Exploring Conversational Interfaces with Amazon Alexa and Go

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This is an Echo.


This is the Echo mute button.

Alexa! Alexa! Alexa!

You’ve been warned.

Mike Flynn

- Chief Technology Officer @ Studio71
- Former Software Architect @ Answers
- Former author of St. Louis’ Punching Kitty blog
- Currently talking to you right now


Hello, computer.


JE RDY!

IRC Commands

@find potato

/topic 1996 rules!

/join #somethingillegal

/kick annoyingguy

/msg strangeloop Thanks for having me!

Hi, when using the Nuws app I encountered the following problem:

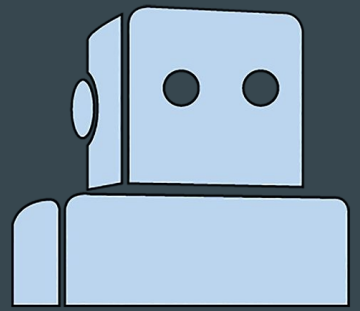
Commands matching /

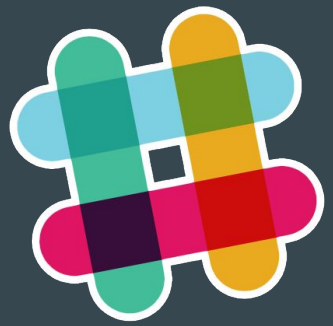
tab or ↑ ↓ to navigate ↵ to select esc to dismiss

/archive	*Archive the current channel or group*
/away	*Toggle your "away" status*
/boxstat [followers, name, date] [asc, desc]	*[custom] Boxes statistics*
/collapse	*Collapse all inline images and video in the current channel (opposite of /expand)*
/expand	*Expand all inline images and video in the current channel (opposite of /collapse)*
/feed help [or subscribe, list, remove…]	*Manage RSS subscriptions*
/feedback your message	*Send feedback to Slack*
/giphy [text]	*[service] Post a random gif to channel*
/hangout (or /hangouts)	*[service] Start a Google Hangout*
/hero @user	*[service] Start a S…*
/invite @user [channel]	*Invite another member …*
/leave (or /close, /part)	*L… …nel*
/me your message	*D…*
/msg (or /dm) @user [your message]	*Send a DM mes… …er*
/open (or /join) [channel]	*Open a cha…el or group*

/

2016: The Year of Conversational Applications





Why?!

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1. Platform Cost

Why?!

1. Platform Cost
2. Competition

Why?!

1. Platform Cost
2. Competition
3. Novelty

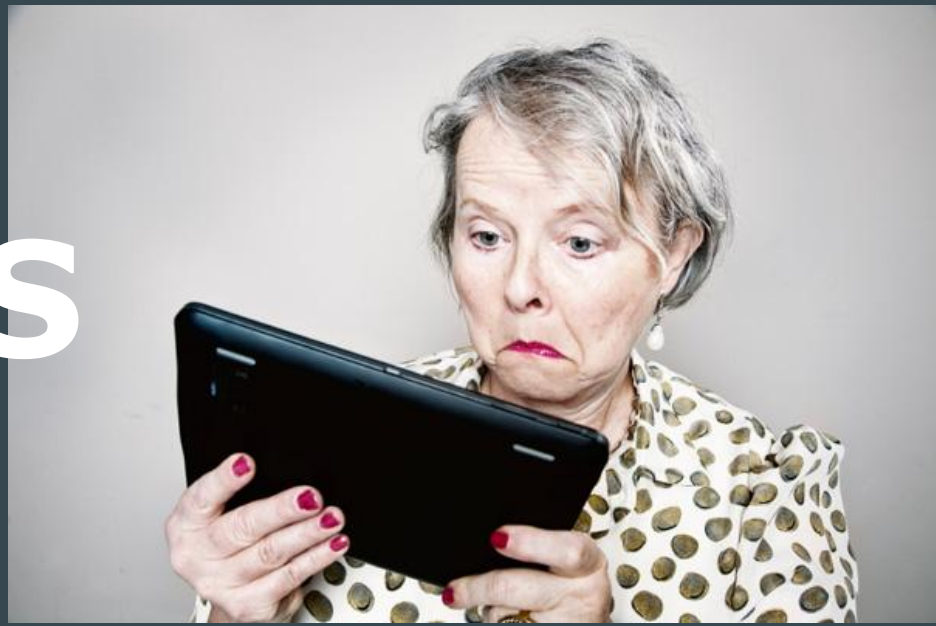
Why?!

