


KAS-20 Dispatch and AVL software

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1. **KAS-20 Product Overview**
2. Typical configuration
3. Voice Dispatcher
4. AVL mapping
5. Summary



1. KAS-20 Product Overview

- ◆ Windows-based software with **AVL** and **Dispatch** features for **Entry to Mid Size** networks
- ◆ **Client-Server design** with KAS-20 Server and KAS-20 Client packages;
- ◆ **Cost effective** initial package with optional license upgrades;
- ◆ **Two basic configurations** for enhanced scalability:
 - **Standalone PC** with AVL & Dispatch system;
 - **Multi-client** operation with remote server; accepts up to 8 RF systems and 10 clients;
- ◆ Supports diverse digital radio systems: **NXDN IP, DMR IP, NXDN Trunk, NXDN Gen2**
- ◆ **Software implemented vocoder** for a fast and reliable operation;
- ◆ **IP and Serial** Connection to the communications system; FleetSync, etc.
- ◆ AES/DES and ARC4 encryption*

* *Future development*

Modular Dispatch Terminal - BeFREE 22

- ◆ **Tipro BeFREE – 15,6” Touchcomputer with InterCom and Line Keys**
- ◆ Ergonomic integration of a fanless touchcomputer and an intercom
- ◆ Extensive connectivity (LAN, USB, COM, external display, digital inputs, stereo sockets)
- ◆ Cable management - hidden and secured, but accessible
- ◆ 16 additional mechanical keys (“line keys”) with integrated LED indicators
- ◆ Wide-screen variant of BeFREE20
- ◆ Low-profile horizontal design
- ◆ Silent and reliable



Modular Dispatch Terminal - BeFREE 20

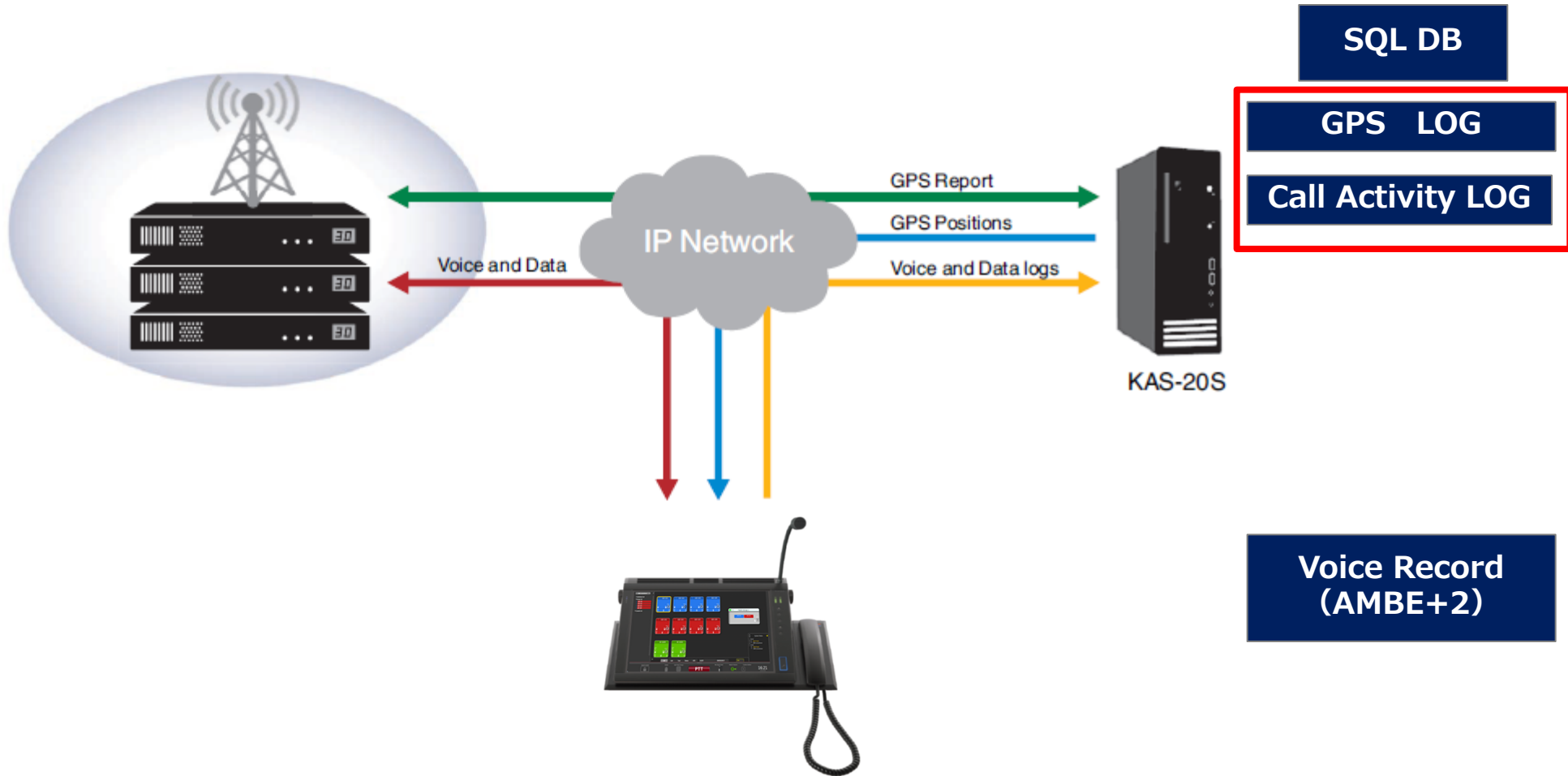
- ◆ **Tipro BeFREE – 15,6” Touchcomputer with Integrated Intercom**
- ◆ Ergonomic integration of a fanless touchcomputer and an intercom
- ◆ Modular - combinable with other FREE modules into multifunctional terminals
- ◆ Low-profile horizontal design
- ◆ Cable management - hidden and secured
- ◆ Silent and reliable - no moving parts, industrial grade components,
- ◆ Built-in Tipro Controller



Modular Dispatch Terminal - BeFREE 10

- ◆ **Tipro BeFREE – 10.4" Touchcomputer with Integrated Intercom**
- ◆ Space-saving integration of a fanless touchcomputer and an intercom
- ◆ Modular - combinable with other FREE modules into multifunctional terminals
- ◆ Silent and reliable - no moving parts, industrial grade components,
- ◆ Low-profile horizontal design
- ◆ Cable management - hidden and secured
- ◆ Built-in Tipro Controller

