



## Surveillance Platform to Transform Data to Actionable Intelligence

More than a full-featured VMS, the PivotalSenseAI™ Platform is a A.I. powered Common Operating Platform capable of managing a wide range of security, site management and data intelligence needs. A feature rich solution, PivotalSenseAI™ features advanced video and sensor management, event management and Pivotal Vision's patented real-time geospatial and sensor fusion artificial intelligence, all of which work together under a streamlined, unified interface. With the PivotalSenseAI™ Platform users will spend more time gaining real-time situational awareness making users of the system more efficient and proactive when managing hundreds of cameras, sensor, and locations.

The PivotalSenseAI™ Platform, utilizing real-time autonomous and smart monitoring technology, sends metadata, live and captured video only upon the occurrence of an incident. This exception-based technology creates an advanced network environment capable of handling large volumes of video and sensor triggers which allows these sensors to immediately generate and send event information, associated alarm information and real-time video to the systems users.

Specifically designed for high-risk, high-profile security environments, the PivotalSenseAI™ Platform can be configured for a single standalone site with hundreds of cameras and sensors or as multiple sites with hundreds of cameras and sensors. The proven scalability and usability of the PivotalSenseAI™ Platforms federated architecture makes the number of cameras, sensors, sites, and users limitless.

## Camera Windows (live video)

Provides users an easy-to-use drag and drop display area for individual live camera views and camera control. With no limit on the size or number of camera windows a single user can have open, each camera window has independent controls for image size, image quality, bookmark recording and PTZ presets. Additionally, each camera window also has advanced pan, tilt and zoom controls.



## Event-driven Portal Windows (live video)

When the live camera windows are set to Portal mode, the first available window populates automatically (seconds) with a camera that recently has detected motion or from a camera associated with a sensor trigger. When users acknowledge the associated event each associated camera that had been populated automatically clears to a blank camera window.

## Salvo Tour Windows (live video)

Provides users with a rotating sequence of different live cameras in a single window to give users the ability to keep an eye on cameras that do not need attention 24x7.

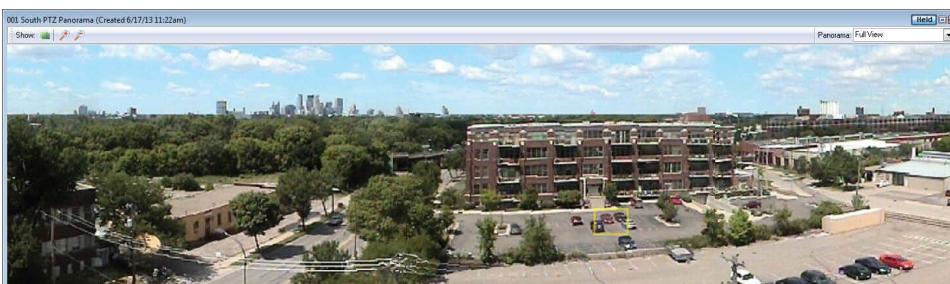
## System Camera Selector and Virtual Matrix

The PivotalSenseAI™ Camera Selector provides authorized users with a list of available system cameras they can view live and recorded video from. Utilizing the systems advanced Virtual Matrix, users can simultaneously monitor hundreds of cameras from distributed remote and local sites on the system in one centralized location.

Users have access to real-time status of each camera at each site through the System Camera selector. Each of the following status gives users a holistic situational awareness at all times with both the system status and what each camera is viewing.

- Indicators showing the operational state of video, camera and pan/tilt communications
- A JPEG Thumbnail of each cameras current view refreshed every 5 seconds
- Connection status of the Intelligent Video Appliances the camera is connected to
- The number of users currently viewing each camera
- The motion detection state of cameras users have manually suspended
- The time that has elapsed since that last alert occurred
- The time the last alert occurred
- A description of the type of alert that last occurred

