M T S AI

TENVISION

Cloud Video Surveillance and Video Analytics Platform for Business from MTS AI

MTS AI IS ONE OF THE LEADING COMPANIES IN AI DEVELOPMENT IN RUSSIA

We have implemented 20+ projects

- We have automated the MTS customer service with the use of a chat bot
- We help forecast profitability from the investments to the telecom infrastructure with the use of AI
- We have trained KION to skip credits and determine the proper area for advertisements

We develop AI solutions and products

On the basis of the CV, NLP, and Edge Computing technologies

We develop the market in the field of DeepTech and AI

We invest in promising projects, help start-ups turn the ideas into lucrative business

R&D Center

200+ experts and technological infrastructure – we are using the most powerful supercomputer in the field of telecommunications

MTS AI ASSETS

VisionLabs | INFOMATIKA | Just AI | Kneron | Primo RPA

TenVision

Cloud video surveillance
and video analytics platform

FUNCTIONALITY

Connection of cameras of any manufacturer

Management of records in real time

Advanced AI analytics for solving various business tasks

High level of security:

- processing and analysis of incoming events in the SOC system
- WAF firewall
- external network protocols are encrypted with the use of TLS

EFFICIENCY

Business effects
of using cloud video surveillance and AI analytics

Reduced service costs

97%
Increasing the accuracy of defect recognition

10%
Decreased number of visitors leaving empty-handed

20%
Reduced labor costs for employees' wages

TARGET AUDIENCE

Providers and system integrators | Security services | Transport companies | Retail, HoReCa | Telecommunication companies

Sources: RBC, IDC, Worldwide Video Surveillance Camera Forecast, 2021-2025, MTS AI, Marketsandmarkets, Adindex.

TENVISION DETECTORS

register data necessary for managerial decision-making and safety maintenance

Visitor counter

Find out how many people have visited you

Intrusion into the area

We will notify you about the arrival of people or cars in the area specified by you

Line crossing

We will notify you about the crossing of the lines that you drew in the video frame

Object detection

Find out which object has been captured by the camera

Face recognition

Create your own lists of frequent visitors and those who came to you for the first time

Object schedule

Find out at what time your employees come at their workplaces in the morning and leave their workplaces at night

Line detection

Keep a check on the formation of lines and call additional employees

Drawing of heat maps

We will tell you about the most popular customer routes in your points of sale

Presence control

Check when the employees are at their workplaces

Absence control

Find out when the personnel are absent at their workplaces

Visitor counter

We will tell you when the largest number of potential customers comes to visit you

Absence of visitors

We will notify you at what time customers are absent

TenVision

Cloud Video Surveillance
and Video Analytics Platform

Easy service launch

With TenVison, launching video surveillance and analytics takes two days. Each service can scale independently

Compatibility with any camera brand

Connect TenVision to cameras of all major brands using common protocols like ONVIF/RTSP, QR code or camera serial number. Start with one and then increase the number

Advanced video analytics

Configure object and sound detection, face recognition. Monitor employee schedules, crossing of selected lines and create heat maps

Agent that turns all cameras into cloud ones

MTS AI software helps configure, manage and update cameras, have plug-and-play access to them via the app and establish a secure connection to the cloud

Web and mobile apps

Get notifications, view video on multi-screen layouts, manage archives, view recordings by selected events in the app. We provide SDKs for iOS, Android, Web and React

Continuous video recording from cameras

Saving archives to SD cards in case of internet outage and sending to the cloud after connection is restored

TenVision

FEATURES FOR CLIENTS

Reduced time-to-market

Add cloud video seamless surveillance capabilities to your solution within two weeks thanks to TenVision's integration with other systems

Flexible licensing

Choose a fixed annual payment or pay for video storage duration in the archive

Custom agent for IP cameras

Create software tailored to your needs that gets embedded into cameras and enables plug-and-play cloud connectivity for video streaming

End-to-end solution

You can order an end-to-end solution with Audiogram added - a speech synthesis and recognition platform, for sound and speech detection

White Label

Launch cloud video surveillance under your own brand

PROGRAM COMPONENTS

TenVision Platform Core

A cloud component responsible for connecting cameras, routing video streams, managing the archive, cameras, connecting the web interface and mobile apps

Video analytics module

A subsystem that allows connecting video analytics algorithms and optimizes load on computing resources by ensuring parallel operation of cloud computations

Video archive

A subsystem for storing video from cameras, clips, frames and other bulky information

