

KENWOOD

NEXEDGE®

NXDN® SYSTEMS

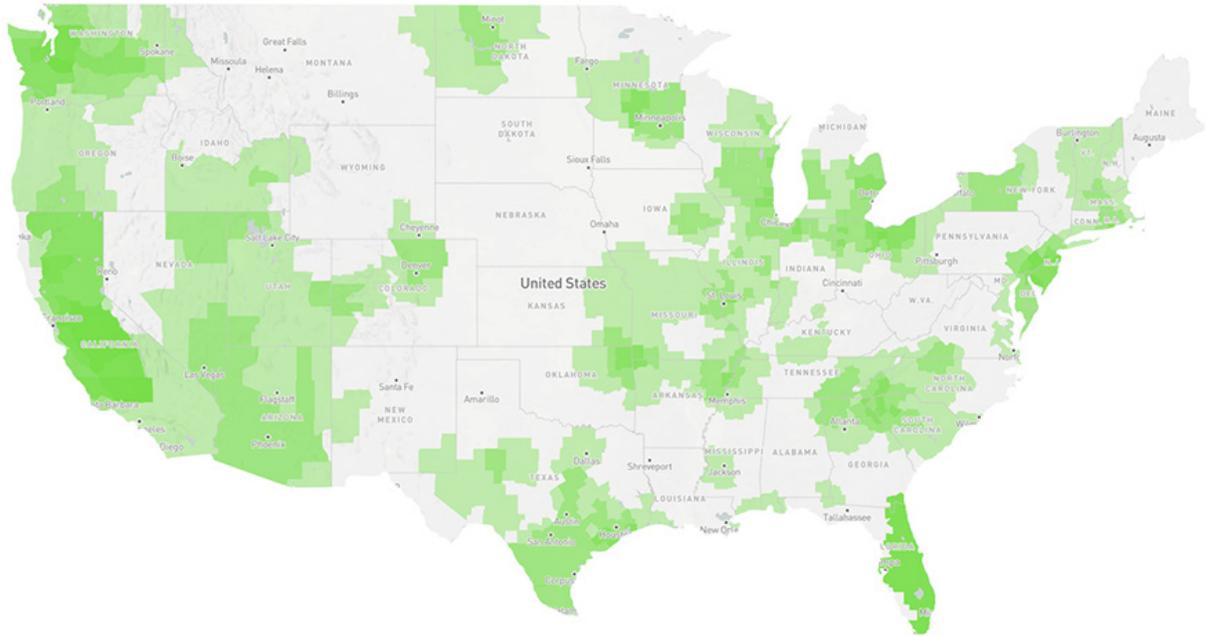


Digital conventional and

trunked radio **made simple**

*Making Safe, Simple™*

# NEXEDGE National Footprint



910 Sites



3,576 Repeater Channels



159 Systems



478,050 Radios



With one of the largest two-way radio networks in the U.S., JVCKENWOOD has a broad portfolio of industry-leading products and a proven track record of deploying NEXEDGE technology nationwide. Advantages to partnering with a NEXEDGE system operator include roaming agreements with other operators and a unique proprietary system bridge that enables seamless regional coverage.

# NEXEDGE Versatility Makes Your Job **Simple**

NEXEDGE is one of the most versatile communications systems available today, capable of satisfying the communications needs for a wide range of utilities, transportation, manufacturing, industrial, and business users. With support for traditional conventional systems, conventional IP networks, and trunked networks—along with phased migration from analog to digital—NEXEDGE is a perfect fit for any organization.

## Which NEXEDGE configuration is right for you?

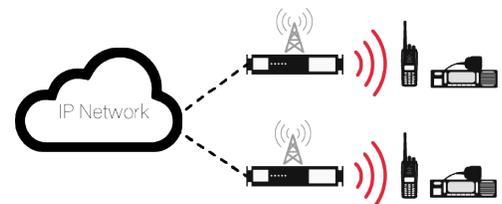
### Conventional

NEXEDGE conventional systems offer capabilities beyond analog conventional systems. With large unit ID and talk group ID capacity, operators can identify and segment different departmental groups and sub-groups on shared channels. Mixed Mode allows analog and digital fleets to share the same RF channel.



