



# Connecting the Field, Industrial, and Operational Worker – a Kyndryl Point of View

New use cases to drive efficiency and safety in remote  
and field settings with Private Wireless and Edge computing



## Challenges in improving efficiency, safety, and security in remote work environments

Industrial, field, mobile, and operations workers often need the capability to collaborate remotely with experts and access current data and insights to carry out their daily tasks efficiently and safely. Unfortunately, many Industrial environments are not well served by carrier macro networks, and connectivity in the field can be spotty or non-existent. The result is often an increase in “windshield” time – time lost making multiple trips to and from the field to the operations center to log work, check results, connect with experts, or to access manuals, HSE procedures, or training documentation.



## Connected workers avoid delays and reduce risks

Reducing or eliminating these trips by connecting the worker to the resources they need can increase employee efficiency, safety, and satisfaction. It can also reduce carbon emissions and vehicle wear. A connected worker is also more likely to complete their task on a single trip, increasing productivity.

The connected worker market size will be worth USD 24.3 billion by 2029. The technology around hardware, software, and our ability to train staff is finally catching up with our board room visions of our field workers being completely connected with home base. Keep reading for examples of how private wireless can connect field workers and streamline operations.

## Two use cases – connected and unconnected worker scenarios

Two scenarios of a theoretical use case featuring a wind technician worker named Lalitha are presented as an example. Lalitha is dispatched to a wind farm that has no cellular service. The first use case scenario illustrates what happens when Lalitha is minimally connected to the resources she needs. The revised scenario shows what happens when Lalitha uses current connected worker technologies.

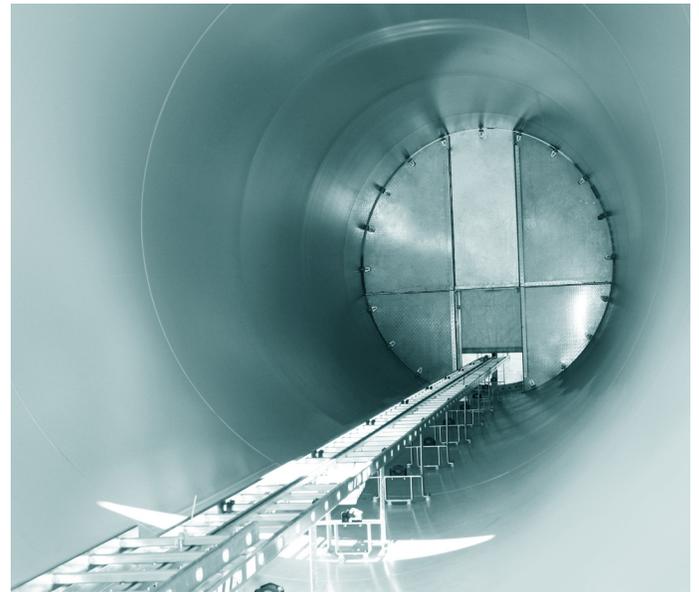
## Scenario one: the unconnected remote worker

Lalitha is a Wind Technician with one year of experience. She is dispatched in the morning to investigate an alarm on a wind turbine. She arrives at the site and realizes she forgot to download the updated lockout tagout procedures. Aside from driving back to the operations center, Lalitha has no way to get the new procedures or contact anyone for support. She decides to continue using the procedures she's familiar with in hopes there isn't an issue. Lalitha doesn't realize that by bypassing the new automated verification procedure her company recently implemented, she is putting herself in potential danger.

Lalitha ascends 270 feet to the nacelle. It's almost summertime, and even with the climb assist, ascent is tiring. It's uncomfortably hot and humid in the long vertical steel tube and Lalitha wonders to herself how long it would take help to arrive if she had a medical emergency.

Upon reaching the nacelle, Lalitha begins her diagnostics of the problem. She realizes she will need an additional part from her truck to fix the turbine. Back down the ladder and up again Lalitha climbs. Each trip adds risk. During the repair she runs into an issue she hasn't encountered before. Without access to remote support, Lalitha has to take the time to drive back to the operations center to review the problem with senior technicians.

