



Monitoring System

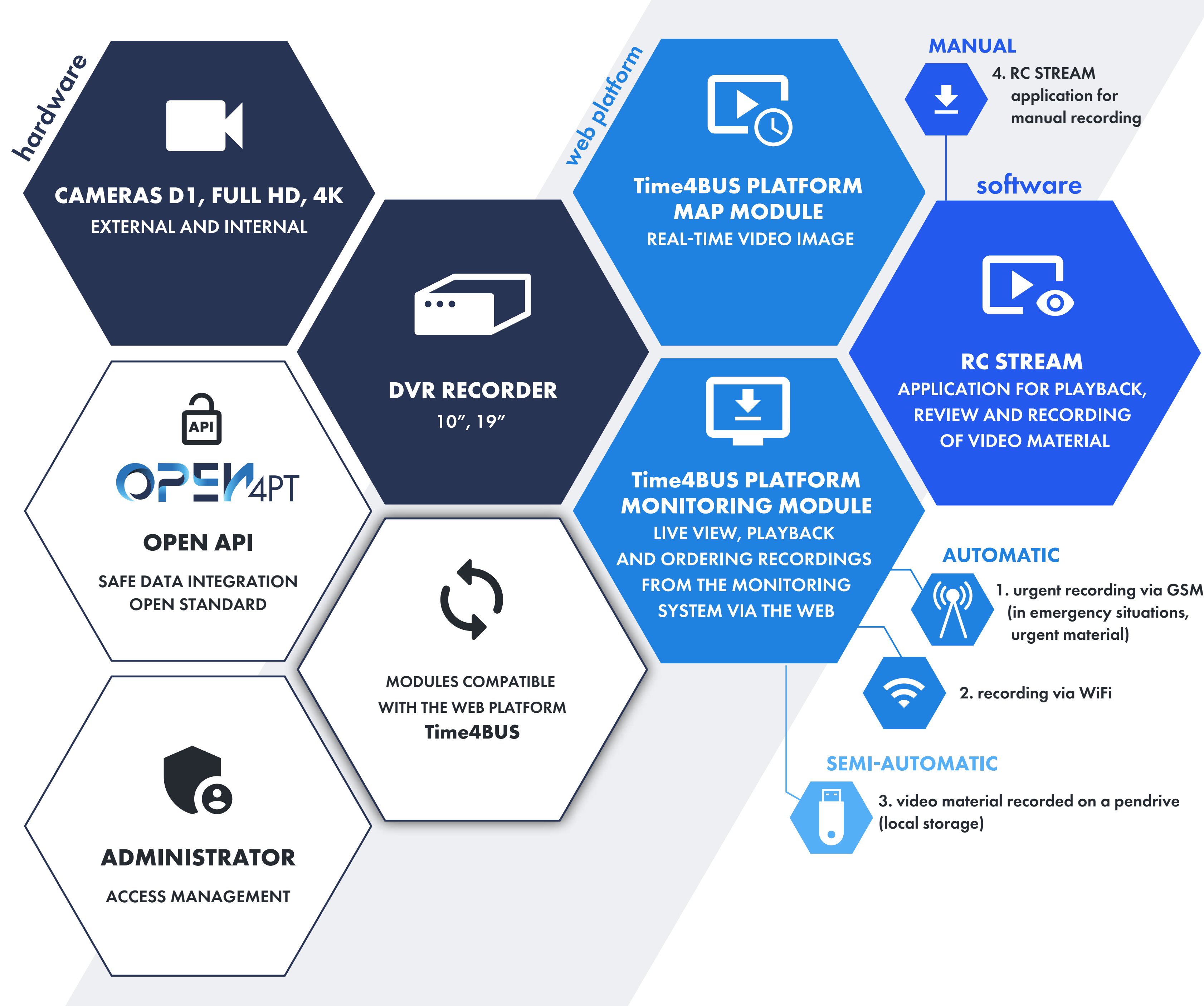
genesismobo.com

Monitoring System (structure)

Time4BUS Platform:
platform integrating all modules, open standards, access rights management

Devices (hardware):
r10" and 19" recorders, D1, full HD, 4K cameras

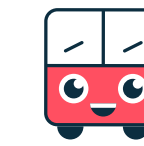
Software (software):
applications for viewing, playing and recording video material from the vehicle



1



Time4BUS PLATFORM compatible modules



Time**4**BUS PLATFORM

A web-based system available through a web browser. It allows multiple users to have simultaneous access. The application does not require installation and is independent of the user's systems and computers. The application is also supported and updated by the contractor. The system has a modular architecture that allows for the configuration of selected applications.



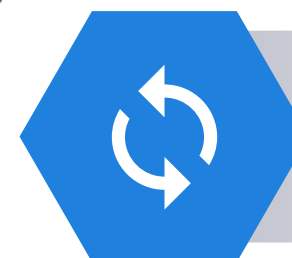
REMOTE DATA ACCESS



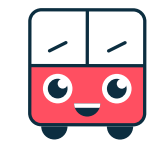
MULTI-STATION



SECURITY



ONLINE SUPPORT AND UPDATES

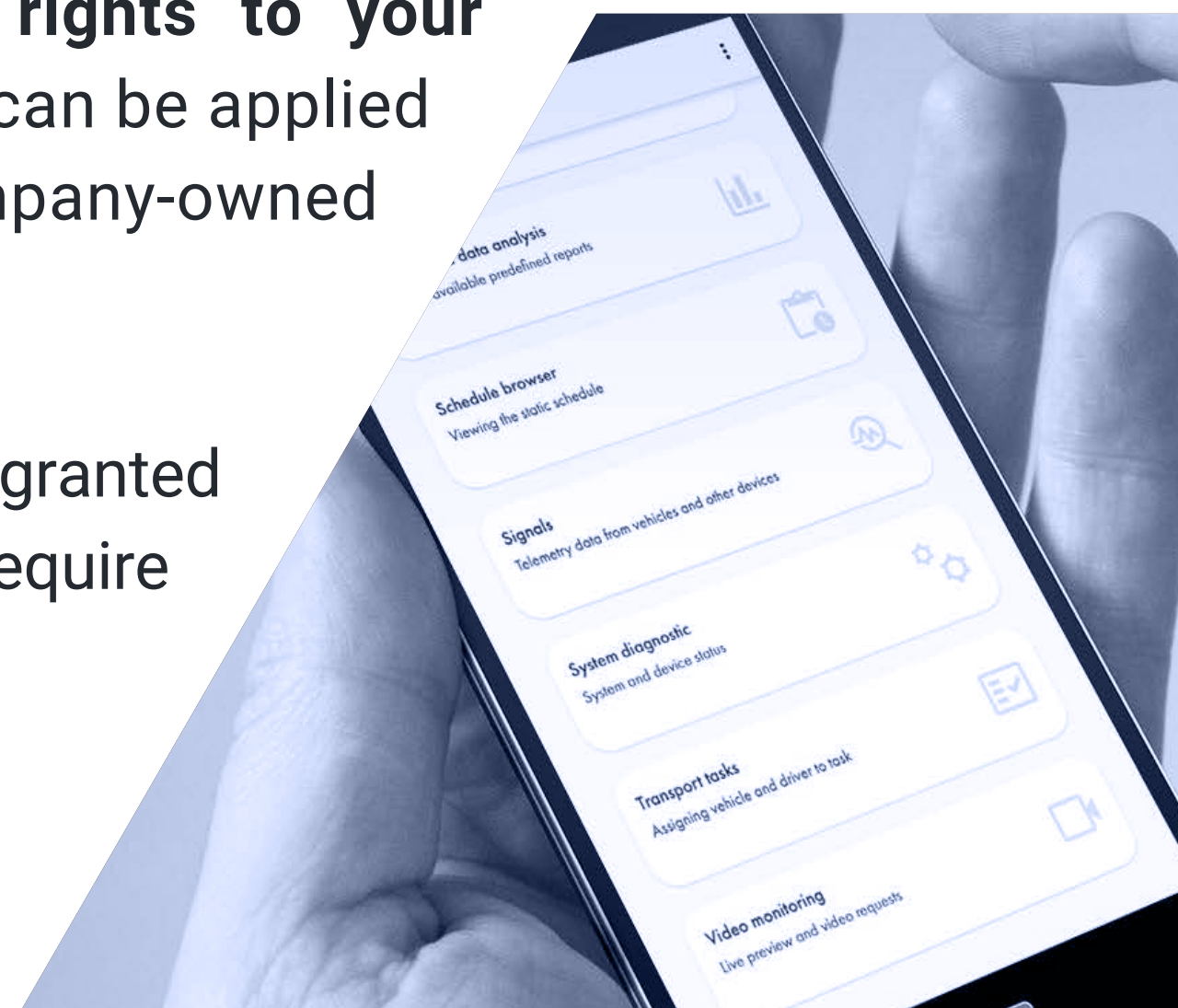


Administrator access rights

WEB PLATFORM modern client-server system

The system allows you to assign access rights to your employees and external agencies. Restrictions can be applied to access to system functionalities and to company-owned objects (e.g., vehicles).

Access rights are managed by the client, who is granted administrator status. Managing access rights does not require the intervention of the contractor.



3



System based on open standards

OPEN 4PT



OPENNESS

practical and safe company development:

- integration with other systems and devices
- possibility of replacement or expansion
- cooperation of devices and systems from different manufacturers



FULL DOCUMENTATION

- data transparency
- systemized dictionaries
- normalized issues
- description of needs and requirements
- possible implementations



STANDARDIZATION

KMQTTD

communication between devices

KMQTTC

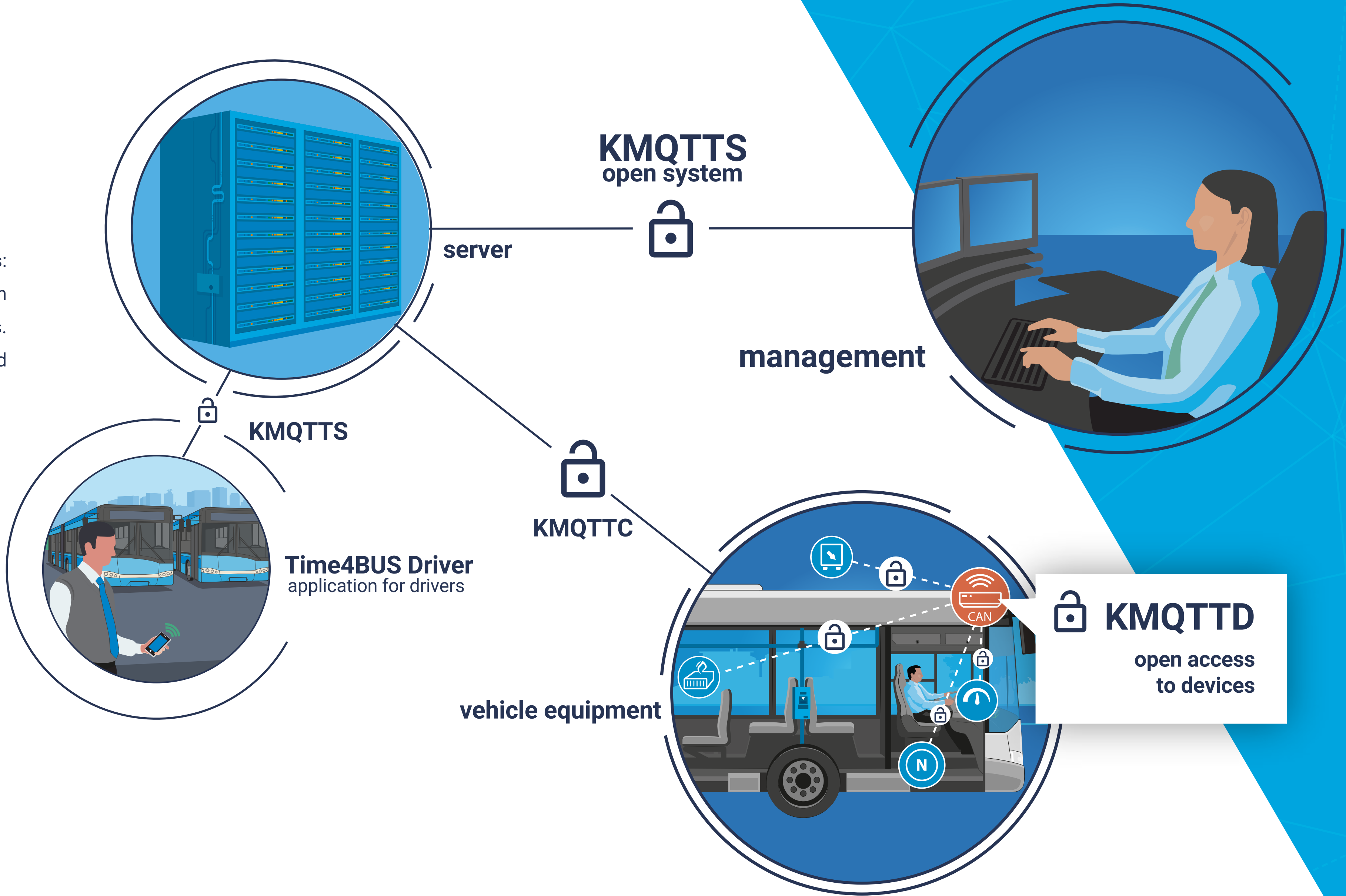
communication standard between vehicle and server

KMQTTS

communication standard between server and applications

OPEN4PT

The system architecture consists of three areas: vehicle, vehicle-server, server-applications. Each of these three areas is defined by descriptions. The system description concerns the method of presenting data availability or exchange.



