AWS re:Invent

ALX 319

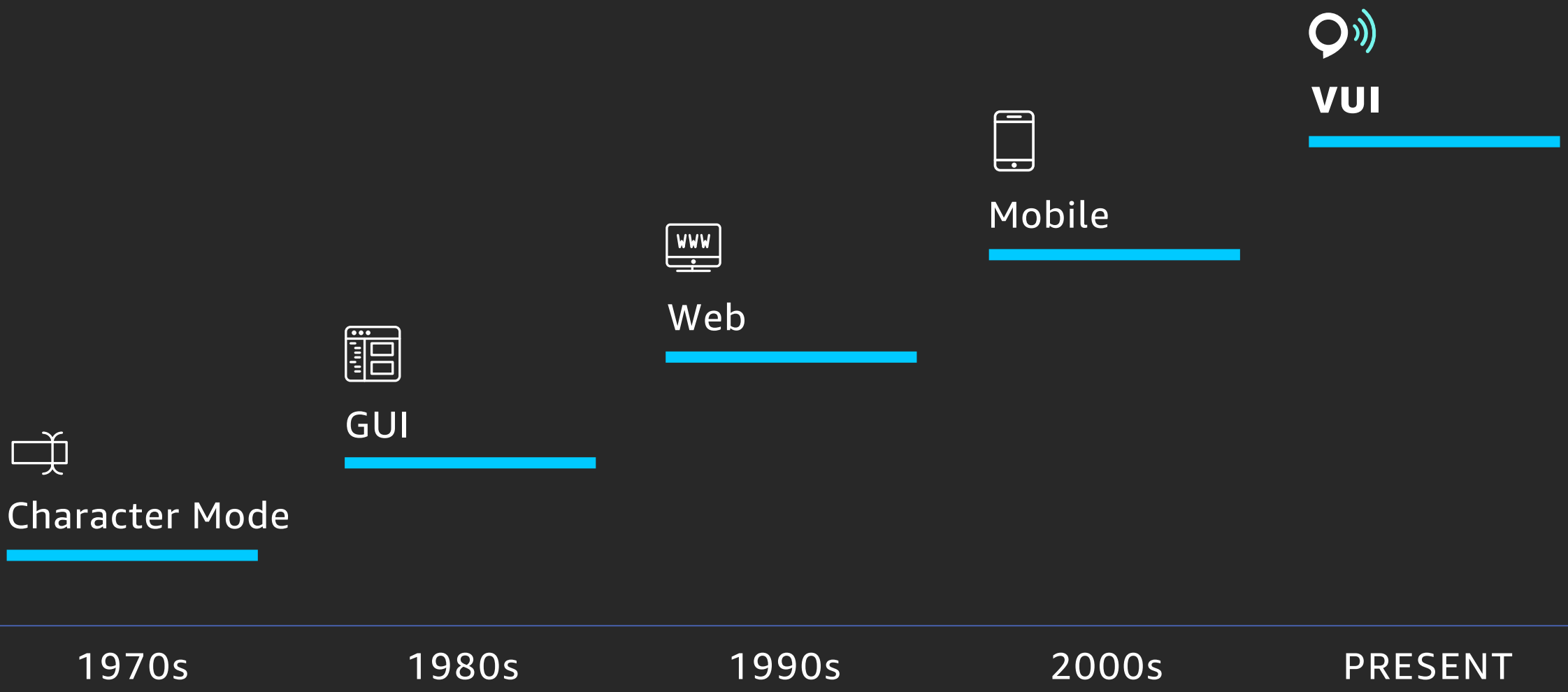
How to build a multimodal Alexa skill

Joe Muoio
Solutions Architect
Alexa Skills Kit

Carlos Ordonez
Technical Evangelist
Alexa Skills Kit

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Journey of digital interaction



Cake walk

- Cake walk is a simple skill which remembers your birthday.
- First Time: gets your birthday as separate month, day, and year slots.
- Subsequent invocation: Countdown to your birthday.
- If it is your birthday, Alexa says, “Happy Birthday!”.



Lab 1 0

“Alexa, open cake walk”

“Hello! Welcome to Cake Walk. What is your birthday?”

“August twentieth”

“I was born in two thousand fourteen, what year were you born?”

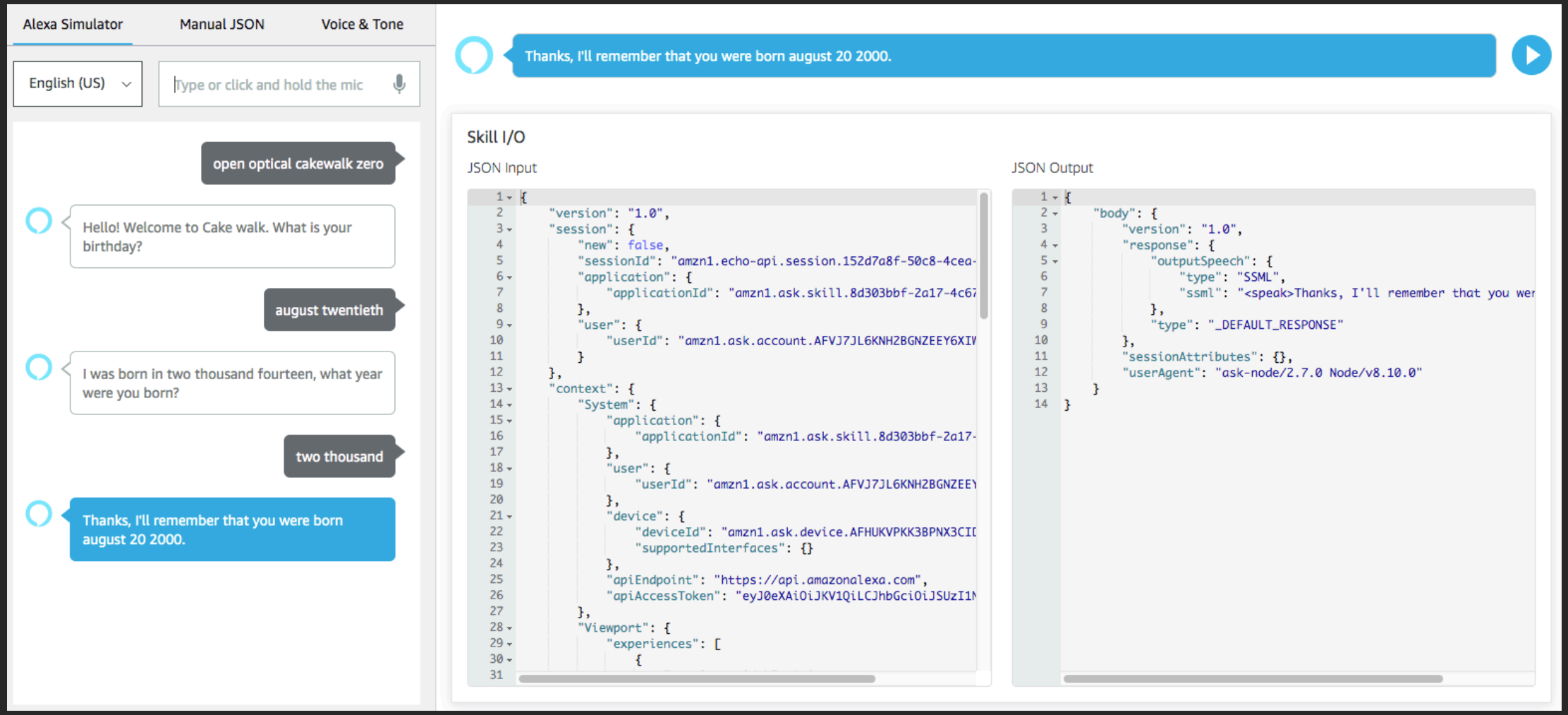
“two thousand”