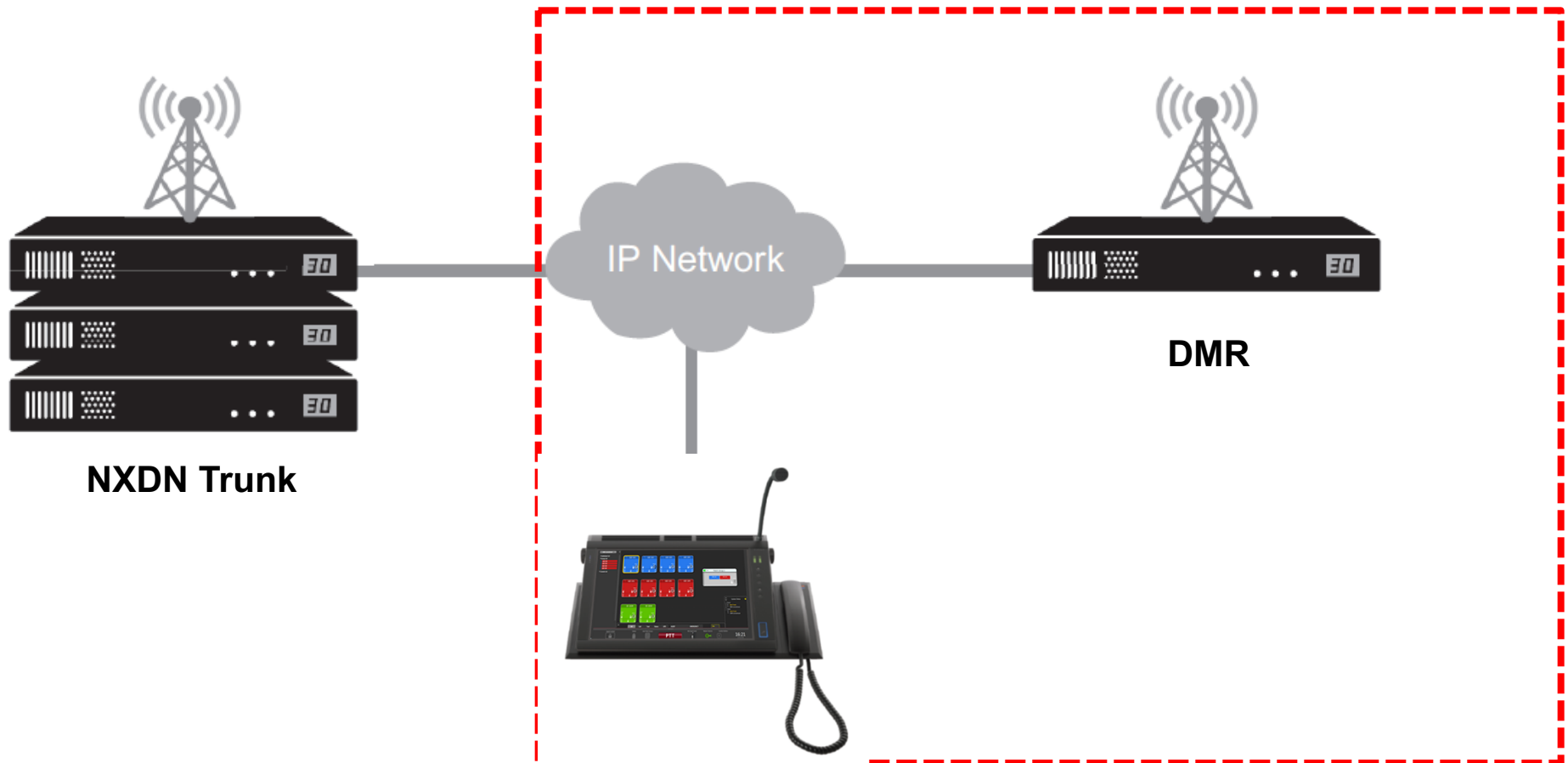






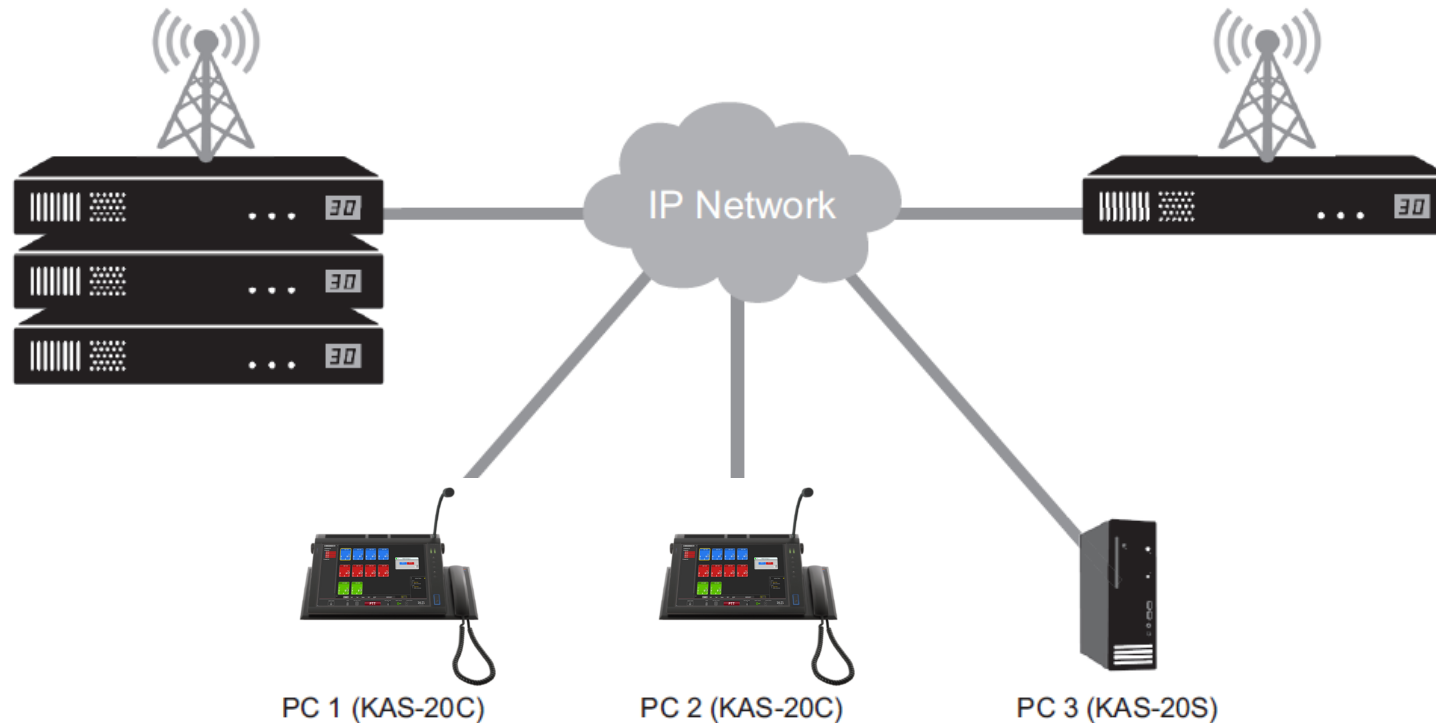
2. KAS-20 Typical configuration

- ◆ **Standalone Dispatch and AVL configuration**
- ◆ In standalone configuration the KAS-20C (client) and KAS-20S (server) are installed on the same PC.



