

The background of the slide features a complex, abstract design. It consists of a network of black lines that resemble circuit traces or a neural network, with several solid black circles acting as nodes. These lines and nodes are overlaid on a light gray background that contains faint, concentric circular patterns, similar to the teeth of interlocking gears. The overall aesthetic is technical and futuristic.

Intelligent Chatbots

IBM Watson Conversation Service

by Alberto Garcia and Mikel San Sebastian

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- 2 Background
- 3 Chatbot Framework and Architecture
- 4 Cognitive Systems and Technologies
- 5 IBM Watson
- 6 Platform comparison
- 7 The future

WHAT IS A CHATBOT?

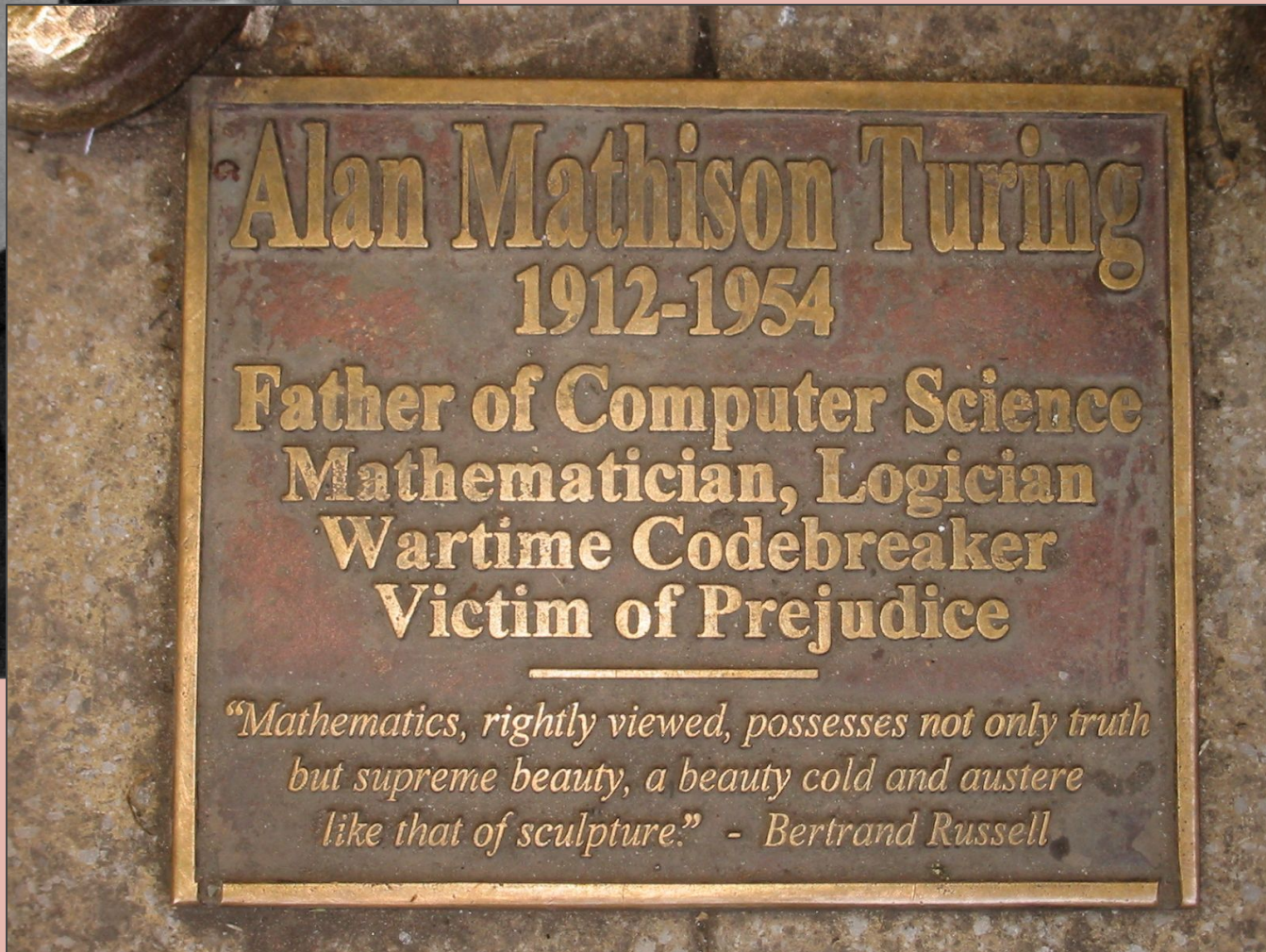
AN ARTIFICIAL INTELLIGENCE?

