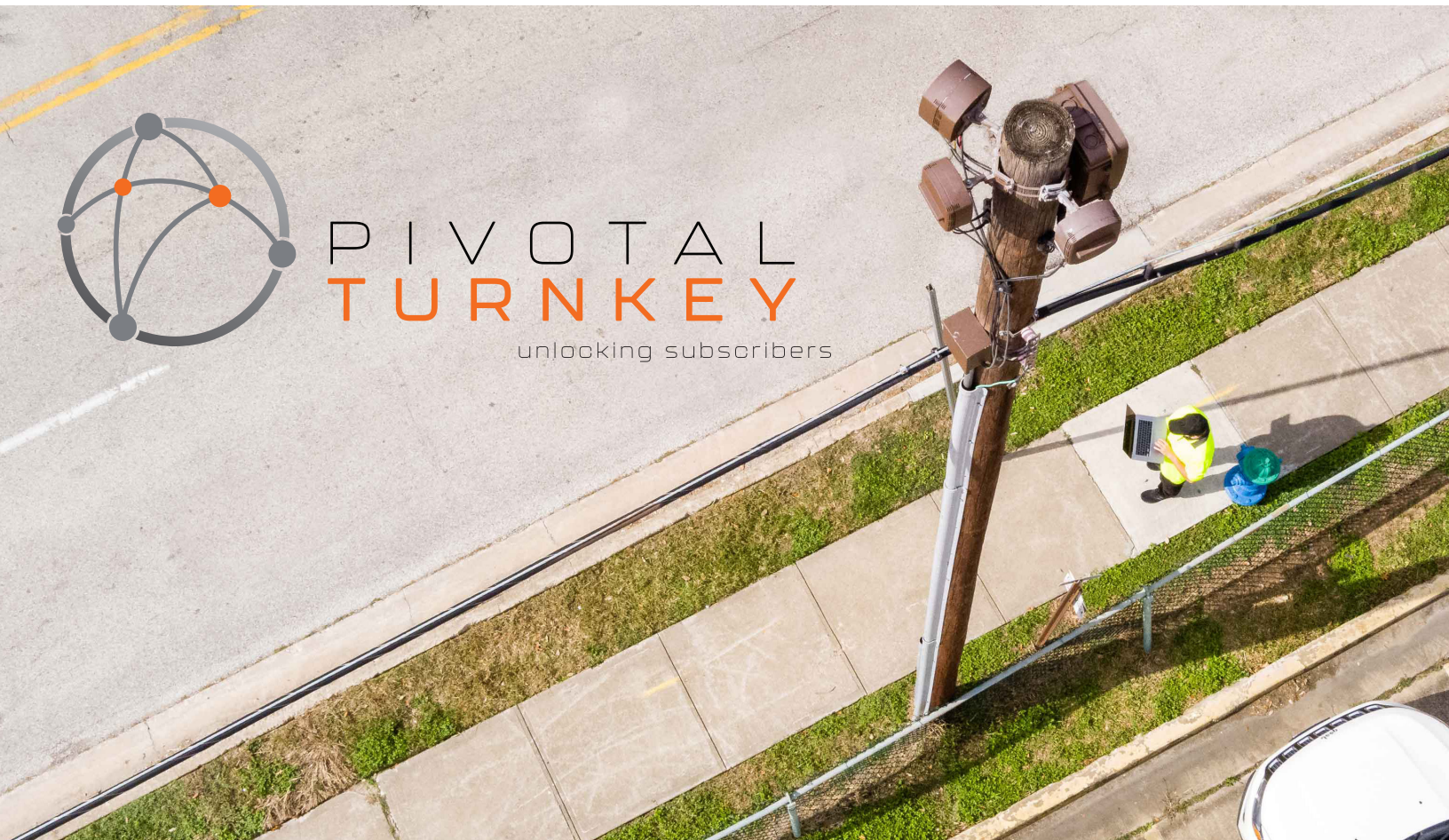


PIVOTAL
TURNKEY
unlocking subscribers



Pivotal Turnkey is an end-to-end solution for planning and deploying fixed wireless access (FWA) at mmWave frequencies, where ample spectrum capacity offers a sustainable FWA service business.