“Thanks, I'll remember that you were born August 2000”

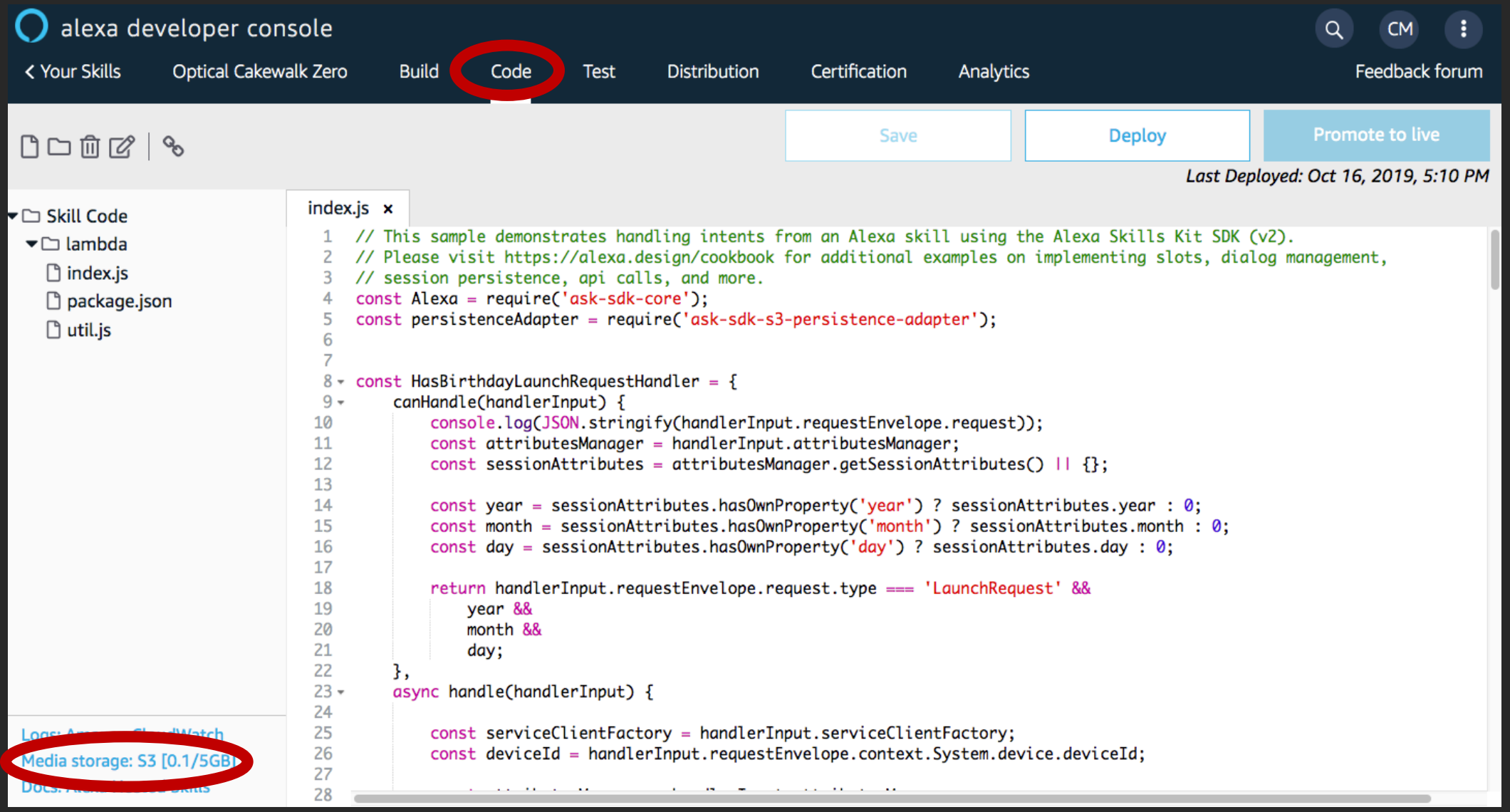


Piece of cake…

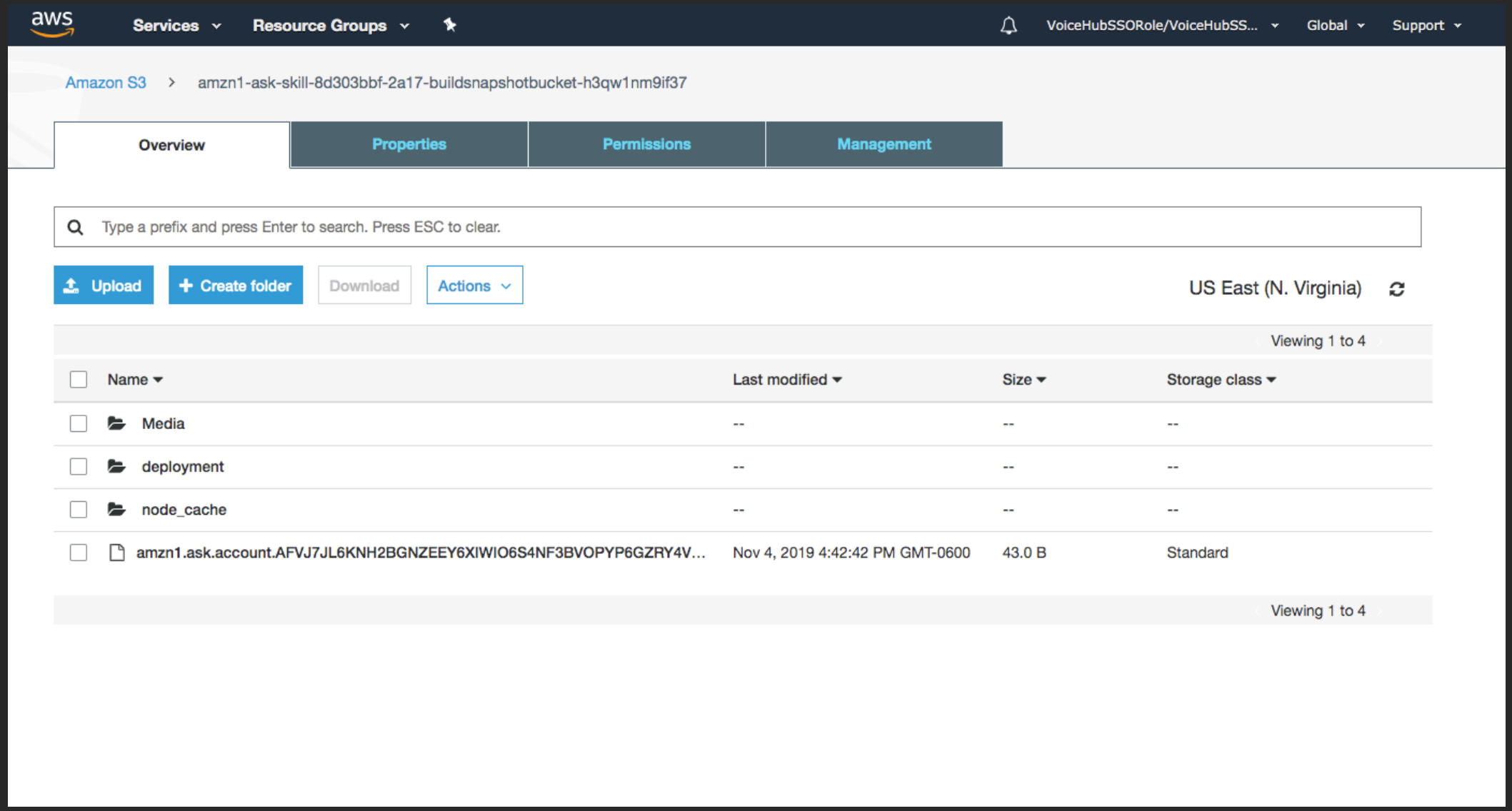
Result…


Alexa Simulator
Manual JSON
Voice & Tone
English (US)
Type or click and hold the mic
open optical cakewalk zero
Hello! Welcome to Cake walk. What is your birthday?
august twentieth
I was born in two thousand fourteen, what year were you born?
two thousand
Thanks, I'll remember that you were born august 20 2000.
Thanks, I'll remember that you were born august 20 2000.
Skill I/O
JSON Input
JSON Output
{
"version": "1.0",
"session": {
"new": false,
"sessionId": "amzn1.echo-api.session.152d7a8f-50c8-4cea-
"application": {
"applicationId": "amzn1.ask.skill.8d303bbf-2a17-4c67
},
"user": {
"userId": "amzn1.ask.account.AFVJ7JL6KNH2BGNZEEY6XIV
}
},
"context": {
"System": {
"application": {
"applicationId": "amzn1.ask.skill.8d303bbf-2a17-
