

# LUMINATOR TECHNOLOGY GROUP

Mobitec



LUMINATOR  
TECHNOLOGY GROUP

INFORMATION FOR PEOPLE GOING PLACES

June 2017



TwinVision®

BMG | MIS  
Luminator Technology Group

invertag

AXION  
TECHNOLOGIES

mobitec  
A WORLD OF SIGNS



FOCON  
Your solution with our knowledge

Luminator  
An LTG Company

Gorba

POLLO  
Apollo Video Technology

LAWO  
Luminator Technology Group

# GLOBAL FOOTPRINT SERVICE NETWORK



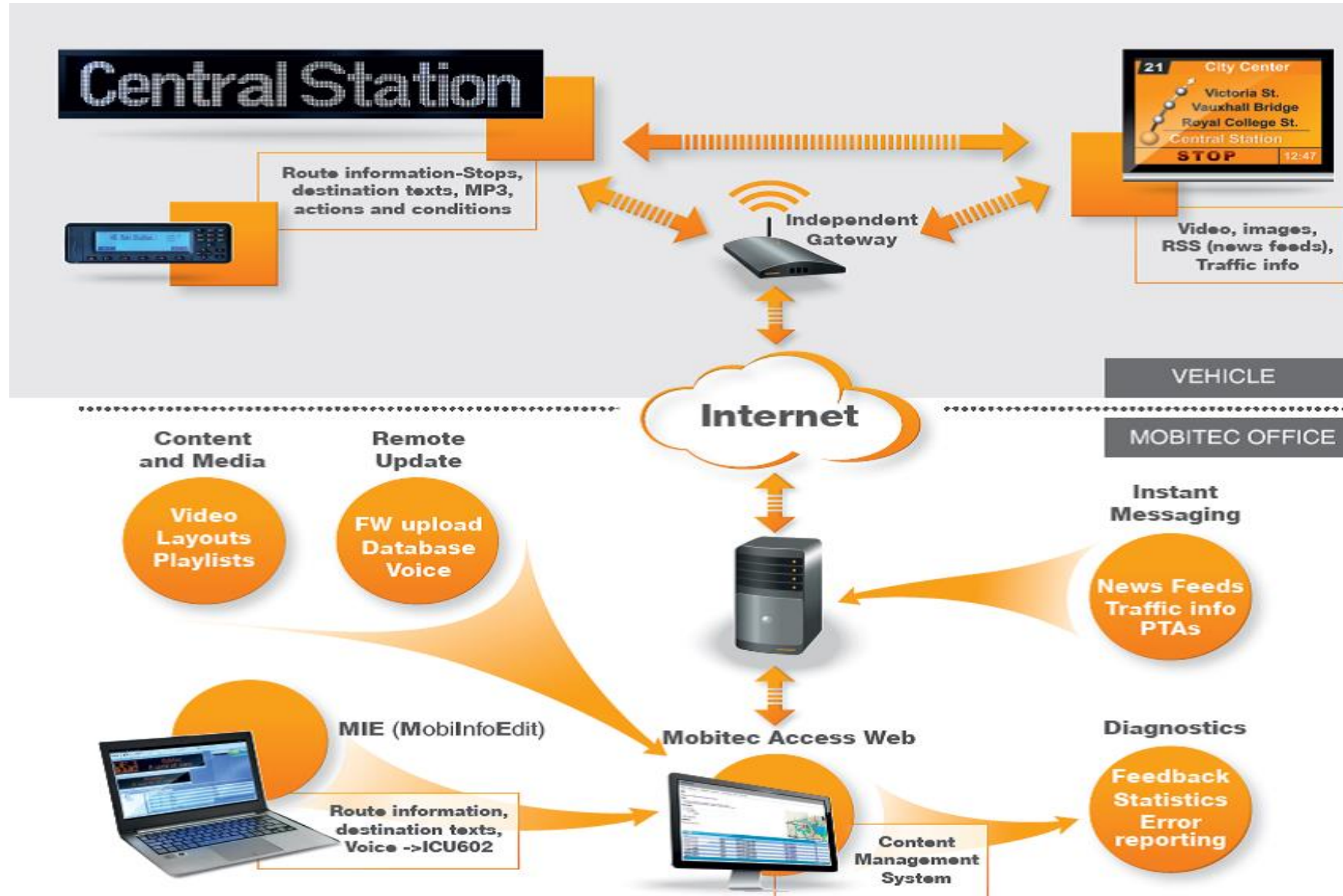
- FIRST IN MIND - FIRST IN CHOICE  
Attractive employer, vendor, customer and partner.
  
- GLOBAL REACH – LOCAL TOUCH  
Being close to our customers is our top priority.

# AREAS OF EXPERTISE

## BUS

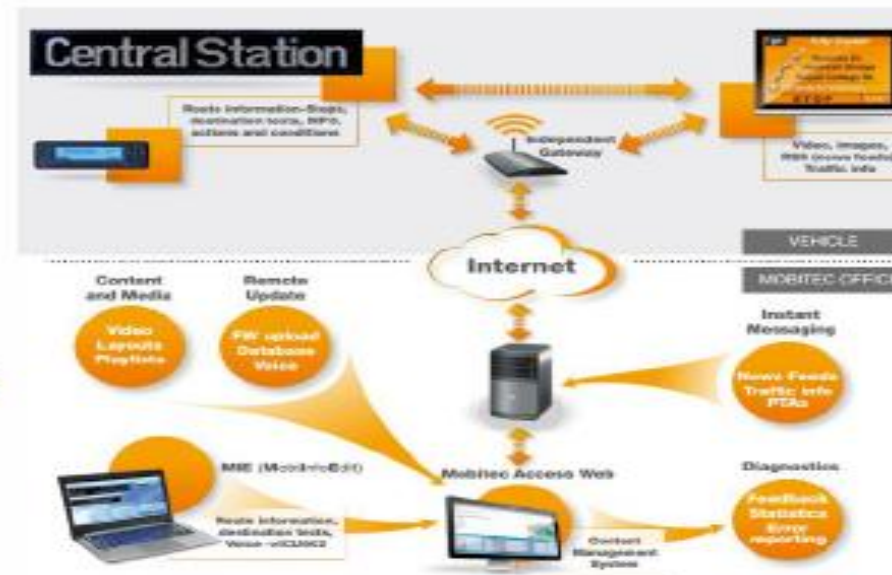


# MOBITEC ACCESS SYSTEM



# MOBITEC ACCESS WEB AT A GLANCE

- Web-based Backoffice Tool
- Multi-Client system
- Content Management
- Central Software Updates
- Device Monitoring
- 3<sup>rd</sup> Party Data interface



**Mobitec Access**

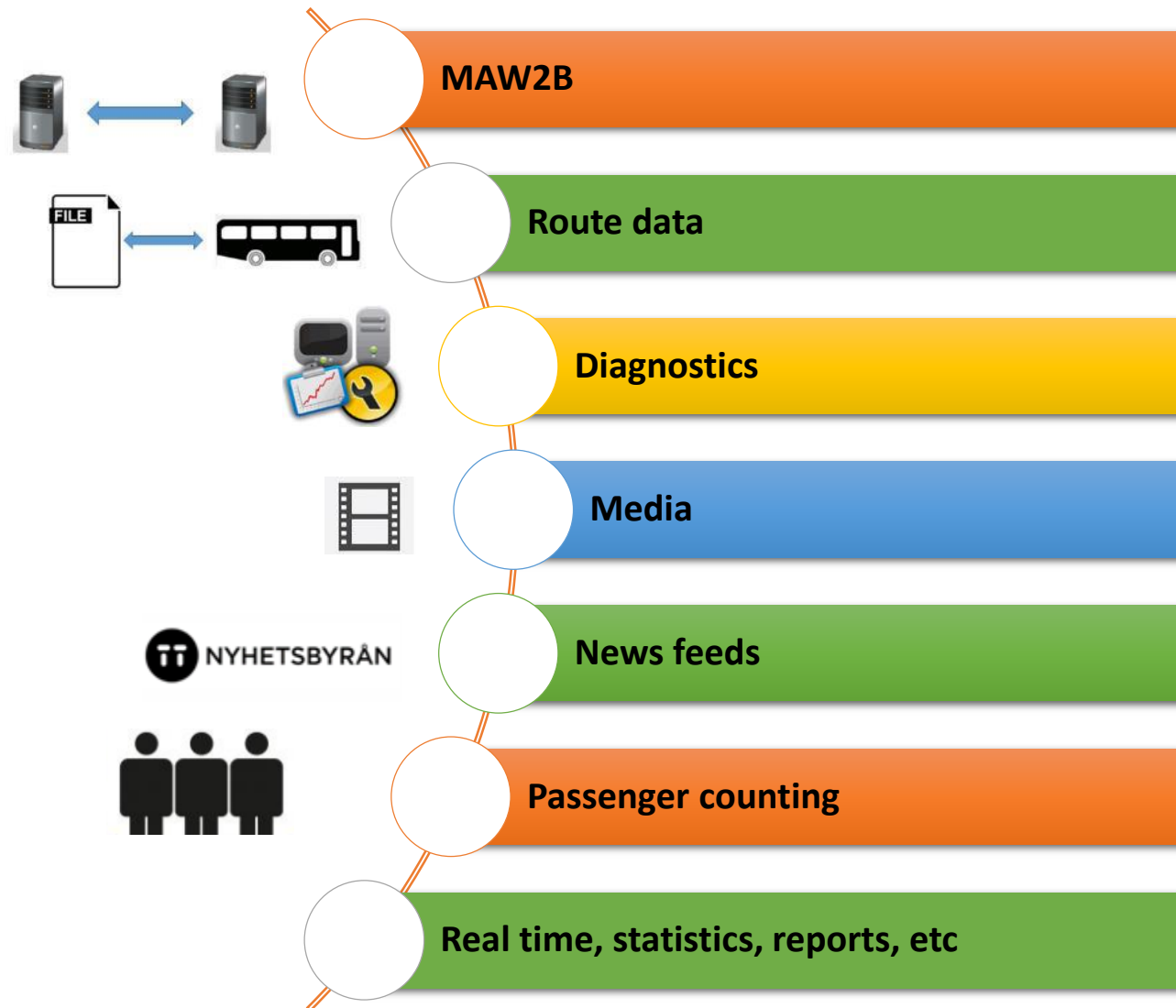
Mobitec system package for online-based communications.

Automatic updates of firmware and content, including advertising, for all Mobitec products within the system.

Status and diagnostic reports into back office.

Instant messaging for immediate or updates from the transport operator.

Web-based and multi-client Central Management System.





