

Alex Lakatos

@lakatos88

BUILDING BOTS WITH JAVASCRIPT

A BIT OF HISTORY



SOME MORE HISTORY



BOTS! BOTS! BOTS!

"Bots are like new applications that you can converse with."

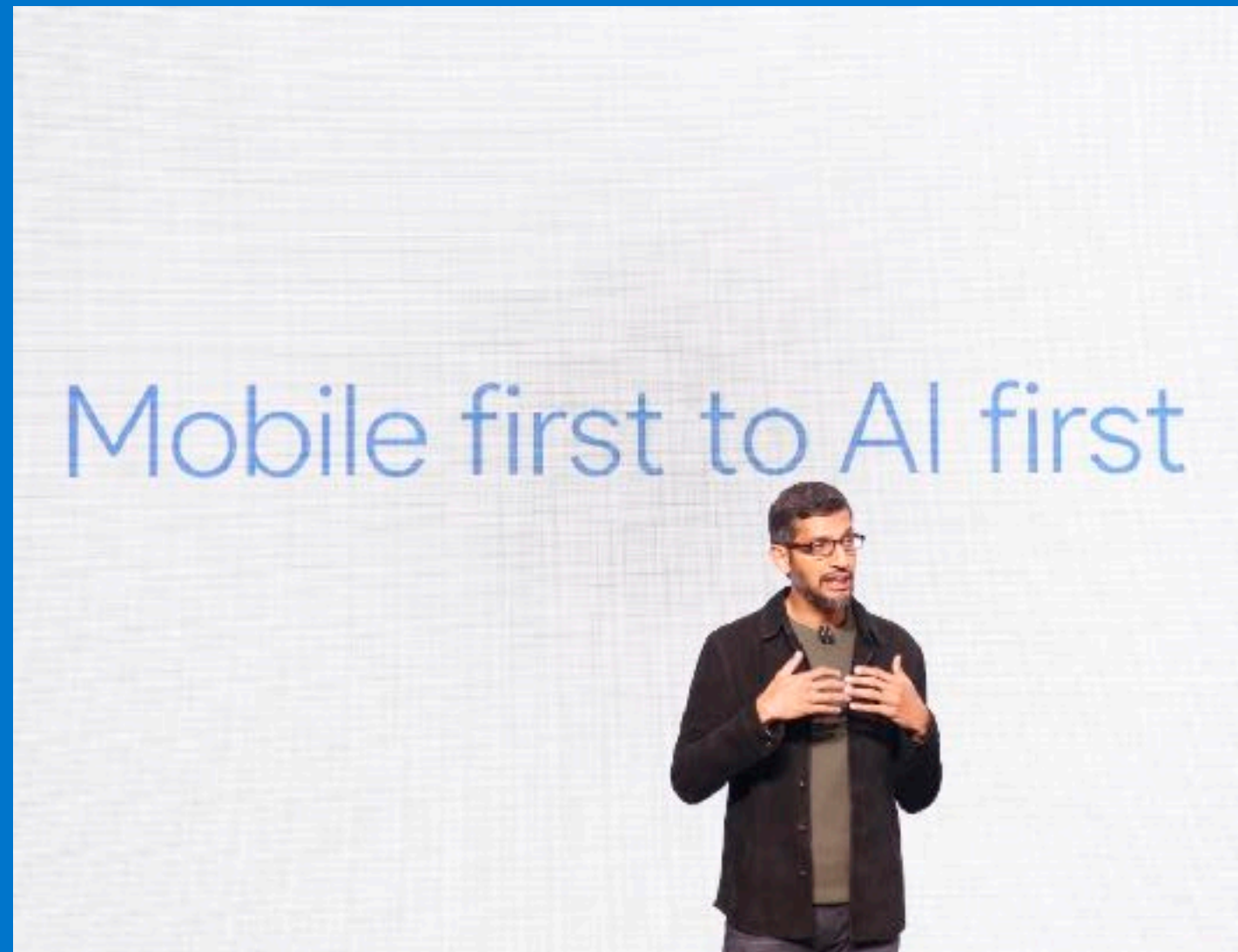
Satya Nadella,
Microsoft



AI FIRST

"We will evolve in computing from a mobile first to an AI first world."

