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A Brief Framework of the Sphere>Points Platform



How Invizeon's Sphere>Points™ Platform Can Manage Information Generated by the Four Types of Critical Infrastructure Technologies

In today's rapidly advancing world of new technologies the use of sensors, analytics systems, and location based services and other security elements are fast becoming ubiquitous within the critical infrastructures of the planet. The best of breed applications should be predicated on a solid base of added value, effectiveness, and supported by a conceptual framework to guide deployment and measurement of the application utility.

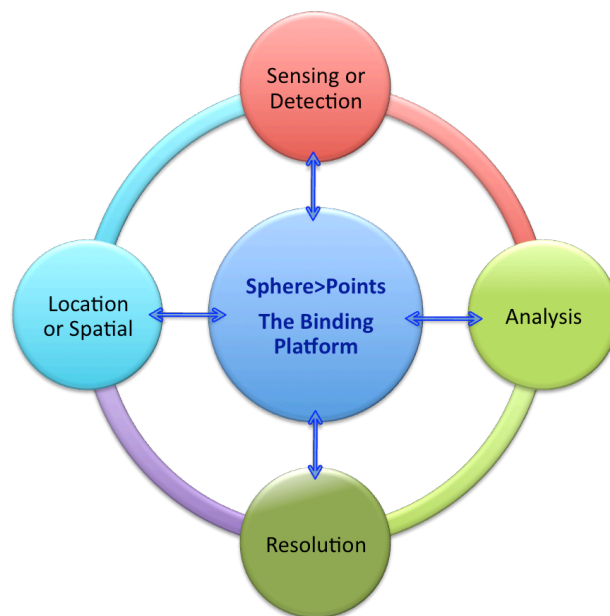
In this document, Invizeon Corporation will provide a brief of its guiding framework as well as a product overview.

Invizeon believes that any world-class system application must offer tangible improvements over conventional methods, systems, and processes. One of our tenets is that information useful to maintain or boost security is useless unless it can be conveyed to the chain(s) of command responsible for incident management, response and recovery. As everyone knows, operating in a vacuum of little or poor information or information arriving too late or information not shared to everyone who needs to know, leads to a poor execution of mitigation, response, recovery and post-event assessment.

A Practical Framework

Commercial infrastructure and Security technologies can be placed into four primary classes...

sensing/detection technologies, analysis technologies, resolution technologies, and location/GIS technologies. Each of these technologies outputs useful, often *actionable information*. A finely tuned security suite will utilize the appropriate pieces of or all these technologies in concert to blaze a pathway of succinct, beneficial information useful to multiple layers up, down and across multiple or single chains of command. The critical, but sometimes overlooked



The Four Security Technologies Bound Together By The Sphere>Points Platform- Leveraging existing systems within your infrastructures and making them smarter.

component, which can marry these technologies into a coordinated single platform, is a software platform that can take the generated information and disseminate it intelligently to predefined and ad hoc groups and individuals who need to have this information to do their job or complete their mission in the best way possible. **As we shall see Sphere>Points is that binding technology platform.** Sphere>Points takes information originating from any one of the four technology categories, then dependent on the threat level, determines who should get that information, and gets it there on any type of communication device on any network wherever the recipients' devices will function anywhere on the planet.

Sensing or Detection Technologies

Let's take a look at each of these technologies starting with sensing or detection technologies. As a class these types of applications monitor or survey specific sites, equipment, or structures. Generally these sensors are designed to spot anomalies and then send a warning that ranges from an alarm to emails to notices to a command center. Examples of the large number of smart devices or sensor systems that can generate information needing to be communicated include:

Examples of Sensing & Detection Technologies		
• Video surveillance	• Seismic & Tsunami sensors	• Pipeline Sensors
• CBNR sensors (Chemical, Biological, Nuclear, Radiological)	• Fire, thermal & smoke alarms	• Hazardous materials detectors
• Perimeter intrusion alarms	• Biometric entry devices	• Network intrusion