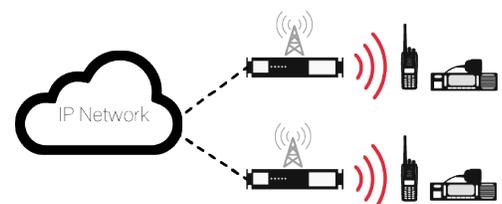
### Conventional IP Network: Coverage

Conventional IP networks offer the ability to link two or more sites via IP network infrastructure to provide wide area coverage across geographic areas. Subscriber zones on the network can be programmed for “Normal Channel Select” for traditional conventional operation or “Automatic Site Roam”, which allows NX radios to scan for site beacon signals that are transmitted periodically from all sites and automatically roam onto the site with the best signal strength.



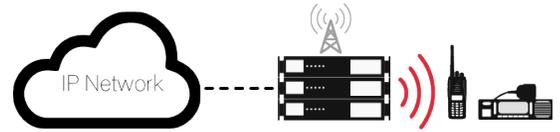
### Conventional Simulcast: Coverage

Conventional Simulcast allows multiple geographically separated IP-networked sites to transmit on the same frequency simultaneously, reducing the number of frequencies needed for the system and simplifying frequency coordination. This configuration is ideal for situations where limited frequencies are available or when improved in-building radio coverage is required. A simulcast controller located at one of the conventional sites synchronizes the system timing so that calls are transmitted simultaneously at all sites and subscriber radios receive the signal from multiple transmitters, allowing users to move between sites with no operator intervention.



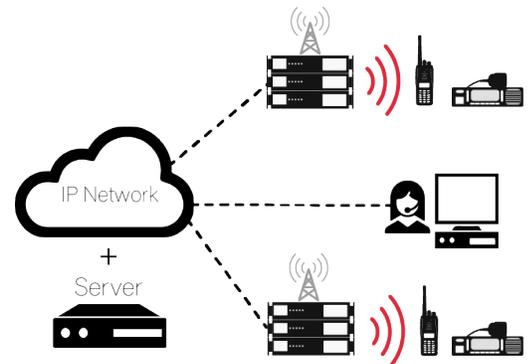
### NXDN Type-C Trunking Gen1: Capacity & Coverage

NXDN Type-C offers Control Channel-based trunking that automatically assigns channels for faster and more efficient use of spectrum. The NEXEDGE Type-C Generation 1 (Gen1) trunked system offers increased call capacity, enhanced call capabilities, improved security, and faster communications with less user interaction than conventional systems. The network option leverages the power of IP to create scalable networks over existing IT assets, private microwave, spread-spectrum links, or carrier services using standard Ethernet switches and routers. The 60,000 Group ID and Unit ID network capacity is sufficient for large organizations and multi-user system sharing.



### NXDN Type-C Trunking Gen2: Capacity, Coverage & Control

NEXEDGE Gen2 is built on a server-based architecture that utilizes IP Network standards, designed to accommodate the need for expanded capacity. Gen2 provides more sites, centralized configuration, and enhanced management capabilities, with seamless roaming and compatibility with commercially available SNMP network monitoring applications. The System Controller Server is at the heart of the Gen2 infrastructure, acting as a media server for the connected sites and playing a key role in directing voice traffic throughout the radio network. Controllers can support up to 1,152 sites and 24 System Codes, linking multiple sites and channels for higher reliability at a lower cost. This allows operators to update and expand their NEXEDGE systems without any service disruption.



NEXEDGE delivers a significant boost in network scale and capability while also providing full compatibility with your current analog equipment.

## Standards-based System

NEXEDGE operates on the widely supported NXDN open-standard Common Air Interface (CAI) for mobile communications. NXDN has been recognized by the International Telecommunications Union (ITU) as an International Open Standard. The NXDN Forum, a multi-faceted membership organization established in 2008, allows any manufacturer to develop products using the NXDN CAI without any fees, creating an open, competitive development environment free from unnecessary restrictions.

Data applications such as AVL/mapping, Push-to-talk Over Cellular (PTToC), event logging, and messaging have become increasingly important management and operational requirements for utilities and industrial users. The KENWOOD Solution Developers program is a network of third party software and hardware vendors who work in close collaboration with JVCKENWOOD engineering, research, and development teams to provide data applications and gateways for NEXEDGE products. JVCKENWOOD also offers integration support to integrate NEXEDGE System solutions with third party data application providers.

