mimik

Smart Car Use Case

Smart Car use case:

Bringing fun back to the road trip:

Matt, Dian and Julie decided to take a road trip from San Francisco to Vancouver/Canada to see Julie and Dian's mom. Matt has recently engaged to Julie's sister; Diane. Julie is a single mom with three kids; Alex, Sandra and Antonia. They take two cars, Julie is driving a BMW SUV and Matt's driving a Tesla.

Virtual Music jukebox:

The moment the kids take their seats in the in car they all put their headset on and listen to their own music but Julie wants the kids to be engaged vs. being in their own isolated world and not interact with each other. So instead Julie ask the kids to each select their favorite music on their mobile phones.

Alex has all his music on his mobile phone so he selects a few songs.

Sandra on the other hand has stored some of her favorite songs that on her PC at home. But she can access her PC right from her iPhone. She select a few of her favorite songs that are stored on her PC from her mobile phone.

Antonia uses her Android phone to select her favorite music.

Sandra's device is connected to the infotainment system using Bluetooth. Through an app, Sandra browses the playlist and plays the songs. Sandra can now see all the songs that Julie, Alex, Antonia and herself selected. The music that plays now streams from different sources (Alex's mobile, Sandra's PC at home and Antonia's Android phone) through Sandra's phone and play through the car surround system. While Julie's driving, Alex, Sandra and Antonia continue selecting other songs from their own device and add to the playlist road trip. They sing together and have fun taking turn playing their songs without having to worry about constantly connecting and reconnecting.

Sandra decides to invite Diane (who is sitting in Matt's car) to their road trip shared music library. Diane receives a notification on her mobile device and now can see the shared music library. She immediately connects her phone to the car infotainment system and starts listening to songs from the shared library and adds her own selected songs from her mobile phone library as well. While Diane is playing songs from the same shared library that Sandra's using, they listen to different songs without impacting each other's experience; yet they feel that they are sharing the same road trip experience.

Road trip photo/video mixer:

Meanwhile the kids are making faces and taking selfies or videos and adding them to the shared road trip photo/Video library. As a result, the moment they each take a picture or video on their own mobile device, the others can browse them from their own device vs. passing the phone to each other. Sandra

decides to send an invite to Diane for the road trip album. Diane receives a notification and sees the pictures. She can't stop laughing. She messages Sandra asking whether to invite grandma Alice as well. Sandra loves the idea so Alice invites Grandma Alice who gets so excited; she feels as if she is in the car with the rest of the family enjoying the road trip. Meanwhile, the content remains on each phone or PC and only the family knows what is going on (no Dropbox, WhatsApp, Facebook or Google).

Road trip location highlights:

Julie and Matt decide to use a pinup feature to do location sharing. This way they can track each other on the map and don't need to constantly send each other instructions they decide to pull over. Specially Julie is driving faster than Matt and is always a few miles ahead of him. She must stop more frequently because of the kids demands for snacks or restroom. Matt on the other hand, likes to cruise on the road but also likes to make frequent stops at viewpoints to stretch his legs and have a bit of fun. With this feature, every time Julie stops a notification is sent to Matt's car and asks Matt if he wants to add the same stop point. Matt accepts to add the stop through the voice command. The navigation system gets adjusted and Matt follows the navigation to Julie's stop point.

They also decide to share their locations with grandma. This way grandma can keep up-to-date with their location and their status. She worries less about their safety and can plan her day better as they get closer to Vancouver.

At the stop points, there are vending machines and send coupons and offers for drinks and snacks and even deals surrounding local hotels, businesses and sight-seeing points.

As they get close to the stop points they can see the menu and offers of the restaurants. They can even place the order on their app and share their location information with the restaurant. This way the restaurant can prepare their food as they see the car getting closer. Sandra places her order from Taco Bell while Dian places an order from Quiznos. Taco Bell is closer to the exit and Quiznos is about half a mile away. Julie drives to Taco Bell's to pick up the food and then drives to the rest area's picnic table. She sends her location at the Rendezvous meeting point to Matt and starts preparing the table with the Taco's that they picked up and some fruit and cookies that she had brought with them. Matt picks up the food and follows the navigation to Julie's location to join them for lunch. The location sharing always is between car to car.

All these features allow the two families to share the road trip experience as if they are all in one car while they have their freedom to do the things they like. They don't have to fight over the Bluetooth connection, pass their phones around, and make calls and inform each other about their status. They feel effortlessly connected all the time.

V2X:

On the way, as they need to fill their tanks and recharge the Tesla they get a notification from local gas stations and charging points that have auto pay & are cash less. Julie and Matt pull into the station(s) fill up and recharge and they get charged automatically through their mobile phone.

Race Track example

About Smart Stadium on Vehicle example

The race car is facilitated with 360 degree cameras. The audience can rent VR head mounted displays or bring their own. The stadium has large visual connected screens. As the car race starts fans can wear the VR and experience any driver's view and the 360 view of the race car (inside and outside). They can also see the full visual map of all other cars. They can enable AR features and get visual information on different parts of the car during the race. They can see all data analytics of the car performance e.g. speed, acceleration, engine performance, tire status, etc.

Roadside information:

- Food locations, parks and trails, Viewpoints, rest areas, favorite stops, hospital, police, mechanic shops, restroom locations, walking maps, and live video stream of traffic

Monetization opportunities

- Revenue share or advertising with local businesses (groceries, gas stations, hotels, etc.)
- Increase food sales with online purchases and ease of pick up
- Data analytics

Technology benefits:

In case of the virtual Jukebox:

Diane who is a passenger in a Tesla is playing music from different sources including Alex's iPhone, Antonia's Android, Sandra's PC at home and her own phone. The Vehicle Onboard Computer (VoC) is providing hotspot for inside the car but has no cellular connectivity to outside. Instead, it can pick the best connectivity amongst everyone's phones and become a network proxy to others.

Sandra is a passenger in a BMW and is playing music that from different sources including music content that physically reside on Alex's iPhone and Antonia's Android phone. In this case, all the network traffic remains local and doesn't leave the car except those contents are one her PC at home and Diane's device (driving in a different car). This not only creates an amazing user experience but saves a lot of latency and bandwidth completely seamlessly and effortlessly.

Inside Julie's car, the network traffic remains inside the car when kids share pictures or videos that are on their own devices. The communication between the two cars is over the Cellular network. The traffic between grandma and Julie and Diane's car are also over the Cellular network. Meanwhile, all content remains on its own device regardless of the network and doesn't requires getting copied on a shared location on central cloud.

In case of road trip photo/video mixer:

Instead of traditional cloud centric model, with decentralized edge cloud the two cars send each other's location information directly through the cellular network and the calculation is done locally on the device.

As a result, mimik's decentralized edge cloud will:

- Provide new user experiences that are difficult to develop and maintain with central cloud
- Reduce the cost of central cloud since majority of traffic and transactions are localized
- Central cloud resources are only utilized for archiving and storage e.g. maintain a copy of road trip photo/video mixer
- Reduce communications latency since all traffic remains within the local area and car to car goes through cellular
- Reduce development time, since a lot of modules to create these experiences can be developed once as JavaScript and ported to various hardware and operating systems
- New applications & microservices can be developed and deployed seamlessly and on any mobile and gateway OS.

In addition, owners and consumers of computing resources have the freedom to trade directly and participate in the share of a network exchange without any middlemen or trust elements.