OPEN₄PT

1

device replacement

You can replace any device with a device from another manufacturer, leaving the rest of the system unchanged and without losing the required functionalities..

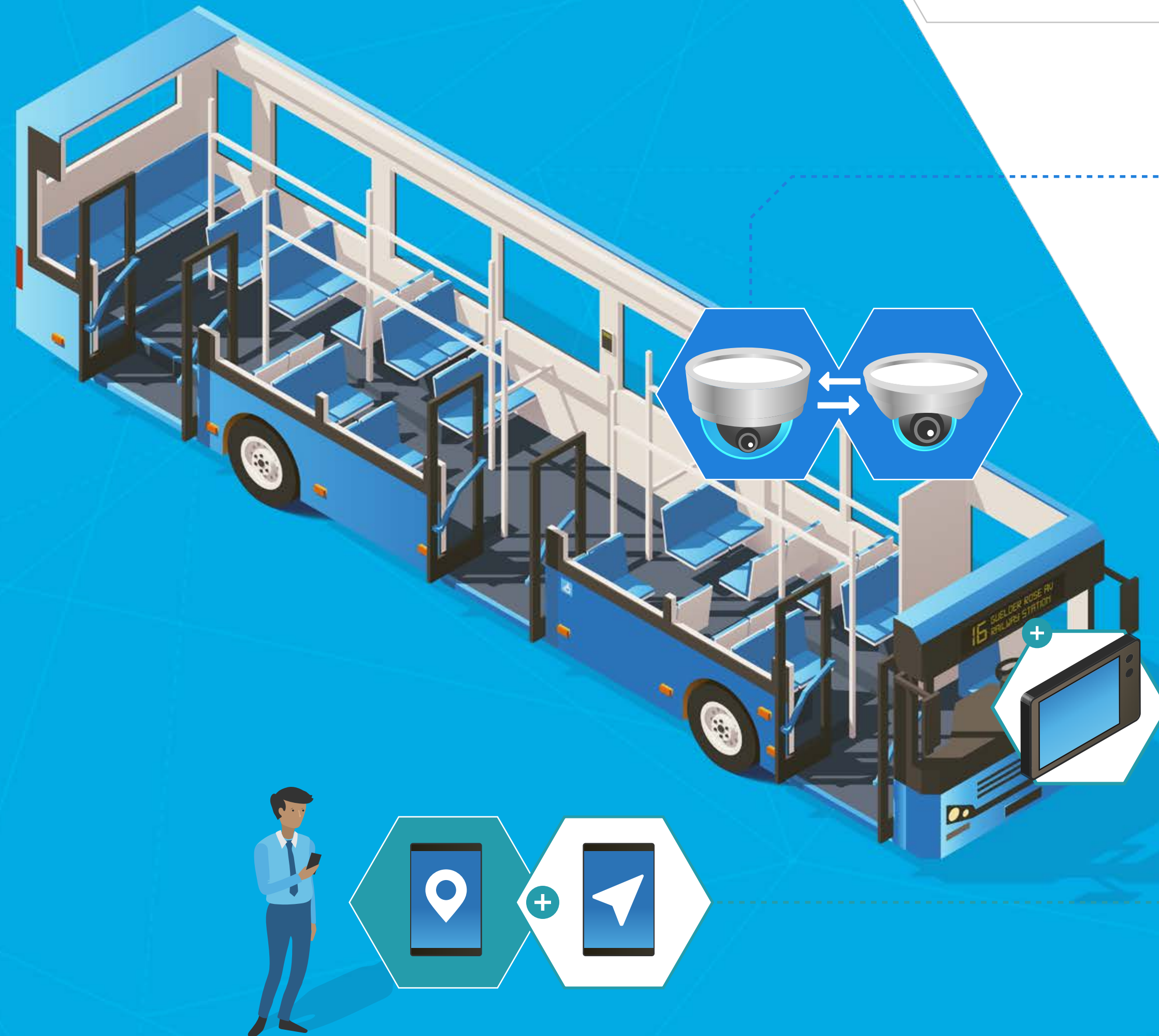
2

adding a new device

It is possible to add new devices later.

adding new functionalities

Implementation of new applications on existing devices to increase functionality.



Wide integration capabilities

the system enables cooperation with external monitoring systems

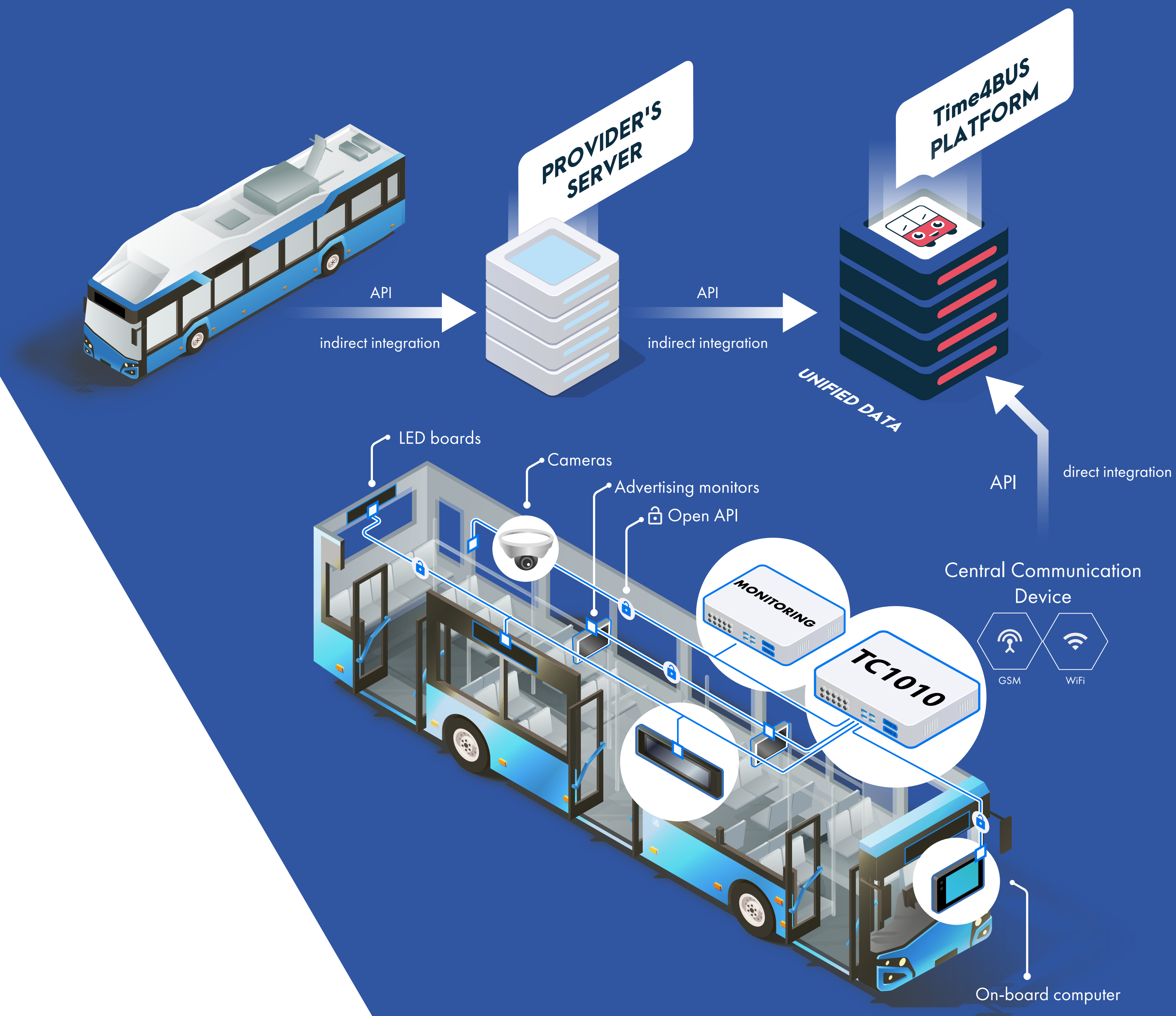
possible integration models with other monitoring providers:

1. direct integration

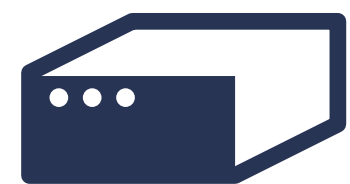
from the central communication device
Time4BUS TC1010

2. indirect integration

using the device and server of the provider



4a



DVR RECORDER
10" | 19"

ADVANTAGES OF THE SYSTEM

- SIMPLICITY AND MINIMIZATION OF OPERATION
- AUTODIAGNOSTICS
- CLEAR DASHBOARD INFORMING ABOUT SYSTEM EFFICIENCY
- MONITORING IN HARSH OPERATING CONDITIONS
- RESISTANCE TO MECHANICAL DAMAGE
- CAMERAS RECORD IN COMPLETE DARKNESS
- MINIMAL MAINTENANCE ACTIVITIES
- MATERIAL FROM THE RECORDER HAS TIME MARKERS AND APPLIED VEHICLE NUMBERS
- FREE SOFTWARE FOR OPERATION
- PLAYBACK OF MATERIAL IS POSSIBLE ON ANY COMPUTER OR DVD PLAYER