- Application Solutions Categories:AVL, GPS & Tracking
- Event Logging & Voice Recording
- Dispatch & Monitoring
- PTToC Gateway Solutions
- Email & Text Messaging

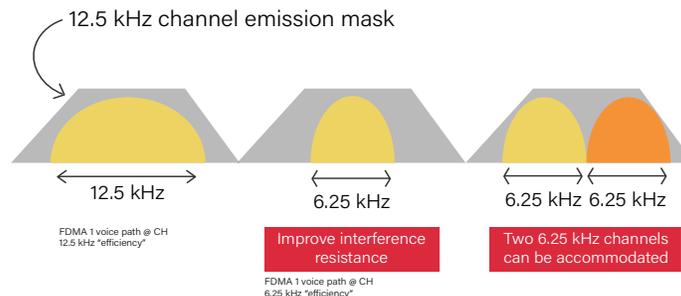
## 12.5 kHz and 6.25 kHz Spectrum Efficiency

### Futureproof Communication

The NXDN air interface is unique in that it is capable of fitting into both 12.5 kHz “narrow” and 6.25 kHz “very narrow” bandwidth channel operation to ensure frequency stability that exceeds all regulatory requirements in all bands.

The ability to operate in 6.25 kHz bandwidth mode offers:

- **Extended coverage**—The high carrier-to-noise ratio of the narrower bandwidth allows for 30% wider coverage area compared to digital 12.5 kHz operation.
- **Extra protection from interference**—Operating at 12.5 kHz has the potential to cause interference with a neighboring system; this problem is eliminated with a narrower bandwidth.
- **More available frequency licenses**—12.5 kHz frequency licenses are often more difficult to obtain than 6.25 kHz licenses, especially in large urban areas.



*In January of 2013, the FCC mandated that all existing licensees in the private VHF and UHF bands cut over to channel bandwidths of 12.5 kHz or less, with the expectation of an ultimate nationwide move to 6.25 very narrow band operation. While no date has been set for the inevitable transition to 6.25 kHz throughout the U.S., the NEXEDGE system is future-proofed for the migration.*

## NEXEDGE Repeaters

NXR-series repeaters are built tough for 24/7 reliability with a slim form factor to save space. With models supporting VHF, UHF, 800 MHz, and 900 MHz frequency bands, NEXEDGE repeaters support digital and FM analog operation on the same channel. The NXR-5000 series repeaters offer market-leading trunked capabilities with extensive data capabilities that provides support for everything from analog/digital conventional systems up to a highly sophisticated NEXEDGE Gen2 multi-site digital trunked network.



## NEXEDGE Subscriber Radios

KENWOOD has spent more than 70 years perfecting sound. NEXEDGE radios possess renowned KENWOOD audio and noise cancelling technology for crisp, clear voice quality under any circumstances. The NX-3000 & 5000 series radios feature Active Noise Reduction (ANR), which uses a single microphone to perform complicated noise filtering that normally requires two microphones for processing.

All KENWOOD radios are rugged, designed for extremes in temperature and daily use. All KENWOOD radios meet Mil-Spec 810 C, D, E, F and G and NEXEDGE portables also meet IP67 standard for dust and water immersion. KENWOOD portables are ideal for long shifts and constant use, with an ergonomically designed case that makes them easy to hold and up to 13.5 hours talk-time with the 2,000 mAh battery. The Intrinsically Safe (IS) models are an option for hazardous work environments with flammable materials.

