ULAVIDEO | intel | Hewlett Packard Enterprise operated by Sophela

ULAVIDEO

Analytical system for the production field

Innovative development of LANTEC

About Us

Who we are

For 25 years, LANTEC has been engaged in the integration of computer systems and software into unified information solutions, as well as developing and creating its own analytical systems.

Our mission

We provide Ukrainian companies and organizations with advanced IT solutions and analytical centres to automate all areas of social activity.

Our strategy

Implementation of the unified ULA Video analytical system to enhance the quality of control and management of any sphere of people's lives, regardless of the scale of the area.

What is ULA Video?

The ULA Video analytics system is software **for automated analysis of video streams from any number of different cameras and sensors,** which can be located at a distance of tens and hundreds of kilometers from each other, as well as in remote areas.

ULA is based on the use of modern technologies, which **allow you to quickly and efficiently collect, evaluate and analyze information obtained from video surveillance cameras,** and use it to make appropriate decisions and optimize various processes.

How ULA Video works:

ULA uses machine vision algorithms as its core, which enable it to detect and identify people's faces, vehicles, objects, entities, events and processes, as well as many other things within the field of view of video surveillance cameras, and automatically transform the received information into tables, dashboards, graphs and any other forms of reports with succinctly presented statistical data.

The algorithms and neural networks integrated into this software can be further trained for the recognition of specific objects and actions not included in the basic functionality, allowing for the adaptation of the existing product to the customer's individual requirements, with the possibility of its use in various industry-specific solutions.

Usage

Systems of automated data processing from video cameras are used in various fields of activity, such as:

- Smart City
- Education
- Logistics and transport
- Situation centres
- Housing and communal services
- Banking sphere
- Medicine and insurance
- Retail and marketing
- Security and military sphere

Functional capabilities of video analytics

Face recognition

- Personnel identification
- Access control
- Behavior recognition
- Analysis of emotions and states

Analysis of equipment operation

- License plate recognition
- Video analysis of work processes
- Incident detection
- Analysis of the object routes

Object recognition

- Object classification
- Search for objects and items
- Detection of presence or absence
- Object observation

Business cases ULA Video solves

1

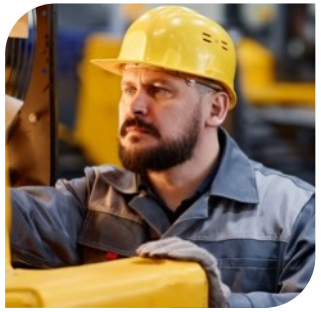
Optimization of the management process and territory monitoring in real-time.

2

Analysis of product placement efficiency, reduction of search time and optimal use of warehouse space.

3

Analysis of the operation of machinery, equipment as well as vehicles and cargo tracking.



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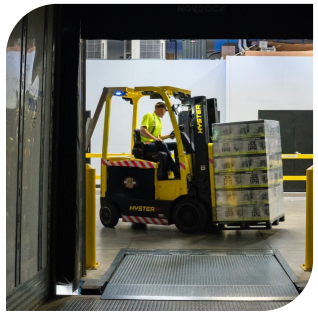
Identification of employees, access control, and improvement of employee performance.

5

Optimizing inventory, detecting damage, reducing losses, theft and increasing profits.

6

Increasing the level of safety of people and objects, prevention of potential threats.



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Analysis of the efficiency of work processes, identification of possible improvements and optimization of routes.

8

Accounting of actual staff time and optimization of the organization's work schedules.

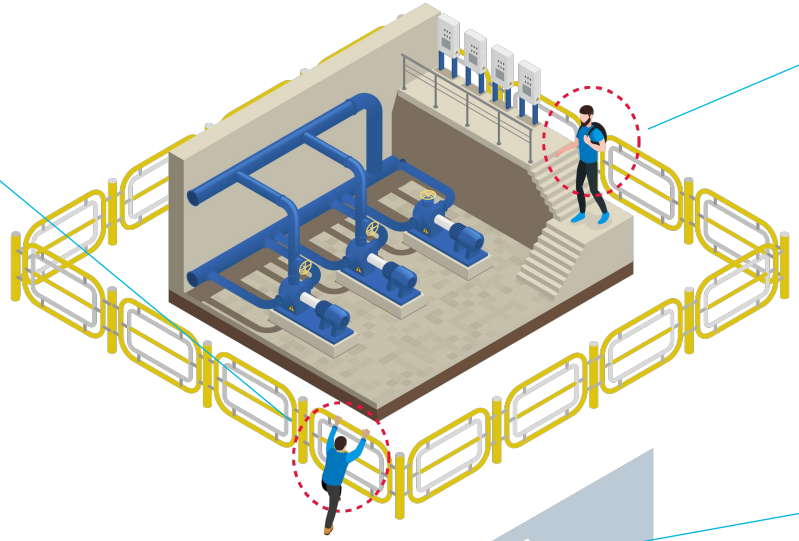
9

Automatic recognition of the number and license plates of vehicles and their classification.