In the case of an audio alarm, only the individuals within range of the alarm may receive any warning. Some systems may send a signal to a central monitoring center. Certain intrusion systems may send an e-mail or text message to a user or even place an alarm to a command center. *But for time sensitive or mission critical scenarios when the sensing technology has triggered, none of these communication vectors alone are adequate.* To meet the challenge requires utilization of a single integrated platform that manages talk groups and can simultaneously send messaging to all types of phones regardless of carrier whether mobile, landline or satellite, VOIP, SIP, along with broadcasts to those with access to mobile radio on any frequency, ranging from UHF, VHF, or 450-900mgz as well as by email, text messaging, MMS, instant messaging (IM), even fax. The Sphere>Points platform is engineered to handle *all of these modalities and vectors*, as well as to manage talk groups, allow automation of response plan and scenario based communications, and handle the logistics of automated communications simultaneously to all vectors as warranted by the threat level.

Analysis Technologies

Generally analysis technologies can be defined as systems that can ingest data generated from applications based on the other three technology classes, which in turn is analyzed leading to a conclusion or generating useful information that needs to be communicated to decision makers, commanders and responders. Used alone or in combination, analysis technology is specifically

designed to turn raw data into useful information. Most analysis systems do that very credibly, but have no mechanism to securely communicate that information to anyone with real-time speed and assurance of delivery and receipt even when faced with a large-scale crisis. Sphere>Points was specifically designed to capture that useful information and to quickly communicate it to the persons who need to know as defined by the customer on any device available to them wherever they may be, 24/7 with assurance of delivery and receipt. Sphere>Points completes the cycle of information flow from analysis systems. After all, analysis systems are deployed in the first place to be able to know when trouble or events that need attention are attended to with the best information available. Throughout this process Sphere>Points enables true real-time situational awareness.

Examples of Analysis Technologies		
• Video analytics	• Pattern analyzers	• Voice analyzers
• Data miners	• Image enhancement	• System optimizers
• Face recognition	• Biometric analyzers	• Secured entry systems

Positioning/GIS Technologies:

Positioning and GIS spatial technologies offer event managers and the chain of command a way to easily visualize situations in graphical or real images that can zoom in or out for context. They supply information useful for field personnel about critical location based scenarios regarding resources, people, impacted areas, effective routing, and geographical scale of operations. In concert with human interpretation or expert systems, this technology can provide useful information in abundance, but like the others before it, this knowledge is only an advantage if the information can be efficiently and quickly disseminated to those who can create a benefit or mitigate a negative. Sphere>Points provides a way to automate that situation awareness communication including sending images or summaries of critical data.

Examples of Positioning/Spatial Technologies	
• Video analytics	• Radio frequency identification (RFID)
• Global positioning systems (GPS)	• Vehicle and asset tracking
• Mapping technologies	• Human asset tracking
• Targeting systems	• Friend vs. foe systems

Resolution Technologies

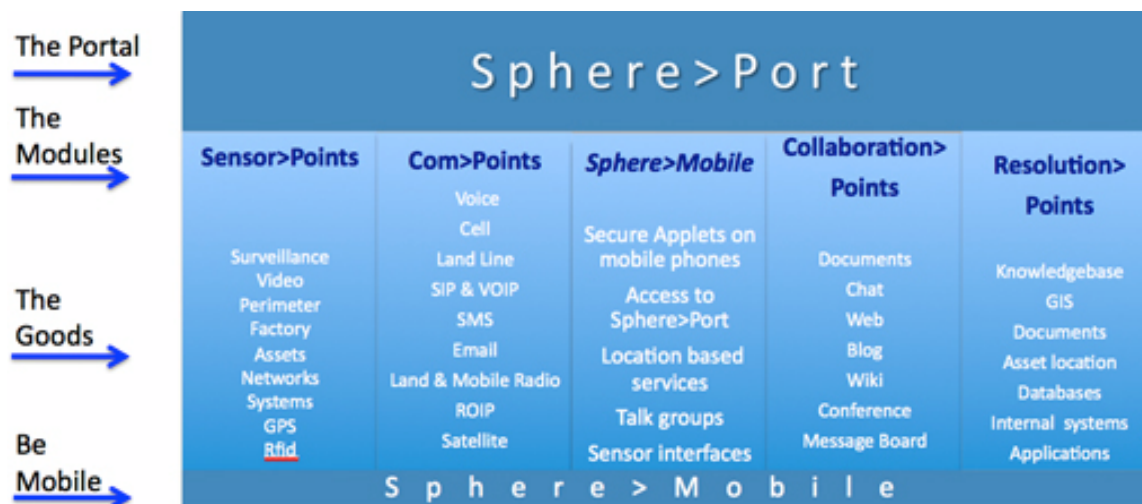
As a group, resolution technologies offer managers and commanders an effective set of tools for better response and prevention planning; implementation and deployment of plans, strategies and resources; and improved situation awareness and control of real-time events. They can offer improved objectivity in decision support, can allow a manager to deal with dozens of variables simultaneously, and can drive command decisions quickly and can utilize the limited intelligence or situation reports available for effective response or counter-response. Sphere>Points once again efficiently and effectively delivers those command orders, reports, or other useful information throughout the chain of command in a controlled manner to all devices available at the time and place.

