

An aerial photograph of a city skyline at dusk. The sky is a clear, deep blue. In the foreground, a multi-lane highway with several lanes of traffic curves through the city. The city is filled with numerous high-rise buildings, some of which are illuminated with warm lights. The overall scene is a vibrant urban landscape.

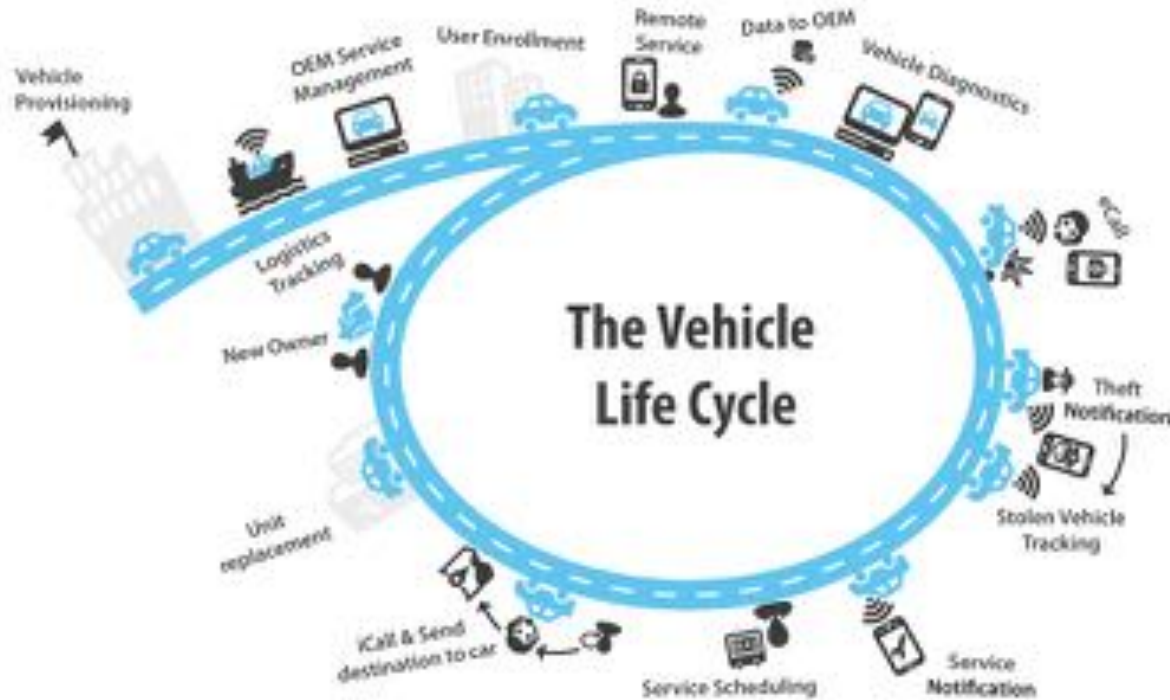
 WirelessCar

Natural language interfaces for your connected car

Who am I?

- Tomas Carl Falk
- WirelessCar since 15 years, currently Chief Architect
- Software Developer & Architect
- Computing Science at Göteborg University

What WirelessCar offer



WirelessCar Today

Global reach

through long track record and unique knowledge in connected off-board platforms combined with vehicle integration expertise.

2 300 000 Active

connected cars across 5 continents, increasing with 70,000 vehicles per month.

300 staff > 3000 years of experience

Highly skilled and experienced staff across the globe. Specialized in telematics and connected car services.



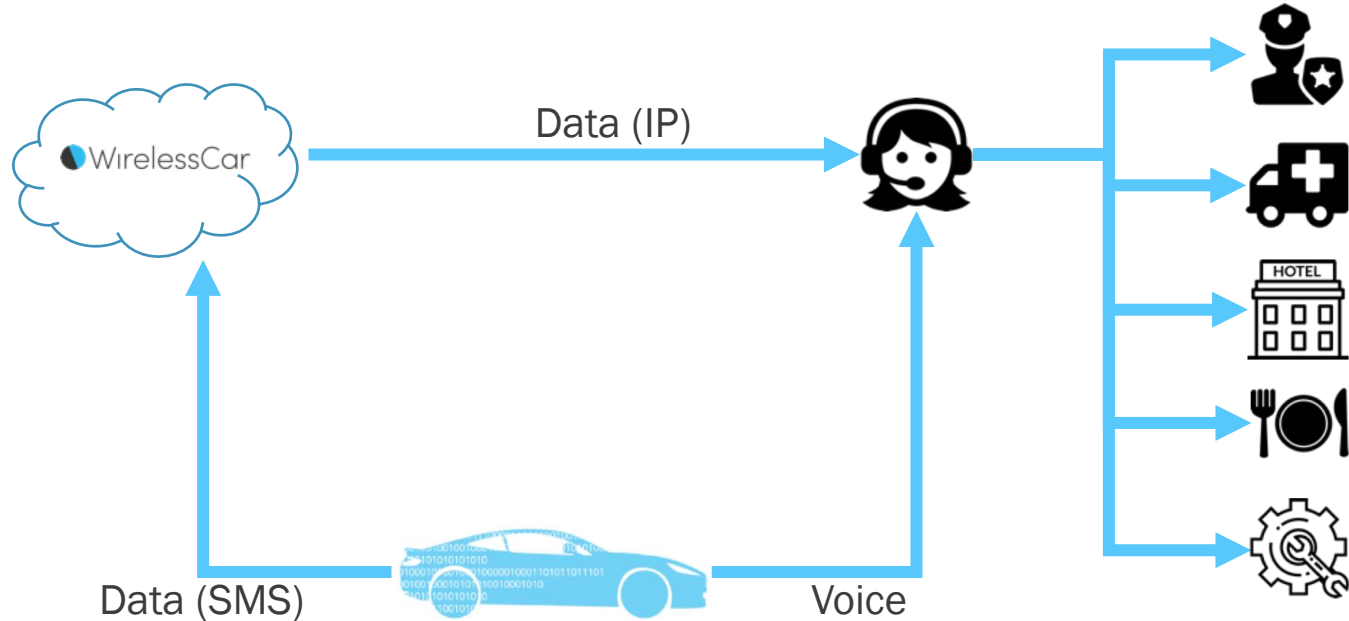
Connected brands



In total **13** programs in **65** markets over **18** years

Some history

Voice call services (late 1990's)