},
"user": {
"userId": "amzn1.ask.account.AFVJ7JL6KNH2BGNZEEY
},
"device": {
"deviceId": "amzn1.ask.device.AFHUKVPKK3BPNX3CID
"supportedInterfaces": {}
},
"apiEndpoint": "https://api.amazonalexa.com",
"apiAccessToken": "eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1N
},
"Viewport": {
"experiences": [
{
{
"body": {
"version": "1.0",
"response": {
"outputSpeech": {
"type": "SSML",
"ssml": "<speak>Thanks, I'll remember that you wer
},
"type": "_DEFAULT_RESPONSE"
},
"sessionAttributes": {},
"userAgent": "ask-node/2.7.0 Node/v8.10.0"
}
}

Clearing AWS S3



Clearing AWS S3



Debugging – use AWS Cloudwatch



"Alexa, open cake walk"



"There was a problem with the requested skill response."

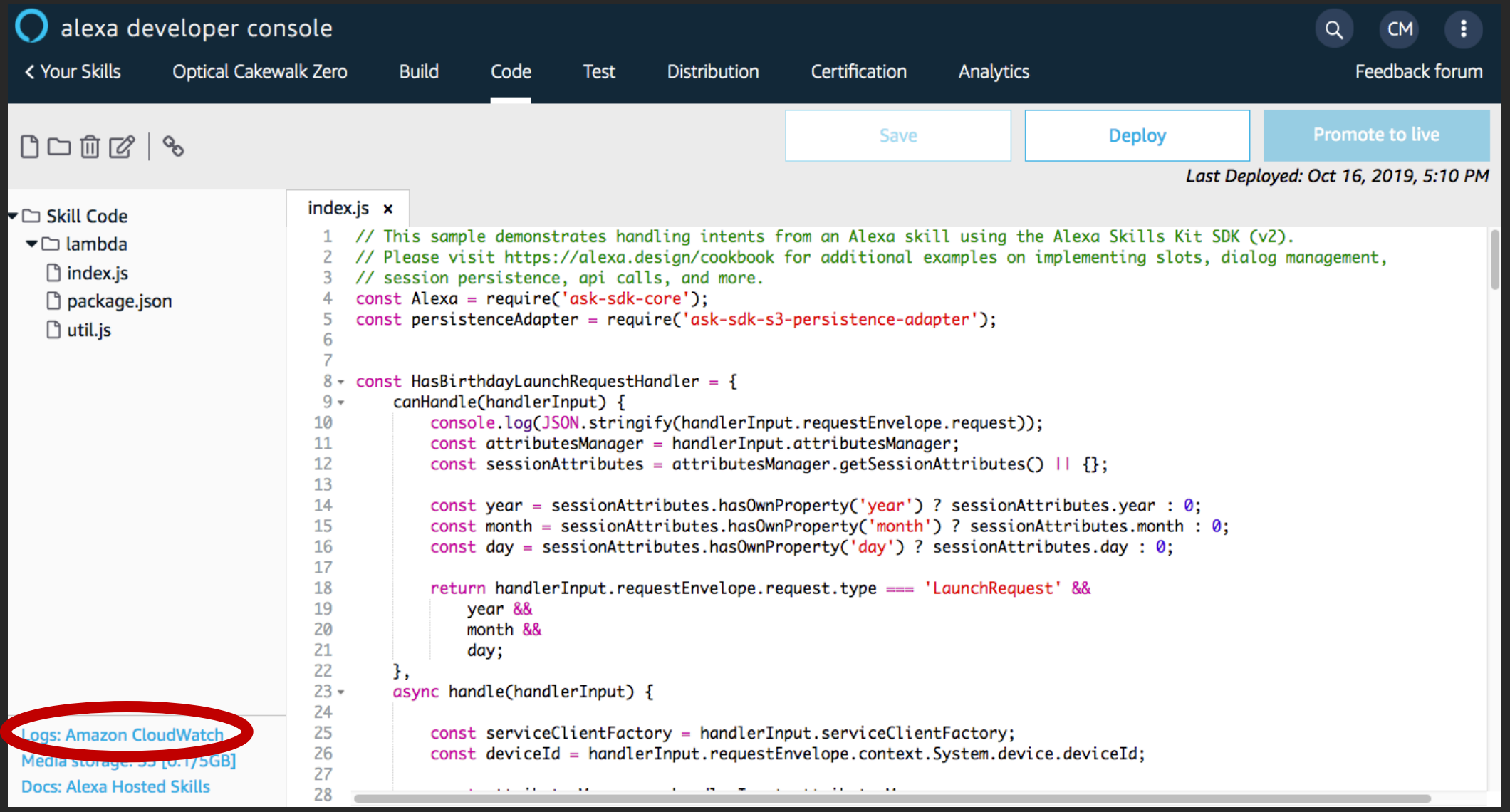


2019-11-05T18:41:01.138Z 2521c5a4-173b-42ad-9a29-b7ee61d904a1
START RequestId: 2521c5a4-173b-42ad-9a29-b7ee61d904a1 Version: 2

