



You make **possible**



# Hey Network Talk Data to Me

A journey into Chat-driven NetDevOps

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DEVNET-1330

**CISCO** *Live!*

Barcelona | January 27-31, 2020



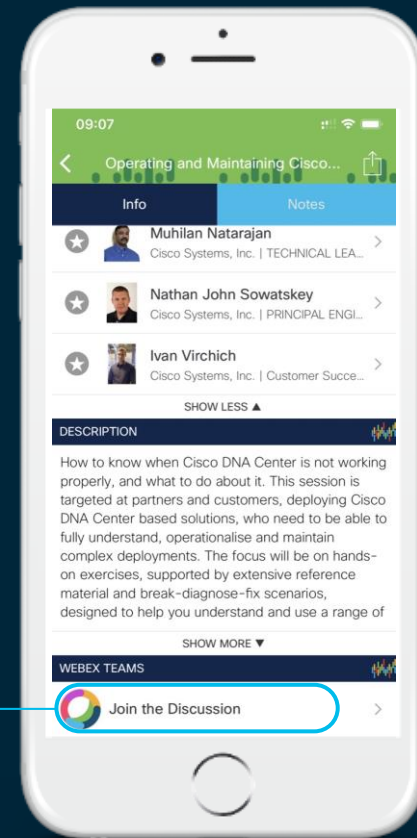
# Cisco Webex Teams

## Questions?

Use Cisco Webex Teams to chat with the speaker after the session

## How

- 1 Find this session in the Cisco Events Mobile App
- 2 Click “Join the Discussion”
- 3 Install Webex Teams or go directly to the team space
- 4 Enter messages/questions in the team space



# Agenda

- From DevOps to NetDevOps and ChatOps
- Chatbots
- Let's get started with Notifier Bots
- Putting the “chat” in Chatbots
- Conclusion

# From DevOps to NetDevOps and ChatOps

# What is DevOps?

- Hybrid of Development and Operations
- Shorten the Development Life Cycle
- Provide Continuous delivery
- Higher software quality
- Build – Test – Deploy – Monitor



Question: What do you think? How often does amazon deploy new code?

# Benefits of DevOps



Less Complexity  
to manage



Faster resolution  
of problems



Continuous delivery  
of software



# Requirements for DevOps



Clear process  
of deployment



Data-driven  
decision making




Automation

How do you  
**collaborate** on  
your DevOps  
process?

# What is ChatOps?

- A **collaboration model** that **triggers** workflows from a chat interface
- **Communicate** while maintaining your infrastructure
- Maintain (and log!) a timeline of team communication leading to actions
- Central space for **automated feedback**
- Keep everyone up-to-date
- (Be a bit silly with some commands)



Rewrite my application in python please.



Done. Can I also bring you a coffee?

Why should you  
(as Network  
Engineers) care?

# Culture of Fear

Change  
seen as  
failure

Changes  
happen  
rarely

All  
changes  
are big  
and  
complex

Problem  
occurs  
during  
change

Change  
is (seen  
as) high  
risk

The team  
isn't  
practiced

*“NetDevOps brings the culture, technical methods, strategies, and best practices of DevOps to Networking.»*

Hank Preston

Cisco DevNet

How do you trigger  
your network  
changes?

How do you **check**  
your network?



