innoVi™

For Smart Cities

A Smart City improves the quality of living of city residents, by using technology to deliver enhanced services and more proactive responses to residents' concerns. However, as cities deploy more surveillance cameras to deliver better security and services, it becomes increasingly difficult to manage, use, and even make sense of the vast amounts of video recorded. Smart cities need more than cameras, they need smart video.

innoVi for Smart Cities is a cloud-based, innovative video analytics Software as a Service (SaaS). It transforms the hundreds or even thousands of surveillance cameras deployed across the city into smart video devices contributing to the city's ability to improve security, safety and incident response city-wide. innoVi empowers authorities to uncover otherwise hidden incidents, insights and information, and allows true leveraging of the municipal surveillance infrastructure, even in the most dynamic and challenging urban environment.

Combining Agent Vi's vast field-proven experience with large-scale deployments and highly advanced, cutting-edge Deep Learning technology, innoVi helps to:

- Prevent crime and shorten emergency response times by immediate detection of security threats

- Improve incident management by rapidly creating situational awareness

- Monitor and analyze traffic flow

- Detect safety hazards and obstacles to passage

- Optimize municipal and law enforcement resources

- Enhance the quality and performance of the city's varied services

AGENT Vi™

Comprehensive Video Analytics Solutions

Why Choose innoVi for Smart Cities?

- **Designed for Smart Cities:**
  - **Big Data:** Built to analyze and handle massive amounts of video data
  - **One-stop-shop video analytics service:** A single service offering an extensive range of capabilities that respond to the city's needs
  - **Best-of-Breed:** innoVi's open architecture approach maximizes the city's surveillance system design
  - **Interoperability:** Can be deployed on new and existing CCTV systems, and supports all cameras

- **Cloud-Based Architecture:**
  - **Scalability:** Efficiently supports small to large-scale deployments to suit cities and municipalities of all sizes
  - **Flexibility:** Capabilities can be easily activated / deactivated to suit the city's needs; multiple capabilities can run simultaneously on each camera
  - **Maintainability:** Upgrades are seamlessly performed by Agent Vi via the cloud platform, enabling immediate access to new features and functionalities, and making innoVi future-proof
  - **No Bandwidth Restrictions:** innoVi enjoys the benefits of a cloud-based architecture, yet without bandwidth restrictions, as video is not streamed to the cloud-based servers

- **Ease of Use:**
  - **Minimal Setup & Automatic Scene Learning:** innoVi self-configures, self-calibrates and auto-learns, eliminating the labor required for installation and setup, and removing the main obstacle to large-scale and timely analytics deployments
  - **No Training Required:** innoVi's self-configuration and self-calibration reduces the need for specialized installation training
  - **Intuitive web-based user interface:** Enables easy analytics management for medium and large-scale deployments

- **Technology:**
  - **Cutting-Edge Deep Learning:** Deep Learning technology employed enables unparalleled accuracy, and boasts a unique object classification methodology that actively and continuously learns how to accurately classify objects, and can distinguish between a person, car, motorcycle, bicycle, truck and even a static object
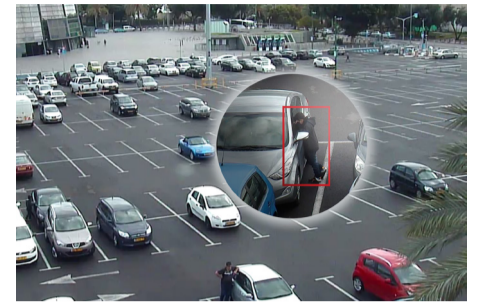
- **Partner with the Industry Leader:**
  - **Expertise & Track Record:** Agent Vi leverages over a decade of innovation and experience to deliver the most advanced video analytics solutions on the market
  - **Innovation:** Agent Vi is the first video analytics company to introduce a commercial application of Deep Learning technology for physical security
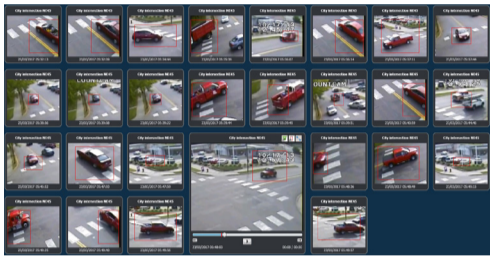
The Offering

Detection of Security & Safety Incidents in Real-Time

innoVi's automatic detections are of the utmost importance in a city network, where most of the video goes unwatched due to the sheer volume of video. Moreover, innoVi never sleeps or gets tired. innoVi eliminates the need for continuous human monitoring of surveillance cameras. It automatically detects and alerts to security and safety incidents in real-time, thereby drawing a security operator's immediate attention to an incident. innoVi provides situational awareness to effectively manage incidents and enable effective responses, as incidents unfold.

Expedited Investigations with Automated Video Search

innoVi searches through vast archives of video quickly and directs personnel to the most relevant footage, dramatically reducing the time required to locate the specific video segment. The size of city surveillance networks inevitably means that the amount

of video to review and investigate is overwhelming. During active incidents, the ability to isolate the critical camera is almost impossible, effecting situational awareness. innoVi provides expedited investigation capabilities that allow investigators to find specific video segments within the stored video, replacing labor-intensive, manual searches through masses of video, and freeing up officers for hands-on law enforcement tasks.

