PIVOTAL COMMWARE

mmWave Solved™

FCC Open RAN Showcase
5G is Pivotal

July 14, 2021

Pivotal Commware

» Inventors of Holographic Beam Forming® (HBF) - Lowest Cost/Size/Weight/Power consumption

» Creators of the world's first smart repeater ecosystem that has solved mmWave's most vexing challenges

  » Minimizes TCO for 5G mmWave deployments

  » Greatly speeds time to market/revenue

  » Minimizes network carbon footprint

» IP portfolio – 183 patents issued / 26 pending

» Founded 2016 - Kirkland, WA, USA

» 105 employees

» Investors: Gates Investments, Cerberus, Thermo Companies, Fidelity/Devonshire, VZ Ventures, Motorola Solutions, Lockheed Ventures
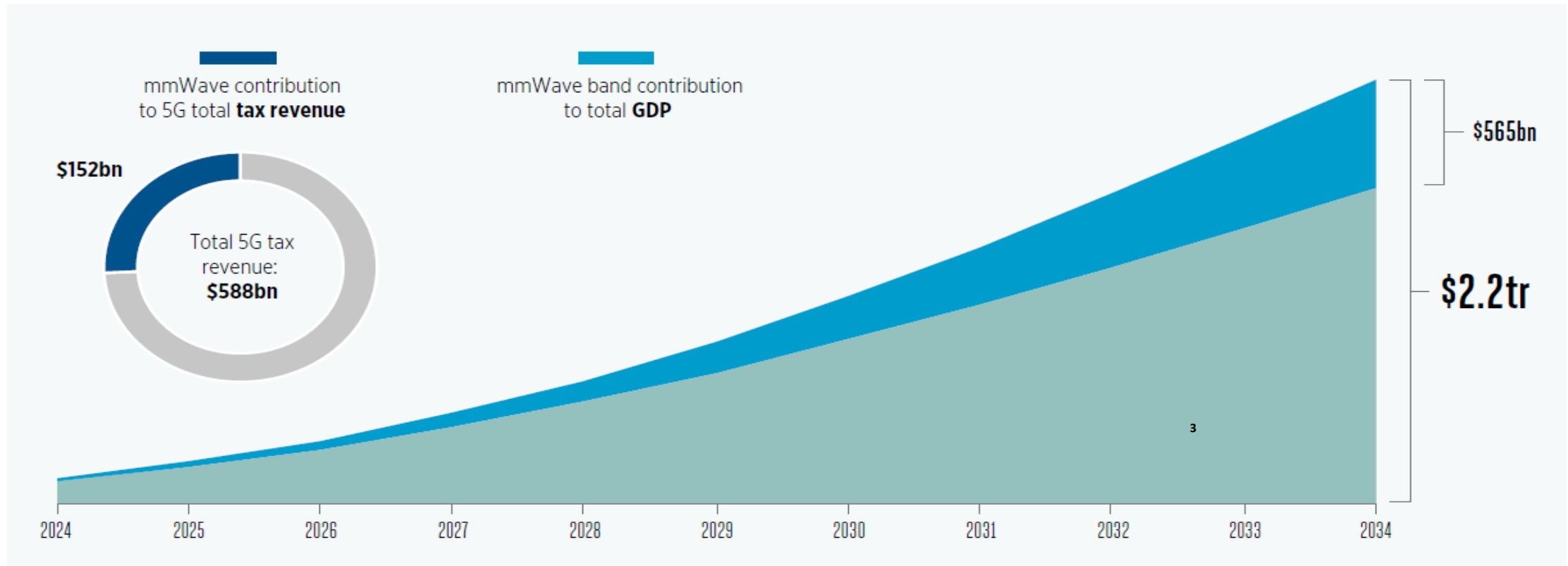