Sundar Pichai, Google



WHY IS THIS HAPPENING TO ME

Why is this
happening to
me?



WHY IS THIS HAPPENING TO ME

1. New era of computing
2. Boom of Artificial Intelligence
3. Advances in machine learning
4. Advances in language technologies
(Text-to-speech, natural language processing, etc.)

CONTEXTUAL COMMUNICATION

“*contextual communication* is the bidirectional transfer of information between two parties where both parties are aware of the relational, environmental, and cultural context of the exchange”

OLD WEB APP FLOW

Special Meals

Vegetarian lacto-ovo

Hindu vegetarian

Vegan

Gluten-free

Kosher

Muslim

CONVERSATIONAL INTERFACES



CONVERSATIONAL INTERFACES



Tell Jokes



Answer Questions



Play Games



Make Stories

CogniToys Dino - <https://cognitoys.com>

CONVERSATIONAL INTERFACES



I want a large
pepperoni pizza

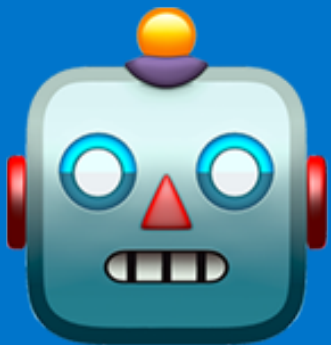


Sure. What kind of crust do
you want:

1. Thin
2. Cheese
3. Thick



Cheese please!





Sure!

Hey, wanna
meet up?



What's the address?

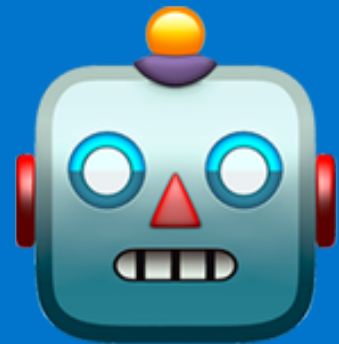
15 Bonhill Street



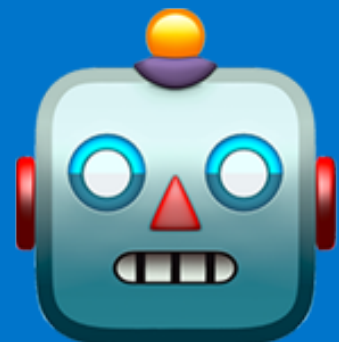
Request a ride?



Yes, get me a
ride in 5 minutes



Your driver
Alex will pick you up in 10 minutes.
Look for a blue Mini



CONVERSATIONAL INTERFACE

- Intuitive
- Accessible
- Productive

MESSAGING PLATFORMS

- Slack
- Facebook Messenger
- Telegram
- WeChat
- Nexmo Stitch 🤗 (shameless plug)

BOTS AT nexmo®

The Vonage®
API Platform



geekbot APP 9:36 AM

What do you plan to ship this week?



Alex Lakatos 🏠 9:37 AM

- give the CityJS talk
- Stitch with Angular blog post
- host 2 meetups in the office



geekbot APP 9:37 AM

Go ship it!



Zapier APP 1:20 PM

New item Buffered: #VTCoders meetup attendees tonight are in for a treat : @Rabeb_Othmani & @julielerman are going to talk about bots, azure functions, LUIS, APIs and a lot more goodness

<https://www.meetup.com/VTCode/events/248025786/>

Scheduled to tweet: Today at 3:38 pm



Trellobot APP 7:33 PM

Task:

talk to mark about push

was moved to: ✓

Task: talk to mark about push was moved to: ✓

Task: talk to mark about push is now ✓

BOTS AT nexmo®

The Vonage®
API Platform



Productbot APP 7:43 PM

Task: `talk to mark about push` is now



Nexmo Releases APP 12:10 AM

New [conversation-js-sdk](#) release published: [v0.1.20](#)

Changelog

All notable changes to this project will be documented in this file.