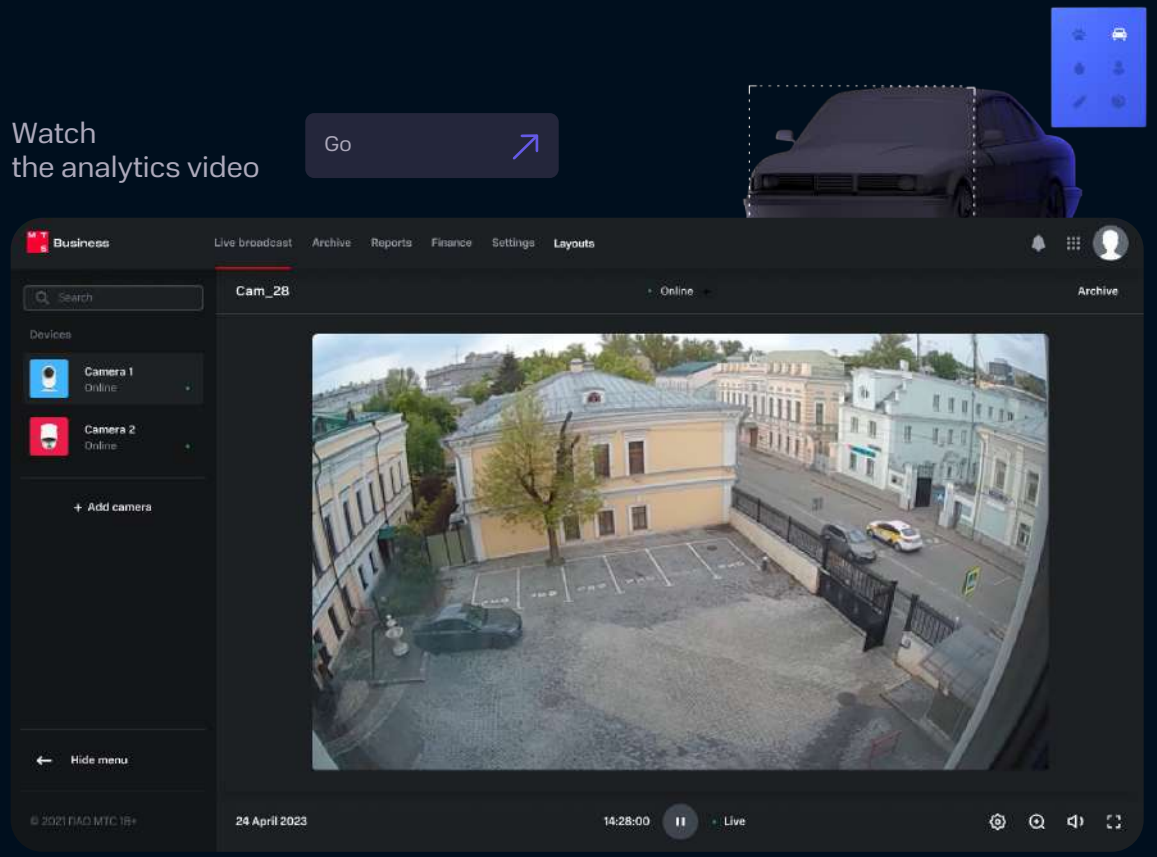
“Event-response” subsystem

Stores all events from cameras and provides logic for user notifications and reactions

Object detection

Watch
the analytics video

Go



How does the detector work?

Configure a system notification when events occur: the appearance of a person or vehicle (cars, motorcycles, buses, trucks) in a given zone.

In the 2024, the MTS AI neural network will be able to detect more than 50 objects, in particular:

- animals (cats, dogs, cows, bears, giraffes, etc.)
- sports goods (snowboards, skis, baseball gloves)
- means of transportation (airplanes, boats, bicycles)
- equipment and other objects

How can business use the detector?

Companies controlling real estate and housing and utilities sector: tracking of access to the territory of a residential complex, to utility rooms, help in the search for data concerning breakdowns and incidents at parking lots, escaped animals

Manufacturing enterprises: investigation of incidents at the production site

Retail sector: investigation of incidents in the stores, when, for instance, a customer broke a display window

Detection of visitors and lines

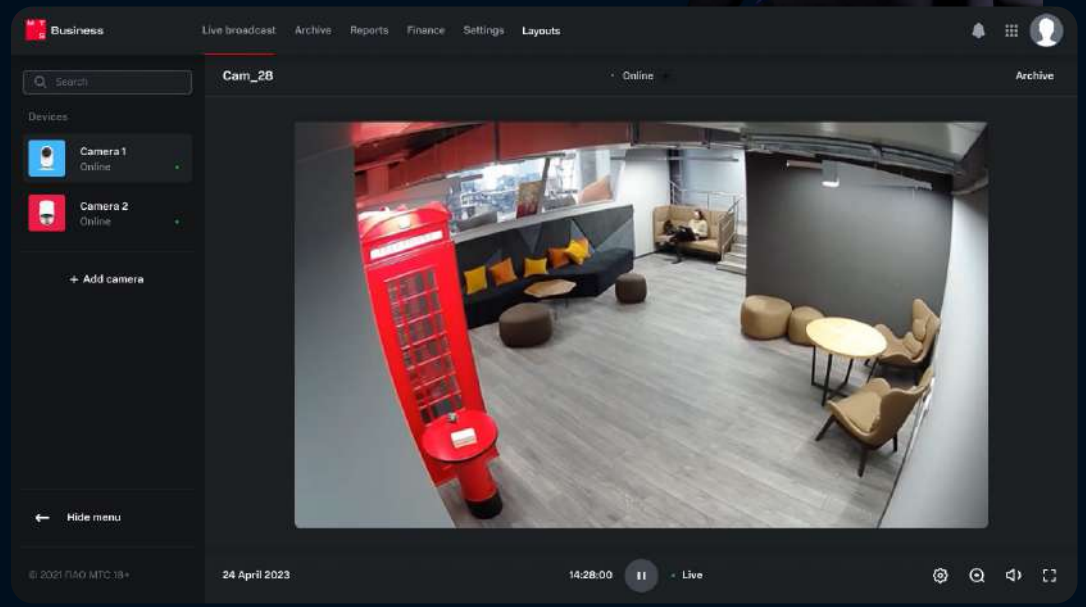
Watch the analytics video

Go

How does the detector work?

Allows you to determine when a large queue forms at the checkout and there is not enough staff to serve customers.

If as a result of the analysis the system understands that a large queue has formed (the number of people in the highlighted zone exceeds the number of employees and the minimum number of people in the queue), a notification is created.



How can business use the detector?

Retail

- planning of the workload on personnel on the basis of data concerning lines
- tracking of employees' efficiency
- determination of the causes of line formation

Filling stations and car service centers:

- planning of personnel schedule
- determination of the need for additional resources for customer service

Intrusion into the area and line crossing

Watch
the analytics video

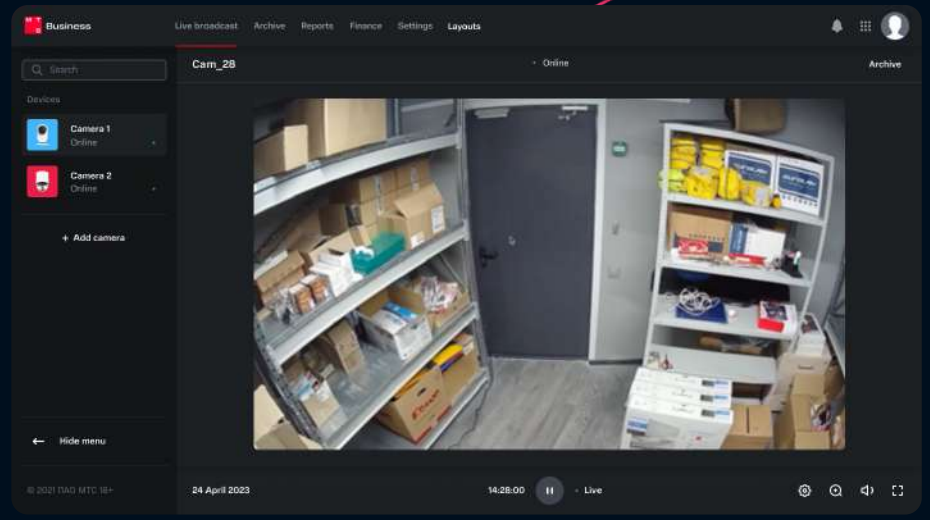
Go

Go

How does the detector work?