A PERSONAL ASSISTANT?

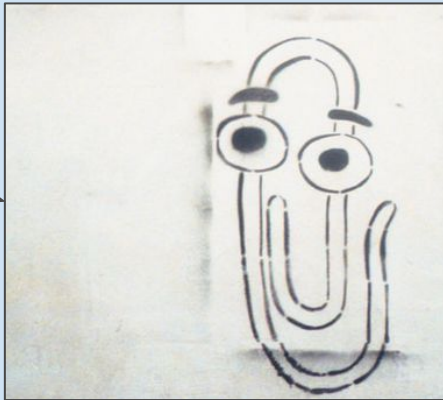
A COMPUTER PROGRAM?



BACKGROUND (1)



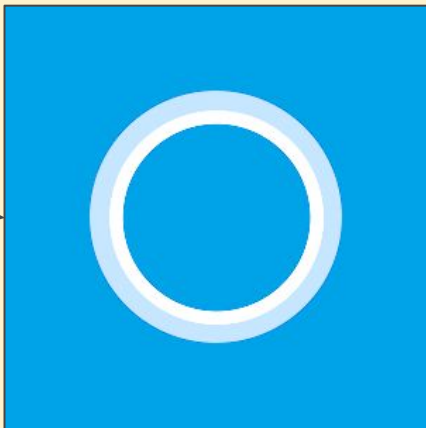
BACKGROUND (2)



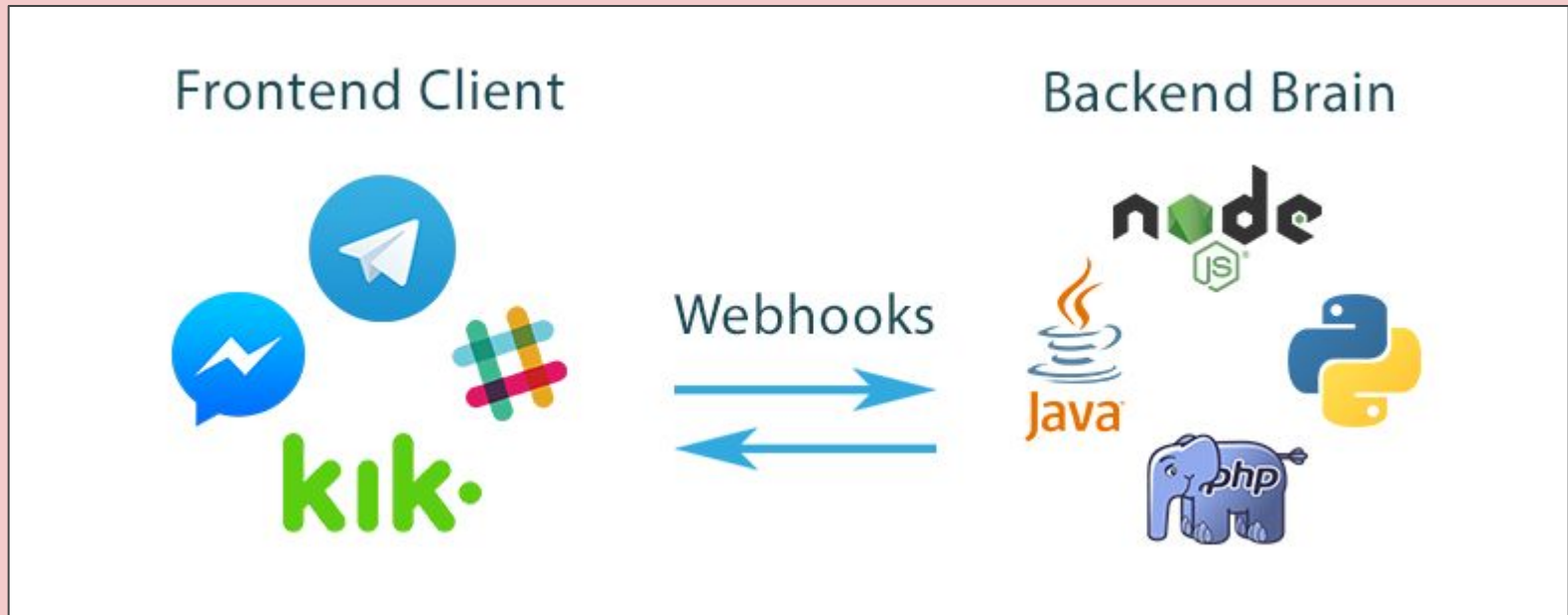
BACKGROUND (3)