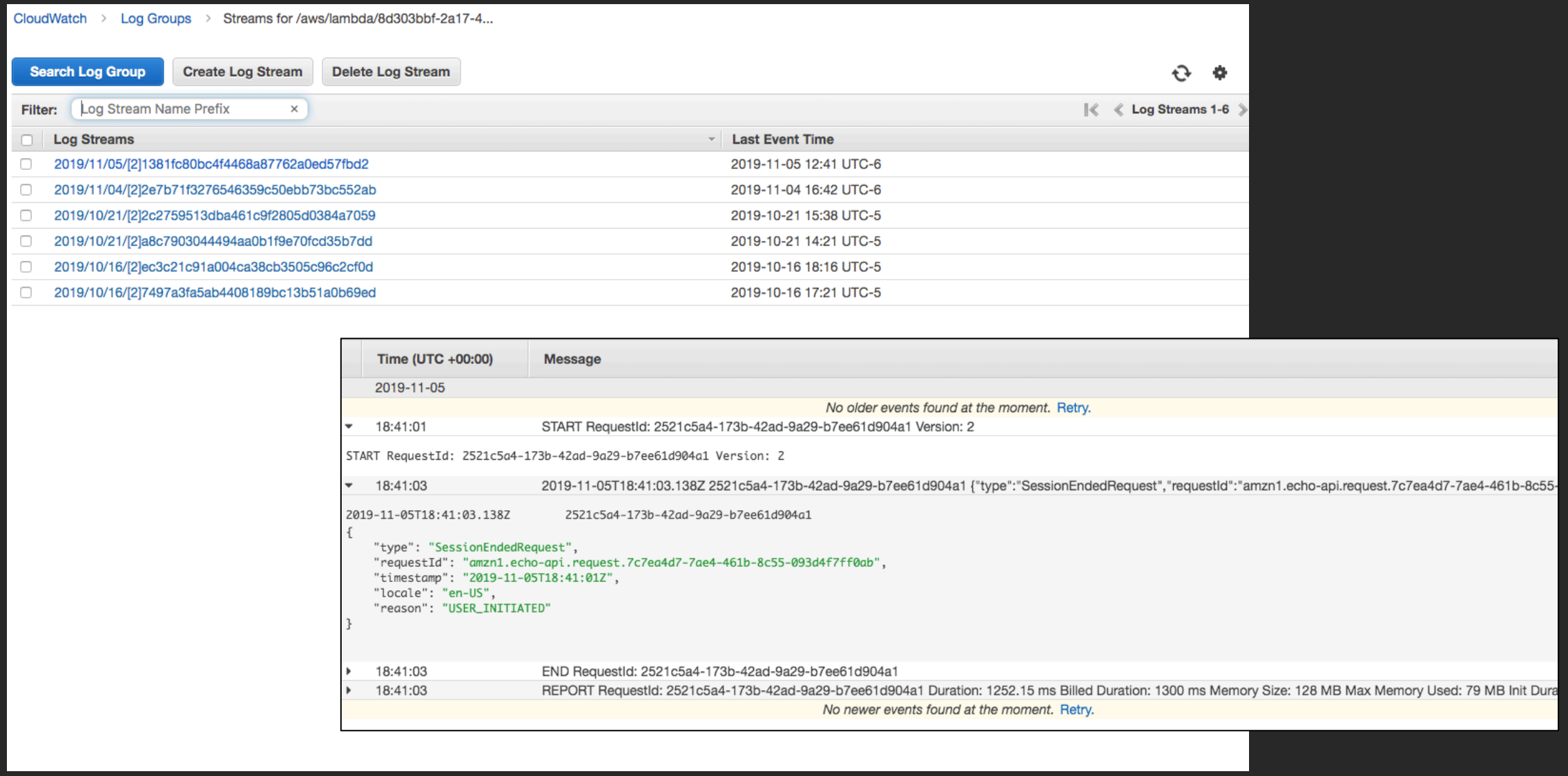
2019-11-05T18:41:03.138Z 2521c5a4-173b-42ad-9a29-b7ee61d904a1
console.log ("my debug Message goes here…");

2019-11-05T18:41:05.138Z 2521c5a4-173b-42ad-9a29-b7ee61d904a1
console.log ("Yes… It arrives here @softwarechido");