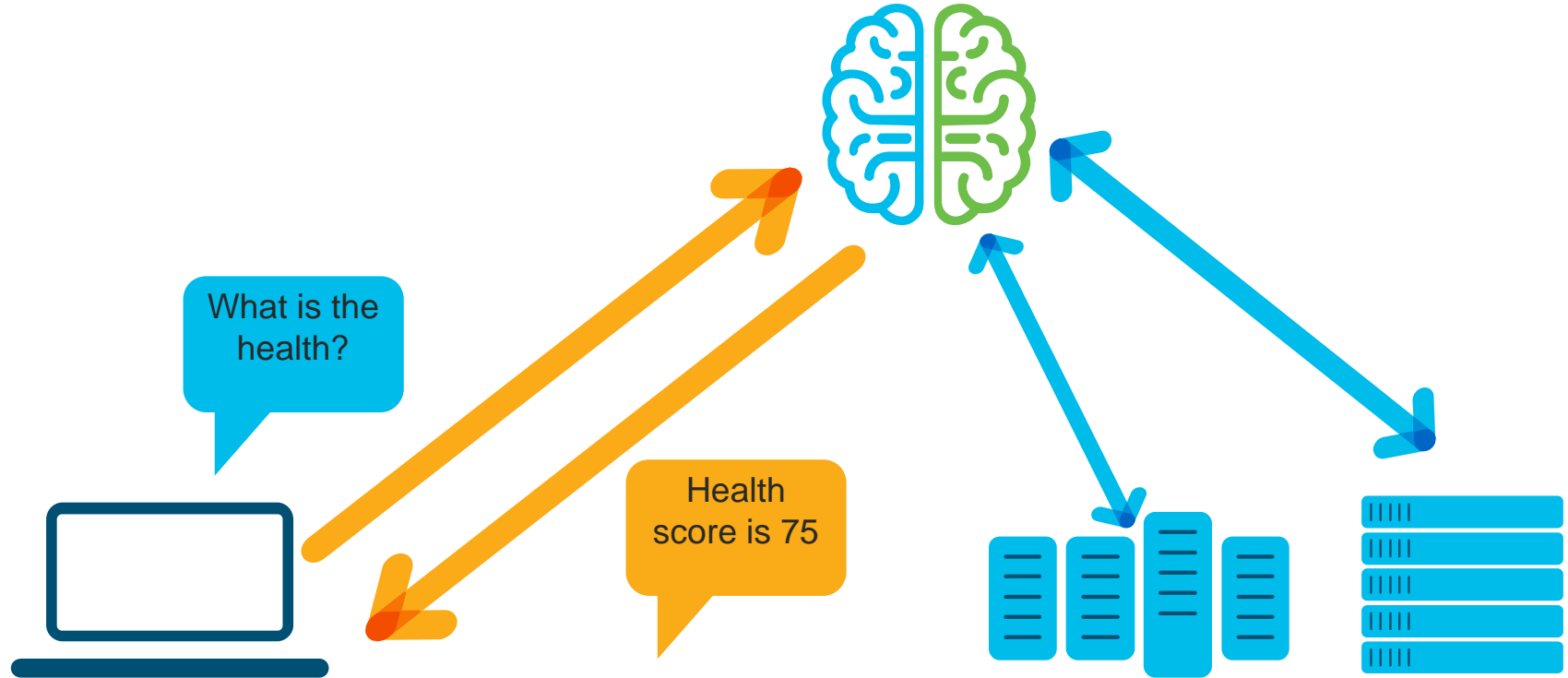
# Chatbots

# What is a chatbot?

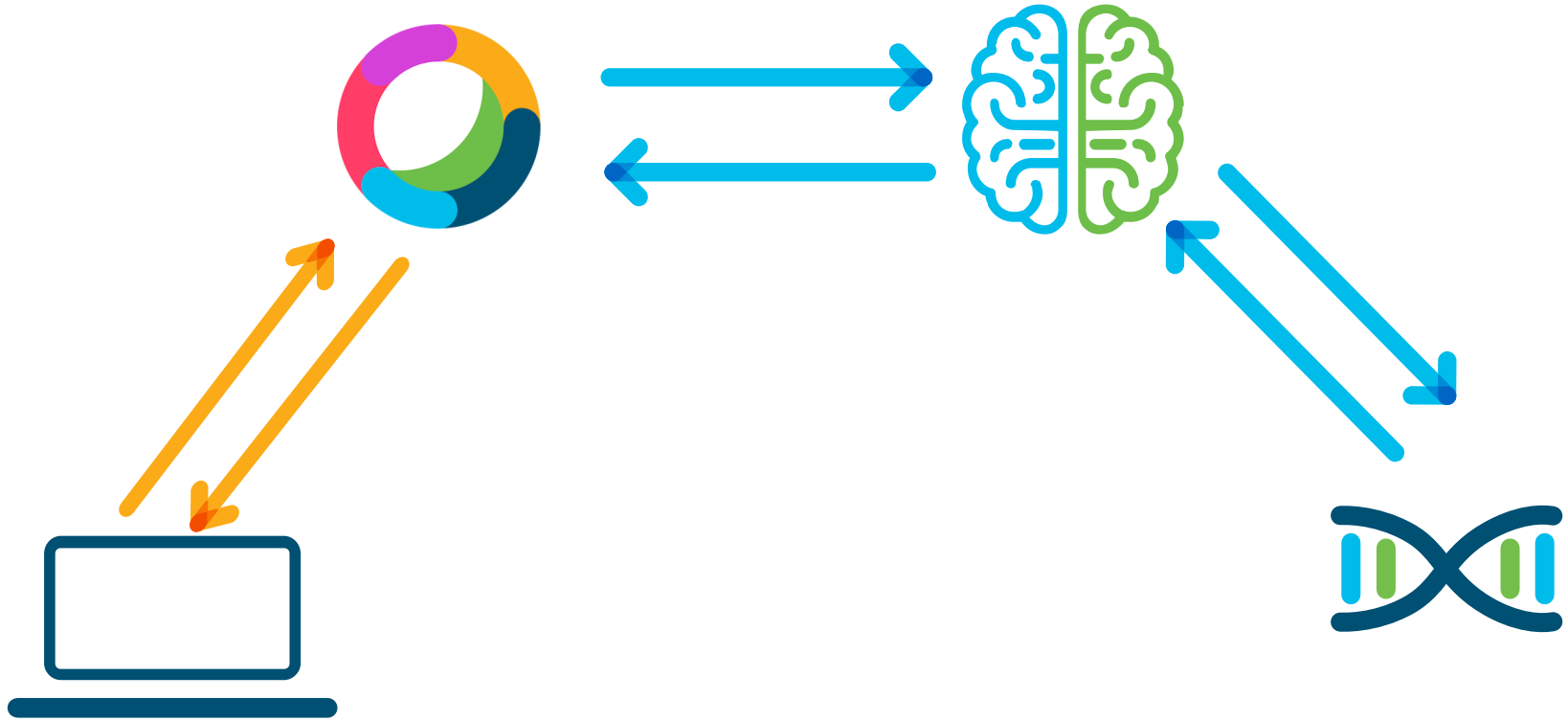
- "A chatbot is a piece of software that conducts a conversation"
- (Often) **tries to** mimic human behavior
- **Conversational AI** is the process of creating personalized customer experiences



