



## Bahrain International Circuit



### Case Study



As the 'Home of Motor sports in the Middle East' and with a total capacity of 50,000 people, the Bahrain International Circuit hosts drag racing, V8 supercar racing, the GP2 series and the annual Gulf Air Bahrain Grand Prix. The Grand Prix is the biggest sporting and social occasion in the Middle East and in just four years the Kingdom of Bahrain has blazed a trail as the world's biggest annual sporting series in the Gulf region by creating an award-winning event, developing a huge fan base and becoming one of only a handful of Grand Prix around the world to be played out to a capacity crowd. The cost of building a facility that has set new standards in motor sport amounted to approx 150 million US\$, but the return on that investment has been many-fold to the Kingdom of Bahrain and the wider Middle East region.

Working with LSS Technologies, a leading integration partner, Controlware provided a comprehensive IP CCTV surveillance solution and associated networking equipment to monitor spectators, traffic and car parks at the Bahrain International Circuit. The initial system remained in situ over the 4-day period of the Grand Prix after which the 20-channel IP CCTV solution is set to expand as security requirements evolve.

"Having worked together on similar projects we have a great working relationship with

Controlware and knew that they had a strong technical solution that would deliver the high quality video transmission and flexible management platform that our customer insisted upon," said Abdul Rahim Shaikh from LSS Technologies.

The IP CCTV network at the racetrack runs over a single mode fiber backbone and utilises Bosch VIPX-1 encoders to bring video from 20 cameras to a video wall in the central control room. Operators monitor live and recorded video at 25 frames per second, 4CIF (Common Interchange Format) resolution - DVD quality. More flexible monitoring options are made possible through a Web Client feature that enables operators to remotely control cameras plus view and record live video off network. Video is stored on 6 Tb (Terra byte) RAID (Redundant Arrays of Inexpensive Disks) storage devices that are distributed across the network for security and record when specific alarm criteria are triggered.

At the heart of the new surveillance solution is Cware Prime, Controlware's own advanced management platform. Cware has been designed first and foremost to satisfy the requirements of the operators who use the platform; therefore central to Cware is an intuitive user-friendly interface that provides quick and easy access to comprehensive

management, playback, and video recordings from the circuit.

As an open platform, support of multi-vendor hardware such as cameras and encoders provide users with increased flexibility to integrate leading products from different manufacturers. A key strength is that Cware Prime is client server based and can therefore be more easily customized to meet individual requirements. Also by licensing each user at the central server instead of remote client machines, more flexible, cost-efficient surveillance is assured. Furthermore, each recording server increases reliability by operating independently of the communication continuity between the system server and clients. This enables the operators at the Bahrain International Circuit to benefit from a reliable, easy to use solution that is able to integrate with existing systems and is scalable to support long-term growth of cameras and storage requirements.

Cware enables management of multiple sites over various communication mediums. Each Cware client can remotely access independent systems over any type of IP network including dialup. This powerful architecture supports remote access from anywhere in the world delivering all the features available to local operators (subject to user permissions) remotely. Cware provides remote access via Internet, GSM, GPRS, 3G, or any narrowband





IP link by transcoding live video or playback streams to a low data-rate. This process is performed on a dedicated Web server, without affecting local system performance, live viewing bandwidth, or recording.

One groundbreaking feature that the Bahrain International Circuit benefits from is ICN (Image Content Navigation). ICN has specifically been designed to make operator navigation faster and easier, taking video interaction to the next level especially when tracking targets. Targets can be tracked very quickly in real time with a mouse click. An invisible mesh of hyperlinks connects each camera together in the video, as a target moves around a location operators simply need to point-and-click where the target goes to change camera view and continue tracking. This makes tracking targets easier and faster removing the need to switch camera by manually inputting camera id numbers. For example if an operator is tracking a target and he moves through a door the operator just needs to click on the door to view video from the next camera situated on the other side. This interlacing of cameras in real-time video provides greater operator interaction improving



response times to incidents especially when operators are unfamiliar with the monitored location. ICN simplifies site navigation allowing users unfamiliar with the geography of the location to use Cware from day one, instantly reducing training costs.

Another feature that is unique to Cware that the operators at the circuit benefit from is 2.5D advanced mapping technology. This enables a virtual duplicate to be made of the monitored location. Map based navigation in 2.5D with support of zoom in/out is more effective than traditional one-dimensional maps. Real-time video from individual cameras can be embedded into the map allowing operators to benefit from improved locational awareness, easier identification of security threats and planning of security networks and camera locations.

From a system perspective Cware is also scalable. Highly flexibly and cost-effective architecture enables Cware to easily manage single or multiple locations and all sizes of installation, supporting thousands of cameras. A modular approach utilising common PC, networking and storage hardware, provides a platform for endless scalability, without requiring full and costly system upgrades. Adding new cameras, clients and storage capacity is easy and by supporting a high level of system redundancy disruption to security operations is reduced making Cware ideal for the operators at the circuit.

Commenting on the solution for the Bahrain International Circuit, Claude Rizk, General Manager for Controlware Australia said, "a range of flexible video transmission, management, storage and networking products enable leading integrators such as LSS Technologies to provide the very best solutions for their customers. Backed up by Controlware's value added technical services and a worldwide follow-the-sun support network integrators, installers and value added resellers all benefit from innovative solutions from a global company they can trust".

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