Browser tabs: Inkorgen (114) - skalbyja, Welcome to Mobitec Acc, Mobitec Access Web - M

Address bar: maw.mobitec.eu/media

Navigation: Home, Media, Återkopplingar, Fordon, System, Filarkiv, Support

Media section: Filarkiv, Välj fil att ladda upp

Table: 15 poster

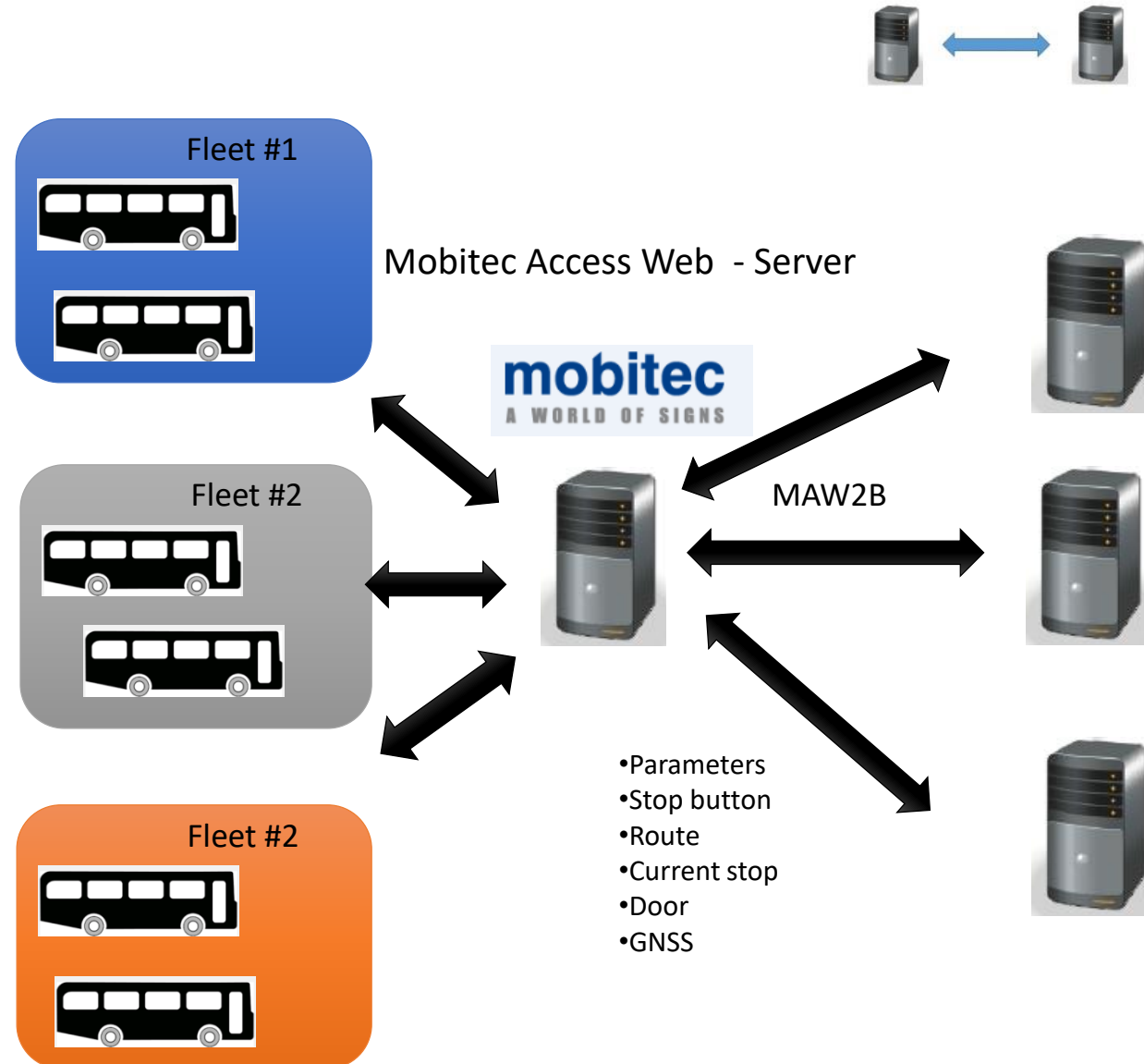
| Visa                                     | 15           | poster    | Sök              |
|--|--------------|-----------|------------------|
| Filnamn                                  | Storlek (MB) | Typ       | Uppladdad        |
| Bildserie infoskärmar juni 2016.mp4      | 84.44        | video/mp4 | 2016-06-21 15:42 |
| Bildserie infoskärmar juli 2016.mp4      | 129.84       | video/mp4 | 2016-06-30 09:18 |
| Bildserie infoskärmar augusti 2016.mp4   | 134.51       | video/mp4 | 2016-06-30 09:31 |
| Oxhålja.mp4                              | 3.72         | video/mp4 | 2016-08-29 11:16 |
| Nytt försäljningsställe Sunne.mp4        | 4.72         | video/mp4 | 2016-08-29 11:23 |
| Pride 2016.mp4                           | 8.31         | video/mp4 | 2016-09-02 14:47 |
| Pilot Kristinehamn.mp4                   | 5.29         | video/mp4 | 2016-09-02 14:49 |
| Bildserie infoskärmar september 2016.mp4 | 344.45       | video/mp4 | 2016-09-05 15:17 |
| Packhusgatan.mp4                         | 27.21        | video/mp4 | 2016-09-07 12:39 |
| Företagssalongen 15 september.mp4        | 17.62        | video/mp4 | 2016-09-07 12:48 |
| Bildserie infoskärmar oktober 2016.mp4   | 324.14       | video/mp4 | 2016-10-04 14:14 |
| Bildserie infoskärmar november 2016.mp4  | 270.28       | video/mp4 | 2016-11-21 11:29 |
| vtab_fb_annonsfilm.mp4                   | 5.85         | video/mp4 | 2016-11-21 11:30 |
| Bildserie infoskärmar december 2016.mp4  | 244.3        | video/mp4 | 2016-12-20 11:08 |
| Bildserie infoskärmar jan 2017.mp4       | 223.07       | video/mp4 | 2017-01-02 09:05 |

Visar 1 till 15 av 117 poster

Navigation: Första, Föregående, 1, 2, 3, 4, 5, Nästa, Sista

System tray: 14:11, 2018-04-12

- Integration to bus operator fleet management system
- Share data from units in vehicle via MAW2B to 3rd party systems
- Example of data: stop button, route, current stop, GPS

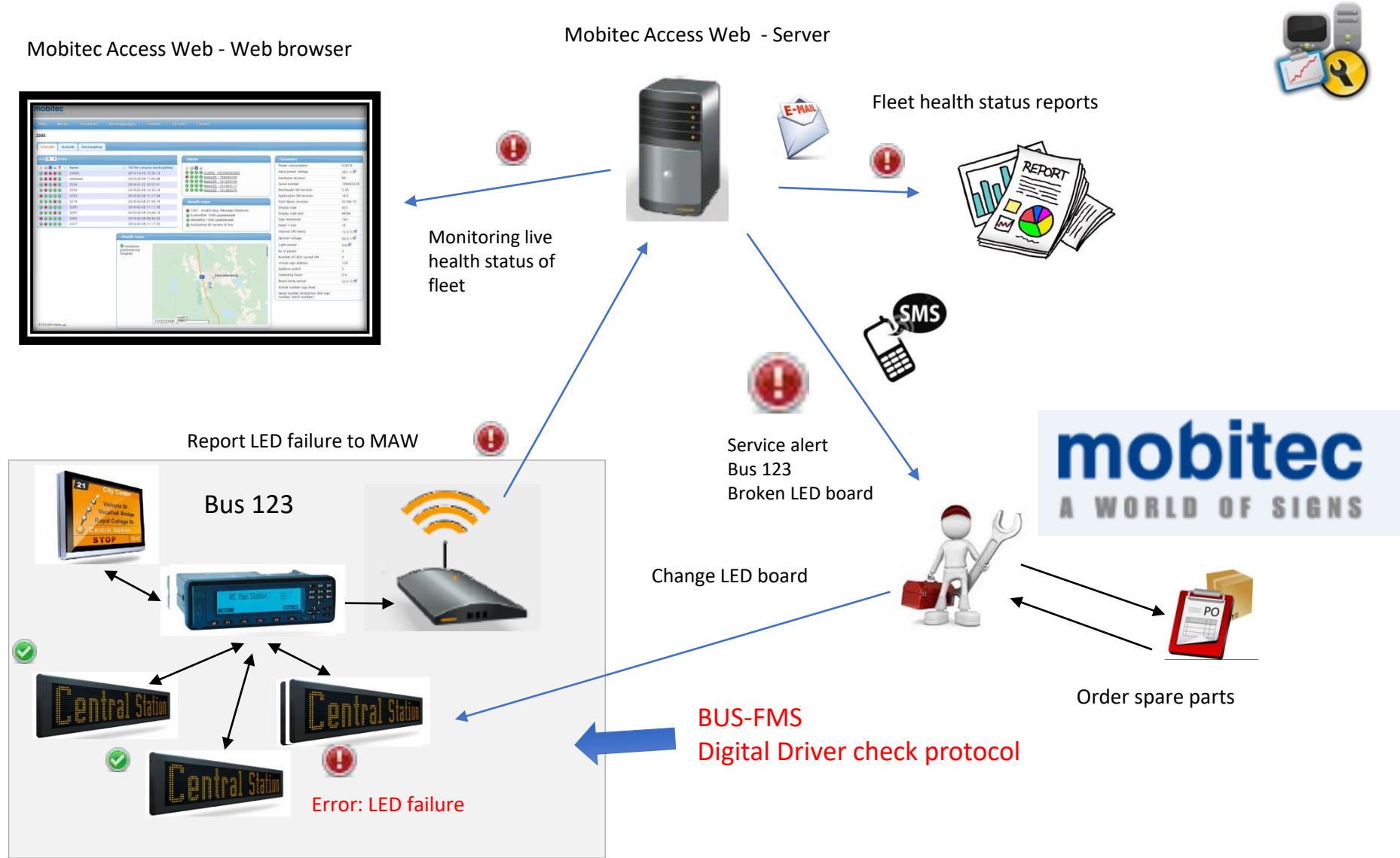


- Avoid time consuming in-vehicle update using USB memory stick. Save time and money for the bus operator
- All units such as TFT, ICU602 and RS485 led signs can be updated remotely using MAW
- Remote update of MIE route of entire fleet
- Remote Update ICU602 Passenger Information database (Trips, routes, destination, voice announcement)