1. Platform Cost
2. Competition
3. Novelty...and then actual usage.


J.A.R.V.I.S

Conversation vs Click

vs



A 3-Year-Old and Her Pal Alexa

"Alexa, crank it up!"

"Alexa, tell me a joke!"

"Alexa, turn on living room!"

A 3-Year-Old and Her Pal Alexa

"Alexa, crank it up!"

"Alexa, tell me a joke!"

"Alexa, turn on living room!"

"Alexa, I love you."

No One Loves Clippy

Customer favorites

"Alexa, open the Wayne Investigation"

The Wayne Investigation

58

Kasa is a simple way to manage your home from anywhere.

TP-LINK Kasa

46

"Alexa, ask My Buddy to help me get started"

Ask My Buddy

51

"Alexa, ask PGA TOUR for the leaderboard."

PGA TOUR

32

Skills trending this week

"Alexa, ask My

"Alexa, launch Yeti

"Alexa, tell Alarm

"Alexa, open

20 Questions, Automatic, and Uber

Cat Facts

“Alexa, tell Cat Facts to give me a fact about cats”

Farts

“Alexa, ask for a fart.”

Pick Up Lines

“Alexa, ask pickup lines to tell me a line.”

Happy Marriage

"Alexa, ask happy marriage helper where do I find patience?"

Richard Stallman Fun Facts

"Alexa, ask Stallman Facts to tell me something."

Quotes...so many quotes!

Conversational Use Cases

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- Music
  - “Play Strange Condition by Pete Yorn.”

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- Hands-free Tasks
  - “How many ounces are in a ¾ cup?”

Conversational Use Cases

- Music
  - “Play Strange Condition by Pete Yorn.”
- Hands-free Tasks
  - “How many ounces are in a ¾ cup?”
- Automation
  - “Order more paper towels.”
  - “Netflix and chill.”
- Family or group usage

Pro Tips

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- Don’t let the user down. Surprise them!

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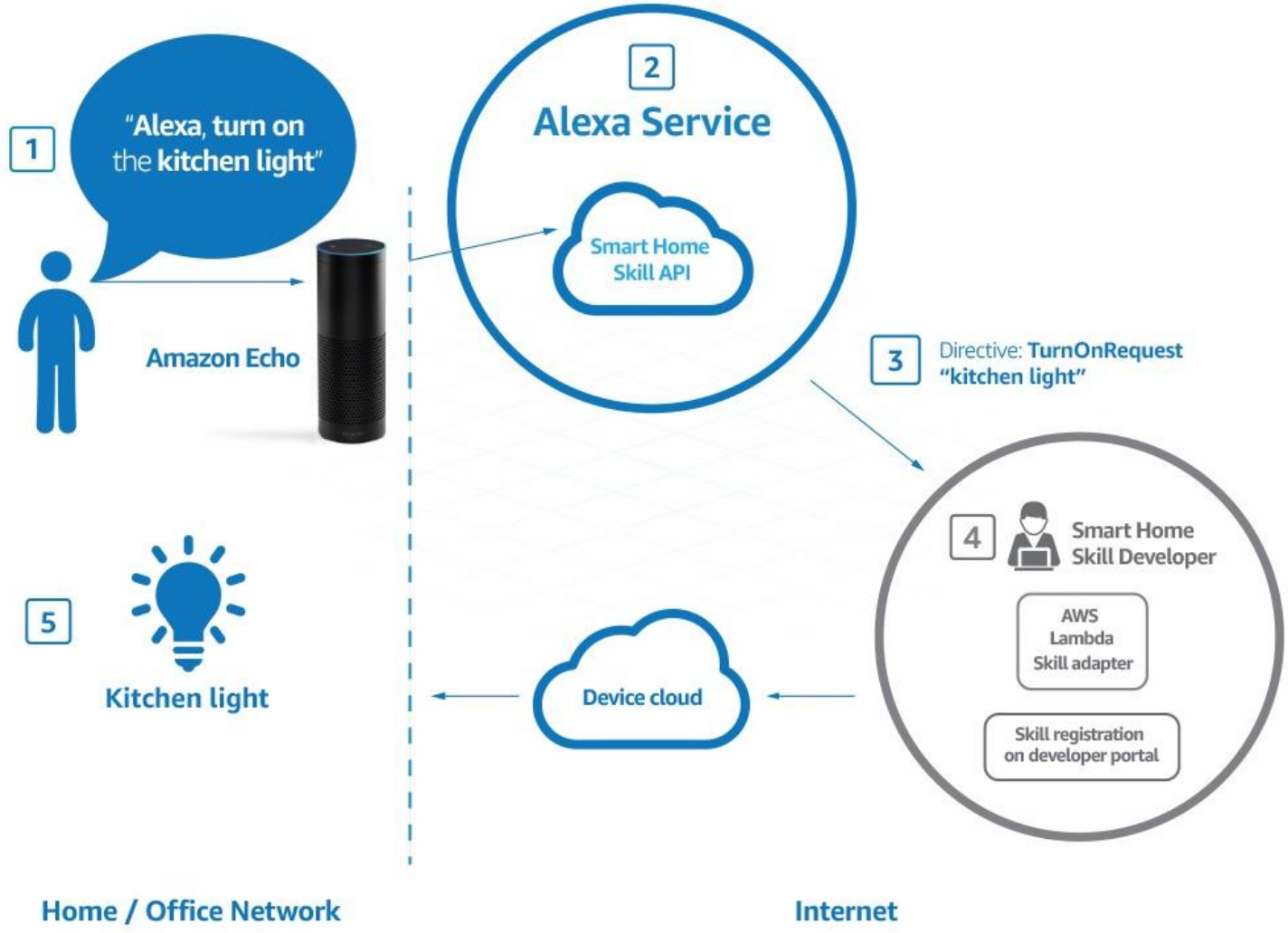
- Don’t let the user down. Surprise them!
- Evolve your app with your users.
- Clearly cue the user.
- Minimize options.
- Let people be polite!