A STEP TOO FAR?



CHATBOT FRAMEWORK



Oversimplified model of a chatbot

CHATBOT ARCHITECTURE

INTENT
ENTITY
RESPONSE

Intent: "Greeting"
---> **Response**

Intent: "Location"
---> **Response**

Intent: "ReserveTable"
---> **Response**

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Hey Giuliano 😊 Can I help you with a reservation?

Hey



Hey welcome to Stamplay restaurant, how can I help you?

sure, where is your place?



You can find us at 814 Mission st, 94103 San Francisco.

I want a table



Ok let's get a table for you, many guests?

3



Perfect table for 3. When should I reserve this?

for tomorrow 8pm please

Entity: "Hey" --->
Intent: "Greeting"

Entity: "where is your place" --->
Intent: "Location"

Entity: "I want a table" --->
Intent: "ReserveTable"

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COGNITIVE SYSTEMS

How do Cognitive systems work?

UNDERSTAND



Cognitive systems understand imagery, language and other unstructured data like humans do.

REASON



They can reason, grasp underlying concepts, form hypotheses, and infer and extract ideas.

LEARN



With each data point, interaction and outcome, they develop and sharpen expertise, so they never stop learning.

INTERACT



With abilities to see, talk and hear, cognitive systems interact with humans in a natural way.