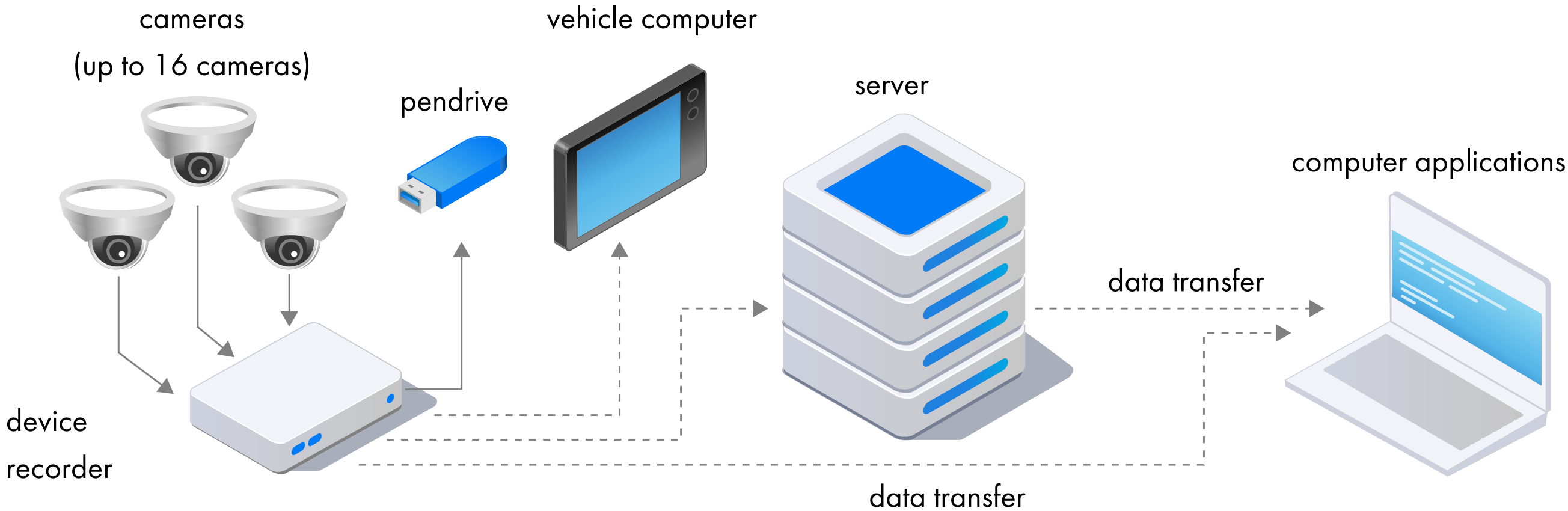


Monitoring System

WE ARE A DESIGNER AND MANUFACTURER OF HYBRID VISUAL MONITORING SYSTEMS

Our company has integrated the data recording solutions of DVR, IDVR and AHD DVR recorders with video file archiving and distribution systems for the target recipient. The platform we present is a modern and comprehensive solution that provides various ways of archiving data and online viewing. The system includes recording devices, multifunctional external and internal full HD vision cameras, and software.

The system supports up to 16 cameras, so it can be adapted to the size of the company. The recording system has several ways of obtaining video materials. Recording in the vehicle on a pendrive, automatic recording to the server at the depot via WiFi or in real time for urgent matters via GSM.



Hardware Devices

autodiagnostics, operation in harsh conditions, resistance to mechanical damage



Server

secure data storage and transfer



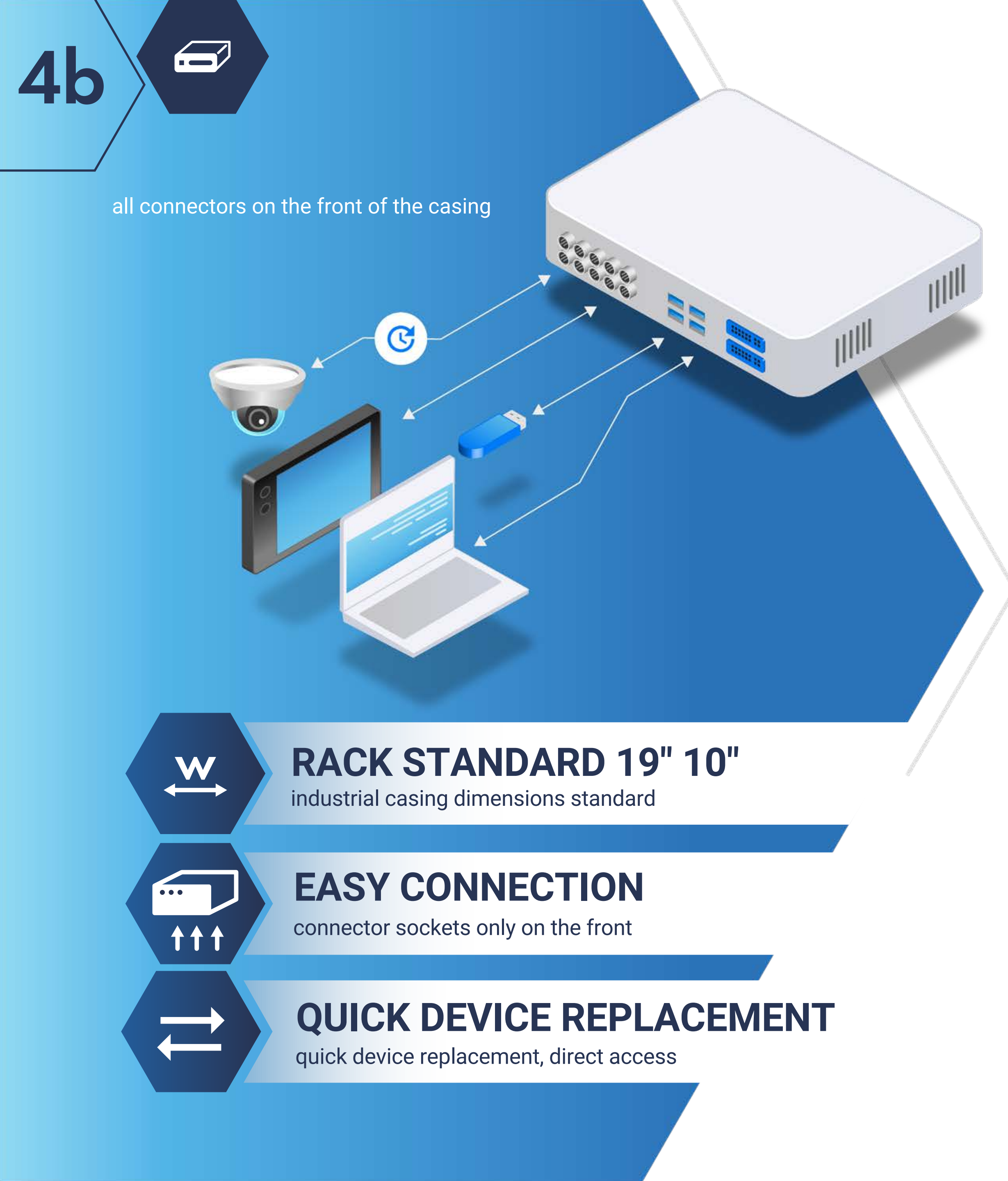
Software Applications

automation, simple operation, various solutions adapted to needs



Advantages of streaming monitoring

- possibility of processing data directly on the recording device (not in the cameras)
- uncompressed image can be transmitted without delays to the driver's screen (e.g., mirror function)
- possibility of adding text and markers to the image before compression (avoiding manipulation that occurs with CSV files attached in other systems)
- fast synchronization after reconnecting the recorder, restarting or temporary camera disconnection, up to several seconds (much faster than with IP monitoring)
- functionality can be expanded by changing the software directly on the device, there is no need to update the software in the cameras



Streaming monitoring, recorder RS2019



Recorder parameters:

- recording 400 frames per second,
- possibility of recording in high definition HD1, AHD-L, AHD-M, Full-HD, 4K
- cameras with night vision capability, with their own light source
- supports up to 16 cameras
- codecs H.264/AVI, H265, H264+
- possibility of recording an image to a hard disk, pendrive/SD card, CF
- hard drives 2>6 HDD
- possibility of transmitting recordings to an FTP server
- motion detection, masking detection, configurable alarms
- two-way audio, 2.4GHz, 5GHz
- WiFi standard support, communication up to 150 Mbps
- outputs RS 232, RS 422/RS 485, RJ 45, M12
- SIP: Possibility of overlaying the current line direction, route and speed
- possibility of overlaying the number of passengers counted on the image
- remote recording at the depot via WiFi and GSM

homologated device

processor

size 19"

shock-resistant

industrial standards

autodiagnostics

online update

resistant to weather conditions

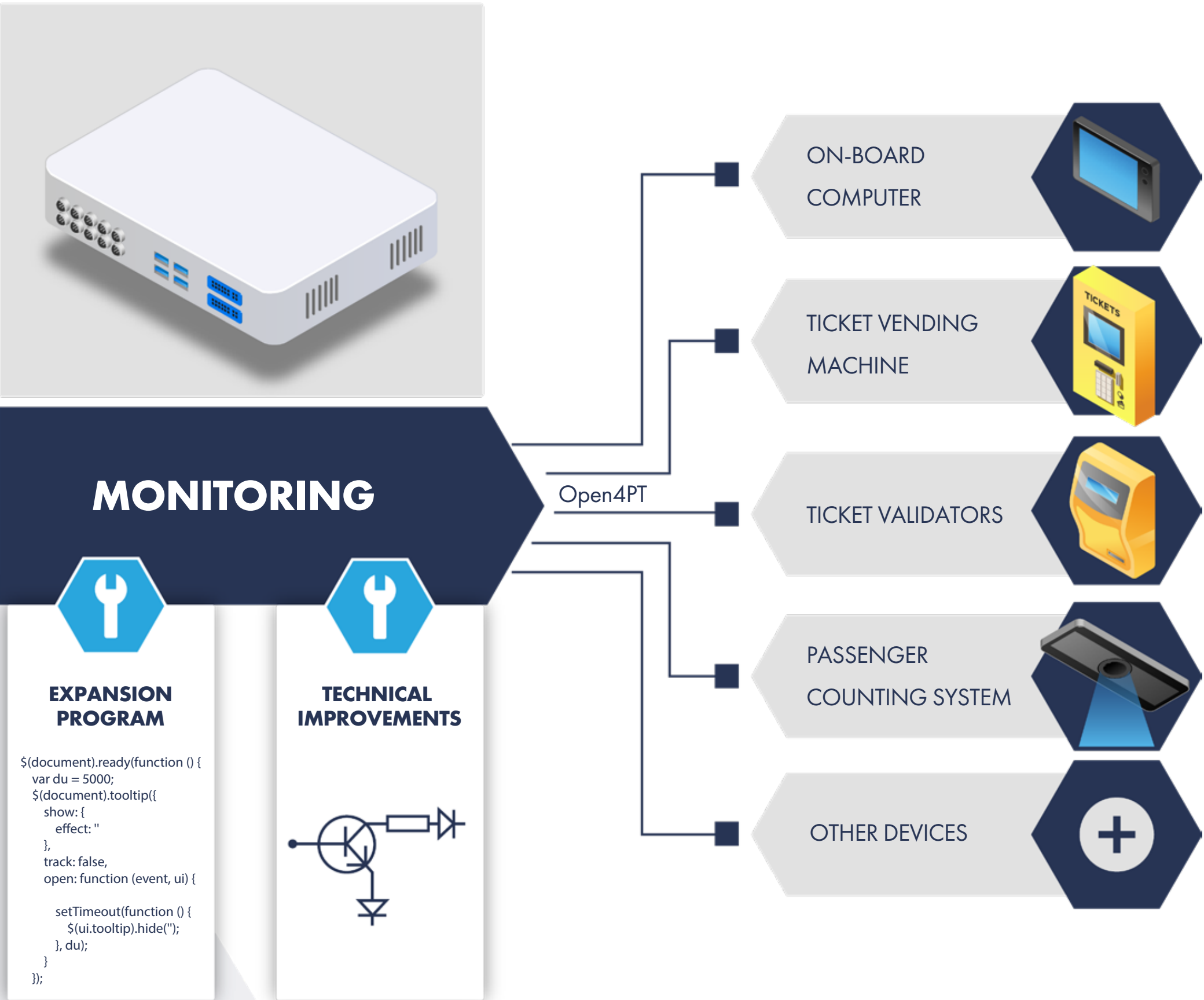
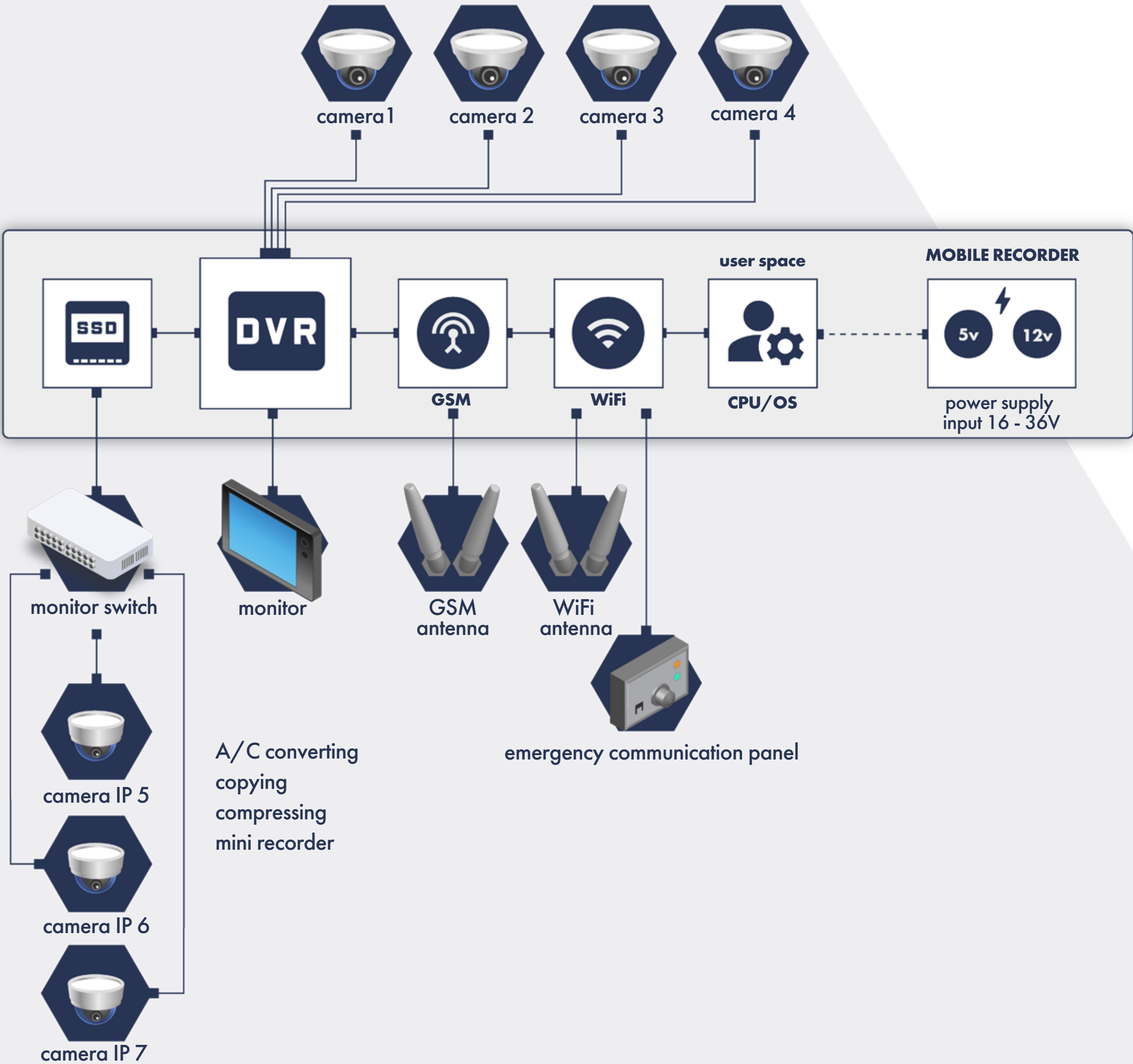
energy-saving

