

# RSA® Conference 2018

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## IDENTITY'S ROLE IN SECURING THE IOT CONNECTED CAR

Ashley Stevenson

Senior Director, Applied Innovation  
ForgeRock / Office of the CTO  
@iotirm



# Strange Times for the Automotive Industry





“We are currently experiencing the biggest change the automotive industry has ever seen. It all comes down to whether we believe we can earn as much money in the future from mobility services as we can from selling cars. I see tremendous opportunities for this. Being able to offer people premium mobility at any given moment is an exciting prospect.”

**Peter Schwarzenbauer**

Member of the Board of Management of BMW AG, responsible for MINI, Rolls-Royce, BMW Motorrad, Customer Engagement and Digital Business Innovation BMW Group

## ChargeNow

ChargeNow provides easy access to the world's largest network of public charging stations.

## DriveNow

DriveNow is the car-sharing service from the BMW Group and Sixt that gives customers the flexibility to rent cars when and where they need them.

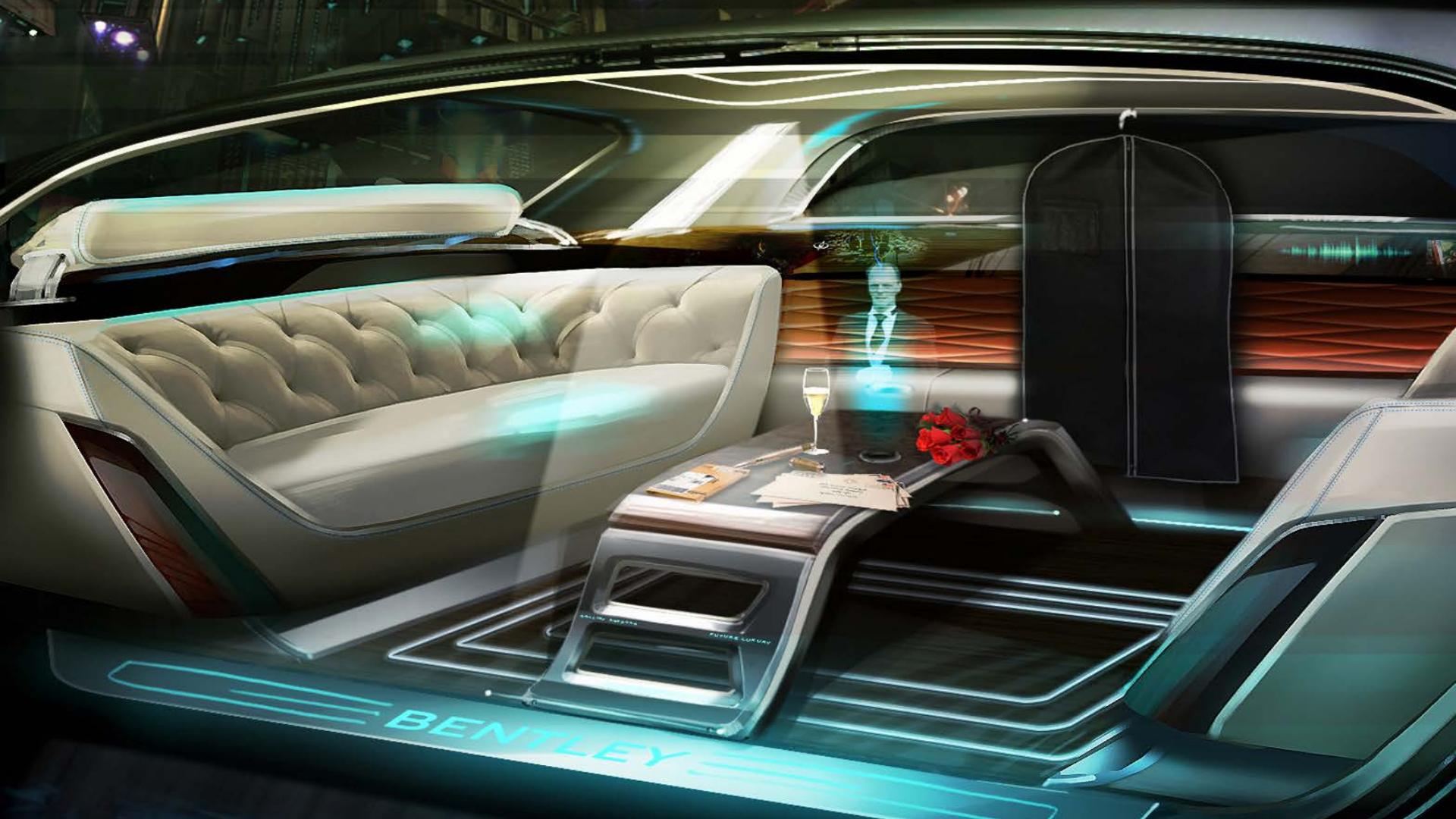
## ParkNow

ParkNow enables digital payment for both on and off-street parking.