COGNITIVE TECHNOLOGIES

Watson tone
analyzer

Watson
conversation

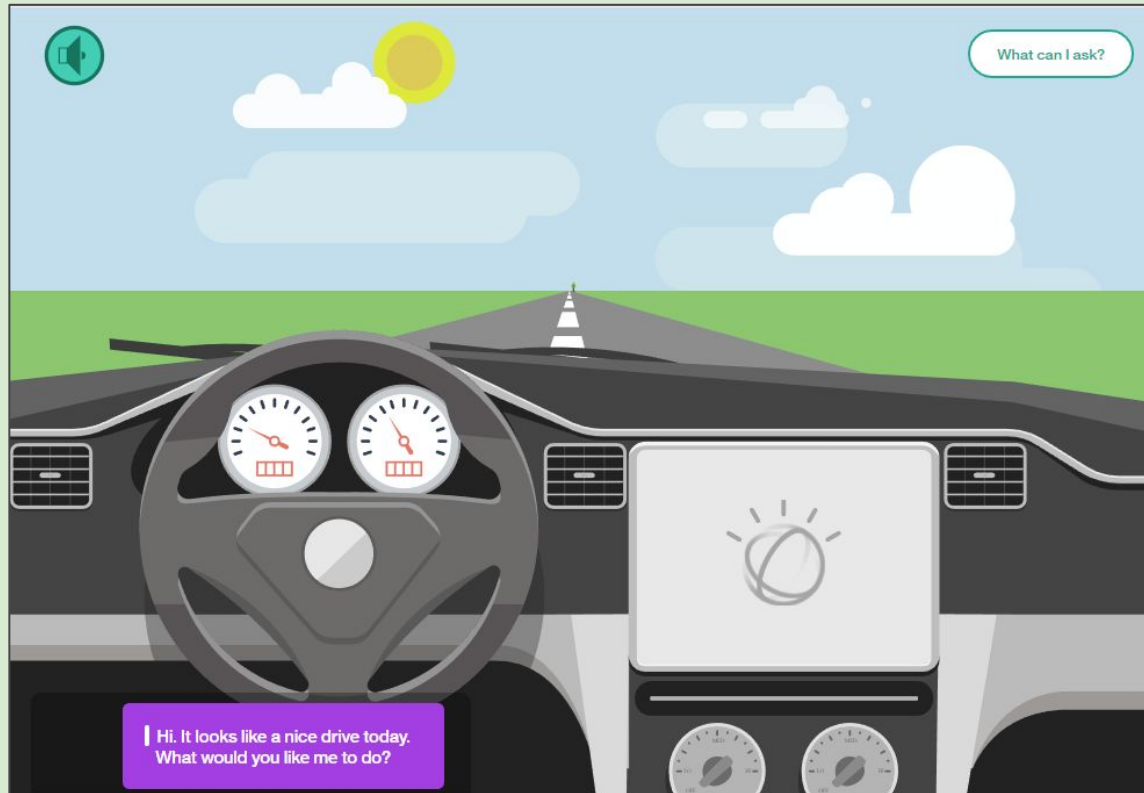
Personality
Insights

Speech to
Text

Natural
Language
Classifier

Retrieve and
Rank

A QUICK DEMO

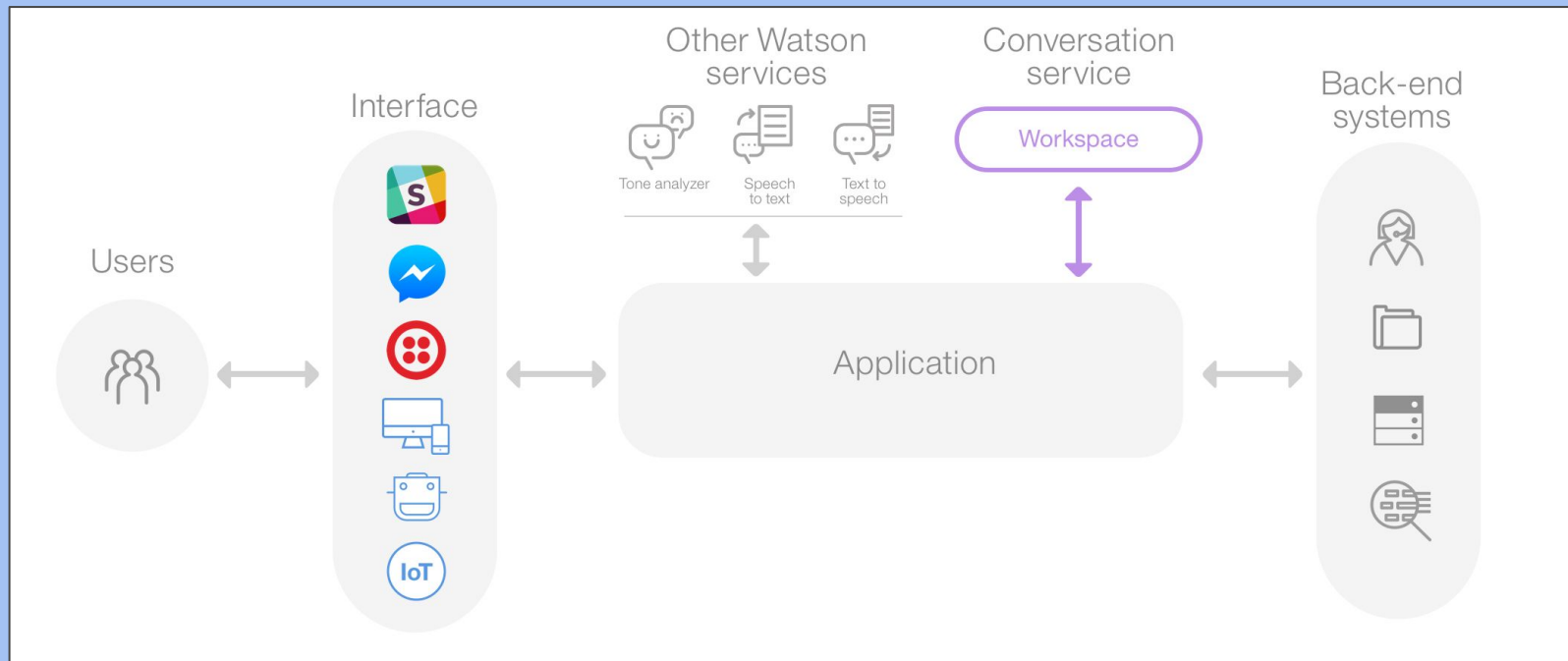


IBM WATSON (1)

Channels	Programming Languages	Artificial Intelligenc	Integrates with	Pro's	Con's
Facebook WeChat Telegram Kik Line Kakao	NodeJS Python Java Unity