Configure a system notification when the event is triggered: a person or vehicle (car, motorcycle, bus, truck) crossing the line.

Suitable for monitoring movements at border crossings, protected facilities, cottage communities, personal households, and more.

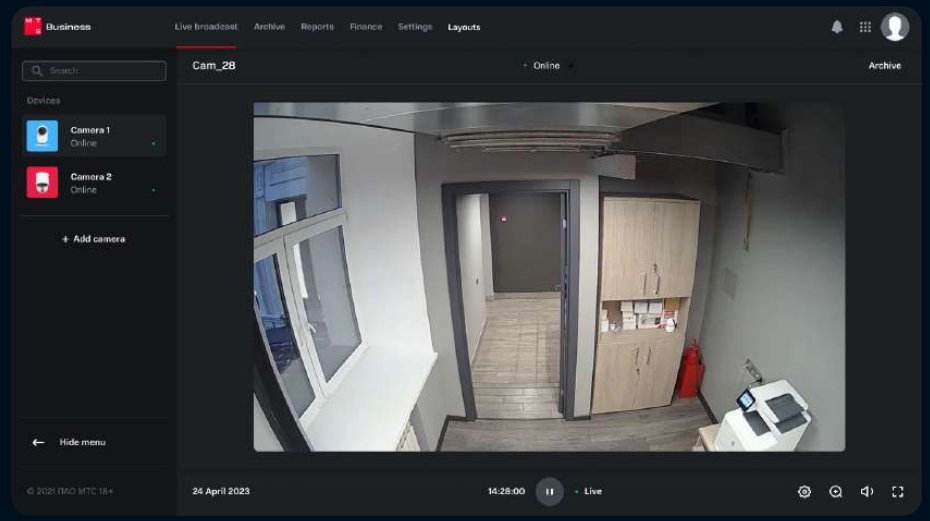


How can business use the detector?

Manufacturing industry: restriction of access for employees or means of transportation to the dangerous premises posing threat to human lives and notification of responsible persons concerning such events

Transportation providers (airports, train stations): notification concerning the arrival of people on the take-off strip, railroad tracks, in the hangars, motive power depots, and other restricted access locations

Retail sector: control of customers' actions, tracking of customers' interest in certain display windows and merchandise shelves



Creating of heating maps

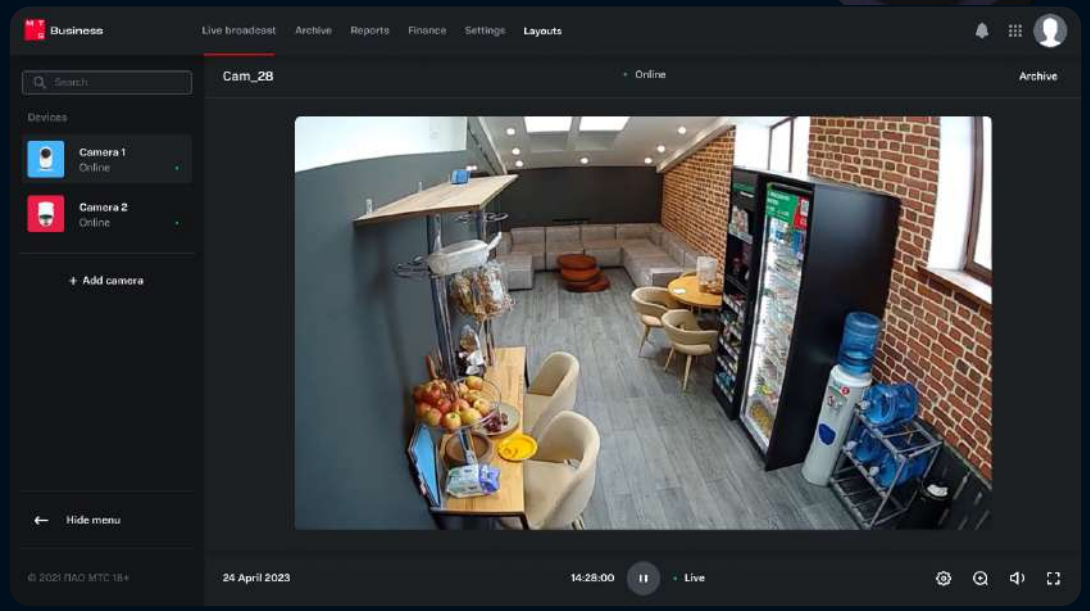
Watch
the analytics video

Go

How does the detector work?

The system is creating the heating maps of movement of people or cars within the limits of the specified territory

A heating map is built with the use of the neural network, thanks to which the data is characterized by a high level of accuracy



How can business use the detector?