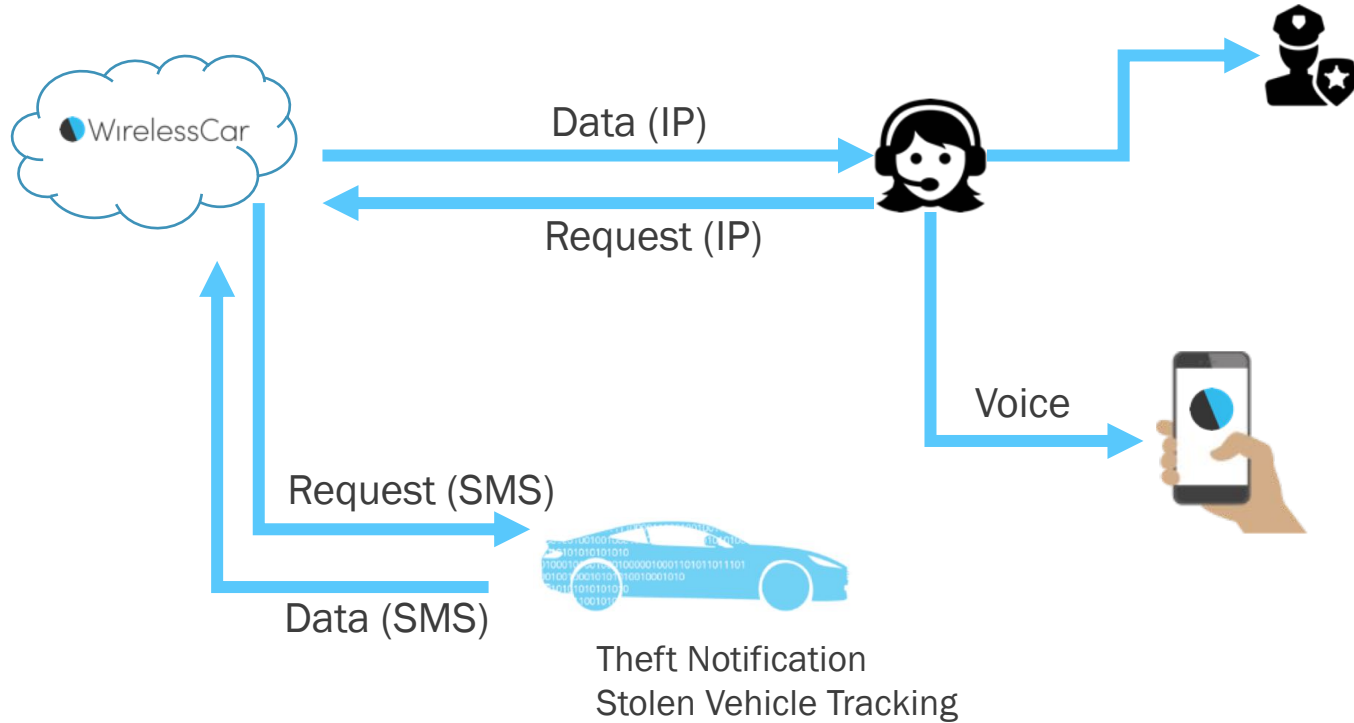


Emergency Call
Automatic Crash Notification
Roadside Assistance
Concierge Call



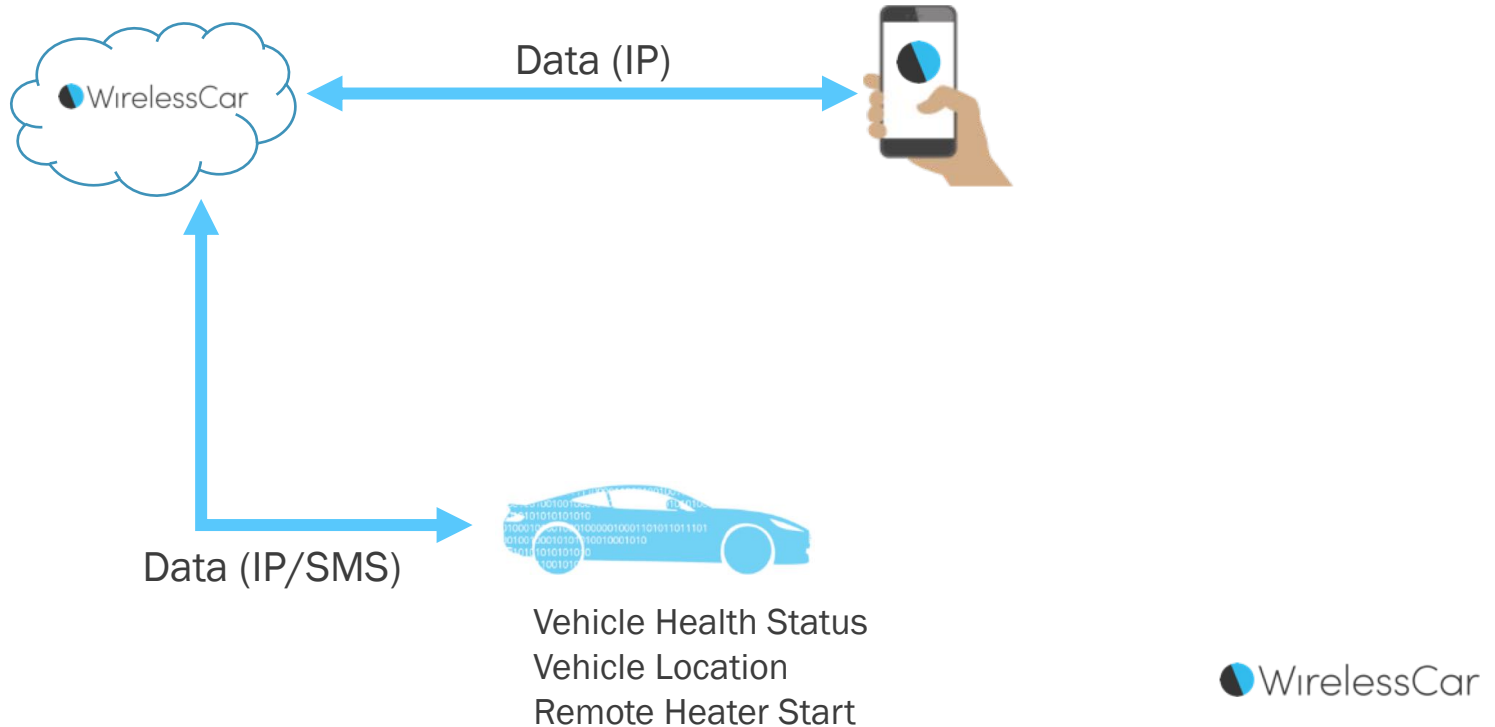