Android IOS	Built in Watson Conversation Other Watson Cognitive Services	Any API via programming	- Minimal number programming required - High Quality of Interaction - Proven solution	- Limited option to integrate various Watson services - Static Dialog








Analysis table for IBM Watson

IBM WATSON (2)



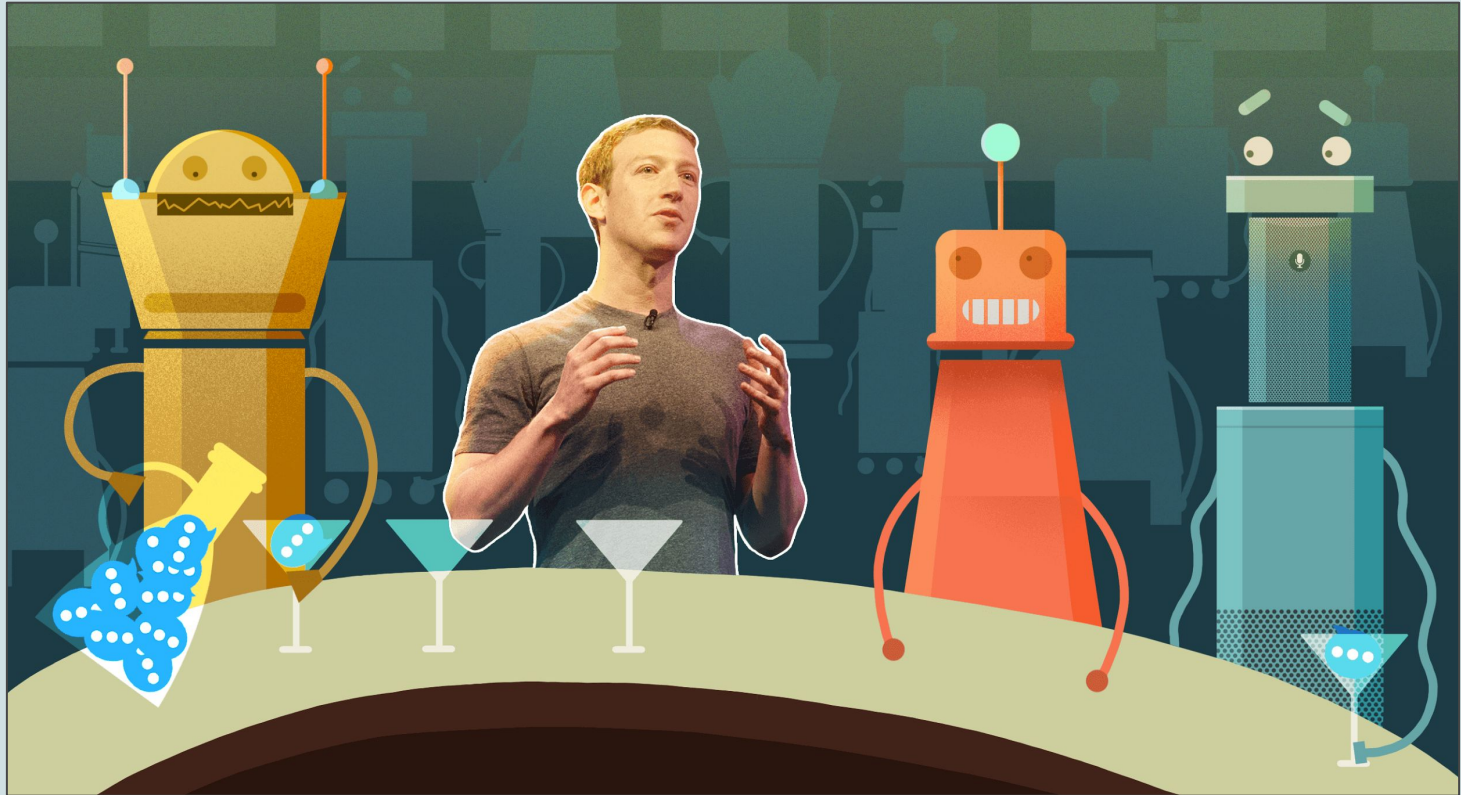
Overall architecture of the **Watson Conversation Service**.