# A 10,000 foot Overview of What We Want



# Our Architecture

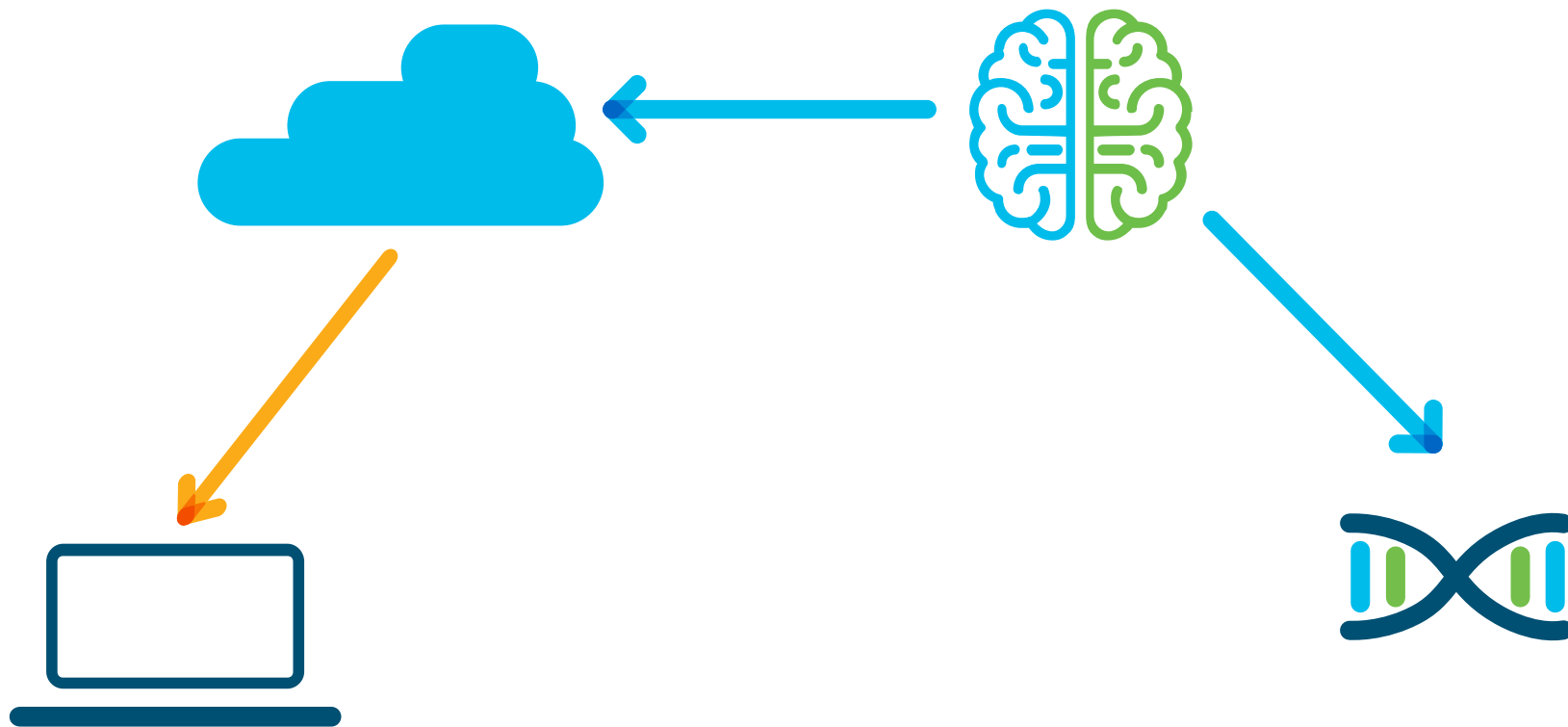


# Lets get Started with Notifier Bots

