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BeWare is executed by:

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Monitoring, managing, predicting and preventing crime and calamities

BeWare

BeWare is a complete approach to monitoring, managing predicting and preventing crime and calamities. BeWare combines the latest in sensor technology, video content analysis, data mining and complex multivariate and model-based data analysis for optimal risk determination. Furthermore, BeWare presents the operator with intelligence through an advanced control room interface using 3D virtual reality for optimal situational awareness.



Goal

The goal of BeWare is to improve the productivity of security by making more efficient use of available resources to prevent crimes and calamities, to have fewer damages and if crimes do occur to achieve a higher success rate at solving them.

BeWare enables you to turn security in your organisation from a cost center to a cost-reduction center by providing optimal decision support both operationally in real-time and at management level.

BeWare is able to provide real-time security decision support by taking raw data from your security system and providing actionable intelligence in a step by step process turning data into information, information into knowledge and knowledge into decisions. BeWare's powerful software engine is able to make these steps instantaneously for very large amounts of data and very complex multivariate analyses, thereby providing the operator with real-time intelligence.

BeWare's aim is to become the trusted partner of operational security professionals, by taking over the tasks that computers are far better at than human beings, but by relegating tasks back to the human operator as intelligently as possible when important decisions need to be made.



Design and risk management

The basis of all security is a clear identification of risks and properly designed measures for controlling these risks. BeWare is the most powerful tool available for designing your risk mitigation.

BeWare's design module enables you to place all manner of sensors and protective measures in a 3D virtual reality environment and immediately assess their functional effects. This enables you to design your system in the most effective and efficient manner as possible. Furthermore, BeWare shows the effects of your design efforts on the risk profile of your object including the reduction in associated costs. This makes BeWare a unique aid for all levels of decision making in safety and security.



From Information to Knowledge

Using pattern recognition techniques, decision networks, time lag correlations and others. BeWare is able to determine patterns in the information. These patterns provide the knowledge required to give the BeWare engine a handle on the current risk status of an object, area or building. As part of the BeWare security design, thresholds are set for the risk level above which BeWare alerts the operator. At this point BeWare provides the operator with the relevant data and information sources that weighed most heavily in the risk level being exceeded.

An alert at this stage in the process of data-enrichment implies that the security team is able to respond to a situation that is currently taking place allowing them to intervene. Intervention will help in limiting the damages from an event and will most likely allow security personnel to react swiftly and decisively.

Mining Data for Information

A great abundance of sensor technology is available for use in security and fire and intrusion systems, from cameras to access control, from RFID to microphones. Control room operators can be inundated with the data from these sensor systems, and in current systems sets of thresholds and simple business rules are needed for selections to make the data streams manageable.

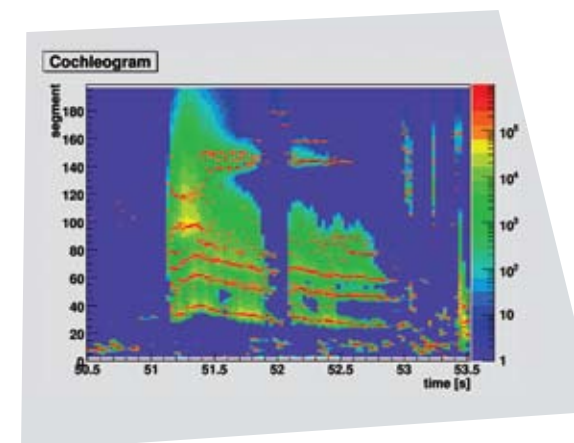
BeWare's approach is to combine all of the available data and turn it into information by making and finding relevant relations between the different pieces of data. The data mining tools that are applied here are video content analysis, audio analytics, time series analysis, etc. The information by itself is stored and can always be used afterwards for further investigation of events. It also provides an important basis for the self-learning capabilities of BeWare.

The availability of calibrated, validated and well-structured information allows investigations after a security event to proceed as fast as possible, thereby greatly increasing the chance of solving the threat.

It is at this level in the data analysis process that the technology has the greatest advantage over the human brain: sorting through very large amounts of almost meaningless data 24 hours a day, 7 days a week, without breaks for coffee or otherwise.

Achieving Intelligence

At the highest level, models are automatically constructed providing a way for BeWare of understanding the principles of a situation that is still developing. This most powerful aggregated level therefore enables BeWare to calculate the likelihood of an undesirable event occurring.



When this likelihood becomes large enough, BeWare will give an alert to the operator "predicting" a future crime or calamity. At this level the security management truly becomes a joint effort of BeWare's technology and the security staff: BeWare's efforts are able to determine a likelihood of a situation developing, and the human operator's intelligence and experience are used to make the final decision and take action.

Anticipating crimes is the holy grail of security management, because this enables the security force to prevent them from happening at all, thereby reducing damages and inconvenience virtually to zero.

A Universe of Expertise

The exceptionally fast multivariate and model-based data analysis software has its roots in two of the world's largest and most innovative research facilities: the world's largest radio telescope LOFAR in the Netherlands and the particle accelerator at CERN in Geneva.

The tools developed to handle the astronomically large data streams for these ground-breaking scientific experiments are now being adapted to the specific requirements of the security industry and applied in BeWare.



Real Life Training

A unique feature of BeWare's 3D virtual reality environment is that it can also be used for education and training. Almost every conceivable calamity can be simulated in the computer, without incurring significant costs and without requiring downtime of production processes. An unusual aspect is that BeWare then also uses its self-learning capacity.



The system will observe how people respond and will look at the consequences of these responses. That again also results in a recommendation about how protection can be optimised, or in an adjustment of the scenarios that the computer system follows when a calamity is reported and managed. The training is not limited to security personnel: multi-disciplinary training is also possible, for example with police, fire brigade, medics, military police, etc.

BeWare the Product

The heart of BeWare is a powerful engine for very fast analysis and correlations enabling real-time dynamic threat analysis. BeWare's design, training and operator situational awareness tools are supported by an intuitive 3D-visualisation platform.

BeWare obtains its input from as many different sensors and camera-feeds as possible, and sends its alerts to the operator in a control room environment. BeWare is very flexible in this regard because of its independence of specific hardware and providers, enabling our customers to interface with their installed base. This makes BeWare a very efficient tool to work with.

BeWare combines broad experience in security management with innovations in different technologies from eleven academic and business organizations active in security, artificial intelligence, software development and gaming, all brought together in one product.

BeWare is a product consisting of consultancy for risk assessment and security design; a suite of software libraries for data analysis, intelligence and 3D virtualization; a set of software tools specifically tailored to the security needs of each customer; an installation effort; and a period of tuning and supervised learning of the intelligence software. Additional customized software tools can be developed at customer's request.

BeWare is currently being used for the security at airports, inner cities, and business parks.

Situational Awareness

In the event of an alert, the 3D virtualisation of BeWare is a very powerful way of providing the operator with very good situational awareness. Data from alarm and notification systems, cameras and sensors can be projected in the virtual reality.

Security personnel and crisis teams no longer have to rely on a two-dimensional map, but can view all aspects of the environment. The operator can navigate through the environment as in a computer game, providing a thorough acquaintance of the risk environment and thereby the tools for well-founded decision.