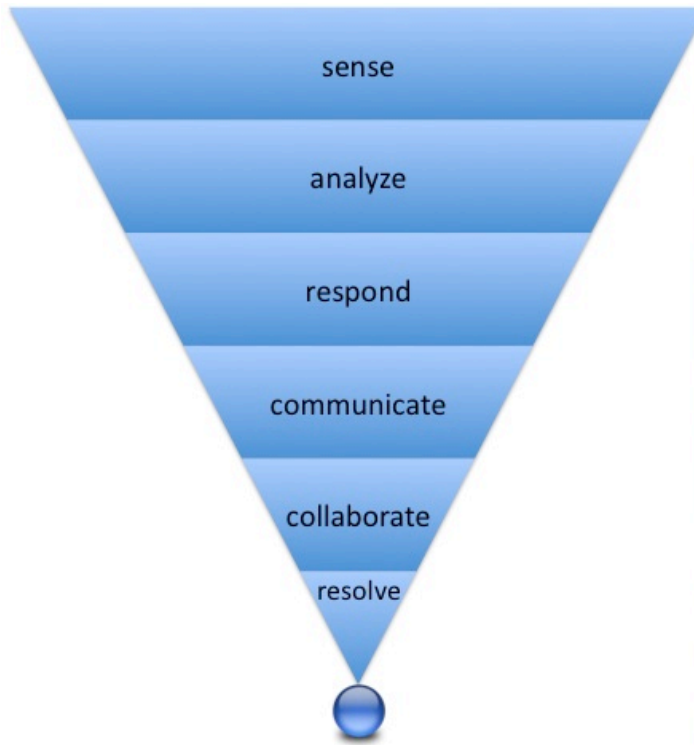
Examples of Resolution Technologies	
<ul style="list-style-type: none"> • Command and control systems • Strategy and resource planning • Resource deployment management • Decision support systems 	<ul style="list-style-type: none"> • Group collaboration tools • Document Collaboration • Secure Portals • Adaptive post-event examination systems

Conclusion

Sphere>Points is the common thread allowing all of these four technologies to work together as never before, wherever and whenever time sensitive or mission critical activities occur, weather within a global enterprise or to help responders, military personnel, law enforcement and civilians make better, more informed decisions and actions from information they receive faster on the available devices wherever they may be. The information they need is organized for effective consumption, can be delivered in automated fashion or under the auspices of human controls, and can be retrieved multiple times for as long as the information remains relevant to the issue at hand. While these technologies are classified into these four groups, many of these systems have elements of more than one category. The one missing component is sophisticated communication management. Sphere>Points has now changed that landscape forever.

Sphere>Points Platform





The Sphere>Points platform connects your organization to what matters most across the sphere of your enterprise: sensors, people, processes, systems

Sphere>Points knows when something time sensitive or mission critical needs attention.