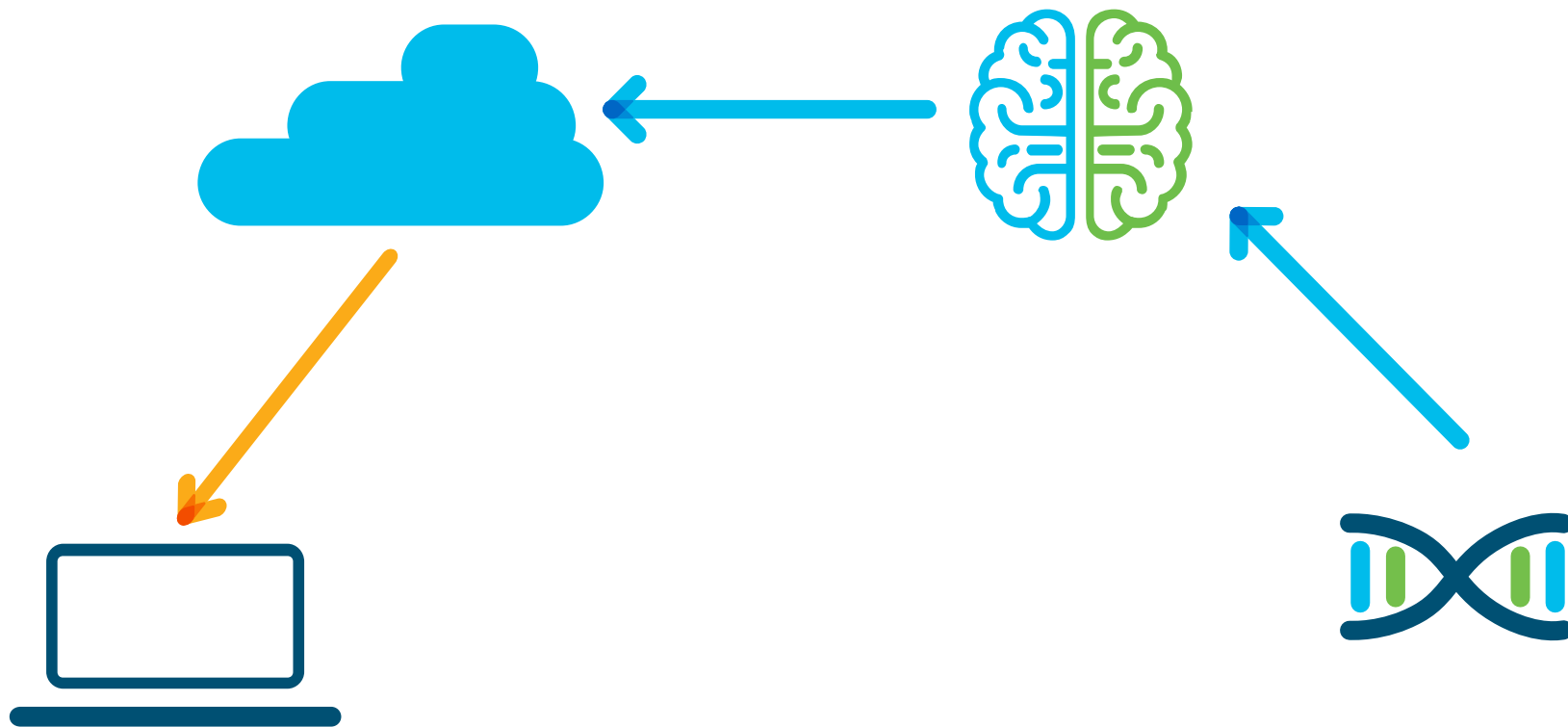
# Notifier Bots

- Constantly check your infrastructure
- Gather data
- Alert you in case something is wrong
- Only **observational**

