

5G[✓] : The Network Effects

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Technology and Product Development

Safe harbor statement

NOTE: In this presentation we have made forward-looking statements. These statements are based on our estimates and assumptions and are subject to risks and uncertainties. Forward-looking statements include the information concerning our possible or assumed future results of operations. Forward-looking statements also include those preceded or followed by the words “anticipates,” “believes,” “estimates,” “expects,” “hopes” or similar expressions. For those statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995. We undertake no obligation to revise or publicly release the results of any revision to these forward-looking statements, except as required by law. Given these risks and uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements. The following important factors, along with those discussed in our filings with the Securities and Exchange Commission (the “SEC”), could affect future results and could cause those results to differ materially from those expressed in the forward-looking statements: adverse conditions in the U.S. and international economies; the effects of competition in the markets in which we operate; material changes

in technology or technology substitution; disruption of our key suppliers’ provisioning of products or services; changes in the regulatory environment in which we operate, including any increase in restrictions on our ability to operate our networks; breaches of network or information technology security, natural disasters, terrorist attacks or acts of war or significant litigation and any resulting financial impact not covered by insurance; our high level of indebtedness; an adverse change in the ratings afforded our debt securities by nationally accredited ratings organizations or adverse conditions in the credit markets affecting the cost, including interest rates, and/or availability of further financing; material adverse changes in labor matters, including labor negotiations, and any resulting financial and/or operational impact; significant increases in benefit plan costs or lower investment returns on plan assets; changes in tax laws or treaties, or in their interpretation; changes in accounting assumptions that regulatory agencies, including the SEC, may require or that result from changes in the accounting rules or their application, which could result in an impact on earnings; the inability to implement our business strategies; and the inability to realize the expected benefits of strategic transactions.

As required by SEC rules, we have provided a reconciliation of the non-GAAP financial measures included in this presentation to the most directly comparable GAAP measures in materials on our website at www.verizon.com/about/investors

5G[✓]

**Throughput Speed Battery Life Gigahertz AR Reliability Millimeter Wave MEC Latency
Reliability Millimeter Wave Battery Life MEC Gigahertz Latency Throughput Speed VR AR
Battery Life Gigahertz Latency Throughput AR Millimeter Wave Reliability XR Speed VR
Gigahertz XR Battery Life MEC Speed Latency MR Millimeter Wave VR Reliability AR
Speed Millimeter Wave MEC Reliability XR Gigahertz Battery Life AR Throughput
Battery Life Gigahertz XR Throughput Millimeter Wave MEC Reliability Latency VR
Millimeter Wave VR Battery Life Reliability MEC AR Gigahertz Latency XR Throughput
Speed Reliability VR Latency AR Battery Life MEC Throughput Millimeter Wave XR
VR Throughput Reliability Latency Millimeter Wave Speed Battery Life Gigahertz MEC
Latency VR Reliability Battery Life MEC Millimeter Wave XR Gigahertz Speed AR**

Throughput Speed Battery Life Gigahertz AR Reliability Millimeter Wave MEC Latency

Reliability Millimeter Wave Battery Life MEC Gigahertz Latency Throughput Speed VR AR