Possible scenarios for using ULA Video for security issues

Perimeter monitoring

Detection of attempts to break through the fence or illegal invasion of the territory. ULA Video can be combined with alarm response systems such as automatic barriers or lighting systems to effectively respond to security breaches.



Detection of intrusions into restricted areas

Detection and prevention of incidents such as unauthorized access to restricted areas or entry into restricted areas (for example, compressor stations, high voltage areas, hazardous substances and equipment or warehouses with high-value goods).

This facilitates the identification of suspicious activity or illegal actions and timely response.

Detection of production area visitors

Identification of employees, control of entry and exit from the territory of the enterprise for all visitors, tracking of movement on the territory.

This facilitates control of work processes, and access to closed areas for a limited number of employees, as well as monitoring and analysis of visits to the enterprise by outsiders.

Identification of emergency situations

Video analytics can respond to emergency situations, such as falling equipment, leaks of hazardous substances or potentially dangerous situations on the premises of the enterprise.

The system can automatically notify operators and call the necessary services to take immediate action.

Detection of theft, loss or damage of goods

ULA Video can analyze the movement of goods and detect unusual changes that may indicate the loss, shortage, spoilage or theft of goods in production.

This allows you to minimize losses due to the careless attitude of employees or cases of theft.

Possible scenarios for the use of ULA Video for occupational health and safety

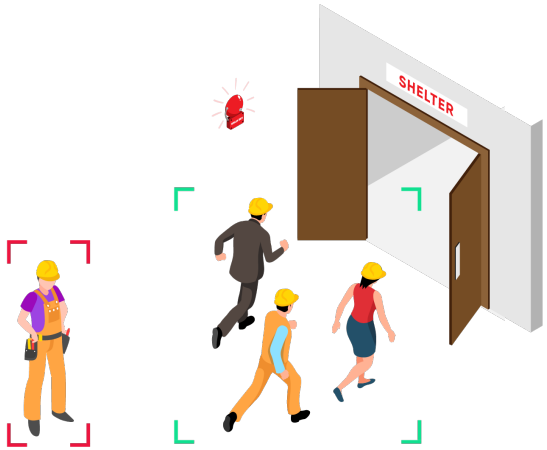
Safety Compliance control

Recording the availability of mandatory protective equipment (helmets, shoes and overalls), detecting violations of the rules (incorrect use of equipment, incorrect approach to lifting heavy objects or lack of protective equipment), monitoring the movement of workers to a shelter during an air alert or man-made accident, detecting insufficient attention to danger during work. Such monitoring teaches employees to follow safety rules, helps to prevent possible injuries and to avoid accidents at the enterprise.

Detection of damage or malfunctions

Video analytics can detect damage or malfunctions in equipment or buildings. For example, it can detect liquid leaks on the warehouse floor, the destruction of fences or damaged equipment.

This allows operators to react quickly and take action to prevent accidents and further problems.



Staff training on real cases

Video analytics can be used to train and educate employees about safety.

By analyzing video footage of work processes, the system can identify potentially dangerous situations and errors, and use this data to train workers and improve their safety skills.

Analysis and control of personnel work

Monitoring of the work of employees, control of entry and exit from the territory of the enterprise and being at their workplaces.

This facilitates the control of work processes, planning of staff work schedules taking into account the needs of the company and control of the actual time of work.

Management of crowds and flows of people

Determining the number of people, controlling flows and preventing congestion on the territory of the enterprise.

This helps ensure the efficiency of people's movement, increase the level of safety, and also prevents possible excessive loads in certain areas.

Creation of digital twins

The ULA analytical system is based on the use of data received from sensors and video surveillance systems at the enterprise. This data includes information about the movement of people, equipment, transport and other objects.

Based on this data, ULA conducts analysis and modelling, creating digital twins of objects and processes in the enterprise.

A digital twin is a virtual replica of a real object or process, including its characteristics, parameters, and interactions with other objects.