Site/Camera	Vid	Cam	P&T	Image	Connected	Users	Since Last Alert	Last Alert Time	Last Alert Info
Site 1 Site									
008	✓	✓	✓		Yes	0 Users	Suspend 14 secs	3/20/14 11:14:08	Visual Motion Detected
029 PTZ	✓	✓	✓		Yes	0 Users	Suspend 23 secs	3/20/14 11:14:37	Visual Motion Detected
001 PTZ	✓	✓	✓		Yes	0 Users	46 secs	3/20/14 11:13:56	Visual Motion Detected
002 PTZ	✓	✓	✓		Yes	1 User	0 secs	3/20/14 11:14:41	Visual Motion Detected
003 Back Alley PTZ	✓	✓	✓		Yes	0 Users	21 secs	3/20/14 11:14:20	Visual Motion Detected
004 BDS IVA1	✓	✓	✓		Yes	0 Users	0 secs	3/20/14 11:14:41	Visual Motion Detected
005 BDN IVA1	✓	✓	✓		Yes	0 Users	0 secs	3/20/14 11:14:41	Visual Motion Detected
007 South CA PTZ	✓	✓	✓		Yes	1 User	1 min, 37 secs	3/20/14 11:13:05	Visual Motion Detected
008 North CA PTZ	✓	✓	✓		Yes	0 Users	1 min, 48 secs	3/20/14 11:12:53	Visual Motion Detected
009 Front Door	✓	✓	✓		Yes	0 Users	2 mins, 27 secs	3/20/14 11:12:14	Visual Motion Detected
010 VPTZ	✓	✓	✓		Yes	0 Users			
011 Warehouse PTZ	✓	✓	✓		Yes	0 Users			
012 WHSE	✓	✓	✓		Yes	0 Users			
Site 2 Site									
Site 3 Site									
Site 4 Site									



## Panorama Module

The Panorama Module displays what a camera can see in a 360° view (PTZ's) and FOV of Fixed view cameras. The Panorama is the preferred method of providing overall PTZ navigation by just simply clicking on the screen. Additionally, the Panorama Module provides the ability for persons that are not familiar with the site to gain a perspective as to what they are looking at.

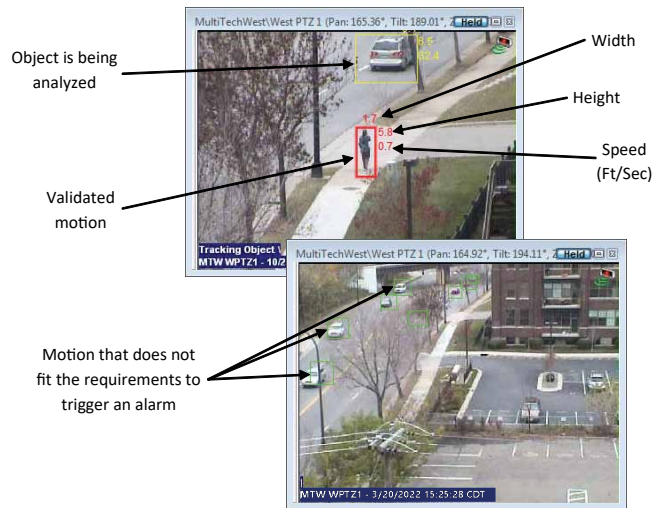
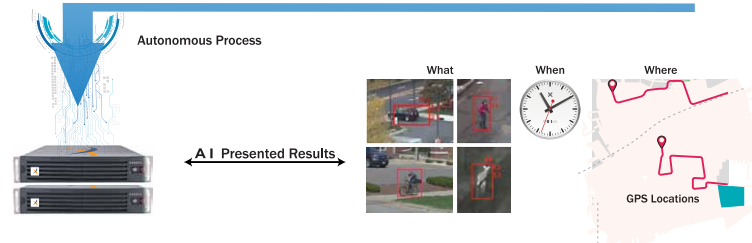
## Advanced GeoSpatial Artificial Intelligence Technology

- PivotalSenseAI™ A.I. technology merges all the data from your systems video and data sensors to create a more accurate conceptualization of the objects all over your sites.
- All of video and sensor fused data is then put in a real-time 4-D simulation of everything that all of your cameras and sensors see 24/7, to autonomously detect, validated and correlate critical events.