Retail sector

- creation of heating maps in order to determine customer routes, most popular departments and display windows in the stores
- planning of goods layout, personnel workload

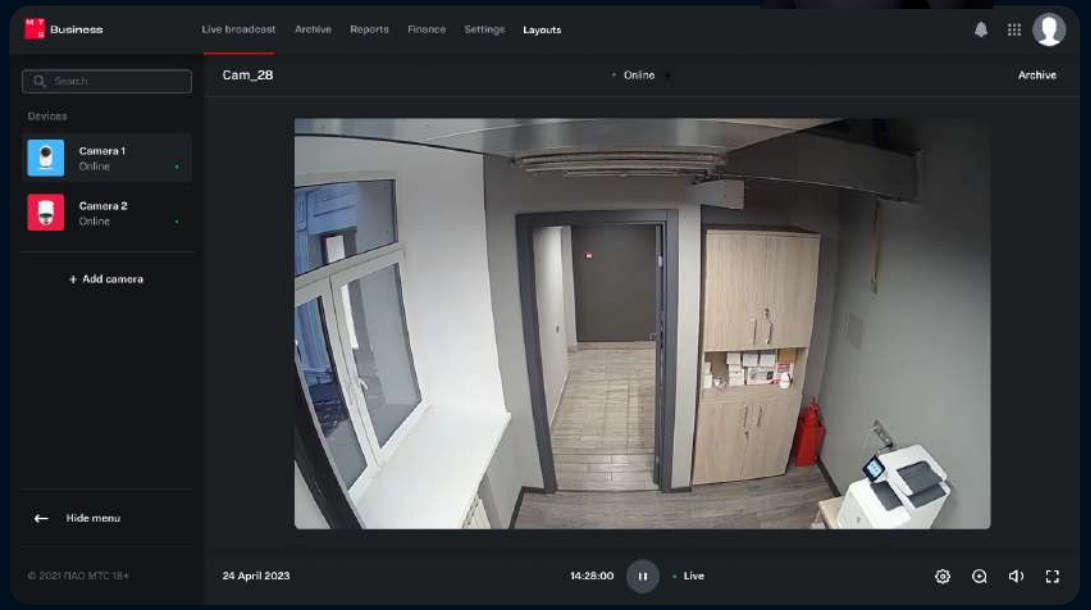
Gas stations

- determination of the most demanded fuel brands and popularity of related services

Face recognition

Watch
the analytics video

Go



How does the detector work?

The neural network recognizes the people entered into a certain list by comparing a photo with a person's face

Suitable for prompt security response in case of intrusion into the territory by a person from the "black" list or a customer service manager, if the person is on the list of famous people

In the near future, it will become possible to count unique visitors

How can business use the detector?

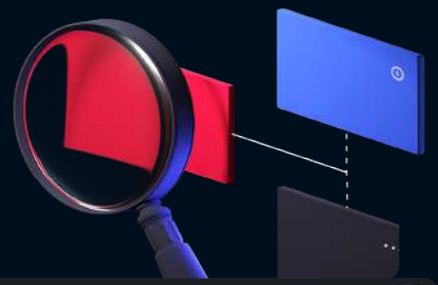
Real estate companies: tracking of access gained by people to the territory of offices and residential complexes, registration of visitors, creation of "black" and "white" lists of visitors

Transportation providers (airports, train stations): prevention of presence of unauthorized persons in the specially protected premises

Manufacturing industry: access gained by employees to their workplaces, prevention of presence of unauthorized persons in factory workshops

Retail: creation of lists of VIP customers, "black" lists of shoplifters and other transgressors of the law

Control of presence and absence of personnel at their workplaces

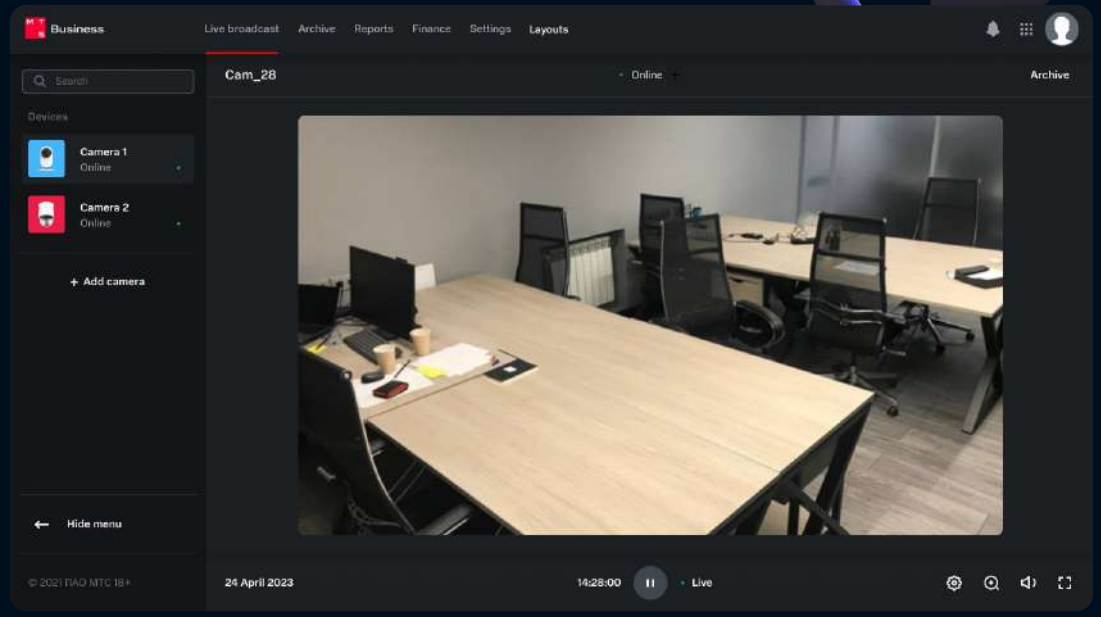


How does the detector work?