Some history

Theft services (late 1990's)



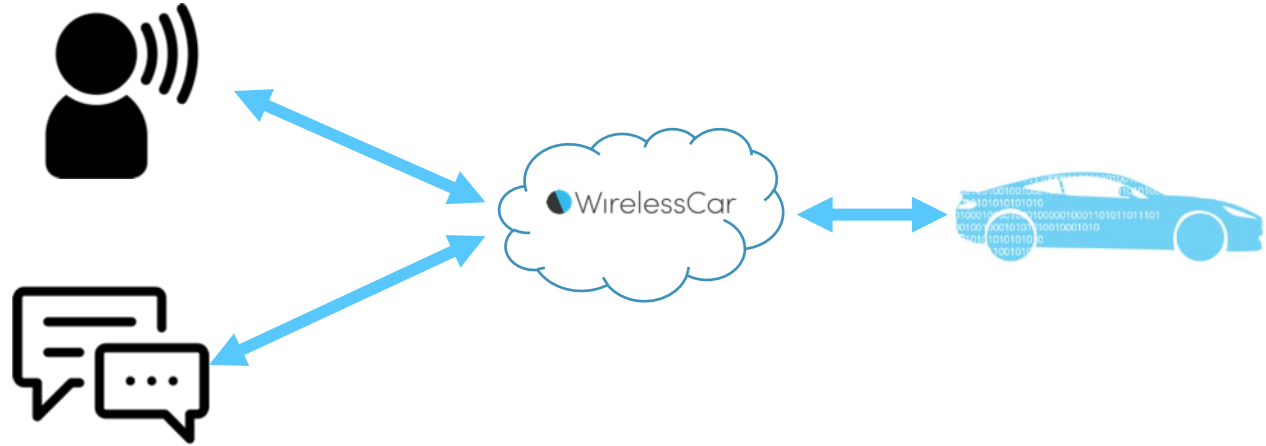
Some history

Remote services with app (around 2010)



