

Rise of mobile-based CCTV Systems



**Connected
Spaces
Vision**

Together we can
vodafone
business

Summary

Closed-circuit television (CCTV) systems are used to monitor and record images and video in real time to provide security and surveillance solutions across industries. Traditionally, CCTV systems have been wire-based, requiring the installation of networking equipment, cables, firewalls and deep knowledge to connect the cameras to the recording devices. This can be a time-consuming and expensive process, especially in remote, difficult-to-access or mobile-access-only locations.



In recent years, there has been an accelerating trend towards mobile-based CCTV systems which use mobile networks to transmit live video from camera to headquarter back-offices. The growth of mobile-based CCTV systems is driven predominantly due to growing demands from enterprise to get reliable live video from remote locations, the ability to redeploy solutions as needed and reduce overall cost of ownership to balance the outcomes and associated costs.

This white paper will discuss the rise of mobile-based CCTV systems, their benefits and the factors to consider when choosing a mobile-based CCTV system. Additionally, the white paper will also introduce how Vodafone Connected Spaces Vision will be able to provide a unique and differentiated solution with Digital Barriers technology to accelerate the market adoption of cellular-based CCTV solutions.

Market outlook

A study by Grand View Research – “[Cellular-Based CCTV Market Size, Share & Trends Analysis Report by Product, by Application, and Segment Forecasts, 2021-2028](#)” – from March 2022 found that the **global market for cellular-based CCTV systems is expected to grow at a compound annual growth rate (CAGR) of 18.2% from 2021 to 2028, reaching a value of \$13.8 billion by 2028.** The study found that the growth of the cellular-based CCTV market is being driven by the increasing demand for security and surveillance solutions in smart cities, transportation, remote areas, need for re-deployable solutions, as well as the growing popularity of cloud-based CCTV systems and the increasing adoption of 5G networks.



The study also found that wired CCTV is still the dominant technology in the CCTV market, but its market share is declining due to the increasing cost of installation and maintenance. The study also found that the **wired CCTV market is expected to decline at a CAGR of 2.5% from 2021 to 2028.** The decline is being driven by the increasing cost of deploying and maintaining wired infrastructure, as well as the growing popularity of mobile-based CCTV systems.

Challenges with wired CCTV

As technology advances with more sophisticated solutions in areas such as: cameras, video management systems, 5G/Edge and cloud, enterprises are revisiting the way they have been deploying CCTV systems with the goal of reducing the time to value and containing overall cost of ownership while leveraging technological advancements.

Wired CCTV has multiple challenges that have been attributed to the growth of cellular-based CCTV systems. The section covers some of the challenges related to wired CCTV solutions and operations.

- **Installation:** Wired CCTV systems require the installation of cables to connect the cameras to the recording device. This can be a time-consuming and expensive process, especially in remote or difficult-to-access locations.
- **Maintenance:** Wired CCTV systems require regular maintenance to ensure that the cables are in good condition and that the connections are secure. This can be a costly and time-consuming process.
- **Skilled staff:** To operate within a wired CCTV environment, enterprises need to have knowledgeable personnel for design, deploying and operating the wired infrastructure.
- **Vulnerability to damage:** Wired CCTV systems are vulnerable to damage from weather, vandalism and other environmental factors. This can result in loss of video footage or even damage to the recording system.
- **Limited flexibility:** Wired CCTV systems are limited in terms of their flexibility when it comes to relocating or repositioning the camera assets due to construction or altering building layouts.
- **Cost:** Wired CCTV systems can be more expensive when compared to expanded mobile-based CCTV systems.

Overall, all the challenges lead to high cost of ownership and operations with wired CCTV.

Total cost of ownership comparison

Mobile-based CCTV systems are becoming increasingly popular as they offer several advantages over traditional wired CCTV systems.