What is it Latency Throughput AR Millimeter Wave Reliability XR Speed VR

Gigahertz XR Battery Life MEC Speed Latency MR Millimeter Wave VR Reliability AR

Speed Millimeter Wave MEC **When is it coming** Throughput

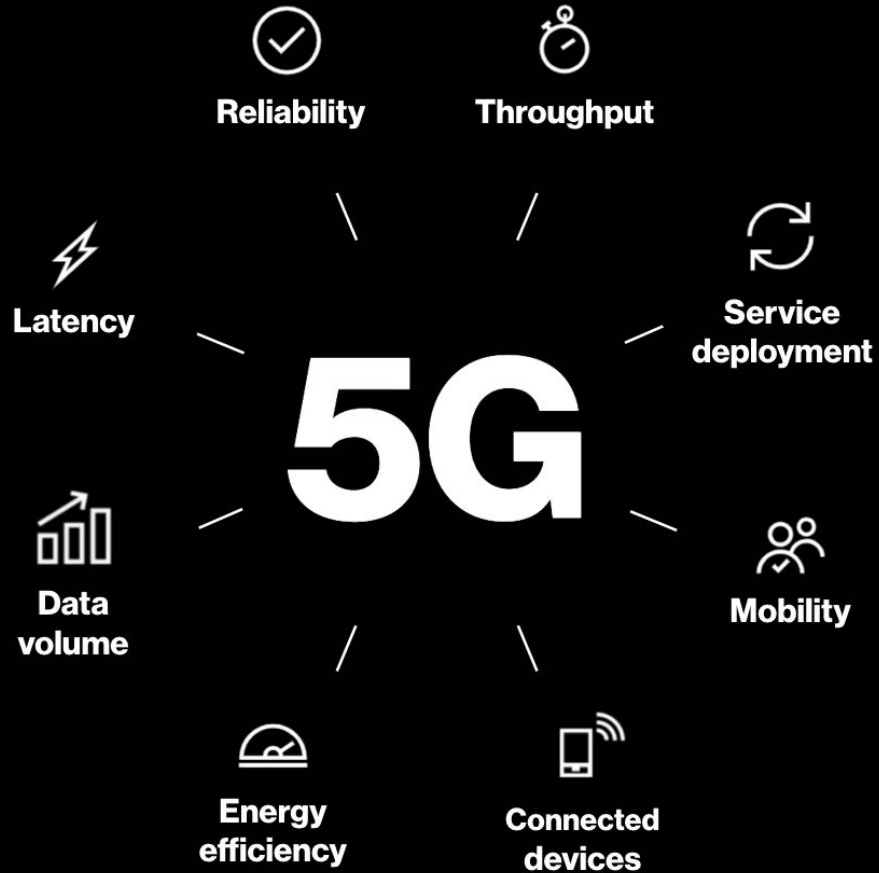
Battery Life Gigahertz XR Throughput Millimeter Wave MEC Reliability Latency VR

Millimeter Wave VR Battery Life Reliability MEC AR Gigahertz Latency XR Throughput

Speed **What is that killer app** ughput Millimeter Wave XR

VR Throughput Reliability Latency Millimeter Wave Speed Battery Life Gigahertz MEC

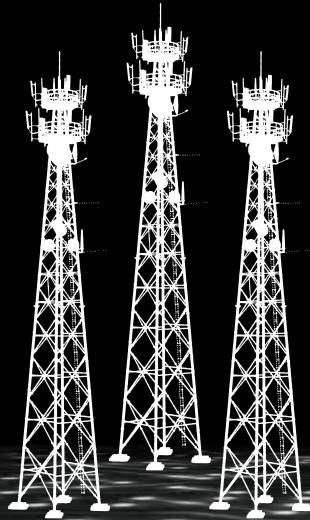
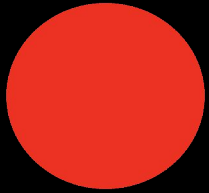
Latency VR Reliability Battery Life MEC Millimeter Wave XR Gigahertz Speed AR