Configuring an Amazon Alexa Skill

- Done through the Amazon Developer dashboard.
- Basic application information.
- Configure speech intents.
- Configure intent utterances.


1
"Alexa, turn on the kitchen light"
Amazon Echo
2
Alexa Service
Smart Home Skill API
3
Directive: TurnOnRequest
"kitchen light"
4
Smart Home Skill Developer
AWS Lambda Skill adapter
Skill registration on developer portal
Device cloud
5
Kitchen light
Home / Office Network
Internet

Alexa Skill Dev Console

< Back to the list of skills

Jeopardy
DEVELOPMENT
9/4/15

Getting started

*Fields required for certification

- Skill Information ✓
- Interaction Model ✓
- Configuration ✓
- SSL Certificate
- Test ✓
- Publishing Information
- Privacy & Compliance ✓

Application Id
The ID for this skill
amzn1.echo-sdk-ams.app.[redacted]

Skill Type *
You can choose a Skill API or define the interaction model. Learn more
- (•) Custom Interaction Model
- ( ) Smart Home Skill API

Name *
The name of this skill. This is the name displayed in the Alexa App.
Jeopardy

Invocation Name *
The name users will say to interact with this skill. This does not have to be the same as the skill name. The invocation name must comply with the Invocation Name Guidelines
jeopardy

