



WHITE PAPER

What's next for Connected Safety? Cloud Data Storage

Our focus for today's paper is the ways in which cloud data storage is transforming the way gas detection teams record, analyse and act upon gathered data. For employers with just a few employees, or those with hundreds of workers, using portable gas detectors across multiple locations can make it hard for on-site crews to keep track of daily activities, and make it even more tricky for those off-site to record, access and review data and insights in a timely fashion.

Cloud data storage solutions, such as Crowcon Connect, revolutionise these activities by offering anytime, anywhere access to a central cloud data system. These types of systems change not only the availability of and access to data, but also the security of the information held and the way in which that data can be acted upon when it really matters. Cloud data storage also impacts the capacity of an organisation to ensure compliance and accurately assess risk within their operations.

Crowcon Connect - a gas safety and compliance insight solution - an overview

Before we dive into the cloud data storage benefits for organisations in the gas detection sector, let's break down the Crowcon Connect system as an overview.

The solution collects data from every gas detector in your fleet and integrates with existing Crowcon detectors to allow for an immediate flow of data. Each device can be assigned to specific operators to help with the efficient management of the detector fleet. With these processes in place for accurate recording of data, the Connect system pulls together fleet-wide information across central dashboards to enable data analysis.

The data pulled into the portal after each shift shows any exceptions or non-conformity to policies or compliance, and flags alerts for calibration and maintenance due dates. The system also keeps track of detector locations.

Finally the system is set up to provide better scheduling of calibrations and maintenance, with improved accessibility to the records needed to prove fleet compliance, which are stored in the cloud.



What is safe data storage?

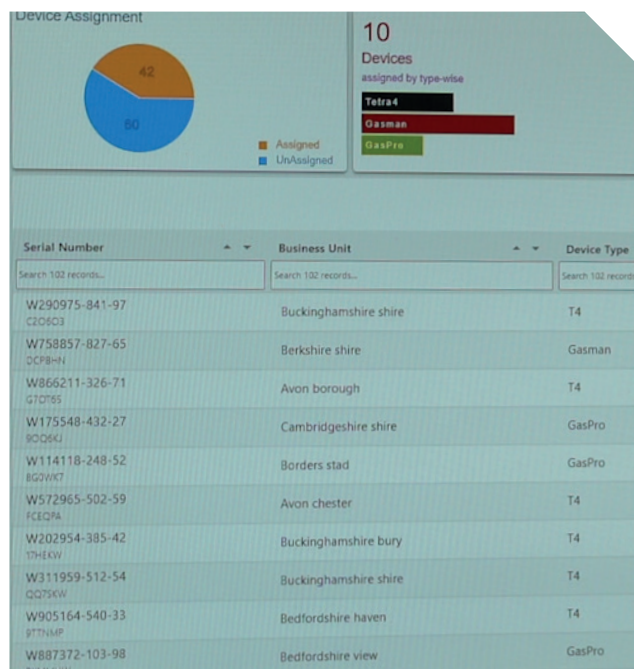
It's useful to define what data storage is and how organisations can be sure their information is safely held, to provide peace of mind for those within the gas detection sector.

When we discuss 'safe data storage', the phrase not only refers to utilising the data collected in order to enhance safety operations 'on the ground' within gas detection environments, it also relates to ensuring the data itself is properly protected in the system in which it resides.

Safe data storage refers to both the manual and automated computing processes and technologies that store data and ensure its ongoing security and protection from external threats. With individuals, companies, and indeed our society itself producing more digital data than ever before it has become unmanageable to store so much information in physical objects. This explains the marked shift to cloud data storage and the reasons for concern about the data that is held there being properly safeguarded.



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Crowcon Connect - versatility and security

Crowcon Connect, Crowcon's own cloud-based solution, is a versatile cloud data storage system with a variety of hosting options. It can sit within our own secure Microsoft Azure™ cloud architecture, integrate with your existing systems with an API or be hosted on your server on-site. The connective solution is adaptable and able to blend with an organisation's current setup and needs to ensure easy deployment, as well as security and safety for the crucial data you and your team are gathering on a daily basis.