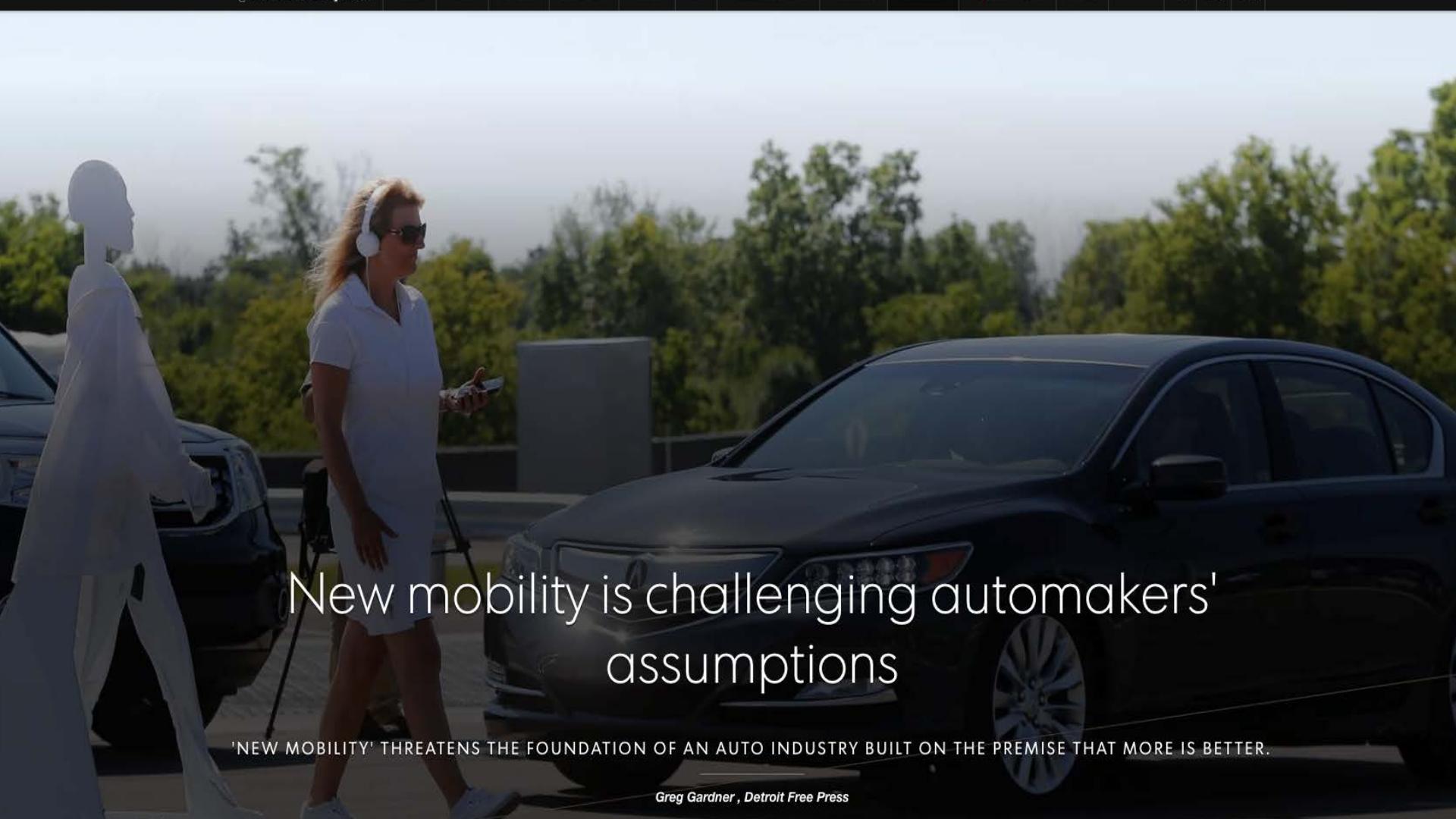
## ReachNow

ReachNow offers a range of expanded on-demand mobility solutions in the US and China.





BENTLEY



New mobility is challenging automakers' assumptions

'NEW MOBILITY' THREATENS THE FOUNDATION OF AN AUTO INDUSTRY BUILT ON THE PREMISE THAT MORE IS BETTER.

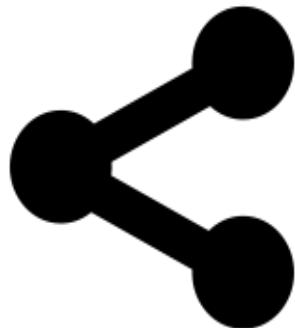
# Core Pieces of New Mobility



**Connectivity**



**Sharing**



**Autonomous**



**Services**



# Automotive – Gateway to Smart Mobility



Connected Cars are just the tip of the iceberg in the emerging modern mobility ecosystem – and all of it needs identity

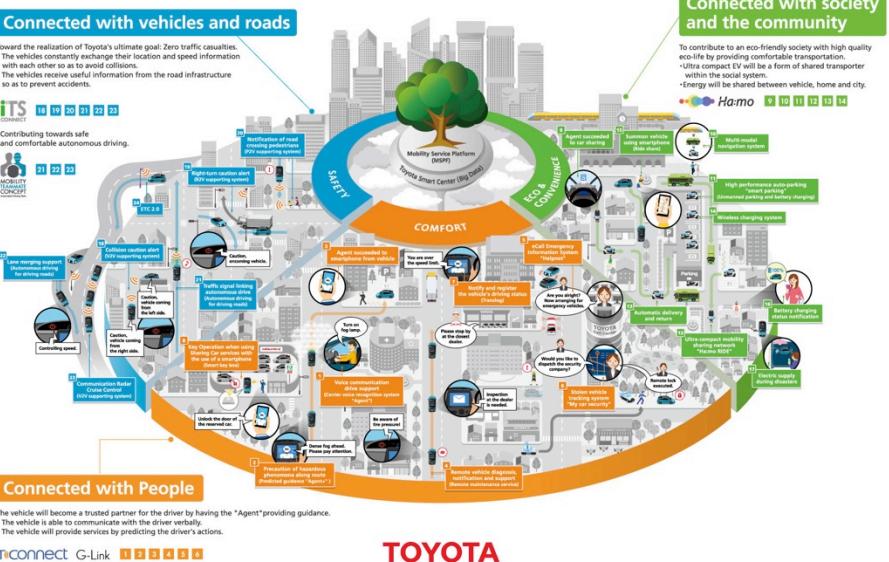
Smart Mobility

## We're Not Just an Auto Company. We're a Mobility Company, Too



## Smart Mobility Society is expanded with connected services.

Toyota aims to create an exciting and secure society by connecting vehicle, people and community, so as to improve the convenience of daily lives.



A close-up, low-angle shot of the front of a shiny blue Toyota car. The car's headlights are illuminated, showing a grid of small lights. The Toyota logo is visible on the front grille. The background is a plain, light-colored studio backdrop.

**"Hyperpersonalized** mobility services inside and outside the vehicle will be a key competitive differentiator for automotive OEMs in context of the connected and automated vehicle."