Pivot 5G™ network repeater

Echo 5G™ subscriber repeater

PIVOTAL
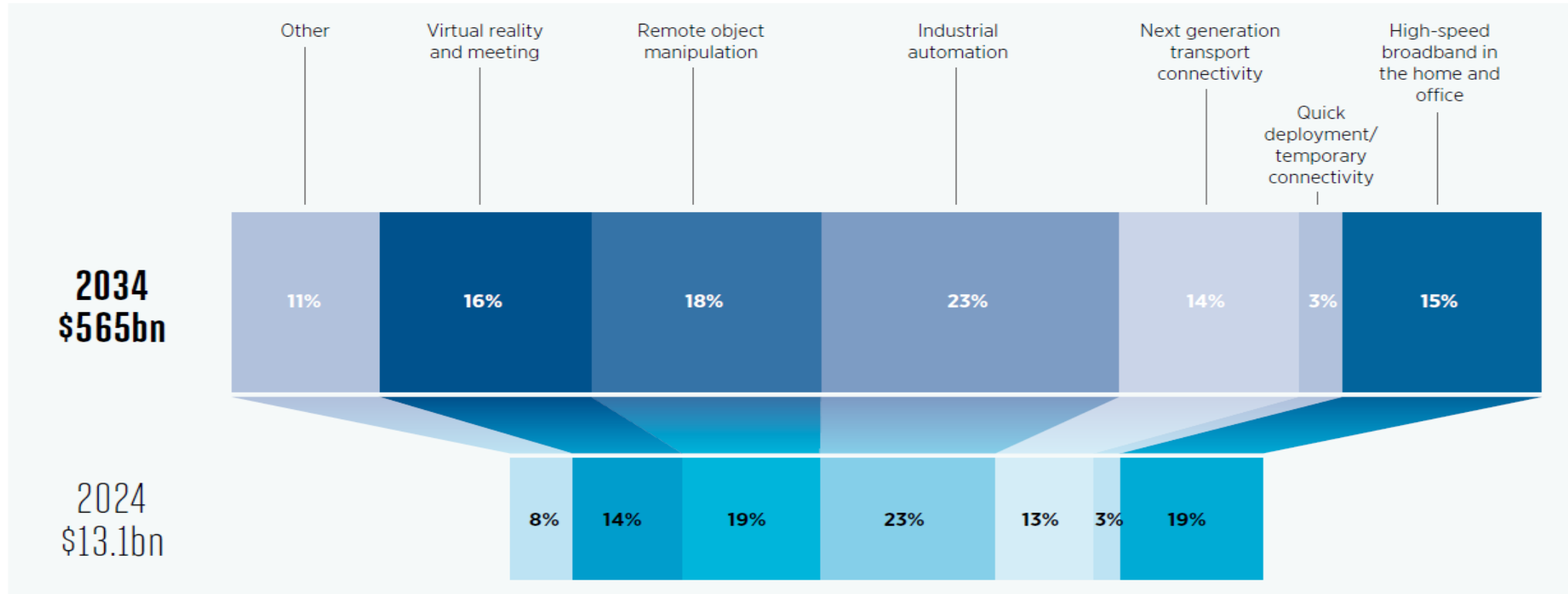COMMWARE

mmWave 5G is Pivotal

FIGURE 1. ESTIMATED IMPACT ATTRIBUTABLE TO MMWAVE SPECTRUM ON GDP AND TAX REVENUE

Source: TMG.