A case of increasing the level of security in case of a gas leak

Leak detection

The ULA system automatically analyzes data from sensors and video cameras and detects an unusual situation - a gas leak in a certain area of the enterprise.

Emergency warning

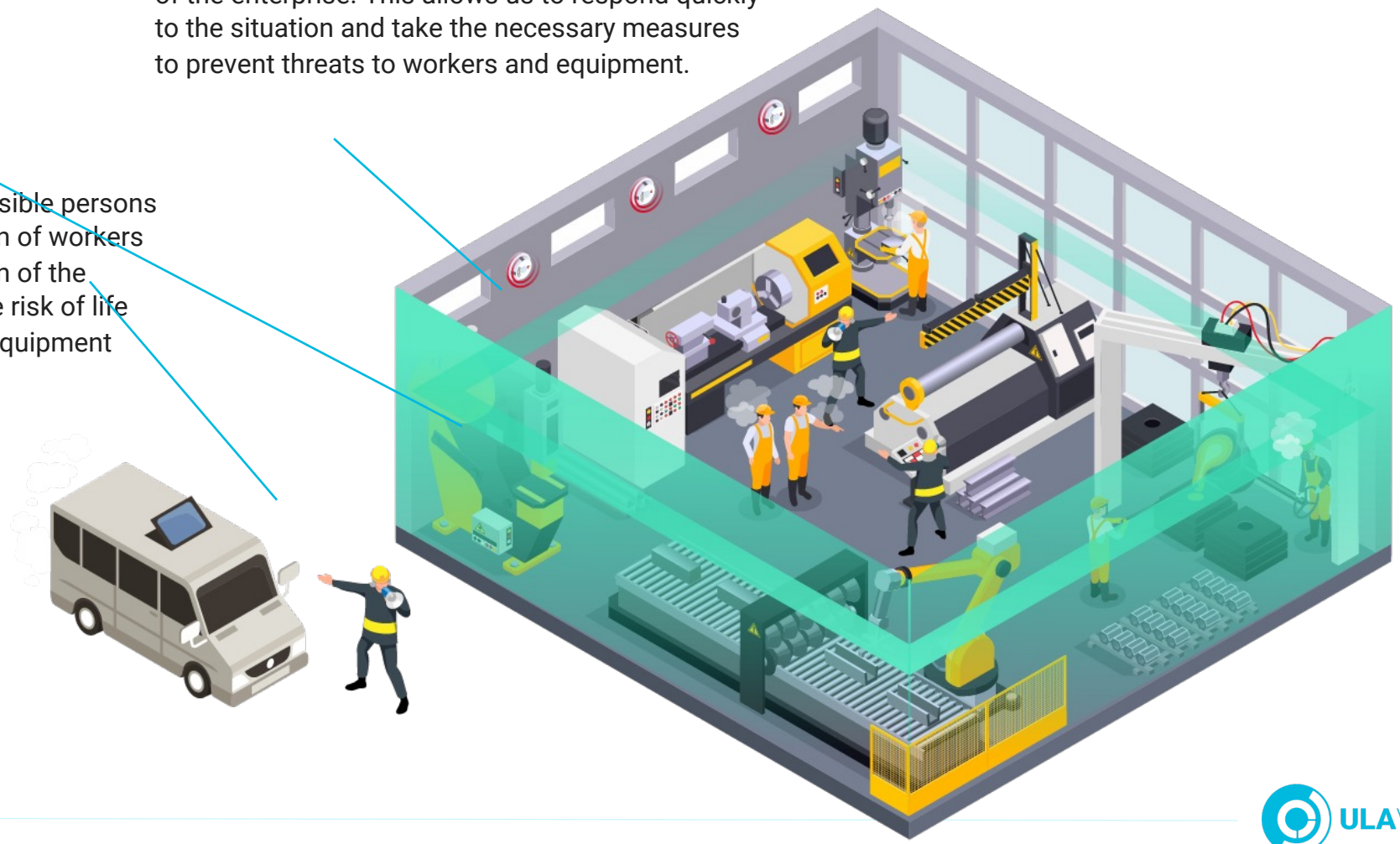
ULA immediately generates an emergency message and sends it to the responsible personnel of the enterprise. This allows us to respond quickly to the situation and take the necessary measures to prevent threats to workers and equipment.

Evacuation and isolation of the site

Based on the data from the ULA, responsible persons can immediately organize the evacuation of workers from the site of the leak and the isolation of the hazardous area. This helps minimize the risk of life threatening, emergency situations and equipment damage.

