

Topic in a nutshell

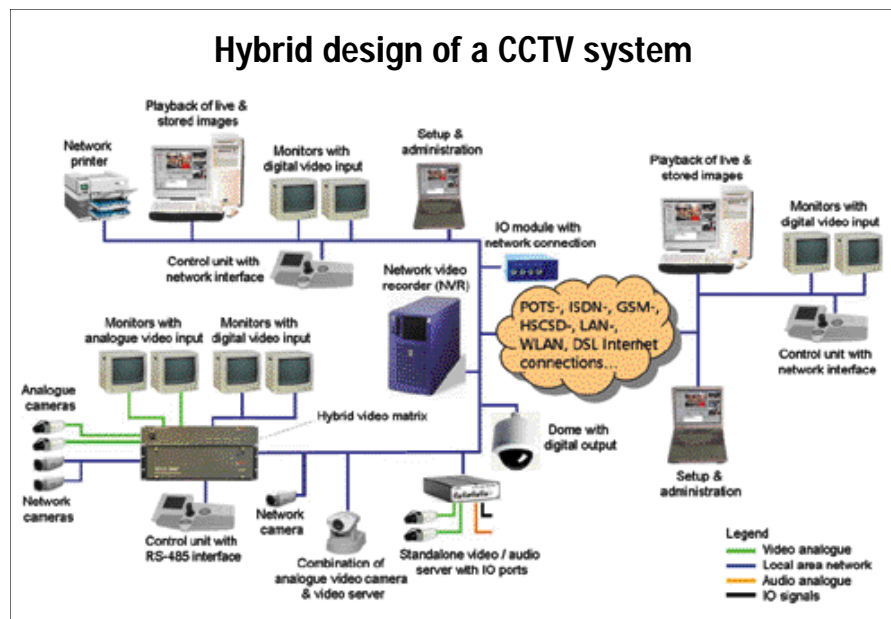
The rapid innovations in the network and computer technology sectors as well as in image processing will strongly influence the construction and functionality of future CCTV systems. The share of digital components will increase and successively displace analogue products. At the same time, the share of software will increase dramatically. As a result, the whole industry will experience arguably the most influential changes in the historical development of the CCTV sector. Everyone concerned should see a historical chance in these foreseeable changes and mentally prepare themselves and begin with strategic planning as soon as possible in order to prevent unwanted surprises.

Digital Future

From a technical point of view it is already possible to construct fully digital video surveillance equipment since efficient video compression methods, network cameras, powerful computer systems, technically advanced storage technology, global data networks and highly developed operating systems coupled with functional software development environments have been available for some time now. In this context advocates talk of unstoppable progress although the sceptics question the digital solutions available today for very different reasons. Rightly so, as a universal video standard for all manufacturers is still not in sight. In terms of functionality, the user must also accept notable limitations if an immediate switch is made. In addition, there is justifiable scepticism as to whether the necessary in-depth know how is presently available to ensure the safe handling of the technology.

If one takes a look at the products offered in the fifty year history of TV surveillance technology, only too seldom have application-oriented products emerged from the countless developments. In the lower and middle market segments, manufacturers have tried from the outset to implement more or less the same range of products in completely different applications.

A lack of communication between users, professional installers and manufacturers and the associated lack of knowledge regarding the tasks at hand have led the industry to rarely deliver tailor-made solutions right from the start. Admittedly, the comparatively low quantities do not justify



CCTV Aspects, Visions and Expectations

by Michael Gwozdek, Director Product Management HeiTel Digital Video GmbH, Kiel

The continuous consolidation of international markets, the resulting intensified competitor situation, the continuing fall in prices and ever shorter development cycles are well-known factors that we have had to deal with for a fairly long time. Experts know that the coming years will bring major innovations to the CCTV arena. The video sector of the security industry will have to overcome additional barriers whose difficulties lie not only in mastering new technologies, but also in the extensive reorganization of complete business areas. In this context the increased use of standard hardware and PC technology, the growing importance of network and mobile transmission, rapid developments in the area of the global Internet and finally the dominating share of software in future systems will play a central role. The invariable conversion from analogue to digital technology will, however, have the most lasting changes linked in direct interaction with the previously mentioned aspects. In contrast to previous developments in the CCTV sector, the foreseeable technical innovations will not only influence the design and characteristics of the products, but will equally confront manufacturers, distributors, planners, installers and users with new challenges.

large-scale market surveys or special developments whose financial investment stands in no relation to the desired benefit. However, close customer relations will become more important in the future in order to secure a position in the market or perhaps expand. Following the trend already set, companies from the Far-East are taking the lead anyway when it comes to the development and production of low-cost standard products. This applies not only to lenses, video cameras and small-sized systems. The imported product range has long since extended from IP based products to scalable high-performance recorders that can compete with local products in terms of performance and functionality. Niche markets in which special characteristics such as the targeted integration into larger systems or where country-specific criteria are of impor-

tance are less affected by this trend.