Save | Submit for Certification | Next

Intent Schema

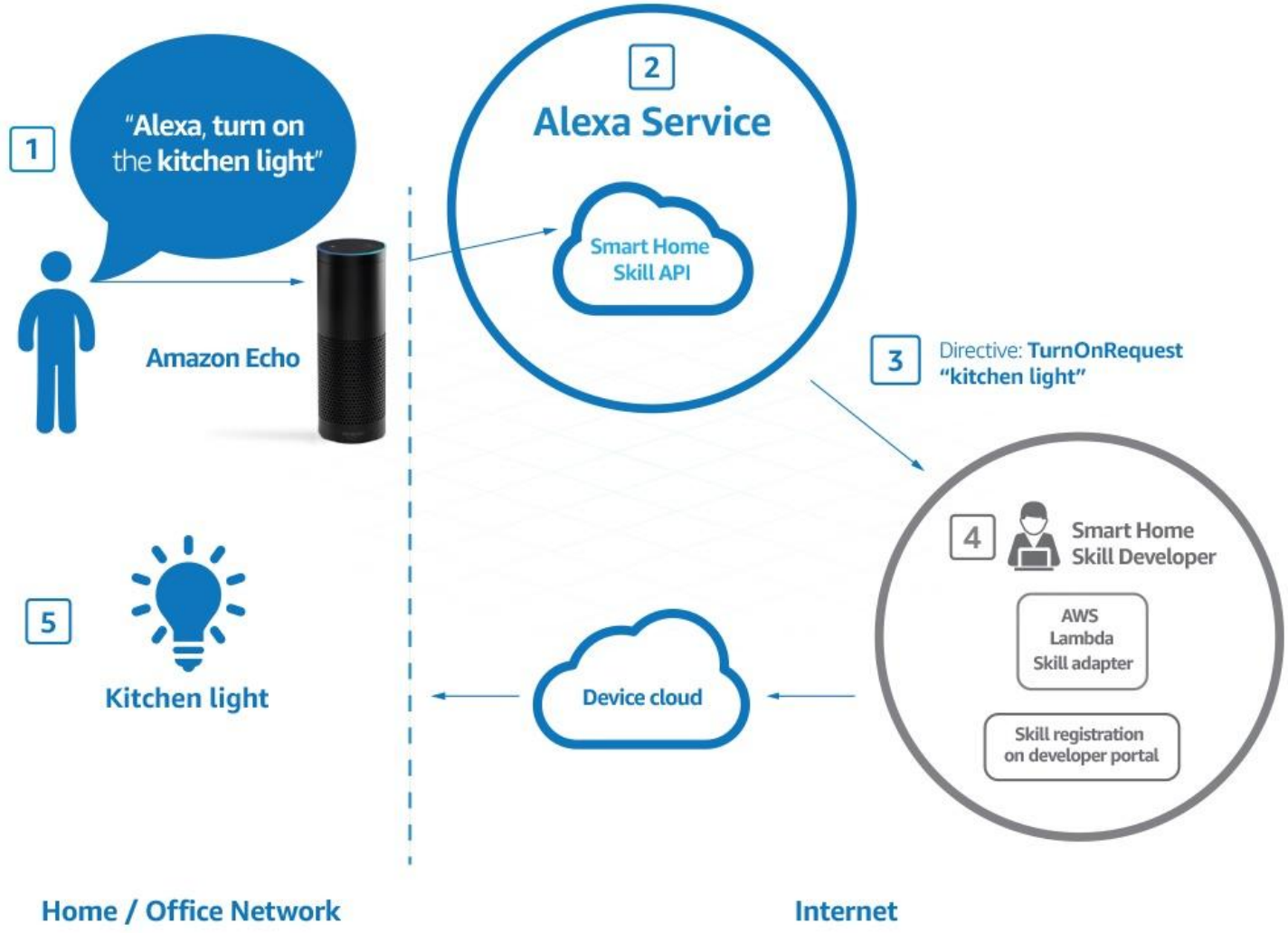
```
{
  "intents": [
    {
      "intent": "StartJeopardy",
      "slots": []
    },
    {
      "intent": "PickCategory",
      "slots": [
        {
          "name": "Category",
          "type": "LITERAL"
        }
      ]
    },
```

Sample Utterances

```
StartJeopardy to start a game
StartJeopardy play a game
ListCategories list the categories
ListCategories give me the categories
ListCategories what are the categories again
ListCategories what are the categories
ListCategories to list the categories
PickCategory give me a {food|Category} question
PickCategory lets start with {hodgepodge|Category}
PickCategory ask a {history|Category} question
PickCategory any category
PickCategory i will take {sports|Category}
PickCategory i'll take {science|Category}
```

Building the Skill Application

- REST application
- Requests and responses are in JSON
- Must be SSL and handle various security checks
- Request Types:
  - Launch
  - Intent
  - Session Ended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Alexa Skill Requirements