# Architecture of a Notifier Bot



# Architecture of a Notifier Bot





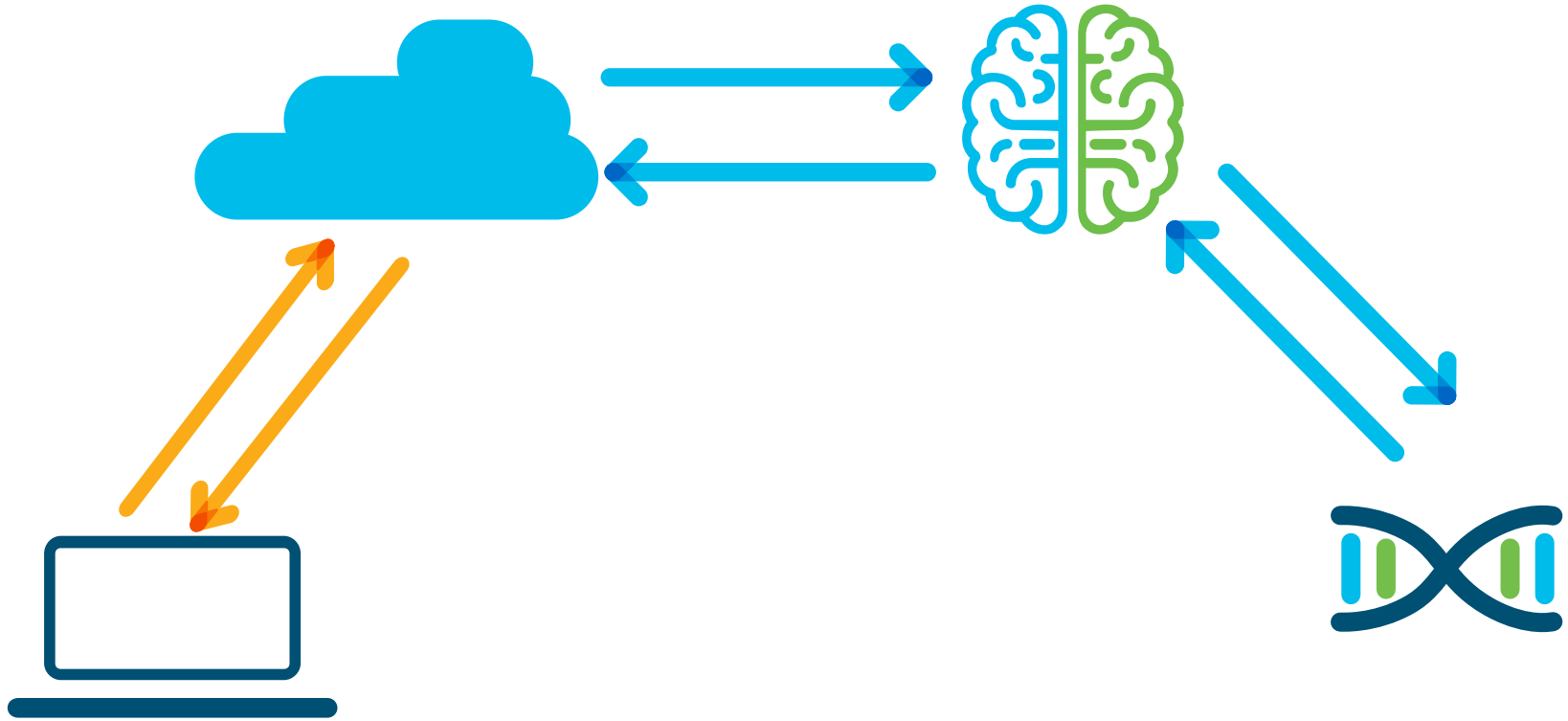


# Demo

Can I also **react**  
without leaving  
Webex Teams?

# Putting the „chat“ in Chatbot

# Our Architecture



# ”Command” Bots

- Specify a way of writing commands
- Implement reactions based on these strings
- Example

```
/delete project #12
```

```
/get site_health
```

```
/get client_details  
FF:FF:FF:FF:FF:FF
```



# Demo

# Command Bots – Pros & Cons

## Pro

- Easy to write
- Once implemented – very powerful

## Contra

- Unintuitive Interface
- Error prone
- Manual programming required
- Highly dependent on the underlying infrastructure

Humans don't say  
/delete #12



Humans **do say**  
Delete the device  
with id number 12

# Building Natural Language interfaces is hard!



Call an uber



There is no one with the name „uber“ in your contact list.

# Building Natural Language interfaces is hard!



Show appartments in Barca



I don't know any city called „Barca“

# Building Natural Language interfaces is hard!

Confirm order for one tapas plate?

Can I have extra cheese?

Sorry, I don't understand that.