*Dr. Martin Birkner - Research Director  
Automotive and Smart Mobility*

**"85% of Auto Executives agree that the digital ecosystem will generate higher revenues than the hardware of the car itself"**

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**NEW MOBILITY = DIGITAL SERVICES**

&

**DIGITAL SERVICES REQUIRE DIGITAL IDENTITY**

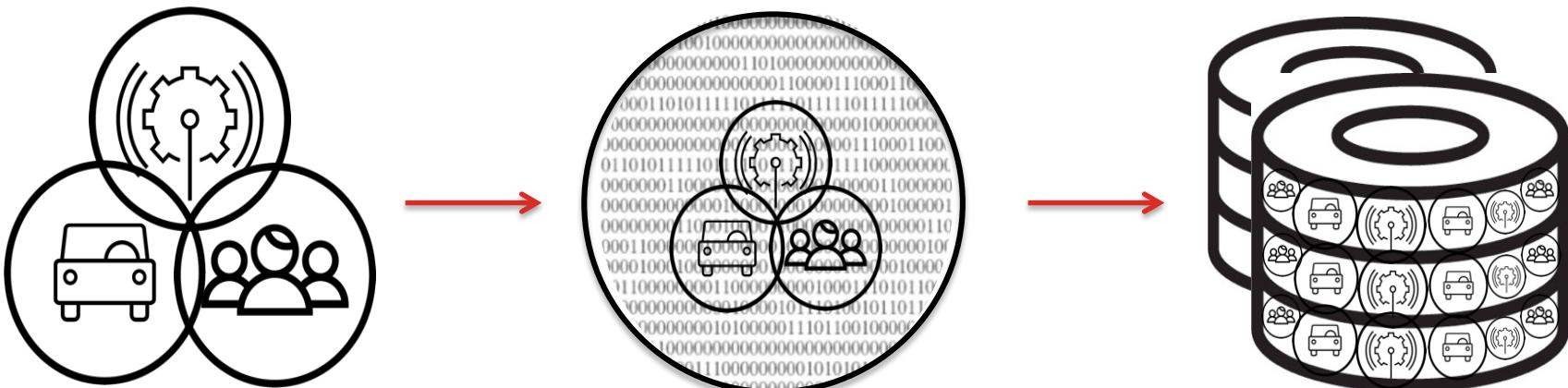


# What is Digital Identity?

# The Four Corners of Digital Identity



## Digital Identity



*The information that makes something unique*

# The Four Corners of Digital Identity



## Credentials and Authentication



*Establishing Digital Trust and Assurance*

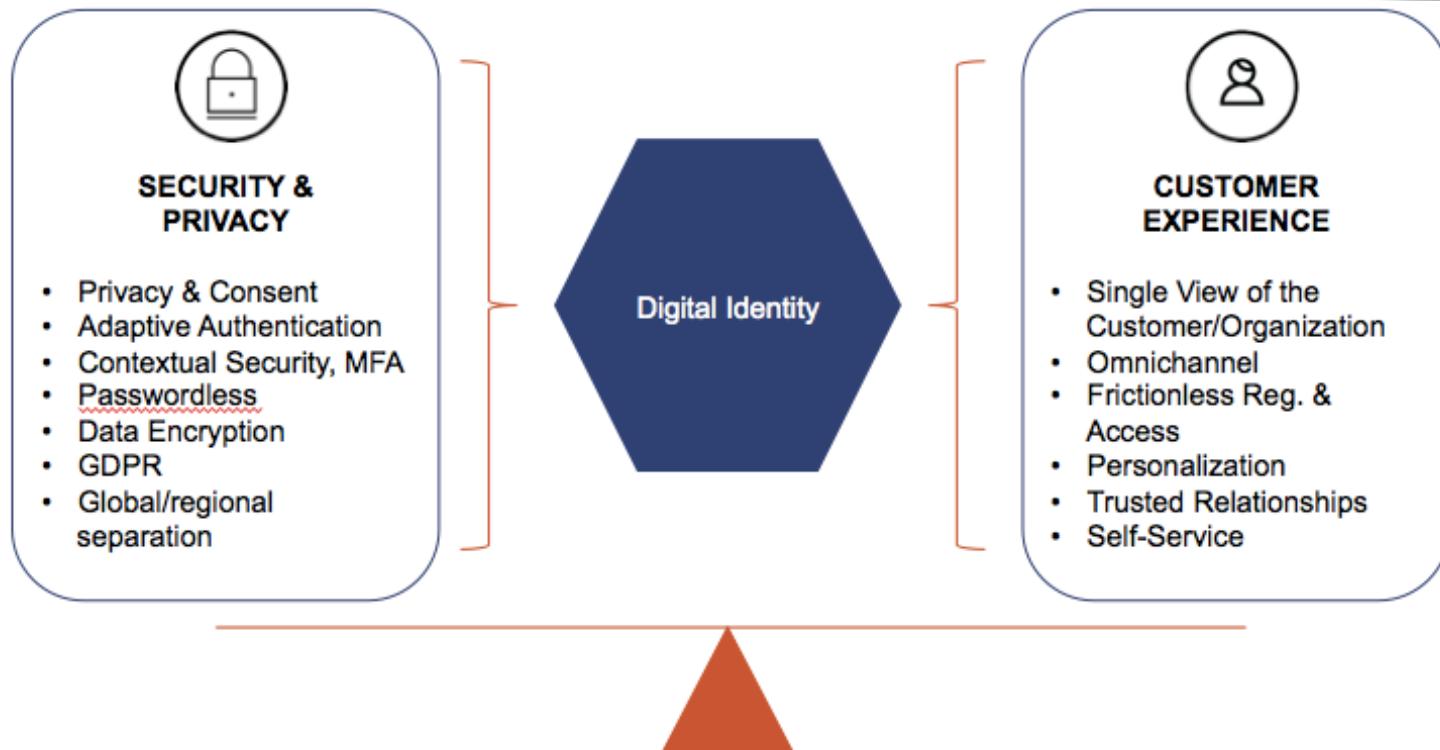
# The Four Corners of Digital Identity



## Authorization

*Yes or No?*

# The Intersection of Security and Experience



# Privacy and Consent Matters

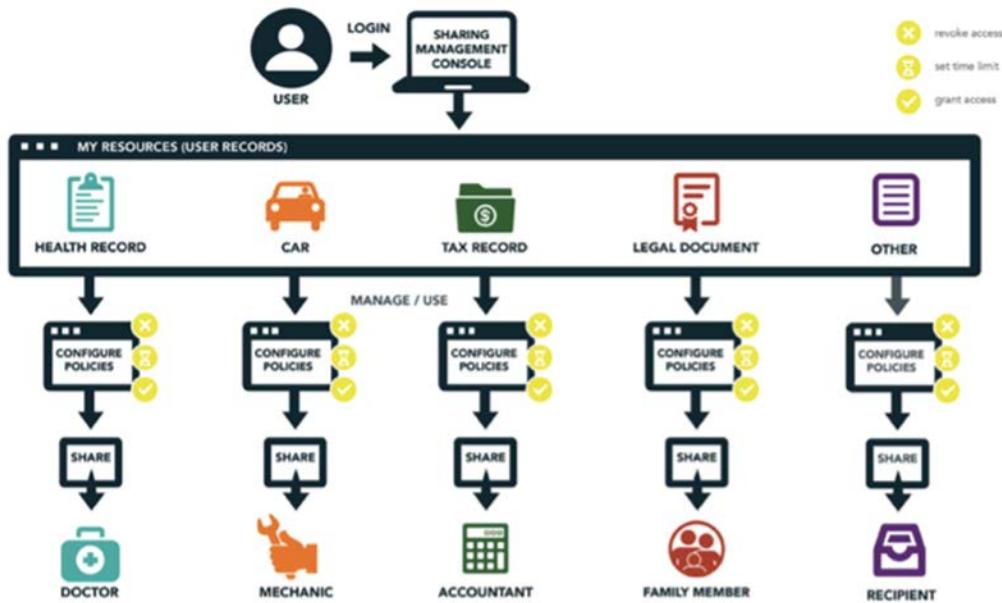


- Data Access
- Data Exchange
- Data Monetization
- Device Data
- Consumer Trust
- Regulatory Compliance

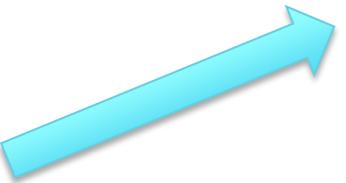


# User Managed Access

How individuals could control personal data and device access in the IoT environment



