



VA

U.S. Department
of Veterans Affairs

IVR Solution

Spike Results

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Developer Experience

testing, version control, environments, deployments, language support, etc.

Google Dialogflow

Dialogflow has a pleasant developer experience. It provides several tools designed specifically for developers.

There are a couple of ways to achieve version control: each agent flow has a version number, and we can import/export agent flows so that we can store them within a VCS like Github.

In addition to a RESTful API, Google Dialogflow provides native libraries for Node.js, Java, and Python. Webhooks (such as Cloud functions or other webbook services) are available to expand agents' functionalities. Agents can be created either through the console (WYSIWIG) or through the API for more advanced scenarios.

In regards to testing, it is achieved within Google Cloud using their test platform and they also have beta support for CI/CD (hosted by them) with testing. Deployments can be done both through the API and manually via the website.

Amazon Lex

Lex also has a pleasant development environment. Several developer tools are available but testing is limited compared to Google Dialogflow.

All agents can be versioned and agents are exported and imported using a json file which can be stored within Github. Intents, Slot Types, and Bots can all be versioned.

In addition to RESTful APIs, AWS has libraries for Ruby, Node.js, Java and Python among others. Amazon Lex allows the use of AWS Lambda

In the way of testing, there is more to be desired: we found manual testing via the console to be possible but no CI/CD capabilities. Bots can be created programmatically or manually which is ideal for external CI/CD.

Administration Experience

Google Dialogflow

Google Dialogflow is part of Google Cloud. Service accounts can be created and managed through the google cloud console.

Google Dialogflow offers a visual flow builder, performance dashboards, state-based visualizations and an analytics panel out of the box.

It also provides telephony integration through the Google Cloud Console and integration across digital channels, including mobile.

Amazon Lex

Amazon Lex relies heavily on the AWS service integration with Amazon Kendra, Amazon Polly, AWS Lambda and S3 buckets.

It also offers an automated chatbot designer. It also provides One-click deployment to multiple platforms (Facebook Messenger, Slack, and Twilio SMS).

Analytics and visualizations can be implemented using tools such as Amazon CloudWatch and Amazon CloudWatch Logs Insights.

Documentation

Both Dialogflow and Lex have extensive documentation with plenty of quick starts and tutorials to boot.

Community Support

Google Dialogflow

Google has a good developer community. In addition to the paid support, Google has a fairly active user group. There are over five thousand StackOverflow questions tagged for Dialogflow, Lastly there is a Slack dedicated to the solution.

Amazon Lex

Relative to Dialogflow, there does not seem to be a large developer community. In addition to paid support, there is a AWS hosted group forum with a mere 82 posts. On stack overflow there are under one thousand questions.

Accessibility (TTY/TDD)

Neither system has any native accessibility support, however there are at least three potential options to further explore.

- Use SMS - it would mostly use the same logic – just no voice
- Slow down the speech detection timeout so relay agents (such as ones for the deaf who read out loud text, e.g. 711) can have a chance to relay
- Have a special direct dial number for VA Agents who can handle disabilities affecting the use of the phone

Language support

Google Dialogflow

Google enjoys an extensive language system supporting 64 dialects and languages with minor lifts to implement

Amazon Lex

AWS only supports 19 languages and dialects. Only the english dialects have access to all of Lex's features



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