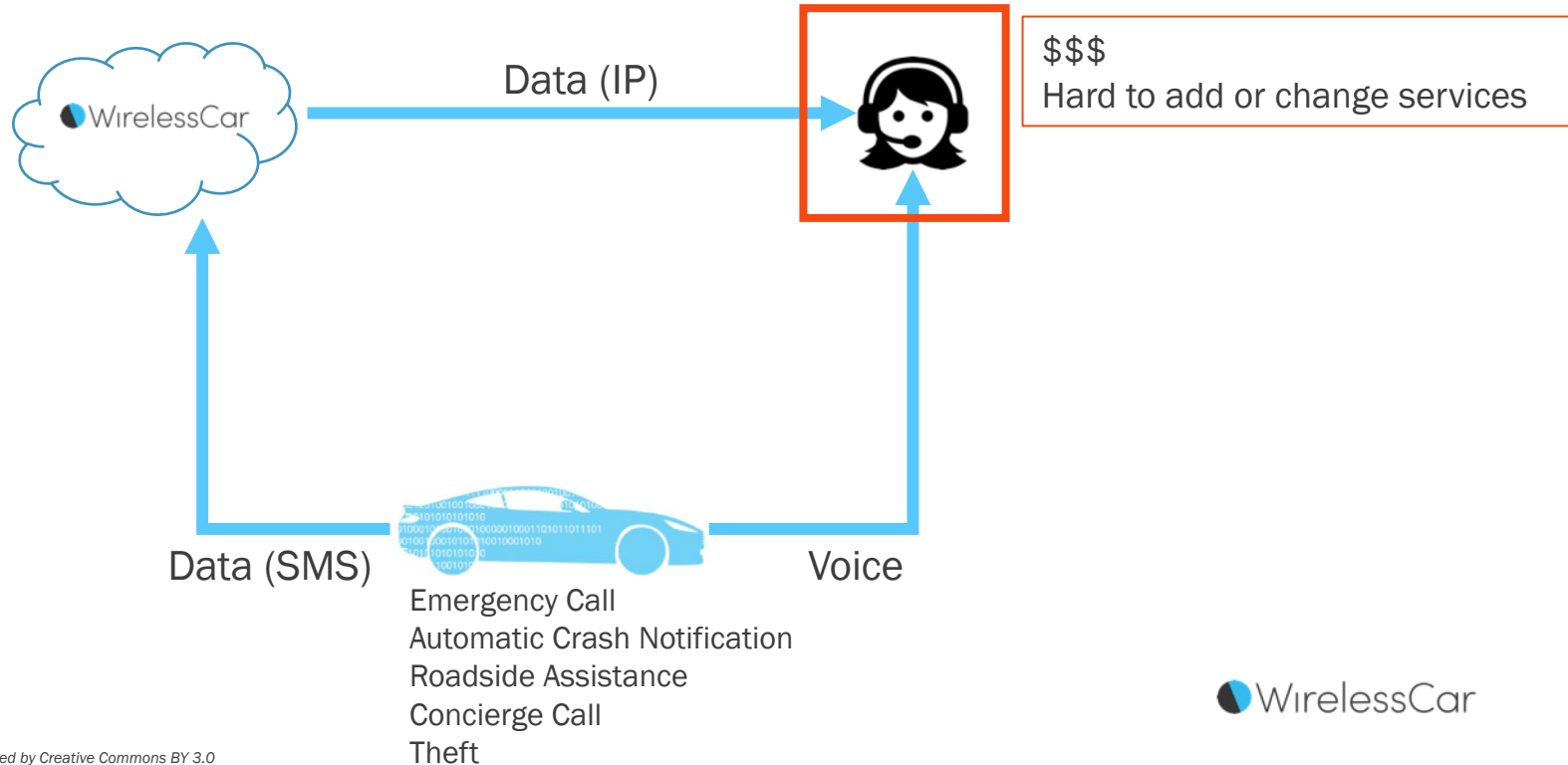
Why natural language interfaces?

- Intuitive
- Accessible
- Technology is available
- Technology is becoming good enough



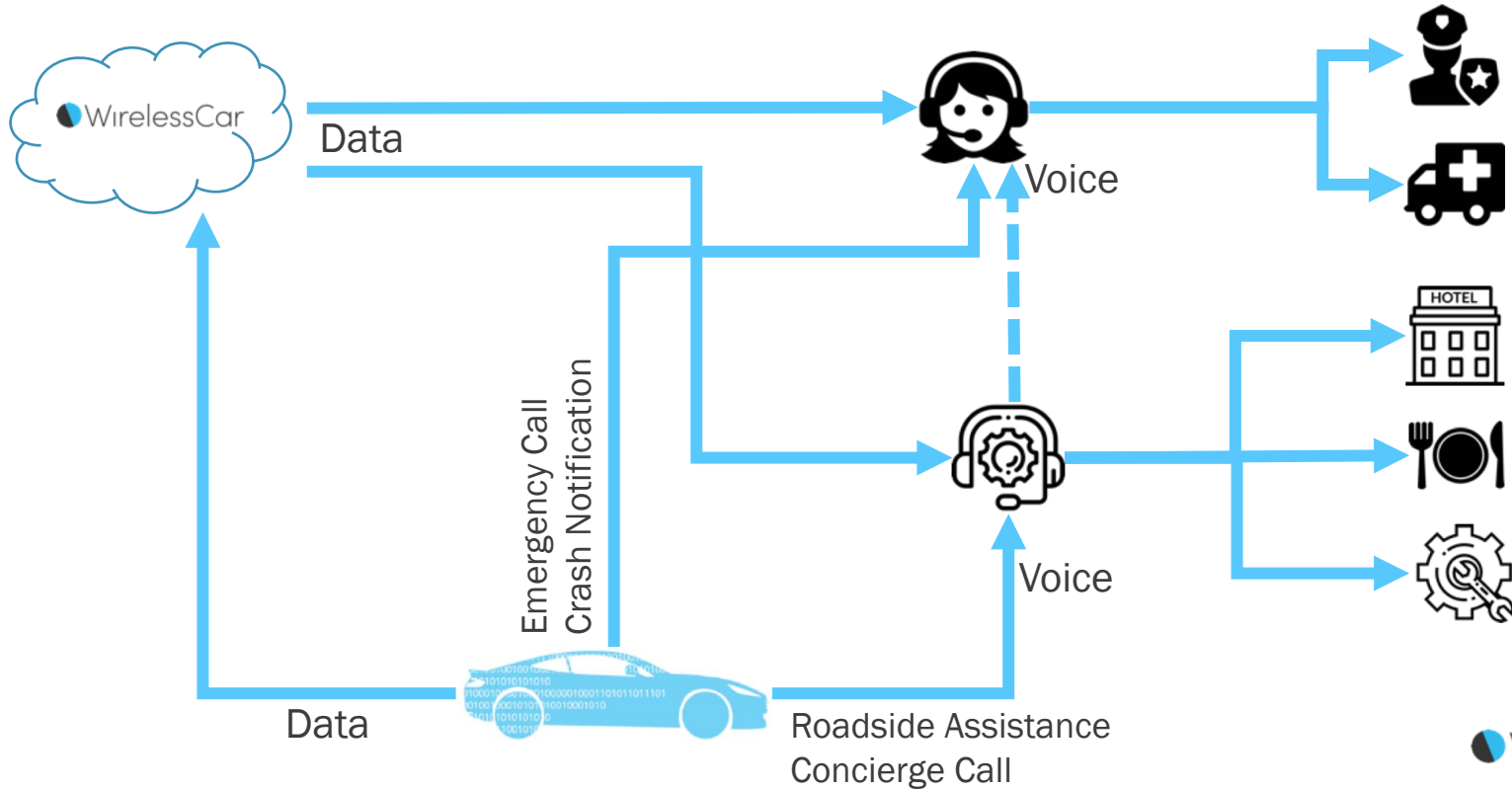
Use Cases for natural language interface