low noise emission

Functionality and ease of use

The visual monitoring recorder records and stores the image from the cameras connected to it. It has built-in WiFi, GPS location and GPRS data transmission. The recorder has implemented modules for expansion and connection to an extensive vehicle management structure. The device can be freely modified and adapted to the needs of the client. Our products are homologated by the Automotive Industry Institute and have a certificate for use in vehicles.

System Topology

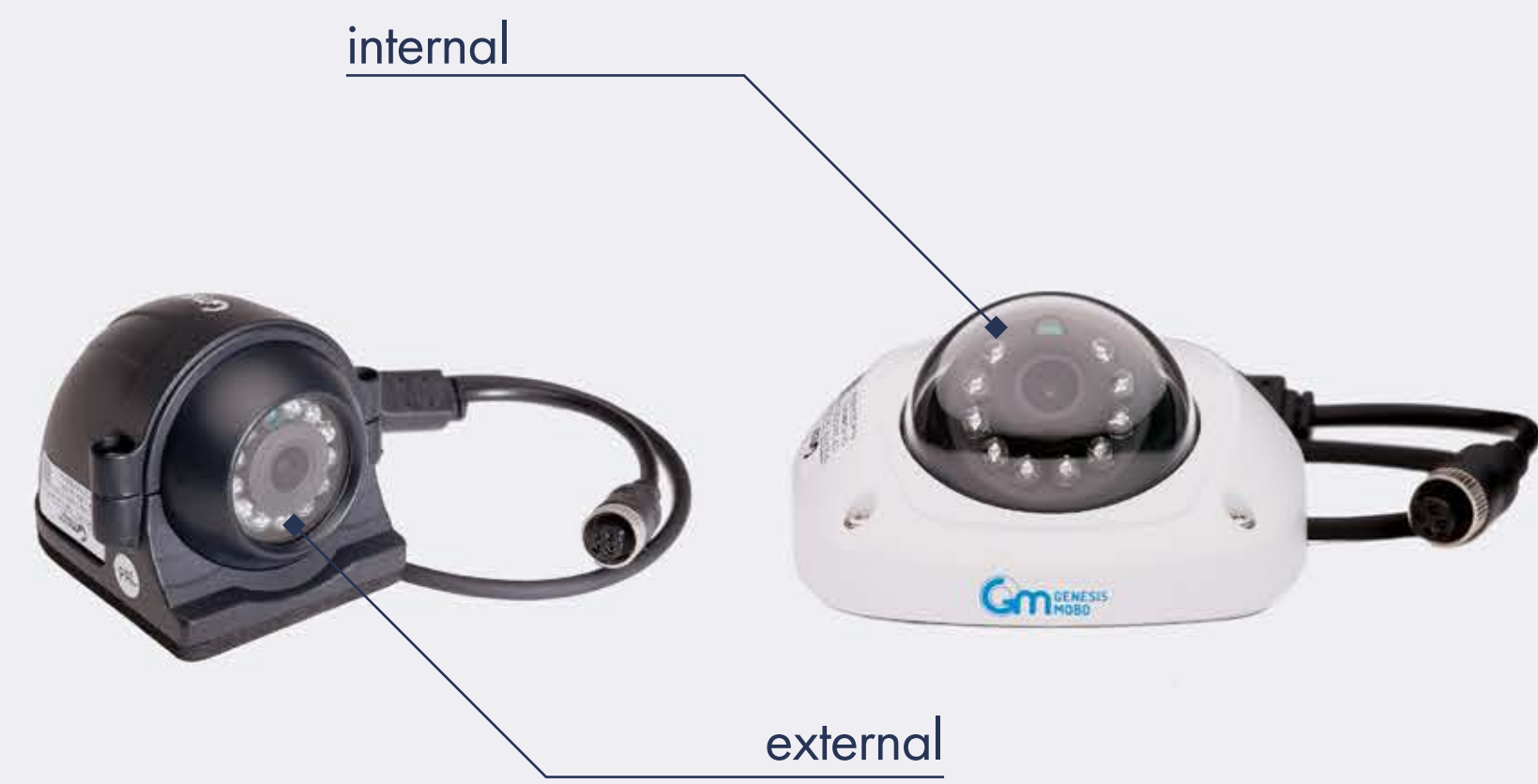




D1, FULL HD, 4K CAMERAS
OUTDOOR AND INDOOR

External and internal cameras

- very good image quality both day and night
- possibility of free configuration of individual camera components
- metal casing



AHD cameras

Power Supply	12V
Power Consumption	<5W
Sensor	1/2.8" 1.3 Megapixel Sony CMOS Sensor
Resolution	280x720, 1280x960, 1920x1080
Min. Illumination	Color: 0.1 lux@(F1.2, AGC on) B/W: 0.01 lux@(F1.2, AGC on)
Shutter	NTS: 1/60~1/100000, PAL: 1/50~110000
Lens	Selectable: 1.8, 2.1, 2.8, 3.6, 4, 6, 8 mm
Signal	PAL/NTSC
IR	LEDs with a range of 10 m
S/N Ratio	Over 58 dB
Temperature Range	From -30°C to +70°C



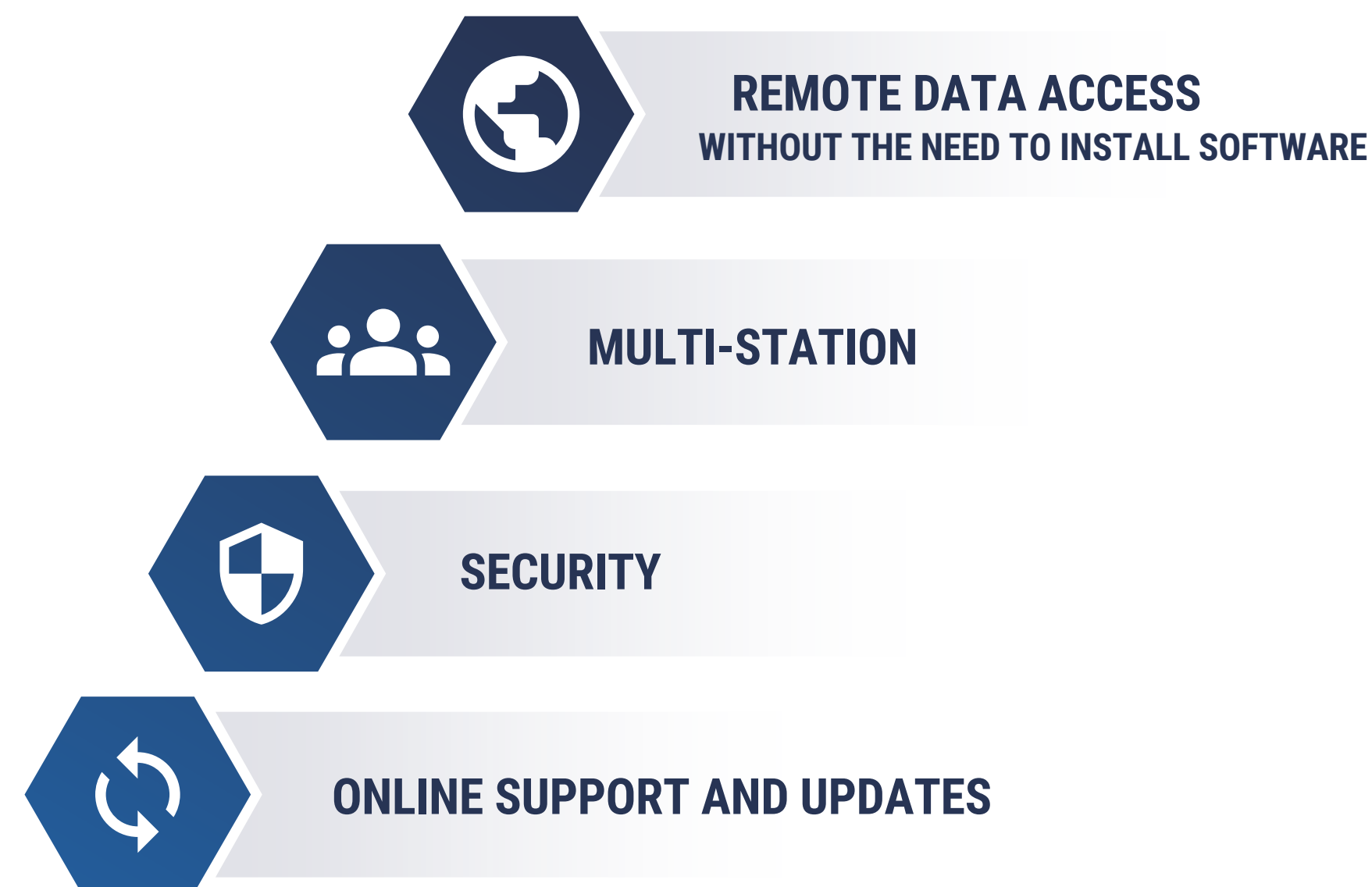
IP cameras

Power Supply	12V, IEEE802.3af PoE
Power Consumption	<5W
Sensor	2.0 Megapixel Sony CMOS
Resolution	1280x720, 1280x960, 1920x1080
Min. Illumination	0.01 Lux/F1.2 (Color), 0.001 Lux/F1.2 (B/W)
Shutter	Auto
Lens	Selectable: 1.8, 2.1, 2.8, 3.6, 4, 6, 8 mm
Video Compression	H.264 / H.265
IR	LEDs with a range of 10m to 15m
Bit Rate	256 kb/s ~ 8000 kb/s
Stream	NPAPI FLASH; RTMP PUSH; RTSP; HTTP Streamer, MJPEG snapshot, RTSP multicast, Optional IPTV and TS
Audio	G.711A, G.711U, AAC (optional PCM)
Intelligent PIR detection,	Privacy Masking, Motion Detection, Abnormality: Network disconnection, Device startup
Temperature range	From -40°C to +60°C