- Avoid time consuming in-vehicle update using USB memory stick. Save time and money for the bus operator
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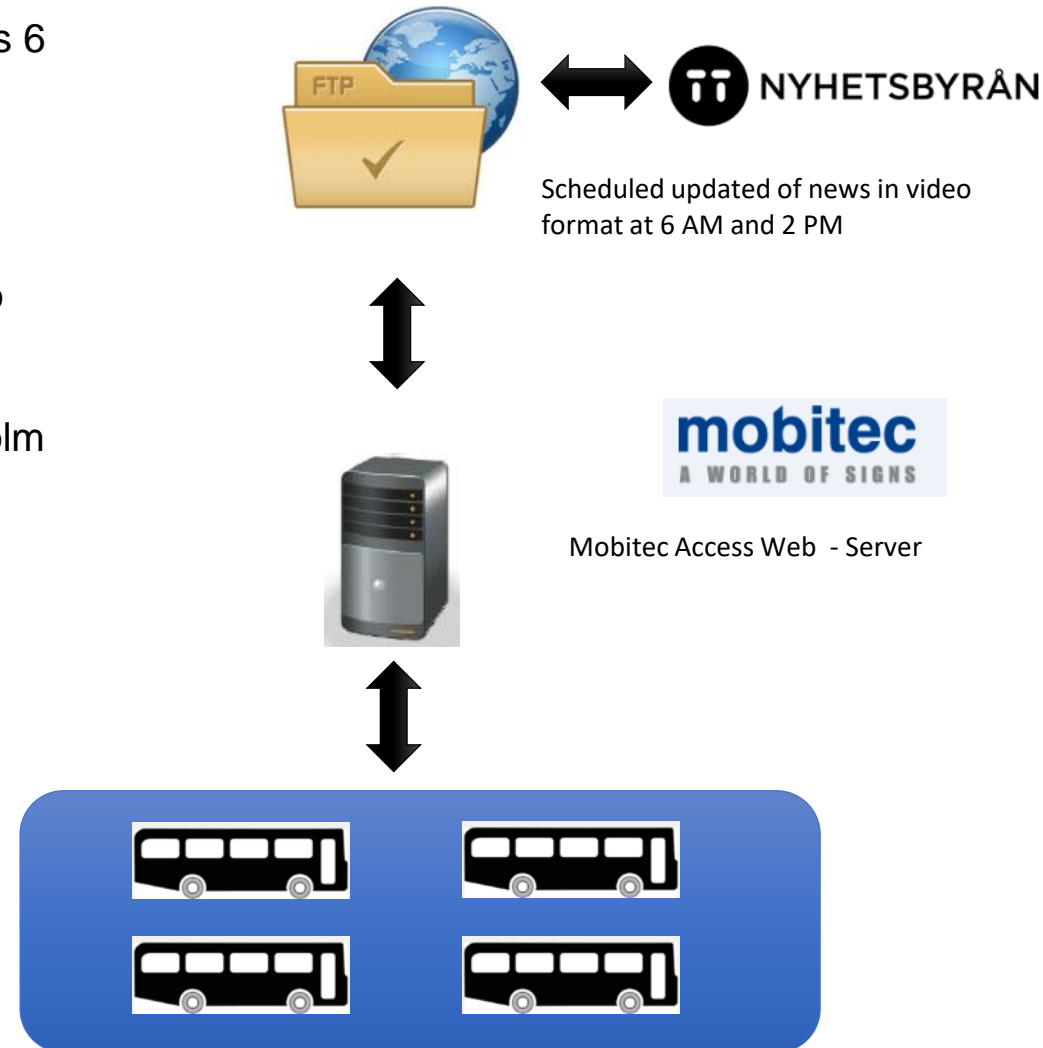






- Uptime management
- Downtime protection
- Proactive diagnostic and repair planning
- Get the buss on road as fast as possible
- Reduce service cost
- Remote update of software of entire fleet
- Live monitoring
  - Monitoring live health status of units in entire fleet
  - Manage and monitor status of errors and file update
- Service alert messages
  - Send email or SMS to customer service department immediatelly when errors occur
  - Customer service get info which vehicle that has broken unit, what is the problem and recommended action.
  - Goal is to plan the repair of the unit before the bus is back in the depot
  - Example:
    - Where: Nobina, buss 9999, side sign, Ultima 16x112
    - What: Short circuit LED
    - Recommended action: Order new LED board and change
- Fleet Health status reports
  - Subscribe to error reports of entire fleet
  - Event log of errors, warnings, file update status etc

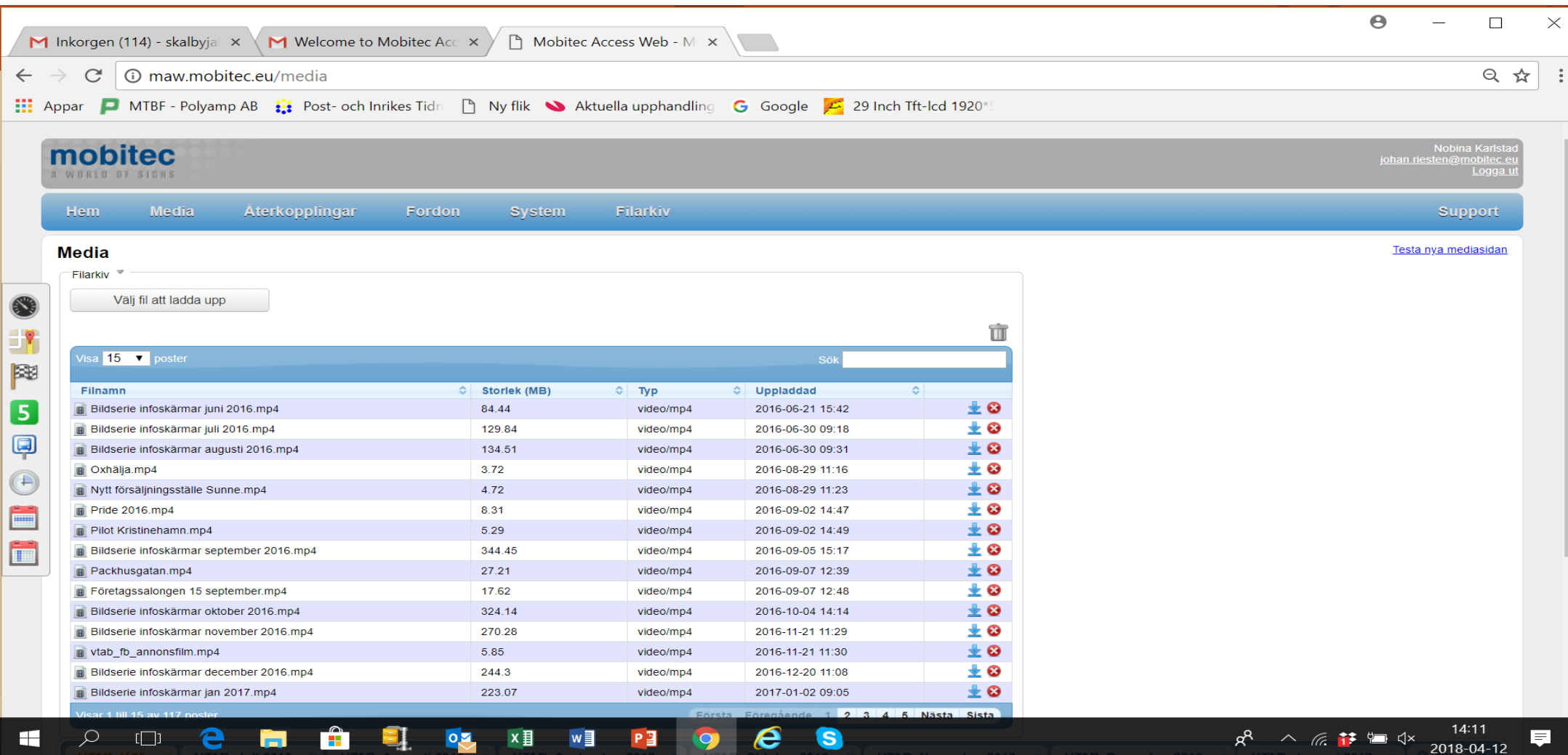
- TT nyhetsbyrå
  - Automatic update of news 6 AM and 2 PM
  - Video news compressed and converter to correct video format, e.g. H.264
  - MAW download and automatically distribute to units
  - TT news in playlist
  - Trial customer in Stockholm





- Playlists
  - Media files can be uploaded from your computer to file archive or playlist.
  - By creating a playlist you will be able to drag media files to it.
  - No limit of how many playlists you create or how many media files there should be in each playlist.
  - Depending on the actual TFT that is connected to that playlist, the system will automatically format the file to the correct size and format.
  - Support for multiple screens with different resolutions
  - RSS feeds
- Media statistics
  - Provided there is a passenger counter and GPS in the vehicle, MAW will collect and report how many persons where exposed to certain media at specific location.
  - The operator can subscribe and receive media statistic on a daily, weekly or monthly basis.
- Group update of entire fleet
- Triggers of media and playlists based on position, speed, destination, line, stop name, time of day, day of week and calendar period
- Update package included for layout
- Remote update of media





**mobitec**  
A WORLD OF SIGNS

Nobina Karlstad  
johan.riesten@mobitec.eu  
Logga ut

Hem Media Återkopplingar Fordon System Filarkiv Support

Media [Testa nya mediasidan](#)

Filarkiv

Välj fil att ladda upp

Visa 15 poster Sök

| Filnamn                                  | Storlek (MB) | Typ       | Uppladdad        |  |
|--|--------------|-----------|------------------|--|
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Visar 1 till 15 av 117 poster

14.02.2019

Company confidential

17



- Passenger counting system integrated to ICU602
- ICU602 adds number of passengers at certain stop, destination, route and trip and report to MAW
- Create scheduled passenger reports via MAW and distribute to Bus operator