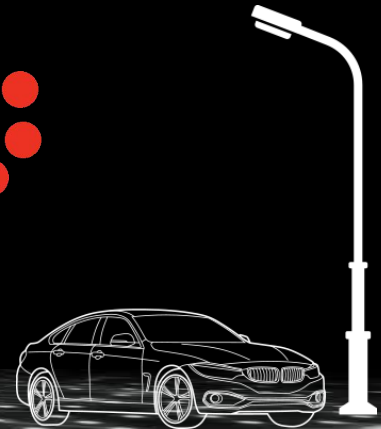
5G^v A New Infrastructure

Fixed Wireless and Mobile

4G Macro Cells



5G Small Cells



5G^v New Radio Bands

600MHz

Slow and long
distances

LOW FREQUENCY

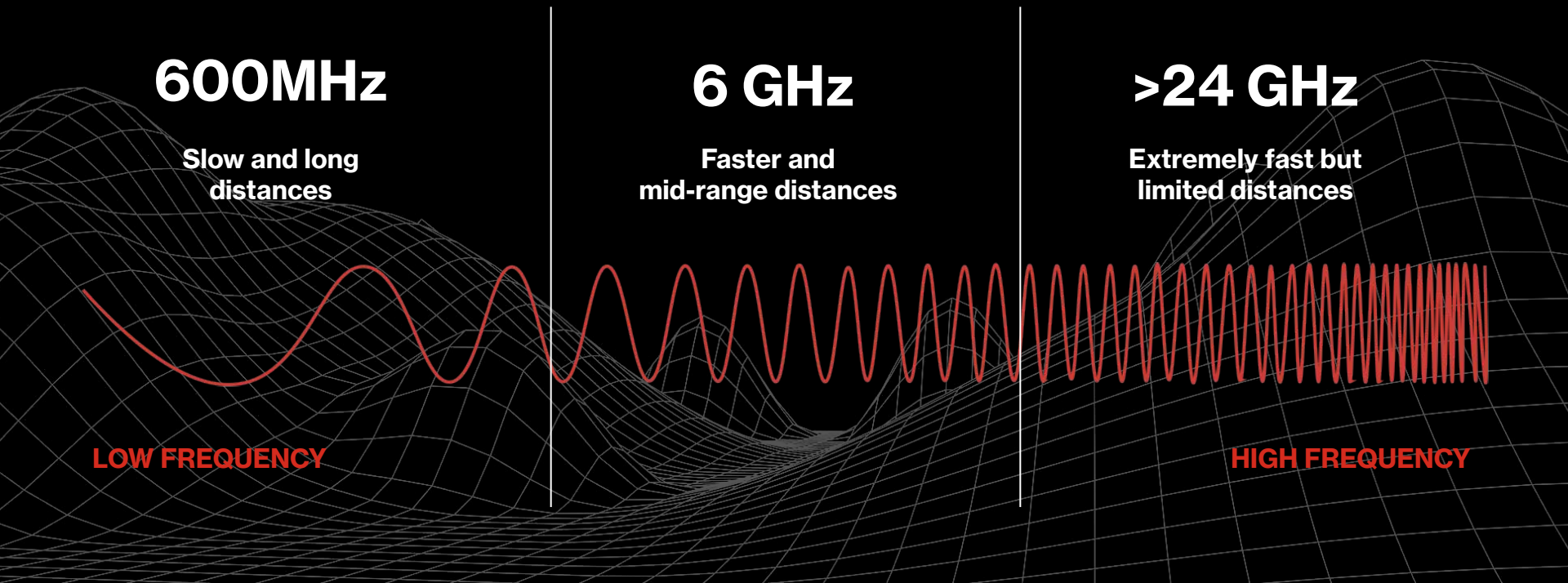
6 GHz

Faster and
mid-range distances

>24 GHz

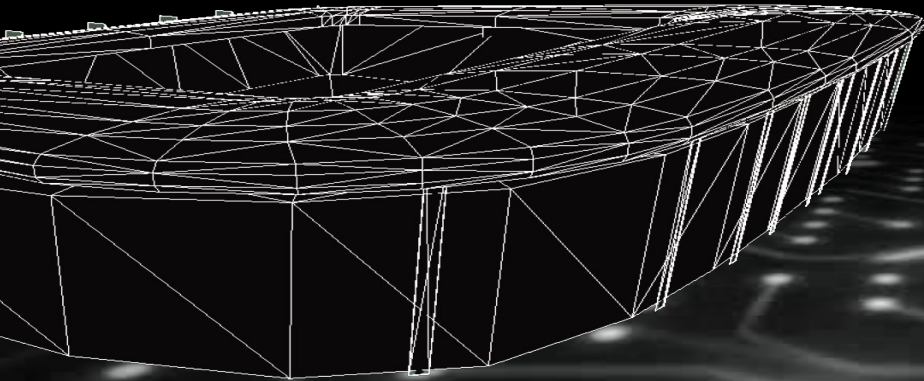
Extremely fast but
limited distances

HIGH FREQUENCY

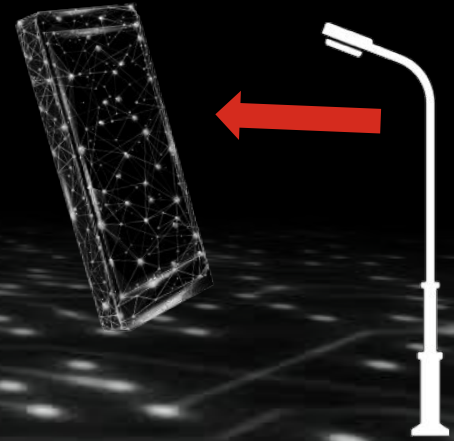


5G^v A More Efficient Network

