VENIAM

The Internet of Autonomous Vehicles

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WHY MASSIVE DATA BETWEEN VEHICLES AND THE CLOUD?

VEHICLE TELEMETRY, SAFETY AND FLEET ANALYTICS

Manage product life cycle, improve safety, lower maintenance costs, maximize fleet ROI

HIGH-BANDWIDTH INTERNET TRAFFIC

Mobile Wi-FI for passenger, content for onboard screens

URBAN DATA FOR SMARTER CITIES

Urban sensing using vehicles, IoT sensors, data APIs

VIDEO CAMERAS

Increase security and safety, reduce risks, build maps

AUTONOMOUS VEHICLES

Accelerate product and time-to-market
Maps, software updates, Internet traffic

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SAFETY DATA

HIGH RES MAPS

INFOTAINMENT

SOFTWARE UPDATES

ROAD DATA

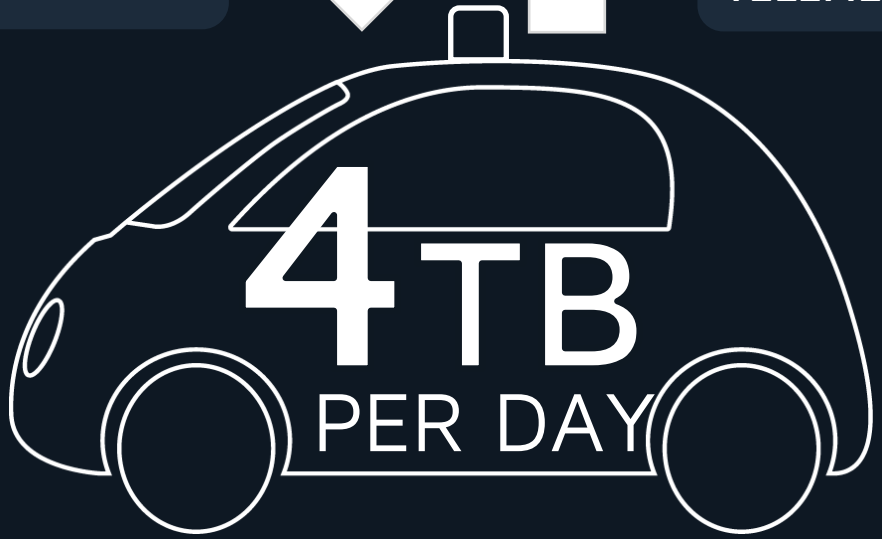
SECURITY VIDEOS

VEHICLE TELEMETRY

PASSENGER DATA

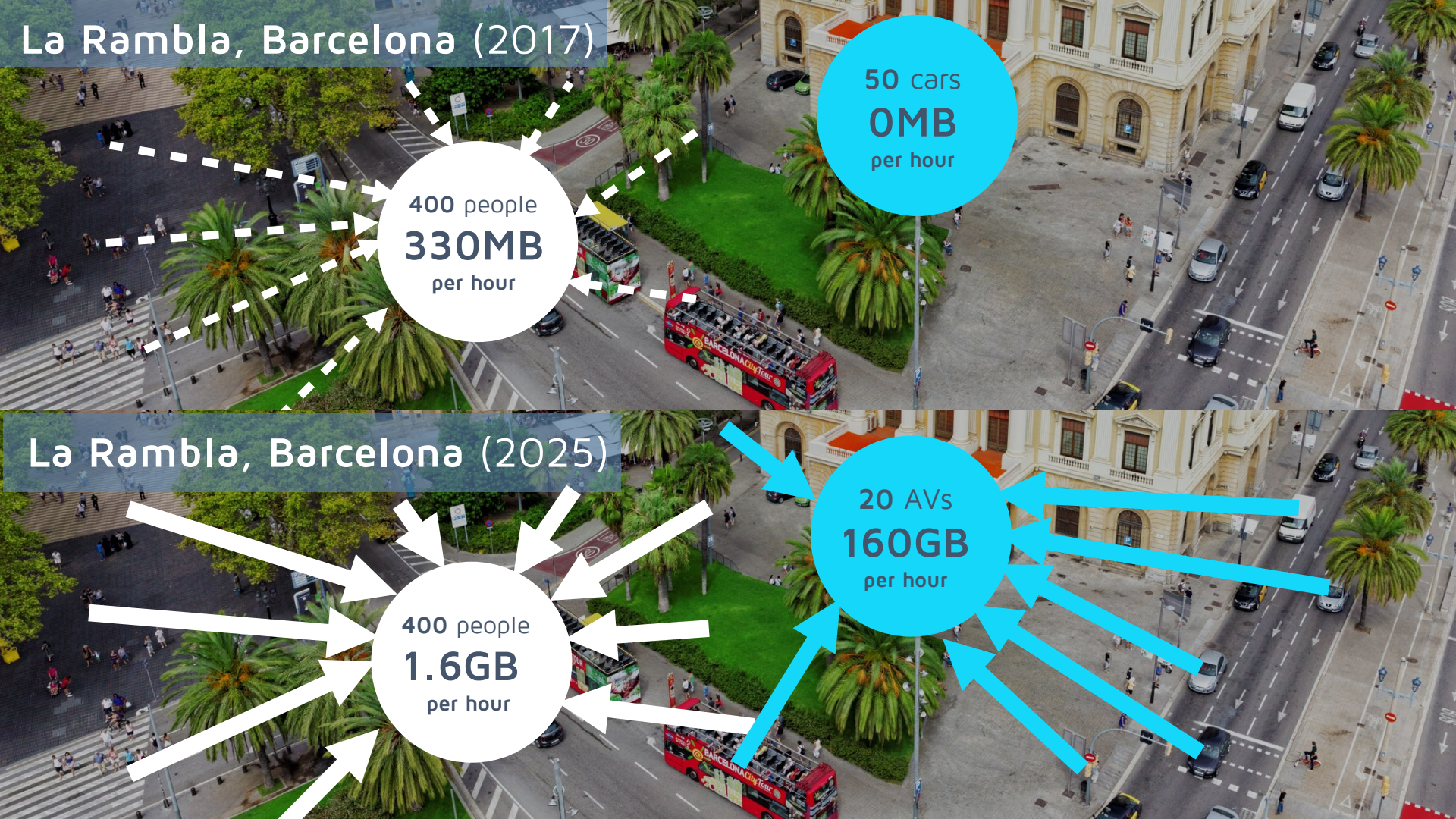
GPS
50 KB/S

LIDAR
70 MB/S



CAMERAS
40 MB/S

RADAR
100 KB/S


La Rambla, Barcelona (2017)
400 people
330MB
per hour
50 cars
0MB
per hour
La Rambla, Barcelona (2025)
400 people
1.6GB
per hour
20 AVs
160GB
per hour

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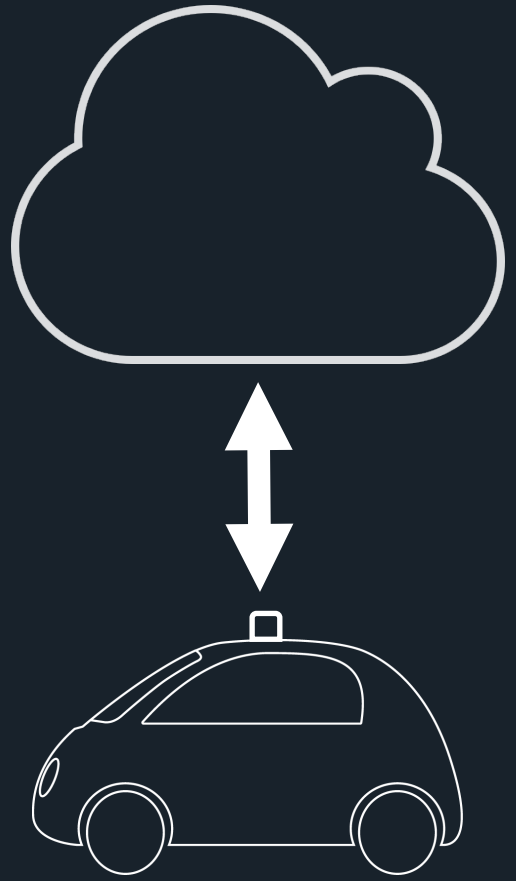
How can we move terabytes of data between vehicles and the cloud?