6a



**Time4BUS PLATFORM
MONITORING MODULE**
LIVE VIEW, PLAYBACK AND
ORDERING RECORDINGS
FROM THE MONITORING
SYSTEM VIA THE WEB

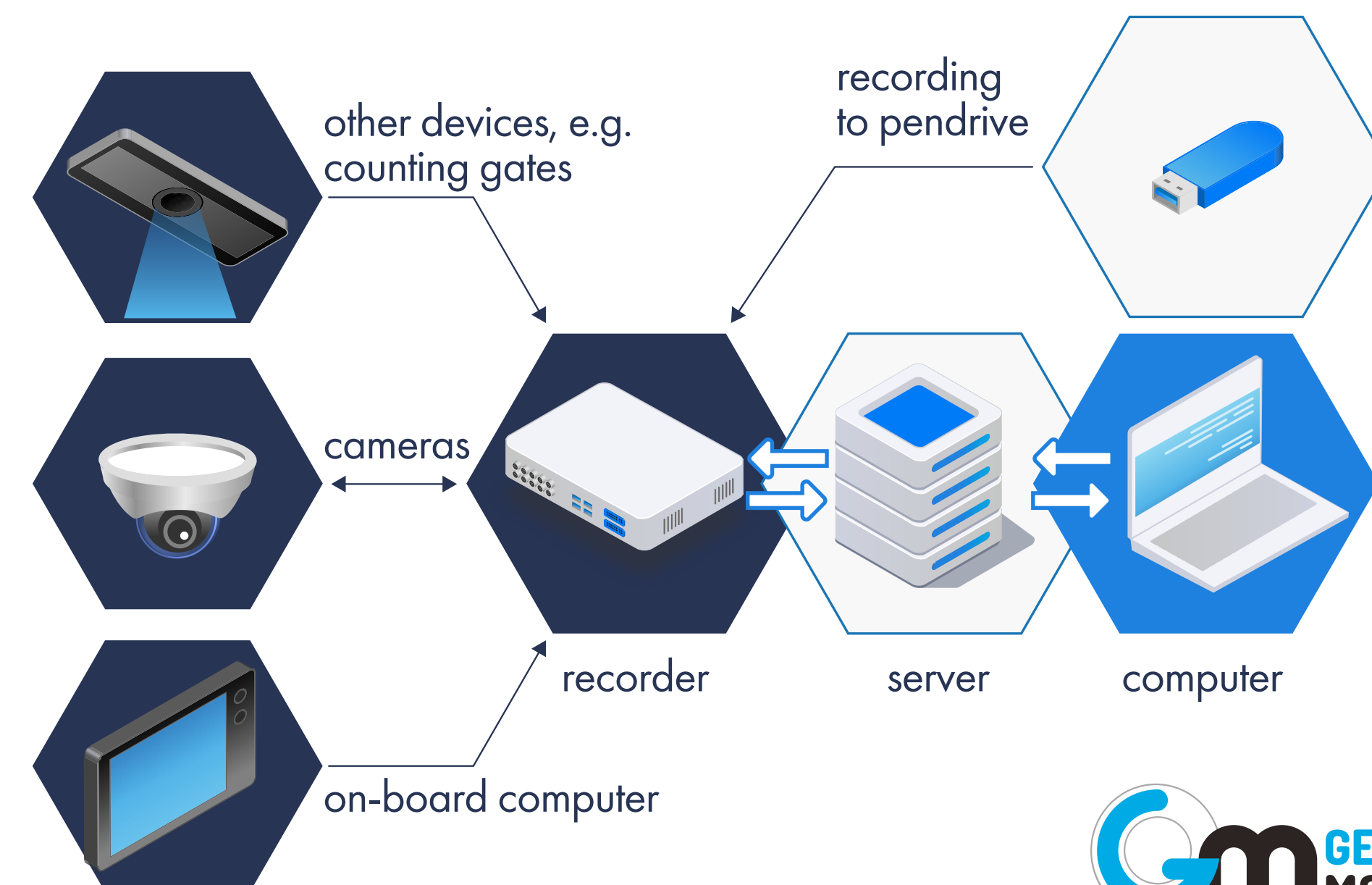


Monitoring Module

Remote video material management

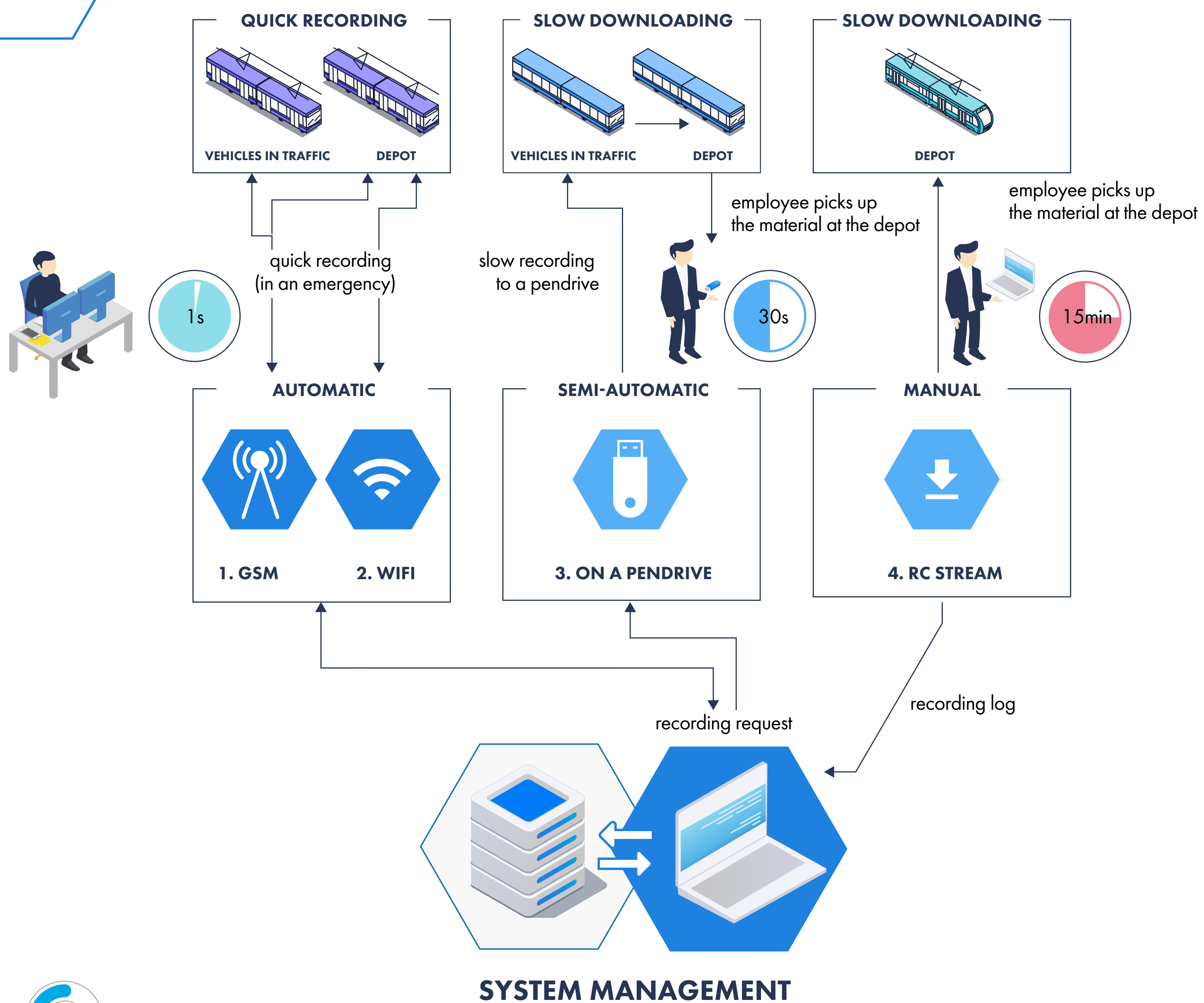
The application allows you to submit a request for video material and specify the mode of obtaining it:

- the system will start recording the material immediately via a GSM link
- the system will start recording the material immediately when the vehicle arrives at the depot, using a WiFi network
- the system will secure the material on a pendrive while the vehicle is in motion
- the user can record the video material manually, using the RC Stream application





POSSIBLE METHODS OF OBTAINING A RECORDING



Monitoring Module Remote video material management

Advantages of the monitoring recording database:

- simple procedures for logging and filtering for information
- reviewing notes about events to be secured in the comments
- quick information about the request.

Using the web platform, the user can remotely order a video recording from the recording device in a selected vehicle. Depending on the need and situation, the application allows for various methods of securing video material. In emergency situations, when urgent retrieval of a recording is required, the user can use automatic recording via GSM - very fast data transfer directly from the vehicle to the server or via WiFi - in this case, the material is recorded after the vehicle arrives at the depot.

Semi-automatic recording involves placing an order in the system. Recording in the selected vehicle will begin immediately after the order is placed. The video will be recorded on a pendrive connected to the recording device (or other data carrier). After the process is completed, the recording can be picked up directly from the vehicle.

Manual recording, using the RC Stream application, involves connecting a laptop to the recorder in the vehicle. The application has preview functions, which makes it easier to select the range of material to download. The monitoring module records a log of the recordings.