1M Devices / Sq. Kilometer

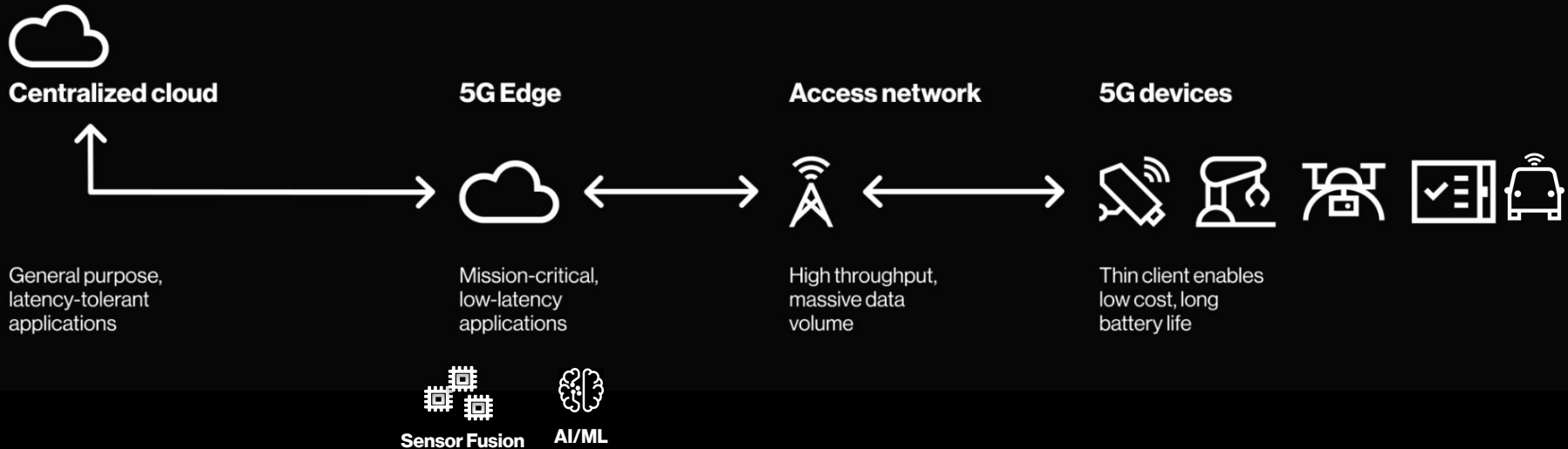


Precise Directional Control



5G^v Multi-access Edge Computing

Multi-access edge computing (MEC) brings technology resources closer to the end user. Data is processed and stored at the network's edge, not at some distant data center, significantly reducing latency. MEC provides both an IT service environment and cloud computing capabilities to help enable the real time enterprise.