Debugging – use AWS Cloudwatch



Debugging – use AWS Cloudwatch

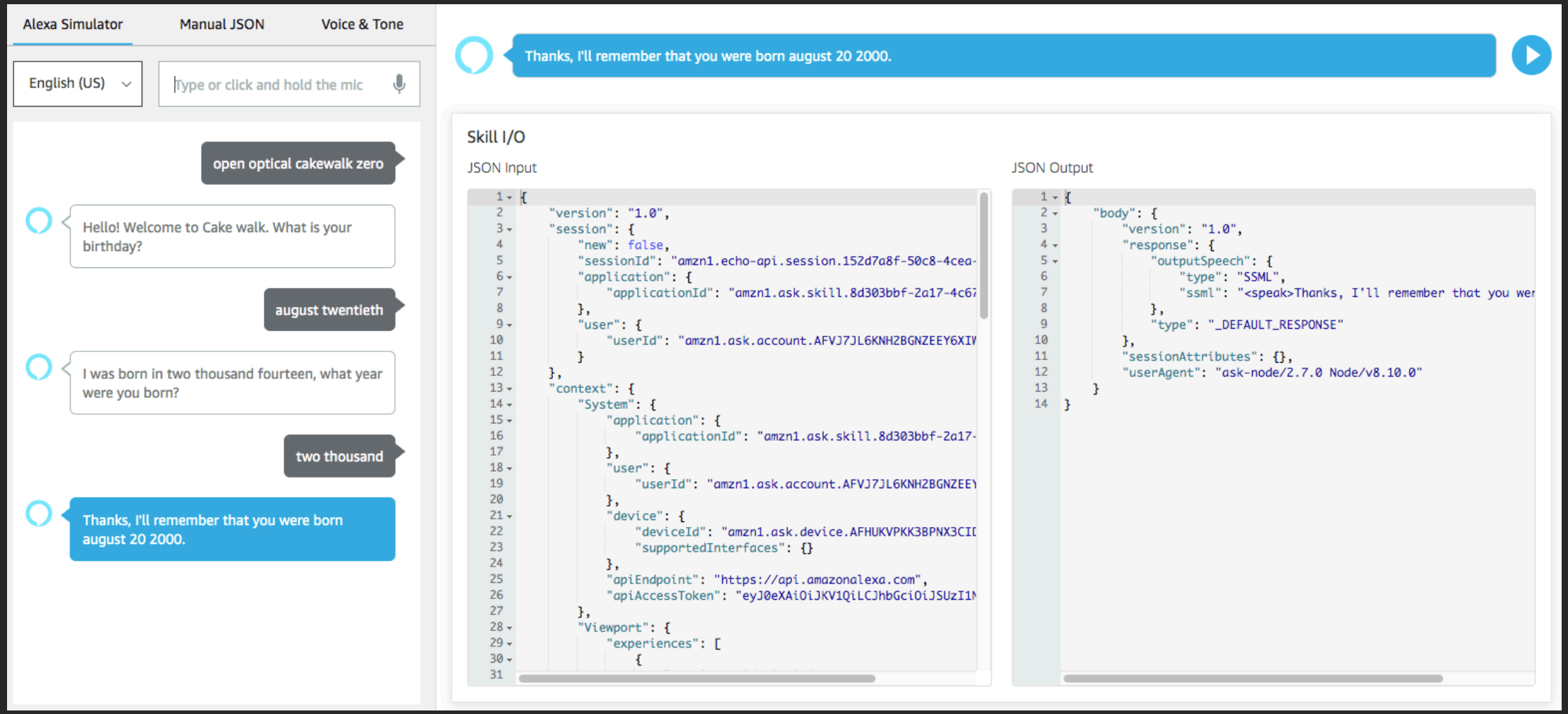


Lab 0

15 minutes

alexa.design/apl-cake-walk-quickstart

Result…


Alexa Simulator
Manual JSON
Voice & Tone
English (US)
Type or click and hold the mic
open optical cakewalk zero
Hello! Welcome to Cake walk. What is your birthday?
august twentieth
I was born in two thousand fourteen, what year were you born?
two thousand
Thanks, I'll remember that you were born august 20 2000.
Thanks, I'll remember that you were born august 20 2000.
Skill I/O
JSON Input
JSON Output
{
"version": "1.0",
"session": {
"new": false,
"sessionId": "amzn1.echo-api.session.152d7a8f-50c8-4cea-
"application": {
"applicationId": "amzn1.ask.skill.8d303bbf-2a17-4c67
},
"user": {
"userId": "amzn1.ask.account.AFVJ7JL6KNH2BGNZEEY6XIV
}
},
"context": {
"System": {
"application": {
"applicationId": "amzn1.ask.skill.8d303bbf-2a17-
},
"user": {
"userId": "amzn1.ask.account.AFVJ7JL6KNH2BGNZEEY
},
"device": {
"deviceId": "amzn1.ask.device.AFHUKVPKK3BPNX3CID
"supportedInterfaces": {}
},
"apiEndpoint": "https://api.amazonalexa.com",
"apiAccessToken": "eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1N
},
"Viewport": {
"experiences": [
{
{
"body": {
"version": "1.0",
"response": {
"outputSpeech": {
"type": "SSML",
"ssml": "<speak>Thanks, I'll remember that you wer
},
"type": "_DEFAULT_RESPONSE"
},
"sessionAttributes": {},
"userAgent": "ask-node/2.7.0 Node/v8.10.0"
}
}

Introduction to multimodal skills

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Brain exercise

Think of an Elephant





Oh! And it is Amazon’s Choice

“Our memory for sounds is significantly worse than our memory for visual or tactile things”

James Bigelow and Amy Poremba

Achilles’ Ear? Inferior Human Short-Term and Recognition Memory in the Auditory Modality

University of Iowa, 2014

What is a modality?

One of the main avenues of sensation (such as vision)

Sensory channel through which individuals give, receive, and store information

The modalities or senses include visual, auditory, tactile/kinesthetic, smell, and taste.

Why build multimodal?

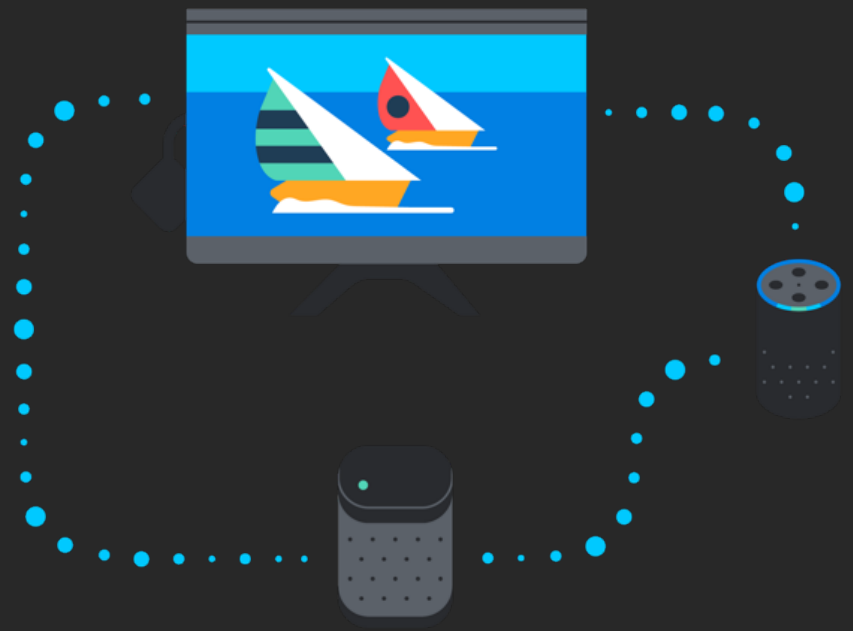
How would a screen enhance a customer's experience with your Alexa skill?



Why build multimodal?

Customers love…

- Visuals which simplify interactions
- Ambient experiences
- Rich media experiences
- Complementary branded visuals



APL – Alexa Presentation Language

Customizable – bring your own branding



APL – Alexa Presentation Language

Adaptable - adapt to devices



APL – Alexa Presentation Language

Available on all Alexa-enabled multimodal devices



APL – Alexa Presentation Language

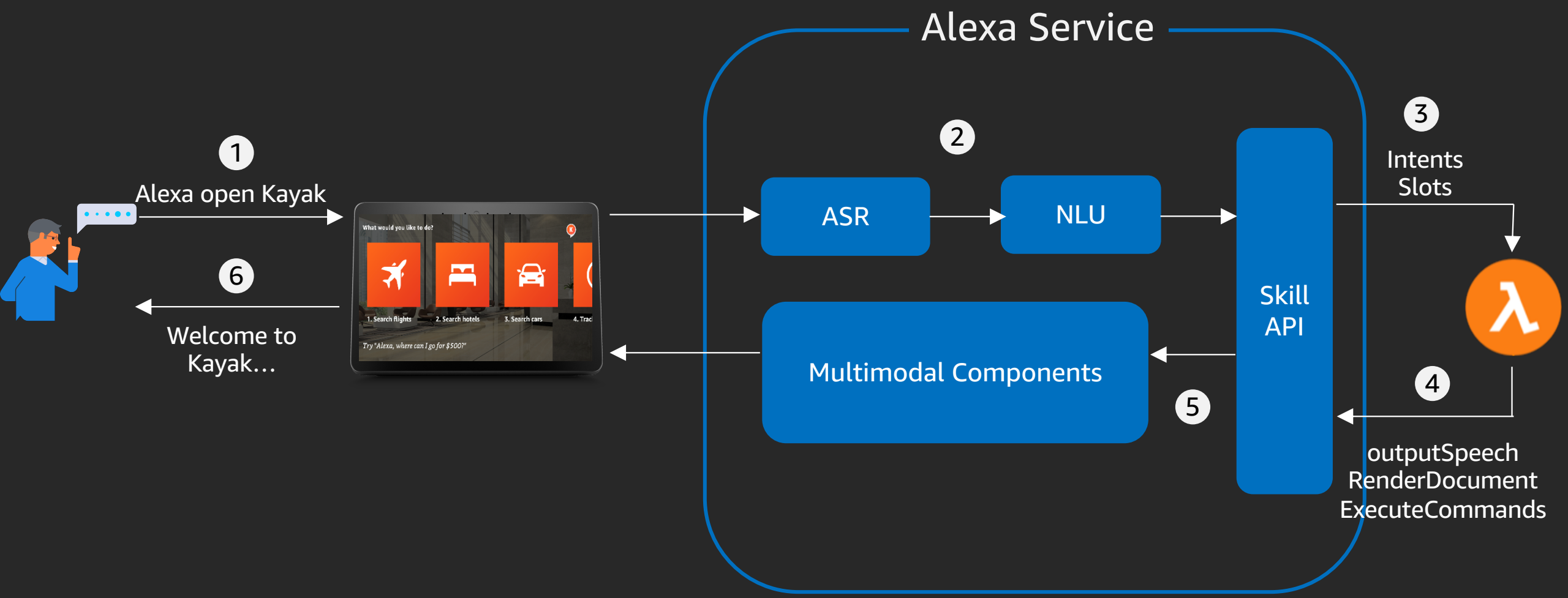
Unique multimodal features



Basics of APL

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How does a multimodal skill work?