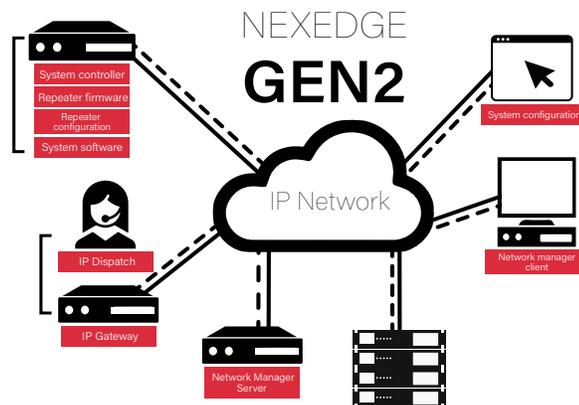


## Server-based System Design

NEXEDGE Gen2 employs a server-based system architecture that offers both scalability and enhanced control capabilities. Hosted on a COTS rack-mounted server, the NEXEDGE Gen2 controllers and gateways can be connected anywhere on the network that supports sufficient bandwidth, with optional redundant configurations for additional reliability. Robust browser-based management tools allow system managers to remotely configure network settings from anywhere they have network access.

## Network Manager System

The NEXEDGE Gen2 Network Manager System enables comprehensive monitoring of large-scale systems with multiple access points. In addition to NEXEDGE server and repeater monitoring, IP asset and network monitoring is also possible—this includes network traffic and load, network path, subscriber registration, latency, and event and error monitoring. Other functions include call log acquisition and analysis by group/site/call type, as well as reporting and alert settings.



## IP Gateway for Consoles and Third-Party Equipment

The NEXEDGE Gen2 IP Gateway provides access to voice calls, GPS Data, and messaging. Each network can support 10 IP gateways and up to 100 consoles can link to a single IP gateway, allowing a single network to connect to a maximum of 1,000 consoles. Call recording and logging interfaces are also available.

## Roaming Gateway for Multi-system Roaming

The NEXEDGE Gen2 Multi-system Roaming Gateway connects multiple Gen2 trunked systems to meet the needs of operators expanding to large-scale regional systems. Users can enjoy seamless auto-roaming among individual networks with different system codes, allowing you to expand coverage while maintaining control over your system.

## Direct Frequency Assignment (DFA)

DFA allows you to easily and quickly keep your system up to date with new channels and sites by ensuring that as soon as new frequencies are added to the network, all equipment and subscriber units connected to the network are automatically notified.

## Increased GPS Capacity

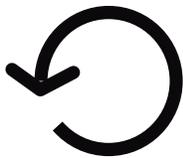
NEXEDGE Gen2 further enhances GPS operation to facilitate management of dynamic GPS updates. The System Controller is aware at all times how many GPS-equipped subscriber units are on duty, and when a new radio is registered, the controller assigns a reporting frame and traffic channel, updating over 750 units a minute. Improvements to the air protocol minimize data overhead, which maximizes traffic/data capacity, and reduces GPS data processing time.

We make your job simple with support services customized to your needs. You choose the combination of support services that is right for your business:



### **Hardware Care**

Extend your two-year standard warranty for infrastructure equipment and three-year standard warranty for subscriber radios with access to depot repair services.



### **System Restoration**

Trained and certified NEXEDGE technicians diagnose and restore your communication network on-site. A case management process is followed to ensure that contracted response times are met.

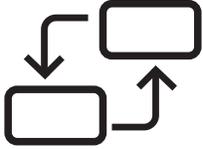


### **Preventative Maintenance**

Monitor the health of your communications with annual preventative maintenance on infrastructure equipment and subscriber radios. A certified technician will provide on-site checks and reports.



**Software Maintenance** Includes patch management to address bug-fixes or software defects, enhancements to existing features, and labor to deploy the software onto the network.



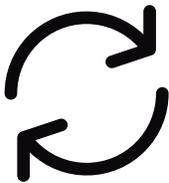
### **Advanced Replacement**

When you report an issue with your infrastructure or subscriber radio equipment, a JVCKENWOOD-authorized repair facility will expedite replacement unit(s) in advance of receiving the failed unit.



### **Network Operations Center (NOC) Monitoring**

Real-time 24/7 remote monitoring of your entire communications network, including NEXEDGE system equipment, active antenna equipment, networking equipment, and microwave system equipment



### **Hardware Refresh**

Extend the life of your system even further by keeping your equipment current with the latest advances in commercial off-the-shelf (COTS) technology. No need to worry about hardware platform obsolescence—JVCKENWOOD will replace your COTS equipment with a new hardware platform if the equipment fails or reaches end-of-life (EOL), or if a newer version of the software is available that warrants migration to a newer hardware platform.

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