# Building Natural Language interfaces is hard!

Show all switches with gigabit uplink

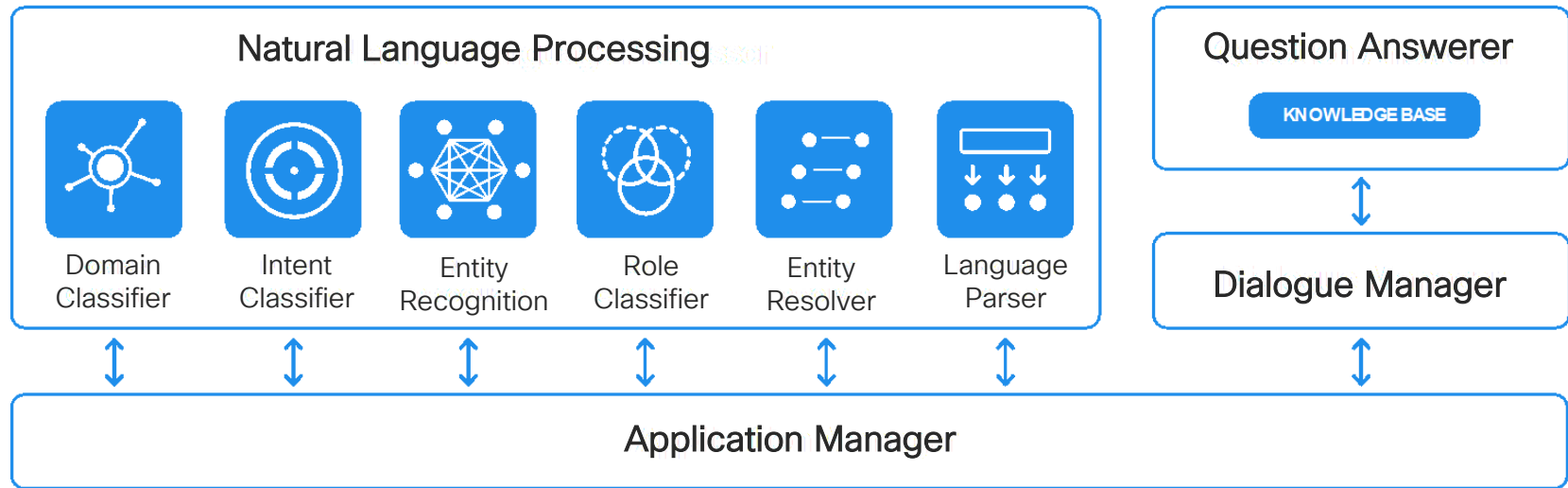
Sorry, I don't know the answer to that question.

# Introducing Cisco Mindmeld

- End-to-End state-of-the-art Natural Language Understanding
- Python-based framework
- On-Premise
- Open Source



# Cisco Mindmeld Platform Architecture





# Demo



Why should we  
program this all **by**  
**hand?**

# Generating API requests

- [Swagger](#) allows for API documentation to be [machine-readable](#)
- Specifies (amongst other things)
  - Request types
  - Response types
  - Data types



# Making POST requests user-friendly

- [Cards & Buttons](#) – Web forms for Webex Teams
- Various Inputs like
  - Text
  - Numbers
  - Dates



Development agenda  
Engineering

S Sourcing

Brandon Seeger

Giacomo Drago

Brenda & Emma

N Adaptive cards  
Design Team

M Mobile workshop

Simon Damiano

Connect to a device

Development agenda

You 09:30

I see the problem now, I'll create a Jira ticket for the team.

@JiraCloud create

JiraCloud 09:30

Create issue

Summary:

Project:

WEBEX

Issue Type:

Bug

Priority:

Lowest

Add Details

Write a message to Development agenda



# Demo

# Conclusion

# Key Take Aways



NetDevOps allow you to change your network without worrying about things constantly breaking



Intelligent Bots allow you receive notifications, trigger actions or “talk” to your network



Find the code on GitHub

<https://github.com/CiscoSE/#TBD>



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Walk-In Labs



Meet the Engineer  
1:1 meetings



Related sessions



Thank you





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