Analysis and optimization

After eliminating the gas leak, the ULA system performs an analysis of the incident that happened, which allows you to take measures to prevent similar situations in the future.



Information processing levels

The analytical system ULA is focused on improving the quality of business processes and increasing the level of employee safety, optimizing resources and reducing the negative impact on the environment.

Incorporating ULA into enterprise architecture is a key to monitoring, managing and improving all processes.

Sensor level

At this level, there are sensors that are located in various places of the enterprise, such as assembly departments, production shops, warehouse and office premises, restricted access areas and other objects. They collect data on the state of the enterprise. These include CCTV cameras, motion sensors, air and water pollution sensors, gas and liquid leak sensors, etc. The data from the sensors is given to the analytical system ULA.

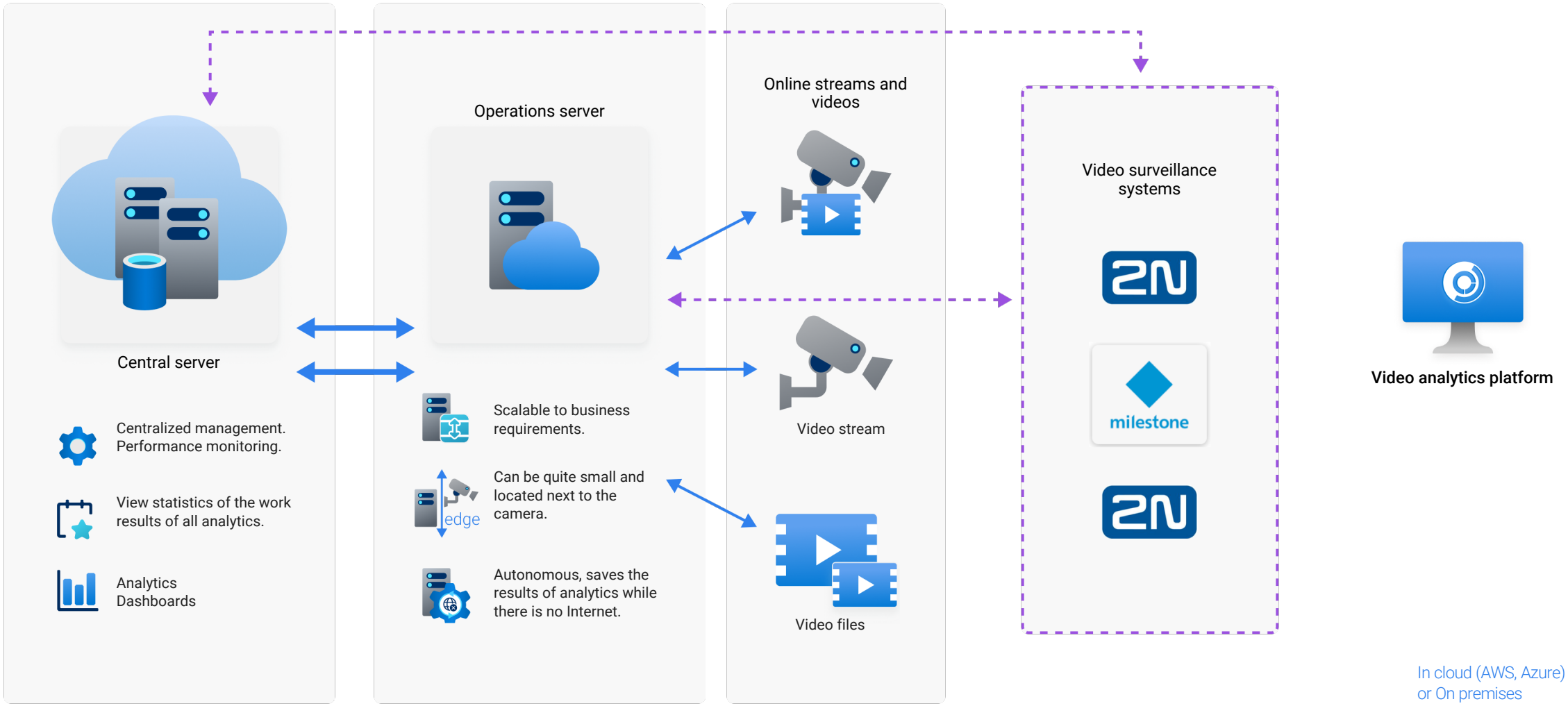
The level of analytics

ULA uses artificial intelligence and machine learning to process sensor data. It can identify objects and people, determine their movement, number, condition, monitor anomalies and events. The results of data processing go to the management level.