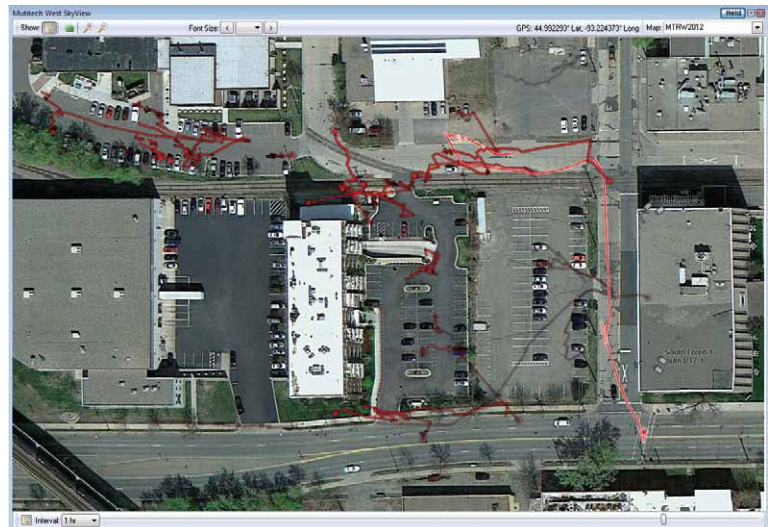
## GeoSpatial Artificial Intelligence Features and Benefits

- Real-time A.I. analysis of all geospatial fused sensors; detects all moving objects and keeps track of their GPS location
- Real-time A.I. validation of objects of interest by identifying characteristics along with their GPS location for object classification
- Continuously correlating camera, sensor and object location data to give operators the visual what, when and where in real-time
- Geospatial background logic to reject repetitive motion in the background, lighting changes and adverse environmental conditions
- Combines Geospatial and camera perspective — the PivotalSenseAI™ system can identify object size, speed, location and current trajectory
- Geospatial logic - Ensures that the same object in multiple cameras is a single object
- Autonomous Object Classification - Classifies objects as people, automobiles, or boats and only alarms on the classified threats you specify
- Seamless camera hand-offs
- Autonomous PTZ Tracking - Motion tracking with moving camera and moving background without the aid of any other cameras or triggers
- Only 5x5 pixels on target (POT) needed for initial identification
- Sites are laid out in Geospatially 3-D coordinates



## Interactive Geospatial Display Module

- The Skyview Map feature allows the creation of on-screen site perspective (e.g. floor plans, ground-plans, critical infrastructure layouts or aerial photos) with historical and real-time plotted objects from motion detection
- The PivotalSenseAI™ platform turns site maps into interactive displays that allow users to view and analyze information from all cameras across the site
- Users can easily identify cameras, the location it is viewing, name, and the real-time path of the object the system is tracking
- For each PTZ camera, a user has the ability to select a spot on the map where they would like the camera to view by simple mouse click on the map



1 EXT Groups

The PreCursorEXT™ feature has the ability to display two separate events at the same time. Each event is displayed with its own set of video players, live camera feeds and controls called an EXT Group.

- Each EXT group can have a maximum of 4 Live cameras displayed and 4 event video clip players.
- Each EXT group is identified by a common toolbar with a distinct color and each group's name is identified in the title bar of each group's associated

2 Live Action Video Feeds

Live Action Video Feed is one of four windows in an EXT Group that displays the live camera video feed of a corresponding PrecursorEXT™ players

- Alarm related live videos are displayed for each PrecursorEXT™ window associated with the initiating alarm event.
- The Live Action Video window locations are not fixed to any particular display device and may be rearranged as necessary to best suit the needs of any user
- Live Action Video windows are associated with events and can be laid out to display next to its associated PrecursorEXT™ Player window.