[0.1.20]

Added

- Get notified when a new member is in ringing state in a Call
- Support for webpack and other bundle tools
- Changelog file

[Changelog file](<https://github.com/nexmo-inc/conversation-js-sdk/blob/master/CHANGELOG.md>)

Fixed

- Receiving Seen, delivered and delete events from iOS and Android

[Show more](#)

NATURAL CONVERSATION AI

- DialogFlow (API.ai/Google)
- Wit.ai (Facebook)
- Microsoft BotFramework
- Motion.ai
- chatbots.io
- Converse AI
- landbot.io
- Recast.ai
- ManyChat
- Fluent.ai (Voice UI)

Set the temperature to 70° in my bedroom



intent = heating control
temperature = 70°F
where = master_bedroom

Did you try... [What's the weather tomorrow in Palo Alto?](#) ↗



Your user

Set the temperature to 70° in my bedroom

Wit



Your app

AIAAS

Artificial Intelligence as a Service - via @girlie_mac



Small-Talk

en en-AU

Intents

Entities

Training ^[beta]

Integrations

Analytics ^[new]

Fulfillment

Prebuilt Agents

Small Talk

> Docs

> Forum



Google Assistant

Build Actions for the Google Assistant to reach users through Google Home, Android phones, and more devices.

INTEGRATION SETTINGS



Web Demo



Facebook Messenger



Slack



Viber



Twitter



Skype



Tropo (Text messaging)



Telegram





Hey Alex. From LGW as usual?



