NARROWBAND
COST-EFFECTIVE WIRELESS CONNECTIVITY FOR THE LARGEST OUTDOOR SPACES
WHAT MAKES NARROWBAND THE PERFECT SOLUTION FOR THE MOST EXPANSIVE OUTDOOR SPACES?

6 UNIQUE PROPERTIES...

1. **Highly efficient transmission protocols**
   While Narrowband is very low bandwidth — only 9.6 to 19.2 kbps — Zebra advanced transmission protocols enable highly efficient use of the bandwidth, making it perfect for the simple data transactions required in your inventory management applications.

2. **Extremely long range**
   One base station covers up to one mile, while one Wi-Fi access point covers 300 ft./91.44 m. As a result, one base station can take the place of at least 10 access points, dramatically reducing infrastructure cost and management time.

3. **Low frequency**
   Low frequency means long radio waves, which not only enable the long range of a Narrowband base station, they also provide great performance — even if there is no line-of-sight between the base station and the mobile device.

4. **Low sensitivity**
   Narrowband’s long radio waves eliminate sensitivity to the many materials in your environment that absorb and reflect radio waves — from metal and water to wood and ceramics — unlike the short wavelengths of Wi-Fi and cellular. The result? No dead zones — just solid, around-the-clock wireless connection.

5. **No Wi-Fi network interference — guaranteed**
   Chances are you have multiple 2.4 and 5 GHz wireless networks in your business. But Narrowband operates on a completely different frequency (403-512 MHz), completely eliminating the opportunity for interference that could impact wireless performance and availability.

6. **Guaranteed bandwidth availability**
   Unlike the cellular public network, you purchase and own the frequency — only your workforce can access the network, ensuring availability of 100% of the bandwidth, 100% of the time.
EVERYTHING YOU NEED TO GET AND KEEP YOUR NARROWBAND SOLUTION UP AND RUNNING AT PEAK PERFORMANCE — ALL UNDER ONE ROOF

Three hardware components

There are three hardware components. The 9160 G2 provides the Narrowband wireless connection between workers and the application. And two mobile computers meet the needs of different types of workers — the handheld Omnii XT15 for workers on foot and the VH10 for workers driving forklifts and other vehicles.

Wireless gateway: 9160 G2 Narrowband Base Station

The 9160 G2 provides the same functionality as a Wi-Fi access point — it provides the wireless connection between the Narrowband mobile devices in the hands of your workforce and your backend business application. Just one 9160 G2 base station covers up to one mile — a distance that could require a minimum of 10 access points. Since outdoor spaces can be the most challenging deployments, the 9160 G2 offers two features to make it as easy as possible.

Power-over-Ethernet support allows you to connect the 9160 G2 to the enterprise network with a single Ethernet cable — the need to run power cabling is eliminated. When running a cable is too challenging or expensive, the optional Wi-Fi 802.11a/b/g and wide variety of indoor and outdoor 2.4 GHz and 5 GHz directional and sector panel antennas allow you to create a robust Wi-Fi wireless connection from the 9160 G2 back to the enterprise network.

Handheld mobile computer: Omnii™ XT15

This handheld mobile computer is ideal for workers who travel on foot. The rugged design can handle complete submersion in a puddle or drops on concrete. When it comes to functionality, the Omnii offers real versatility. Users can easily add a pistol grip on the fly to bring comfort to scan intensive tasks. Scan engine options allow you to choose the engine that will deliver the best performance on the bar codes in use in your facility — 1D or 1D and 2D. And a choice of five keypads allows you to select the keypad that will provide the easiest data entry for your applications.

Vehicle mount mobile computer: VH10

The VH10 provides wireless data access to workers who spend their days driving forklifts and other material handling vehicles. With its compact size and multiple mounting options, no matter what types of vehicles you use or how space constrained those vehicles may be, the VH10 will fit. The rugged device is designed to handle all day constant pounding and vibration, as well as exposure to dust, rain, snow and sub-zero temperatures. Users are instantly comfortable with the familiar PC-style layout — and 12 specially designed direct function keys make it easy to simplify processes. And the automotive-grade 640 NIT ultra bright display is easy to read, even outdoors in direct sunlight.
The Narrowband-enabled VH10 and Omnii XT15 connect wirelessly to the nearest 9160 G2 Narrowband base station, which in turn is connected to the enterprise network either through a wired Ethernet cable or the optional Wi-Fi 802.11a/b/g radio that can be integrated into the 9160 G2. The 9160 G2 handles the data translation required for information to travel between the Narrowband and TCP-IP networks, while the TekTerm Server takes care of translating the higher level emulation protocols between the two networks. The result is seamless communications between Narrowband mobile devices and line of business applications on the host.