Management level

At this level, data from the analytics system is used to make decisions and manage processes at the enterprise. For example, traffic data can be used to optimize the operation of transport and to track offenses in the territory, personal data can be used to identify employees and improve the level of security, event data can be used for timely response to emergency situations, data about air or water pollution can be used to control leaks of hazardous substances.

ULA architecture (distributed product architecture)



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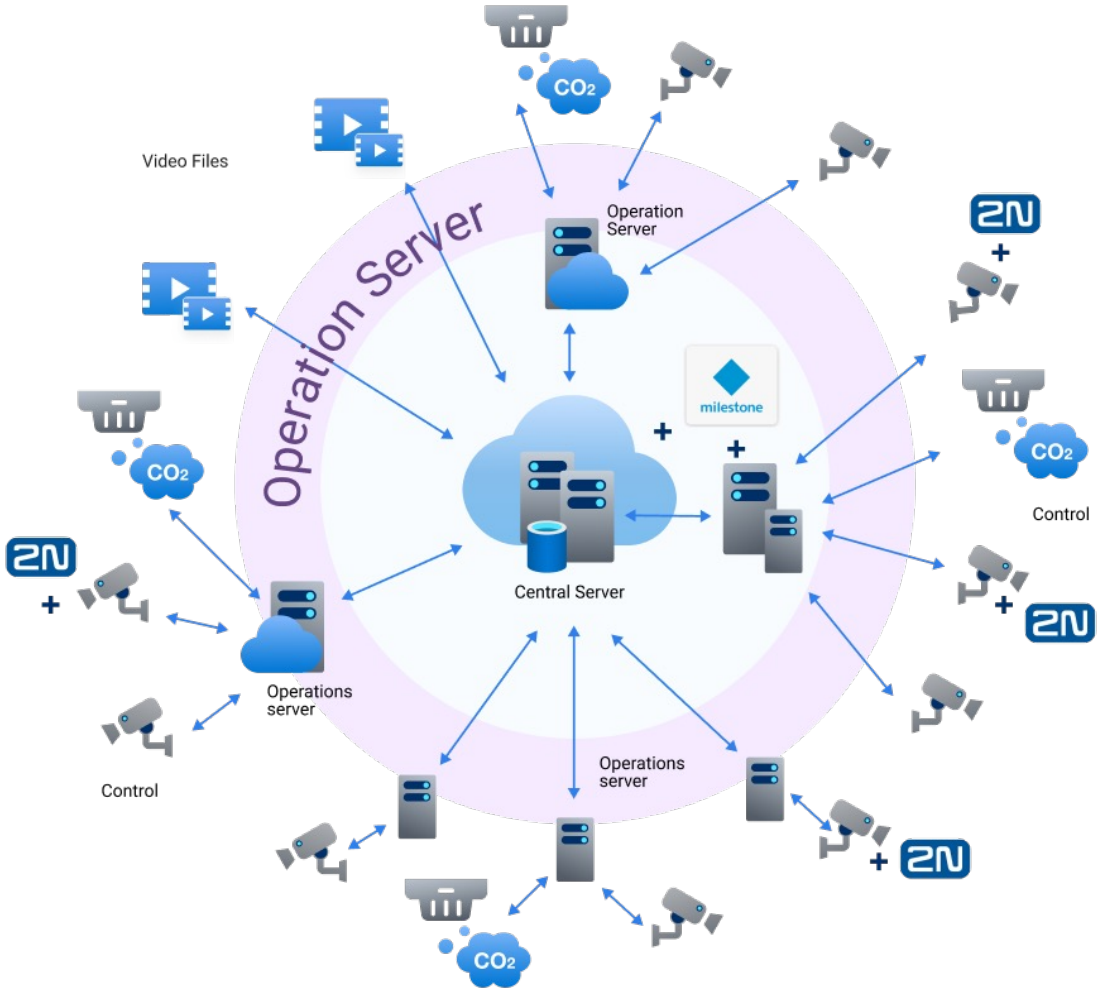
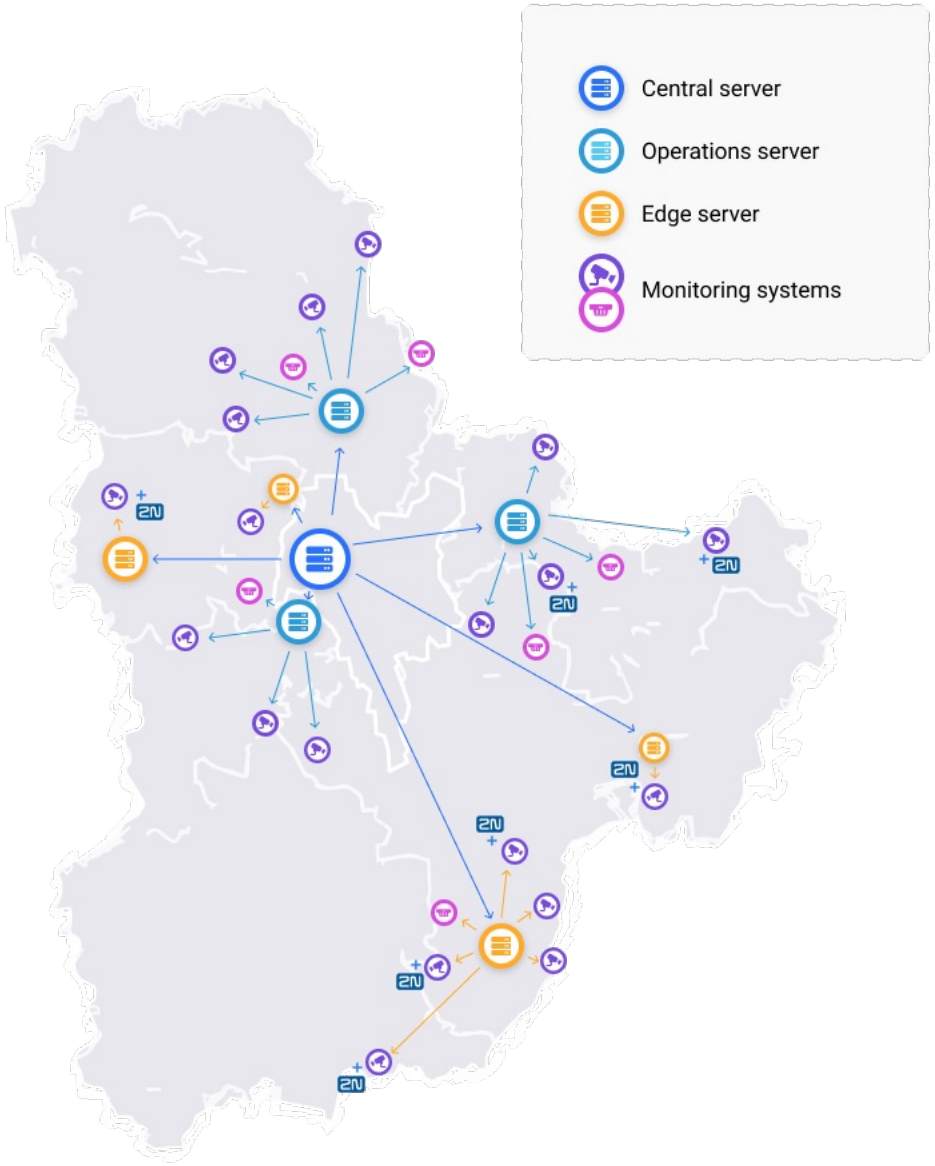
ULA architecture (distributed product architecture)