This repair activity is turning into an all-day affair in the unconnected worker use case scenario. Lalitha wonders if she'll have time to complete the job before she needs to leave for her daughter's dance recital. After collaborating on a path to resolution, Lalitha apprehensively drives back to the wind turbine in hopes the solution will resolve the problem. She ascends the ladder for the third time and completes the repair.



Lalitha is tight on time and still needs to return to the Operations Center to close out her ticket and log the details of the repair. On the way back, her service vehicle breaks down and she is not in an area with cellular service. She will have to incur more time to walk miles to an area with coverage to request a pick-up and let her family know that she'll miss the recital.

The day could have been far more time and cost effective if Lalitha had access to private wireless connectivity throughout the wind farm. Let's take a second look at this repair handled by a connected worker.



## Scenario two: the connected remote worker

Before Lalitha even leaves for the job site, real-time sensor data from the wind turbine has been gathered and processed through a machine learning platform to provide her with the top potential issues. Based on those insights, she prepares with the necessary equipment to fix the problem.

On the way from the operations center to the wind farm, Lalitha receives a notification that her work vehicle could soon be needing a repair. The sensor data in the vehicle indicates an engine issue could arise at any time. Lalitha uses her push-to-talk handset to contact the Operations Center so a mechanic can be dispatched to repair her vehicle while she works on the turbine. Before her ascent, the updated lockout tagout procedure is automatically presented on her tablet so she can follow the correct safety protocols and verify the lockout tagout is successful.



Lalitha ascends to the nacelle confident in her safety because sensors she is wearing monitor her temperature and detect falls. In addition, her push-to-talk technology provides immediate communication whenever needed. While repairing the turbine, Lalitha encounters a problem she hasn't seen before. Instead of having to return to the operations center, she puts on her augmented reality (AR) headset and contacts Jose, a remote expert, to share live video of the situation.



Lalitha and Jose quickly work together to repair the problem. Jose pulls specific documentation from past issues seen on similar equipment and guides Lalitha successfully through the repair. The session is recorded and uploaded to their repository of maintenance videos for other technicians to use as best-practice. Lalitha documents the repair and closes the ticket before climbing back down. On the ground, Lalitha speaks with the mechanic who has provided a temporary fix to the vehicle so that she can get back to the Operations Center safely. The connected worker scenario offers improved efficiency and safety.

Lalitha has a quick FaceTime session with her husband to discuss a few details for the evening. Given the delays avoided through the use of connected technologies, she makes it home on time and doesn't miss a minute of her daughter's big moment.