6c



Monitoring Module

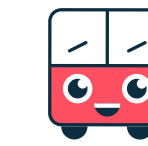
Automatic Recording

1. Downloading via GSM in emergency situations

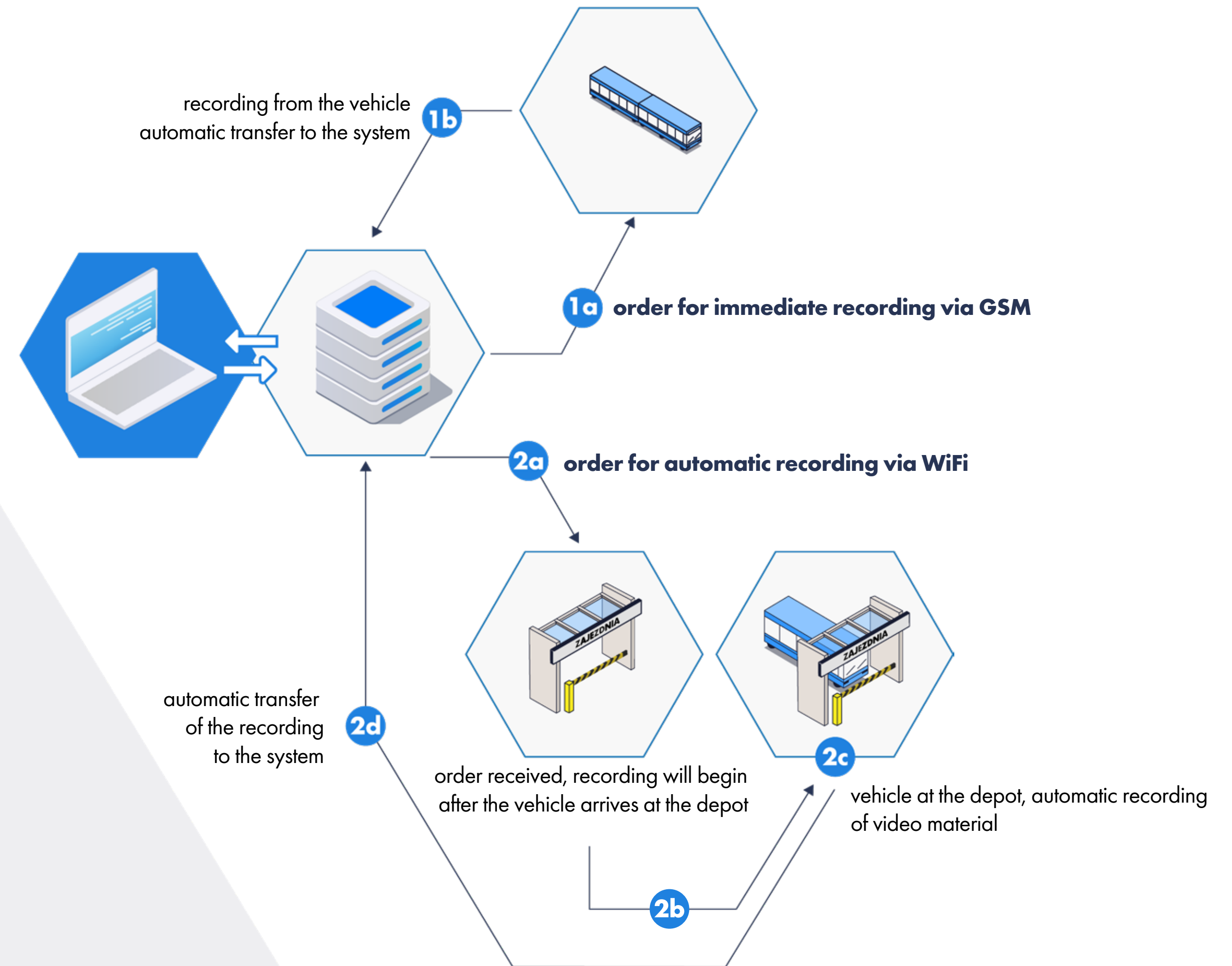
when urgent video is required, the user can use automatic recording via GSM - very fast data transfer directly from the vehicle to the server

2. Recording via WiFi

The video recording order is executed automatically immediately after the vehicle arrives at the depot, the material is downloaded directly to the server.