With 50 years experience in providing solutions that companies worldwide trust and depend on, Crowcon have honed the gas safety and compliance insight solution to further enhance the offerings available. The flexible cloud data solution has been designed to provide actionable insight from companies' detector fleets, with a focus on allowing for the reduction of costs, improvement of operational efficiency and raising of safety levels.



Secure data storage

When it comes to ensuring your data is stored securely there really is no room for mistakes. This is why the 'where' and 'how' of solution integration within your current environment can be a stumbling block for lots of companies.

Crowcon Connect provides flexible, secure data hosting opportunities which you can choose from. The database can integrate with existing databases, such as Power BI, so you can continue to use your dashboards and reporting tools, with your fleet-wide detector information. You can also, if required, create a local version of the Crowcon Connect portal that allows your device data to remain on your servers on your premises, within your control.

The final option to securely contain your data is through the creation of an implementation on your own cloud, which also means that your device data will stay situated on your server, within your control.

With lots of options and flexibility in terms of the ways in which you integrate a solution within your current systems, it can come down to who you work alongside and the advice you receive to ensure you implement what works best for you and your team.

Once decisions have been made about the hosting of your solution, it is time to consider how you want to capture the data in question and explore the right data capture method for you.

Data capture is the action of gathering the information you need, and the way it is captured and changed into a format that can be read and used by your computer software. Wired data capture is undertaken through the docking of your portable detectors in charging units, which also act as data collection stations. These docks can be placed in convenient locations throughout the site and then connected to a PC. This is the first option for secure data capture.

Secondly, there is the possibility to utilise Bluetooth by uploading data through charging stations in workers' vehicles or homes. Data is synced via the Crowcon Connect smartphone/tablet app and uploaded automatically with no user intervention once connected.

There are also options to mix both of these options together to create a flexible data capture process, which in many gas detection environments is required. Either way, the way in which you will integrate a data solution with your current systems and ensure data is captured and stored in a way that works for you, as opposed to against you, is something to invest your time and thought into.



“With increased data availability comes reduced asset management problems, as well as enhanced gas safety insights.”

Avoiding data corruption

Having discussed the way your cloud data storage system is integrated with existing solutions and hosted, it is important to discuss the ways in which connected safety solutions and cloud data storage can help organisations to avoid unwanted data corruption.

Firstly, what is data corruption?

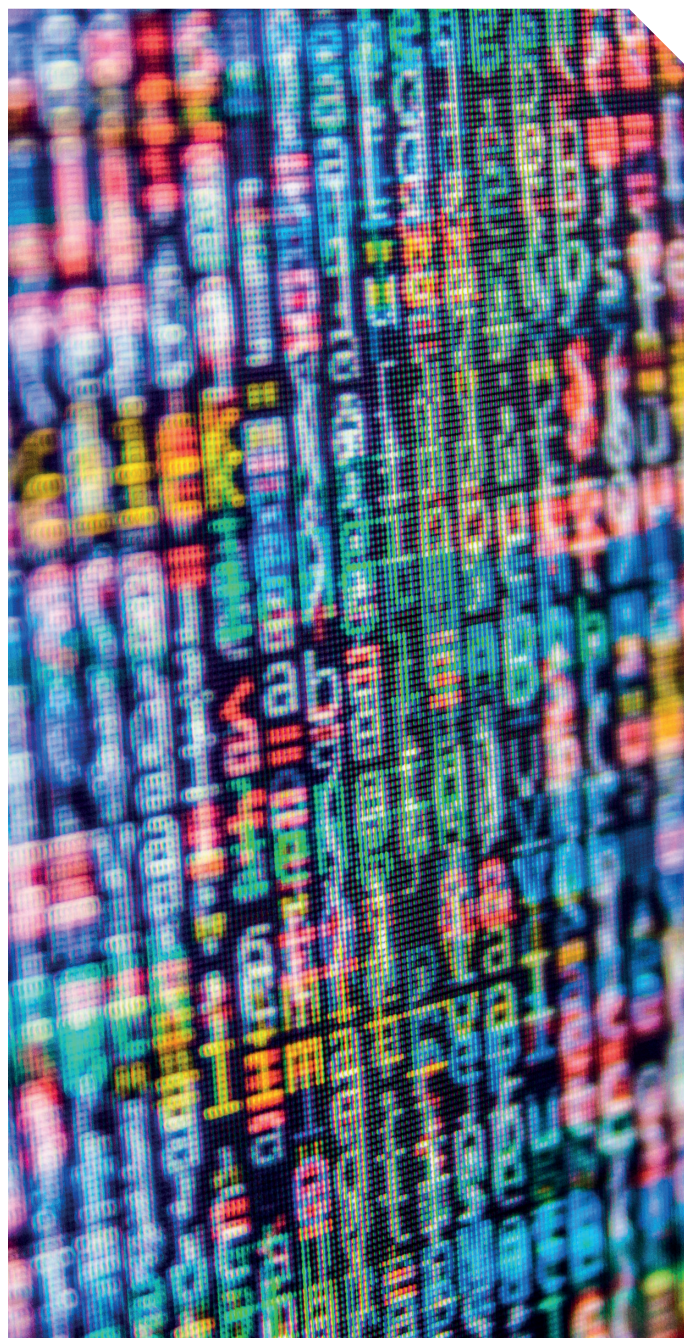
Data corruption refers to computer data errors that can happen during writing, reading, storage, transmission, or processing, and introduce unwanted changes to the original data held.