The detector provides the opportunity to track the time when the employee is opening the office or store in the morning and closing it at night

The neural network also registers the time when a certain member of the personnel leaves his/her workplace during the course of the day

Data concerning the arrival, presence, or absence of employees at their workplaces is registered in the individual employee's time sheet



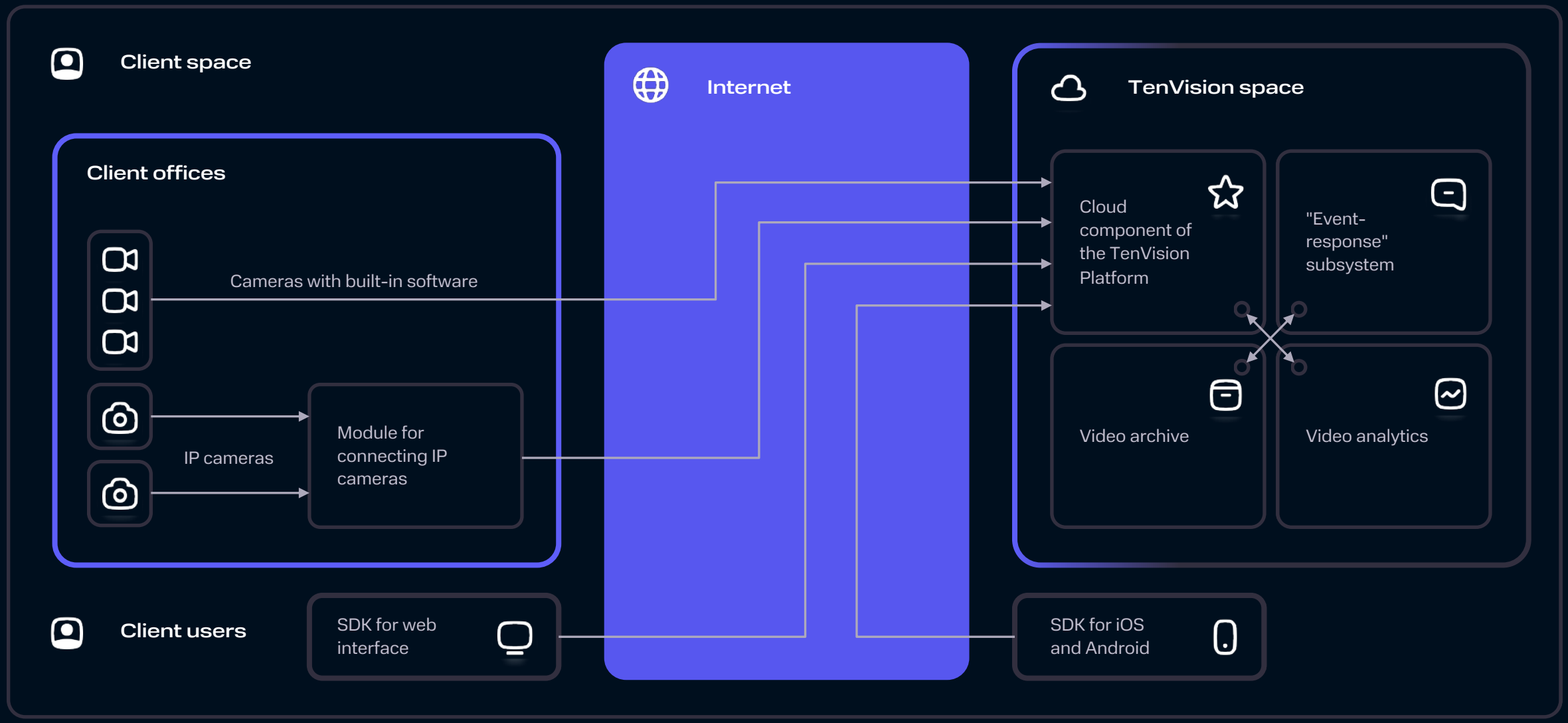
How can business use the detector?

Retail: gathering of information concerning the work of personnel, cases of late attendance, periods of absence in the store or office for managerial decision-making

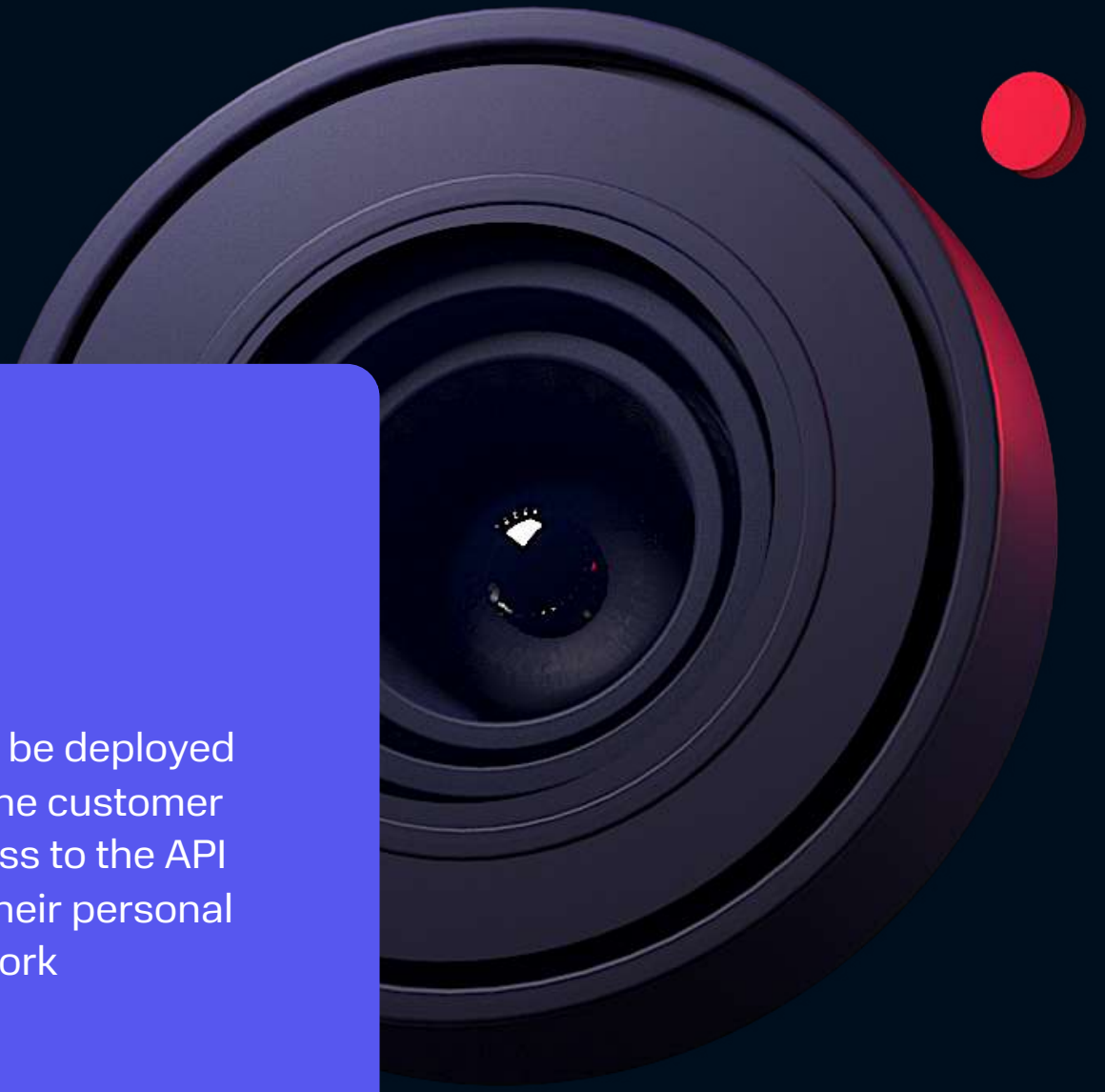
Manufacturing enterprises: control of shift changeover, absence at the workplace, etc.