Hey, I want to book a flight



Yes, from Gatwick

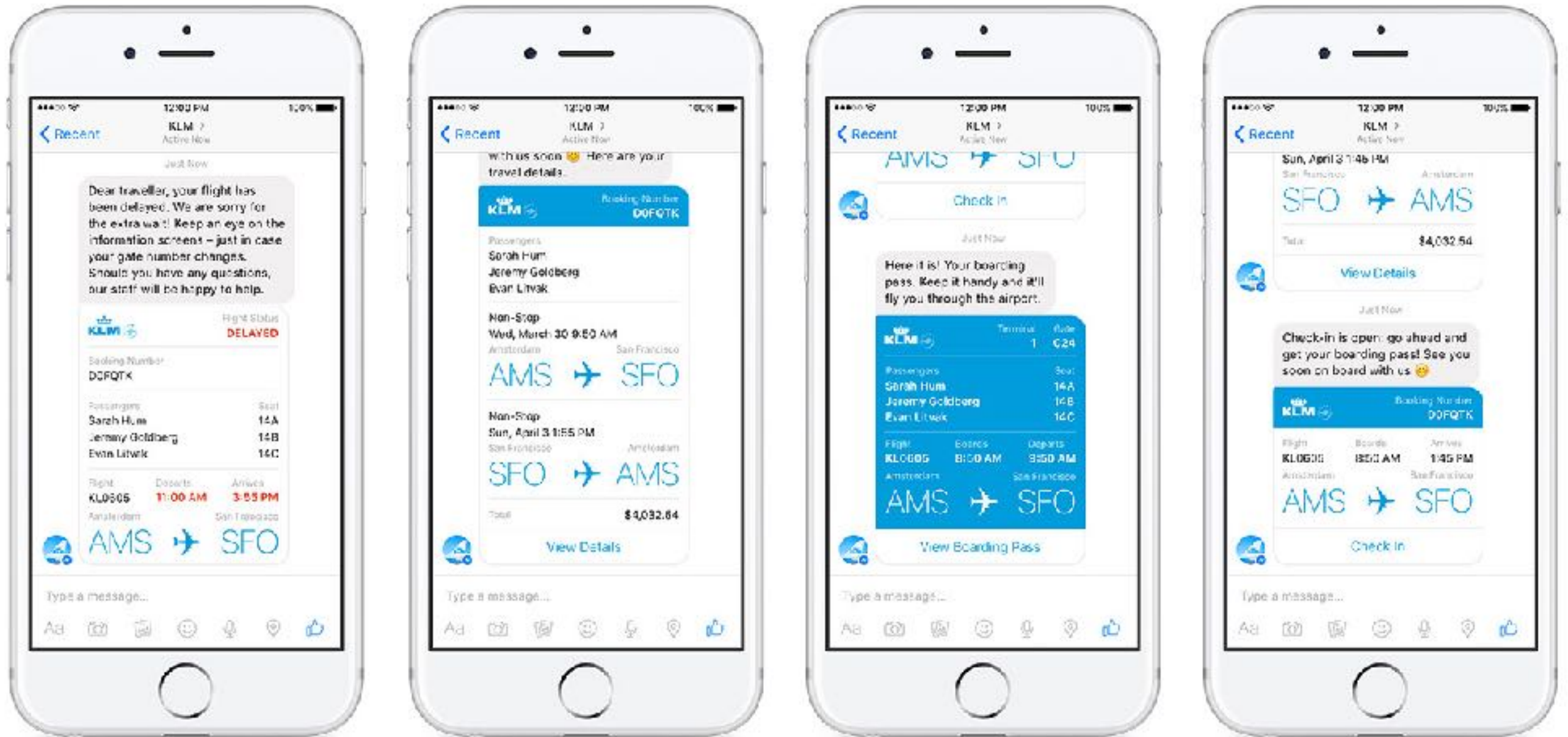


Where are you going this time?