Microsoft Azure™ cloud architecture utilises an anti-corruption layer that implements a facade, or adapter layer, between a modern application and a legacy system to prevent the infiltration of foreign concepts and models into the system.

This is just one of the ways in which the Crowcon Connect system, when hosted through Microsoft Azure™ cloud architecture, can provide end-to-end data integrity, or lack of errors for the data stored.

Within the Halma MS Azure environment annual independent penetration testing is conducted with all critical, high and medium risks remediated. Monthly vulnerability scans are performed against all systems solutions with all issues resolved. There is a minimum monthly patching process for all elements of the service to ensure security patches are applied to, for example, servers and network infrastructure so that organisations are provided with peace of mind about the security of their data.

As well as Crowcon conducting internal testing, there is also capacity for clients to perform their own testing. Crowcon also has an active DR and backup policy.



Accurate data allowing for greater risk compliance

One of the main benefits of having cloud data storage systems for gas detection organisations is the way in which it can transform your capacity to conform to risk compliance guidelines and protocols.

Data is pulled into the portal after each shift and as a result you will instantaneously be able to see any exceptions and non-conformity to inhouse safety policies or compliance issues.

Bump testing records, calibration due dates, maintenance requirements, alarm events and a range of record keeping capacities allows line managers to capture and evaluate all of the data that is directly related to, and could become, sources of non compliance.

As well as being able to pinpoint and remedy specific sources of non-compliance, you will also be provided with the records

needed to prove fleet compliance, which are securely stored in the cloud. Everything is recorded, and so the demonstration of compliance during audits is easier, less time consuming and saves you the money usually taken up with labour costs due to manual recording and data gathering.

By removing manual data collection processes, you can ensure there is no more missing or out of date information when it comes to proving it to the relevant compliance authorities, and also means you are at an added advantage to improve your operational efficiency.



“Also, having the data in question viewable in an easy to comprehend format helps those making the decisions see the larger picture.”

A suite of data to allow you to build your risk assessments

Developing visibility across your operations, in order to build your risk assessments and ensure your safety program is robust is a must in gas detection environments. An integrated monitoring and safety solution lets you remain abreast of all the gathered data in the cloud. From a bird's eye view perspective, you can zoom into the nitty gritty and explore more fully the daily decisions that affect not only productivity, but also the safety of all those involved. This 360-degree view of safety operations within your plant helps managers, and those in positions of influence, to track the data received to tackle informational gaps and help avoid safety incidents.

Another benefit afforded by data solutions, such as Crowcon Connect, which allows you to build risk assessments, is the opportunity to improve gas detector up-time. With large fleets of gas detectors to monitor across multi-site fields it can be difficult to stay abreast of sensors, bump tests and calibrations. Safety managers may find they spend a lot of time reviewing when calibration is due or examining alarm events. Empty gas cylinders could delay bump testing or calibration and lead to downtime and create interruptions to maintenance schedules which creates risk to your workplace and employees.