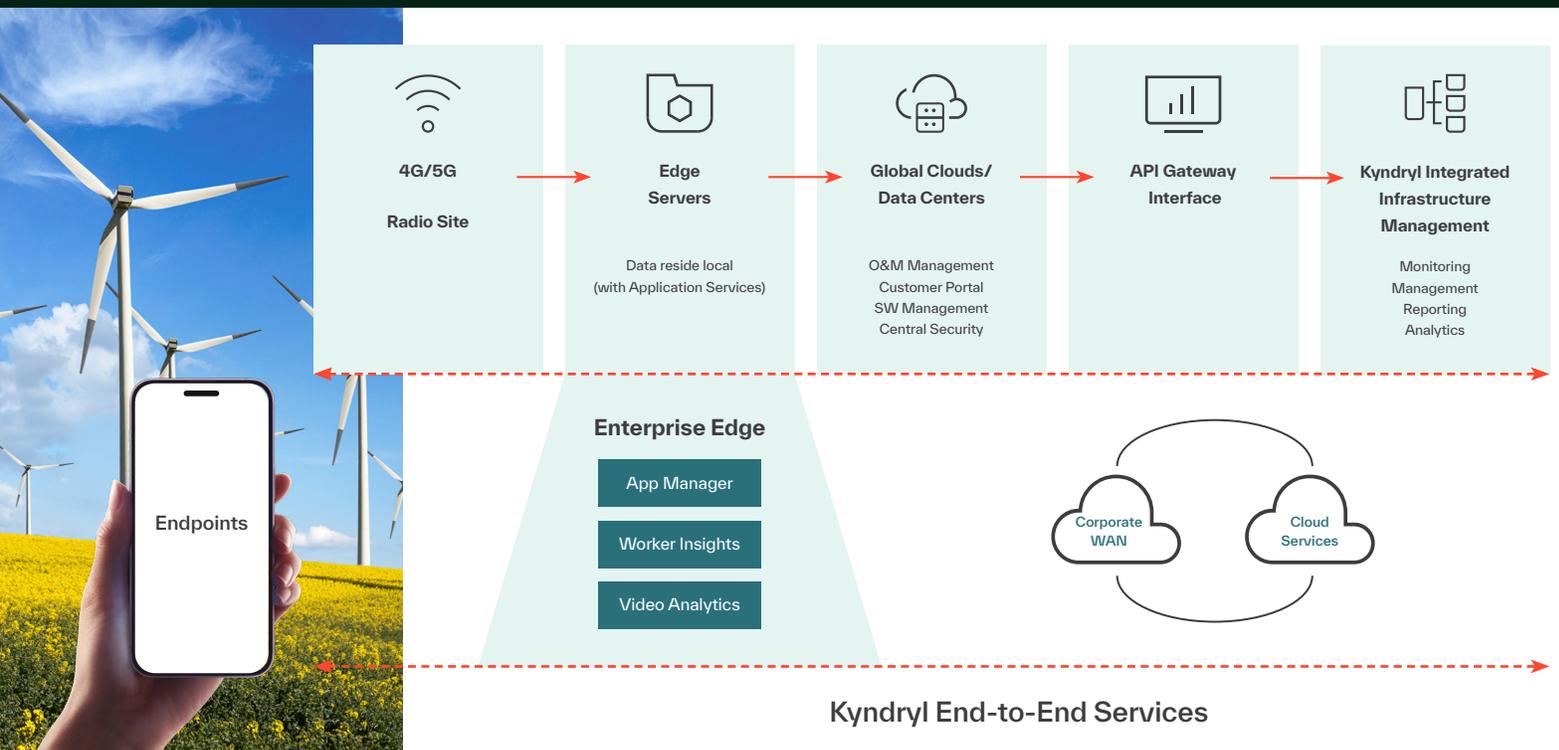
## Current technologies and collaboration tools

The technology described in this example is current and can be used in numerous industrial settings where connectivity is problematic to connect field workers. Private wireless devices with push-to-talk, push-to-video, and push-to-picture (PTx) are replacing legacy land mobile radio solutions at a fraction of the cost and with far greater functionality.

Collaboration tools like Microsoft® Teams, WebEx by Cisco, and Zoom can now be leveraged in remote field operations. Peripherals like AR headsets, video devices, health monitors, accelerometers, and scanners can be connected via wi-fi hotspot or Bluetooth from the private wireless-connected handset.

Using edge data platforms and machine learning at the edge or in the cloud, field technicians can get valuable insights to better prepare for their time in the field. Sensor data processed in real-time and provided it in a context that is easy to understand can improve the field worker productivity.

## The Connected Worker Architecture



## Design, deploy, and manage with Kyndryl

You likely have thought of many scenarios where you could drive efficiency or increase safety with broad private cellular coverage to connect your remote and mobile workers in a variety of industry, operations, and field settings. You've seen how edge data solutions can provide real-time insights to increase efficiency and reduce delays and frustration.

Kyndryl has experience designing and deploying managed private wireless solutions with edge computing and machine learning in complex industrial environments. We have worked to securely connect remote workers to drive safety, productivity, and efficiency.

Security is paramount to protect operations technology (OT) environments. Private wireless combines the security of cellular technology without sending your data across a public network. You determine which devices can communicate on your private network and apply your segmentation policies for enhanced security. This gives you a high degree of control without the headaches of managing carrier data plans.

## Examples of technology applied in use case

- Nokia Digital Automation Cloud (NDAC) Private Wireless solution
- CBRS compatible iPhone with wi-fi hotspot
- FaceTime
- Push-to-Talk
- Ruggedized tablet
- RealWear headset
- Microsoft Teams
- Data analytics
- Machine learning
- Edge computing
- IoT wearable sensors

## Why Kyndryl?

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## For more information:

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