mmWave 5G is Pivotal

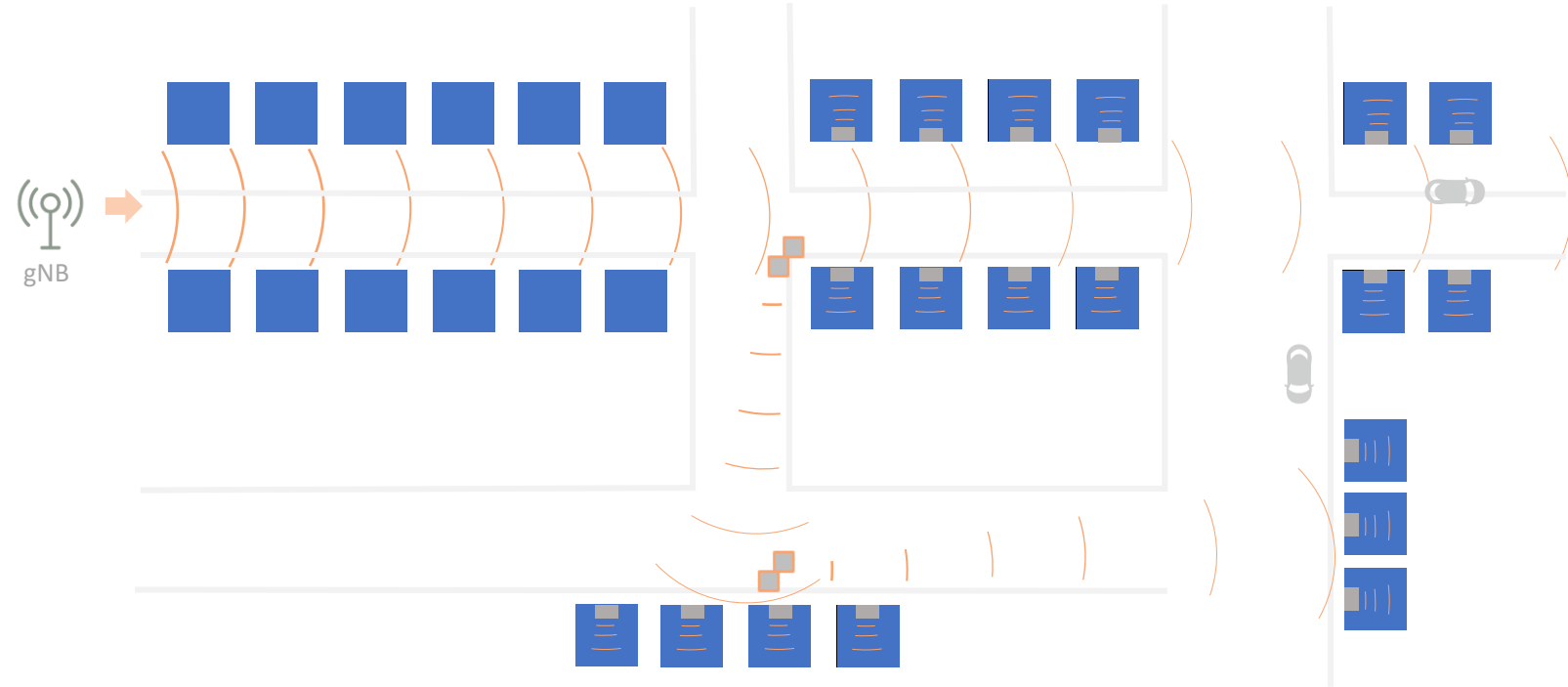FIGURE 6. PROJECTED GLOBAL CONTRIBUTION OF MMWAVE SPECTRUM TO GDP BY USE CASE

Source: TMG.

Pivotal's mmWave Toolkit

Pivotal has created a mmWave toolkit to enable operators to lower TCO and accelerate time-to-market for mmWave 5G OpenRAN deployments.

- Echo 5G facilitates penetration indoors to gently flood with native 5G connectivity.

- Pivot 5G redirects, extends and shapes service coverage outdoors.