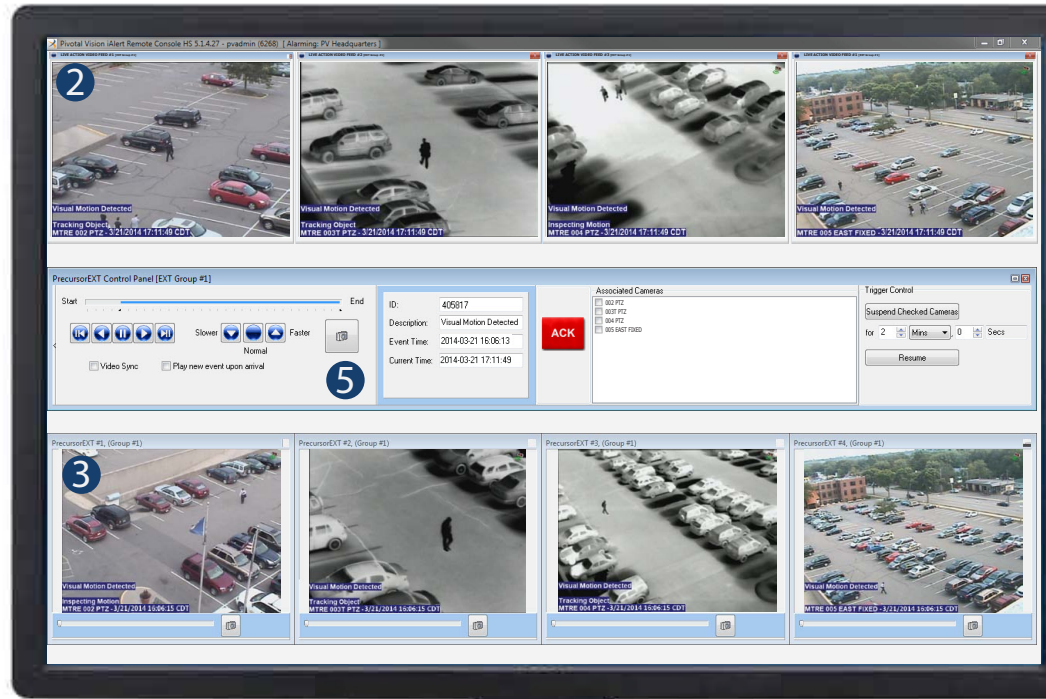
3 PrecursorEXT™ Players

The PrecursorEXT™ Player is one of four windows in an EXT Group that plays back the recorded camera video of an event; default setting: 5 seconds before the triggered event (pre-event) and 10 seconds post event

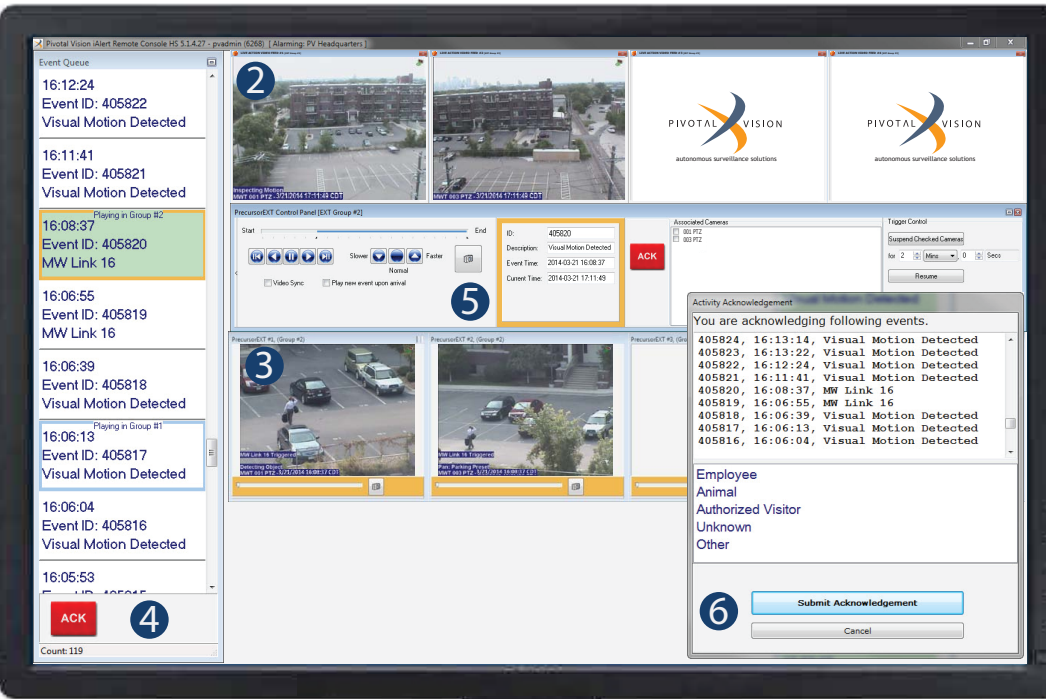
- Users have the ability to play each video backwards, forwards, frame-by-frame and at speeds 3x faster or 3x slower
- Users have the ability to play and review each video separately or synchronously with common controls
- Users can take JPEG snapshots on each individual player for additional event archive purposes
- Each players controls can be set to autohide



