Considerations when installing Video Analytics (VCA)

Choice of Analytics Product

There are many manufacturers of VCA systems, each with different strengths and weaknesses. Some manufacturers offer systems targeted at specific situations such as intrusion detection, traffic surveillance and so forth. Make sure you know what you want and if you have multiple specific scenarios it might pay to use the different manufacturers for different applications. Look for manufacturers that have some government or industry accreditation, e.g. i-LIDS from the UK home office.

Edge or Server Based?

Many new cameras and IP encoders are hitting the market with the ability to run the analytics inside the camera. So-called “analytics at the edge”. In a large amount of cases, edge devices offer benefits over server-based systems. Since edge devices run the analytics locally, they can be configured to send a video clip only when alarms are detected, thus saving network bandwidth and costs. On the other hand, server based analytics might be the right solution if you need to run video stored on your NVR through analysis. One thing worth considering: you can make an edge device behave like a server system, but not the other way around!

Camera Placement

Despite what the sales material will tell you, VCA is still a maturing technology and it is not a magic solution that will work in all situations. The performance of VCA systems has improved over recent years, but camera placement can have a dramatic effect on how well your VCA functions. Avoid locating cameras where nuisance alarms are likely to occur, for example where there is lots of moving foliage, waves, tidal movement, etc. If this is not possible, then problem areas should be masked out at configuration stage. If you plan to install analytics on a PTZ camera make sure it can support automatic detection of presets, since your configuration is likely to be specific to the PTZ location. Some manufacturers offer PTZ cameras with built-in edge analytics: these are the most likely type to support this feature.

Don’t Believe the Hype: Try Before you Buy

Run a trial before investing heavily in video analytics. Purchase just a couple of VCA units and run them at a site where you have easy access to the configuration and maintenance interface. Every installation will present the VCA system with different challenges and you should verify the system meets your requirements in terms of detection rate and false alarm performance before embarking on bigger projects.

If your installation is outdoors make sure the system can handle environmental phenomena such as global illumination changes (e.g. on a windy day with fluffy clouds), wind (camera shake), rain and fog without generating false alarms. Check that the system doesn’t go “blind” in these situations and can still detect new objects.

Ensure that sudden scene changes such as a lights-off lights-on transition don't generate false alarms. Check that the system can learn the new scene following a sudden scene change quickly. Any longer than 20 seconds or so and there is a real possibility of missed detections.

Configuration

Configuration can make a huge difference to the performance of a VCA system. An incorrectly configured VCA system can ignore the things you want to detect and raise false alarms on the stuff you're not interested in. Make sure you're comfortable with how to configure your VCA system. Where possible, choose a system with an intuitive interface that is free of confusing controls and engineering language that you don't understand. If the user interface looks like you need a PhD to configure it, then you probably do. If the manufacturer charges on a time basis for support then make sure your support costs will not spiral out of control because the system is too hard to use.

Interface

Make sure the VCA system provides the interfaces you need. This could be anything from a simple contact closure to full metadata output stream. Be clear about how this will integrate into any legacy systems or how it will be part of a new installation. VCA is a difficult thing for NVR/DVR manufacturers to integrate (mainly because of the amount of graphical work involved in porting user interfaces), so make sure any integrated systems will meet your expectations in terms of coherence between the fundamental system building blocks. Newer devices are starting to conform to ONVIF or PSIA standards. If your VCA system and NVR/DVR both speak the same language your integration costs could be drastically reduced.