A communication PF to bring flexibility for IoV: IRIGATE

Furukawa Electric, SORACOM, TOYOTA
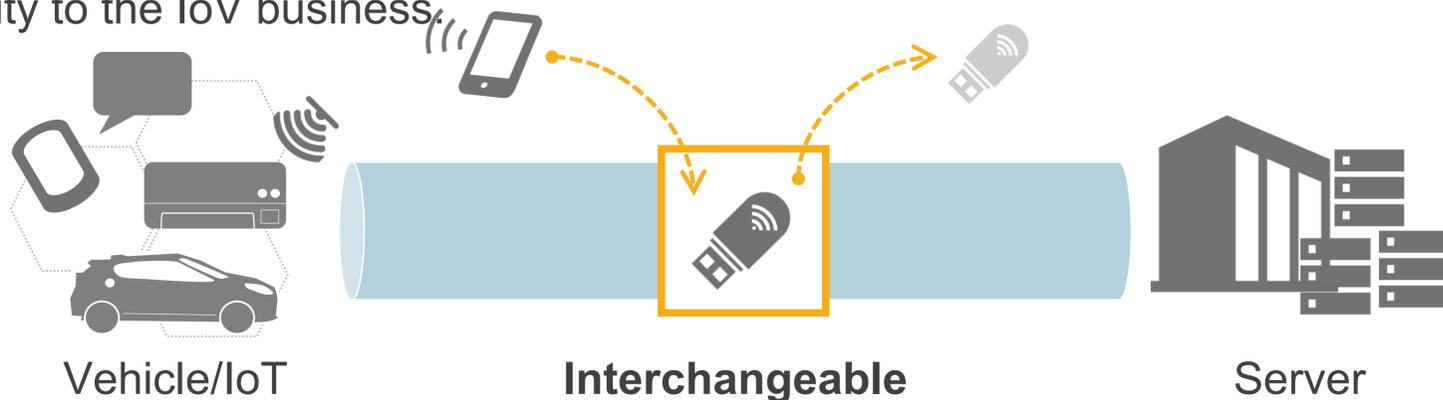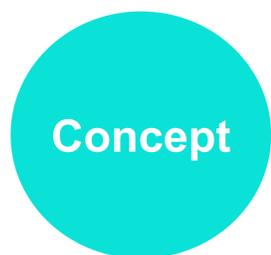
FURUKAWA ELECTRIC
SORACOM
TOYOTA

IoV: Internet of Vehicles
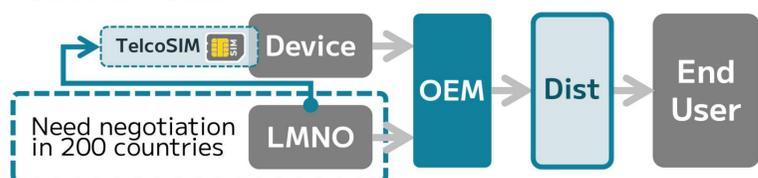IRIGATE: Intelligent, Replaceable, Interconnection, GATE

Goal

1. Cars usable for 20 years; telecom standards updates every 10 years
2. The goal is to enable connectivity exchange, and services can be available even after sunset, that bringing flexibility to the IoV business.
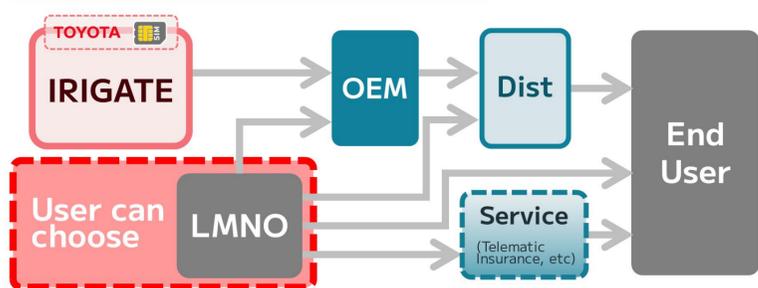
Concept