- ABI Research study – “[Video Surveillance Systems: Market Shares, Strategies, and Forecasts, 2021 to 2028](#)” from February 2022 found that **the total cost of ownership (TCO) for a mobile CCTV system is 20-30% lower than the TCO for a wired CCTV system.** The study found that the lower TCO for mobile CCTV systems is due to the lower cost of installation, maintenance and affordable data plans.
- Frost & Sullivan study – “[Video Surveillance Market by Technology, Application and Region Global Industry Perspective, Comprehensive Analysis, and Forecast, 2021 – 2028](#)” from March 2022 found that the cost of connectivity is the largest cost driver for wired CCTV systems. The study found that the **cost of connectivity can account for more than 30% of the TCO** for a wired CCTV system.
- Source: Markets and Markets found that the global market for mobile **CCTV systems is expected to grow at a CAGR of 19.2% from 2020 to 2025.** The study found that the growth of the mobile CCTV market is being driven by the lower cost of ownership compared to wired CCTV systems.

If you consider the broad categories, the following can be potentially attributed to higher costs for wired CCTV systems.

- **Deployment costs:** Wired CCTV systems require the installation of networking equipment, cables and other infrastructure, which can be expensive. Mobile CCTV systems, on the other hand, can be deployed more easily and cost-effectively.
- **Maintenance costs:** Wired CCTV systems require regular maintenance to ensure that the cables and other infrastructure are in good working order. Mobile CCTV systems, on the other hand, are less prone to maintenance issues.
- **Scalability:** Wired CCTV systems can be difficult to scale, as they are limited by the amount of bandwidth available. Mobile CCTV systems, on the other hand, are more scalable, as they can be used to transmit video over mobile networks via private and dedicated networks.

- **Cost of connectivity:** Wired system needs a lot more planning including the cost of connectivity based on cabling costs (length/type/copper/fibre), cost of installation (laying and running wired/components), cost of maintenance/upgrades. The cost distribution breakdown for a wired connection can vary, but here's a general breakdown of percentages for typical expenses.
 - **Wired: fibre optic cable:** 20-30%
 - **Connectors and terminations:** 10-20%
 - **Installation labor:** 30-40%
 - **Splicing equipment and accessories:** 5-10%
 - **Testing and certification:** 5-10%
 - **Miscellaneous (permits, equipment enclosures, etc.):** 5-10%

A mobile-based CCTV system typically will be driven based on operator-specific plans that can enable, upgrade or be disabled using remote cloud-based operations.