gNB

5

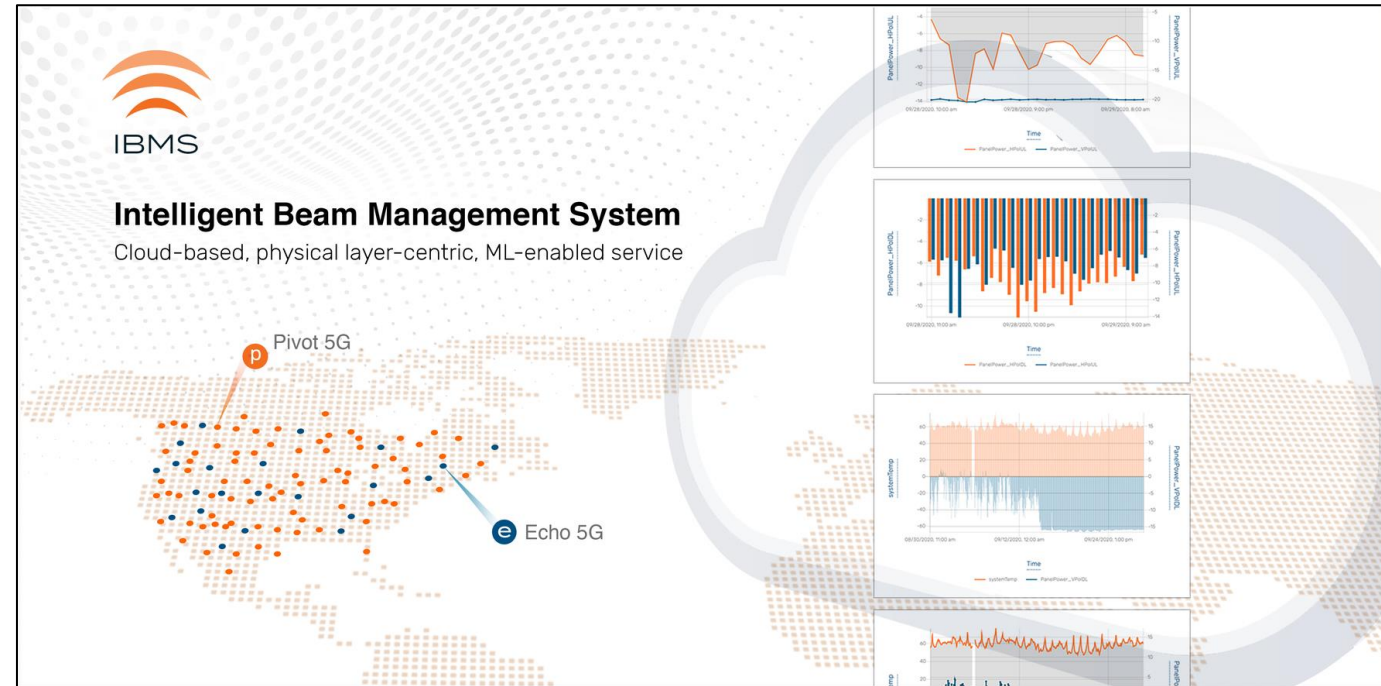| VZ subscribers | Target subscribers | Echo 5G | Pivot 5G |

Pivotal's mmWave Toolkit, con't.