# A Familiar Paradigm



# Apple makes more money with services than AirPods, Apple TV, Watch, and iPad sales combined

by Natt Garun | @nattgarun | Nov 2, 2017, 5:56pm EDT

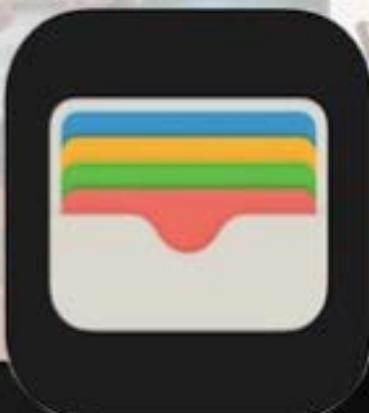


Photo by Amelia Holowaty Krales / The Verge

Music

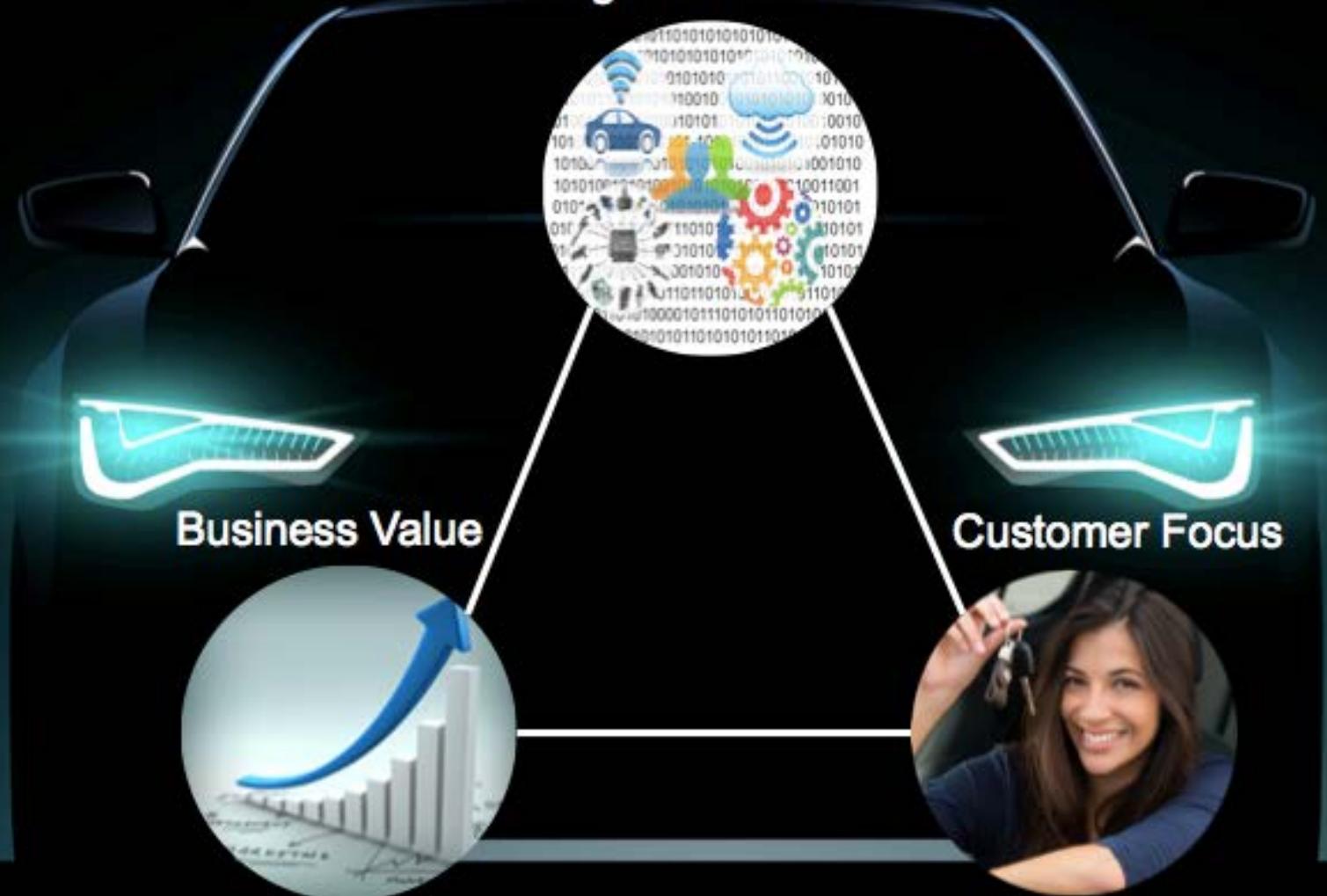
Apps

Payments





# Digital Identities



# Trust



## Security



Digital Identities