Big Data Applications

innoVi analyzes massive amounts of data captured by the city's surveillance cameras, transforming the information gathered into metadata that supports analyzing trends and incidents across the city. innoVi pulls together and analyzes data from multiple video sources to offer trends and a "big picture" understanding. Agent Vi's metadata architecture is open to third party applications that can combine intelligence gathered from cameras with other security and/ or non-security data, to create even deeper analysis or automated response plans.

innoVi responds to various challenges that are faced by cities, including:

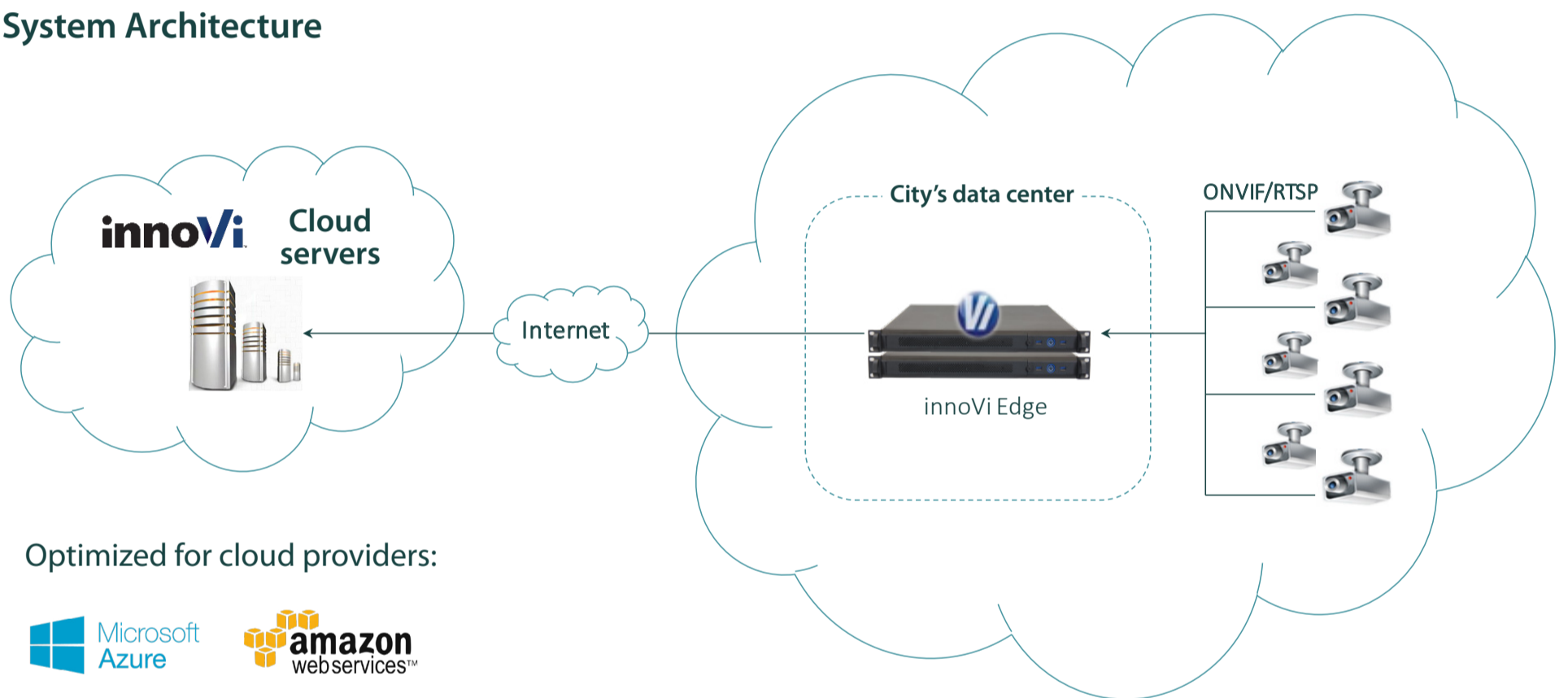| Public Safety / Law Enforcement	Public Transit
• Terror, criminal activity, violence, vandalism, theft, suspicious behavior • Crowding and grouping • Abandoned objects	• Obstacles, Slip & Fall scenarios • Platform / track security • Vagrancy
City Operations	**Traffic Monitoring & Management**
• Illegal dumping • Obstacles and hazards • Various violations	• Accidents, blockages • Driving violations • Speed analysis

Initially launched with real-time detection and expedited video search capabilities, innoVi will be enhanced with additional capabilities such as:

- Advanced object tracking
- Big Data analysis
- Geospatial mapping and analysis
- Statistical analysis and reporting
- Integration with License Plate Recognition (LPR) technology
- Integration with Face Recognition technology

System Architecture

innoVi **Cloud servers**

Internet

City's data center

innoVi Edge

ONVIF/RTSP

Optimized for cloud providers:

Microsoft Azure

amazon webservices™

Multiple IP cameras supporting ONVIF/RTSP protocols connect to a local innoVi Edge hardware appliance, which performs initial video analytics processing in the City's data center. Low-bandwidth data is streamed from innoVi Edge to innoVi cloud servers for further processing.

Agent Video Intelligence (Agent Vi™) is the leading global provider of open architecture, video analytics solutions. Agent Vi's comprehensive video analytics offering includes software products for on-premise installations as well as cloud-based SaaS. Agent Vi's solutions allow users to achieve optimal value from their video surveillance networks by automating video analysis to detect and alert for events of interest, expedite search in recorded video and extract statistical data from the footage captured by surveillance cameras.

Building on its patented software architecture, advanced computerized vision and machine learning algorithms, and years of experience in software development for large-scale surveillance deployments, Agent Vi offers high-quality video analytics solutions that seamlessly integrate with a large variety of third party systems.