Executive Summary: Company Overview & PTZFusion Platform

Company Overview

J-Systems, Inc. is an established 27-year-old engineering and manufacturing company that began in network consulting and over time has evolved into a specialist provider of remote video, monitoring, and motion-control systems for demanding industrial and remote applications.

The company's core competency is the ability to take a customer's concept from an initial sketch to a fully deployed, hardened system, encompassing custom mechanical design, electronics, embedded software, cable harnesses, enclosures, support and documentation, all delivered from a single source.

Early growth came through remote video and time-lapse monitoring for major construction projects, including a new air traffic control tower at O'Hare Airport, a high-rise tower addition in downtown Chicago, and a large tollway extension. These solar-powered, cellular-connected systems established the company's reputation for rugged, remote, deployable imaging solutions.

That expertise led to larger, more complex programs, most notably a nuclear emergency-response video system developed for the U.S. Department of Energy. The system allows a response team to deploy containerized equipment skids for situational awareness from a safe distance. Each installation provided multiple visual and thermal radiometric cameras, two-way intercom, and PA capability. The platform was tool-less, battery powered, fiber interconnected, and supported through five years of continued upgrades. Other notable customers include the Department of Justice and Sandia National Laboratories.

The Legacy Market Problem

Controlling a pan-tilt camera positioner within a modern Video Management System (VMS) has remained needlessly complex for over 30 years. Legacy positioners still rely on RS-485 serial control and 24VAC/24VDC power which is the same approach used since the analog CCTV era. Modern cameras (thermal, radiometric, optical gas inspection, and other specialty sensors) are small, lightweight, IP-based, and PoE powered.

Bridging serial-controlled positioners into an IP-based VMS typically requires Serial-to-Ethernet converters, bridge software, extra PCs, and additional network connections. This is a solution that does not scale beyond one or two cameras and offers no true integrated control within the VMS itself.

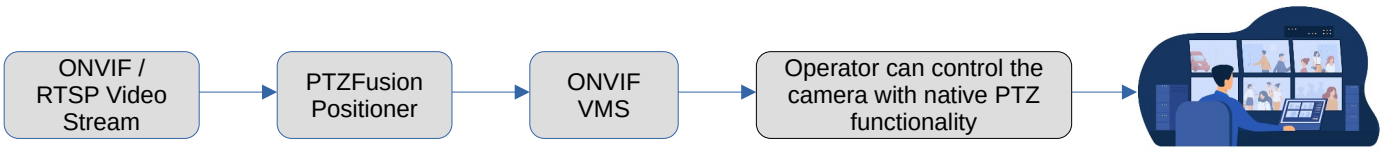
Dome cameras can address commodity use cases, but they are not offered for the specialty sensor types including thermal, OGI (optical gas inspection), radiometric and starlight that make up J-Systems' core market, nor do they accommodate long focal-length or heavy payload requirements.

The J-Systems PTZFusion Solution

PTZFusion is J-Systems' answer to this gap: an integrated pan-tilt-zoom platform that makes any RTSP or ONVIF-conformant IP camera natively discoverable and controllable within a VMS with no serial ports, converters, bridge software, or extra computers required.

The fixed-body camera is mounted to PTZFusion. Once both are on the network, the VMS sees a single native PTZ camera. For non-ONVIF specialty cameras, the PTZFusion can ingest an RTSP video stream and convert it to an ONVIF-conformant device, extending the same integrated control, recording, and live-view capability.

The platform is entirely web-browser configured (no software installation). It offers a comprehensive REST API for third-party, AI-driven control, is fully ONVIF conformant and has a verified as a Milestone Video Management System (VMS) Technology Partner device.



Proven Use Cases

Optical Gas Inspection
AI-driven leak detection with pan-tilt-reported X/Y coordinates, reducing the number of specialty cameras needed

Instant-Replay Positioning
Over 100 camera units deployed across NHL stadiums for remote broadcast camera control

Larger-Format Version
Adds motorized lens, filter, and extender control for long-range surveillance systems

Early Fire Detection
Thermal camera positioning managed natively from standard VMS platforms

What Buyers Should Evaluate in a Positioner

J-Systems' companion technical paper outlines the factors that should drive a positioner purchasing decision, reflecting the engineering judgment behind the PTZFusion design:

Mechanical & Power

- Weight capacity and torque rating are exceptional in relation to actual payload and mounting configuration (over-the-top vs. side-mount)
- Physical size is proportional to modern, lightweight sensor payloads
- Power type – PoE simplifies deployment to a single cable for power and data
- Motor type – Brush DC motors with gearing offer the best balance of efficiency, heat, and holding

  power without external brakes

Accuracy & Drivetrain

- Feedback device (potentiometer, PWM magnetic, or optical encoder) should match required repeatability, especially for long focal-length lenses
- Gear-based drive-trains offer the best accuracy short of direct drive, without the backlash of belts or chains
- Absolute-position encoders avoid the recalibration and drift issues common to step-counted, non-feedback systems

Integration, Reliability & Support

- ONVIF and REST API support are essential for native VMS integration and third-party or AI-driven control
- All-metal gear trains and wide temperature ratings (–40°C to +60°C) matter for unattended, rugged, outdoor deployments
- Lowest purchase price does not ensure best value once failure rate, after-sale support, and parts availability are all considered

Summary

J-Systems pairs 25+ years of custom motion-control and video-system engineering with **PTZFusion**, a purpose-built platform that closes a long-standing integration gap between specialty IP cameras and modern VMS platforms.

PTZFusion positioners are PoE powered, leverage absolute magnetic encoders and deploy all-metal gearing. They require no field recalibration and are built to operate reliably from −40°C to +60°C. They are backed by a successful track record spanning DOE nuclear response systems, national laboratories, refinery gas-leak detection, and stadium-scale broadcast deployments.

For organizations evaluating a pan-tilt platform, **PTZFusion** offers native VMS integration, open API control, and field-proven reliability without the complexity of legacy serial-based approaches. Please contact us today for more information on how we can work together to build a solution for your needs.

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