**Three software components**

There are three software components — the TekTerm TE client that runs on the mobile devices, the TekTerm server that links the Narrowband and wired networks and the optional Narrowband Data Protocol (NDP) toolkit that enables the creation of graphics-rich intuitive applications.

**Client software:**
**TekTerm TE (Terminal Emulation)**

TekTerm TE client software resides on the Omnii XT15 and VH10 mobile devices and provides connectivity to mainframe applications via the TekTerm Server. The only Terminal Emulation software that works on the Narrowband network, TekTerm TE offers broad mainframe support, including ANSI, VT-100, VT-200 and IBM 5250 and 3270 emulations. In addition to running on the Narrowband network, TekTerm TE is also compatible with Wi-Fi networks, simplifying your IT architecture by allowing you to standardize on one TE client for all your TE applications. Since TekTerm TE supports various screen sizes, you can create one application that can support both the Omnii XT15 and the VH10 — no extra programming required. With support for a variety of font types, font sizes, font colors, standard keyboard functions, function keys, soft keys and macro keys, you can create TE applications that are easy to read and easy to use, boosting worker and process efficiency. And since each mobile computer can support up to eight sessions, the applications workers need are always up and running, right at their fingertips.

**Server: TekTerm Server**

The TekTerm Server sits in between the Narrowband-enabled mobile devices and the application on your mainframe. This software runs on any existing Windows server, where it acts as a translator, efficiently formatting the data so it can move seamlessly between Narrowband and TCP-IP networks (Wi-Fi or Ethernet). The result is true session persistence, regardless of the networks that are involved in the end-to-end communication. TekTerm Server’s advanced technologies maximize the available bandwidth of the Narrowband network by minimizing overhead. Only the actual data is transmitted over the Narrowband network — other static text elements on the screen reside on the mobile device, such as field names. With support for SSH V2, you can count on a secure connection to host applications. TekTerm TE is easy to use — workers can press a single button to access all Function keys, as well as increase font size or change fonts to improve readability. And centralized management tools make it easy to set up, manage, monitor and troubleshoot the mobile devices connected to the Narrowband network.

**Developer tools:**
**Narrowband Data Protocol (NDP) Software Development Kit (SDK)**

Now, you can replace your TE “green screen” text-based interfaces with the easy-to-use, modern graphical user interface (GUI) today’s users expect. The NDP SDK toolset enables the creation of hybrid applications where the graphics are native to the mobile device — only the data is transmitted — enabling users to enjoy the benefits of intuitive highly graphical application interfaces over bandwidth-constrained Narrowband networks.
Your workers need wireless connectivity in outdoor spaces that go on for miles — spaces that are filled with materials that could be challenging for the typical wireless signal.

WE’VE GOT A COST-EFFECTIVE SOLUTION — NARROWBAND.

Your Wi-Fi wireless solutions are hard at work inside your facility, improving efficiency and accuracy throughout your business processes. But complexity and cost often prevent the extension of the Wi-Fi network in areas where you need it most — the expansive and challenging outdoor areas in seaports, rail yards, airports and manufacturing yards — leaving these workers without the information needed to move the maximum amount of inventory in, through and out of your facility every day. The result? Slower movement of materials. Higher labor costs. And lower customer service quality.

While enabling wireless in these environments can be extremely challenging, the wireless applications these workers need are quite simple. This workforce simply needs to know what to move next, and where — no voice or video needed — a perfect job for a Narrowband wireless network.

What is Narrowband?

Narrowband is a low-bandwidth long-range wireless network specifically designed to deliver very affordable and dependable digital wireless connectivity for simple data applications in the largest outdoor areas — regardless of the types of materials that are present, or whether the location of those materials changes daily. Created to enable cost-effective wireless connectivity in more areas of your business, Narrowband is exclusively available from Zebra. And while you may not have heard of Narrowband, it isn’t new. Narrowband has been serving seaports, rail yards and many other industries all around the world for over 35 years — bringing you the peace of mind that only a well-proven technology can deliver.
NARROWBAND — THE MOST COST-EFFECTIVE PATH TO WIRELESS CONNECTIVITY IN YOUR MOST EXPANSIVE OUTDOOR AREAS. ONLY FROM ZEBRA.

FOR MORE INFORMATION ON ZEBRA’S NARROWBAND SOLUTION, PLEASE VISIT WWW.ZEBRA.COM/NARROWBAND