1 EXT Group #1



1 EXTGroup #2



How PreCursorEXT™ Works

When visual motion has been validated by the PivotalSenseAI™ System from a camera or an Input device such as a motion detector is triggered, the PivotalSenseAI™ creates an event and assigns an Event ID to all the cameras associated with that event. That event with all its associated live cameras and video clips is immediately sent to the PreCursorEXT™ Live Action Video System for users to review while the event is still occurring. Users can assess what led up to that event (pre-alarm) and the event itself (post-alarm) by watching recordings of up to four cameras that start playing synchronously as well as the live cameras feeds of the associated cameras for the event. The PreCursorEXT™ Live Action Video System can be expanded to two groups of four live camera feeds and four video clip event players that can play and be assessed at the same time.

4 Active Event Queue

The EXT Event Queue is a list of all events that have not been reviewed or Acknowledged by the user of the PivotalSenseAI™ System and used to populate manually the PreCursorEXT™ review group.

- The event based queue identifies events by Visual Motion Alarm Events and Sensor Input based Alarm Event and are displayed chronologically sorted by the time the event

5 EXT Control Panel

The PrecursorEXT™ Control Panel is the main controls for each EXT Group's synchronized PrecursorEXT™ Player Windows.

In the Control Panel the user can:

- Control the playback speed, pause all of its active PrecursorEXT™ Players in its EXT group
- Take a snapshot of all of the cameras associated with its EXT Group at the same time.
- Suspend Motion Alarm for a group of cameras for a user defined time
- Suspend Input devices for user defined time frame
- Acknowledge the event being assessed in each group

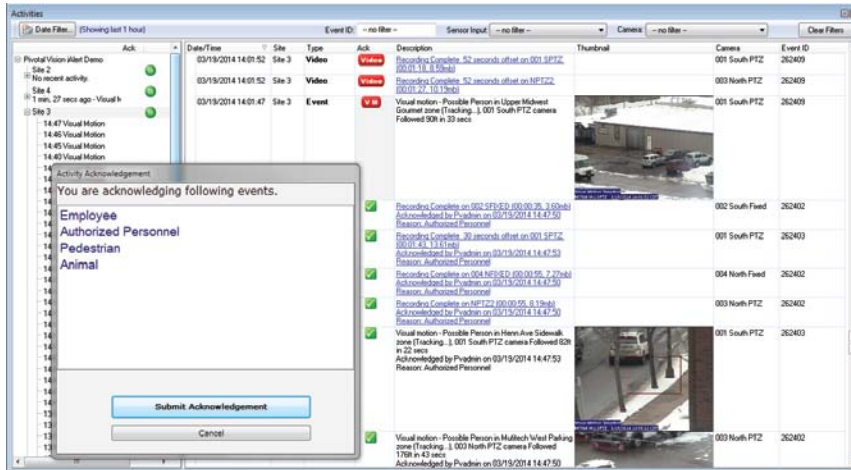
6 Event Acknowledgement

Users can acknowledge an event and assign a reason code to the Event describing the nature of the event to be placed in the Activity history.