San Francisco



KLM BOOKING BOT

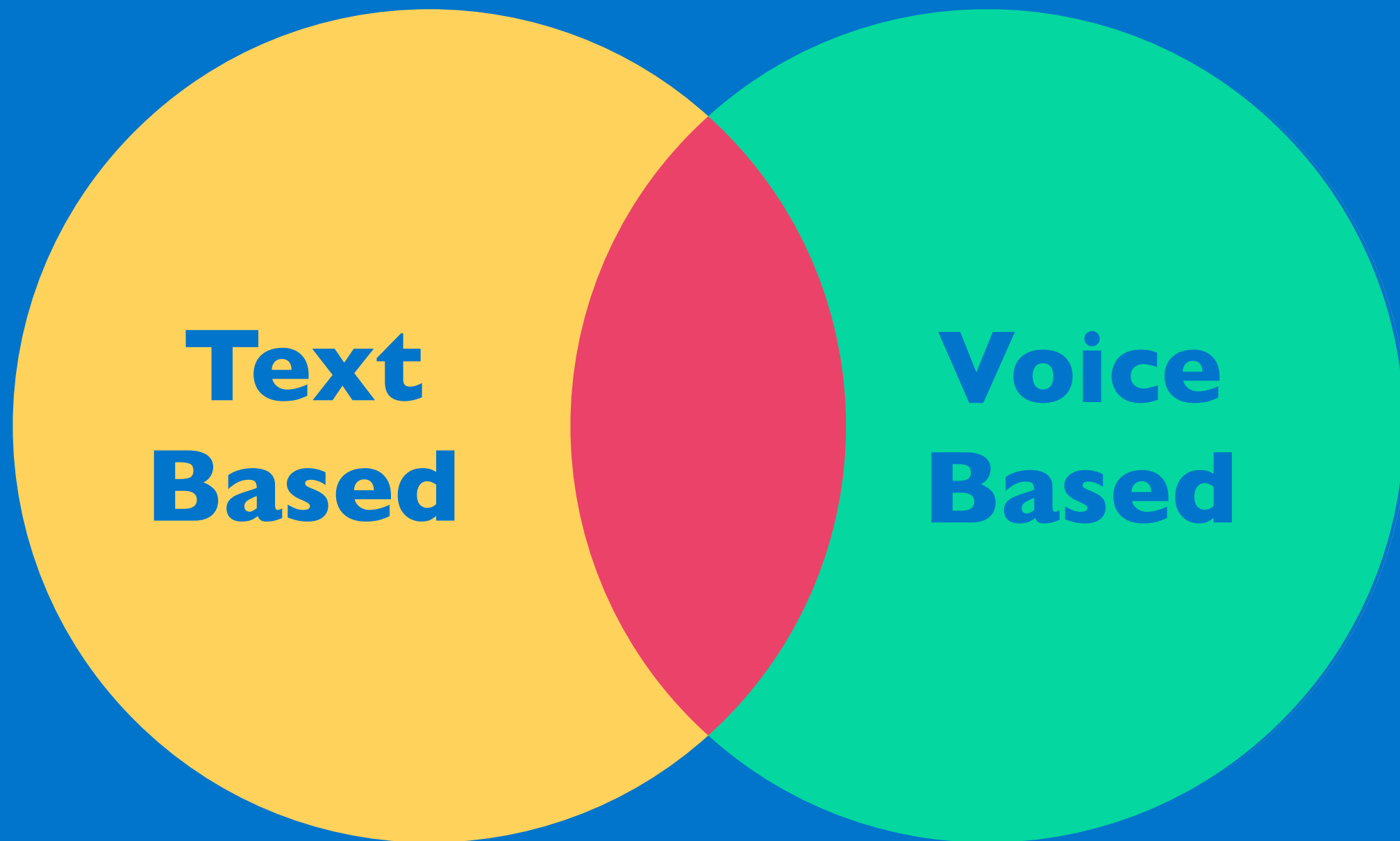


NATURAL LANGUAGE PROCESSORS

Natural Language Processing &
Cognitive platforms:

- IBM Watson
- Google Cloud Natural Language API
- Microsoft LUIS
- Amazon Lex
- Baidu UNIT

CONVERSATIONAL INTERFACES



VOICE EXPERIENCE

1. Make it smart.
2. Use a language that users understand and can relate to.
3. The capabilities of your tech
4. The structure of the information

VOICE UX

Listening...



Listening...



Thinking...



CONVERSATIONAL INTERFACES IN JAVASCRIPT

WEB SPEECH API

Speech Recognition API - UNOFF

Method to provide speech input in a web browser.

Usage

% of all users 

Global

0% + 64.02% - 64.02%

unprefixed:

0%

Current aligned Usage relative Date relative Show all ?

IE	Edge [*]	Firefox	Chrome	Safari	iOS Safari [*]	Opera Mini [*]	Chrome for Android	UC Browser for Android	Samsung Internet
			<div>1 49</div> <div>1 63</div> <div>1 67</div> <div>2 61</div> <div>1 68</div>						
11	17	2 62	1 69	12	11.4	all	1 69	11.8	1 7.2
	18	2 63	1 70	TP	12				
		2 64	1 71						
			1 72						

Notes Known issues (0) Resources (8) Feedback

MS Edge status: **Under Consideration**

Firefox status: **under-consideration**

¹ Partial support refers to some attributes missing.

² Firefox currently has a `media.webspeech.recognition.enable` flag in about:config for this, but actual support is waiting for permissions to be sorted out.

WEB SPEECH API

```
toggleVoice() {  
  var SpeechRecognition = SpeechRecognition || webkitSpeechRecognition;  
  this.recognition = new SpeechRecognition();  
  
  this.recognition.lang = "en-US";  
  this.recognition.interimResults = false;  
  this.recognition.start();  
  
  this.recognition.addEventListener('result', (e) => {  
    let last = e.results.length - 1  
    let text = e.results[last][0].transcript  
    this.sendText(text, true)  
    this.recognition.stop()  
    this.recognition = null  
  });  
}
```

WEB SPEECH API

Speech Synthesis API - UNOFF

Usage % of all users
Global 82.06%

A web API for controlling a text-to-speech output.

Current aligned Usage relative Date relative Show all ?

IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			49						
			² 63						
			² 67						
		61	² 68	11.1	11.2				4
11	17	62	² 69	12	11.4	all	69	11.8	7.2
	18	63	² 70	TP	12				
		64	² 71						
			² 72						

Notes Known issues (1) Resources (9) Feedback

Samsung Internet for GearVR: In Development, release based on Chromium m53 due Q1/2017

² Speech Synthesis in Chrome since version 55 stops playback after about 15 seconds on Windows 7 & 10, and Ubuntu 14.04, possibly other platforms

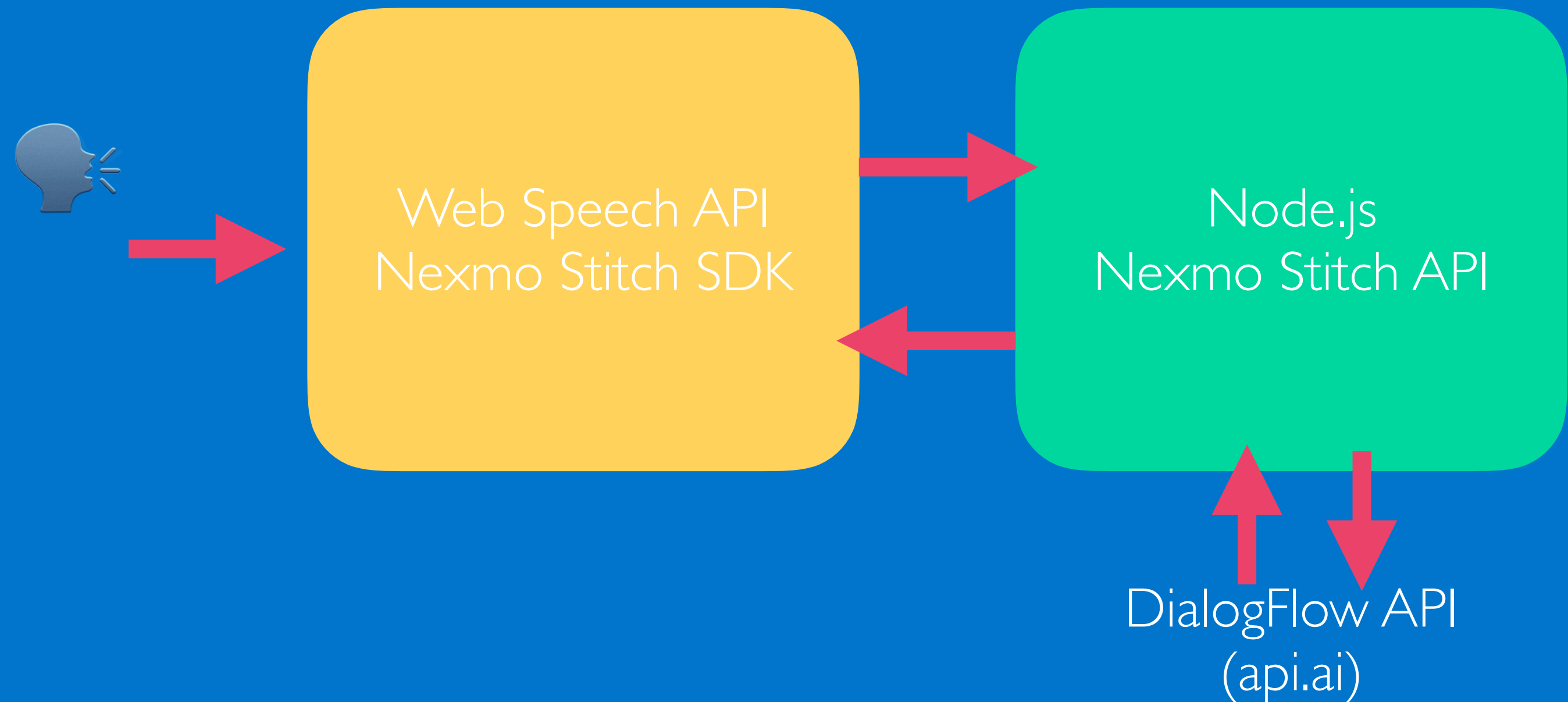
WEB SPEECH API

```
let utterance = new SpeechSynthesisUtterance();  
  
utterance.text = response.result.fulfillment.speech  
utterance.rate = 5.5;  
utterance.pitch = 2;  
utterance.lang = "en-GB";  
  
speechSynthesis.speak(utterance)
```


DEMO TIME!

