kajeet®

How to Improve In-Building Cellular Coverage with a Neutral Host Network

Whether on a large college campus, in a sprawling hospital facility, or deep within a corporate complex, a Neutral Host Network can greatly improve cellular coverage.

INDEX PAGES:

The Impact of 5G on Cellular Coverage

Cellular carriers began widescale deployments of 5G networks in 2019 with the promise of bringing Wi-Fi data speeds to mobile devices, enabling applications such as streaming movies while on the go. But as any RF Engineer will tell you, 5G requires more radio spectrum than its LTE/4G predecessor, so 5G is typically transmitted over mid-band frequencies in the 2.5GHz – 3.98GHz range, much higher than LTE/4G. And while this configuration accommodates Wi-Fi-like data speeds, unfortunately cellular signals transmitted in that range don't travel as far from the tower, nor penetrate buildings as well as LTE/4G. As older devices are replaced with 5G devices, the issue is exacerbated and will likely lead to an increase in complaints about in-building coverage from users who are used to LTE signal performance.

kajeet.

In-Building Coverage Options

Whether on a large college campus, in a sprawling hospital facility, or deep within a corporate complex, there are a number of ways to improve cellular connectivity. Below is a description along with the advantages and disadvantages of each.

Augment Current Wi-Fi Network

Adding more routers to reduce poor cellular coverage is an inexpensive option for small offices that don't have a lot of public cellular traffic. But for buildings and venues that host a large number of employees, guests and public cell users, Wi-Fi suffers from a limit to user capacity, doesn't support voice calls well, and doesn't provide enterprise-level security.

→ **Advantages:** Low cost and quick installation

→ **Disadvantages:** Small propagation area, capacity limits, low security

Distributed Antenna System (DAS)

A DAS is a network of antennas that send and receive cellular signals on a carrier's licensed frequencies, thereby improving voice and data connectivity for end-users. Cellular carriers often partner with large, public venues that require additional antennas to "boost" their signal to overcome poor coverage areas. While this system works well for users of that cell service, it doesn't help users of other cell services unless a multi-carrier system is installed, which can be very expensive to deploy. A multi-carrier system that covers a 200,000 square foot building can cost up to $2,000,000.

→ **Advantages:** Strong coverage, capacity and security

→ **Disadvantages:** High cost of installation and maintenance. Can take a year to deploy

?

Are You a Viable Candidate for a Neutral Host Network?

If you answer "Yes" to one or more of these questions, you may be a good candidate for a Neutral Host Network:

1. Are there areas in your facilities that don't have adequate cellular coverage?

2. Are your users experiencing slow network speeds or frequent outages on cellular networks?

3. Does cellular service sometimes degrade because of the large number of users trying to access their carriers at one time? (For example, college football gameday)

4. Does your institution require carrier-grade security standards such as SIM authorization, encryption, and APN configuration to integrate into your existing network?
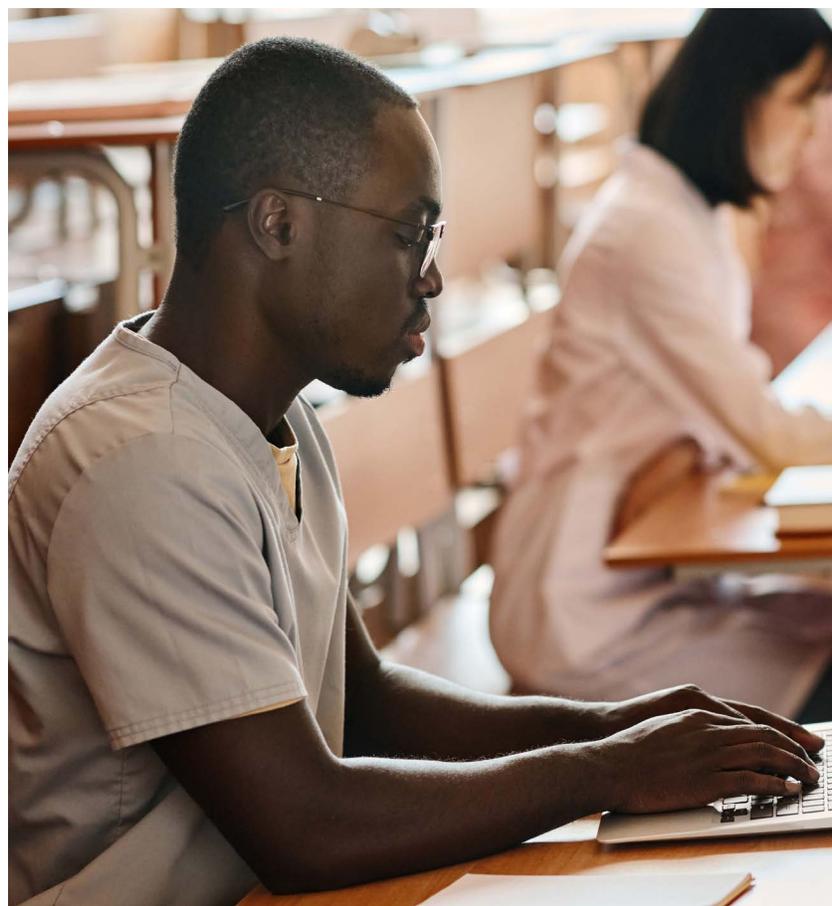
Neutral Host Network