Basics of APL - components

Small, self-contained UI elements which display on the viewport

Examples:

- Text Component- renders text
- Image Component – renders an image
- Video Component – renders a video
- Container – used to lay out components





Basics of APL – documents

Documents are the JSON structure, which holds all of the pieces of a screen for APL including the starting template to render on load

```
{
    "type": "APL",
    "version": "1.1",
    "settings": { },
    "theme": "dark",
    "import": [ ],
    "resources": [ ],
    "styles": { },
    "onMount": [ ],
    "graphics": { },
    "commands": { },
    "layouts": { },
    "mainTemplate": { }
}
```



Basics of APL – properties

Properties are the configurable values of components

Examples:

- *TextSize* on text components
- *paddingTop* – padding value for all components
- '*When*' clause – conditionally show the component & children

```
{
    "type": "Container",
    "items": [
        {
            "type": "Text",
            "paddingTop": "12dp",
            "paddingBottom": "12dp",
            "fontSize": "72dp",
            "text": "Hello Cake Walk!"
        }
    ],
    "height": "100%",
    "width": "100%"
}
```

Basics of APL - styles

- Styles are certain components that are configurable in an APL document
- Help enforce consistency in your application
- Examples:
  - fontSize
  - color
  - textAlign

```
"styles": {
    "bigText": {
        "values": [
            {
                "fontSize": "72dp",
                "textAlign": "center"
            }
        ]
    }
},
```

Basics of APL – Alexa Design System

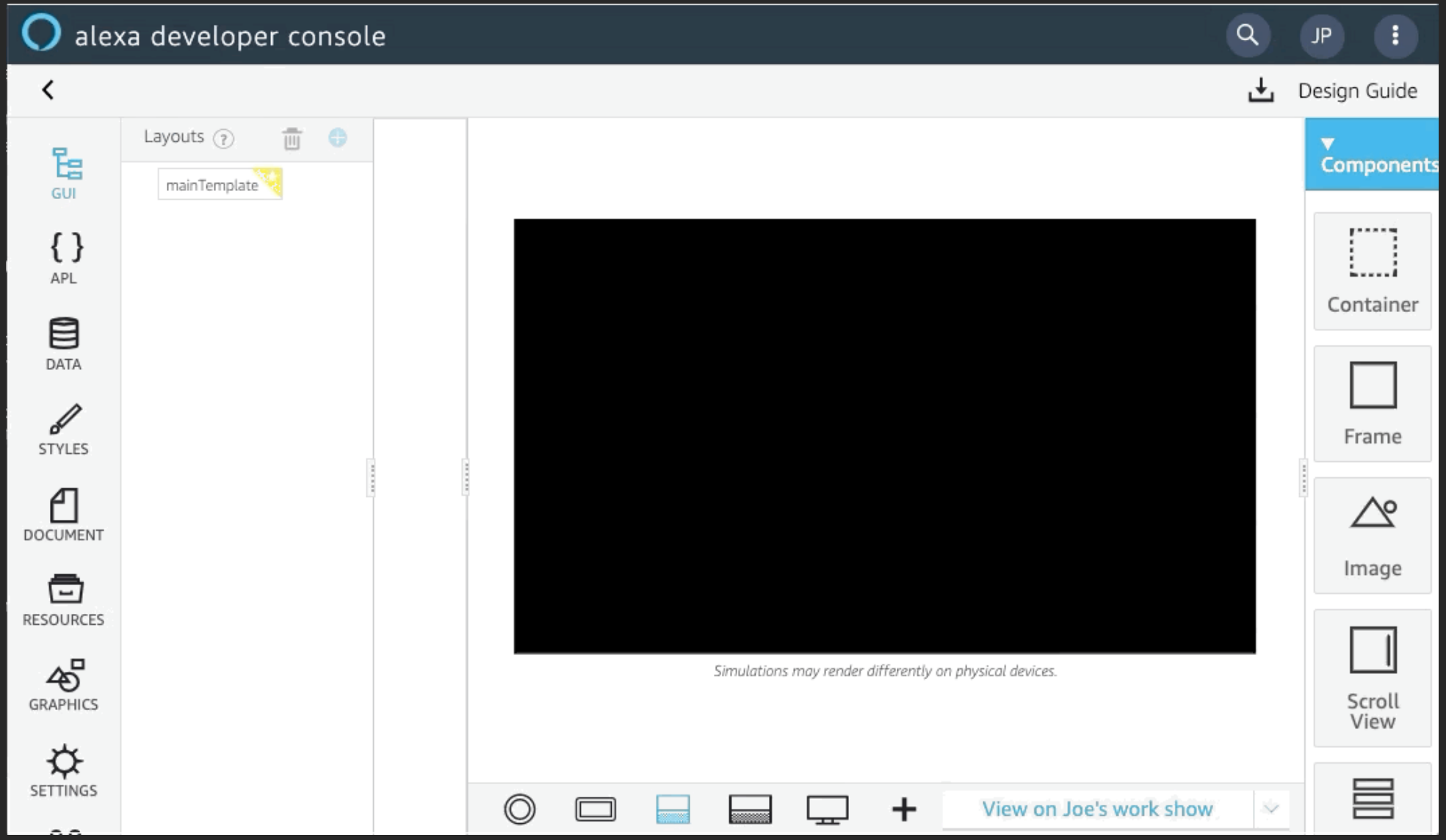
The Alexa Design System accelerates design work, allowing developers and designers to create visual experiences for all devices by designing for only a few

Key components of the design system:

- Viewport Profiles
- Alexa Responsive Templates
- Alexa Responsive Components
- Alexa Stylesheet



APL Authoring Tool



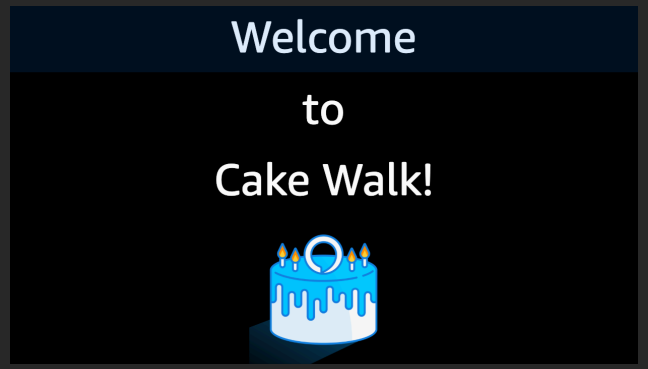
Lab 1



"Alexa, open cake walk."



"Hello! Welcome to Cake Walk. What is your birthday?"

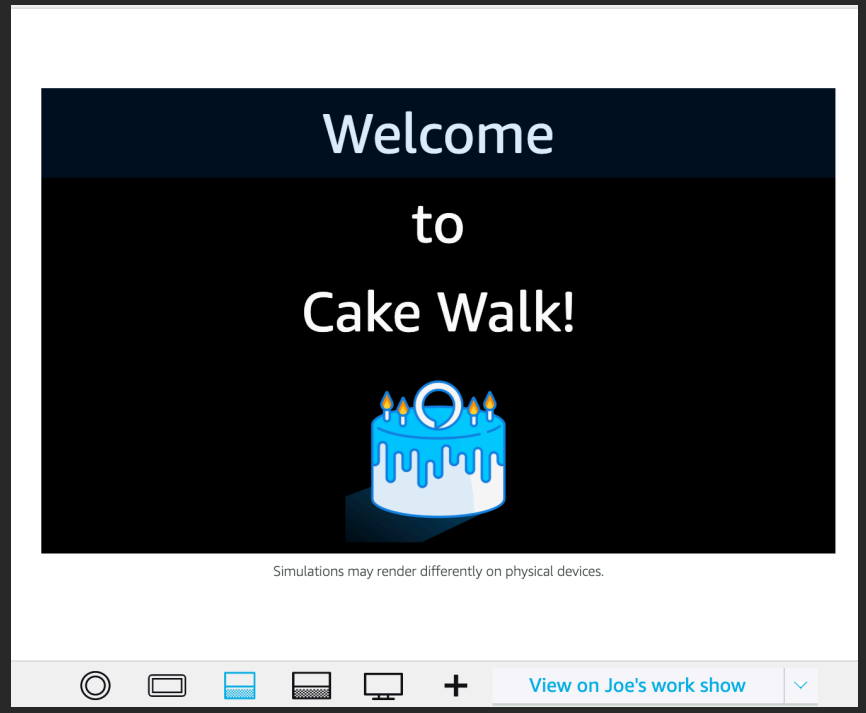




In order to achieve this …

We have to start from the screens…

Result


Welcome
to
Cake Walk!
Simulations may render differently on physical devices.
View on Joe's work show