Time4BUS PLATFORM

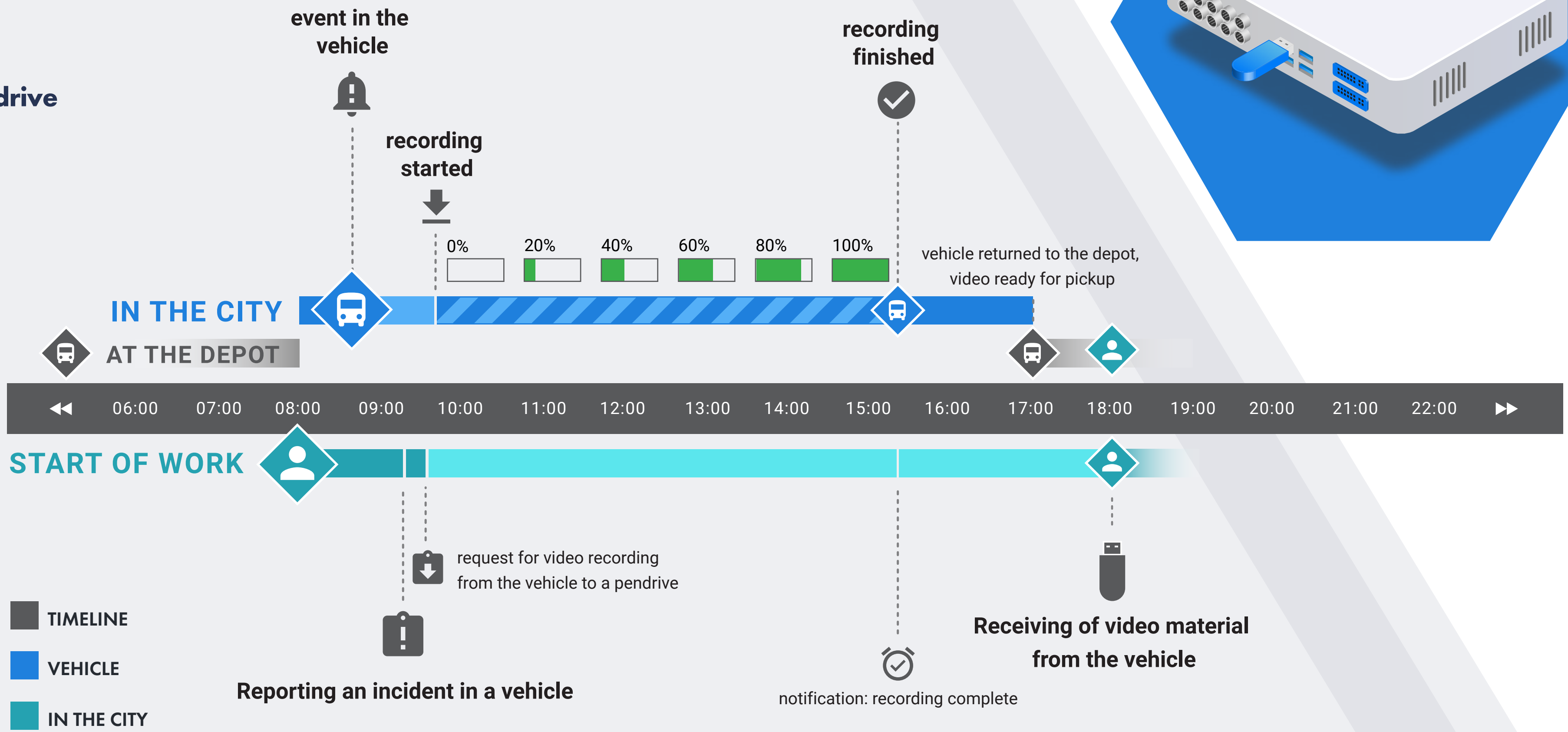


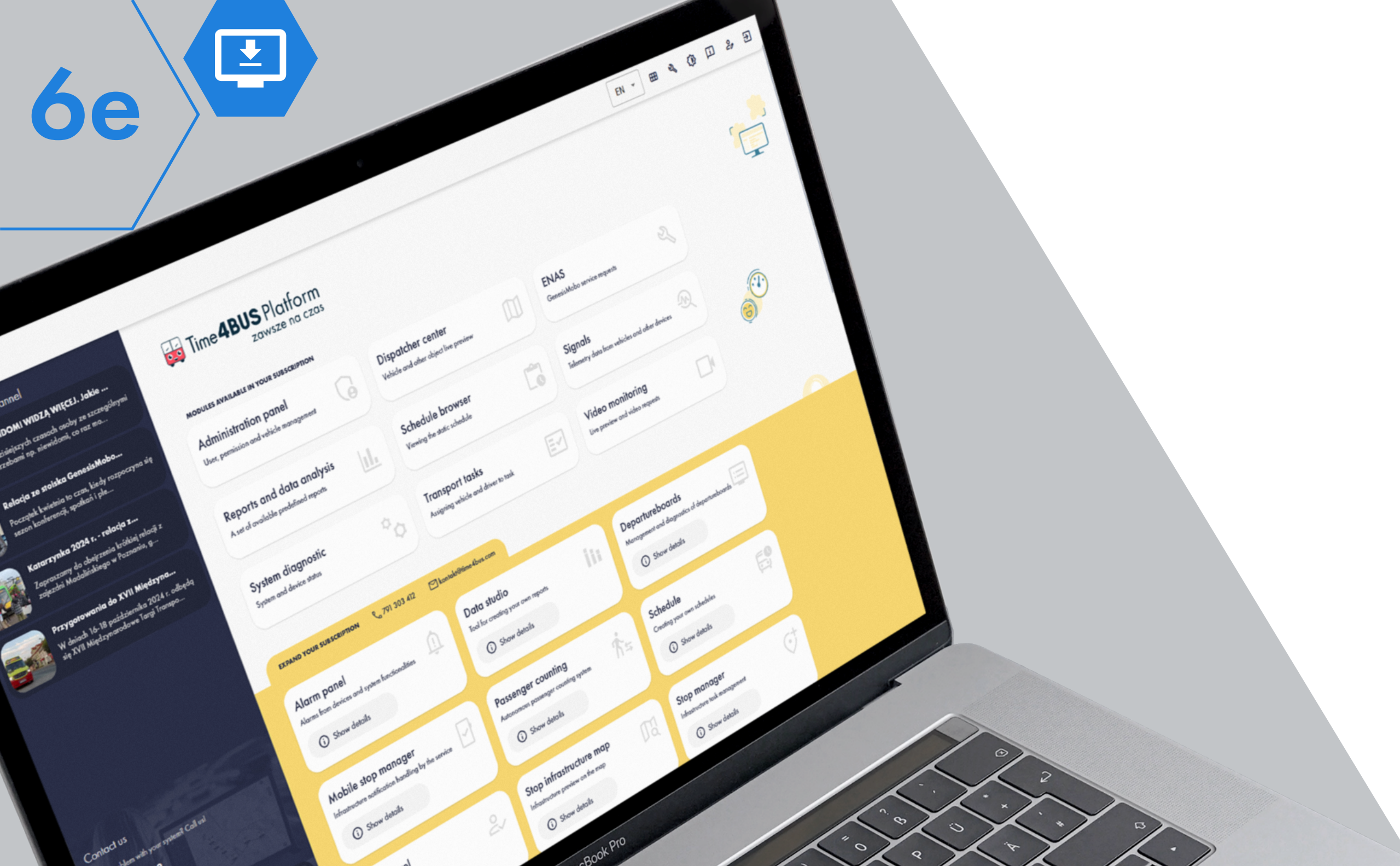


Monitoring Module

Semi-automatic Recording

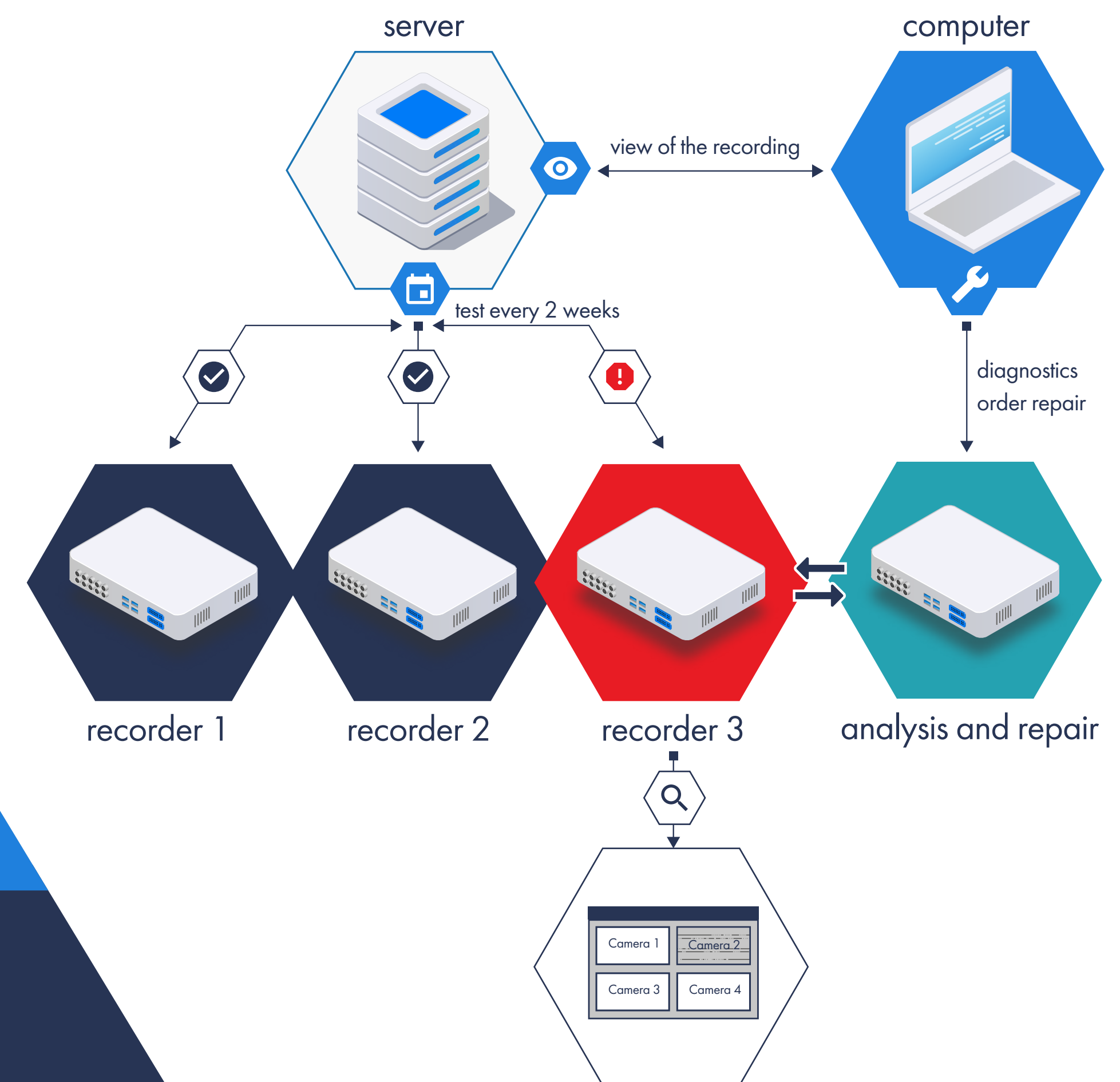
recording video material on a pendrive
(or other local storage)





Monitoring Module Remote video material management - automatic diagnostics

The monitoring module has been expanded with automatic diagnostics that reports errors. Every two weeks, the program randomly downloads video material from randomly selected vehicles, which is then analyzed for recording gaps. The user can review and verify the diagnostic recording.



Monitoring Module

Remote video material management

- adding requests

Application form

- simple, intuitive interface
- preliminary verification of entered data

Confirmation of application

- quick and simple confirmation of the application
- the form also contains detailed parameters of the vehicle and the monitoring system

Monitoring

English (UK)

+ New request

REQUESTS

▶ Current requests

✓ Ended requests

📅 All requests

PREVIEW

📺 Live preview

← New recording request

✓ SAVE

Recording data

Vehicle *

Status

Record type *

Date from *

Time from *

Date to *

Time to *

Priority *

Normal

Applicant

Comment

Cameras

Select vehicle to view available cameras

Request data

Application ID type

Application ID

Incoming letter

Outgoing letter

Notifying person

Notification date

Handover person

Handover date

Completion

Order history of vehicle

Select vehicle to view history

Monitoring Module

Remote video

material management

- log of applications

List of current applications

- full history review
- quick search for information on a single recording
- additional information about the selected vehicle, such as: number of cameras, recorder type, vehicle depot, details of the person submitting the request, date of the recording request and others

Monitoring

English (UK)

+ New request

EXPORT CSV

ID

Side number

Depot

Search

Handover date

Items per page 20

1 - 20 of 39

Request number	Side number	Recorder	Depot	Submitter	Applicant	Recording from	Recording to	Added	Cameras	Comment	Application ID type	Application ID	Status	Priority	Is delivered
C: 27430 S: 16576	5435	Macrosystem Genesis - 10 cams.	R-4			09/09/2025 15:50	09/09/2025 16:15	22/09/2025 09:55	1 2 3 4 5 6 7 8 9 10	-	Email	32172	Accepted	Normal	No
C: 27429 S: 16575	5428	Macrosystem Genesis - 10 cams.	R-4			09/09/2025 15:35	09/09/2025 16:05	22/09/2025 09:52	1 2 3 4 5 6 7 8 9 10	-	Email	32172	Accepted	Normal	No
C: 27428 S: 16574	8362	Macrosystem Elcab B - 10 cams.	R-6			13/09/2025 15:30	13/09/2025 16:00	22/09/2025 09:25	1 2 3 4 5 6 7 8 9 10	-	Email	32170	Accepted	Normal	No
C: 27427 S: 16573	7245	RG Genesis - 10 cams.	R-2			18/09/2025 06:55	18/09/2025 07:35	22/09/2025 08:10	1 2 3 4 5 6 7 8 9 10	Register of damage FFU - KI/W/PN/5762/25	Other	FFU.406.7.231.2025	Accepted	Normal	No
C: 27426 S: 16572	7709	SolarisGenesis - 10 cams.	R-3			13/09/2025 11:50	13/09/2025 12:50	22/09/2025 07:58	1 2 3 4 5 6 7 8 9 10	-	Email	32171	Accepted	Normal	No
C: 27424 S: 16570	2257	RG Genesis - 10 cams.	R-2			17/09/2025 17:45	17/09/2025 18:20	22/09/2025 07:09	1 2 3 4 5 6 7 8 9 10	Register of damage FFU - KI/W/PN/5762/25	Other	FFU.406.7.229.2025	Accepted	Normal	No
C: 27423 S: 16559	2253	RG Genesis - 10 cams.	R-2			18/09/2025 17:00	18/09/2025 17:20	19/09/2025 14:25	1 2 3 4 5 6 7 8 9 10	Complaint by driver	Other	Wniosek kierowcy	Downloading	Normal	Yes
C: 27422 S: 16558	5446	Macrosystem Genesis - 10 cams.	R-4			22/08/2025 21:40	22/08/2025 22:10	19/09/2025 14:25	1 2 3 4 5 6 7 8 9 10	KSP	-	-	Downloading	Normal	Yes
C: 27421 S: 16557	5457	Macrosystem Genesis - 10 cams.	R-4			22/08/2025 21:40	22/08/2025 22:10	19/09/2025 14:24	1 2 3 4 5 6 7 8 9 10	KSP	-	-	Downloading	Normal	Yes
C: 27420 S: 16556	3448	Genesis - 10 cams.	R-4			22/08/2025 21:40	22/08/2025 22:10	19/09/2025 14:23	1 2 3 4 5 6 7 8 9 10	KSP	-	-	Downloading	Normal	Yes
C: 27419 S: 16555	8876	Genesis - 6 cams.	R-4			22/08/2025 21:40	22/08/2025 22:10	19/09/2025 14:22	1 2 3 4 5 6	KSP	-	-	Downloading	Normal	Yes



- access rights

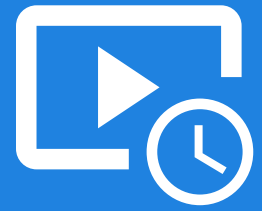
for specific user groups.



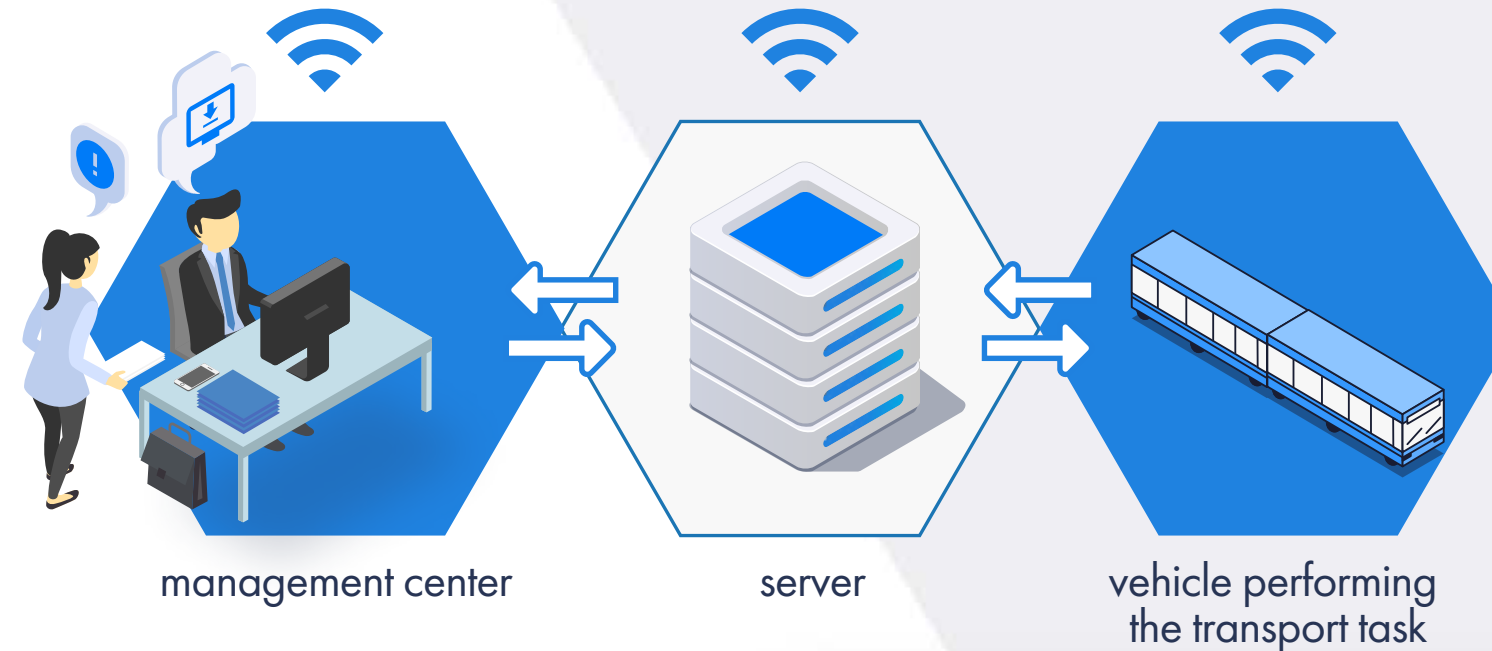
Panel of the administrator

The Roles / Edit the role

☒ Monitoring of the vision (Added 3 of 3) Wound up and roll up		
☒ Preview of the orders	☒ Add an order	
☒ Access to video preview		
☐ Member profile (Added 0 of 0) Expand the Expansion		
☒ Data reports and analysis (Added 2 of 2) Wound up and roll up		
☒ Administration of the reports	☒ Generating of reports	
☐ Transport tasks (Added 0 of 2) Expand the Expansion		



Time4BUS PLATFORM MAP MODULE REAL-TIME VIDEO IMAGE



Real-time view and vehicle data in one window

In the map module on the Time4BUS platform, the user can view the image from a selected vehicle camera in real time. The vehicle's location and its telemetry data are presented on the map. Only users with appropriate permissions can use the live view function.