It is scaled according to business requirements, analyzing video streams from thousands of different cameras, which can be located at a distance of tens and hundreds of kilometers from each other and from the central server, as well as in remote areas.





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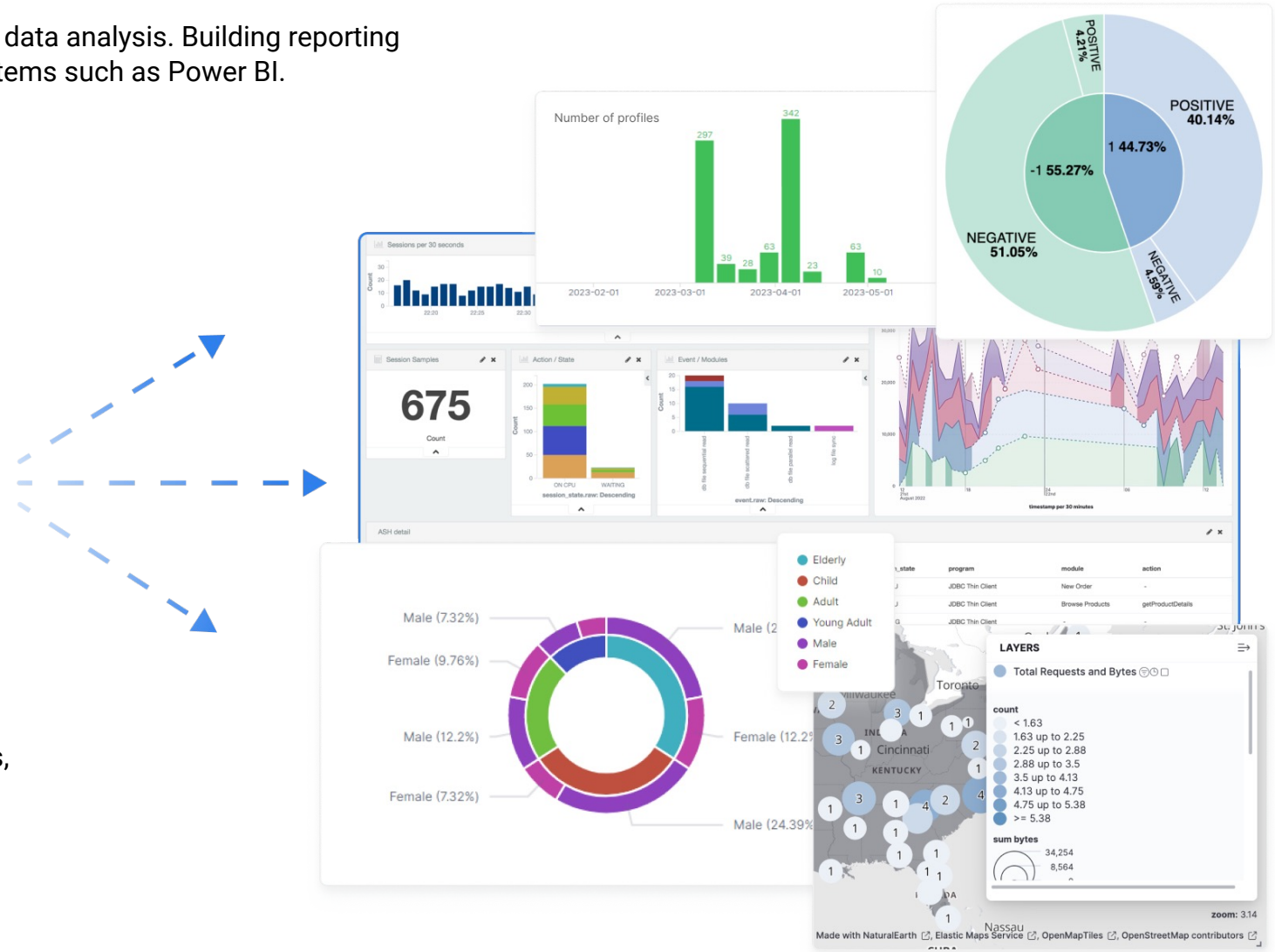
Construction of graphs (dashboards)

ULA Video software can collect graphics after video processing and data analysis. Building reporting information is possible both on our Kibana system and on other systems such as Power BI.



- Real-time data visualizations, including customizable dashboards (widgets).
- Display data in a variety of formats, including graphs, tables, charts, and maps.
- Flexible customization options that adapt to different types of analytics, depending on business needs.