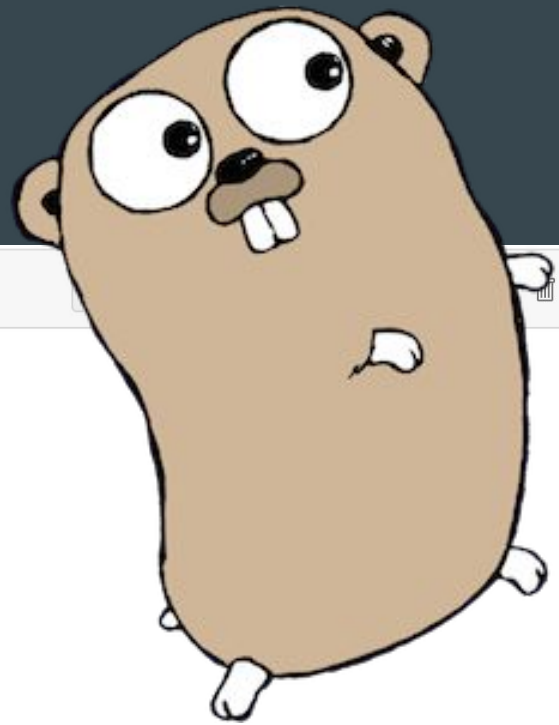
- Verifying that the Request was Sent by Alexa
- Verifying that the Request is Intended for Your Service
- Checking the Signature of the Request
- Checking the Timestamp of the Request
- Respond to Each of the Three Request Types
- Determining the Request Type
- Returning a Valid Response


Hard work sucks.


S3, Dynamo, Kinesis,
SN S, CloudTrail,
Mob 3, Mobile, Ki
nesis S, SQ
Clo M
D
, SQ


amazon
web services™

go-alexa



22 lines (17 sloc) | 547 Bytes

```go
package main

import (
        alexa "github.com/mikeflynn/go-alexa/skillserver"
)

var Applications = map[string]interface{}{
        "/echo/helloworld": alexa.EchoApplication{ // Route
                AppID:    "xxxxxxxx", // Echo App ID from Amazon Dashboard
                OnIntent: EchoIntentHandler,
                OnLaunch: EchoIntentHandler,
        },
}

func main() {
        alexa.Run(Applications, "3000")
}

func EchoIntentHandler(echoReq *alexa.EchoRequest, echoResp *alexa.EchoResponse) {
        echoResp.OutputSpeech("Hello world from my new Echo test app!").Card("Hello World", "This is a test card.")
}
```

go-alexa: Application Definition

```
var Applications = map[string]interface{}{
        "/echo/helloworld": alexa.EchoApplication{ // Route
                AppID:    "xxxxxxxx", // Echo App ID from Amazon Dashboard
                OnIntent: EchoIntentHandler,
                OnLaunch: EchoIntentHandler,
        },
}
```

go-alexa: Handler

```
func EchoIntentHandler(echoReq *alexa.EchoRequest, echoResp *alexa.EchoResponse) {
        echoResp.OutputSpeech("Hello world from my new Echo test app!")
                .Card("Hello World", "This is a test card.")
}
```

```
func EchoIntentHandler(echoReq *alexa.EchoRequest, echoResp *alexa.EchoResponse) {
	switch echoReq.GetIntentName() {
	case "Status":
		res, err := http.Get("http://some.application.com/status.json")
		if err != nil {
			log.Printf("Error fetching status json: %v", err.Error())
		}

		defer res.Body.Close()

		decoder := json.NewDecoder(res.Body)
		var data S71Status
		decoder.Decode(&data)

		message := ""
		for _, app := range data.Applications {
			if app.Status != "UP" {
				message += fmt.Sprintf("%v is down.", app.Name)
			}
		}

		if message == "" {
			message = "All applications are up and running normally."
		}

		echoResp.OutputSpeech(message).EndSession(true)
	default:
		echoResp.OutputSpeech("I'm sorry, I didn't get that. Can you say that again?").EndSession(false)
	}
}
```

go-alexa: Main

```
func main() {
        alexa.Run(Applications, "3000")
}
```

Testing

- Test Alexa skills on your own account.
- Alexa on the web
  - echosim.io
- Use “Lexa” Android app
  - Google Play Store: http://goo.gl/k4346r

Summary

Summary

- Keep things simple.

Summary

- Keep things simple.
- Use a library.

Summary

- Keep things simple.
- Use a library.
- Don’t make a quote app.

Questions?

Code with App and Configuration Examples:

github.com/mikeflynn/go-alexa (bit.ly/go-alexa)

I’d love to see what you create: @thatmikeflynn

thatmikeflynn.com