TenVision Workflow

Deployment in cloud infrastructure



Distribution of TenVision



ON PREMISE

Cloud video surveillance and analytics service will be deployed within the customer's environment

CLOUD

TenVision will be deployed in the cloud, the customer receives access to the API and a link to their personal account for work

CAMERAS SUPPORTED BY TENVISION

CAMERAS EQUIPPED WITH TENVISION AGENT

For home use

Imou
C22/A22

Ezviz
C1C-B,
BC3 (2023)

Cloud VMS Agent software is installed on a camera, provides the opportunity to control its hardware and grants safe PnP access to it

Sunell PRO Series

CAMERAS with the built-in video analytics solve such business tasks as:

- counting of visitors
- detection of people and cars
- line crossing

With the use of these cameras, customers save money on the traffic and cloud calculations

IP CAMERAS

with the support of the ONVIF/RTSP protocol

You can use any available infrastructure and connect an IP camera of any manufacturer using ONVIF/RTSP protocols

START YOUR OWN AGENT FOR IP CAMERAS

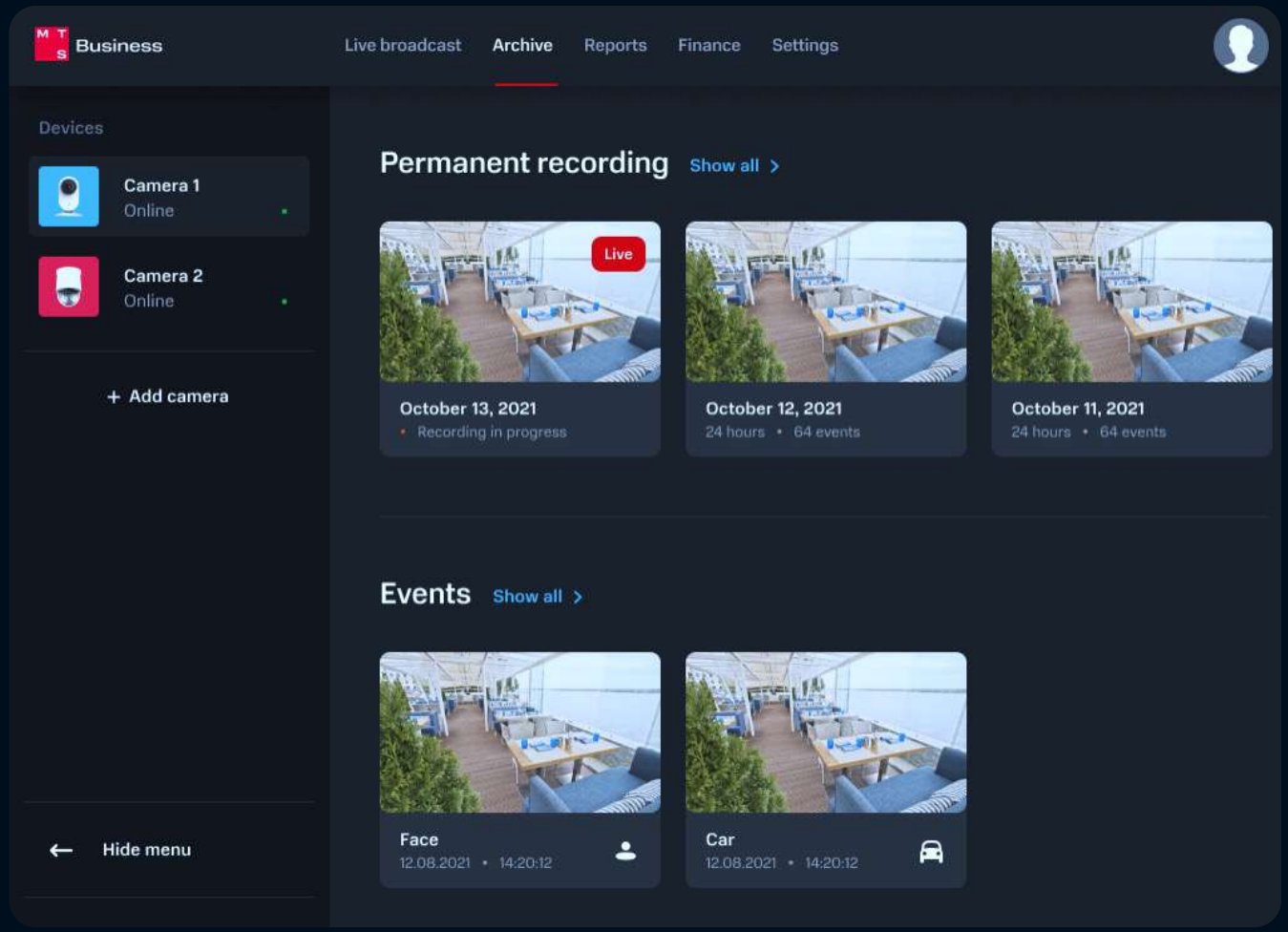
Agent development for IP cameras

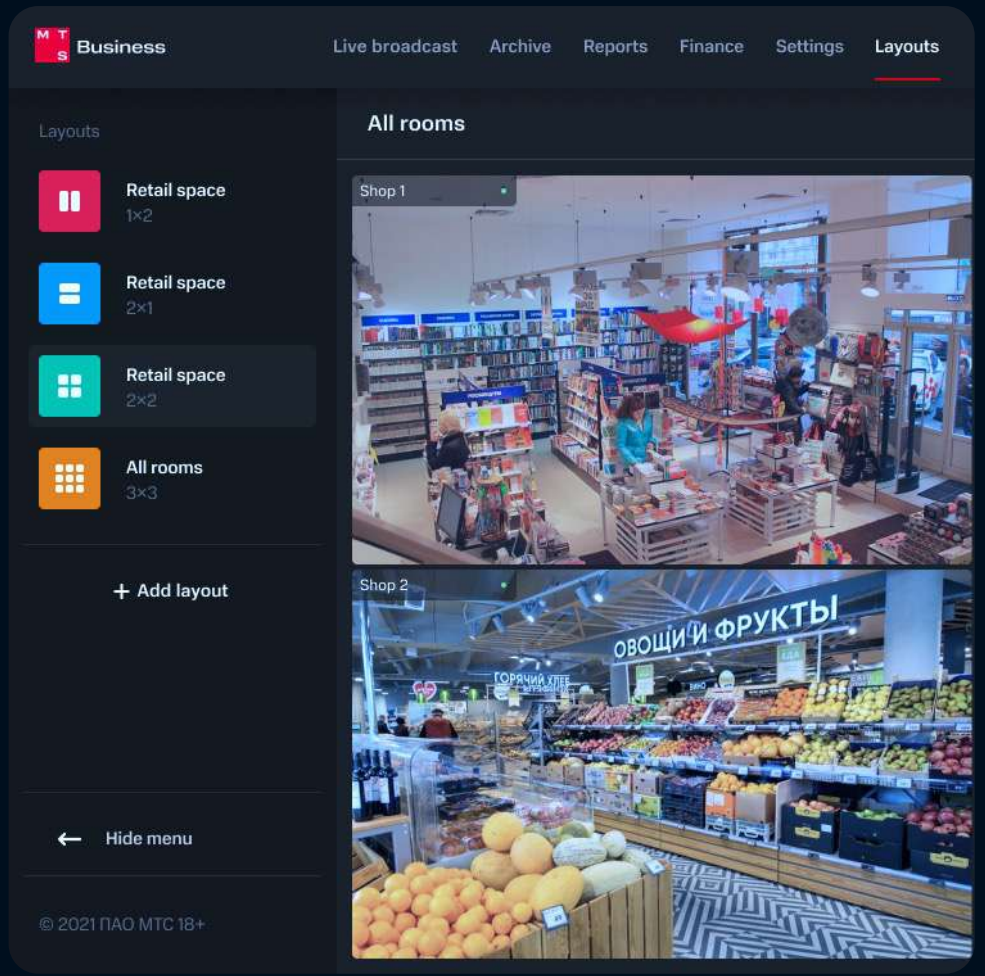
Software preparation period - from 2 weeks

TenVision interfaces

Making interaction with the service
understandable and comfortable

SCAN THE QR CODE AND
WATCH THE VIDEO ABOUT
TENVISION FUNCTIONALITY





Business cases of TenVision use

Creation
of a product
for the B2B market

Creation
of a complex
safety system

Increase
of work efficiency
of points of sale

MTS Video Surveillance for Business

TASK

Create a cloud video surveillance service with analytics for the B2B market in the SMB segment

SOLUTION

We have provided a video surveillance system, web and mobile applications on iOS and Android

Customized the service:

Enhanced the backend provider to implement business logic

Redesigned the application interfaces taking into account integration with MTS billing

Implemented integration with ecosystem modules: profile, tooltip, metrics

MTS AI has elaborated the Cloud Agent for cameras:

Implemented over-the-air camera software updates