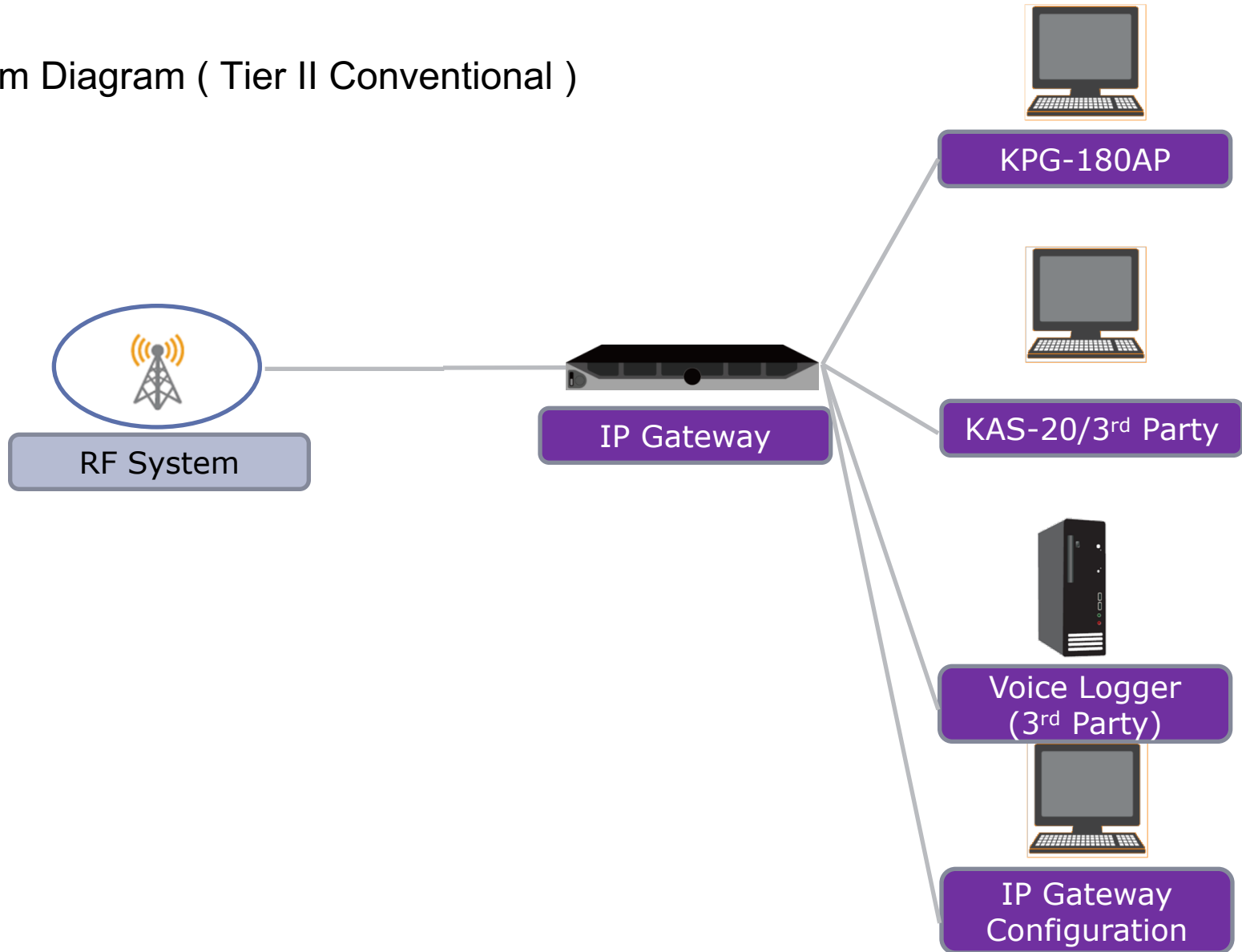
KAS – 20 Configuration

- ◆ **Client-Server Dispatch and AVL configuration**
- ◆ When the KAS-20S and KAS-20C are installed on two separate PCs, the KAS-20 AVL/ Dispatch system can be used as a server-client configuration.
- ◆ The KAS-20S can be accessed from multiple PCs that are installed with the KAS-20C (up to 10 clients at any one time).



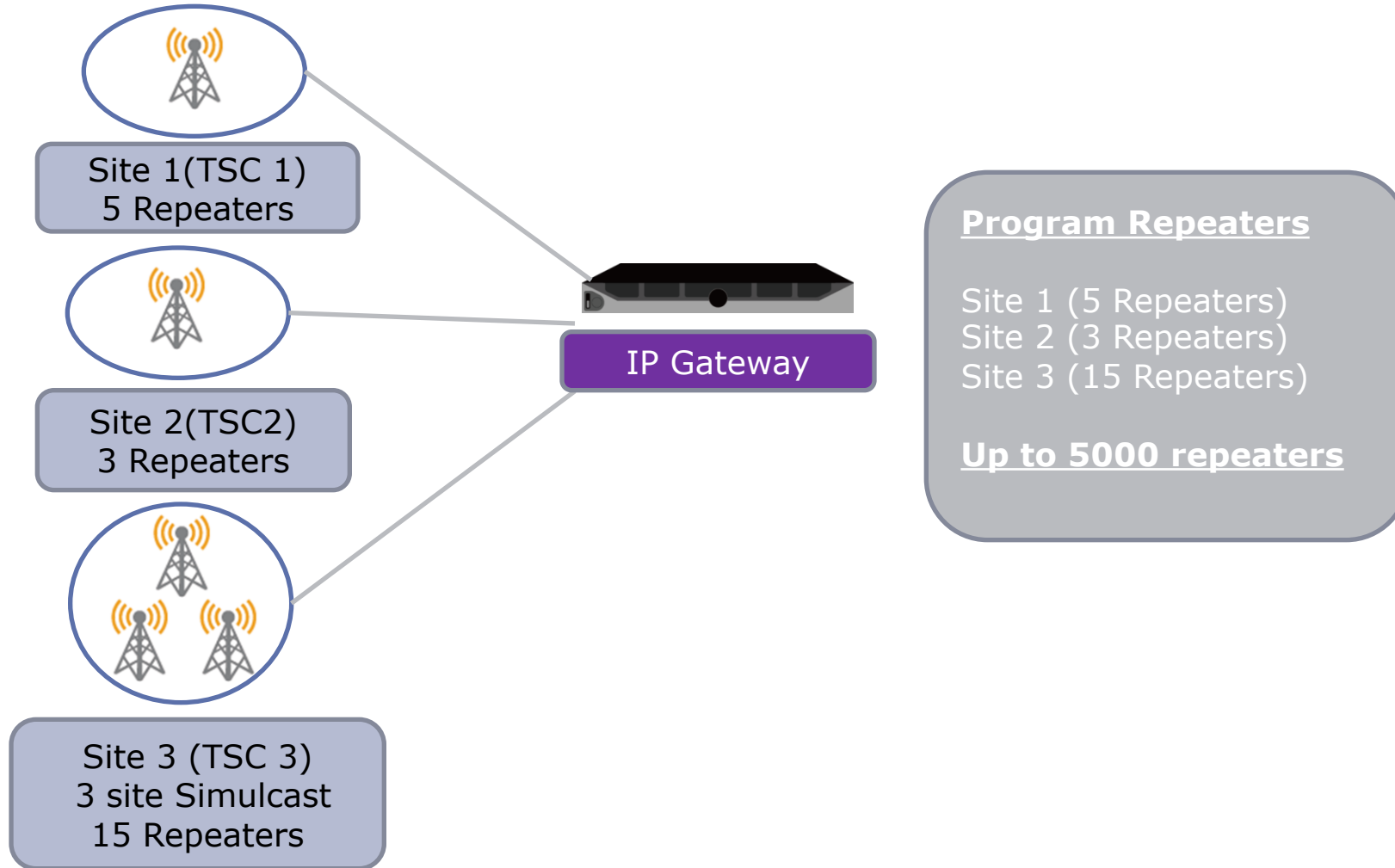
Kairos Gateway

- System Diagram (Tier II Conventional)



Block Diagram with KAIROS (Tier III)

- Support Up to 48 KAIROS TSC (Tier III)





3. KAS-20 Voice Dispatcher

- ◆ Flexible and scalable operator positions
- ◆ Multi-role dispatching functions
- ◆ IP Voice dispatch console
- ◆ Call log and Event sharing
- ◆ Voice recording/playback
- ◆ Supports multiple KENWOOD IP interfaces: DMR Conv, NXDN Conv, Type-C Trunking, and Gen2
- ◆ Highly optimized GUI
 - User configurable call windows and patch windows
 - Shortcut keys and configurable key bindings
- ◆ Server managed user levels, configurations, and permissions;
- ◆ Import/export asset lists (e.g. unit, group, fleet) via TSV format
- ◆ Manual/auto asset list creation

KAS – 20 Voice Dispatcher

◆ NXDN and DMR configuration

The screenshot displays the KAS-20 Dispatch Window interface, which is used for configuring and managing DMR (Digital Mobile Radio) groups. The window title is "KAS-20 Dispatch Window" and it includes a menu bar with "File(F)", "View(V)", "Setup(S)", and "Help(H)".

