

Case Study

Installation and Management of a "Classified" Remote Sensor Network

The Client

This project entailed the monitoring of “classified” government infrastructure consisting of a Wide Area Network of 23 sites, located in remote, uninhabited regions of sandy desert with great temperature extremes over a geographical area in excess of 2 million square kilometers. The project was developed to replace a large proprietary monitoring system which had been operational for many years. The previous system was based on traditional PLC technology with little database functionality, limited scalability and was not available over the web. The function of the proposed new system was to maintain the performance of various sensor monitored systems such as Air-Conditioning, Pump and Power Generators, Lighting, Access Control, Elevators and Physical Security, via a central Command and Control facility. Several sites have up to 18 different types of sensors to be monitored.

The Challenge

The required system needed to interface to existing legacy and new sensor technologies which are analog and digital devices. The client required that the new solution be based on widely supported Open Standards to increase the chance of integrating future changes in a cost effective manner. Due to increased proprietary maintenance costs, availability and cost of maintenance personnel and the sensitive nature of the sites, a solution was sought where the client could eventually operate the system independently of the vendor.

The proposed system also had to be reliable, have High Level Reporting capabilities for the Maintenance Department and should be protected from wireless or electronics frequency interferences in and around the sites. The monitoring system and attached devices were required to have remote testing capability, be low maintenance and portable.

The Journey

A local integrator was engaged to perform an in-depth evaluation of several vendors, their solutions and operating platforms and subsequently selected the GPAC System™.

Besides addressing the shortcomings of the earlier system, the GPAC System™ would be tied into a Central Command Centre and would capture data on all devices so that operational characteristics and failure rates could be later analyzed.

Feedback from the Project Manager informed us that in addition to meeting the Scope of Requirements, the client was impressed with the ease of use of our product interface and also the total project cost which was “substantially lower” than our competitors.

Having the ability to easily transfer the product knowledge to up skill local personnel quickly, was also an appealing value proposition to the client.

The Discovery

A major focus of the project was to introduce an Open Standard, IP-VPN technology platform (GPAC) which could be installed and remotely reconfigured by local personnel, thus maintaining individual site security. This also enabled the client to use Commercial Off The Shelf (COTS) devices enabling independent expansion whilst maintaining the covert nature of the infrastructure.

As we are a development partner with Hewlett Packard, ETCorp recommended that our client use HP servers to run the GPAC Software. These were purchased “in country” in May 2006, facilitating any future warranty or upgrade requirements.

State of the Art Solution

Each remote site was managed by a distributed GPAC System™ server linked to a central GPAC System™ located in the Command and Control Centre.

Simple Implementation

A phased implementation was planned for the GPAC System™ roll out, and these stages included:

1.Planning

Since security concerns prevented the client from defining individual site configurations, the ET Corp Security Architects developed a standard implementation model, including Cabling Designs and Diagrams, which were used for the whole system.

2. Training and Installation

Training is one of the most important stages of new technology implementation. To gain user acceptance the new system must be perceived as both useful and easy to operate. The GPAC's browser based software delivered on this outcome.

3. Installation and Testing

With the stipulation that only authorized Government personnel had access to many of the installation sites it was imperative that the devices could be connected, reconfigured and tested by local staff. Installation and subsequent pre roll out testing was performed on a pilot basis by initially installing the GPAC System™ remotely at one site.

4.Quality Assurance and Documentation

This process considers design, development, production, and service using the Shewhart Cycle (PDCA).

Effective Results

The entire, 23 site GPAC System™ was operational within 8 weeks. The project required two Engineering Architects to spend 10 days each at the pilot site during installation. Subsequently the client has requested licenses for additional high security sites at remote locations.

From this we can be confident that the product meets the clients requirements and that they envisage an ongoing relationship with us.

The benefits for the client are:

- ⤴ The ease of use of the GPAC System™ made staff training of non English speaking personnel simple and fast
- ⤴ Installation done by qualified electricians, which is much less expensive and time consuming than retaining an Engineer
- ⤴ The client can purchase Commercial Off the Shelf products if hardware components require upgrading or replacing
- ⤴ The GPAC System™ is now delivering superior coverage with fewer staff resources
- ⤴ GPAC System™ is IP Based and so can be scaled very economically
- ⤴ The cost for the client was around 9 times less expensive than alternative PLC systems

As the GPAC System™ is based on Open Standards the client can connect additional sensors or devices as sensor technology advances or their needs evolve. Being in complete control from a local basis also gives the client peace of mind that they are able to be fully self sufficient should they choose.

The local Integrator who managed the project was impressed with the flexibility and ease of use of the GPAC System™ Security Automation Software and has subsequently been appointed as a Regional Distributor for the Middle East.

As our client had a large WAN which was located in very harsh conditions at remote locations, their requirement was for a system that did not have to be reconfigured locally. Some of the installations sites are unmanned for long periods of time and transporting personnel to these locations is not always practical or economical. The GPAC System™ has solved this problem as now through their Command and Control Centre, the client can monitor and configure remotely or locally as required.

The GPAC System™ also allowed our client to interface and reprogram a diverse range of environmental sensors that are not usually catered for in security monitoring systems. In addition to cameras and motion detectors, the GPAC System™ can interface with any Open Standard device which gave our client almost limitless options.

This client had a very large deployment which is where the GPAC System™ really shines by delivering true economy of scale.