Unleashing Network Potential: T-Mobile's 5G Advanced Network Solutions (ANS) – 5G For Enterprises
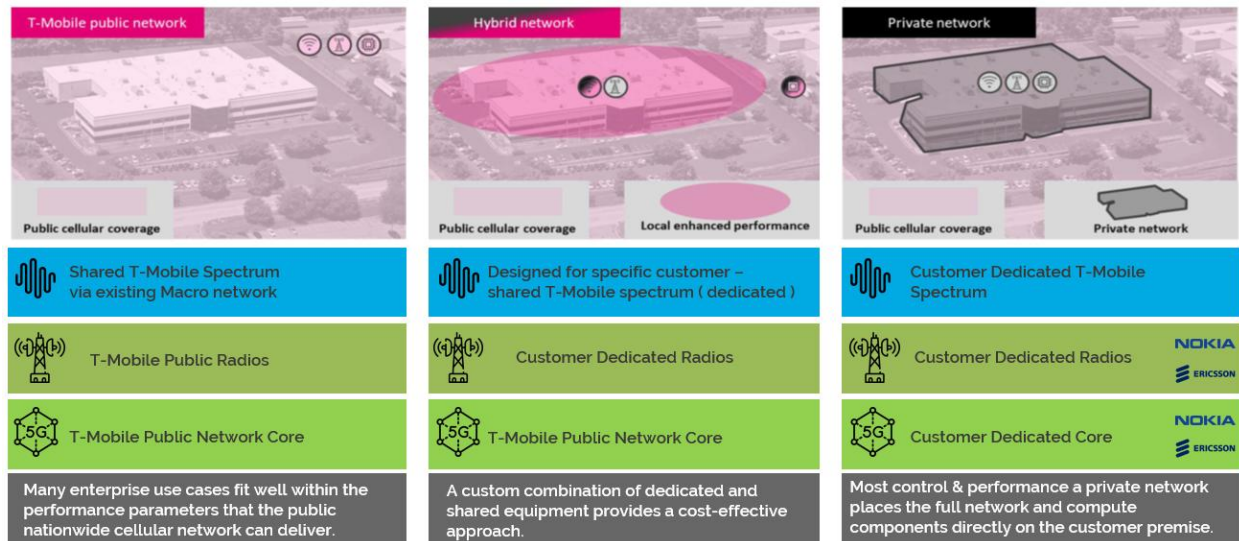
In today's hyper-connected world, businesses face ever-growing demands for network capacity, coverage, and security. Traditional Wi-Fi solutions often struggle to keep pace, limited by bandwidth constraints, range limitations, and security vulnerabilities. To address these challenges head-on, T-Mobile **5G Advanced Network Solutions (ANS)**, is a comprehensive suite of offerings leveraging the transformative power of 5G. This document delves into the technical aspects of 5G ANS, showcasing how it empowers organizations to overcome network limitations and unlock exciting new possibilities.

Technical Overview of 5G ANS:

5G ANS goes beyond standard 5G connectivity, offering a flexible and customizable approach to meet diverse organizational needs. It comprises three core components:

1. Public Mobile Network: Utilizes T-Mobile's nationwide 5G network, boasting the largest and fastest coverage in the US. This public network delivers broad geographical reach with ultra-high bandwidth and low latency, ideal for high-volume data transfer and real-time applications.

2. Hybrid Mobile Network: Combines the public network with dedicated on-premises infrastructure, offering customized control and security. This option grants deeper network customization and prioritization for mission-critical applications within specific locations.

3. Private Mobile Network (PMN): Creates a fully dedicated, secure network within your organization's premises or designated geographical area. PMNs offer complete control over

network resources, ideal for highly sensitive operations or applications requiring ultra-low latency and guaranteed performance.

T-Mobile public network	Hybrid network	Private network
Public cellular coverage	Public cellular coverage — Local enhanced performance	Public cellular coverage — Private network
Shared T-Mobile Spectrum via existing Macro network	Designed for specific customer – shared T-Mobile spectrum (dedicated)	Customer Dedicated T-Mobile Spectrum
T-Mobile Public Radios	Customer Dedicated Radios	Customer Dedicated Radios — NOKIA / ERICSSON
T-Mobile Public Network Core	T-Mobile Public Network Core	Customer Dedicated Core — NOKIA / ERICSSON
Many enterprise use cases fit well within the performance parameters that the public nationwide cellular network can deliver.	A custom combination of dedicated and shared equipment provides a cost-effective approach.	Most control & performance a private network places the full network and compute components directly on the customer premise.