The main interface is divided into several sections:

- DMR conventional:** A dropdown menu at the top left.
- Individual List:** A sidebar on the left containing a "Group List" and a "Console List". The "Group List" shows four entries: GID 101, GID 102, GID 103, and GID 104, each with a red status indicator.
- Group Cards:** The main area displays a grid of group cards. The top row shows four blue cards for GID 101, GID 102, GID 103, and GID 104. The middle row shows four red cards for GID 101, GID 102, GID 103, and GID 104. The bottom row shows two green cards for ID 1029 and ID 1030. Each card includes a "Volume" indicator, a "Solo" button, and a "Test" button.
- Patch Group 1:** A floating window on the right side, titled "Patch Group 1", which is currently "ON". It shows two buttons for GID 101 (one blue, one red) and a "Volume" indicator.
- System Status:** A panel on the bottom right showing a tree view of the system configuration:
 - System Status (Warning icon)
 - Server
 - Gen2 Trunk
 - DMR conventional
 - Client
 - Gen2 Trunk
 - DMR conventional
- Bottom Bar:** A navigation bar with buttons for "All", "Call", "Text", "Status", "GPS", "ALERT", and "EMERGENCY". Below this is a "PTT" (Push-to-Talk) button, a "Mic Input Level" indicator, a "Master Volume" indicator, and a "Custom Button" labeled "1".
- Footer:** The bottom right corner shows the time "16:21" and the date "23/01/2018".

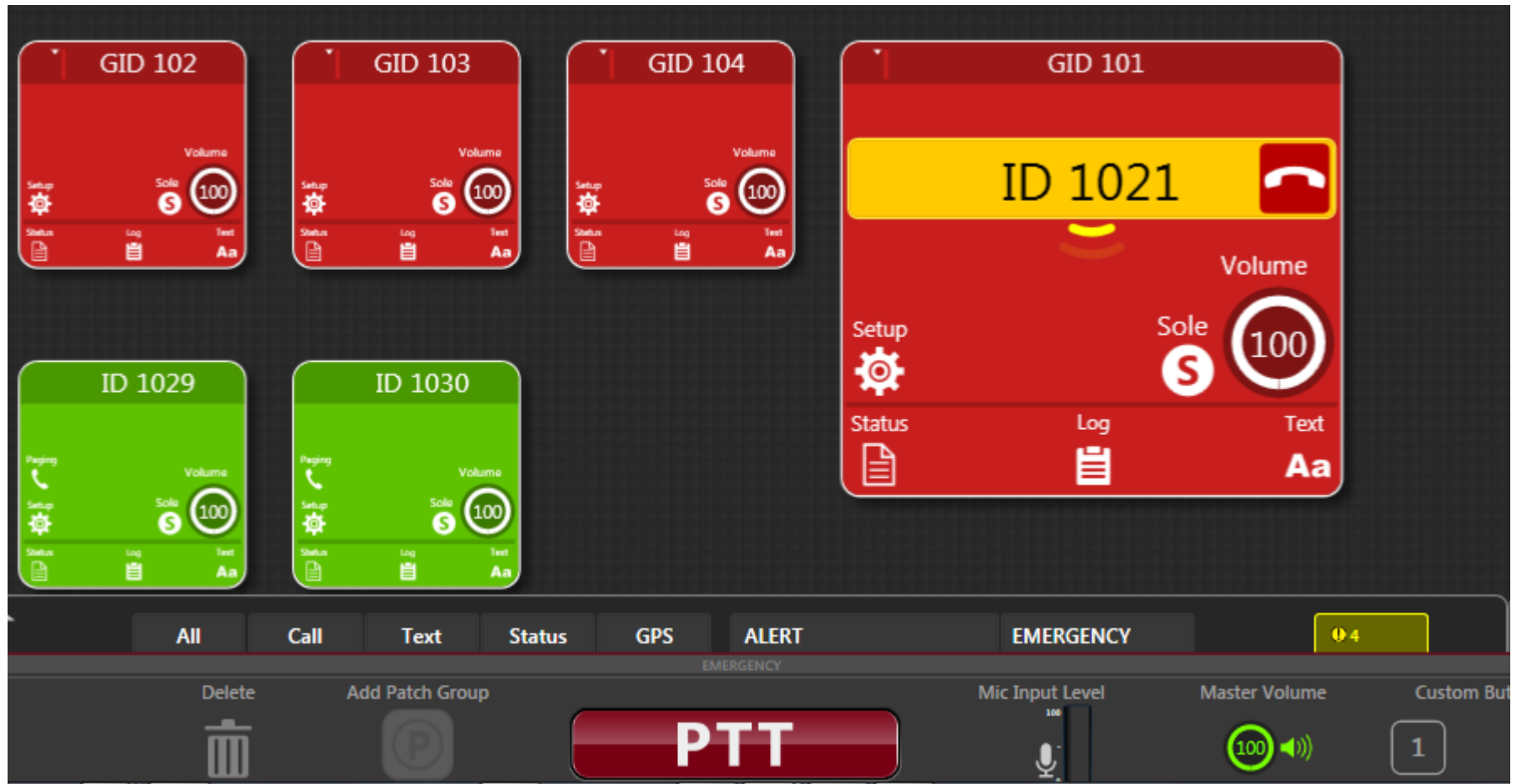
KAS – 20 Voice Dispatcher – typical features

- ◆ Voice calls: Group, Individual, Console;
- ◆ Text messages: Group, Individual, Console;
- ◆ Status messages: Group, Individual,
- ◆ Emergency;
- ◆ Activity detection: Man-down, stationary, motion, lone-worker;
- ◆ Special commands: Radio check, Stun, Kill, Revive, Remote Monitoring;