Client


Server




THINGS I USED - MDN



 **MDN web docs**
moz://a

Technologies ▾References & Guides ▾Feedback ▾

Sign in 



Web Speech API

 Languages [Edit](#) 

Jump to: [Web Speech Concepts and Usage](#) [Web Speech API Interfaces](#) [Examples](#) [Specifications](#) [Browser compatibility](#)


[Firefox OS permissions](#) [See also](#)

[Web technology for developers](#) >
[Web APIs](#) > [Web Speech API](#)

Related Topics

▾ Interfaces

- [SpeechGrammar](#)
- [SpeechGrammarList](#)
- [SpeechRecognition](#)
- [SpeechRecognitionAlternative](#)
- [SpeechRecognitionError](#)
- [SpeechRecognitionEvent](#)

 **This is an experimental technology**
Check the [Browser compatibility table](#) carefully before using this in production.

The Web Speech API enables you to incorporate voice data into web apps. The Web Speech API has two parts: `SpeechSynthesis` (Text-to-Speech), and `SpeechRecognition` (Asynchronous Speech Recognition.)

Web Speech Concepts and Usage

https://developer.mozilla.org/en-US/docs/Web/API/Web_Speech_API

NEXMO STITCH



Nexmo Stitch Developer Preview

Build multi-platform applications with contextual communications

Nexmo Stitch

In-App Messaging



Overview

JavaScript Guide

Android Guide

iOS Guide

API Reference

Nexmo Stitch

In-App Voice



Overview

JavaScript Guide

Android Guide

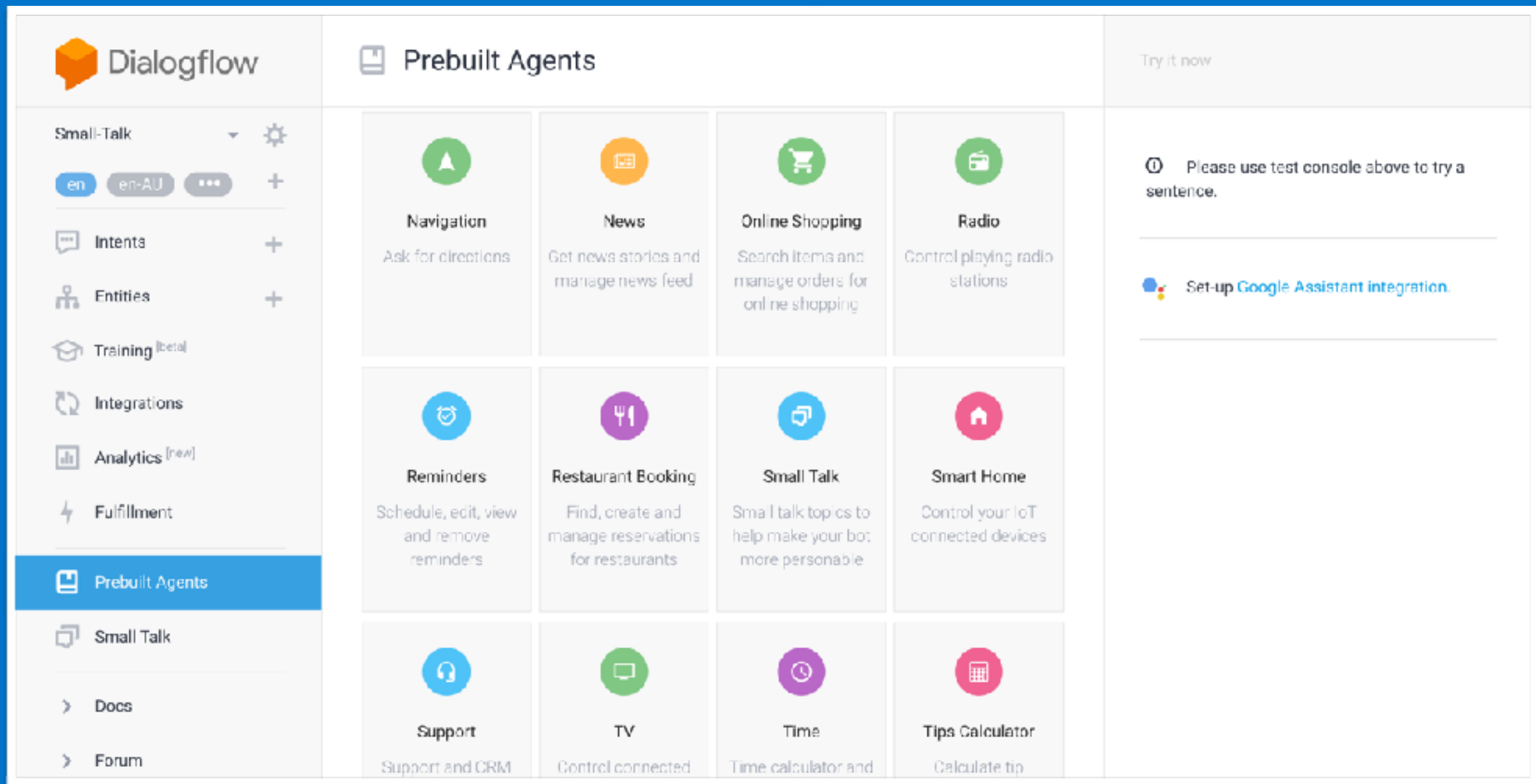
iOS Guide

API Reference



<https://developer.nexmo.com/stitch/overview>

DIALOGFLOW (API.AI)



The screenshot displays the Dialogflow console interface. On the left is a sidebar with the Dialogflow logo and navigation links: Small-Talk, Intents, Entities, Training [beta], Integrations, Analytics [new], Fulfillment, Prebuilt Agents (highlighted), Small Talk, Docs, and Forum. The main area is titled 'Prebuilt