



# THE TALE OF THE TAPE

Criterion	Edge-based	Server-based
<b>Reliability</b>	Typically, IP cameras have less processing power unless they have a dedicated on-board processor. However, since they have access to raw, uncompressed video, the reliability of the analytics can be high. Reliability would only be problematic if the embedded processor was not powerful enough for the video analytics application.	Servers have a lot of processing power, and you can define a maximum number of cameras per server to reduce overload. Since only the frame rate and resolution are transmitted from the camera, server-based solutions are generally very reliable. The only exception to this would be if the quality of the incoming video stream was poor.
<b>Video analytics options</b>	Most video analytics are able to run on the edge, but due to limited processing power, each camera is usually restricted to running one analytics application at a time. So you might set up a train platform camera to detect either loitering or an abandoned bag, but not both. This is because analytics use a lot of horsepower, which is usually limited within the camera.	The video analytics are unrestricted by processing power, which means that multiple analytics applications can run on any camera simultaneously.
<b>Self-sufficiency</b>	In isolated locations, each with just one or two cameras, you wouldn't put excessive hardware at such remote locations, especially servers. Such locations would likely be hot, cold, dirty and hard to access for maintenance. With intelligence at the edge, the camera can do everything, even record to embedded storage. Such autonomy means a remote camera can detect threats and trigger actions at an isolated site. With analytics on the edge, the network could be down and the analytics would still run fine.	With analytics at the center, cameras at remote sites aren't self-sufficient.
<b>Bandwidth</b>	Analytics on the edge are ideal for low-bandwidth connections since analytics occur within the camera and only a simple alarm is transmitted to the center.	Server-based analytics can only be used when the incoming video stream meets a minimum quality level, which is defined by frame rate and resolution.
<b>Camera choice</b>	Camera manufacturers typically only make analytics available on a subset of camera models. This is because: (1) the increased cost of manufacturing such cameras can be prohibitive; and (2) cameras running analytics are a small percentage of all cameras sold. From an end-user standpoint, this translates into fewer camera choices.	Being server-based, the analytics are camera agnostic. You can use any camera model from any manufacturer.
<b>Substitution capability</b>	Most manufacturers use the same analytics software in their entire camera portfolio, so if a customer finds that the analytics don't work well, they will likely have to replace all the existing cameras with a different brand.	If the analytics don't perform to expectation, you can simply replace the software on a server. Just make sure that the server-based analytics software is compatible with the chosen video management system (VMS) or is a licensable feature of the VMS.
<b>Ease of installation</b>	A manufacturer's camera portfolio will typically use the same analytics software, so once you learn to configure one, you can configure all. However, different brands use different software, so if a customer's surveillance network uses various types of cameras, your installers must be certified and trained to configure them all.	Since the software is camera agnostic, it can be used with all brands and models of cameras, and even encoders. This makes it much easier for installers to gain experience and become experts.
<b>Carbon footprint</b>	An IP camera consumes only a few watts of power and little, if any, additional power to run video analytics.	If the same server is used for analytics as well as recording video, the additional power required for video analytics is negligible. If, however, a dedicated server is required for analytics, it could easily consume a few hundred watts of power, which is divided among the connected cameras.
<b>Total cost of ownership (TCO)</b>	TCO of edge-based analytics is effectively zero when factors such as power, cooling and rack space are factored in. That's because an IP camera with an embedded SD card doesn't take up space in a rack, consume a lot of power or place a burden on the HVAC.	If analytics are running on the Network Video Recorder (NVR), the TCO is negligible because it is not consuming any power beyond what it needs to record the video. However, if the analytics are running on separate dedicated servers, the TCO can be significant.
<b>Price</b>	In order to differentiate their hardware and gain a competitive edge, many IP camera manufacturers now include embedded analytics at a very low price point.	With server-based analytics, the cost per camera is typically higher. The focus of server-based analytics is more on reliability, power, and feature sets than on cost.
<b>Licensing</b>	Typically, the camera is either sold as a part number with analytics already enabled or the analytics is a software feature that can be unlocked in the camera for an additional fee (license). The license is typically tied to a specific camera.	Server-based analytics are typically licensed on a per-camera basis, but usually this virtual license can be reassigned to a different camera if desired at a later point in time.