THE OLD WAY OF THINKING ABOUT NETWORKS

Using networks as silos increases data costs and will leave you outside the upcoming urban mobility revolution

Cost
Efficiency
Criticality

Network		Purpose	Limitation
DSRC (V2X)		Safety applications	75Mhz of free spectrum and 27 Mbps of available bandwidth
Wi-Fi		Vehicle subsystems communications	Unsuitable for data offload on the move (5s connection setup time) Unsuitable for V2V communication (50m range)
4G LTE		Infotainment Security OS Updates	Prohibitive cost at scale (100$/month on pax Wi-Fi for shared mobility cars) Unsuitable for mission critical teleoperations (connection latency > 100ms)

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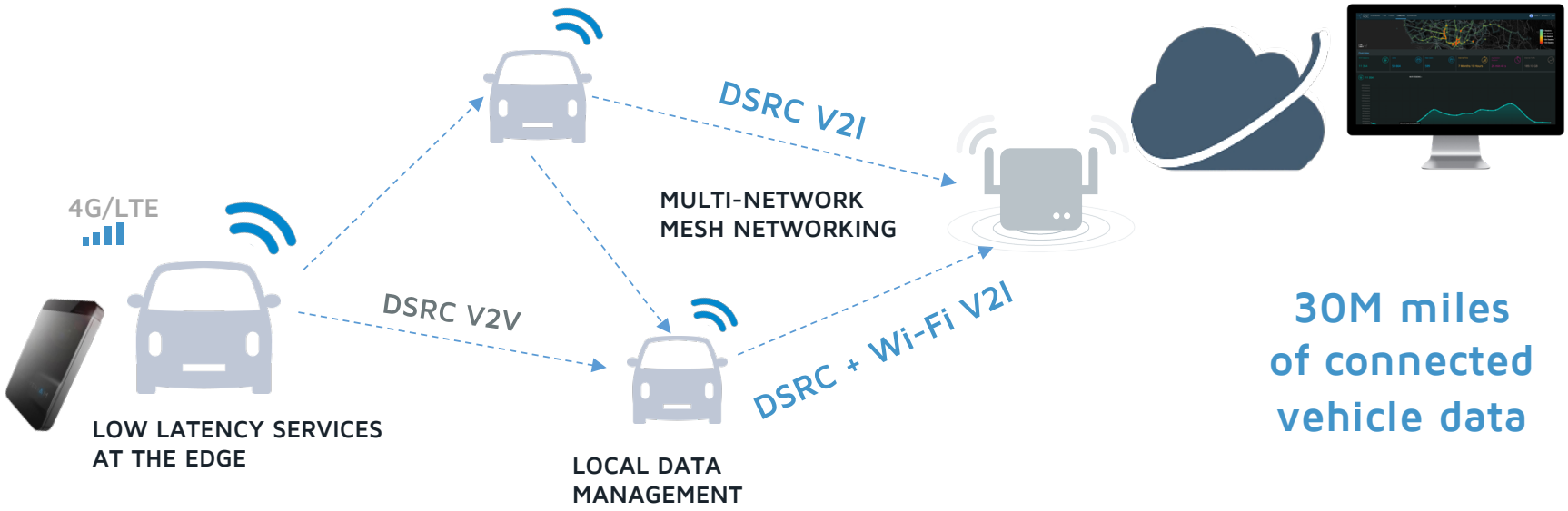
VENIAM PLATFORM