Sphere>Points turns that into "Actionable information"

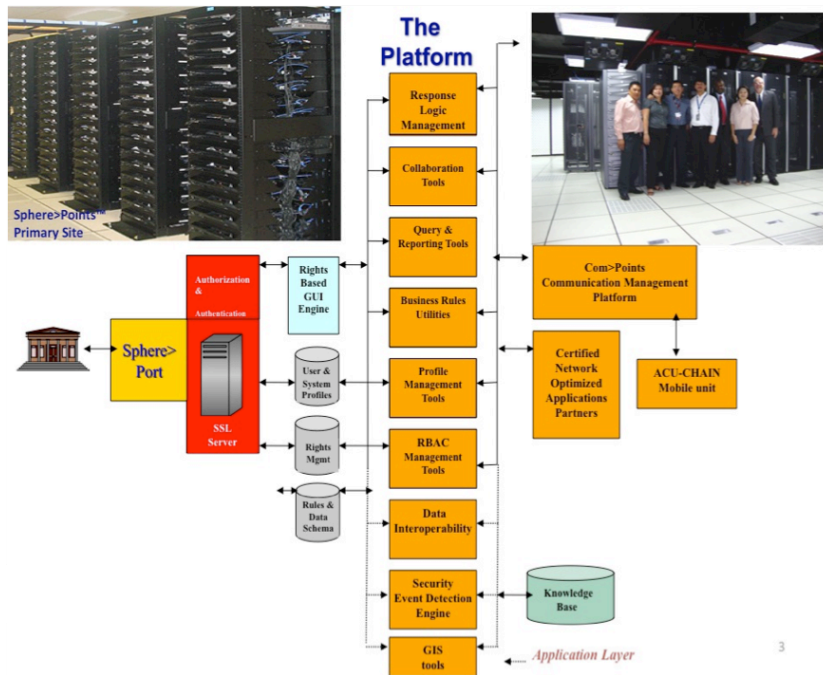
Sphere>Points turns that knowledge into the right response plan and action.

Sphere>Points gives you the ability to have a ubiquitous and instant response- the right action, right now=the right results.

Sphere>Points enables global interoperable communications, collaboration and mobility.

Sphere>Points is smart situational awareness with the ability to connect, communicate and collaborate on time sensitive and mission critical solutions all the way to a successful resolution!

Sphere>Mobile adds location based services and extends the power of the platform securely to your mobile devices in the field



Glossary:

For your convenience, we have included several of the terms used in this document in the following glossary. Please do not hesitate to contact us for clarifications, more information or how the Sphere>Points platform integrates into these systems.

Adaptive post-event examination system	Systems designed to analyze, decipher and report in an organized manner the key post-mortem of events to look for potential improvements, out of policy or procedure compliance issues, grading efficiency or effectiveness or other components of an event of critical interests to event management.
Artificial intelligence systems	A holy grail of computing, artificial intelligence systems seek to emulate the human brain at much faster speed regarding the handling of complex, voluminous amounts of raw data with the output being a useful set of information. Such information may be a recommended decision, set of alternatives for further evaluation or a set of actions. Such systems are generally narrowly focused on a specific function such as medical, judicial, automotive (mechanical), engineering, among many others (see expert system).
Biometric analyzers	These systems employ pattern recognition of a biological construct such as a fingerprint, retina scan, face recognition, height/weight, or oddities such as scars, tattoos or other unusual features about a person. Such data is compared against databases of known identities or unknown suspects to arrive at identification for security purposes.
Biometric entry devices	These systems use a biological element to identify an individual. Examples include retina, fingerprint, and/or face recognition systems used to gain access entry into secured areas.
CBNR sensors	Detectors of chemical, biological, nuclear, and radiological agents.
Sphere>Points	Invizeon Corporation's highly sophisticated, robust communication management system that easily integrates with sensing/detection, analysis, spatial/location, and resolution technology solutions. Enables critical or useful information generated by systems based on the four technologies to be efficiently, effectively managed and communicated to those who need to know on any devices available at the recipient's location.
Collaboration systems	As the name implies, these systems are as simple as file sharing systems or as sophisticated as context sensitive, highly organized information sharing by all electronic means.
Command and control systems	A class of software usually associated with military usage, but very relevant today for disaster event management as well. Such systems depending on their feature set and sophistication allow for a command center to manage and deploy resources, receive contextual situation awareness, manage cross jurisdictional authority for decision-making, and visualize the field from a local level zooming out to perhaps a global level.
Data miners	A generic term used to describe systems that scrub, organize and determine data relationships that often appear random or not intuitive. Extremely useful to establish information that can help predict trouble or forensically

recreate the sequence of events and perpetrators of a past situation.

