Mimer SoftRadio

Connecting radios all over the world

Customer Examples

V 2.5

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A **Mimer SoftRadio** system can be configured in many ways. This paper describes some customer cases.

SoftRadio is used in over 50 countries around the globe of just as many different types of customers. From an ambulance service in North America, to an airport at the South Pole to the police in South Korea.

In the illustrations to the examples in this document, certain radio types are used. This shall be seen as examples of what can be done. Please check out or web sites for more information about supported radio types.

Much more information about **Mimer SoftRadio** and more customer examples can be found on the web pages www.lse.se/users.

Don´t hesitate to contact us at LS Elektronik if there is a project that you are thinking about. We will help with a system solution for you.
mimer@softradio.se

*Airport system in India*

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1 Taxi Dispatch

A typical taxi or courier dispatch company has a number of dispatchers in one large room. They are always on the phone and the room often feels noisy. In some cases, only a few have a radio control unit the rest have to walk over to a desk with a radio when they need to speak to a car.

With the help of Mimer SoftRadio they can integrate the radio into their computers, there is no need for an extra control panel on the desk and all dispatchers have access to the radio.

Many taxi companies are today concentrating their work to larger centrals where one city central covers several cities and therefore need to remotely control their radios. We have examples of taxi companies that dispatch cars 400km away.

1.1 Small Central

A typical small central has one radio channel either local controlled through a repeater or remote via the Internet.
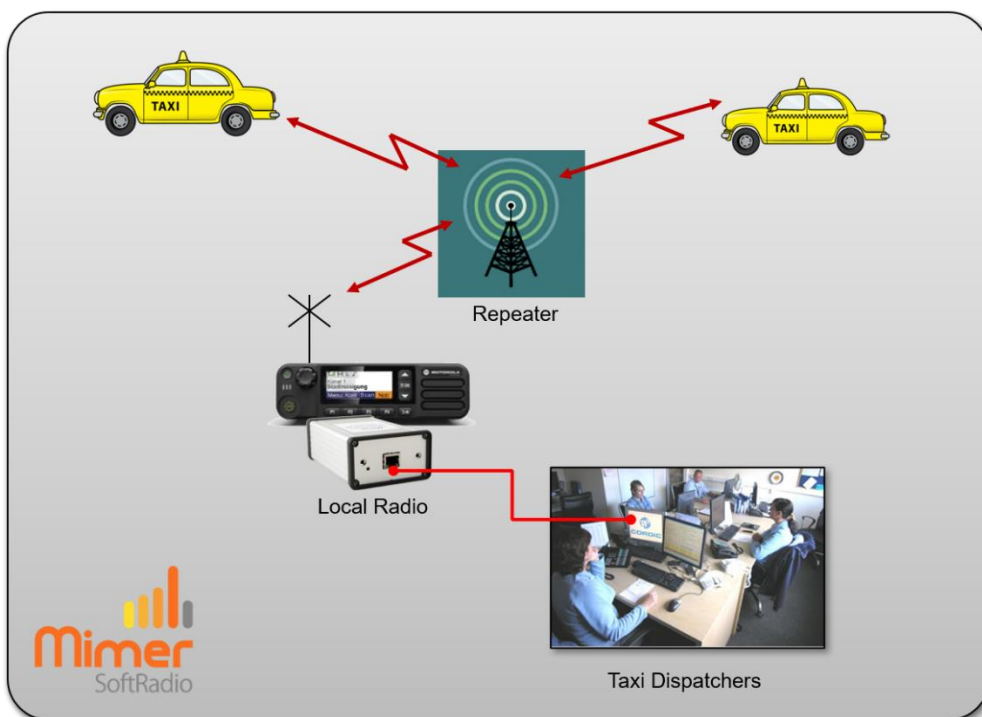
Dispatchers operating a local radio through a repeater to the taxis