- Upon acknowledgement of the initiating alarm event, all of event information along with recorded videos associated with the initiating alarm event ID will automatically be sorted and posted in the PivotalSenseAI™ Remote Console Client application Activity History for further review of the event

## Activity Reports

Report window displays a chronological listing of historical alarm events and camera recordings available for user display. There are options to filter by site, event ID, date, time, input trigger and camera number.



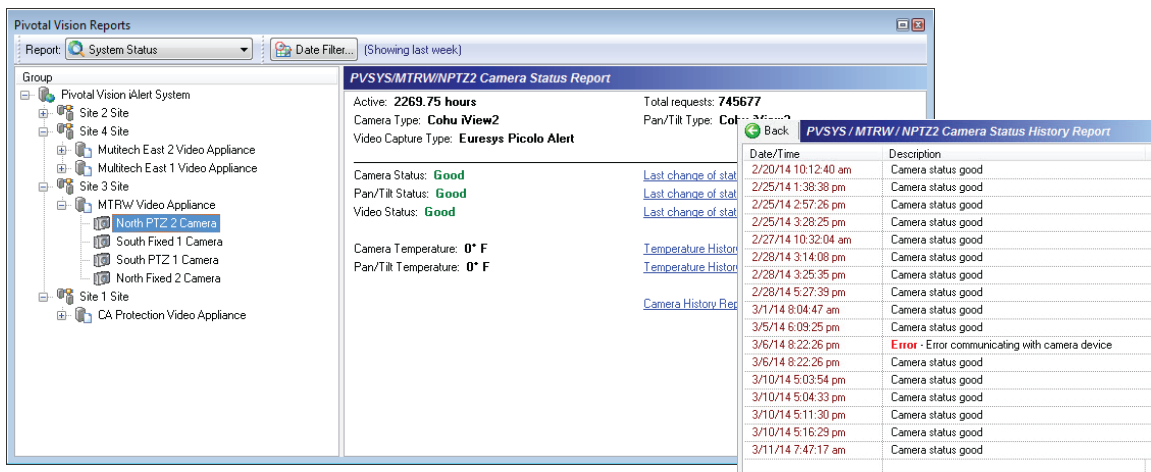
## Event Acknowledgment Module

Located in the Activity Reports and both PreCursor Modules, users can acknowledge each event after the event has been reviewed and assign an administrator defined reason code for the event.

## 24-Hour Review

The PivotalSenseAI™ system lets you review recorded video stored on any Pivotal Vision device from any workstation with network access to the PivotalSenseAI™ System.

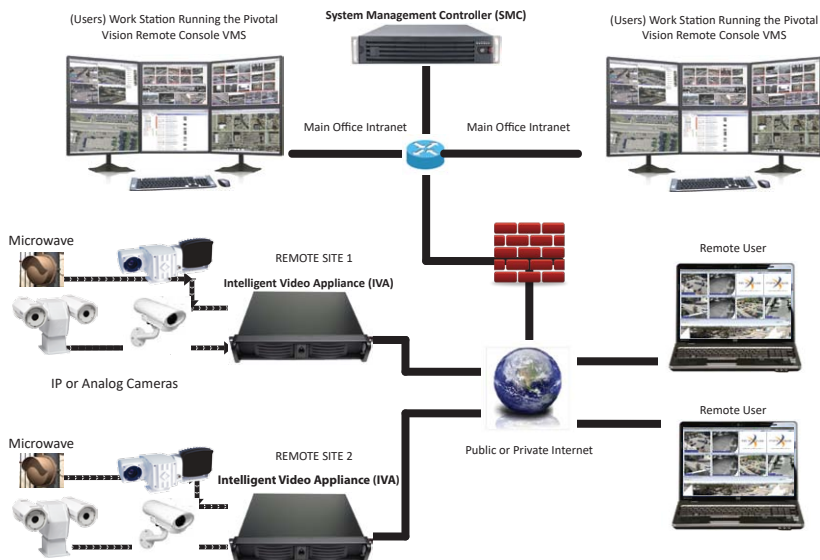
- View synchronized recorded playback from up to 20 cameras at the same time
- View synchronized recorded playback with live view
- Simplified video search dialog and playback synchronization
- Frame by frame synchronized video playback
- Take Snapshots and export video for further analysis or to be saved as evidence
- Operator-to-operator video routing of bookmarked videos



## System Status Module

To ensure the highest possible up-time the iPivotalSenseAI™ system is always monitoring its own vitals. The System Status Module displays current and detailed historical health status of the entire system in a hierarchical view. Administrators are able to investigate in real-time why a device is offline and immediately take corrective action.

