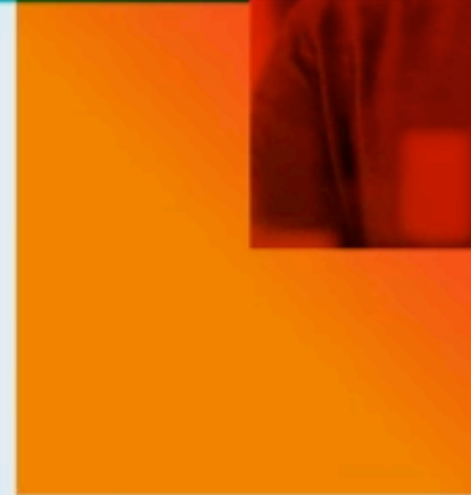


BOF



A SlackBot AI for vExpert Knowledge

Eric Nielsen
Sr Director Social Media & Communities

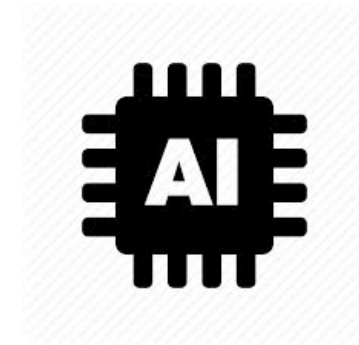


Session Agenda:

1. Building a Slack Bot in C++
2. Configuring the Slack Bot to Connect to a Slack Channel
3. Adding Custom Responses to our Bot
4. Discussion:
 1. What's the best way to add this to the vExpert Program
 2. Categories of information
 1. Popular questions to Corey
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 5. Extension to the bot!
 1. Machine Learning



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Building a Slack Bot

Specifications

Slack API



Allows us to read messages and post in our slack channel when @'d

<https://api.slack.com/>

Language



Compiled language reduces dependencies. Familiar with the language, allows us to access the functionality of the Slack API

Object oriented to create a basis of a AI engine.

