Harnessing technology to improve mining surveillance

By Justin Ludik   22 Jun 2018

Mining is traditionally slow at adopting technology, but this is starting to change as the industry starts to embrace emerging artificial intelligence (AI) and the Internet of Things (IoT) to lessen costs, increase productivity, and improve safety.

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In fact, according to BCG's latest report titled *The New Technology Frontier in Mining*, new technologies will turn the mining value chain upside down and disrupt existing business models. These technologies includes surveillance, which already serves a variety of functions at mines like perimeter surveillance and protection, as well as early detection of any potential fire hazard through thermal cameras.

Future developments include edge computing. While IoT and cloud computing are unlocking numerous business benefits in terms of surveillance, these also introduce a greater data cost burden because of data being transferred from connected devices to the data centre for processing and storage, along with the associated bandwidth needed.

Edge computing addresses this issue, by performing data processing at the 'edge' of the network, near the source of the data. This results in notable reductions in bandwidth needed between sensors and devices as well as the data centre.

In addition, edge computing also assists in the area of data integrity and privacy since data from sensors and devices on the edge such as cameras, audio sensors and the like, will be encrypted within the device.

Storage is also increasingly being done through microSD memory cards on cameras because these cards are getting faster, more affordable and offer greater storage capacities than ever before. Also spurring on this shift is a trend towards having the video recorded and stored on the device, in addition to the footage being streamed to server as a failover measure rather than the primary method of storage.

Surveillance beyond security

Cameras are becoming more sophisticated and intelligent thanks to their connectivity to more computing power that allows for the running of sophisticated analytics, instead of the usual streaming of video content back to a server. This means that in future certain security decisions can be made on the field devices, rather than all footage simply being streamed to a remote server and analysed by staff, thus reducing the burden on employees and having them focus on more specialised tasks.

The move to predictive analytics and intelligent video will allow any video surveillance solution to automatically perform an analysis of the captured video. Current applications for this range from analytics such as video motion detection and audio detection, to more advanced systems including camera tampering detection, people counting, virtual fences, and vehicle license plate recognition.

However, in future, intelligent video will make it possible to use video for applications outside of security, which in turn helps companies extract greater benefit out of the video surveillance infrastructure, and enables a higher return-on-investment from the equipment.

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