1.2   Large Central

A larger central has several radios both local and remote in different cities. In order for all dispatchers to access all radios a NetworkRepeater is placed in the system. For quality reasons and for help to the dispatchers a VoiceLog is also connected.
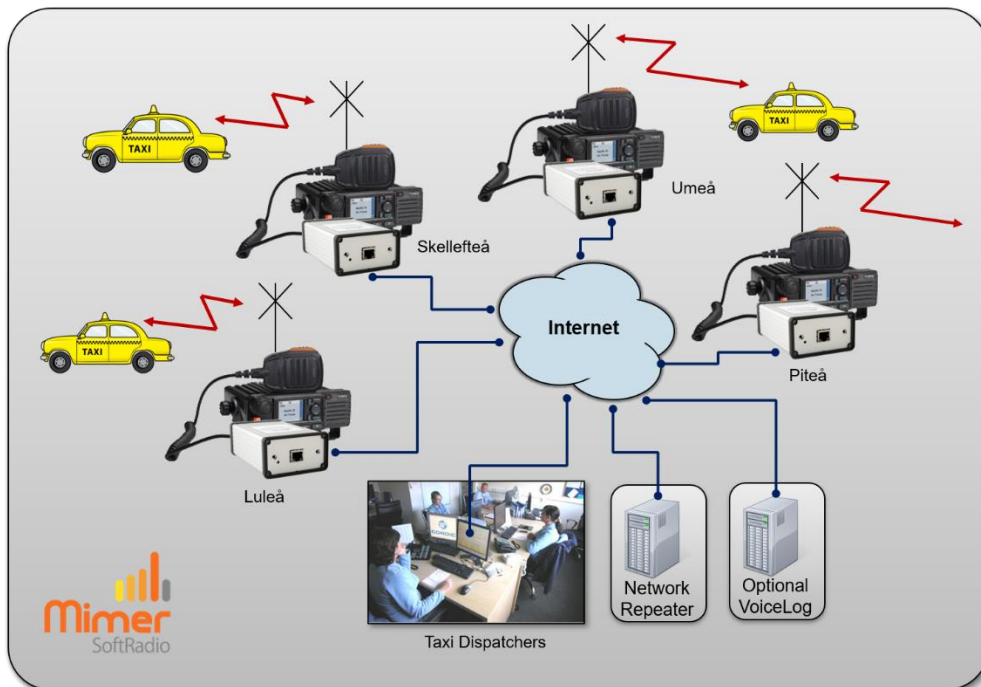

Taxi Dispatchers operating radios in four different towns

The option GroupSend helps the dispatchers to find the cars by simply transmitting on all base stations at the same time.

2 Bus Companies

Bus companies as well as taxi companies have local dispatch centrals for a geographical area. In the night time when traffic is low, they often combine their personnel resources to one central. With SoftRadio it is easy to connect all radio systems into one place, even if they are of different types and at geographically different places.

The radios can be connected over a LAN, WAN or through the Internet.
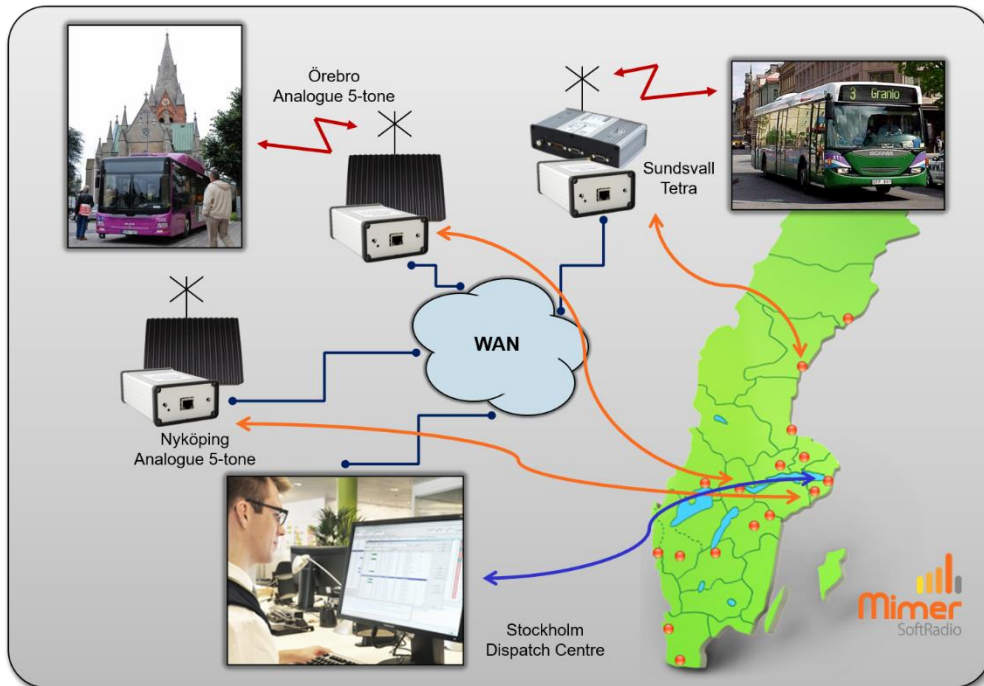
Dispatcher in Stockholm using radio systems in three other regions