Vehicle/IoT   **Interchangeable**   Server
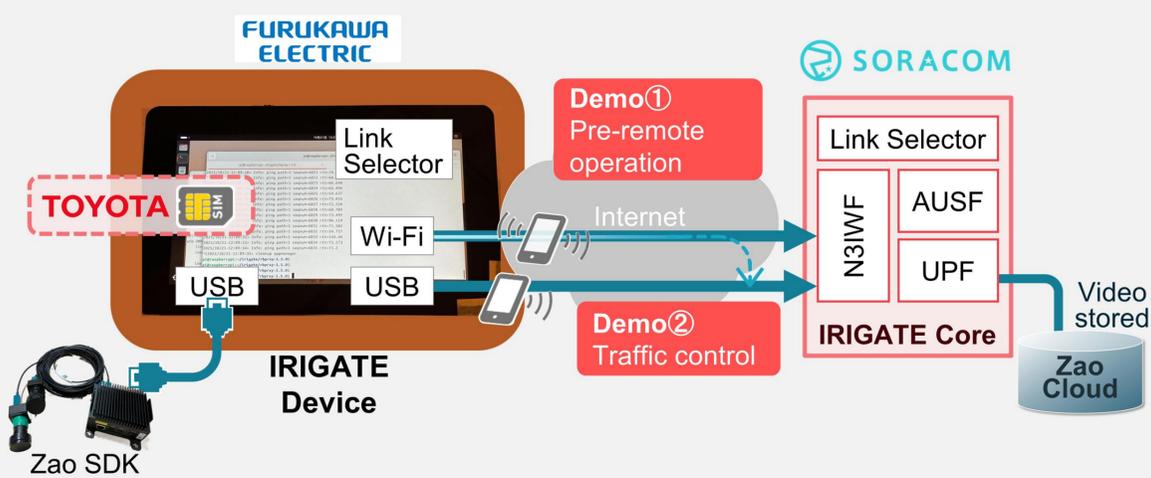
Demo Overview

IRIGATE Biz Mod.

Current Model···

TelcoSIM → Device
Need negotiation in 200 countries → LMNO
Device → OEM → Dist → End User

IRIGATE enables this

TOYOTA
IRIGATE → OEM → Dist → End User
User can choose → LMNO → Service (Telematic Insurance, etc) → End User

Demo Setup

FURUKAWA ELECTRIC

TOYOTA SIM

Link Selector
Wi-Fi
USB
USB

IRIGATE Device

Zao SDK

Demo① Pre-remote operation
Internet
Demo② Traffic control

SORACOM

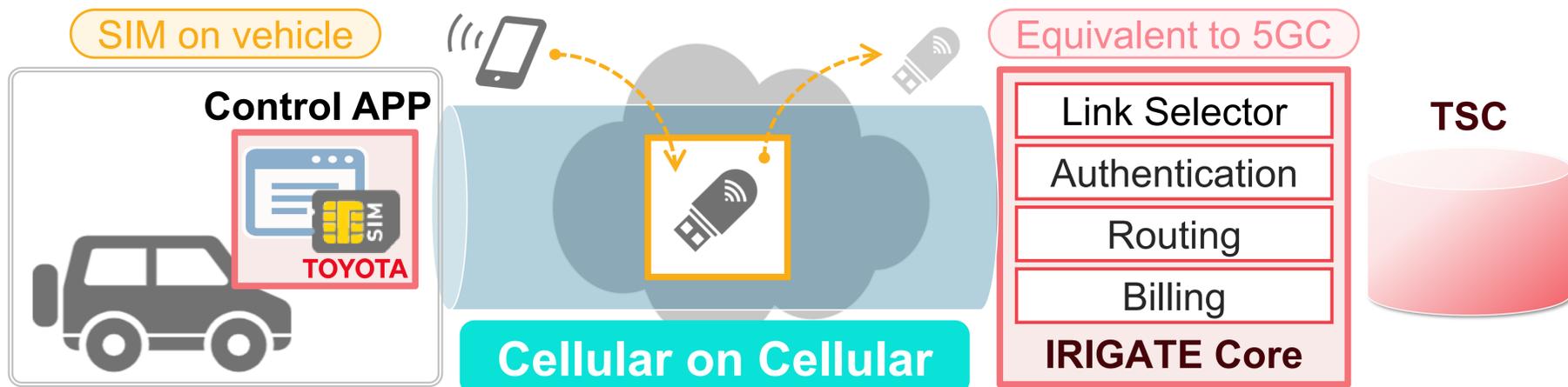Link Selector
N3IWF | AUSF
UPF

IRIGATE Core

Video stored
Zao Cloud

UPF: User Plane Function
AUSF: Authentication Server Function

Zao is used for remote driving. Similar data is transmitted through IRIGATE in this demo.

Enabling Technology

SIM on vehicle

Control APP

SIM TOYOTA

Cellular on Cellular

Equivalent to 5GC

Link Selector
Authentication
Routing
Billing

IRIGATE Core

TSC

The system of MNO

License

User → **MVNO** → Radio / C-Plane → **MNO**