A web-based dashboard lets you oversee equipment and identify potential issues before you experience downtime. Crowcon Connect allows organisations to apply filters to review information by region, division or team and fast track to the detail - this enables teams to develop a preventative maintenance strategy.

Also, having the data in question viewable in an easy to comprehend format helps those making the decisions see the larger picture, and act in an informed manner in relation to replacement or repair timelines.

Speaking of large fleets of gas detectors to monitor, it is key to ensure that the tools you are using to monitor clearly provide data that show the movements of the risk. Risk assessments for fixed gas detection are static. The buildings do not move, but the person does. By taking the gas readings for personal monitors you can begin to build on the pattern and movement of the risk. This is integral to building risk assessments based on real data and the behaviours that inform it.



Data to support bespoke and individual training plans

With data collected daily and centrally recorded in the cloud storage solution, organisations can benefit from a raft of information at their fingertips. By carefully analysing this data, bespoke and individual training plans can be drawn up and designed in line with your organisation's needs.

Ensuring the high quality working functionality of your gas detector fleet is reliant on regular bump testing, calibration and a forward-thinking maintenance schedule. Utilising cloud data solutions, line managers can use employee information and near-real time data to tackle employee complacency, gaps in knowledge and help drive safer behaviour through the creation of bespoke training programs.

If employees are missing alarm alerts or sensor failure warnings then line managers will be aware of it and be able to act upon this oversight by implementing required training, either in a one to one or group based format.

Cloud data storage programs pull this data through into central dashboards which highlight alarm events, maintenance requirements, fleet utilisation, exposure training, device use and event history. With this birds eye view of day to day activities you can clearly see if detectors are ready to go and are being used as they should. Using the data in front of you, managers can then take action or deliver timely and relevant constructive feedback. This heightens worker accountability and early identification of who needs retraining and in which areas.

Driving employee accountability is surely at the heart of effective gas detection operations. Near-real time awareness of the situations and events within your plant, and of the individuals on the ground carrying it out is important in order to avoid complacency and a false sense of security relating to portable gas detector alerts.



“With near-real time data coming through to the central dashboard every time a worker docks their detector to charge, managers have timely information to make informed decisions with.”

With this awareness and understanding those in charge are in a better position to implement a dynamic approach to safety, worker wellbeing and productivity. They can then educate staff who require it in a proactive manner to enhance safety and efficiency.

Cloud data storage gives managers further, more timely opportunities to communicate your expectations to workers as issues arise and to schedule relevant training in line with the data logs and response times by employee, department or location as they populate and are displayed centrally on your dashboards.

With near-real time data coming through to the central dashboard every time a worker docks their detector to charge, managers have timely information to make informed decisions with.

Training tailored to, and informed by, historic data is not helpful for the safety, efficiency and compliance of your overall operations and so those crafting training programs need to ensure they are doing so from reliable, current data.

Cloud data storage allows for timely review of data logs, measurements and response times and supports data-backed training implementation. Spotting patterns by examining historical data and calculating the timing for a partial or total shutdown for maintenance is helpful, because there is clear data around the environments that require a higher level of training, or which plants need an approach adjustment to aid better worker engagement and accountability.



With 50 years experience in the field we are ideally placed to meet your needs, offer peace of mind to you and your team and offer advice and suggestions for effective and secure gas detection within your environment.

Final Thoughts

Cloud data storage when implemented and utilised effectively can transform the way those in the gas detection sector operate. From providing timely data to build the foundations of your businesses safety recording, to ensuring accuracy across risk determination and compliance activities the benefits of implementing a gas safety and insight solution far outweigh any confusion around implementation.

One of the most important plus points is the way you can build a suite of data to support the development and delivery of bespoke and individual training plans to those within the

organisation that need it most. This not only enhances worker accountability and mindset, but further improves the safety of your overall operation.

If you have any questions around gas safety insight solutions, cloud data storage or the implementation of this then don't hesitate to get in touch with a member of our team to discuss your needs further.

