About the “Open Platforms”

An opinion originally written in 2012, updated in 2017, by Vlado Damjanovski

I am really bugged about the usage of the terminology “Open Platform” in our industry, hence I decided to write this article, and I am truly **open** to contra-arguments.

I have seen many tenders, specifications, comments, and opinions, which refer to, or proclaim to be “Open Platform” IP CCTV system(s).

Let me be perfectly clear, I have nothing against such systems, and this article does not intend to degrade their quality.

It simply argues about the real meaning of the term “Open”, which I believe is taken wrongly by some consultants and technical advisors, leading to preferential treatment of the “Open” against the “non-Open” brands and products.

I originally wrote an article on this topic 5 years ago, and sadly, today not much has changed and the same arguments are valid.

So let me explain my point of view.

The term “Open Platform” comes originally from the computer industry.

Over 35 years ago, IBM came up with the idea of an “open concept” with the Industry Standard bus Architecture (**ISA**) for the Personal Computers (PC).
This idea of open architecture was mainly referring to the connectivity of the ISA hardware cards made by various manufacturers which were designed to be compatible and functional with the **IBM PC** motherboard. Such ISA cards were designed to have functionality that was not originally produced or conceived by the IBM people themselves. These compatible cards could have been A/D converters, audio of image samplers, modems, Ethernet cards etc. Such ISA cards would require software to work with, and the manufacturer making such hardware would usually write software that could be installed on top of the operating system.
The operating system was originally IBM DOS, but later on Microsoft DOS prevailed, which then evolved into Microsoft Windows.

Now, it is important to note, that Windows as such is not an “Open Platform” operating system (OS). It is an OS which you have to pay for, and you get certain development tools from MS (once you pay for them too) which you can then use to produce your own software to work with your hardware developed to run on an IBM clone or genuine machine. The PC “clone” was nothing but a copy of the original IBM design, made to be cheaper but almost 100% compatible (especially with the ISA bus), hence it was called IBM PC Compatible.

PC enthusiasts were soon sick of paying Microsoft for every new version of the Windows OS, but most of them had no choice as they didn’t know there were alternatives.

The brave and smart ones, like the Finnish student Linus Torvald, in the early 1990-es during his computer studies decided to write a new OS, which was based on Unix OS (which was not free), but he decided to give it away for **free**, under the name of **Linux**.

In only a few years, Linux proved to be a rock-solid OS, not only free to use and distribute, but more secure and faster on the same hardware with Intel CPUs. The only requirement Linus imposed on the people writing applications for it, or improving it further, to make these also freely available to everybody else.

This concept is the one that started the “open platform” movement.

So Linux is open, Windows is not.

Today, there are a number of open source programs which are completely free, and come not only for Linux, but for Windows and Mac OS as well. Such programs include Open Office which could completely replace Microsoft’s Office, but for free. Another popular and known is Gimp which completely replaces Adobe PhotoShop, and it is free.
Anybody that has the ability (and time) to write software for Linux, can do so freely, but they are supposed to give the software for free too. The paying mechanism that was introduced by some was based on voluntary contribution - you pay a donation/contribution of whatever you feel the software deserves to be awarded, that is if you use it and feel it does a good job for you.

In CCTV, we somehow get this concept of “Open” mixed up.

Consultants or integrators asking for, or stating, “Open Platform” Video Management Systems (VMS) systems are probably referring to the fact that “the VMS platform” will work with any camera on the market without any restrictions and free.

Well, this is actually not true.

For each and separate IP camera model somebody from the “Open Platform Company X” has to write some software (API) so that their “Open Platform” can talk to the camera by manufacturer Y and decode the video stream sent by such a camera.

So, this is (typically) a Windows based software (which is - typically - not free), that should work with a long list of IP cameras with different decoders and protocols.

Mind you, all of this decoding is done in the software application (VMS) written for the OS (Windows) which very much depends on the CPU and GPU speed, memory available, number of cameras being decoded simultaneously, their resolution, etc.

What usually happens is - the provider of the “Open Platform” X typically gets a camera from manufacturer Y (often for free), so that their software engineers can write up a plug-in module which would hopefully understand the protocol (IP language) and encoding scheme (compression) of such a camera. Often, the VMS X software manufacturer requests that the camera manufacturer Y pays a one off development fee (typically thousands of dollars). Once the VMS X software is completed they then offer the camera plug-ins as a part of their VMS X, and in most cases they charge for each new channel a licence fee. Some of them even charge recurring licence fees, like an annual subscription.

Such a list of “compatible” cameras grows daily, but it is important to note that once a manufacturer Y makes a completely new camera, that perhaps uses a different codec or protocol, than the “Open Platform” maker has to produce yet another plug-in for the new camera of the same VMS manufacturer X, and often another fee needs to be paid for.