WaveScape optimizes placement of network elements to minimize TCO and prioritize specific subscriber profiles.
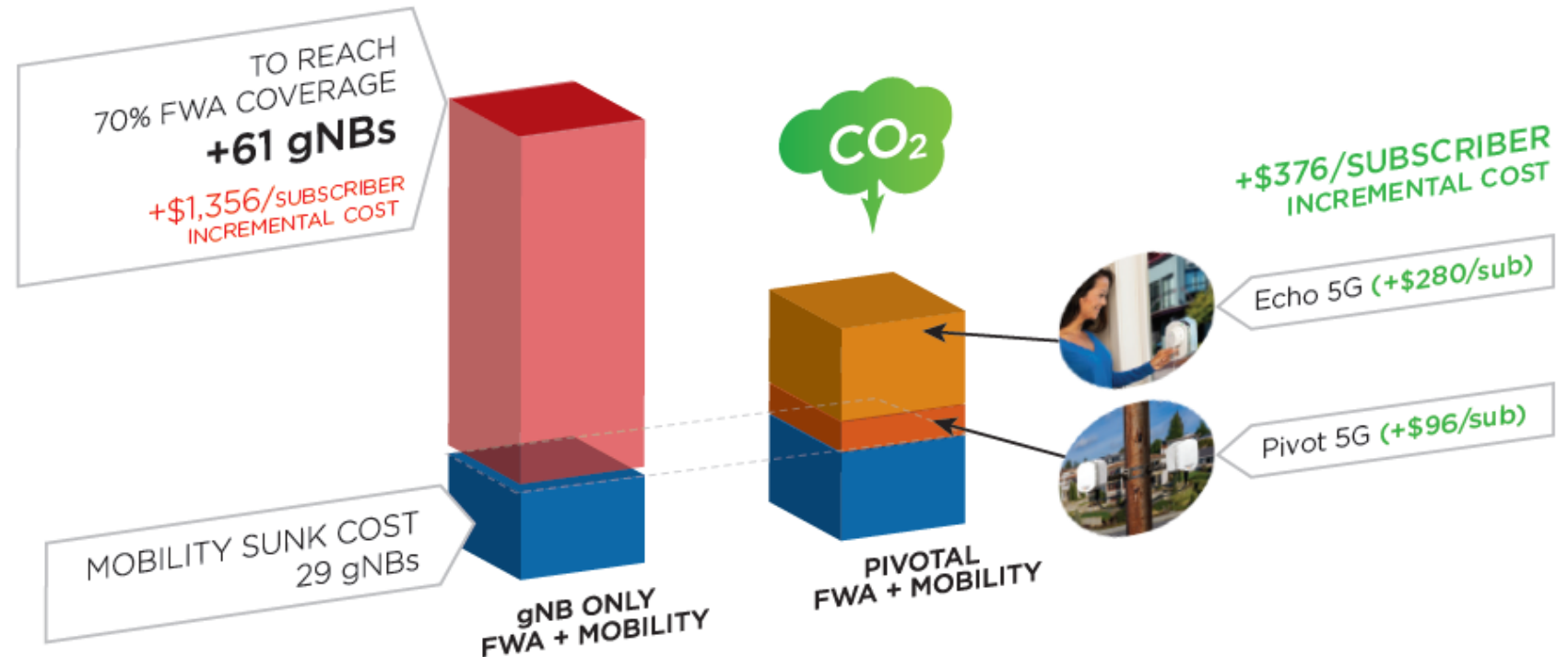

Intelligent Beam Management System provides network status and real-time optimization using machine learning and software defined antennas.

Compelling Unit Economics & Carbon Reduction

Crack the code for mmWave Total Cost of Ownership (TCO)

WaveScape shows that a 29-gNB mobility network requires 61 more gNBs at an incremental cost per subscriber of $1,356 to achieve 70% FWA coverage for the 2,924 subscribers not already served. By contrast, deploying 2,744 Echoes and 56 Pivots instead of 61 more gNBs generates an incremental FWA cost per subscriber of $376. Fewer gNBs translates into 2.4M fewer tons of CO_2/year, equivalent to eliminating emissions from approximately 500,000 vehicles for one year.*

Four Square Kilometers: 70% FWA Coverage

TO REACH 70% FWA COVERAGE
+61 gNBs
+$1,356/SUBSCRIBER INCREMENTAL COST

CO_2

+$376/SUBSCRIBER INCREMENTAL COST

Echo 5G (+$280/sub)

Pivot 5G (+$96/sub)

MOBILITY SUNK COST
29 gNBs

gNB ONLY FWA + MOBILITY

PIVOTAL FWA + MOBILITY

* Based on energy savings associated with the analysis above replicated across the average area of the 300 most populated cities in the U.S.