MULTI-NETWORK, MULTI-PURPOSE, UPGRADEABLE



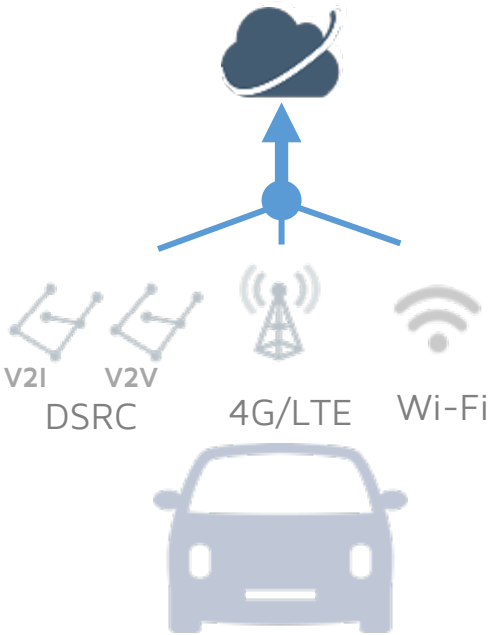
30M miles of connected vehicle data

10 YEARS OF R&D | AWARD-WINNING TECHNOLOGY | 80+ PATENTS

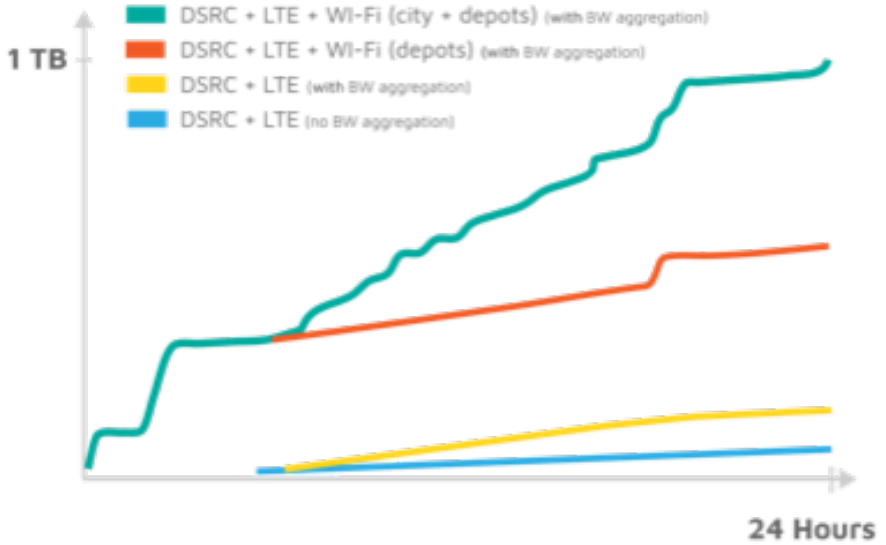
DEVELOPED IN PARTNERSHIP WITH MIT AND CARNEGIE MELLON

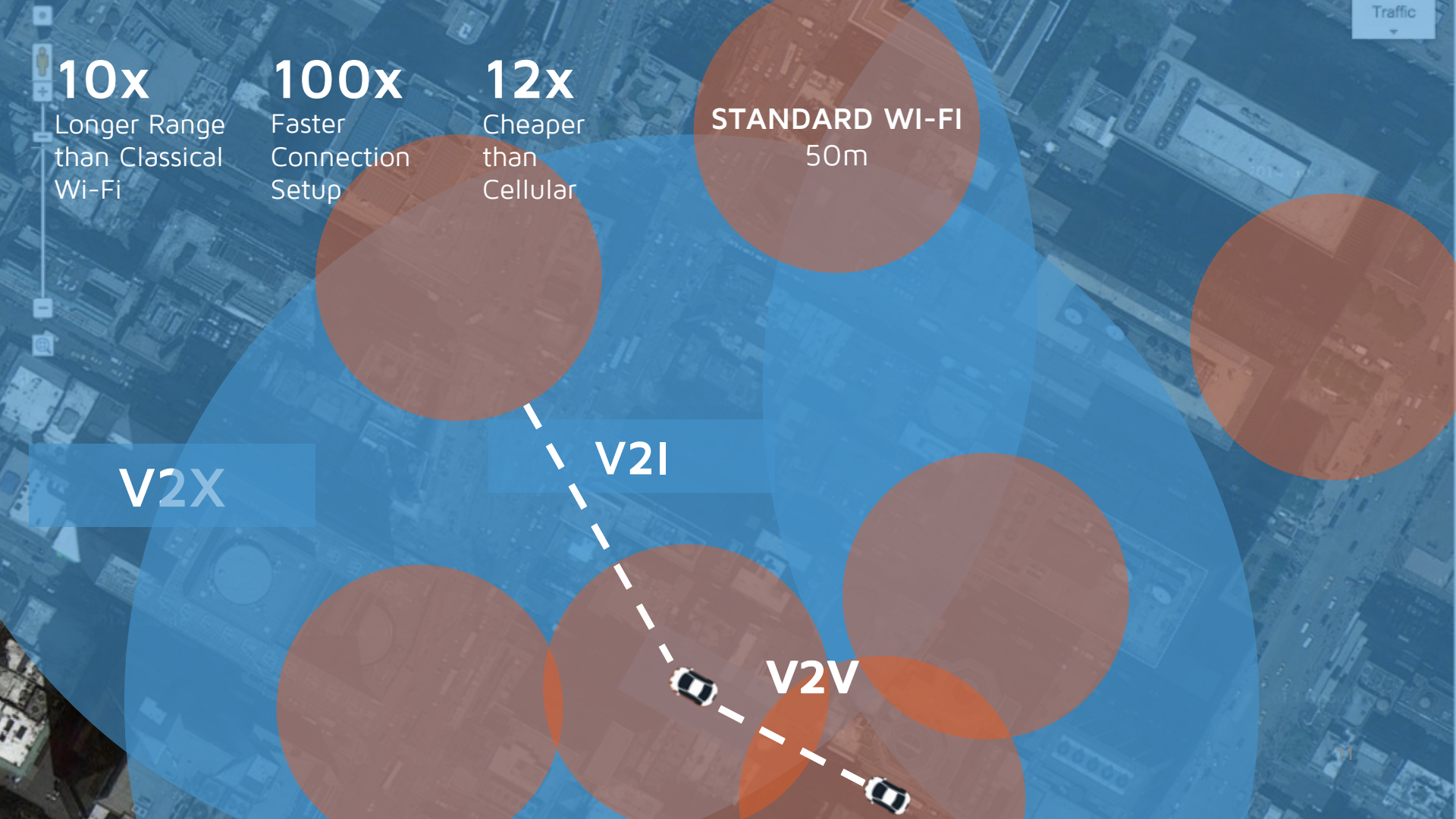
Moving >1TB/vehicle/day

Get the most bandwidth out of all the wireless interfaces in your vehicle



1 TB of data upload in Porto with real-world public buses

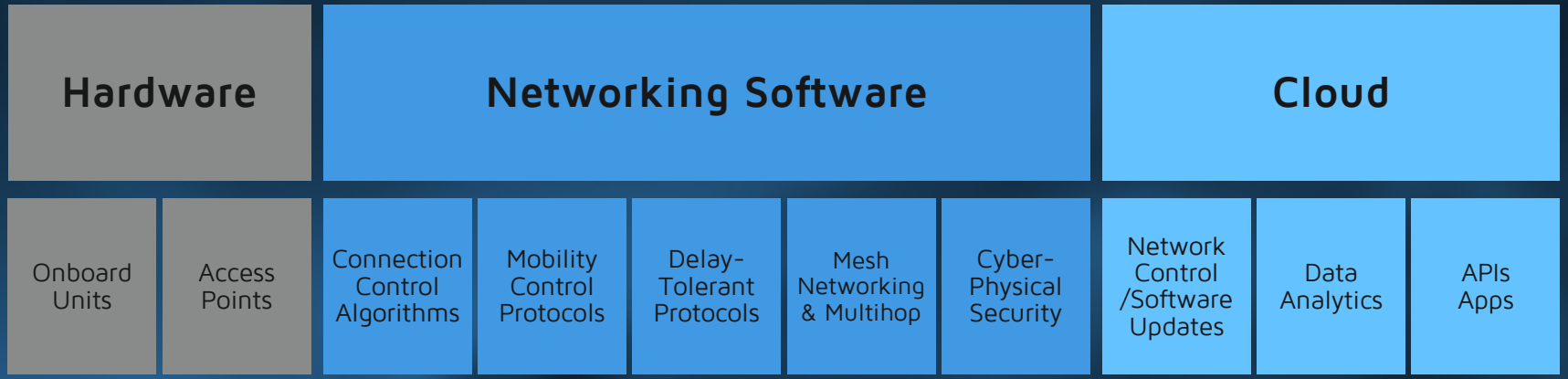



10x
Longer Range than Classical Wi-Fi
100x