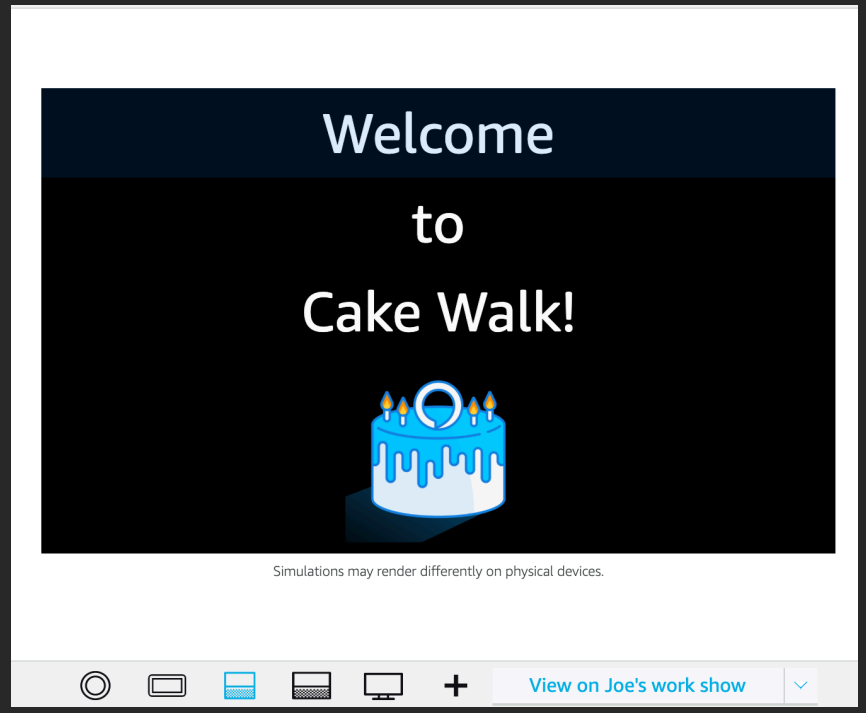

Welcome
to
Cake Walk!
Simulations may render differently on physical devices.
View on Joe's work show

Lab 1

20 minutes

alexa.design/apl-cake-walk-1

Result


Welcome
to
Cake Walk!
Simulations may render differently on physical devices.
View on Joe's work show


Welcome
to
Cake Walk!
Simulations may render differently on physical devices.
View on Joe's work show

Second section – Cake Walk

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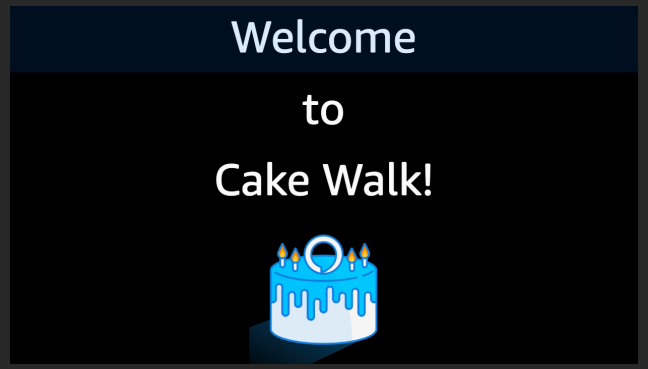
Lab 2



"Alexa, open cake walk."



"Hello! Welcome to Cake Walk. What is your birthday?"





We have the screen …

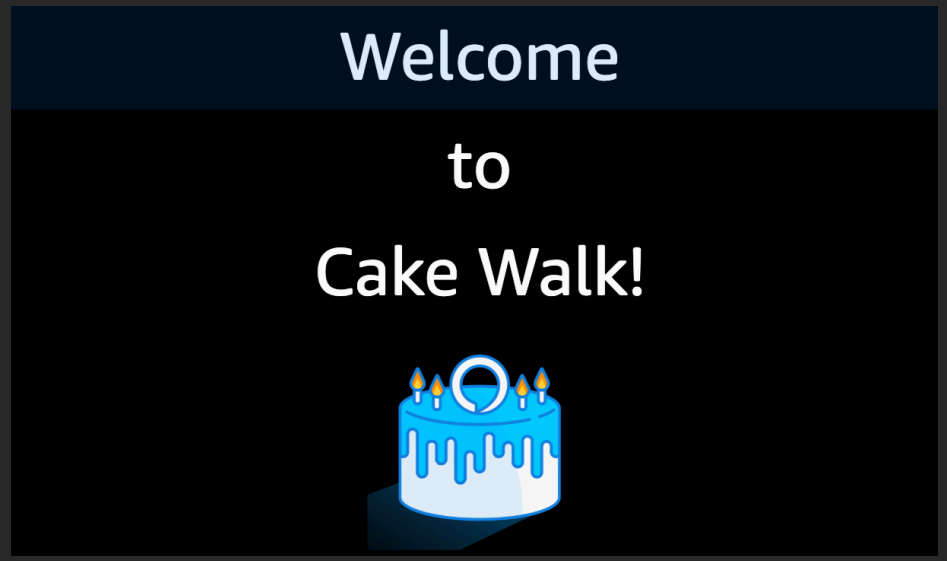
We add the backend logic…

Second section

20 minutes

alexa.design/apl-cake-walk-2

Result





Third Section – layouts and packages

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Basics of APL - layouts

Complex components

Made out of components and other layouts and has a specific name

Examples:

- AlexaImage- renders and scales an image to fit inside a bounding box
- TransportControl – integrates with a video component target and displays a play/pause button.
- Custom – You define your own UI pattern

Basics of APL - packages

Packages are like documents, but hosted elsewhere and do not have a mainTemplate to render on load

Usually imported to other APL documents







S3 for managing APL packages

Hosted APL Package makes it easier to manage APL documents across screens and even Alexa Skills.