Business Value

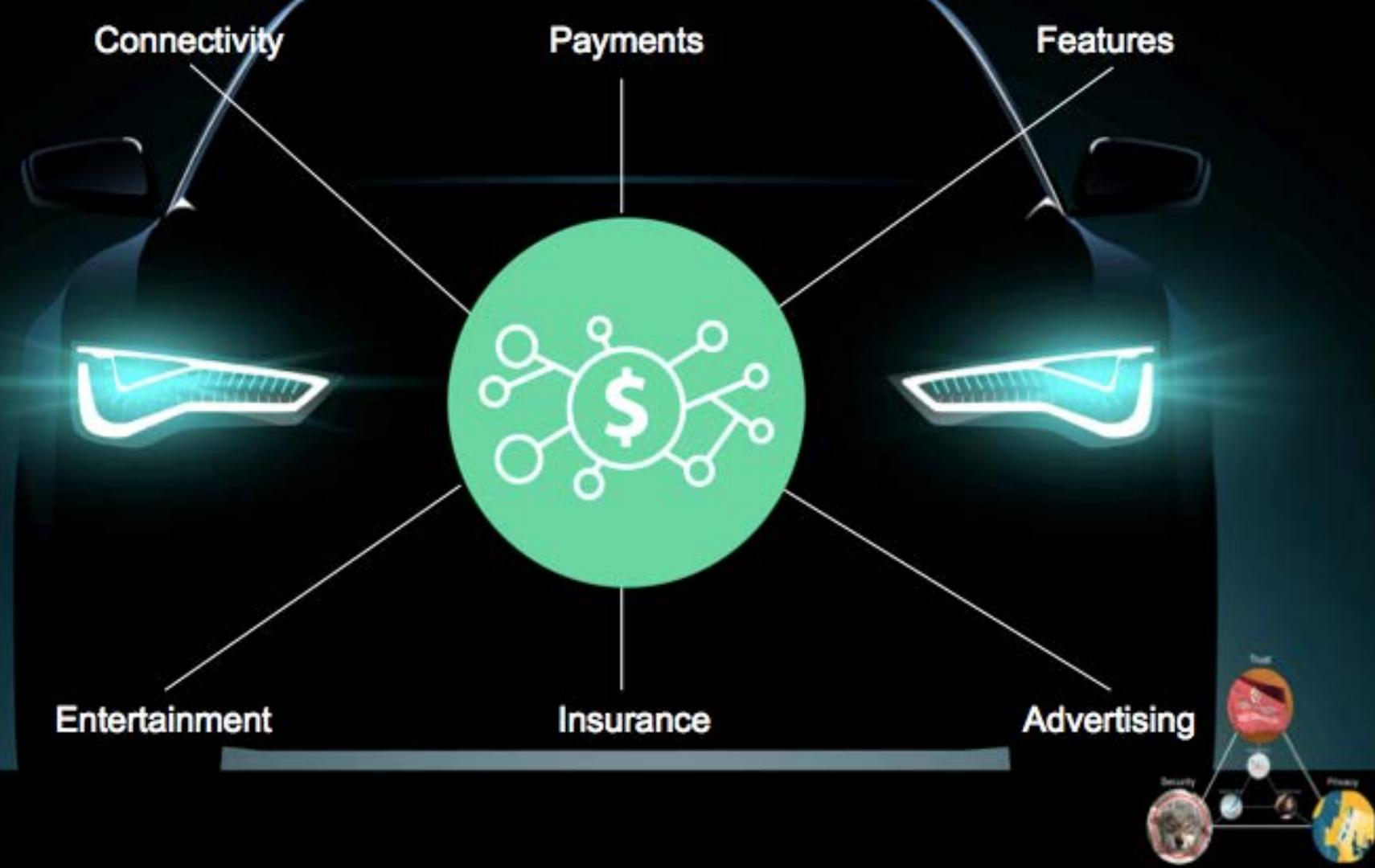


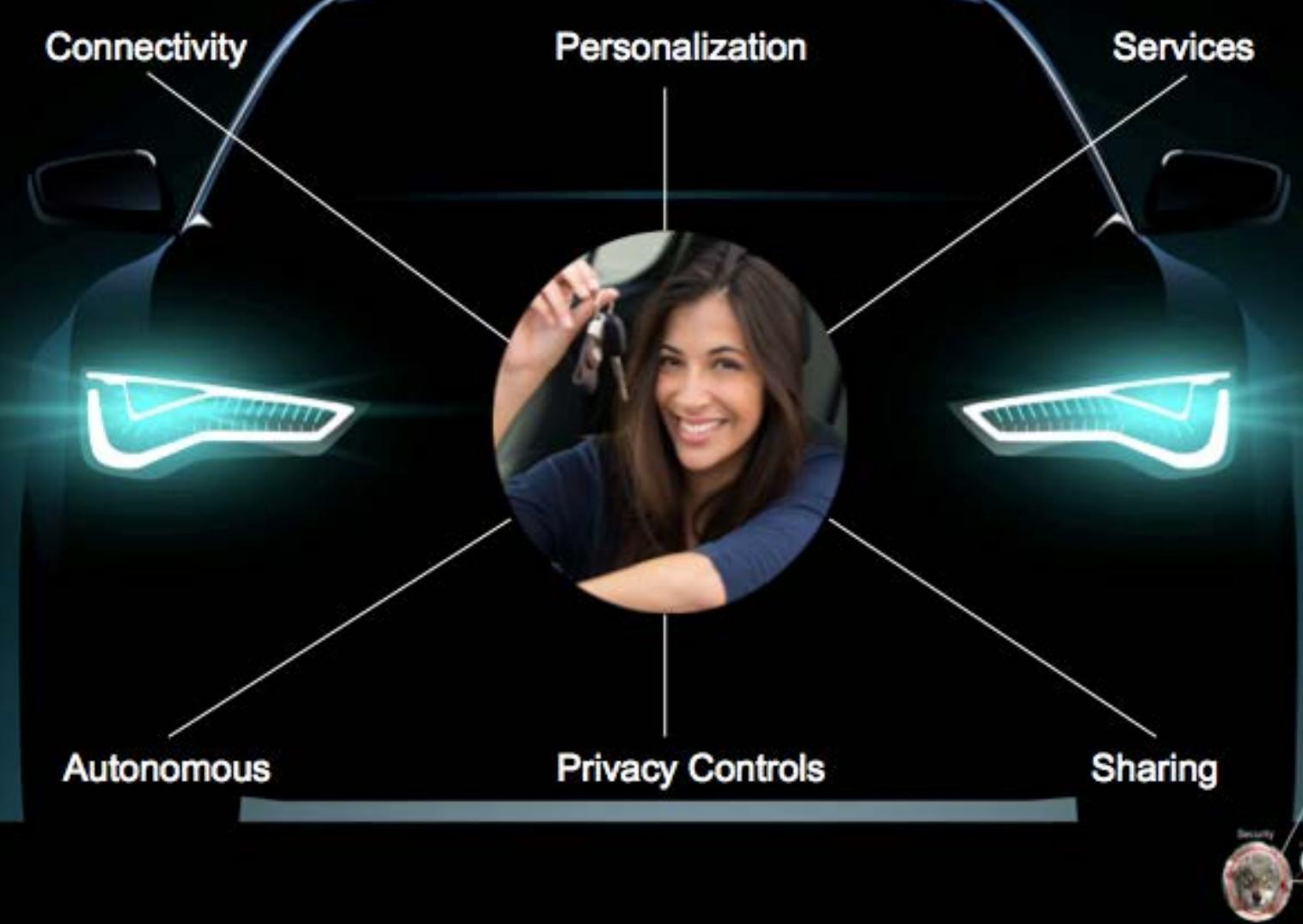
Customer Focus



## Privacy







A complex network graph composed of numerous white icons connected by a web of thin white lines. The icons represent various concepts such as technology (phones, cameras, gears), finance (money bags, dollar signs), and social media (people, speech bubbles). The graph is highly