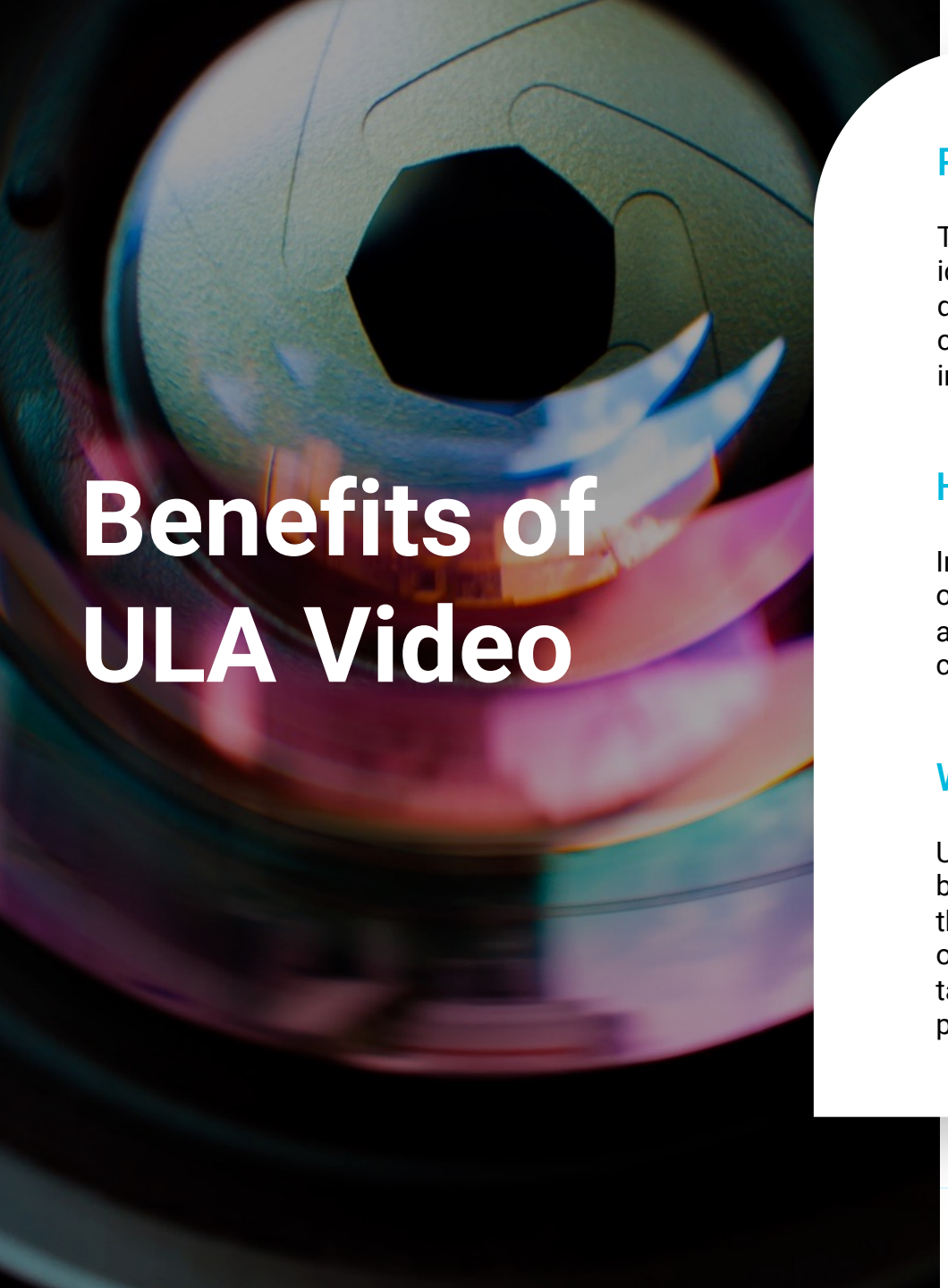
Choosing equipment for analysis

The ULA analytical platform has the ability **to be integrated with any customer`s systems** (video surveillance or access control systems) to automate business processes or exchange information in server-server mode, which significantly speeds up data processing.

The quality of the obtained results depends very much on the quality of the cameras and servers, so we recommend to use reliable equipment.

For our case, there was used the longest-range Intel® RealSense™ Depth Camera D456 with 3 global shutter sensors and an IMU. The D456 has an IP65 enclosure that is dustproof and protected against water pouring from any direction.

Among the wide variety of servers, we prefer HPE servers.



Benefits of ULA Video

Possibility of further education:

The ULA Video system can be trained to identify specific objects, for example, the detection of any vehicles and their classification, detection of various infrastructure objects or people.

Fast data processing:

ULA has a high speed of processing offline and online media files and documents thanks to the use of modern technologies for processing large volumes of data.

High accuracy of analytics:

Improved recognition of objects, vehicles or people based on repeated appearances in the frame on any camera connected to ULA Video.

Flexibility and scalability:

ULA Video has a distributed Two-Tier architecture that allows you to customize the system to the specific needs of the customer and scale it as needed.

Wide functionality:

ULA Video can not only recognize objects, but also analyze their actions, determine their behavior, size, shape, count the number of objects, which allows solving various tasks related to security, monitoring and process management.

Integration with other systems:

ULA Video has the ability to be integrated with any customer`s systems (video surveillance or access control systems) to automate business processes or exchange information in server-server mode, which significantly speeds up data processing.

Ready for fruitful cooperation!

The analytics system ULA Media is the best solution for any industry and business, ranging from international corporations to small enterprises and government institutions.

We have a solution for your business!

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For further information and a thorough discussion of specific solutions, please contact us via phone or email. We are ready to answer any questions you may have and provide you with the necessary information that can help you make a balanced decision.