1. Upload your package to S3
2. Enable CORS. For Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<CORSConfiguration xmlns="http://s3.ama
zonaws.com/doc/2006-03-01/">
<CORSRule>
    <AllowedOrigin>*</AllowedOrigin>
    <AllowedMethod>GET</AllowedMethod>
</CORSRule>
</CORSConfiguration>
```

Lab 2

"Alexa, open cake walk"

"Hello! Welcome to Cake Walk.
What is your birthday?"

First invocation



Next invocation



Birthday invocation



Third section

25 minutes

alexa.design/apl-cake-walk-3

Lab 2



"Alexa, open cake walk"

"Hello! Welcome to Cake Walk.
What is your birthday?"

First invocation



Next invocation



Birthday invocation



Bonus section – commands

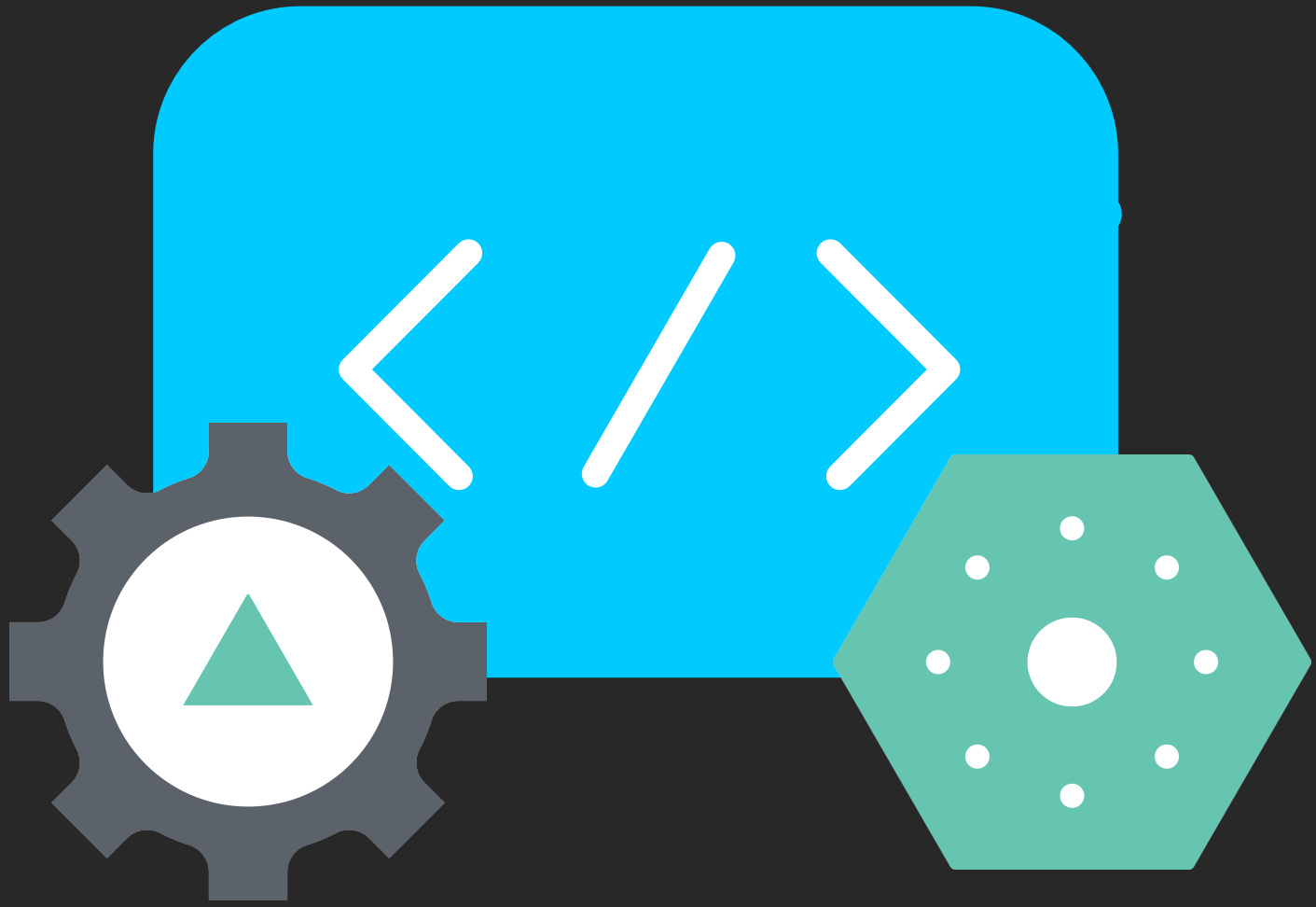
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APL Commands

Messages sent by your skill to the Alexa device which change visual and audio presentation of the content

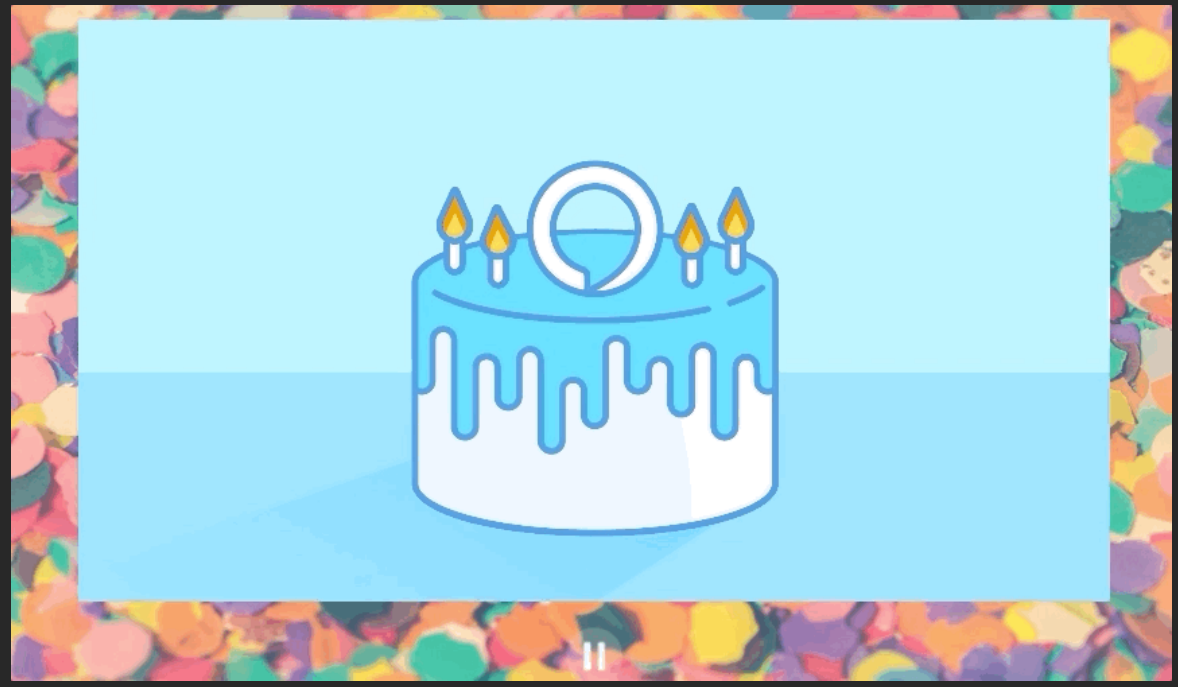
Sent in:

- ExecuteCommands directive
- Component/document properties.
  - onMount (APL Document)
  - onPlay (Video component)



Bonus section – success criteria





Bonus section

25 minutes

alexa.design/apl-cake-walk-4

Resources

- Continue with the course: alexa.design/apl-cake-walk
- alexa.design/tutorials
- twitch.tv/amazonalexa
- github.com/alexa
- Now, go add APL to your skills!

More sessions

Join me for another APL chalk talk :

Tuesday, December 3

ALX402-R1 Create rich, interactive displays with Alexa Presentation Language

3:15PM – 4:15PM | Bellagio, Gauguin 2

Wednesday, December 4

ALX402-R2 Create rich, interactive displays with Alexa Presentation Language

6:15 PM – 7:15PM | Aria, Level 1 East, Joshua 4

Re:Mars June 16-19, 2020

AWS re:Invent

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aws



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Thank you!

Joe Muoio
@JoeMoCode

Carlos Ordonez
@SoftwareChido

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