Addressing Wi-Fi's Limitations:

Compared to Wi-Fi, 5G ANS offers significant technical advantages:

- **Bandwidth Superiority:** 5G boasts significantly higher bandwidth compared to Wi-Fi, enabling seamless handling of large data transfers, high-definition video streaming, and bandwidth-intensive applications.

- **Extended Range:** 5G signals travel further and penetrate obstacles better than Wi-Fi, eliminating range limitations and ensuring consistent connectivity across wider areas.

- **Greater Reliability:** 5G networks are designed for robust performance with inherent redundancy and network slicing capabilities, leading to superior reliability and reduced downtime compared to Wi-Fi hotspots.

- **Enhanced Security:** T-Mobile's 5G ANS incorporates network slicing, allowing creation of isolated virtual networks with customized security policies and access controls, exceeding Wi-Fi security capabilities.

Network Slicing: Tailoring Security and Performance:

Network slicing, a key feature of 5G ANS, empowers organizations to carve out virtual network slices dedicated to specific needs. This grants unprecedented granular control over network resources, enabling:

- **Prioritized access:** Allocate dedicated bandwidth and latency guarantees for mission-critical applications, ensuring consistent performance even during network congestion.

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- **Enhanced security:** Create isolated network slices with customized security policies and access controls for sensitive data and operations, maximizing protection against cyber threats.

- **Improved efficiency:** Optimize network resources for different uses, ensuring cost-effectiveness and efficient allocation of bandwidth based on specific application requirements.

Benefits for Organizations:

By adopting 5G ANS, organizations gain a wealth of technical advantages:

- **Unparalleled Network Capacity:** Handle surging data demands, support bandwidth-hungry applications, and enable seamless connectivity for large user bases.

- **Extensive Network Coverage:** Eliminate Wi-Fi range limitations and reach geographically dispersed employees, remote sites, or mobile assets with reliable connectivity.

- **Enhanced Reliability:** Minimize downtime and ensure critical operations function smoothly with redundant network infrastructure and guaranteed performance through network slicing.

- **Unmatched Security:** Implement robust security measures tailored to specific requirements with network slicing, safeguarding sensitive data and preventing unauthorized access.

- **Flexibility and Scalability:** Adapt the network to evolving needs by scaling bandwidth, coverage, and security configurations as your business grows.

5G ANS: Partnering with Wi-Fi for Enhanced Network Performance and Security

While Wi-Fi remains a valuable tool for many network needs, its limitations become apparent in handling mission-critical workloads or managing large user bases. T-Mobile's 5G Advanced Network Solutions (ANS) can be strategically deployed alongside existing Wi-Fi to overcome these limitations and create a more robust, secure, and performant network ecosystem.

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Offloading Mission-Critical Workloads:

- **Prioritization:** 5G ANS excels at handling high-bandwidth, low-latency applications. By offloading mission-critical traffic like real-time data transfer, industrial automation, or video conferencing to dedicated 5G ANS slices, organizations can ensure consistent performance and prioritize these workloads even during peak usage periods on Wi-Fi.

- **Security Segmentation:** Network slicing within 5G ANS allows creating isolated virtual networks with advanced security controls. This segregation safeguards sensitive data flowing through mission-critical applications, enhancing overall network security posture compared to sharing the same Wi-Fi network.

Wi-Fi as a Failover Mechanism:

- **Redundancy and Resilience:** Integrating Wi-Fi as a failover option for the 5G ANS adds an extra layer of resilience. In case of unforeseen outages or disruptions on the 5G network, critical operations can seamlessly switch to Wi-Fi, minimizing downtime and ensuring business continuity.

- **Cost-Effectiveness:** Utilizing existing Wi-Fi infrastructure for failover leverage avoids the need for duplicate, redundant network solutions, optimizing both capital and operational expenditure.

Improved Wi-Fi Performance with Reduced Traffic:

- **Reduced Congestion:** Offloading demanding applications to 5G ANS frees up valuable bandwidth on your Wi-Fi network. This decongestion leads to faster and more reliable connections for general users, enhancing overall network performance and user experience.

- **Optimized Allocation:** With critical workloads handled by 5G ANS, network administrators can better manage and prioritize resources on the Wi-Fi network, tailoring it to specific user needs and applications.

Summary:

By offering diverse deployment options, superior technical capabilities, and enhanced security through network slicing, 5G ANS unlocks a path for seamless connectivity, improved efficiency, and unparalleled control over your network infrastructure.

Cellhub's team can connect your organization to the T-Mobile ANS team and help consult with your customers as needed.

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