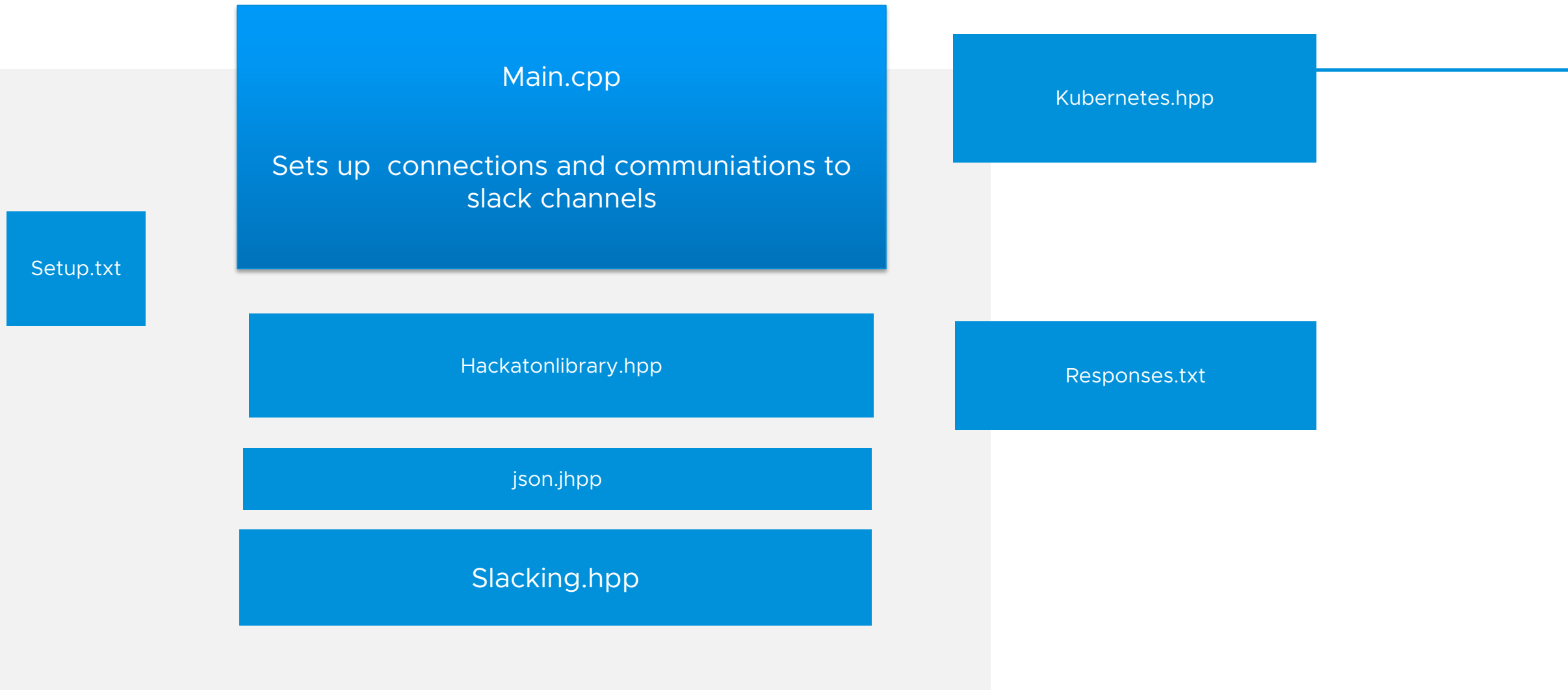
Slacking Library



Slacking Lightweight library that allows us to write C++ code and parse what the Slack API returns. (JSON C++ library built in)

<https://github.com/kalman5/slacking>

SlackBot Architecture



Main.cpp

```
int main(int argc, char* argv[]) {
    if (argc < 2) {
        printf("Usage: ./kubernetesbot \"setup.txt\"");
        cout << endl;
        exit(1);
    }
    vector<string> setup = readSetupFile(argv[1]);
    string HOSTNAME = setup[0]; string CHANNEL_ID = setup[1]; string
CHANNEL_NAME = setup[2];
    string BOT_TOKEN = setup[3]; string BOT_ID = setup[4]; string RULES =
setup[5];

    cout << HOSTNAME << endl << CHANNEL_ID << endl << CHANNEL_NAME
<< endl << BOT_TOKEN << endl << BOT_ID << endl << RULES << endl;

    map<string, vector <string> > rulesMap = generateRuleMap(RULES);
    CreateSlackInstance(BOT_TOKEN);

    double previousTimeStamp = 0;
}
```

```
while (true) {
    double newTimeStamp = getLatestMessageTimestamp(CHANNEL_ID);
    string message = getLatestMessageText(CHANNEL_ID);
    if (botIsMentioned(message, BOT_ID) && isTimestampLater(newTimeStamp,
previousTimeStamp)) {
        message = message.substr(message.find(" ") + 1, message.size()-1);
        message = convertToLower(message);
        if (message == "get nodes") {
            sendNodesToSlack(HOSTNAME, CHANNEL_NAME);
        }
        else if (message == "get pods") {
            sendPodsToSlack(HOSTNAME, CHANNEL_NAME);
        }

        else if (message == "help") {
            sendHelpToSlack(CHANNEL_NAME);
        }

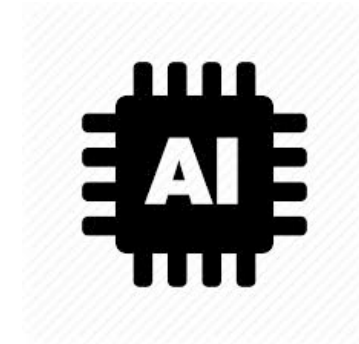
        else {
            string output = generateOutputFromRuleMap(rulesMap, message);
            if (output == "UNKNOWN COMMAND") {
                sendHelpToSlack(CHANNEL_NAME);
            }
            else {
                sendMessageToSlack(CHANNEL_NAME, output);
            }
        }
        previousTimeStamp = newTimeStamp;
        std::this_thread::sleep_for(chrono::seconds(1));
    }
}
```

