

MICHIGAN STATE
UNIVERSITY

Beta Presentation

Self-Service Support Chatbot for Google Cloud

The Capstone Experience

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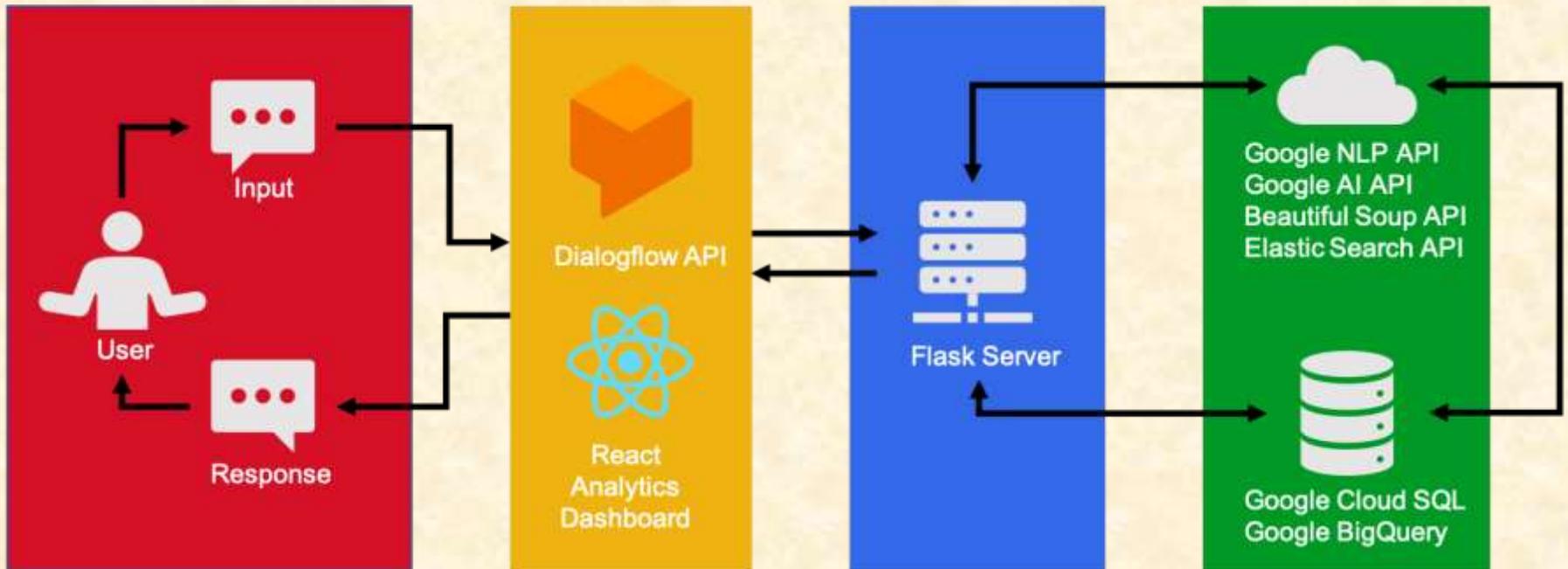
*From Students...
...to Professionals*

Project Overview

- 4 components:
 - Chatbot
 - Analytics Dashboard
 - Interrogator Script
 - AI Model
- Reduce time to issue resolution
- Provide insight on the usefulness of current documentation



System Architecture



Chatbot Conversation In DialogFlow

Hi! What did you break that brought you to me?

I'm having an issue with my instance

Is your issue with creating your instance, connecting to your instance, starting up your instance, network traffic to or from your instance being dropped, firewall rules, or is it due to something else?

Creating my instance

Did you receive an error?

Yes

What error did you receive?

notFound

See this document:
<https://cloud.google.com/compute/docs/troubleshooting/troubleshooting-instances#vm-not-created>

If you receive a notFound or does not exist in zone error when requesting new resources, it means that the zone does not offer the resource or machine type that you have requested. See Regions and zones to find out which features are available in each zone.

Would you like to submit a support ticket, exit, or ask another question?

I want to submit a support ticket

Do you want to open a support ticket or end our conversation?

support ticket

Okay I am sorry I could not help you. I will send you notes of our conversation that you can paste into a support ticket here:
<https://enterprise.google.com/supportcenter/managecases>