5G Device Ecosystem is Growing

Modules



Smartphones



Tablet/PC



Gateways



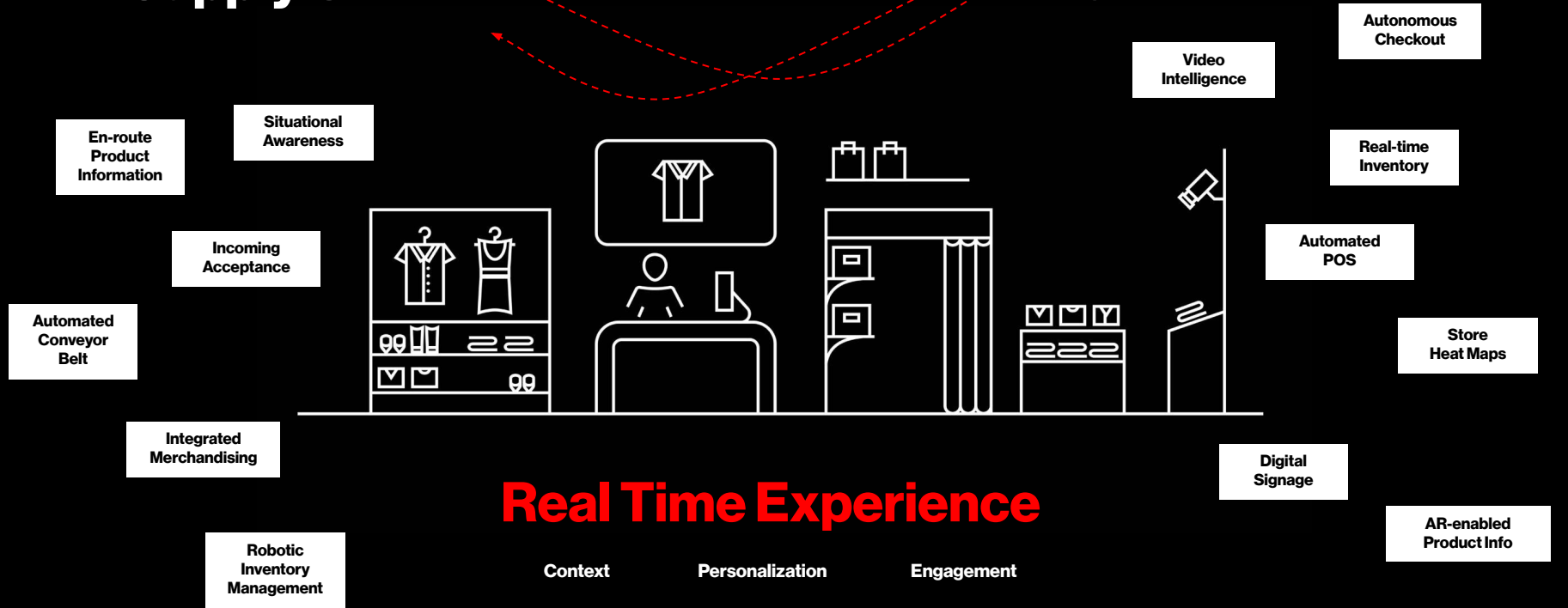
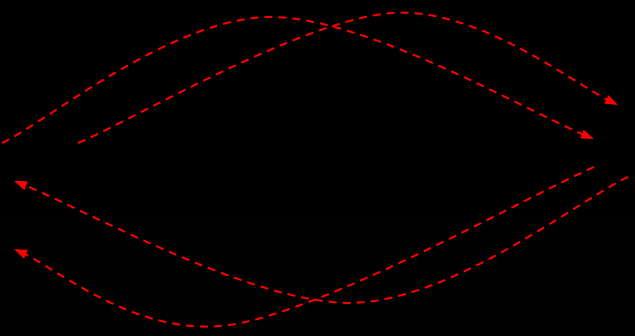
Industrial