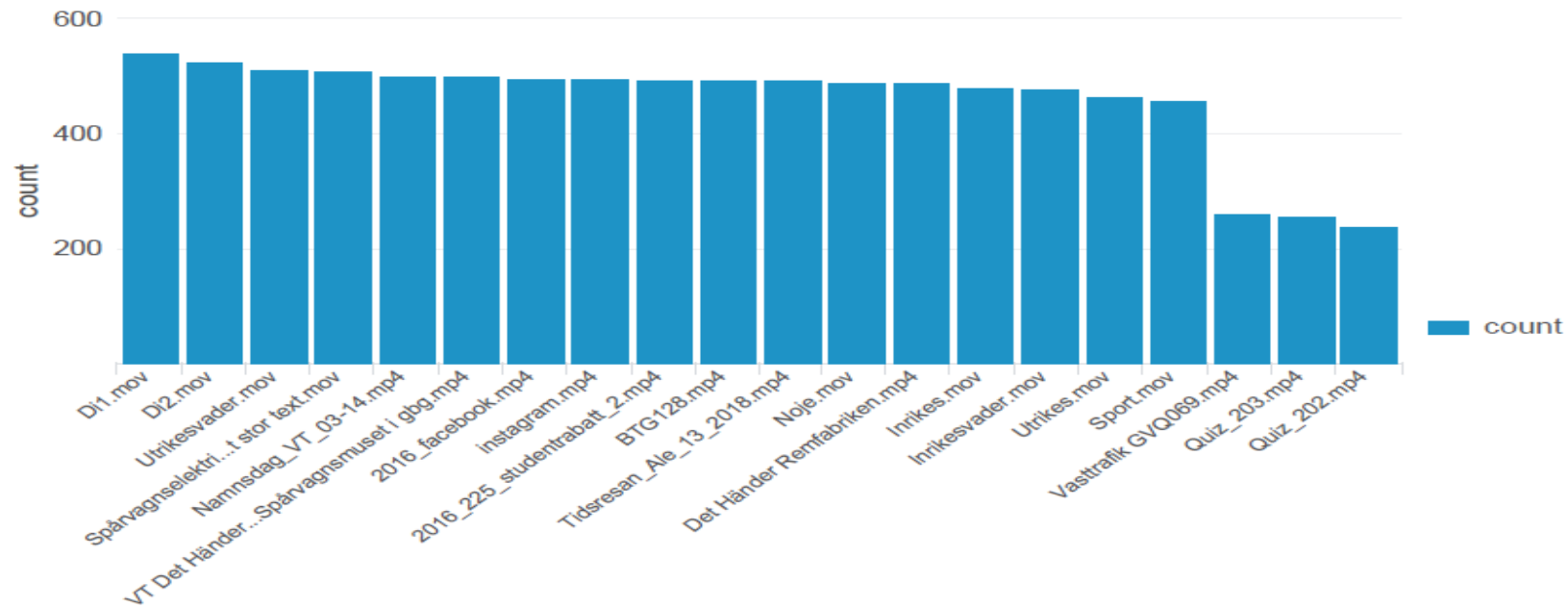
What service can we provide to bus operators and PTAs?

- **Remote diagnostic**
  - Uptime management
  - Downtime protection
  - Proactive diagnostic and repair planning
  - Get the buss on road as fast as possible
  - Reduce service cost
- **Data distribution**
  - Integration to bus operator fleet management system
  - Share data from units in vehicle via MAW2B to 3rd party systems
  - Example of data: Alarms, errors, stop button, route, current stop, GPS
- **Remote update**
  - Avoid time consuming in-vehicle update using USB memory stick. Save time and money for the bus operator
  - All units such as TFT, ICU602 and RS485 led signs can be updated remotely using MAW
  - Remote update of software of entire fleet
  - Remote update of MIE route of entire fleet
  - Remote update of media
- **Statistics**
  - Passenger counting
  - Media statistic

- **Statistics**

- Passenger counting
  - Combine public transport data added together with number of passengers
  - Reports how many passengers who enter/leave a bus at certain stop and route
- Media
  - Use passenger counting data to analyze how many passenger has been exposed to advertisement
  - Bus operator can use this data to sell advertisement time slots.

### Top 20 played media items



## All played media items

| Filename                                 | count |
|--|-------|
| Di1.mov                                  | 544   |
| Di2.mov                                  | 531   |
| Utrikesvader.mov                         | 517   |
| Spårvagnselektriker tyst stor text.mov   | 512   |
| Namnsdag_VT_03-14.mp4                    | 503   |
| VT Det Händer...Spårvagnsmuset i gbg.mp4 | 503   |
| 2016_facebook.mp4                        | 502   |
| instagram.mp4                            | 499   |
| 2016_225_studentrabatt_2.mp4             | 498   |
| BTG128.mp4                               | 498   |
| Tidsresan_Ale_13_2018.mp4                | 497   |
| Noje.mov                                 | 494   |
| Det Händer Remfabriken.mp4               | 493   |
| Inrikes.mov                              | 483   |
| Inrikesvader.mov                         | 481   |
| Utrikes.mov                              | 469   |
| Sport.mov                                | 462   |
| Vasttrafik GVQ069.mp4                    | 264   |
| Quiz_203.mp4                             | 259   |
| Quiz_202.mp4                             | 241   |
| Vasttrafik GVQ068.mp4                    | 239   |
| Quiz_201.mp4                             | 1     |

## Activity per screen

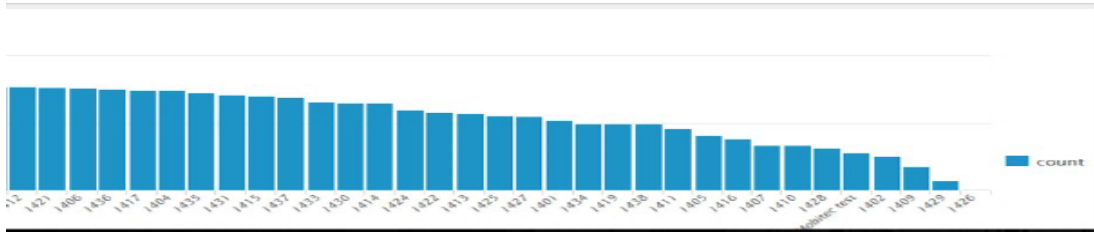
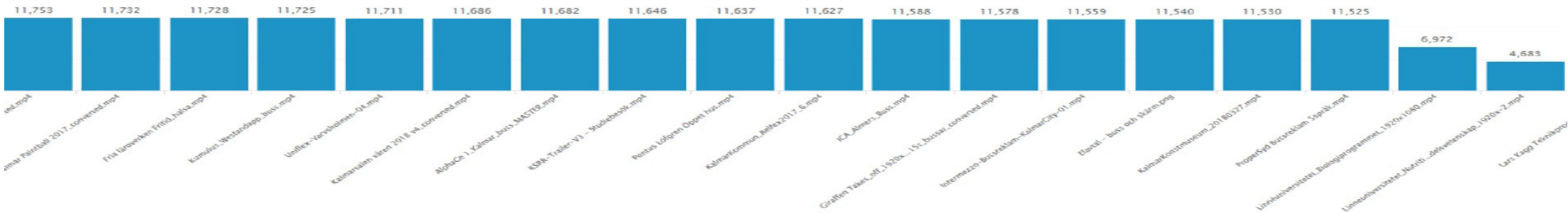
| #  | Unit         | count |
|----|--------------|-------|
| 1  | F0F260015467 | 1432  |
| 2  | F0F260015318 | 1103  |
| 3  | F0F2600011F2 | 887   |
| 4  | F0F26001545E | 881   |
| 5  | F0F260015456 | 841   |
| 6  | F0F2600011F3 | 616   |
| 7  | F0F26001545A | 605   |
| 8  | F0F260015453 | 428   |
| 9  | F0F260015452 | 408   |
| 10 | F0F260015458 | 392   |
| 11 | F0F260015459 | 337   |
| 12 | F0F260015463 | 279   |
| 13 | F0F260015466 | 262   |
| 14 | F0F26001545F | 261   |
| 15 | F0F260015465 | 207   |
| 16 | F0F260015462 | 134   |
| 17 | F0F2600179a4 | 110   |
| 18 | F0F260015454 | 102   |
| 19 | F0F26001545D | 79    |
| 20 | F0F260015455 | 49    |
| 21 | F0F26001545B | 48    |
| 22 | F0F260015461 | 31    |

Yesterday
 Start playing
  Finished playing
 [Hide Filters](#)

# 72

Screens NOT playing media  
Screens started without reporting of played media

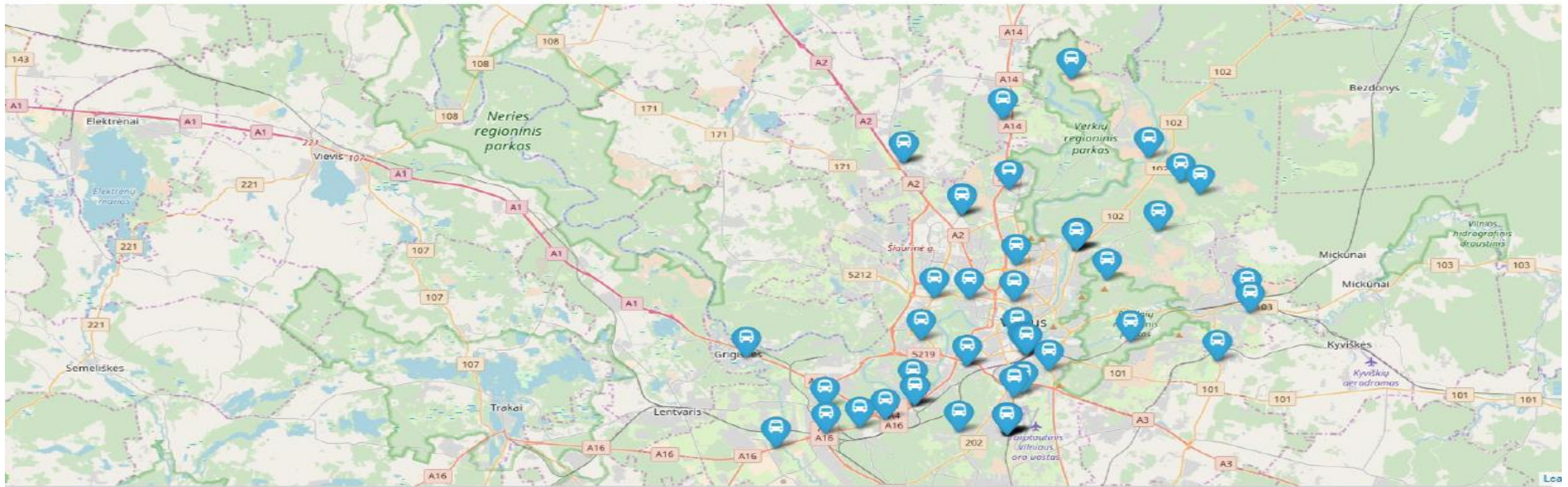
| Unit         |
|--------------|
| FOF2600157CA |
| FOF260015865 |