Interrogator Script Command and Results

```
hubbrando@cloudshell:~/goe-interrogator-script (asu-spartan-289723)$ sudo bash gee_local.sh
hubbrando@cloudshell:~/goe-interrogator-script (asu-spartan-289723)$ cat gee_output.txt
no traceroute in /usr/sbin or /bin relying on PATH
107 :echo '##### GEE #####'
##### GEE #####
108 :echo
108 :grep -qw network
109 :[' 1 = 1 ']
110 :echo '### Network'
### Network
114 :/sbin/ifconfig
docker0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 172.18.0.1 netmask 255.255.0.0 broadcast 172.18.255.255
    ether 02:42:c5:83:e9:1a txqueuelen 0 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

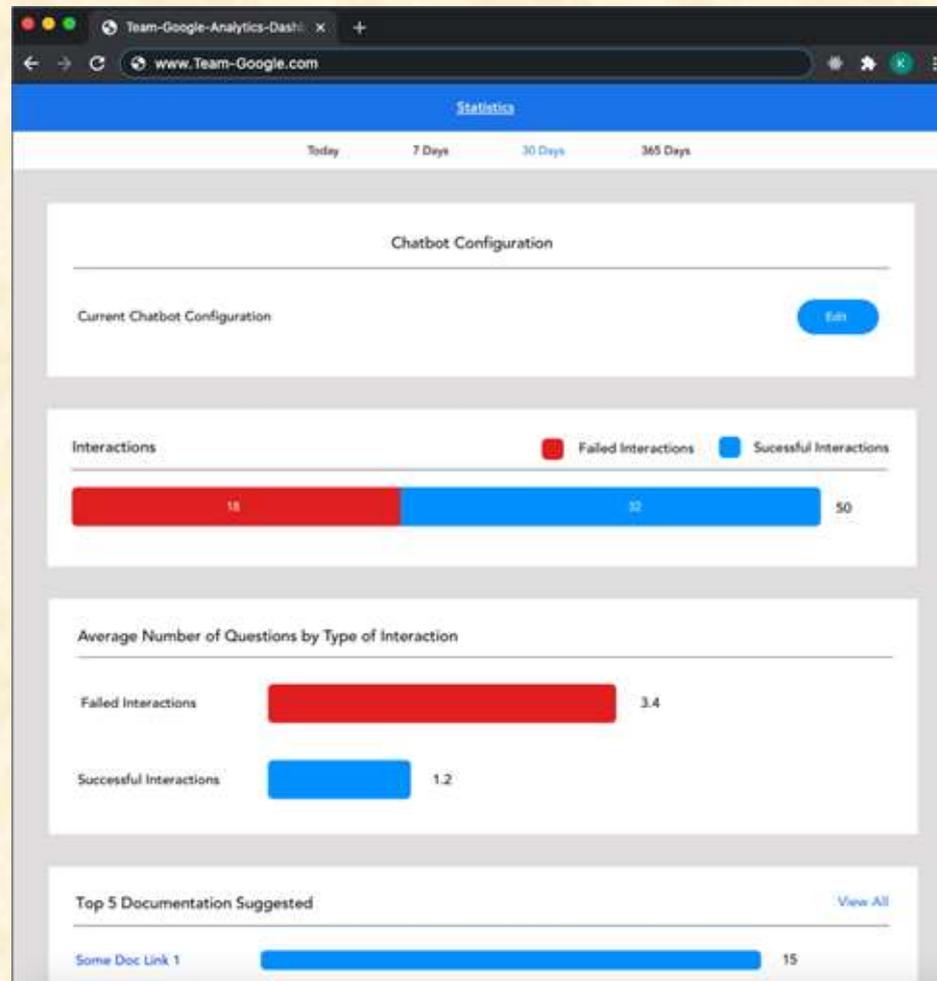
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.17.0.4 netmask 255.255.0.0 broadcast 172.17.255.255
    ether 02:42:ac:11:00:04 txqueuelen 0 (Ethernet)
    RX packets 479 bytes 61437 (59.9 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 384 bytes 64606 (63.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    loop txqueuelen 1000 (Local Loopback)
    RX packets 582 bytes 67058 (65.4 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 582 bytes 67058 (65.4 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

118 :cat /etc/resolv.conf
nameserver 169.254.169.254
search c.cloud-devshell-prod.internal google.internal
121 :/sbin/iptables-save
121 :egrep -v 'Generated|Completed'
*filter
:INPUT ACCEPT [943:111470]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [854:115088]
:DOCKER - [0:0]
:DOCKER-ISOLATION-STAGE-1 - [0:0]
:DOCKER-ISOLATION-STAGE-2 - [0:0]
:DOCKER-USER - [0:0]
-A FORWARD -j DOCKER-USER
-A FORWARD -j DOCKER-ISOLATION-STAGE-1
-A FORWARD -o docker0 -m conntrack --ctstate RELATED,ESTABLISHED -j ACCEPT
-A FORWARD -o docker0 -j DOCKER
-A FORWARD -i docker0 ! -o docker0 -j ACCEPT
-A FORWARD -i docker0 -o docker0 -j ACCEPT
```



Chatbot Configuration Dashboard



Documents in Elasticsearch

The screenshot displays the 'Documents' page in the Elasticsearch UI. On the left is a dark blue sidebar with navigation options: Overview, Analytics, Query Tester, Reference UI, and a 'MANAGE' section containing Documents (highlighted), Schema, and API Logs. Below that are 'SEARCH SETTINGS' (Synonyms, Curations, Relevance Tuning, Result Settings) and 'ACCESS' (Credentials). The main content area has a search bar with 'connect to vm', a 'Query Tester' button, and an 'Index Documents' button. A 'Sort by: Recently Uploaded (desc)' dropdown and pagination controls (1-5, 34) are visible. A central information box asks if the user knows they can customize their search experience, with a 'Customize' button. The document list shows four entries, each with a unique ID and four fields: raw_text, keywords, url, and section. The raw_text and keywords fields contain truncated text, while the url and section fields contain specific values or descriptions.

ID	raw_text	keywords	url	section
doc-5b1fad1c2be5b6edd0a1cf9d	Creating an image from an ISO fil...	ISO_URL	https://cloud.google.com/comput...	Creating an image from an ISO file
doc-5b1fad1f2ba1b6eddaddcfaf	,device-name=temporary-disk N...	Creating and exporting an image ...	https://cloud.google.com/comput...	Creating and exporting an image ...
doc-5b1fad1d2be5b633c70dcf9f	for most scenarios, source-image...	Exporting an image with a single ...	https://cloud.google.com/comput...	Exporting an image with a single ...
doc-5b1fad1c2be5b6edd0a1cf9d	Exporting an image with a single ...	Exporting an image with a single ...	https://cloud.google.com/comput...	Exporting an image with a single ...



What's left to do?

- Run more simulations to improve AI
- If time allows, use Kibana to expand analytics dashboard
- Remove meaningless paragraphs by title



Questions?

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