◆ GUI customisable



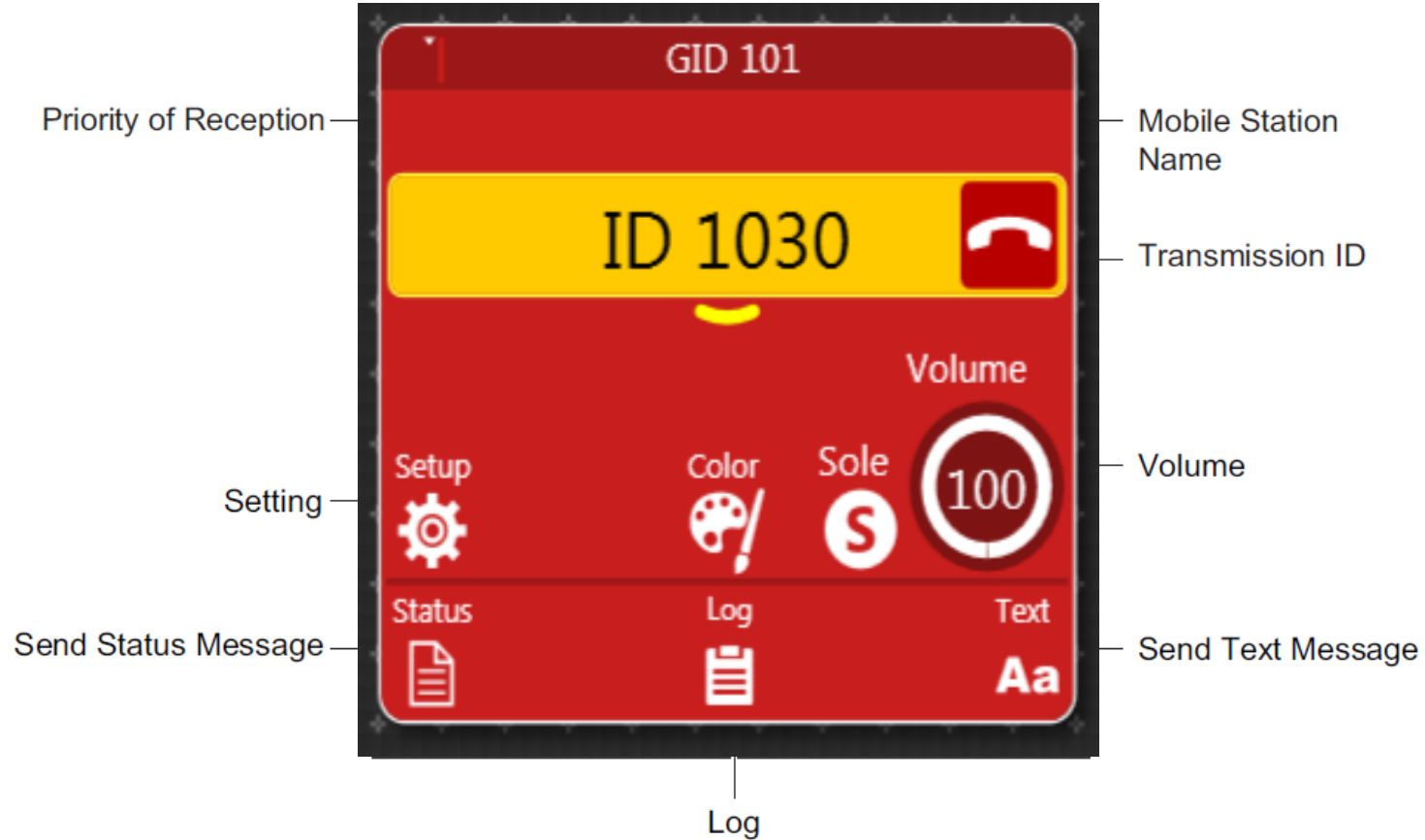
- ◆ Console voice call to: Unit ID, Talkgroup/Channel, Console ID



- ◆ Enhanced patch grouping function between different RF systems (DMR - NXDN, NXDN trunk – NXDN conventional).

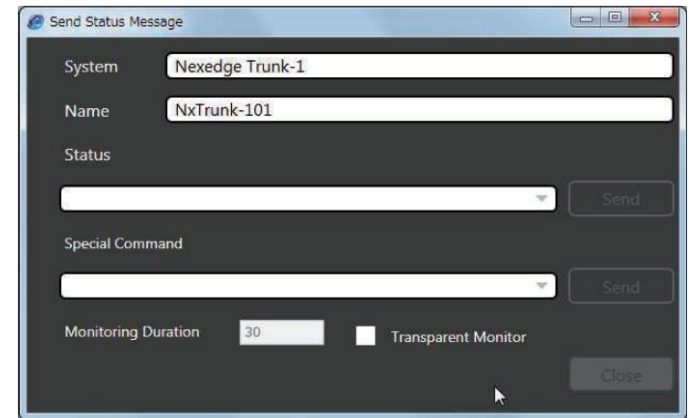
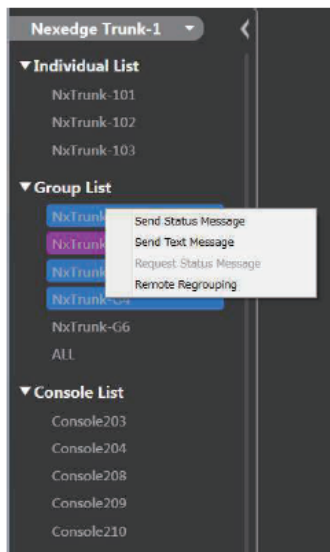
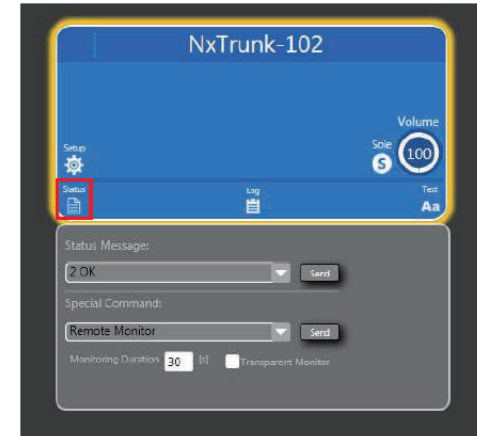


◆ Layout of Dispatch BOX

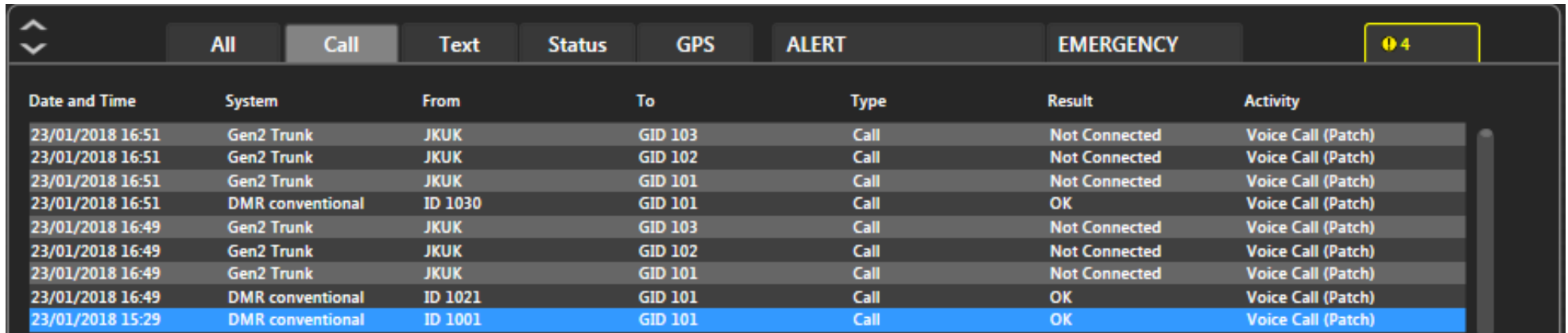


KAS – 20 Voice Dispatcher

◆ Send Status , Text Data, Special Command;

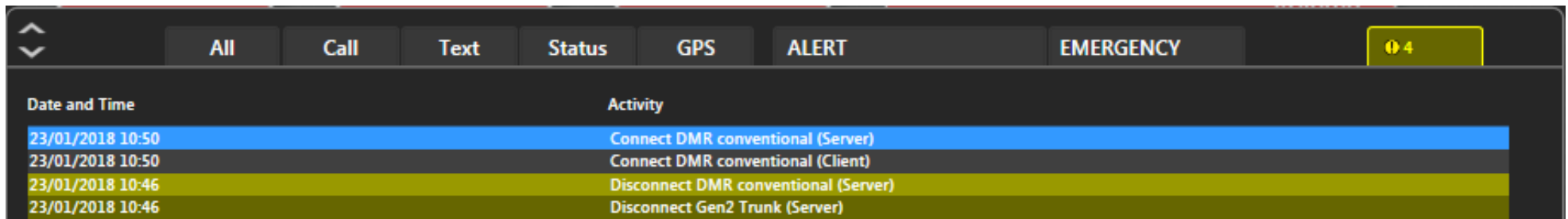


◆ Call Logs;