Since the FCC opened the Citizens Broadband Radio Service (CBRS) band for commercial use, organizations such as universities, hospitals and corporations are now able to install a Neutral Host Network that can connect to public cellular networks and bolster those cellular signals into areas of buildings that traditionally suffer from poor coverage. Deploying a Neutral Host Network is relatively easy and cost-effective when compared to a DAS, and much more reliable and secure compared to traditional Wi-Fi.

✅ An example of an NHN that was deployed on the **Meta corporate campus** was installed 75% more quickly and resulted in significant cost savings when compared to a DAS solution.

→ **Advantages:** Strong coverage, capacity and security. Fairly quick to deploy. Less expensive than a DAS solution

→ **Disadvantages:** More expensive than augmenting an existing Wi-Fi system. Typically requires a vendor for design and installation

kajeet.

How to Choose a Neutral Host Network Partner

Choosing the right NHN vendor can impact the performance, reliability, security and cost of your network. When choosing a vendor, it is important to consider the following factors:

1. Look for a vendor with a strong track record of deploying private wireless and neutral host networks, and who has a deep understanding of networking protocols, security best practices, and radio frequency (RF) design. It is also important to ensure they have the necessary expertise to integrate existing systems with the new network, and build scalability into the design to accommodate future growth.

2. Choose a vendor that provides comprehensive support and maintenance services, including ongoing network monitoring and management, software upgrades, and technical support, as well as the training and documentation to help you effectively manage and maintain your network.

3. To prevent budget overruns when evaluating a vendor's quote, consider whether it's inclusive of all the phases of the project. Elements of the quote may include site evaluation, RF studies, design work, equipment, installation, and ongoing support and maintenance costs.

Kajeet for Private Wireless & Neutral Host Networks

Kajeet is an industry-leader in the design and deployment of Private Wireless and Neutral Host Networks. As a provider of wireless solutions for over 20 years, Kajeet has extensive experience in evaluating each project and creating a connectivity solution that will not only work the day it's deployed, but is designed to accommodate future needs. Kajeet has a team of experts who can work with you to assess those needs and develop a customized solution to meet your goals. They also have equipment partners to help scale any size project, ensuring that you have access to the best technology and resources to support your network.

To learn more, visit:
Neutral Host Network Contact (kajeet.net)

About Kajeet

Kajeet provides optimized IoT connectivity, software and hardware products that deliver safe, reliable, and controlled internet connectivity to nearly 3,000 businesses, schools and districts, state and local governments, and IoT solution providers. Kajeet's Private Network solutions simplify private wireless to allow customers to design, install and manage their own private wireless networks. Kajeet is the only managed IoT connectivity services provider in the industry to offer Sentinel®, a scalable IoT management platform that includes visibility into real-time data usage, policy control management, custom content filters for added security and multi-network flexibility. Kajeet is available for hybrid and multi-network access across all major North American wireless networks, globally with coverage in 173 countries, and on multiple licensed and unlicensed networks. Kajeet holds 43 U.S. patents in mobile technologies. To learn more, visit kajeet.com and follow us on Twitter at @Kajeet.

Acknowledgments

Kajeet, Inc

7901 Jones Branch Drive Suite 350
McLean, VA 22102
240.482.3500
www.kajeet.com
sales@kajeet.com