Challenges with mobile/cellular CCTV

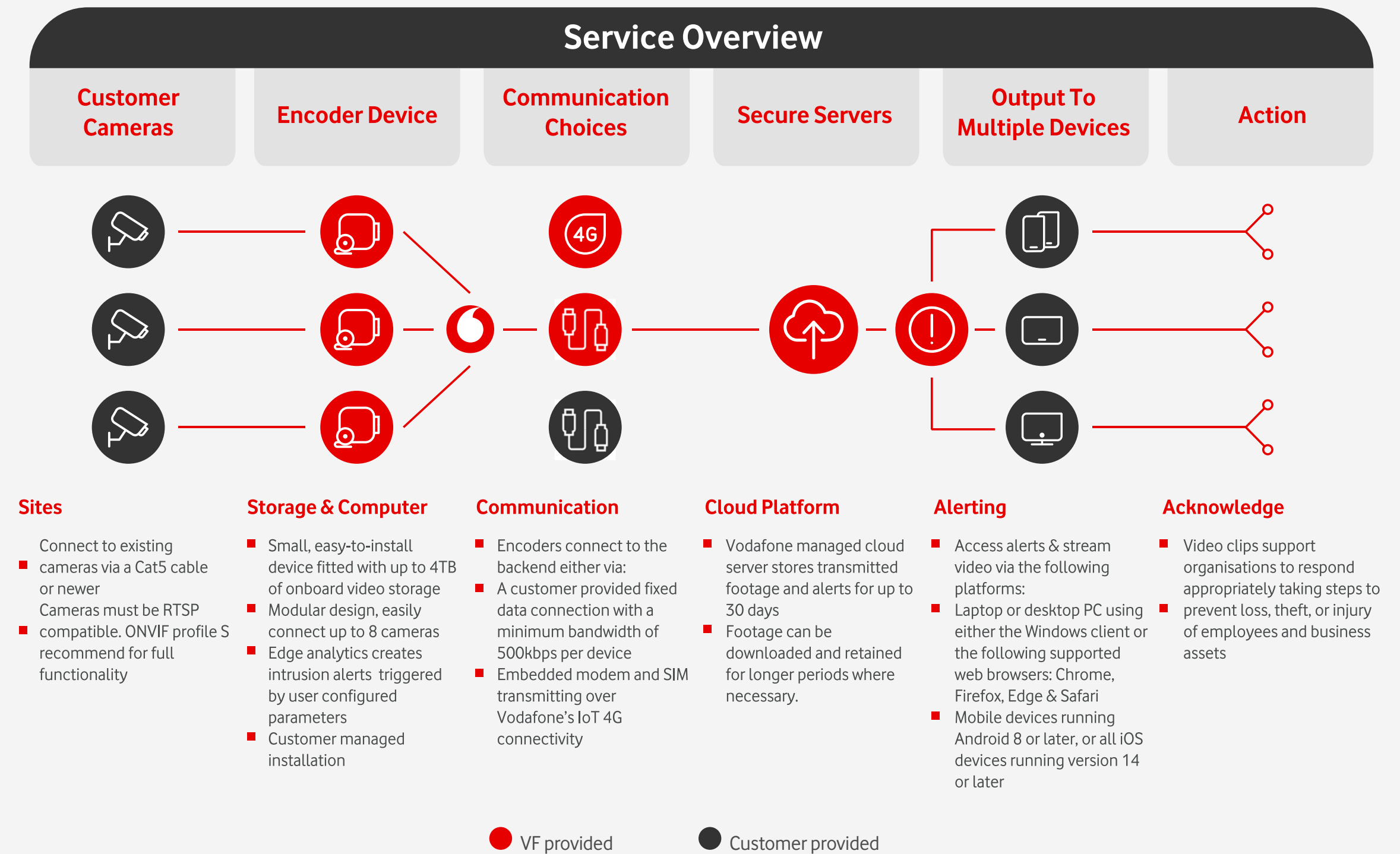
Mobile-based CCTV systems have their own set of design and deployment considerations.

- **Bandwidth:** Mobile-based CCTV systems can be bandwidth-intensive and need to be designed to have a balance between cost and performance.
- **Latency:** Mobile networks inherently introduce latency based on the dynamic network environment, which means that there is a delay between when an event happens and when it is recorded. This can be a problem for applications where real-time video surveillance is required.
- **Coverage:** Mobile CCTV systems may not have the same coverage as wired CCTV systems, so they need to be carefully planned. Although with the advances of private or dedicated, networks can be built for specific enterprise use cases to meet expected outcomes.
- **Costs:** Mobile CCTV systems can be more expensive than wired CCTV systems, but the overall cost of ownership may be lower due to the reduced maintenance and installation costs.

Vodafone Connected Spaces Vision

Vodafone Connected Spaces Vision addresses the challenges related to the mobile-based CCTV market by providing a solution that delivers reliable real-time video over mobile networks for video security and surveillance. It also enables businesses to achieve new cloud-based benefits, cost savings and new business outcomes by utilising advanced analytics and distributed storage.

Digital Barriers' AI-based video codec is designed for mobile environments and can deliver reliable live video over mobile networks without sacrificing quality. Results of field testing: enterprises can see up to 90% bandwidth savings while performing in constrained and congested environments.



To find out more about how Vodafone Connected Spaces Vision could help you future-proof your security and surveillance, please visit [our dedicated website](#).