Dispatcher center English (UK)

Trip ID: 5983 Variation: -4 min

DATA

5983 KP	5983 KK	5983 D1	5983 D2
5983 D3	5983 D4	5983 KT	5983 BP
5983 BL	5983 BT		

Carrier: [Bar chart]

Department: [Bar chart]

Work number: [Bar chart]

Filling / capacity: 11/-

Route length: 12.93 km

Direction: Esperanto

Last activity: 22/09/2025 13:36:57

VID: [Bar chart]

Service: 111/PCs/8

Driver: [Bar chart]

Battery level: 56%

Speed: 0 km/h

Vehicle: Solaris U18E

Power source: Electrical / Battery

Service from - to: 05:37 - 23:40

Shift from - to: 06:06 - 15:45

Route: TP-ESP

Internal temp.: 22°C

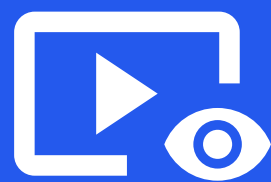
Register number: [Bar chart]

Data source: KON1

Position: [Map]

Vehicle kilometrage: [Bar chart]

Map View: A detailed map of Warsaw showing the bus route. The bus is currently at the 'Esperanto' stop. The route is marked with a blue line. A live video feed of the bus is shown in the bottom left corner.



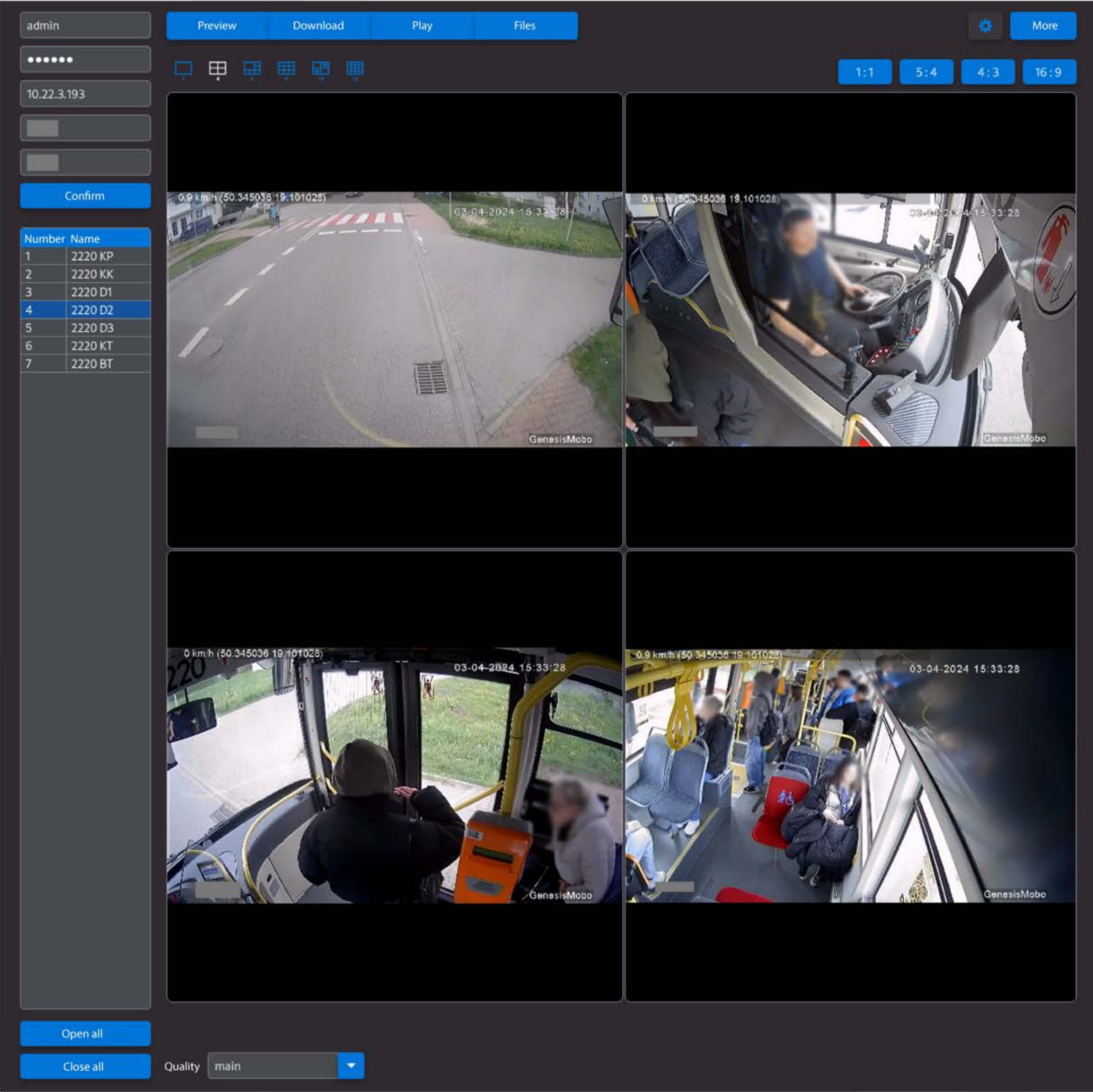
RC STREAM

APPLICATION FOR PLAYBACK,
REVIEW AND RECORDING
OF VIDEO MATERIAL

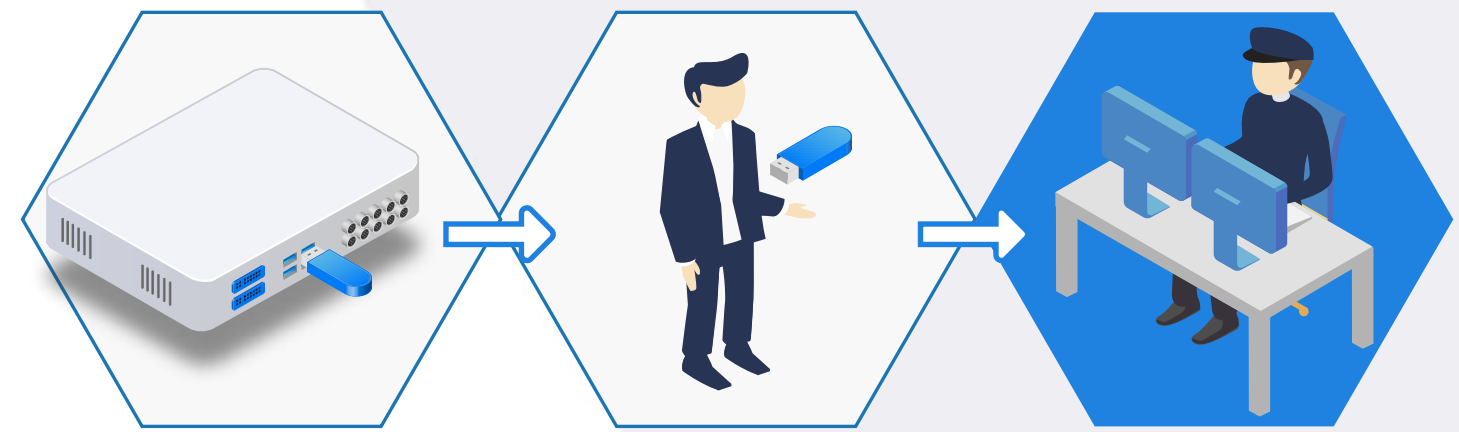
RC Stream application

Video material recording directly from the vehicle

RC Stream allows for viewing and securing video material in real time and archived directly from the vehicle. The camera preview is configurable, the user can watch the image from one camera or several at the same time. The application is installed on the laptop of the authorized person.



8b



video material recording transfer by an employee access to archived data



RC Stream application

Video material recording directly from the vehicle

In addition to the camera preview, the application displays the bus's position on the map at the time of recording and vehicle data, e.g., line number or vehicle side number.

admin

.....

10.22.3.193

Confirm

Number	Name
1	2220 KP
2	2220 KK
3	2220 D1
4	2220 D2
5	2220 D3
6	2220 KT
7	2220 BT

Open all

Close all

Quality main

PreviewDownloadPlayFiles

1:15:44:316:9

0.9 km/h (50.345036 19.101028)

03-04-2024 15:33:28

GenesisMobo

0.9 km/h (50.345036 19.101028)

03-04-2024 15:33:28

GenesisMobo

0.9 km/h (50.345036 19.101028)

03-04-2024 15:33:28

GenesisMobo

0.9 km/h (50.345036 19.101028)

03-04-2024 15:33:28

GenesisMobo

850/1

778

850/1

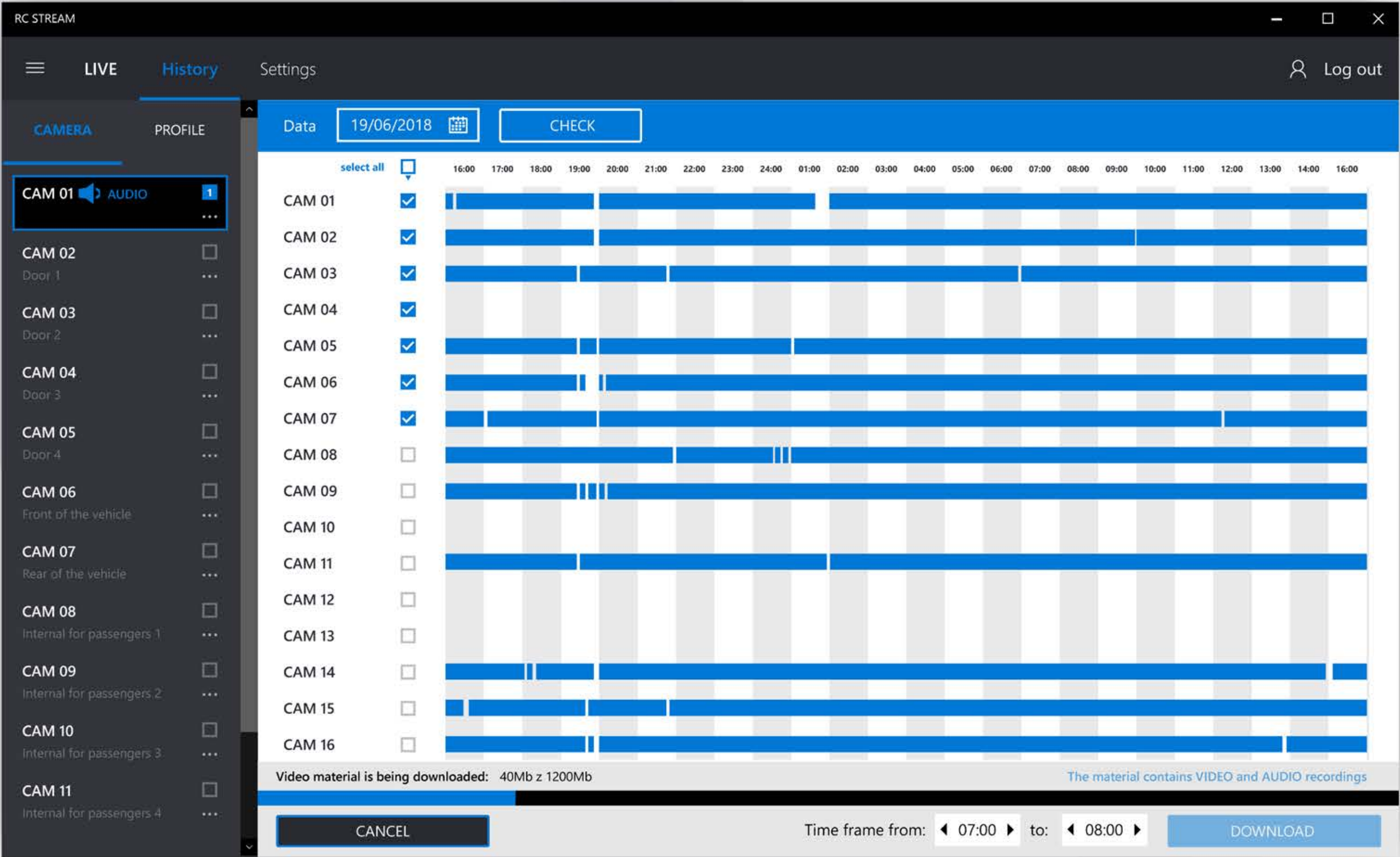
GenesisMobo



RC Stream application

Video material recording directly from the vehicle

In the archived view, the application shows a timeline of the recordings from individual cameras. The user can select the date range, time interval, and cameras from which they intend to secure the video material.





Thank you for your attention

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