This is far from the real “Open Platform” connotation.

So, by no stretch of imagination we are correct to call this “Open Platform” concept in our industry, with the same meaning as in the computer industry.

Here is what Wikipedia says about Open Platform:

*In software and web-based architectures, an **Open platform** describes a software system which is based on open standards, such as published and fully documented external programming interfaces that allow using the software to function in other ways than the original programmer intended, without requiring modification of the source code. Using these interfaces, typically known as an application programming interface (API), a 3rd party could integrate with the platform to add functionality...*

...An open platform implies that the vendor allows, and perhaps supports, the ability to do this. Using an open platform a developer could add features or functionality that the platform vendor hadn't completed or hadn't conceived of. An open platform allows the developer to change existing functionality, as the specifications are publicly available open standards.

Let me draw your attention to the part of the first sentence “*...an Open Platform describes a software system which is based on open standards...*”

The Windows OS for which our “Open Platform” VMS is designed to run on, is not an open standard. Yes, it is most widely used, but certainly not an open standard like Linux is. The IP camera encoding that the “Open Platform” is designed to decode is not an Open standard, and it is subject to the MPEG-LA (Licensing Authority) licensing. Whether your camera manufacturer or VMS X provider pays a licence for using the H.264 codec for example or not, may be found here: http://www.mpegla.com/main/programs/AVC/Pages/Licensees.aspx. Yet, by you as a customer paying per camera channel for your VMS, you would expect that these copyright dues are paid for as well.

Next, a comment on the second sentence of the last paragraph “*Using open platform a developer could add features or functionality that the platform vendor hadn’t completed or hadn’t conceived of.*”

In most cases in our IP CCTV world, it is the camera and DVR manufacturer (the “Closed Platform” guys) that provides most of the functionalities a camera can give, like analysis, smart search, etc. Using an “Open Platform” VMS doesn’t necessarily mean that the functionality is improved nor it is free.

The only real benefit of “Open Platform” is that you have the possibility to install MS Windows compatible front end, on a PC compatible hardware (which your IT department could buy at a slightly lower cost from their approved PC supplier) and have some peace of mind thinking you have a future-proof system. This is a fair belief, but as I said earlier, it is very likely that when a completely new camera model comes out on the market, you will still require to buy a new licence for it. This is then, by definition, not an “Open Platform” system.

The “Open Platform” software, without any doubt, could be well presented and functional, and I have seen some very well written and functional “VMS platforms.” Sadly, most of them are written for an operating system which 90% of the internet would not run on due of

it's inefficiency, lack of security and certainly licence costs. According to some researches 96.3 percent of the top 1 million web servers are running Linux. The remainder is split between Windows, 1.9 percent, and FreeBSD, 1.8 percent (according to www.zdnet.com).

So, what I am saying is that I have no objection for the industry to continue using "platforms" that work with many different brands of IP cameras, but I am certainly not in agreement with these platforms being called "Open" - **if they are not Open in their true sense of the word**. Especially if their software decoding and communication protocol for each and different camera are referring to only that type of camera and such functionality is paid for by the users.

The need for an actual real "Open Platform" concept arose because of the fast changing times we experienced in CCTV in the last 15 years, since converting to IP CCTV. There is no longer PAL plug-and-play comfort, and there are too many incompatible video IP formats and protocols.

There are no digital standards in Australia yet (as of May 2017), but it is encouraging to know that the International Electrotechnical Commission (IEC) recently published the 62676 suite of standards referring to IP CCTV.

Standards Australia is now a participating member of the IEC and instead of re-inventing the wheel and start creating our own IP CCTV standards, we now have a motion of adopting the IEC 62676 standards.

Within these new standards, the TC-79 committee of IEC made a decision to include Open Network Video Interface Forum (ONVIF) a common interoperability standards between different camera encoders and VMS platforms or NVRs.

Although ONVIF still keeps evolving, it has progressed immensely since its introduction about 9 years ago. Being created by some of the main players in the industry, such as Axis, Sony, Bosch, and others, and having now over 450 members (https://www.onvif.org/about/member-list/), ONVIF has become the voice of the global industry.

My personal belief, and hope, is that by having an international IP CCTV standard which clearly proposes interoperability and gives suggestions how to do it - **true Open platform systems will emerge**.

Open platform VMSs should be platforms where customers and end users should not have to pay for each camera a licence to be able to use it, once they paid for the camera itself. Once you buy an IP CCTV camera compliant with the 62676 standards - functionality on any 62676 compliant VMS should be guaranteed.

This is the fundamental role of standards.