwars)

Postback URL: <https://channels.lex.us-east-1.amazonaws.com/starwars-slack>


OAuth URL: <https://channels.lex.us-east-1.amazonaws.com/starwars-slack>


 **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 lightsaber 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

# BYOC #2: Facebook Messenger

The image shows a screenshot of the StarWars chatbot configuration interface and a preview of the chatbot's interaction.

**Configuration Interface:**

- StarWars Latest** (Dropdown)
- Editor** | **Settings** | **Channels** | **Monitoring** (Tabs)
- Chatbots**
  - Facebook** (Selected)
  - Slack
  - Twilio SMS
- Name\***
- Description**
- IAM Role** [AWSServiceRole](#)  
Automatically created
- KMS key**
- Alias\***
- Verify Token\***
- Page Access Token\***
- App Secret Key\***
- Activate** (Button)
- Callback URLs**
  - StarWarsChatbot (starwars)
- Endpoint URL:** <https://channel>

**Chatbot Preview:**

- Star Wars Chatbot** (Profile Card)
  - 1 person likes this
  - Movie
- 5:21PM** (Timestamp)
- tell me a yoda quote** (User Input)
- 6:27PM** (Timestamp)
- tell me a yoda quote** (User Input)
- Here is a quote from Yoda: When nine hundred years old you reach, look as good you will not.** (Bot Response)
- what is the color of luke skywalker lightsaber** (User Input)
- Luke Skywalker's lightsaber is blue** (Bot Response)
- what planet is darth vader from?** (User Input)
- Darth Vader is from Tatooine** (Bot Response)

# BYOC #2: *AngularJS*



# BYOC #2: Mobile

# BYOC #3: Build an Alexa Skill

- Setup the Skill in Developer Portal

# Security

- AmazonServiceRoleForLexBots
- IAM permissions??

# Logging

- CloudWatch

# Monitoring

- CloudTrail
- X-Ray

# CI/CD Pipeline

- CodePipeline

# 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)