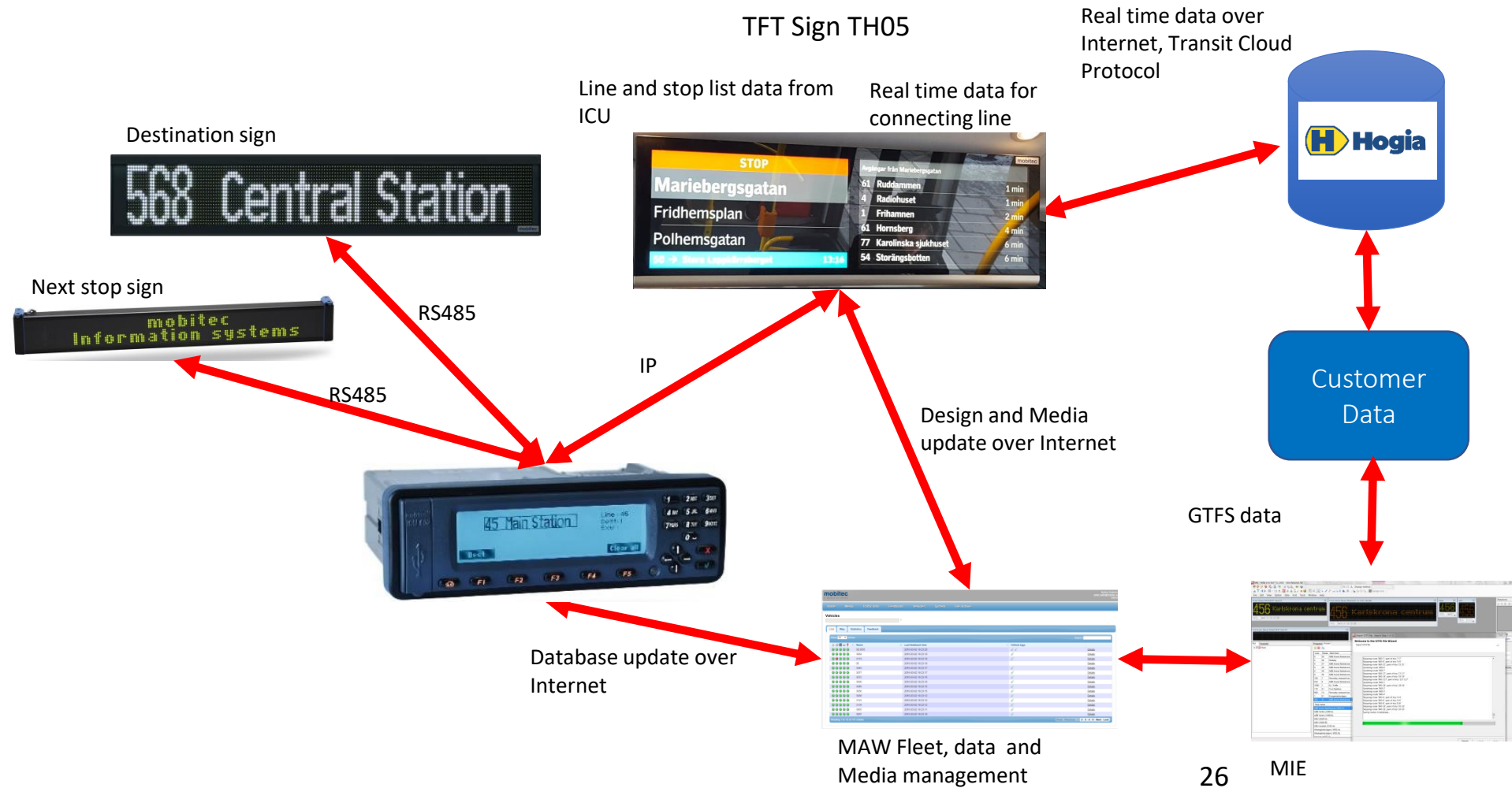


Activity per unit

| Unit         | Vehicle |
|--------------|---------|
| FOF26001595A | 1403    |
| FOF26001595B | 1403    |
| FOF260015A7D | 1432    |
| FOF2600159C2 | 1423    |
| FOF2600159C1 | 1423    |
| FOF260015739 | 1405    |
| FOF260015A7E | 1432    |







**4 Gullmarsplan****17:23**Nästa hållplats  
Next stop**Östra station**Därefter  
Followed by

Odengatan

Därefter  
Followed by

Roslagsgatan

**Avgångar från Östra station**

|     |   |       |
|-----|---|-------|
| 14  | Fruängen                                | 2 min |
| 27  | Viggbyholm                              | 3 min |
| 73  | Tomtebodavägen via Karolinska sjukhuset | 3 min |
| 676 | Norrtälje                               | 4 min |
| 14  | Mörby centrum                           | 4 min |
| 73  | Ropsten                                 | 5 min |
| 28  | Österskär                               | 6 min |

# Real time (Integration with RTI supplier)

Kundlayout: VL TH07 (extern skyltning)



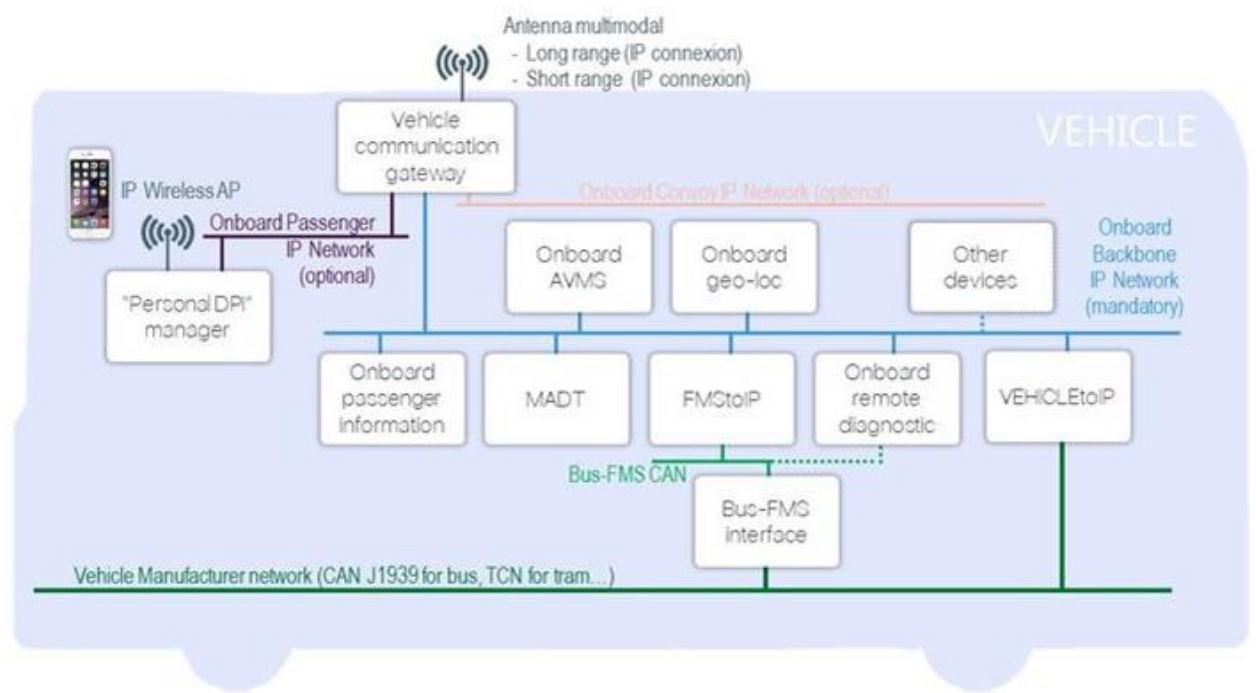
Kundlayout: Västtrafik 36"