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Pivotal 5G mmWave Ecosystem

WAVESCAPE™

NETWORK MODELING

- Identifies optimal network node placement for repeaters and gNBs using ultra high resolution geodata imagery, and optimizes for specific business cases, e.g., mobility and FWA

- Confidently qualifies service to buildings, even windows
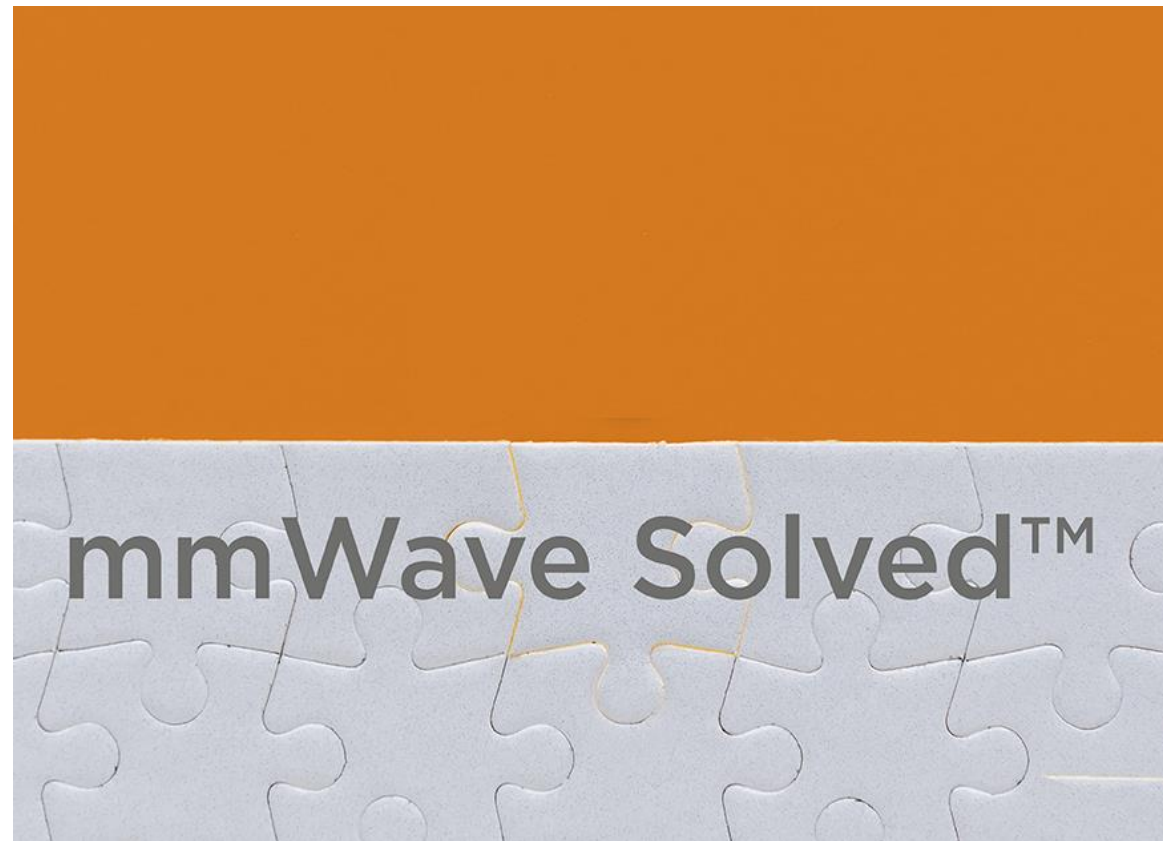
PIVOT 5G™

NETWORK REPEATER

- Extends gNB coverage by 50%; one Pivot doubles service reach of a gNB at an order of magnitude less cost than adding gNBs alone

- Requires no fiber connection, consumes 28W of power, weighs eight pounds, site approves easily and deploys three times faster than gNBs

- Installs easily, self-aligns and commissions remotely

PIVOTAL ECHO 5G™

SUBSCRIBER REPEATER

- Low-profile, glass-attached repeater installed by subscriber for in-building mmWave penetration

- Ubiquitous Gbps coverage indoors at 95+% of area

- Ideal for FWA, mobility indoors, enterprise solutions

IBMS

INTELLIGENT BEAM MANAGEMENTSERVICE

- Real-time Configuration, Performance and Fault Management

- Supports self-healing and network load balancing

- Integrated with WaveScape for real-time coverage view

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