interconnected, symbolizing the complexity and interconnectedness of modern relationships.

# It's All About Relationships

**People**



**Cars**



**Cloud Services**



**Sensors**

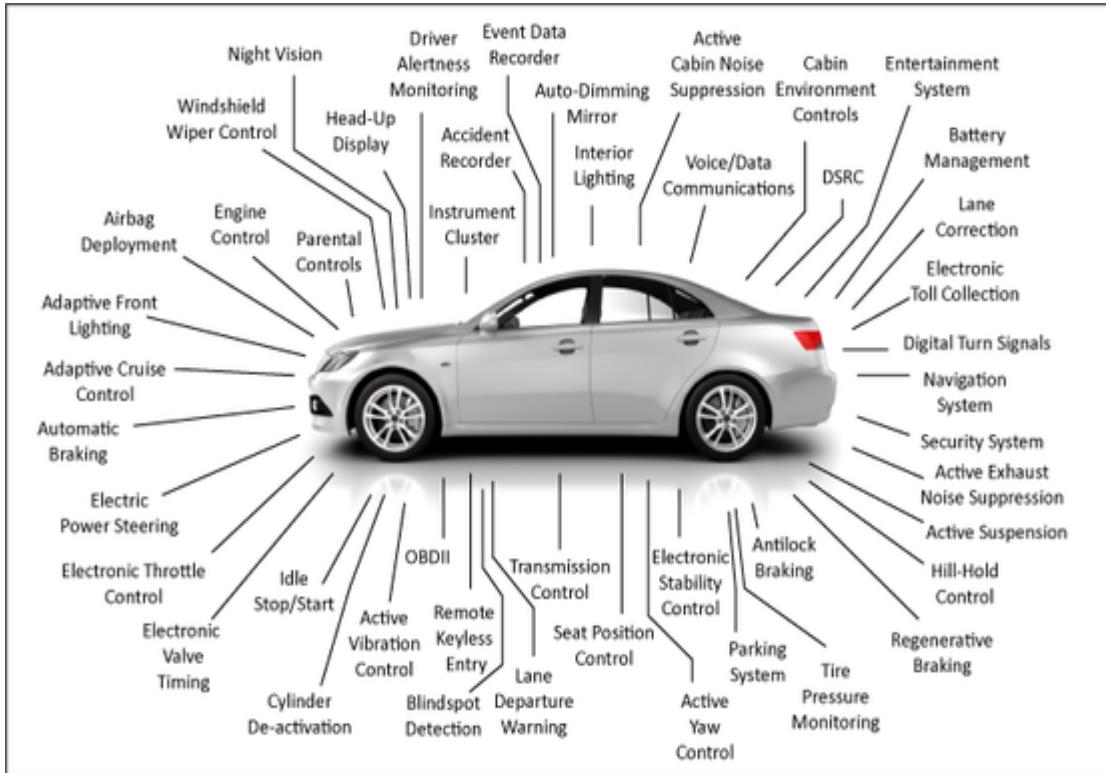


**Software**



**Infrastructure**

# Cars and Connected Devices

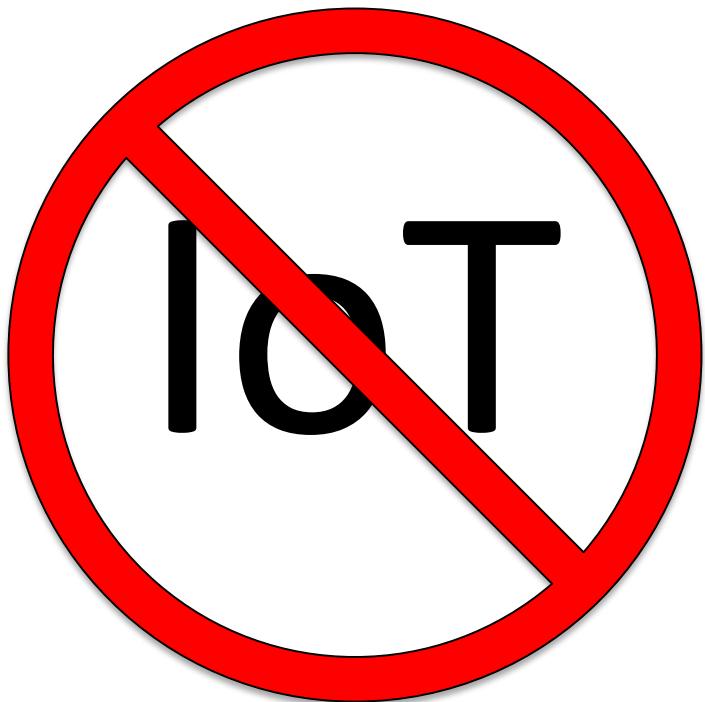


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A RADICAL IDEA...?