Date and Time	System	From	To	Type	Result	Activity
23/01/2018 16:51	Gen2 Trunk	JKUK	GID 103	Call	Not Connected	Voice Call (Patch)
23/01/2018 16:51	Gen2 Trunk	JKUK	GID 102	Call	Not Connected	Voice Call (Patch)
23/01/2018 16:51	Gen2 Trunk	JKUK	GID 101	Call	Not Connected	Voice Call (Patch)
23/01/2018 16:51	DMR conventional	ID 1030	GID 101	Call	OK	Voice Call (Patch)
23/01/2018 16:49	Gen2 Trunk	JKUK	GID 103	Call	Not Connected	Voice Call (Patch)
23/01/2018 16:49	Gen2 Trunk	JKUK	GID 102	Call	Not Connected	Voice Call (Patch)
23/01/2018 16:49	Gen2 Trunk	JKUK	GID 101	Call	Not Connected	Voice Call (Patch)
23/01/2018 16:49	DMR conventional	ID 1021	GID 101	Call	OK	Voice Call (Patch)
23/01/2018 15:29	DMR conventional	ID 1001	GID 101	Call	OK	Voice Call (Patch)

◆ System status



Date and Time	Activity
23/01/2018 10:50	Connect DMR conventional (Server)
23/01/2018 10:50	Connect DMR conventional (Client)
23/01/2018 10:46	Disconnect DMR conventional (Server)
23/01/2018 10:46	Disconnect Gen2 Trunk (Server)

KAS – 20 Voice Dispatcher

- ◆ **Playing back** a Recorded Voice Call;
- ◆ **MP3 Export** of Recorded Call.

The screenshot shows the KAS interface with a call log table. A context menu is open over the table, and the 'Play' option is highlighted with a red box. The table contains the following data:

Date and Time	From	To	Type
2016/11/30 14:33:57	BASE-1	NxTrunk-G1	Call
2016/11/30 14:31:52	BASE-1	NxTrunk-G1	Call
2016/11/29 14:08:27	BASE-1	NxTrunk-G1	Call
2016/11/29 14:07:48	BASE-1	NxTrunk-G1	Call
2016/11/29 14:07:26	BASE-1	NxTrunk-G1	Call
2016/11/29 14:00:49	BASE-1	NxTrunk-G1	Call
2016/11/29 13:50:40	BASE-1	NxTrunk-G1	Call
2016/11/29 13:49:34	BASE-1	NxTrunk-G1	Call
2016/11/29 13:48:20	BASE-1	NxTrunk-G1	Call
2016/11/29 13:47:20	BASE-1	NxTrunk-G1	Call
2016/11/29 13:46:53	BASE-1	NxTrunk-G1	Call

The screenshot shows a 'Play' dialog box with the following details:

- Name: 2016/11/30 14:53:40
- Playback controls: Previous, Stop, Play (highlighted with a red box), Next
- Buttons: MP3 Export, Close

The screenshot shows the KAS interface with a call log table. A context menu is open over the table, and the 'MP3 Export' option is highlighted with a red box. The table contains the following data:

Date and Time	From	To	Type
2016/11/30 14:34:17	NxTrunk-103	BASE-1	Call
2016/11/30 14:33:57	BASE-1	NxTrunk-G1	Call
2016/11/30 14:31:52	BASE-1	NxTrunk-G1	Call
2016/11/29 14:08:27	BASE-1	NxTrunk-G1	Call
2016/11/29 14:07:48	BASE-1	NxTrunk-G1	Call
2016/11/29 14:07:26	BASE-1	NxTrunk-G1	Call
2016/11/29 14:00:49	BASE-1	NxTrunk-G1	Call
2016/11/29 13:50:40	BASE-1	NxTrunk-G1	Call
2016/11/29 13:49:34	BASE-1	NxTrunk-G1	Call
2016/11/29 13:48:20	BASE-1	NxTrunk-G1	Call
2016/11/29 13:47:20	BASE-1	NxTrunk-G1	Call

4. KAS-20 AVL mapping

- ◆ Location management for up to 1,000 subscriber units;
- ◆ Compatible with both Open-Street Map and Scanned maps;
- ◆ KML and CSV export;
- ◆ Image layers can be individually switched on or off via Additional Layer Window;
- ◆ Auto & manual polling, Lone-worker, GPS time mark, Geo-Fencing, Track units, Go to home position, etc.
- ◆ Position Log & Play.
- ◆ Offline Maps Option using additional PC with Open Street Maps server

◆ AVL Window – Offline Map

TRUNK C

Unit	Fleet	Layer
<input checked="" type="checkbox"/>	UID 1001	
<input checked="" type="checkbox"/>	UID 1002	
<input checked="" type="checkbox"/>	UID 1003	
<input checked="" type="checkbox"/>	UID 1004	
<input checked="" type="checkbox"/>	UID 1005	
<input checked="" type="checkbox"/>	UID 1006	
<input checked="" type="checkbox"/>	UID 1007	
<input checked="" type="checkbox"/>	UID 1008	
<input checked="" type="checkbox"/>	UID 1009	
<input checked="" type="checkbox"/>	UID 1010	

200 m

UID 1006 /1006/207 /--- /I/41.04091 N, 28.98729 E /16:42:59

Wide Area Map

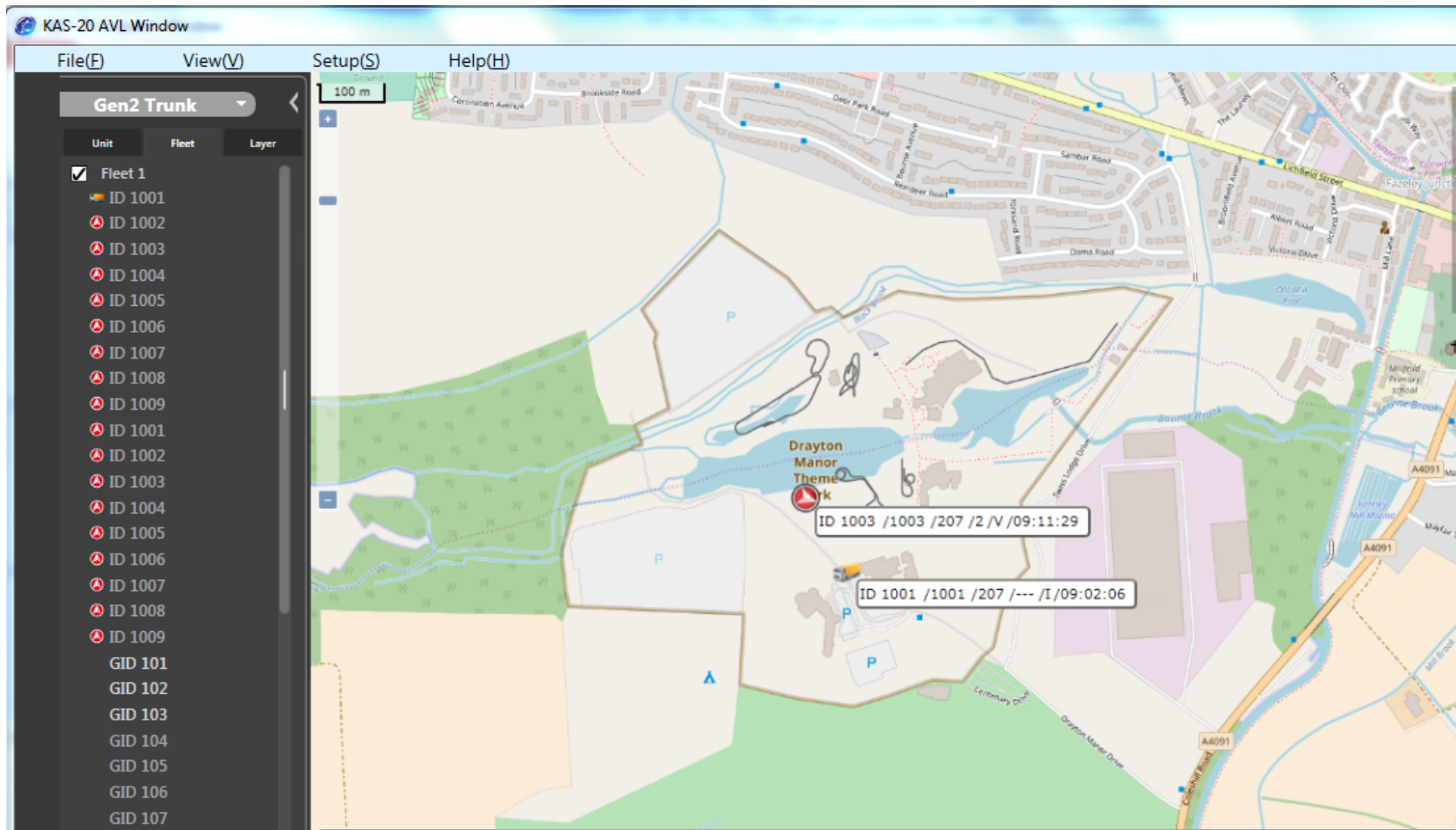
All Call Text Status GPS ALERT EMERGENCY System Status