Voice based services



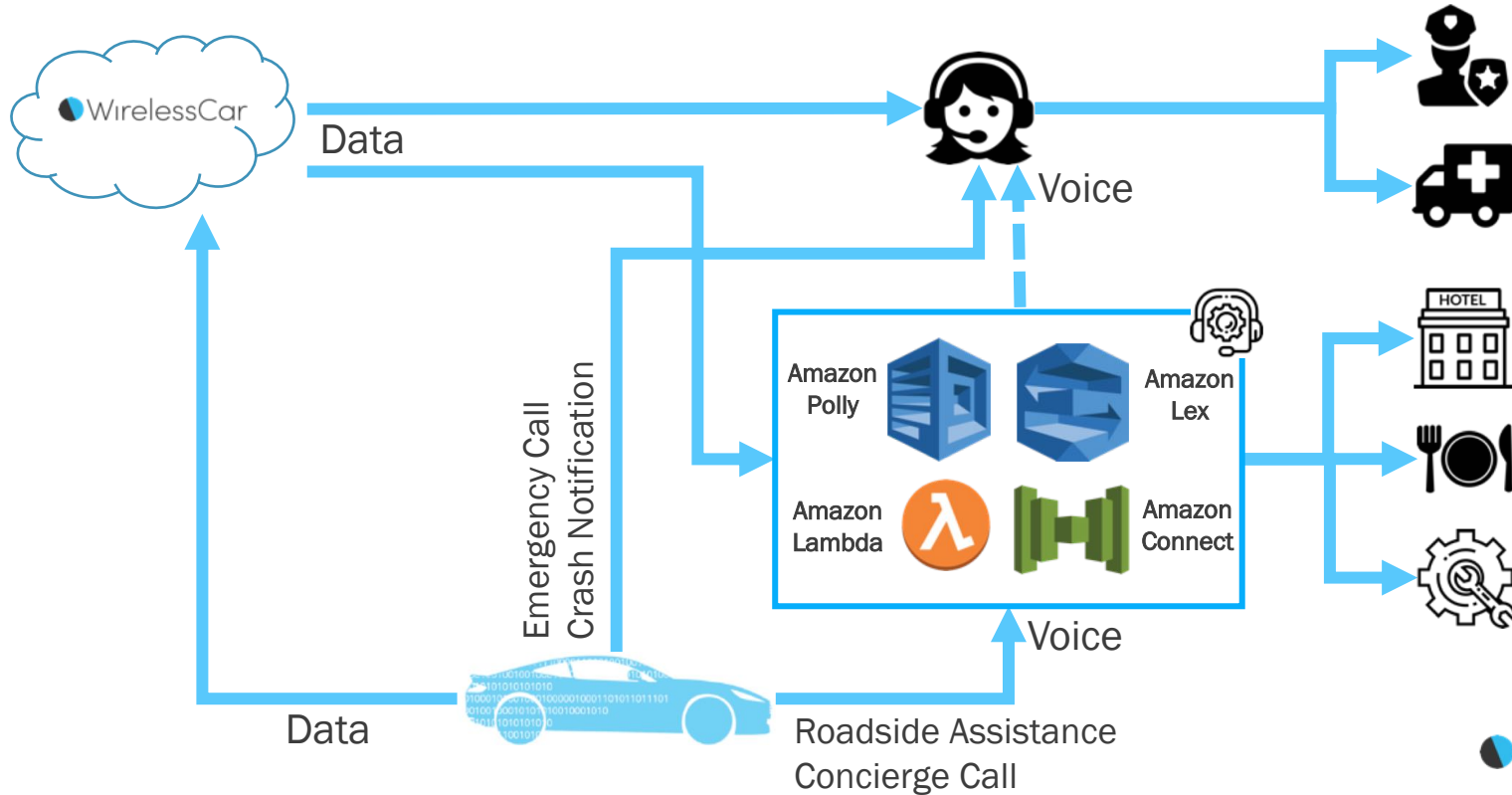
What we're working on now

Automate voice based services



What we're working on now

Automate voice based services





Contact flow designer



Name

Sample Lambda integration

Show additional flow information

Interact ^

Play prompt

Plays audio.

Get customer input

Branches based on customer intent.

Store customer input

Stores numerical input to contact attribute.

Hold customer or agent

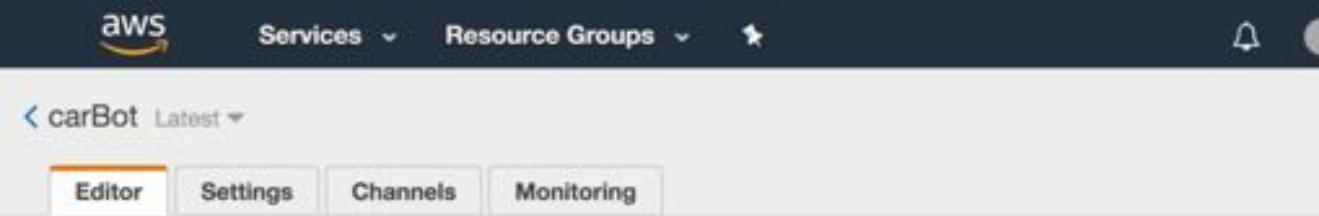
Places a customer or agent on or off hold.