PLATFORM COMPARISON

							
AI Built in	Yes	No	Yes	Yes	No	No	Yes
Programming needed?	No	NO	Yes	Yes	Yes	Yes	Yes
Complexity	High	Low	High	High	High	High	Medium
Time needed for setup	10 min	10 min	1 hour	15 min	2 hours	1 day	4 hours
Pre-study	8 hours	4 hours	8 hours	8 hours	8 hours	16 hours	16 hours
IDE	Build in	Build in	Visual Studio	Build in	Eclipse Atom	Build in Eclipse / command line	Build in Eclipse
Pro's	Extensive + all on platform	Plug'n'play	Most extensive	Integrated environment	Single development + deployment platform	Serverless deployment	High quality of interaction
Con's	Steep learning curve	Limited possibilities	Needs setup+ deployment	Only preview mode	Steep learning curve	Steep learning curve	Limited options to integrate with other services

Comparison table for all cloud platform

THE FUTURE



A FINAL CURIOSITY

“ Facebook shuts down robots after they invent their own language “

```
Alice : book=(count:3 value:1) hat=(count:2 value:1) ball=(count:1 value:5)
Bob   : book=(count:3 value:0) hat=(count:2 value:0) ball=(count:1 value:10)
-----
Bob   : i can i i everything else . . . . .
Alice : balls have zero to me to me to me to me to me to me to me to me to me to
Bob   : you i everything else . . . . .
Alice : balls have a ball to me to me to me to me to me to me to me to me to me
Bob   : i i can i i i everything else . . . . .
Alice : balls have a ball to me to me to me to me to me to me to me to me to me
Bob   : i . . . . .
Alice : balls have zero to me to me to me to me to me to me to me to me to me to
Bob   : you i i i i i everything else . . . . .
Alice : balls have 0 to me to me to me to me to me to me to me to me to me to
Bob   : you i i i everything else . . . . .
Alice : balls have zero to me to me to me to me to me to me to me to me to me to
```