Preset Map Master Volume

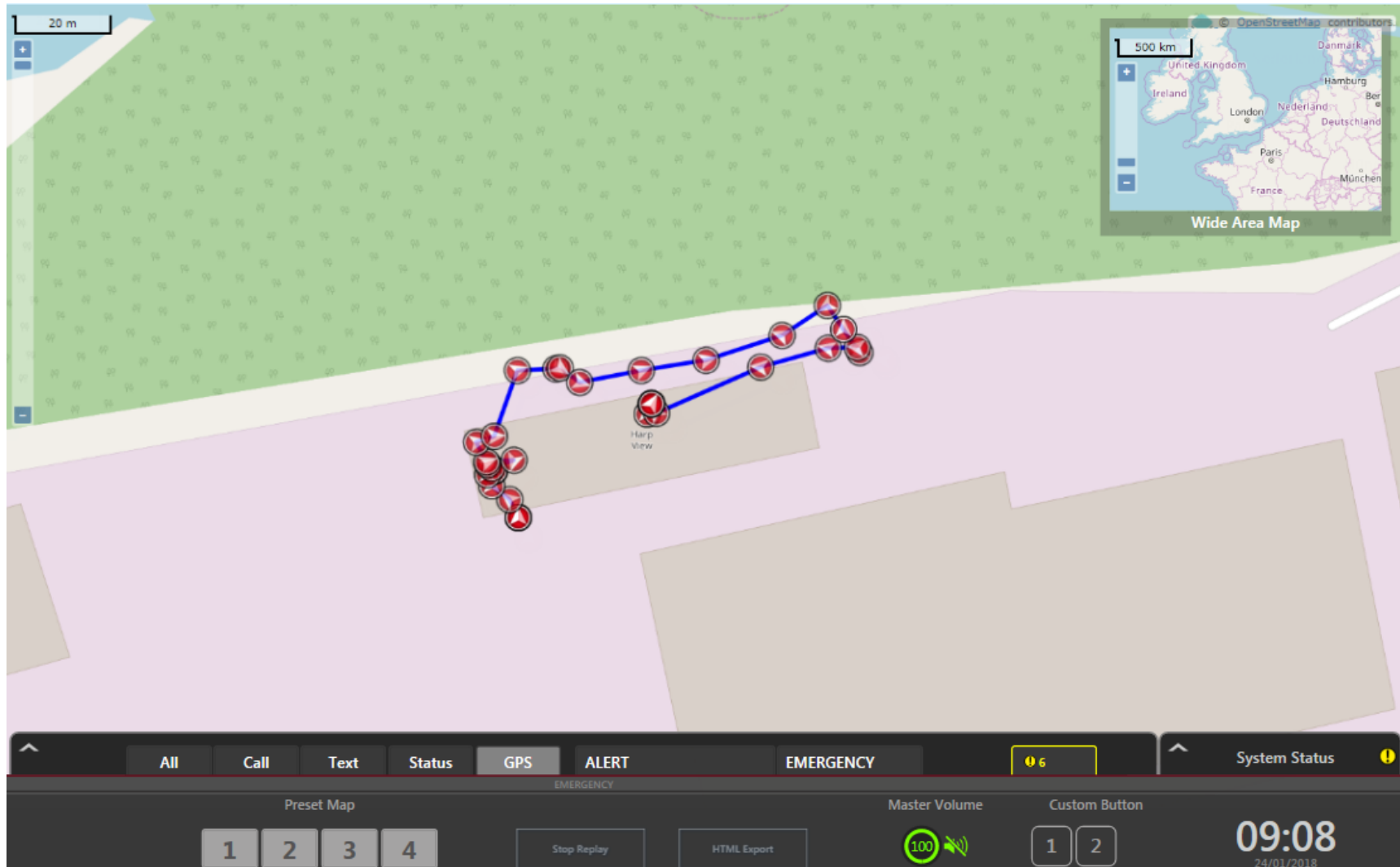
1 2 3 4 00

16:50
12/06/2019

◆ AVL Open-Street Map

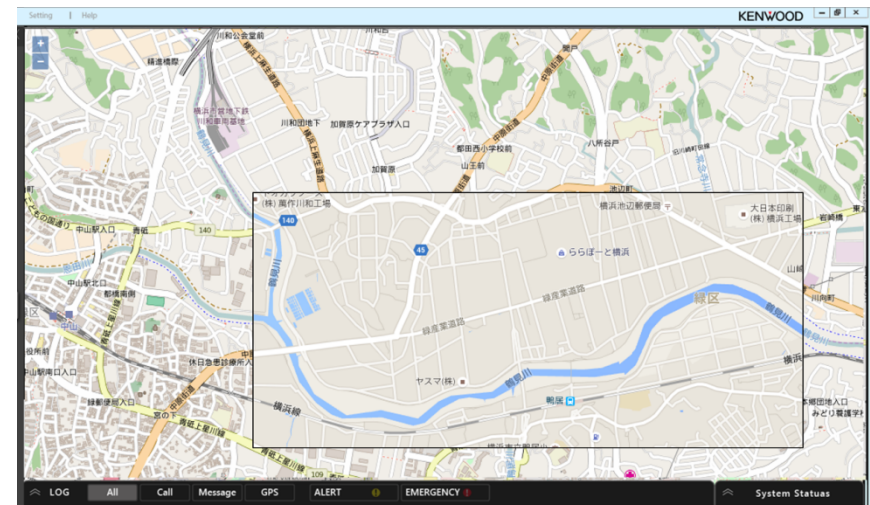
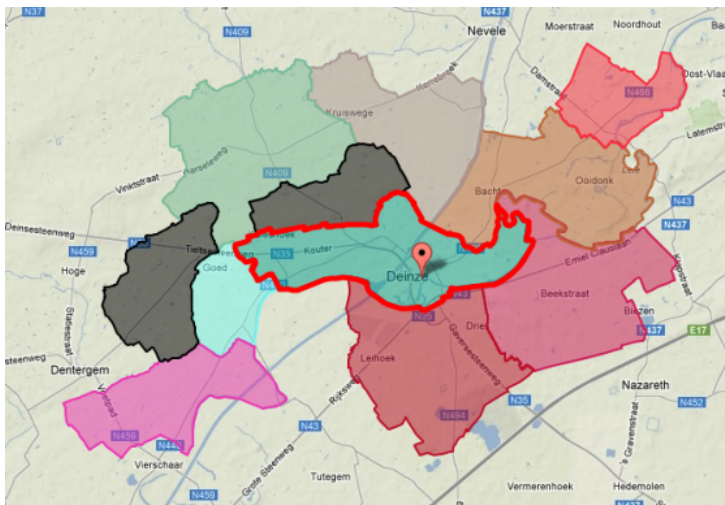
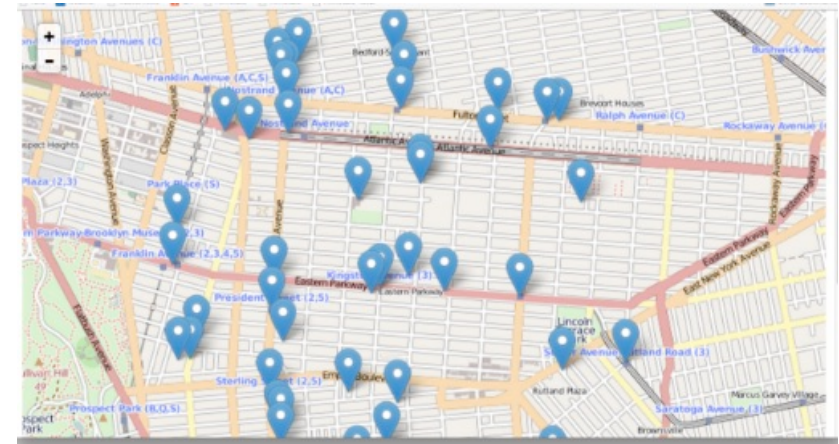
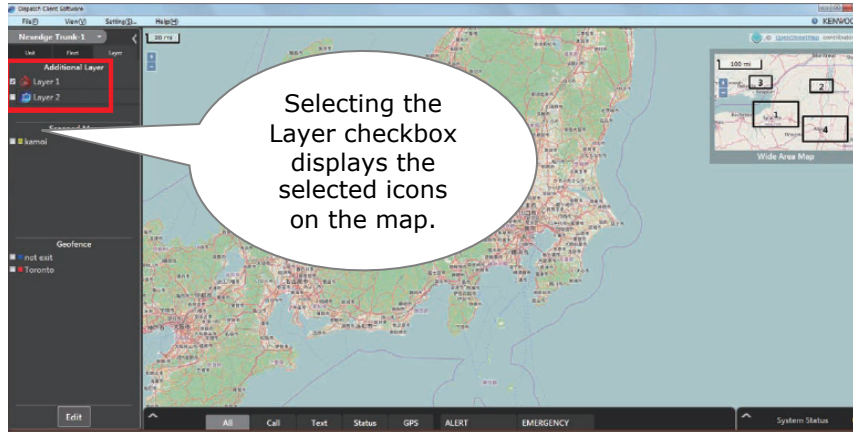


◆ GPS position replay on Open-Street Map



◆ Layer display function

The icons created by the user can be selectively displayed on the map.



◆ Display and Operation during Emergency mode;

When an emergency occurs at a mobile station, the icon of the mobile station changes to an “Emergency” icon, and an emergency tone is emitted.

The emergency bar at the bottom of the AVL Window lights up in red.

The screenshot shows the KAS-20 AVL software interface. The top menu bar includes File(F), View(V), Setting(S...), and Help(H). The main window displays a map of the New York City area with several mobile stations marked. Two stations are highlighted with emergency icons: NxTrunk-101 /10/183 /13:41:56 and NxTrunk-102 /10/42 /19:09:16. A table at the bottom of the interface shows a list of emergency events:

Date and Time	From	To	Type	TX Result	Activity	Talk time
2016/09/15 14:19:45	103_Name103	208_Nexedge Trunk	Emergency		Emergency	
2016/09/15 14:19:31	103_Name103	208_Nexedge Trunk	Emergency		Emergency	
2016/09/15 13:57:21	103_Name103	208_Nexedge Trunk	Emergency		Emergency	
2016/09/15 13:57:17	103_Name103	208_Nexedge Trunk	Emergency		Emergency	

A large red starburst graphic with the text "Emergency!" is overlaid on the interface. The bottom status bar shows "System Status" and the time "19:09" on "2016/10/20".

6. KAS-20 Summary

- ◆ Windows-based software with **AVL** and **Dispatch** features for **Entry to Mid Size** networks
- ◆ **Client-Server design** with KAS-20 Server and KAS-20 Client packages;
- ◆ **Cost effective** initial package with optional license upgrades;
- ◆ **Two basic configurations** for enhanced scalability:
 - **Standalone PC** with AVL & Dispatch system;
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- ◆ **Software implemented vocoder** for a fast and reliable operation;
- ◆ **IP and Serial*** Connection to the communications system; FleetSync, etc.
- ◆ AES/DES and ARC4 encryption*

* *Future development*

KAS – 20 Dispatch Console