Polly



Polly is a text-to-speech service from AWS.
In our usecase, we use it via Amazon Connect.
But Polly can be used also as a standalone service.



Amazon Lex





getEventData

Throttle

Qualifiers ▾

Actions ▾

testevent ▾

Test

Save

Function code [Info](#)

Code entry type

Edit code inline ▾

Runtime

Node.js 6.10 ▾

Handler [Info](#)

index.handler

File Edit Find View Goto Tools Window

Environment
getEventData
index.js

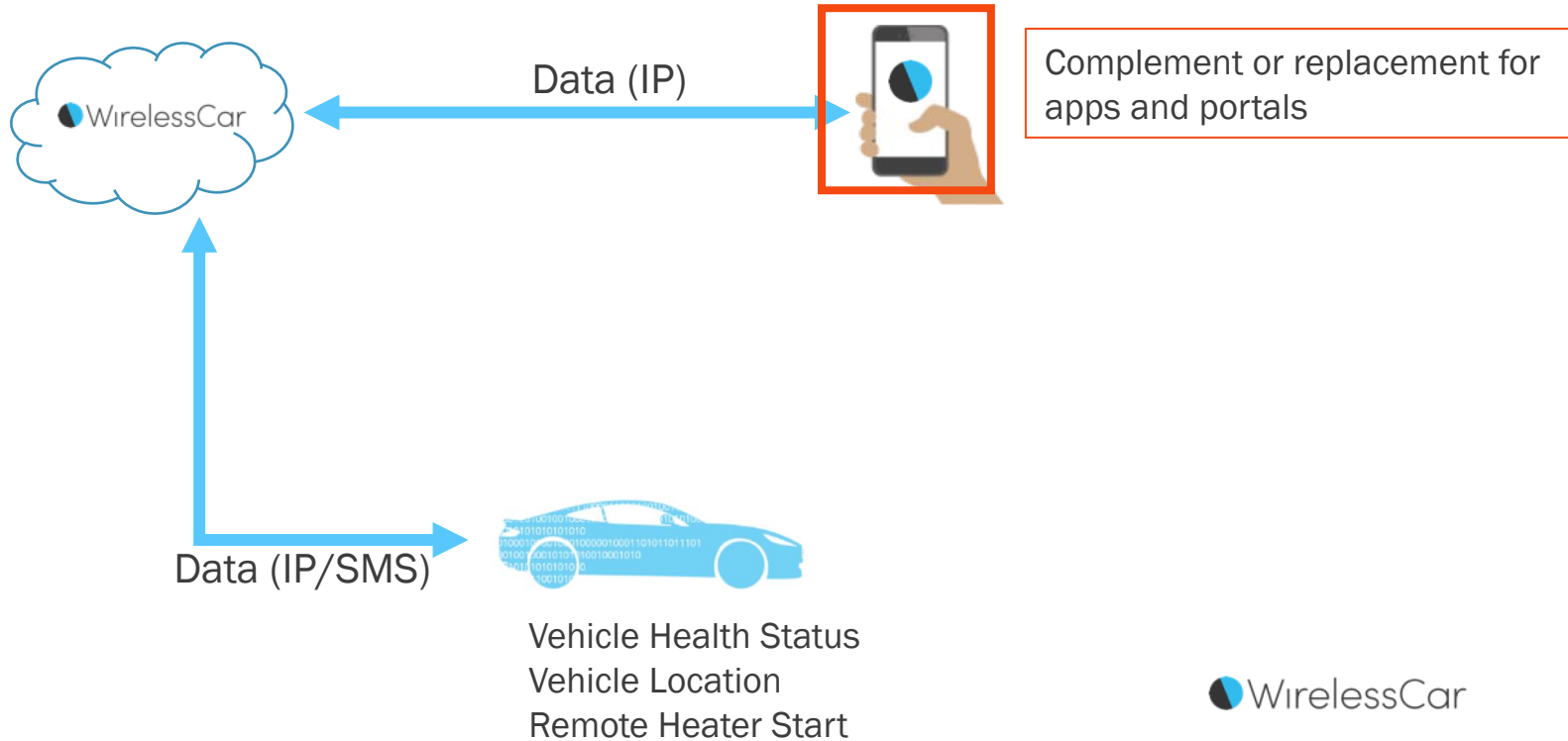
index.js

```
42     };
43
44     getData(options, callback);
45
46     function getData(options, callback) {
47         console.log("url: " + JSON.stringify(options));
48         var req = https.request(options, (res) => {
49             res.setEncoding('utf8');
50             console.log('headers ' + JSON.stringify(res.headers));
51             res.on('data', function(data) {
52                 console.log("received data: " + data);
53                 var jsonObj = JSON.parse(data);
54                 console.log("json parsed data: " + jsonObj);
55                 if (jsonObj) {
56                     callback(null, createResponse(event, jsonObj));
57                 } else {
58                     backupData(callback);
59                 }
60             });
```