Decision support systems	Decision support systems vary greatly in features and capabilities. Generally, these systems perform data mining; organize information, variables and knowledge which can be reported to decision makers to make faster, better informed decisions.
Expert system	Application of an artificial intelligence system or sometimes, something approaching an artificial intelligence system, to a specific application or problem area.
Face recognition	Ideally, these systems can capture an image, perform image enhancement if necessary, then identify the individual against a database of known identities.
Fire, thermal & smoke alarms	Most ubiquitously deployed of all sensors that can detect heat, fire or smoke. Many can send an alarm to a central monitoring site.
GPS	Acronym for global positioning systems. Satellite based locator system embedded in many electronic devices.
Hazardous materials detectors	Specialized detectors usually extremely sensitive to a class of hazardous materials such as toxic gases, CBNR agents, or industrial chemicals
Image enhancement	Rendering a low resolution image to a higher resolution, more useful image details.
Mapping technologies	This type of software generally can render GPS data into useful fully zoomable electronic maps and are a mainstay of GIS systems including tracking systems and black box beacons.
Motion detectors	These sensors can detect motion, with highly variable sophistication, of animate and/or inanimate objects and can perform actions ranging from turning on a light or some other electrical switch to initiating silent or klaxon alarms.
Pattern analyzers	Software systems that can discern patterns of many classifications including events, traffic, specific activity sets, published materials, and people movements to name but a few. Pattern recognition can assist law enforcement and event responders with useful information out of seemingly random data.
Perimeter intrusion alarms	Highly variable in sophistication, these systems can usually detect an intrusion and combined with GIS can pinpoint locations, combined with video can provide a situation picture, and combined with video analytics can determine threat level and the nature of the intruders.
RFID	Acronym for radio frequency identification. These units are very small, thin radio transmitters used to attach to trackable items. Strategically located fixed or mobile receivers then detect the signal as the item moves. Useful only in a defined space as proximity is a constraint. Used inside buildings where GPS does not function well or whenever a less expensive tracking solution is needed or if it is a non-critical tracking application.

Secured entry systems	Limited access systems to secured areas. Widely ranging systems usually used in combinations that span from lock and key to onsite guards to electronic card and biometric entry systems. Intent of all is to restrict entry only to authorized personnel.
Seismic sensors	Detect very minute shifts in the earth's mantle and can also be deployed on large scale structures such as high rises, dams or bridges.
System optimizers	Systems which can evaluate the process flow of other software, examine workflows or optimize hardware utilization.
Tracking systems	Tracking systems use electronic devices such as bracelets, anklets, or cell phones (among several other devices) that embed GPS or RFID capability. These devices can be worn or carried by humans or attached to land, air and marine craft to track their location and pattern of movement over time. Many systems allow for an alarm should a tracked item stray into an exclusion zone or out of an inclusion zone. This is known as geo-fencing.
Tsunami detectors	Detect wave motion and in combination with seismic systems can predict tsunami formation, direction and threat level.
Video analytics	Sophisticated software systems used in combination with video surveillance systems. Analyzes actions on video to determine a number of classified events ranging from illegal entry; criminal actions; identity of individuals, vehicles, and locations; GPS referencing and mapping; and many, many more depending on the analytic system deployed.
Video surveillance	System employing cameras to monitor key access points or secured areas. Video may be recorded, but is generally monitored by humans in a control room or recordings are viewed after the fact in a forensic manner. Communication management depends on humans acting in accordance with policy and procedures. Contrast with video analytics.
Voice analyzers	Systems that can provide information from analysis of voice and speech patterns used for suspect identification, stress analysis, or use as a biometric access tool.

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