### Scalable and Smart System Architecture



The PivotalSenseAI™ Federated Architecture is the perfect solution for installations large and small. With no limit to the number of sites you can add; the PivotalSenseAI™ System provides operations with flexibility and unlimited expansion for more efficient management and deployment of surveillance assets over a large site or multiple sites.

Administrators have the ability to centrally manage all sites as a single enterprise system within the PivotalSenseAI™ System. They can assign user rights for each individual site, users have access to cameras, devices, video and Event-based reporting across all the individual sites in the PivotalSenseAI™ Federated Architecture.

### Benefits of the PivotalSenseAI™ Architecture

- Centralized System Administration management
  - Remote Site Setup and Camera Calibration
- Unlimited System and Site Expansion
- One User Interface for the entire system giving users comprehensive system perspective
- Brings together geographically dispersed sites creating a single point of access to a global network of sites, cameras and sensors
- Virtual Matrix and Matrix Switcher Functionality for instant access to all system cameras
- System wide Bandwidth Management - Cameras are streamed based on priority and bandwidth availability
- System wide health monitoring provides real-time visibility of device status
- Streams cameras to many users with only one video stream from the remote camera
- Greater System and Network Security - a single point of entry makes the remote site more secure from network threats
- Automatic System Back-up and Failover Feature
  - Redundancy Options for Management Controllers
- Zero Bandwidth 24x7 Recording at the edge
- Event Recording is both stored at the edge and centrally located for quick operator review and redundancy

### Enterprise Alarm Processing Logic

- Centralized alarm management of all system alarms and external security alarms
- Security Alarm Acknowledgement – Each Alarm event can be acknowledged indicating that the event has been reviewed and the event action identified
- Event Reason code - A pre-defined descriptive text can be assigned for each security event by users to indicate the cause of an alarm event.
- Filters are included to only show information on a specific date or within a user-defined date and time range
- A hierarchical view of the entire system is available to elect and view only information relevant to a site. Filters are included to only show information on a specific date or within a user-defined date, time range and by individual camera
- User audit report that lists time-stamped events and statuses for users camera usage
- Sensor Manager - System wide health monitoring provides real-time status of all connected device status
- Camera Manager - System wide health monitoring provides real-time visibility of all connected cameras and camera communication status
- Appliance Manager - System wide health monitoring provides real-time visibility of all local and remote Pivotal Vision Intelligent Video Appliances
- System Health Manager - System wide health monitoring provides real-time, historical system and network performance
- E-mail and Text Message reporting that lists JPEG Snapshot of Events and a description of the Event

## PivotalSenseAI™

autonomous surveillance platform

### Why the PivotalSenseAI™ Platform?

As a global leader in advanced video and data management solutions, the PivotalSenseAI™ multi-function platform integrates real-time geospatial and sensor fusion artificial intelligence as well as gathering sensors that all capture information simultaneously. Through its advanced A.I. powered Common Operating Platform functionality, the PivotalSenseAI™ platform fuses video and data which allows users to get a nearly instantaneous picture of the situation around them. This multi-function platform helps organizations of all sizes address any of today's security video challenges including:

- How to become proactive to security events as they occur rather than reactive after the fact.
- How to detect threats more quickly and accurately, and ensure that the appropriate people are notified.
- How to manage large, geographically-distributed video operations more efficiently and cost effectively.
- How to provide critical infrastructure with better security coverage and situational awareness on a smaller operating budget.

**PIVOTAL VISION™**  
autonomous surveillance solutions

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