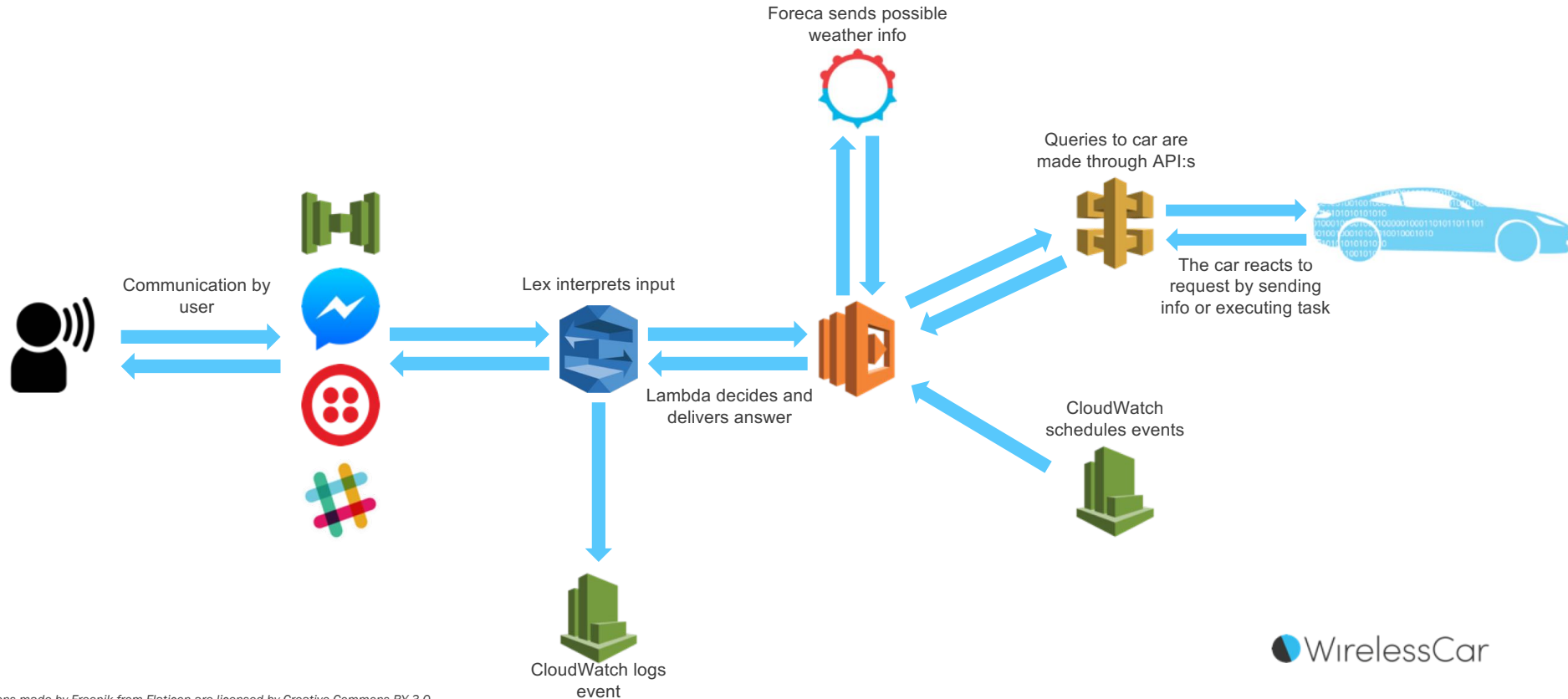
Use Cases for natural language interface

Remote Services



What we're working on now

Chat with your car for remote services



08:00



Good morning, Tompa! I hope you have a wonderful day 😊 I currently have 65 litres of fuel.

10:07

Where are you



I am currently at Östra Eriksbergsgatan 83, 417 62 Göteborg, Sweden.

Where were you yesterday?

Well, that entirely depends on what time of the day we're looking at. We went on several trips, from Lantmilsgatan 19 to Doktor Lindhs Gata 1, from Doktor Lindhs Gata 1 to Lona Knapes gata 1, from Otto Elanders gata to Otto Elanders gata 10, from Norra Långebergsgatan 2 to

Chat example (Facebook Messenger)