Faster Connection Setup
12x
Cheaper than Cellular
STANDARD WI-FI
50m
V2X
V2I
V2V
Traffic

VENIAM TECHNOLOGY PLATFORM

KEY HARDWARE, SOFTWARE, AND CLOUD COMPONENTS FOR CONNECTED VEHICLES

Our technology & IP solve the essential networking challenges in connecting moving things



10 YEARS OF WORLD-CLASS R&D BY VENIAM TECH FOUNDERS AND THEIR TEAMS

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Veniam is 5G

Manageability

Mobility

Diversity

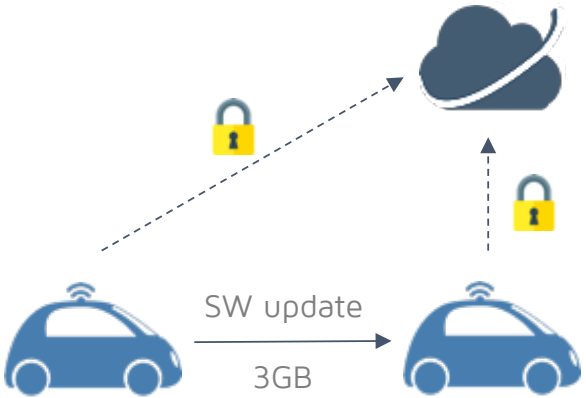
Low Latency

Location & Context

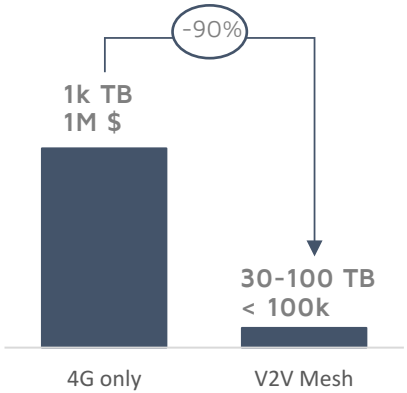
Network slicing

V2V MESH IS THE MOST COST-EFFECTIVE SOLUTION FOR OTA UPDATES

V2V MESH SOFTWARE UPDATES ARE 90% CHEAPER!



Monthly SW update size and cost for NYC for a top OEM



V2V Mesh only requires software updates via 4G in <**5%** of active fleet, leading to:

Full rollout in **1-2 days** for shared mobility vehicles

Full rollout in **7 days** for private consumer vehicles

*Model based on mobility patterns observed in Porto, Portugal

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VENIAM®

The platform that moves terabytes of data between vehicles and the cloud.