Kundlayout: Västtrafik



# ITxPT Mobitec is Strategic Member ITxPT new standard for Information Technology for Public Transport



## Standardisation EN13149

On-board data IP communication

- HARDWARE INTERFACES
- THE COMMUNICATION PROTOCOLS
- THE SERVICES CATALOGUE

**cen**

**CEN/TC 278/WG3**  
ITS standardization

**STANDARD**

EN13149

SPECIFICATION GUIDELINE

# MobiLED Ultima and Mobiscreen

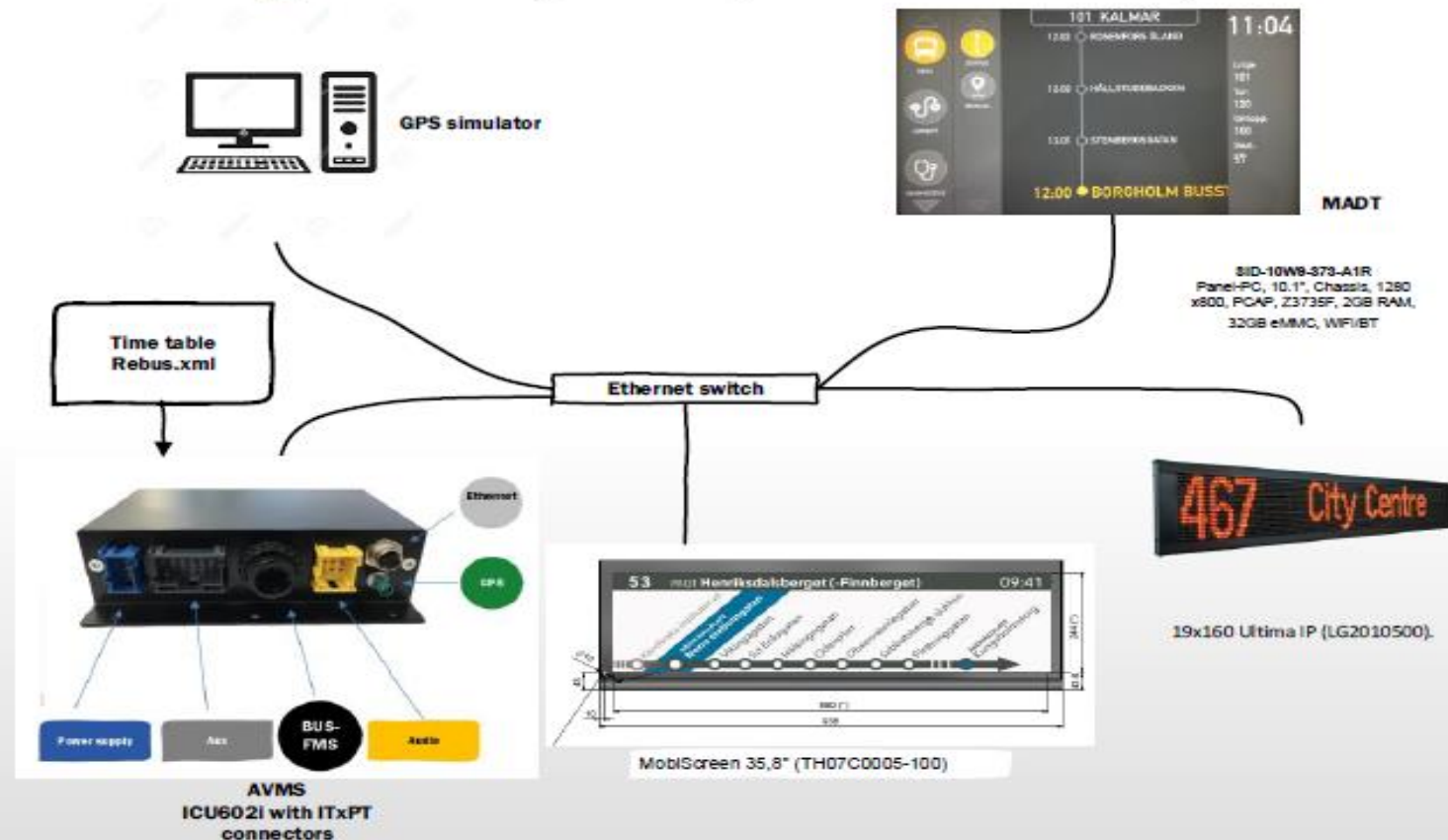
ITxPT approved hardware in the bus



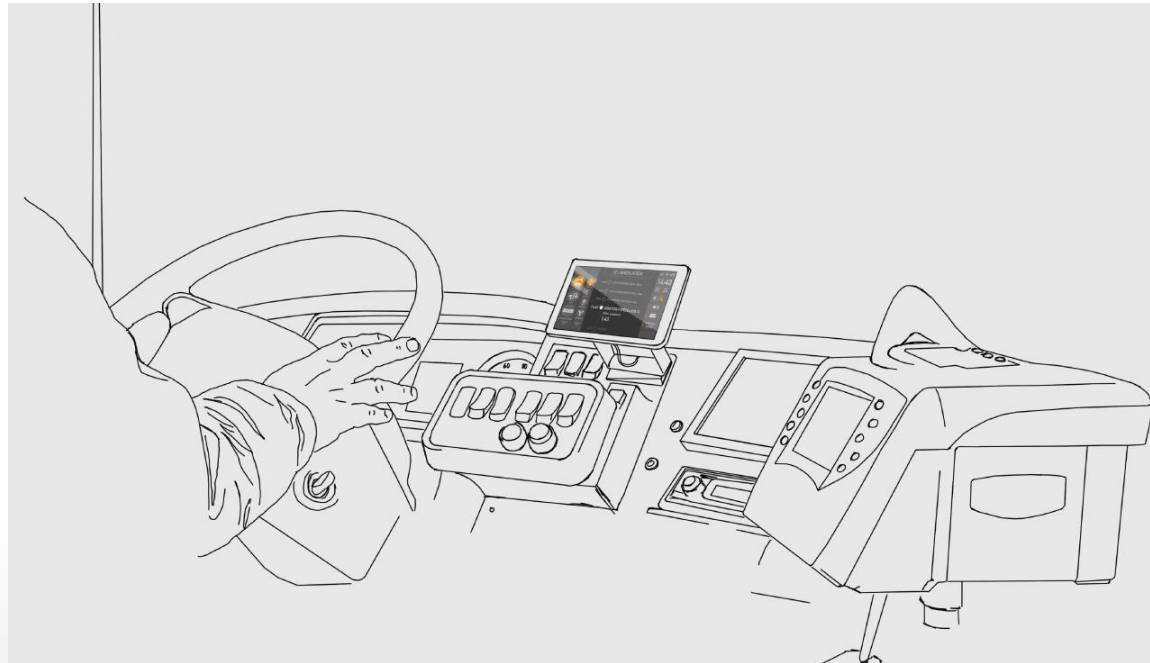
Approved

# Service oriented ITxPT IP-based platform

- LTG Sweden AB show new service oriented ITxPT IP-based platform live on the exhibition consisting of AVMS, MADT, GPS simulation, TFT and LED sign.

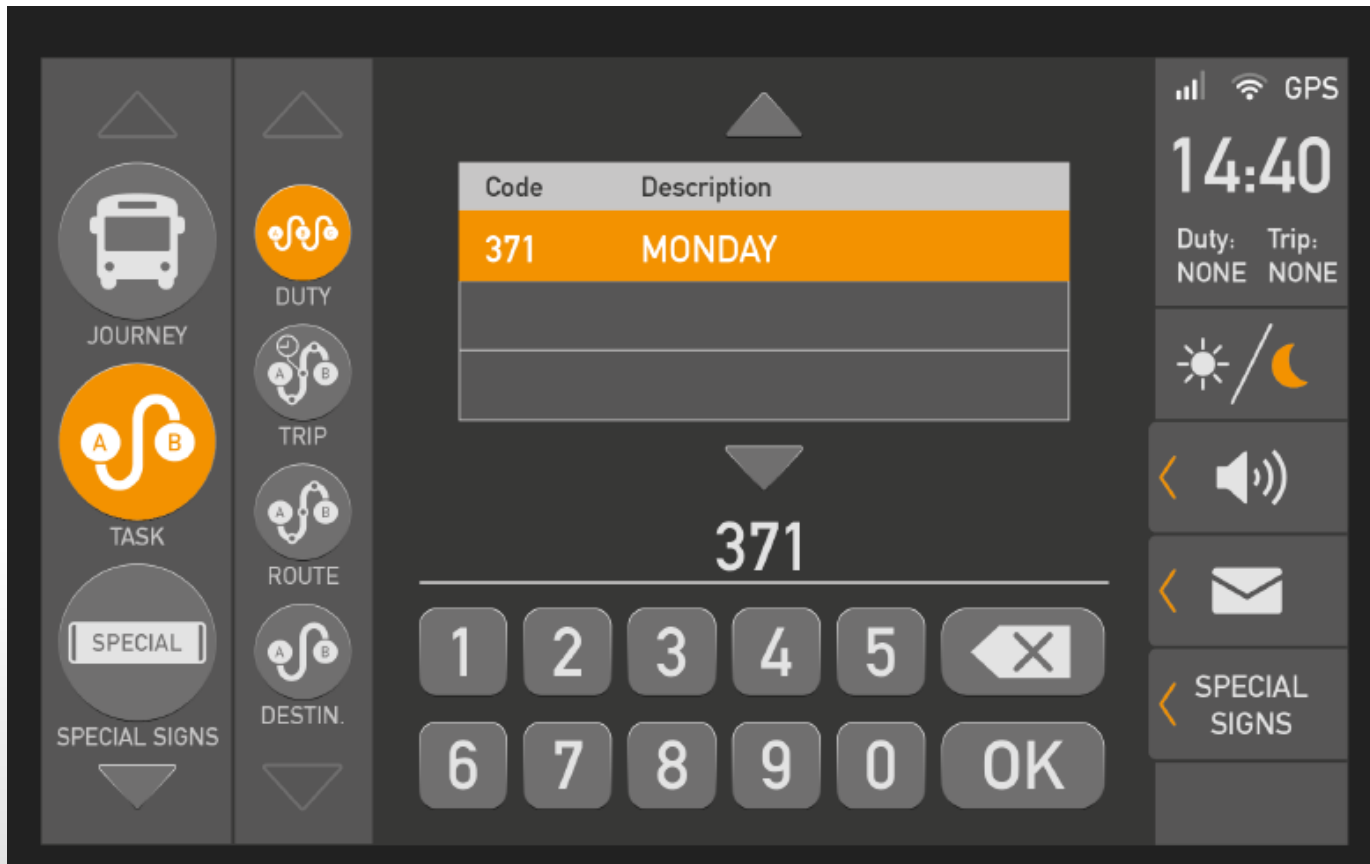


- **Driver interface**
- **Driver log in, Duty Log in**
- **Linje, Destination, via destination, stops, ETA, connections**
- **Android app**
- **Consume data from AVMS**





# MADT – select duty and trip



The screenshot displays the MADT interface with the following elements:

- Left Panel:** Navigation icons for JOURNEY (bus icon), TASK (orange circle with A and B), SPECIAL SIGNS (SPECIAL button), DUTY (orange circle with bus icon), TRIP (orange circle with A and B), ROUTE (orange circle with A and B), and DESTIN. (orange circle with A and B).
- Central Table:**

| Code | Description |
|------|-------------|
| 371  | MONDAY      |
|      |             |
|      |             |
- Right Panel:** Status indicators (signal, Wi-Fi, GPS), time (14:40), Duty: NONE, Trip: NONE, day/night mode icons, speaker icon, envelope icon, and SPECIAL SIGNS button.
- Bottom Panel:** A numeric keypad (1-0) and an OK button. The code '371' is displayed above the keypad.