mmWave Challenge

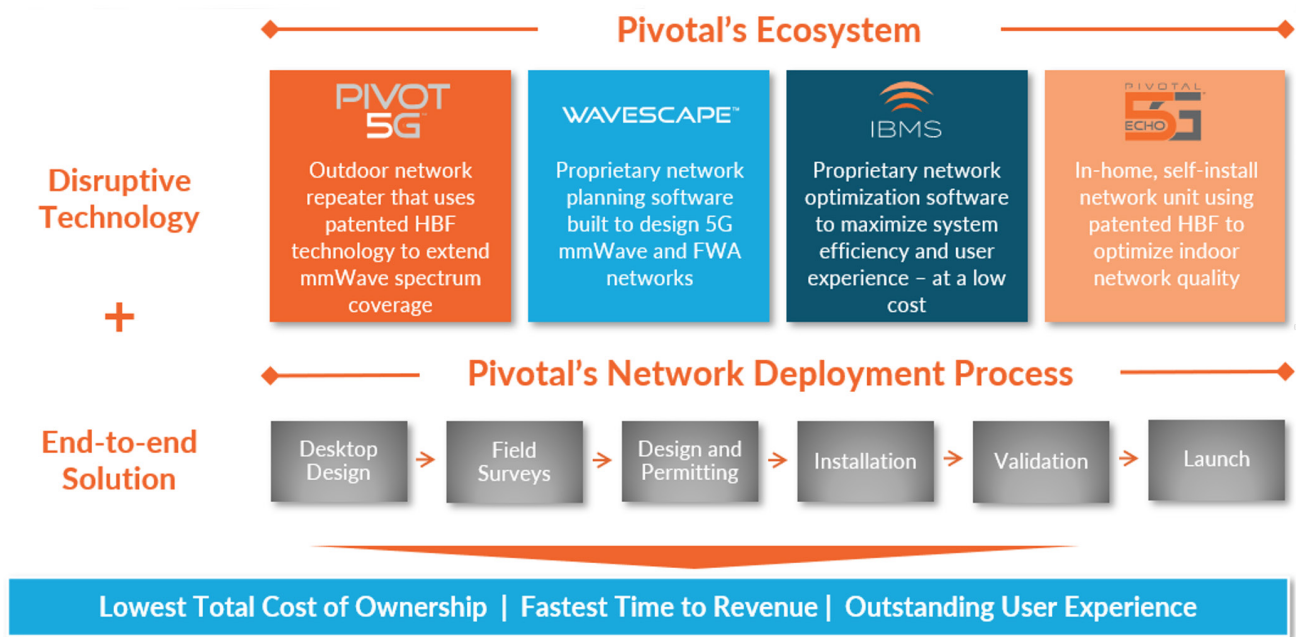
Operators rely on Pivotal Turnkey to expand and direct mmWave coverage from typically underutilized gNBs to nearby, qualified multiple dwelling units (MDUs) and single family homes. MNOs identify these buildings using their advanced business intelligence to anticipate sales yields. They leave the network deployment process to Pivotal and its diverse set of right-of-way partners because the process of planning, designing, installing, and validating mmWave differs significantly from MNOs' established processes at lower bands.

MNOs know that combining FWA with higher margin voice service at lower bands will, sooner or later, tax spectral capacity and jeopardize service quality for both services. In certain high demand locations these affects are already being felt. Operators are using Turnkey to preserve service quality in some locations and to capture and hold valuable subscribers in others.

Pivotal repeaters are more cost effective and quicker to deploy than fiber-connected gNBs. Deploying repeaters with gNBs instead of deploying gNBs alone maximizes coverage with minimum investment. But repeaters don't deploy themselves.

Pivotal's End-to-End Solution

Pivotal Turnkey combines disruptive product technology with years of professional and field experience. Turnkey uses Pivotal Commware's mmWave ecosystem of products that leverages its lowest C-SWaP (cost, size, weight, and power consumption) antenna innovation, Holographic Beam Forming® (HBF). WaveScape® network planning optimizes the placement of network elements, e.g., Pivot 5G® and Echo 5G®, for a given coverage objective. Pivot 5Gs navigate mmWave signals around obstacles. Echos penetrate them indoors through window glass. Intelligent Beam Management System (IBMS) manages and optimizes the repeater network layer.



Pivotal Commware

Turnkey is a natural outcome of Pivotal's expertise in developing mmWave products and applications. Pivotal employs some of the best mmWave talent available and its institutional knowledge is hard-won. Most wireless organizations are vexed by mmWave RF planning and economics, propagation, densities, and deployment. These comprise mmWave's articulated issues. There are plenty of unarticulated ones as well. Pivotal Commware combines five mmWave businesses under one roof: beamformers, repeaters, network planning, network management and network integration.



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