Agents' and contains a grid of 12 agent cards. Each card features an icon, a title, and a brief description. The agents are: Navigation (Ask for directions), News (Get news stories and manage news feed), Online Shopping (Search items and manage orders for online shopping), Radio (Control playing radio stations), Reminders (Schedule, edit, view and remove reminders), Restaurant Booking (Find, create and manage reservations for restaurants), Small Talk (Small talk topics to help make your bot more personable), Smart Home (Control your IoT connected devices), Support (Support and CRM), TV (Control connected), Time (Time calculator and), and Tips Calculator (Calculate tip). On the right side of the console, there is a 'Try it now' button and a message: 'Please use test console above to try a sentence.' Below this is a link to 'Set-up Google Assistant integration.'

Agent	Description
Navigation	Ask for directions
News	Get news stories and manage news feed
Online Shopping	Search items and manage orders for online shopping
Radio	Control playing radio stations
Reminders	Schedule, edit, view and remove reminders
Restaurant Booking	Find, create and manage reservations for restaurants
Small Talk	Small talk topics to help make your bot more personable
Smart Home	Control your IoT connected devices
Support	Support and CRM
TV	Control connected
Time	Time calculator and
Tips Calculator	Calculate tip

<https://dialogflow.com/>

CONVERSATIONAL INTERFACES
ARE FOR HUMANS

A BOT INTERFACE SHOULD BE
A HUMAN INTERFACE

REMEMBER ME?

It looks like you're writing a letter.

Would you like help?

- ☒ Get help with writing the letter
- ☒ Just type the letter without help
- ☐ Don't show me this tip again



Clippy (1997 - 2007)

R.I.P.

THANK YOU, HALFSTACK!

Alex
Lakatos
@lakatos88