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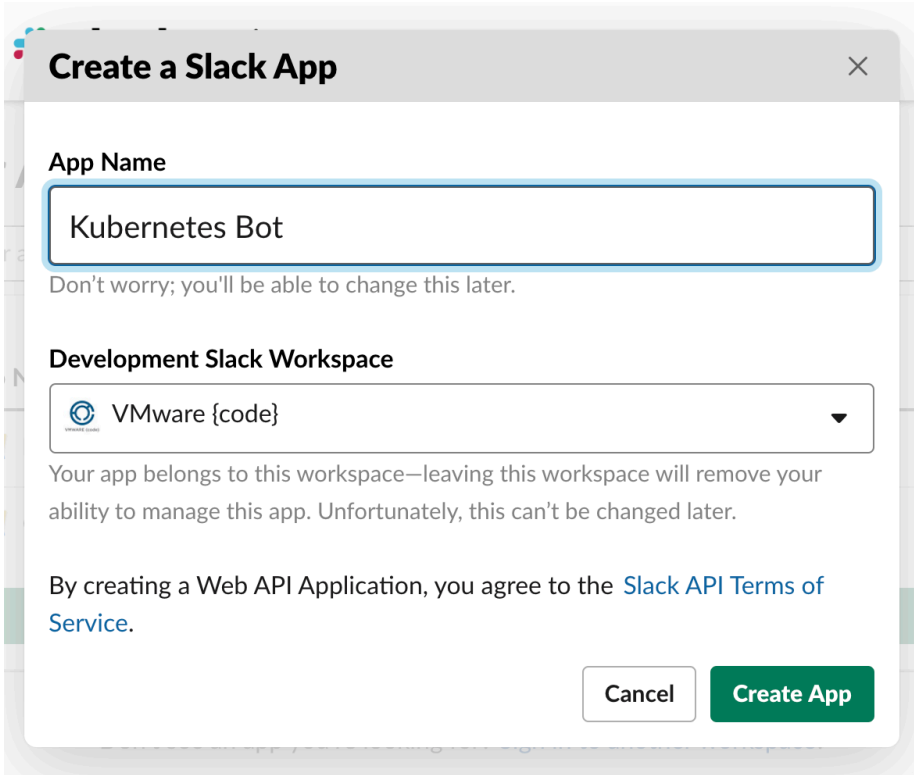


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Setting up the Slack API

Getting your token and Creating an Slack instance



Create a Slack App

App Name

Kubernetes Bot

Don't worry; you'll be able to change this later.

Development Slack Workspace

VMware {code}

Your app belongs to this workspace—leaving this workspace will remove your ability to manage this app. Unfortunately, this can't be changed later.

By creating a Web API Application, you agree to the [Slack API Terms of Service](#).

Cancel Create App

OAuth Access Token

[Redacted Token] Copy

Bot User OAuth Access Token

[Redacted Token] Copy

```
void CreateSlackInstance(string botToken) {  
    auto& slack = slack::create(botToken);  
}
```







Setting up the Slack API

Setting up Permissions

Bot Token Scopes

▼

Scopes that govern what your app can access.

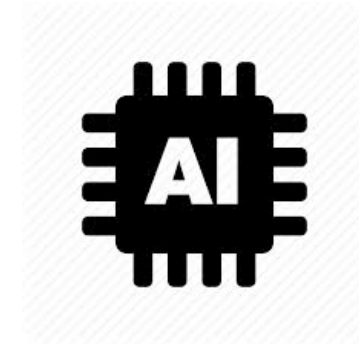
OAuth Scope	Description	
channels:history	View messages and other content in public channels that kubernetesbot has been added to	
chat:write	Send messages as @kubernetesbot	
groups:history	View messages and other content in private channels that kubernetesbot has been added to	
im:history	View messages and other content in direct messages that kubernetesbot has been added to	
incoming-webhook	Post messages to specific channels in Slack	
mpim:history	View messages and other content in group direct messages that kubernetesbot has been added to	

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Command/Response file

Applications for vExperts happen twice a year, the main applications open in December!

When can I apply to become a vExpert

When can I apply

When are applications open

When do I re-apply

The award is annually, you have to apply each year, however there is a quick application if you are a alumni vExpert!

Do I have to re-apply

How often do I need to apply

Does my vexpert award expire

Expiration

My birthday is May 1st, 1962

When is your birthday

How old are you

Rules.txt

No re-compile

No restart

Change rules in real-time

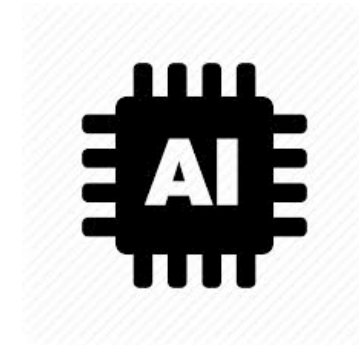
Building a AI to weight and remember feedback

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Closing Remarks

Issues Encountered, Links to learn more

Using C++ with the Slack API

Made things more difficult, better libraries for slack built in Python and Ruby

Slides and Source Code at:

<https://github.com/kesisoundusc/kubernetes-slackbot>

Building a Kubernetes Raspberry Pi Cluster Blog Post:

<https://blogs.vmware.com/code/2019/06/14/kubernetes-raspberry-pi-cluster/>