



**CASE
STUDY**



JRC PRIVATE 5G SYSTEM

Enhancing convenience and
adding value to professional basketball arenas

KEY POINT

Japan's first! A commercial private 5G system introduced through collaboration between industry and government.

Challenges: Degradation of service quality due to concentrated communications, and the promotion of the sports industry in the region.

Solution: Improvement of the communication environment through private 5G and expansion of electronic services.

INTRODUCTION EFFECT

Improved communication allows seamless use of electronic payments, mobile ordering, and mobile ticketing. Wireless control for the large display, LED lighting, and game clock will also be introduced.

As the prefecture's only arena with advanced communication, visitors will enjoy enhanced services, boosting satisfaction, increasing repeat attendance, and revitalizing the local community.

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www.jrclte.com



OVERVIEW

Japan's First Industry-Government developed Commercial Private 5G System, will be installed at the home arena of the Shinshu Brave Warriors, a professional basketball team in the B1 League.

JRC, in partnership with Nagano City, NAGANO SPIRIT, Inc. (the team operator), and EXEO Group, Inc., implemented this pioneering industry-government 5G system at the Mashima Sports Arena (hereinafter referred to as "White Ring") in Nagano City, utilizing the MIC's Regional Digital Infrastructure Utilization Promotion Project.



CHALLENGES BEFORE INTRODUCTION

The White Ring, the home arena of the Shinshu Brave Warriors, faced issues with customer service quality due to poor connectivity for electronic ticketing and other mobile services during events.



This was attributed to signal congestion from high telecommunications access demand. Additionally, Nagano City struggled with promoting regional revitalization through the growth of the sports industry.

► INTRODUCTION OVERVIEW

To address these challenges, the four-party consortium will implement a private 5G system at the White Ring, enhancing the communication environment to support seamless electronic payments, mobile ordering, and mobile ticketing by 2023.



By 2025, the project will also include the installation of a large-screen video system, LED lighting, and wireless game clocks. The goal is to improve visitor convenience and satisfaction, increase attendance, foster wider community engagement, and revitalize the local area through a range of services.

► CUSTOMER TESTIMONIALS

NAGANO SPIRIT, Inc. / Shinshu Brave Warriors

In collaboration with the Nagano City Government, we spearheaded the “Private 5G Development Project for Highly Functional Sports Facilities” to promote local revitalization.

JRC, with its unique private 5G development base in Nagano City, was chosen as a consortium member for this project due to its expertise in addressing local issues. JRC's Private 5G system was selected as the sole supplier capable of meeting the project's stringent requirements, including outdoor specifications for Nagano's winter temperatures, future expandability, and system adaptability.

We anticipate that JRC's private 5G system will enhance the communication environment, boost visitor satisfaction, showcase the appeal of basketball, create a new user experience, and drive local revitalization.

▶ **WHY JRC WAS CHOSEN?**

Why Now?

Private 5G offers exceptional features tailored to site-specific or building-specific applications, including “ultra-high speed,” “ultra-low latency,” and “simultaneous multiple connections.” As digitization accelerates and customer needs diversify, the demand for ultra-high-speed performance for high-definition video transmission and ultra-low latency for remote device control, such as unmanned factory vehicles, has become critical.

Simultaneous multiple connections are essential for IoT applications where data is collected from numerous devices. Private 5G is well-suited to meet the current need for information systems that fully leverage 5G technology.

Moreover, as the demand for highly reliable communications grows, private 5G offers enhanced security by operating independently of external networks, thereby reducing security risks. It also provides stable communication even amidst surrounding network congestion or infrastructure issues. By establishing a dedicated private 5G network, mission-critical communications can be reliably achieved.

Why JRC?

Private 5G is a complex system that integrates wireless systems and networks, with parameters tailored to the installation location and extensive operational verification conducted in advance. The process involves on-site coordination, system operation verification, field strength measurement, and Internet connectivity checks from the terminal. Efficient and rapid application for base station licenses, including radio propagation simulations, is best handled by a supplier providing a complete equipment set, including antennas.

As a specialist in wireless communications and networking, JRC stands out as one of the few customer-focused suppliers capable of delivering not only products and systems but also comprehensive services. Additionally, JRC is notable for being the first manufacturer in Japan to obtain a telecommunications number and a license as a telecommunications carrier, enabling us to issue SIM cards.

Why Private 5G?

Private 5G is a tailored 5G system with individually issued licenses for specific buildings or campuses, unlike nationwide cellular carriers. This allows for the flexible construction of customized networks based on the specific needs of regions and industries.

Private 5G is less vulnerable to communication failures or disruptions caused by events elsewhere. Compared to Wi-Fi, it offers more stable connectivity due to its base station license, is less affected by movement, and supports the creation of high-security networks.

► REFERENCE: “Future Prospects” of Shinshu Brave Warriors

Enhance visitor convenience by implementing self-service kiosks, unmanned cash registers, cashless payment terminals, and AI robots for transportation.

Introduce cutting-edge technologies, such as 4K/8K real-time video distribution, drones, 360-degree cameras, metaverse experiences, and digital signage. These innovations will enable high-definition, highly realistic video content transmission, and offer new added value through live broadcasts, remote cheering, public viewing, and video analysis.



Expand the functionality of the White Ring to accommodate a variety of events by leveraging the features of private 5G. This includes hosting corporate exhibitions (e.g., IT, machinery, apparel, food), e-sports tournaments, job fairs, and venture business pitch contests.

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