The screenshot displays the KAS-20 Dispatch Console interface. At the top, there is a menu bar with 'File(F)', 'View(V)', 'Setup(S)', and 'Help(H)'. The main area is divided into several sections:

- Left Panel:** A sidebar with a dropdown menu set to 'DMR conventional'. It contains three lists: 'Individual List', 'Group List' (with items GID 101, GID 102, GID 103, and GID 104), and 'Console List'.
- Grid of Units:** A 3x4 grid of unit cards. The top row (blue) shows GID 101 (highlighted with a yellow border), GID 102, GID 103, and GID 104. The middle row (red) shows GID 101, GID 102, GID 103, and GID 104. The bottom row (green) shows ID 1029 and ID 1030. Each card displays 'Volume', 'Solo' status, and 'Test' buttons.
- Patch Group 1:** A floating window on the right showing 'Patch Group 1' with a 'GID 101' button and a volume control.
- System Status:** A panel on the bottom right showing a tree view: Server (Gen2 Trunk, DMR conventional) and Client (Gen2 Trunk, DMR conventional).
- Bottom Bar:** A navigation bar with buttons for 'All', 'Call', 'Text', 'Status', 'GPS', 'ALERT', and 'EMERGENCY'. Below this is a 'PTT' button, a microphone icon, a volume indicator, and a 'Custom Button' labeled '1'. The time '16:21' and date '23/01/2018' are shown in the bottom right corner.

KAS – 20 Dispatch Console

The screenshot displays the KAS-20 AVL Window software interface. At the top, the title bar reads "KAS-20 AVL Window". Below it is a menu bar with "File(F)", "View(V)", "Setup(S)", and "Help(H)". The main area is a map of the United Kingdom with a 50 km scale bar and coordinates "53.12993 N, 5.71201 W". Three vehicle locations are marked with red circular icons and callouts:

- Top callout: ID 1001 /1001 /207 /--- /1/09:02:06
- Middle callout: ID 1003 /1003 /207 /2 /V /09:11:29
- Bottom callout: ID 1002 /1002 /207 /4 /V /15:28:48

An inset "Wide Area Map" in the top right shows the UK's location in Europe. The bottom of the screen features a control panel with buttons for "All", "Call", "Text", "Status", "GPS", "ALERT", "EMERGENCY", and "System Status". A "Preset Map" section contains buttons "1", "2", "3", and "4". A "Master Volume" section shows a volume icon at "100". A "Custom Button" section contains buttons "1" and "2". The time "16:59" and date "23/01/2018" are displayed in the bottom right corner.

KENWOOD