# Just Say No to....IoT

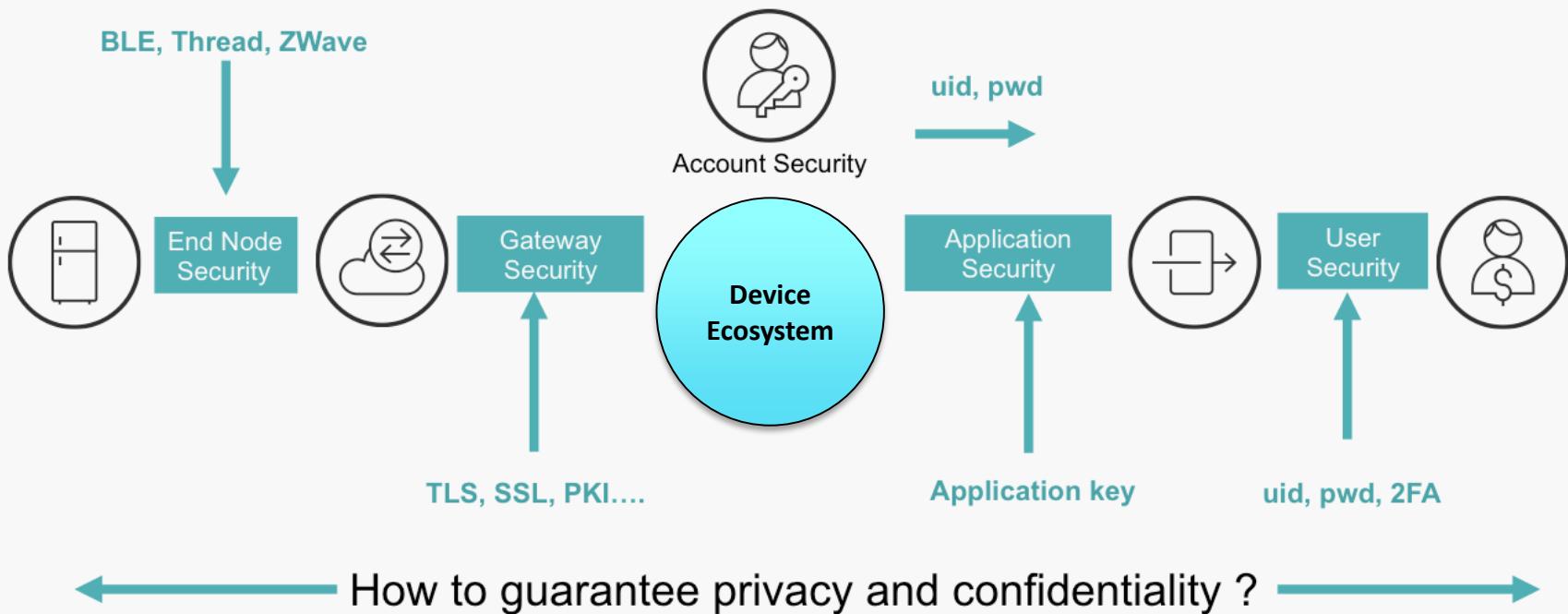


# Instead...

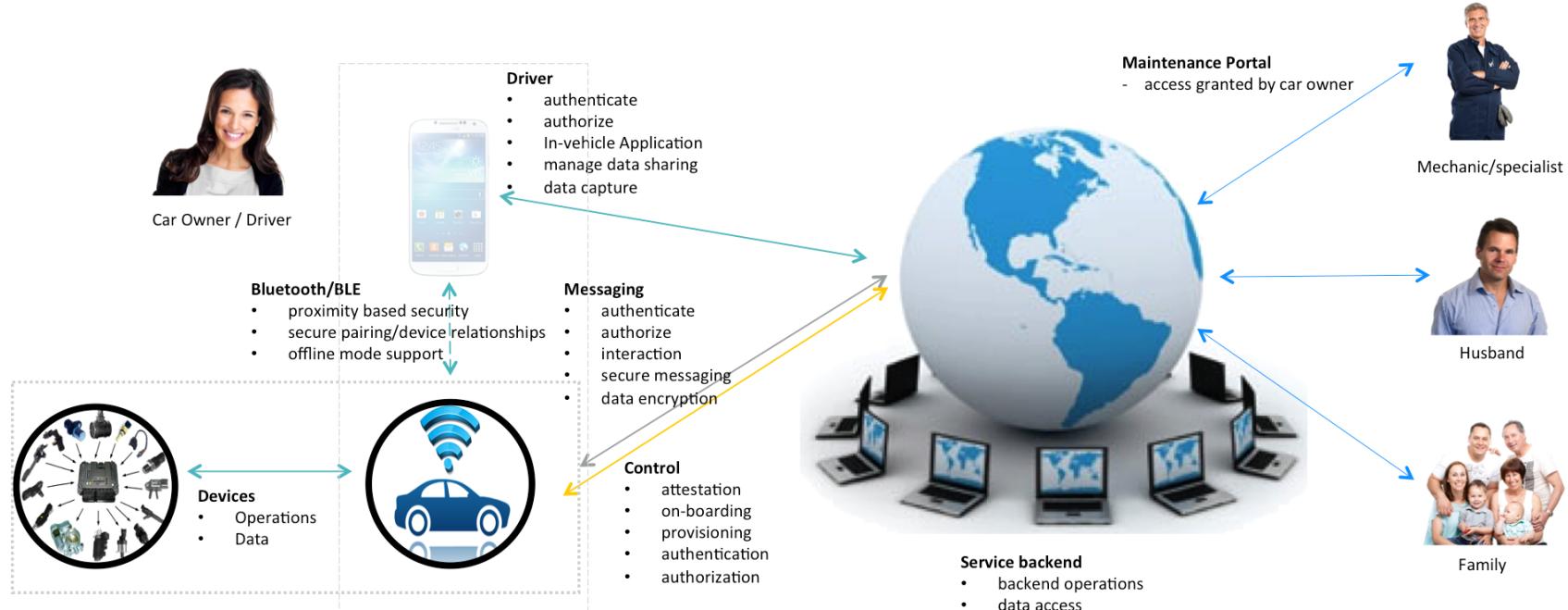


- Connected Devices...
  - Exist to better serve customers and business processes
  - Are not effective in silos
  - Require varying levels of Trust and Security
  - Need Digital Identities, Credentials, Authentication and Authorization
  - Are very different across different industries and use cases, and therefore;
  - Are underserved when referred to in bulk as “IoT”