Taught cameras to recognize different types of events

Implemented connecting cameras via QR code and ONVIF/RTSP protocols

Integrated 11 video analytics modules including:

- Visitor and lines counting
- Intrusion into zone and line crossing
- Object detection
- Heatmap
- Face recognition
- Personnel presence/absence monitoring

Plans:

Expanded integration scenarios based on business goals

Implemented different roles and access levels

Cloud Agent for new camera types

Implemented smart search and other features

RESULT

Within 3 months, we created the product “MTS Video Surveillance for Business” on the basis of TenVision and provided the software for cameras that ensures plug-and-play connection to the cloud service.

Currently the product is used by about 250 small and medium-sized companies.

Complex Safety System Gulfstream

TASK

Create a complex safety system equipped with video surveillance and analytics

ГОЛЬФСТРИМ
УМНЫЕ РЕШЕНИЯ ДЛЯ ЖИЗНИ

SOLUTION

We have provided a video surveillance system and a player designed to play videos in the Gulfstream application

We have elaborated the Cloud Agent:

- We have added the possibility to turn on the alarm in case of movement in the field of the camera or in case of its blanking
- Development of the “walkie-talkie” mode to communicate through the camera

Work in progress :

Viewing of the archive on the memory card through the cloud service

Simultaneous viewing of events that took place during the selected period of time

Connection of additional camera models, in particular self-contained ones

Recording video on a flash drive when there is no internet, uploading video to the cloud after the connection is restored

Pre-alarm function - pre-recording and archiving the event itself and the situation preceding it

RESULT

In 2 months we implemented a video surveillance system to work with video stream, archive and analytics, taking into account backend development on the customer side.

Provided camera software enabling plug-and-play connection to the cloud.

In total, 1,405 cameras are registered online in the Gulfstream video surveillance and analytics system.