In the historical development of video technology we find ourselves presently in a phase where video systems are at best hybrid in nature, that is, analogue and digital technologies are merged to form a complete system. Video servers that convert one or several analogue video signals into digital video streams and then transmit them to systems for further processing via network connections are a typical example.

Hybrid video matrixes go one step further. They have analogue and digital input/output outlets, for instance, and provide an operations centre that enables multiple connections from analogue to analogue, digital to analogue, analogue to digital and digital to digital. However - and this is typical of the present phase - the solutions

have so far been manufacturer-specific thus attention needs to be paid to compatibility when choosing a product.

The share of digital components will increase successively and finally merge into a uniform structure in which only products with digital interfaces are used. When all is said and done, from the hardware on offer today, the products from the surveillance sector will largely continue to exist. This refers especially to video cameras and domes - albeit with digital video interfaces, lenses, camera housing, illumination and the fittings needed for installation. The fields transmission, signal processing and technology in the operations centre will experience the most lasting changes because, technically seen, all the products that came out of coaxial cable transmissi-

on will become obsolete in their present form. For example, signal equalizer or video distribution amplifiers, the classic two-conductor cable and fibre-optic transmission, quad displays, the video multiplexer, the compact or modular switcher and also digital recorders.

The transmission sector will fall back on products from network technology e.g. patch panels, hubs, routers and switches, although the common functions in operations centre video technology will first need to be developed in the years ahead. If one takes a look at the continuous miniaturization of electronic components and the highly integrated special components for the security sector, the assumption that some of the functions that are important for video surveillance will be cast into hardware is legitimate. This certainly includes the most common transmission interfaces that connect the respective product with the outside world, algorithms for the processing and analysis of video images or for taking into account multifarious compression methods.

Similarly it can be assumed that operating system manufacturers will offer basic functions such as the encoding and decoding of video images taking into account the compression methods carried over into hardware as an integral part of their operating systems. This could lead to the development of an open standard that would allow the manufacturers to choose the most suitable method for the respective application from a pool of algorithms. Thus, users could still profit from the innovations within the digital image processing sector.

Outlook

Ultimately a uniformly digital video surveillance system will consist of digital cameras equipped with intelligent add-on functions, hardware and software components for transmission via broadband data networks independent of range and finally software

developed for standard hardware to distribute, record, analyse and manage video images. Strictly speaking one could then compare the video signal with all other digital data that needs to be selectively distributed, recorded, analysed and processed.

With this, the assumption is that, at least in the home security sector and independent of the application, also in professional sectors, not today's leading manufacturers in security technology, but rather the software manufacturers for IT based products will take over the market. Due to the increasing importance of software and comparatively low share of hardware the whole CCTV sector will be compelled to rethink. As a rule the proportional development costs for software already easily exceed the investments for corresponding hardware developments. This ratio will drift even further apart and users will have to prepare themselves to dig deeper into their pockets in future, not only for CCTV software but also for upgrades. This has been normal practice in the IT sector for many years.

Conclusion

For some readers this article may seem too visionary, perhaps even somewhat abstract or even pessimistic. Admittedly nobody is in a position here and now to even roughly determine the point in time when this scenario will become reality. Due to the irrefutable facts, I personally do not have the slightest doubt that the realization of this theory will sooner or later become reality. Of course the conversion will take years and analogue products will accompany us for many years to come. Whether manufacturer, planner, installer or user, we should all face these changes optimistically and regard them as a historical chance in the chronological development. This way the most important foundation stone for the creation of functional CCTV systems based on the latest technology would be laid.

Genie's new PCB camera range is feature packed

Genie CCTV, specialists in the supply of CCTV camera systems and accessories, has introduced a new improved PCB camera for use in their mini-dome, vandal resistant dome and pre-assembled camera range at no extra cost. Available now, the new camera incorporates a host of extra features including 3.8 to 9.5mm Varifocal DC Auto Iris lenses with an F-Stop of 1.3, digital signal processing, and 0.5 Lux illumination sensitivity. Built-in auto gain control, auto white balance, electronic shutter control are included, as are switchable back light compensation. The range of features packed into this new camera really is impressive. Image sensor is a Sony 1/3" Interline transfer type colour CCD, the scanning system is 625 lines 2:1 interface, scanning frequency is 15.625KHz (H) – 50Hz (V), resolution is 470 TV – lines, and shutter speed a highly capable 1/50 – 1/100,000sec. It incorporates an internal synchronisation system, video output is VBS 1.0 Vp-p (75 Ω Load), and power supply requirement is DC12V (10.5~15V) with a consumption of 180 mA (DC12V). Compact in size, it measures just 38 x 38mm and weigh only 58 grams.

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