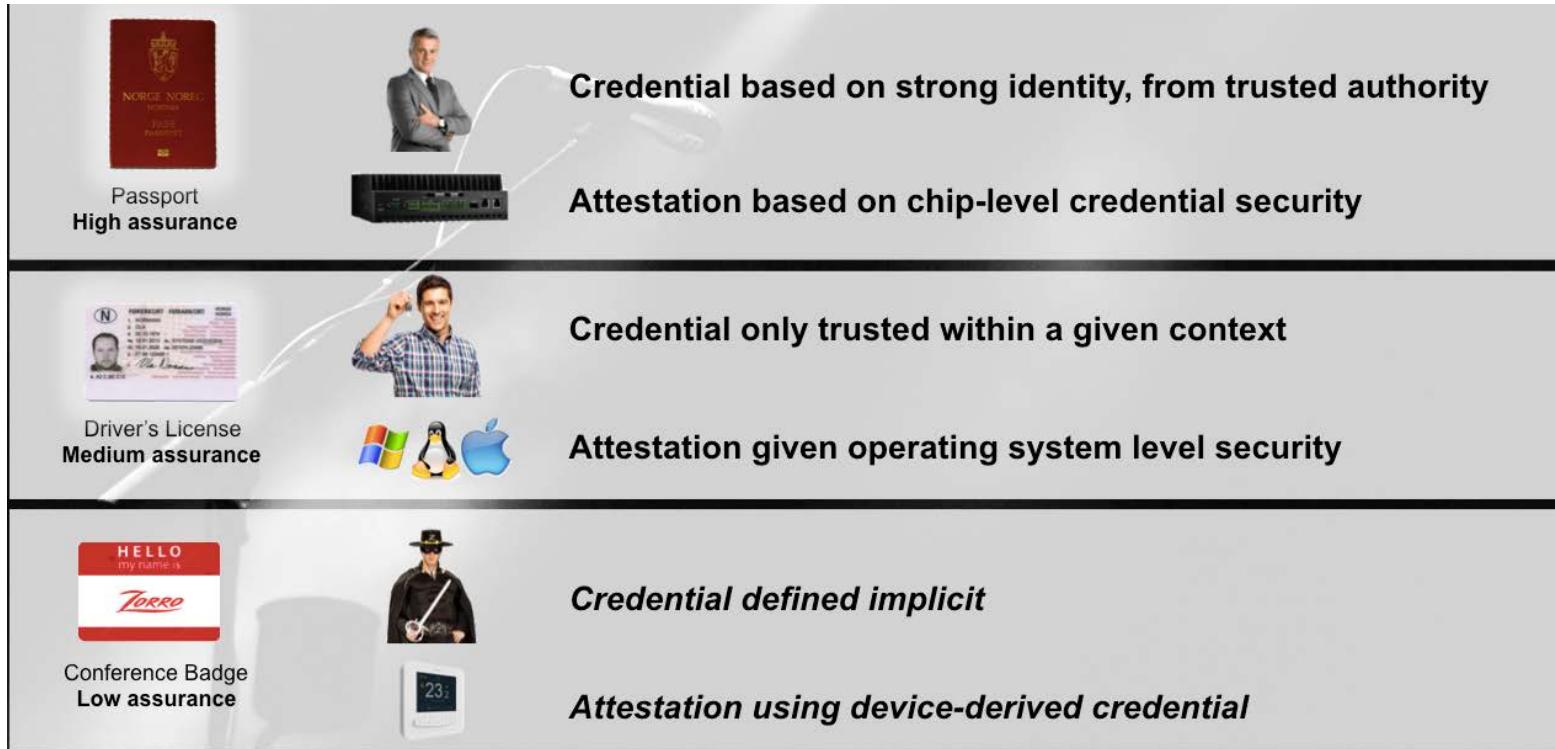
# Security Challenges with Connected Devices



# Connected Car Ecosystem Example



# Trusted Credentials – People vs. Devices



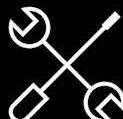
## PEOPLE



Owners



Drivers



Maintainers

## Identity Keys



### Voice Recognition



### Biometric

## VEHICLES



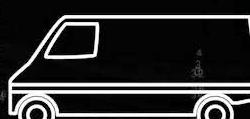
### Ownership and Personalization



### Car Sharing

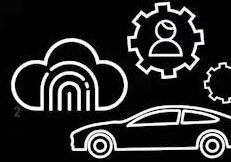


### Ride Hailing



### Smart Logistics

## Digital Identities



### Authentication



### Authorization

## MOBILITY SERVICES



### Monetized Services

Digital content, subscriptions, etc.



### Urban Mobility

Vehicle-to-Infrastructure



### V2V

Vehicle-to-Vehicle

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#RSAC

## BEYOND AUTOMOTIVE



In 2020, Natilus's huge unmanned planes could carry 200,000 pounds of goods across the world. But first, a 30-foot prototype must pass test runs.



IMAGES: COURTESY OF NATILUS

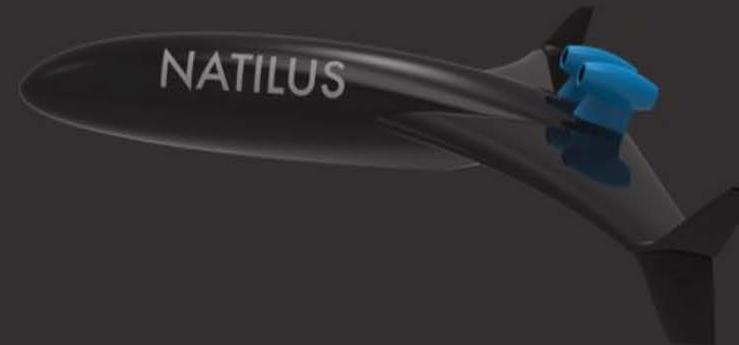
**17x faster** than a standard cargo ship

**50% the cost** of a Boeing 747



504 hours

\$61,000



**30 hours**

**\$130,000**



11 hours

\$260,000

EXAMPLE: 200,000 LBS of cargo from LA to Shanghai  
assuming \$3 / gal for jet A



gogo



# Summary



- Automotive is evolving into a new “Mobility” Industry
- This new industry favors the *as-a-service* model over ownership
- Digital Identity expands Security and Privacy from compliance & prevention tools to critical business enablers
- Cars and Mobility is just one industry example
- Reconsider “IoT” and think of connected device roles in terms of industries, business use cases and value chains

# Apply What You've Learned



- Identify your customer's connected endpoints (includes devices) and consider how to apply the 4 corners of identity beyond humans
- Think about how to integrate IoT Device and Device identities with human and organizational identities.
- Learn more about the User Managed Access Standard
- Check out other standards and open source bodies such as Automotive Grade Linux (AGL) and the Car Connectivity Consortium (CCC)