Control of communications stores

TASK

Develop and implement a video analytics system in order to efficiently control the stores of a retail chain and increase sales

CHAIN OF COMMUNICATIONS STORES

SOLUTION

1. Analysis of business process and customer's needs
2. Testing of video analytics registering the opening and closing of stores, behavior of managers and customers, interest in display windows, time of waiting in the line and the number of people in it
3. Software elaboration and training of the neural network to recognize the silhouettes of new visitors (in collaboration with VisionLabs)
4. Software implementation and camera setup
5. System setup and improvement

RESULT

Timely receipt of objective video analytics data to make managerial decisions.

Expected effect:

- Sales increase for 3%-5%
- Staff downsizing for 20%
- Covering of the activities of 100% of communications stores

Compatibility with other MTS AI products

TAKE ADVANTAGE OF TENVISION CAPABILITIES IN COMBINATION WITH AUDIOGRAM

AUDIOGRAM —

is an intelligent speech synthesis and recognition platform

Configure sound detection in surveillance camera frames, and use Audiogram to transcribe what people in the video are saying

Infrastructure requirements

Deployment in cloud infrastructure

Number of cameras (users)	CPU - Intel Xeon Gold 6240 2,6 GHz	RAM	HDD
5 000 (500)	116	404 Gb RAM	5 340 Gb HDD
10 000 (1000)	220	767 Gb RAM	12 920 Gb HDD
50 000 (5000)	1072	3732 Gb RAM	17 040 Gb HDD
100 000 (10 000)	2137	7436 Gb RAM	23 220 Gb HDD

Hybrid deployment

To implement a hybrid usage scenario, the TenVision platform provides the TenVision VMS service as a downloadable package for x86, ARM platforms and as a Docker container for Linux.

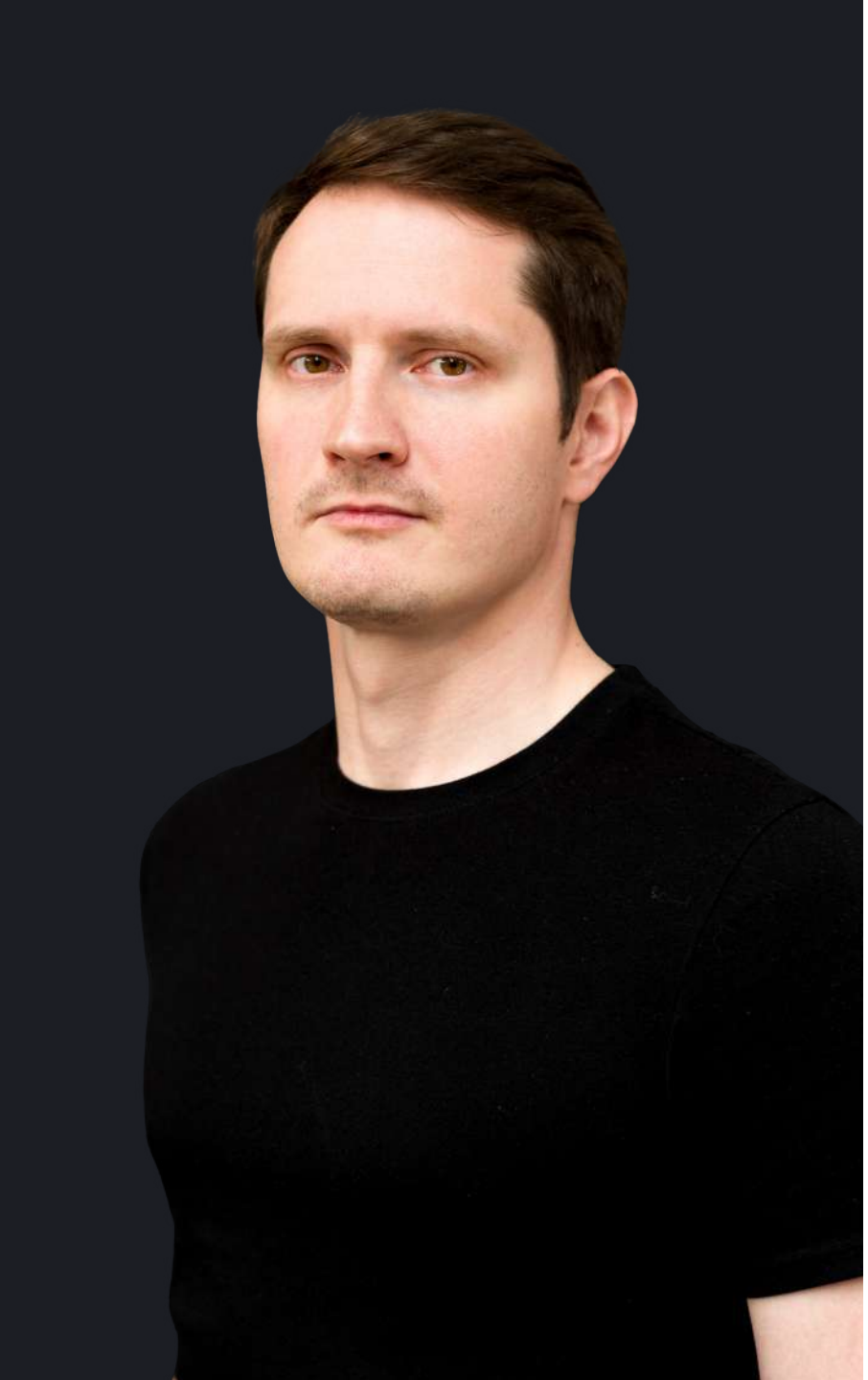
The server can run on ARM platforms such as Raspberry PI, NVIDIA Jetson and others.

Examples of server hardware requirements:

20 channels 2 Mbps - 4 GB RAM, Atom

20 channels 2 Mbps — 4 GB RAM, Raspberry PI 4

50 channels 2 Mbps — 8 GB RAM, i3



DMITRY CHERNOUS

MTS AI Business Development Manager

Scan the QR code, make an appointment and ask all your questions