What we're working on now

Amazon Alexa for remote services



Learnings

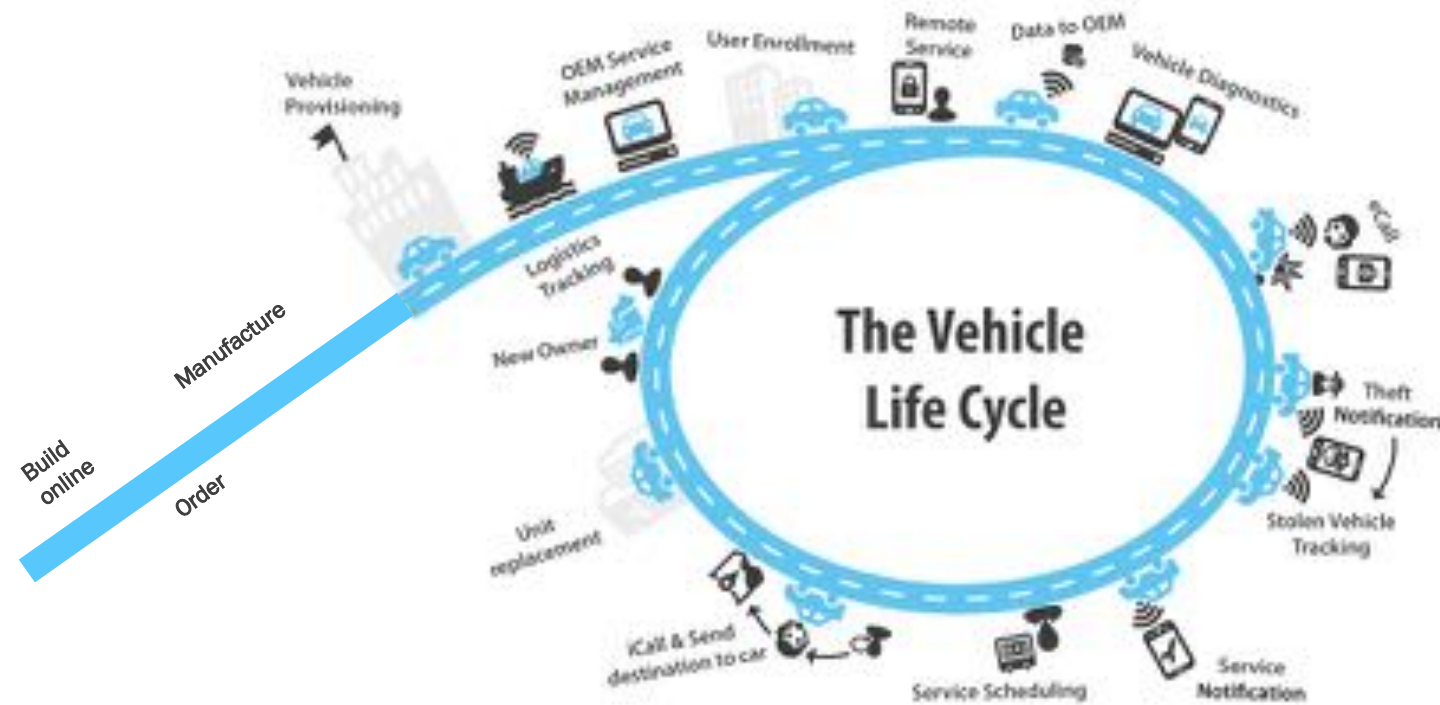
- Designing conversational interfaces is really hard
- The UI is quite different from Mobile / Web UIs
- Technology is becoming very good and easily accessible
- Background noise can be a problem for voice interfaces
- Accents can be a problem for voice interfaces

Recommendations

- Embrace the fact that conversational interface design is different from GUI design
- Include linguistics experts in your development teams
- Use advanced Machine Learning based services that adapt to user input
- Adopt voice-first design patterns

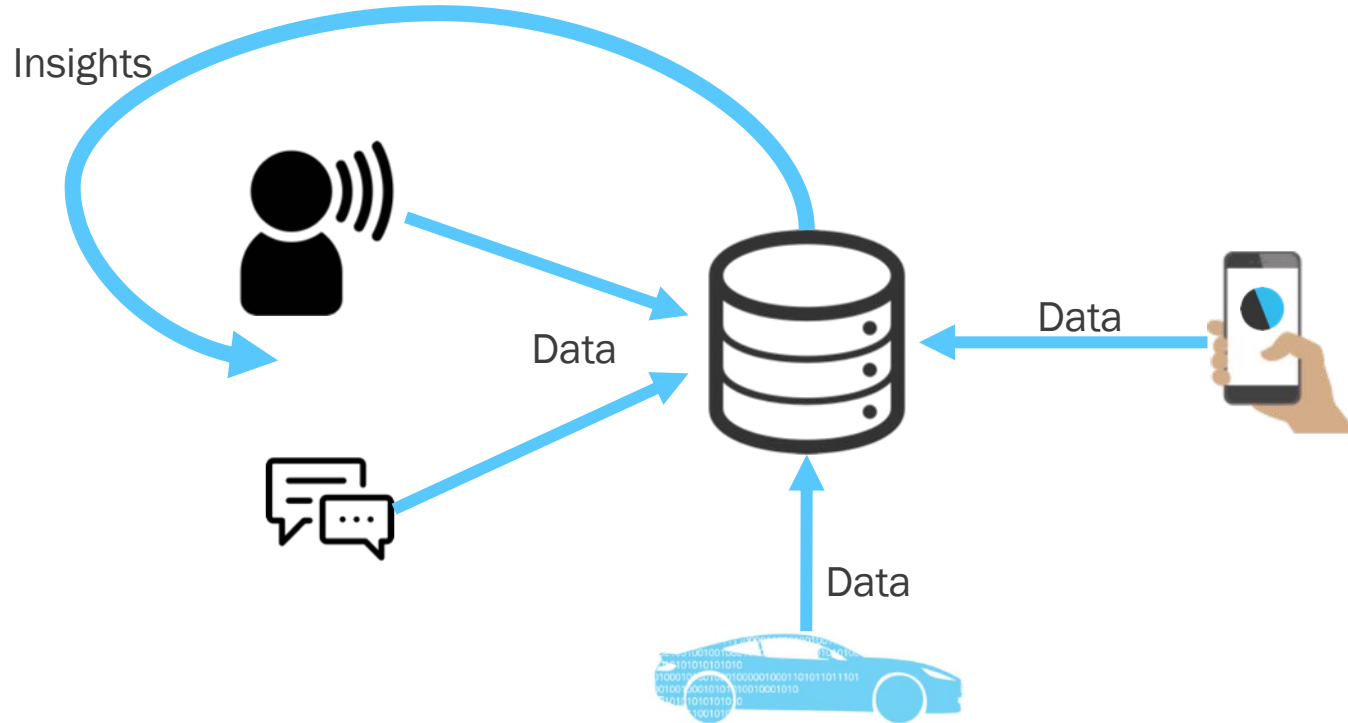
What's next?

Chat with your car – the entire lifecycle



What's next?

Improve conversations with insights from data



We're hiring!

<http://wirelesscar.com/career/>

If you want to know more about our technology or talk career opportunities –
come and visit us in the exhibition area!