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Intelligent Supply Chain

Intelligent Retail



Real Time Experience

Context

Personalization

Engagement

Verizon Use Cases and Enabling Solutions

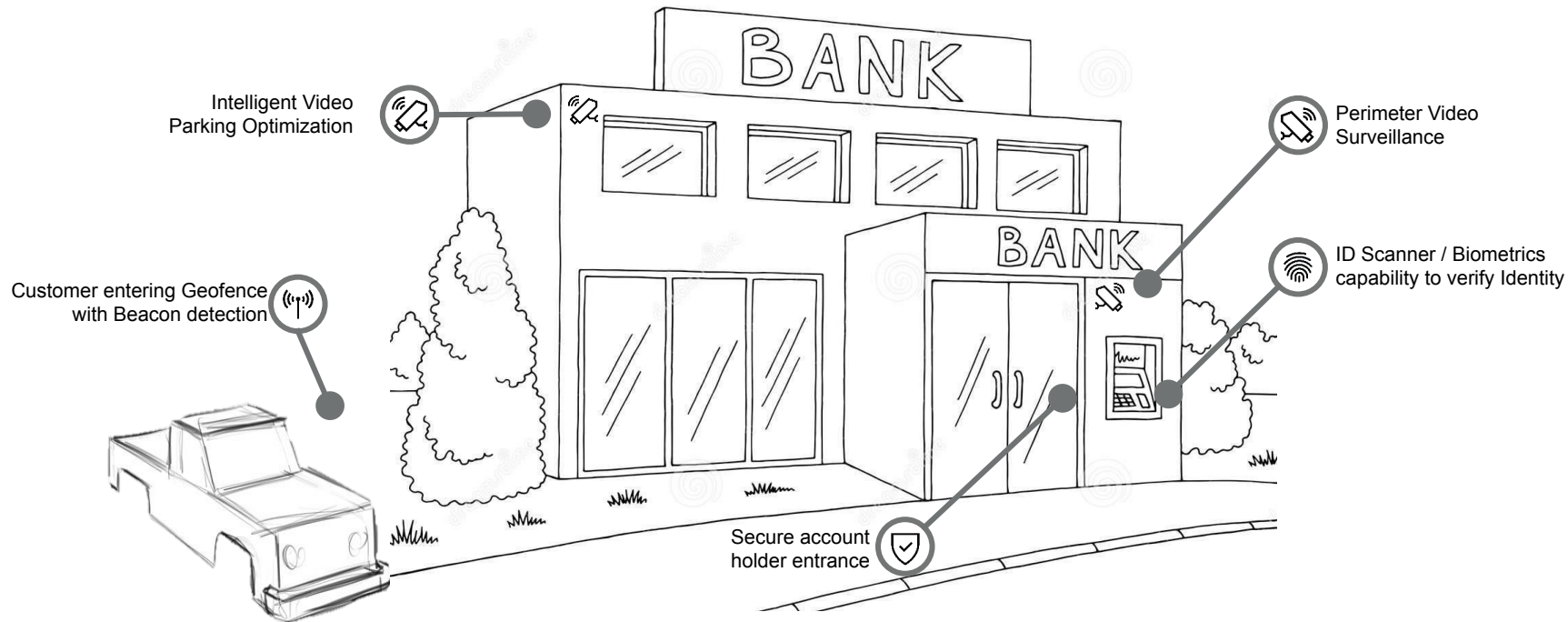
Use Cases

- **Branch Network Modernization** (4G LTE / 5G)
- **Intelligent Video** (customer analytics, safety, line management, parking optimization)
- **Voice Analytics** (VOC, sentiment analysis, Whisper Coaching, quality monitoring)
- **AR / VR** (immersive learning)
- **Low-latency Connectivity** (ATM, temporary/ portable branch, guest internet)
- **Personalized Experience** (Digital Displays, geofences for customer detection)

Products and Solutions

- Network as a Service
- 4G/5G Business Internet
- In person Speech Analytics
- Intelligent Video Solutions
- Smart Tablets
- Digital display (VMG)
- Virtual Agent assist
- Location / Proximity beaconing

Branch Modernization: Branch Exterior



Branch Modernization: Branch Interior