# MADT – status of trip



52 LINNÉPLATSEN

14:46 ○ SYSTER ESTRIDS GATA, 200m

14:45 ○ DOKTOR WESTRINGS GATA, 100m

14:44 ○ DOKTOR WELTZINS GATA, 300m

14:42 ● DOKTOR FORSELIUS G.  
600m, Location C  
1:43

14:39 ○ MOSSEN

GPS

14:40

Duty: 371 Trip: 245

JOURNEY

STATUS

DETOUR

TASK

MANUAL

CONNECT

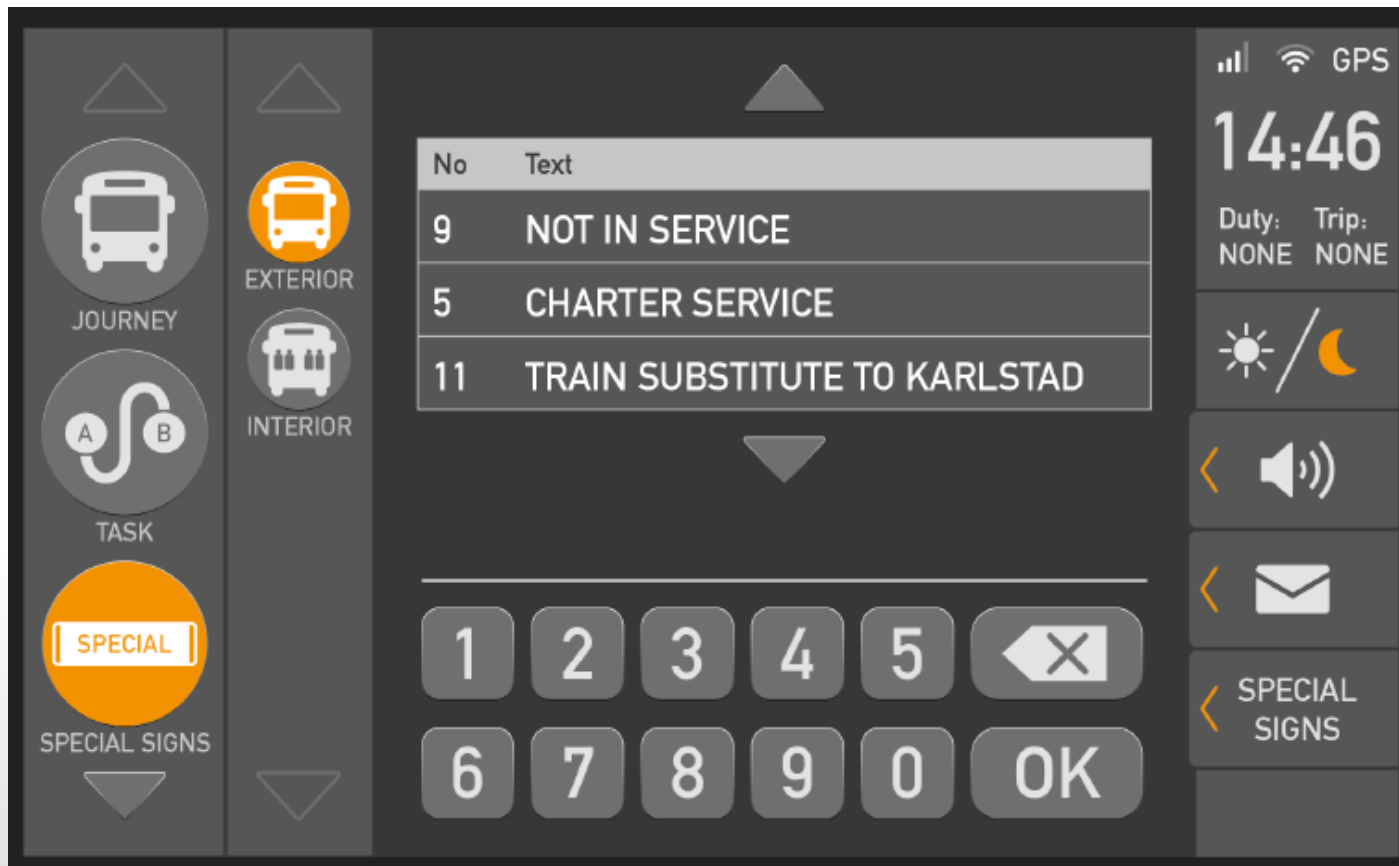
SPECIAL SIGNS

SPECIAL SIGNS

# MADT – status of trip



# MADT – Special signs

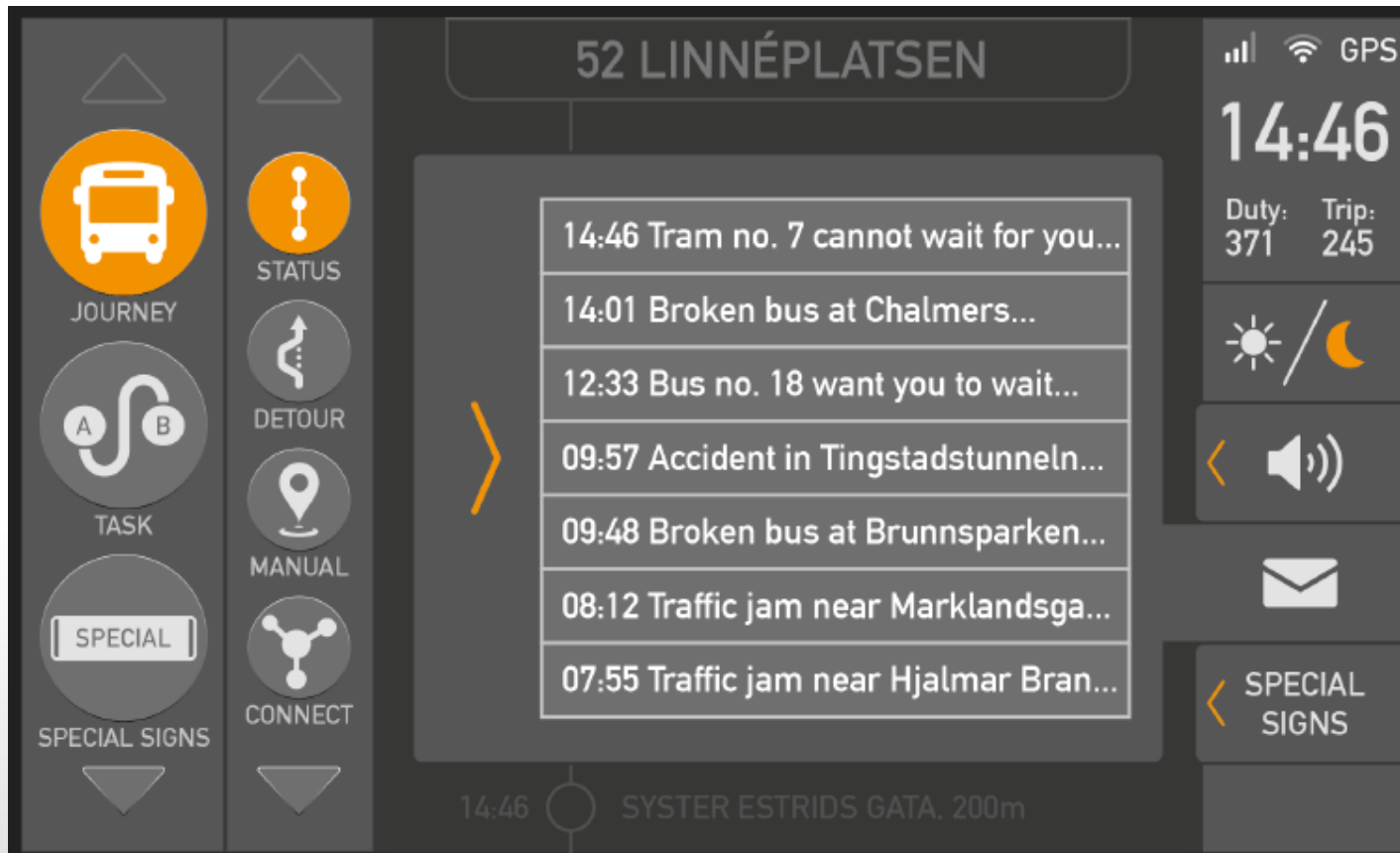


The screenshot displays a MADT system interface with the following elements:

- Left Panel:** Navigation icons for JOURNEY, EXTERIOR, INTERIOR, TASK, and SPECIAL SIGNS (highlighted in orange).
- Central Table:** A table with columns 'No' and 'Text' containing special sign information.
- Right Panel:** Status indicators (signal, Wi-Fi, GPS), time (14:46), duty/trip status (NONE), and control buttons for brightness, volume, messages, and a 'SPECIAL SIGNS' menu.
- Bottom Panel:** A numeric keypad (0-9) and an 'OK' button.

| No | Text                         |
|----|------------------------------|
| 9  | NOT IN SERVICE               |
| 5  | CHARTER SERVICE              |
| 11 | TRAIN SUBSTITUTE TO KARLSTAD |

# MADT – Driver messages

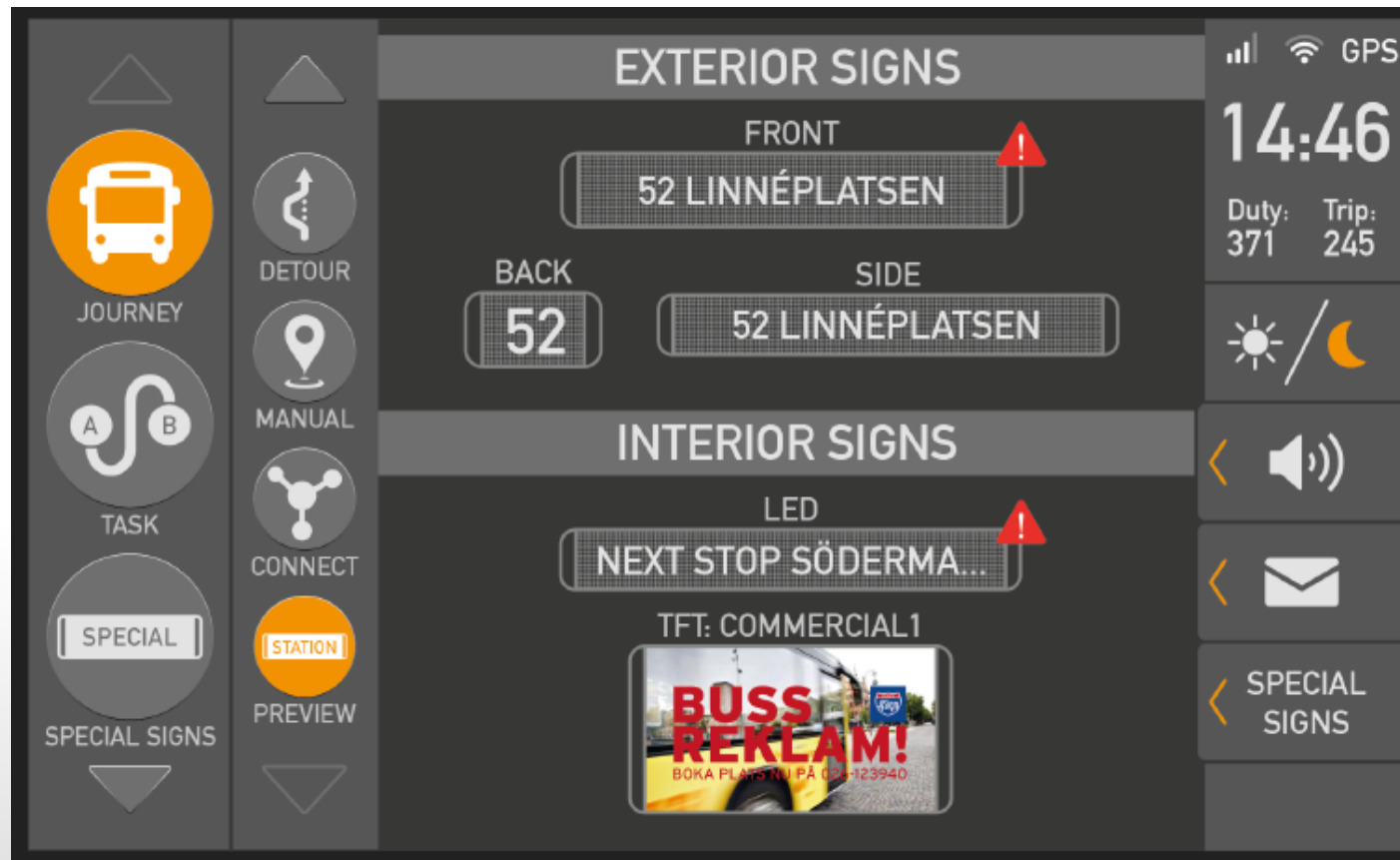


The screenshot displays a driver's interface for MADT (Message and Alert Display for Traffic) on a bus. The central display shows a list of messages under the heading "52 LINNÉPLATSEN". The messages are as follows:


- 14:46 Tram no. 7 cannot wait for you...
- 14:01 Broken bus at Chalmers...
- 12:33 Bus no. 18 want you to wait...
- 09:57 Accident in Tingstadstunneln...
- 09:48 Broken bus at Brunnsparken...
- 08:12 Traffic jam near Marklandsga...
- 07:55 Traffic jam near Hjalmar Bran...

On the left side, there are several control buttons: JOURNEY (bus icon), STATUS (person icon), TASK (A/B icon), MANUAL (location pin icon), SPECIAL SIGNS (SPECIAL button), and CONNECT (network icon). On the right side, there are status indicators (signal, Wi-Fi, GPS), a large digital clock (14:46), duty and trip information (Duty: 371, Trip: 245), a light/dark mode toggle, a speaker icon, an envelope icon, and a SPECIAL SIGNS button. At the bottom, a location indicator shows "14:46 SYSTER ESTRIDS GATA, 200m".

# MADT – preview



**EXTERIOR SIGNS**


FRONT 

52 LINNÉPLATSEN

BACK SIDE

52 52 LINNÉPLATSEN

**INTERIOR SIGNS**

LED 

NEXT STOP SÖDERMA...

TFT: COMMERCIAL1

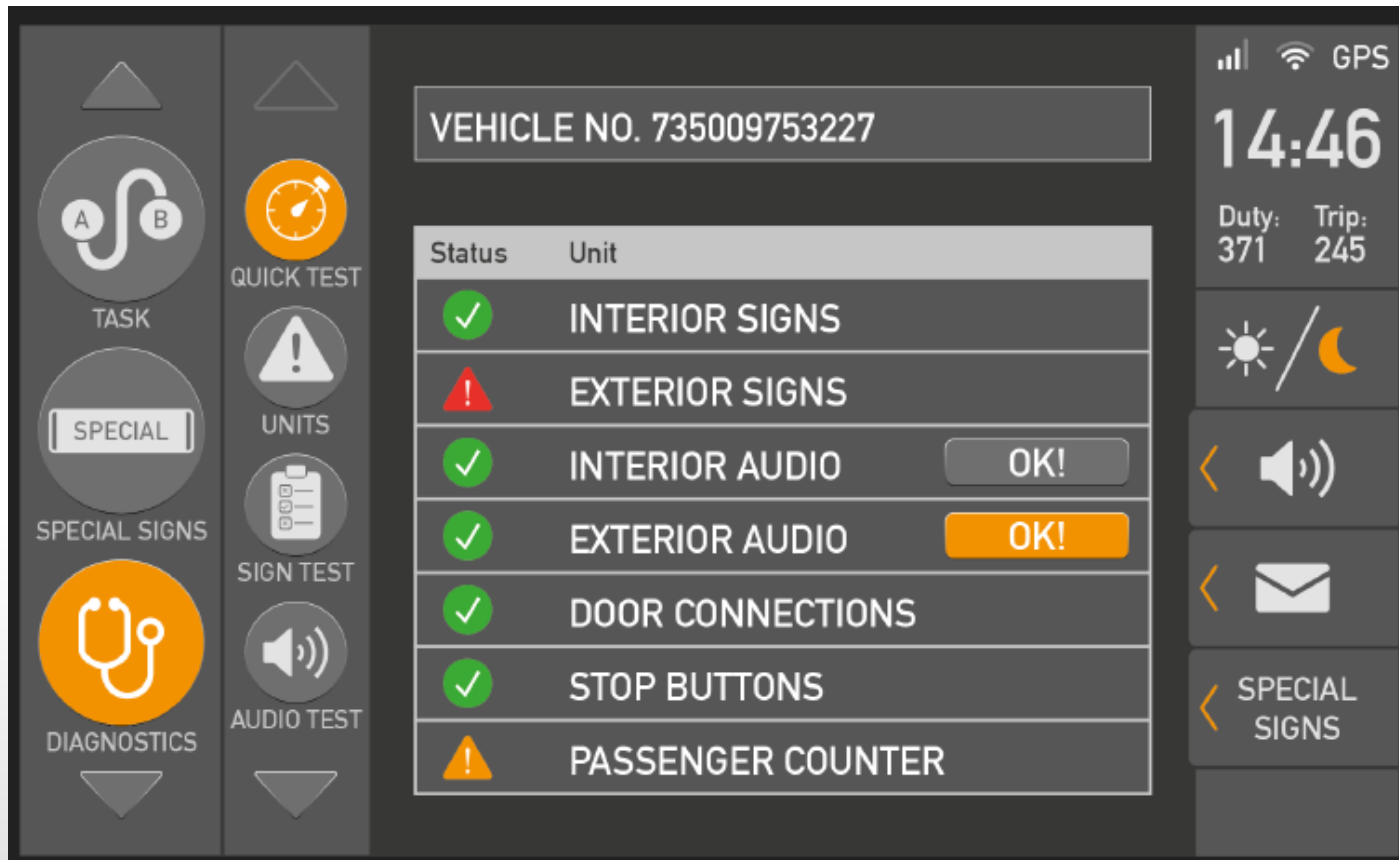
**BUSS REKLAM!**  
BOKA PLATS RÅ PÅ 020-123940

GPS 14:46  
Duty: 371 Trip: 245

SPECIAL SIGNS

STATION PREVIEW

# MADT - diagnostic



VEHICLE NO. 735009753227

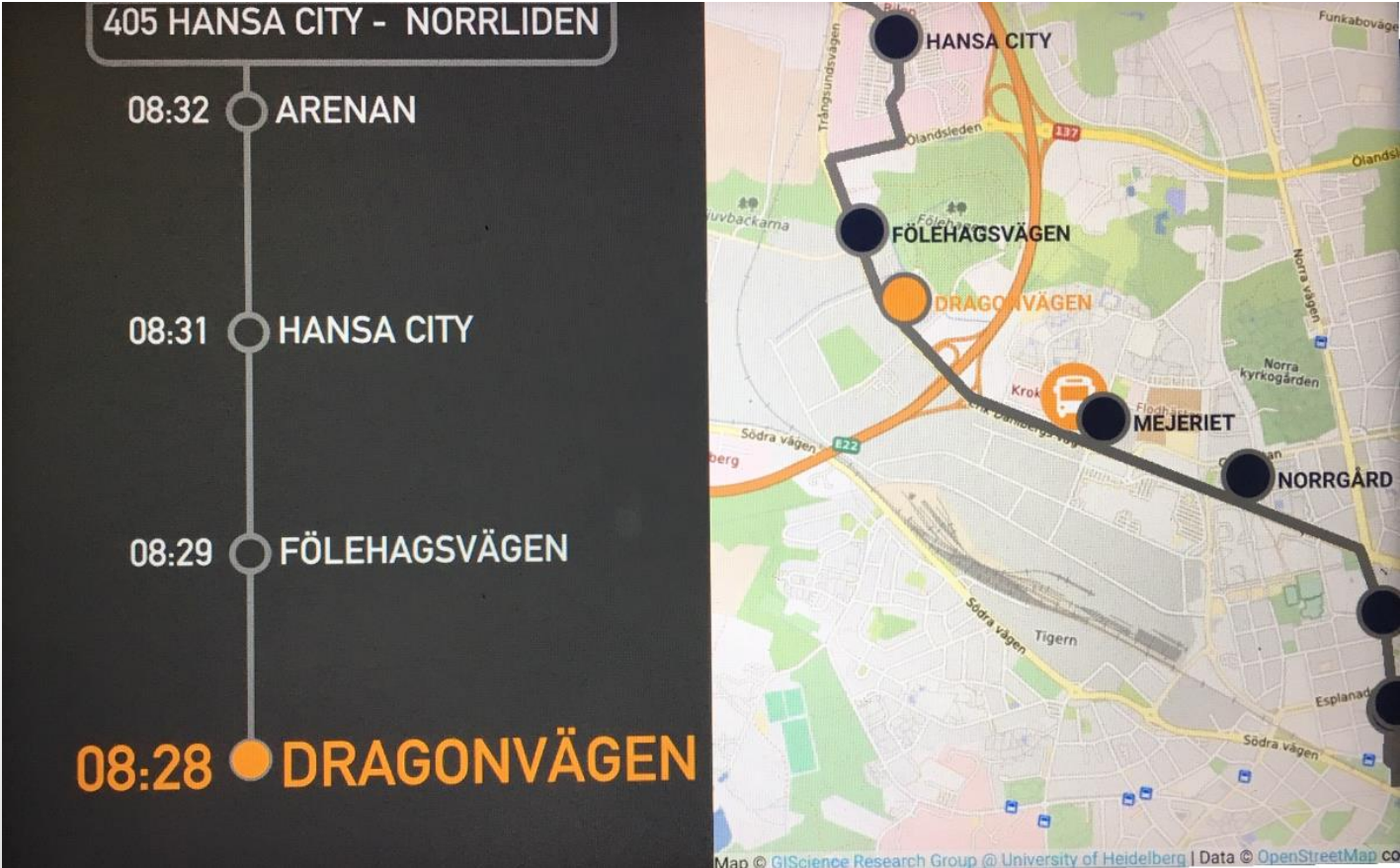
14:46  
Duty: 371 Trip: 245

| Status | Unit   |
|--------|--|
| ✓      | INTERIOR SIGNS   |
| ⚠      | EXTERIOR SIGNS   |
| ✓      | INTERIOR AUDIO <input data-bbox="1330 903 1513 953" type="button" value="OK!"/>  |
| ✓      | EXTERIOR AUDIO <input data-bbox="1330 975 1513 1025" type="button" value="OK!"/> |
| ✓      | DOOR CONNECTIONS   |
| ✓      | STOP BUTTONS   |
| ⚠      | PASSENGER COUNTER  |

Left sidebar: TASK, SPECIAL SIGNS, DIAGNOSTICS, QUICK TEST, UNITS, SIGN TEST, AUDIO TEST

Right sidebar: Signal strength, Wi-Fi, GPS, Day/Night, Speaker, Envelope, SPECIAL SIGNS

# MADT – journey guide





# MADT – journey guide

## 101 KALMAR

| Aktuell                 | Avgång | Stopp           | Avstånd |
|-------------------------|--------|-----------------|---------|
| (17:06)                 | 17:05  | CHOKLADFABRIKEN | 300m    |
| (17:04)                 | 17:03  | MALMEN          | 500m    |
| (17:03)                 | 17:02  | TULLSLÄTTEN     | 200m    |
| <b>17:00 ● KALMAR C</b> |        |                 |         |

104 Resecentrum 10min

### Nästa stopp

Tullslätten om 200m

CHOKLADFABRIKEN  
MALMEN  
TULLSLÄTTEN  
KALMAR C

**17:03**

Omlopp: 100  
Linje: 101  
Tur: 123  
Destination: 120

**-1 min**

- **Open data. Real time (Samttrafiken, GTFS realtime, TfL open api, Ruter cloud)**
- **Hardware independency, plattform independency**
- **Service oriented architecture**
- **HTML5, CSS3, Javascripts. Web (apps driver, TFT). HTML5, webbased Infotainment and CMS**
- **Fine pitch LEDs**
- **Less hardware in vehicle, cloud based computing**
- **PTO takes more responsibility as integrator. The supplier that has IoT Gateway is the central point of integrator**