In the example above from the Swedish bus entrepreneur Nobina, they have a central dispatch in Stockholm that is in use during nights and weekends. Radios in other parts of the country are connected to the central through their own WAN.

At the moment the buses in Sundsvall are using a Tetra network with Sepura terminals. The other two networks are old analogue systems that will be shifted out in the near future, most likely to Tetra.

The operator can remote control radios in each city with the same feeling as if he/she was sitting in front of a local desk mounted radio. In the daytime local operators use the same SoftRadio system, but only with local control of their own system. The system is scalable and flexible to different radio techniques.

3 Tetra - Public Safety

Large public safety systems, mostly Tetra, are built with lots of redundancy so that they will never completely break down. But what if…

Using Mimer SoftRadio to locally control one or more radios at each police station also gives some extra benefits.
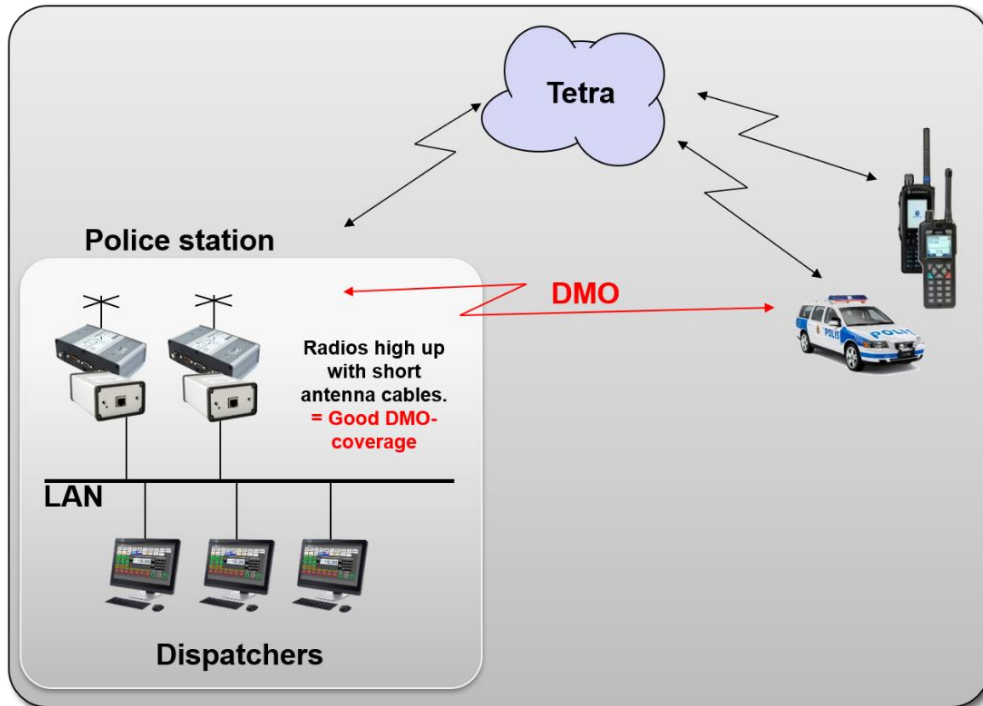

Two radios installed at the local police station.

As long as the Tetra system works you can use your radios in TMO and have good dispatcher positions. If the Tetra system breaks down you can set your local radios in DMO mode and continue working with the local users.

If the local radios are placed high up in the police building, and with a short areal cable, you get good radio coverage from the radio also in DMO.

Via the WAN or an Internet connection you can remotely use other radios in DMO or set them up as DMO repeaters. Setting the same DMO talkgroup on several radios in different areas and connecting them into a large CrossPatch group will give you a wide area talkgroup.
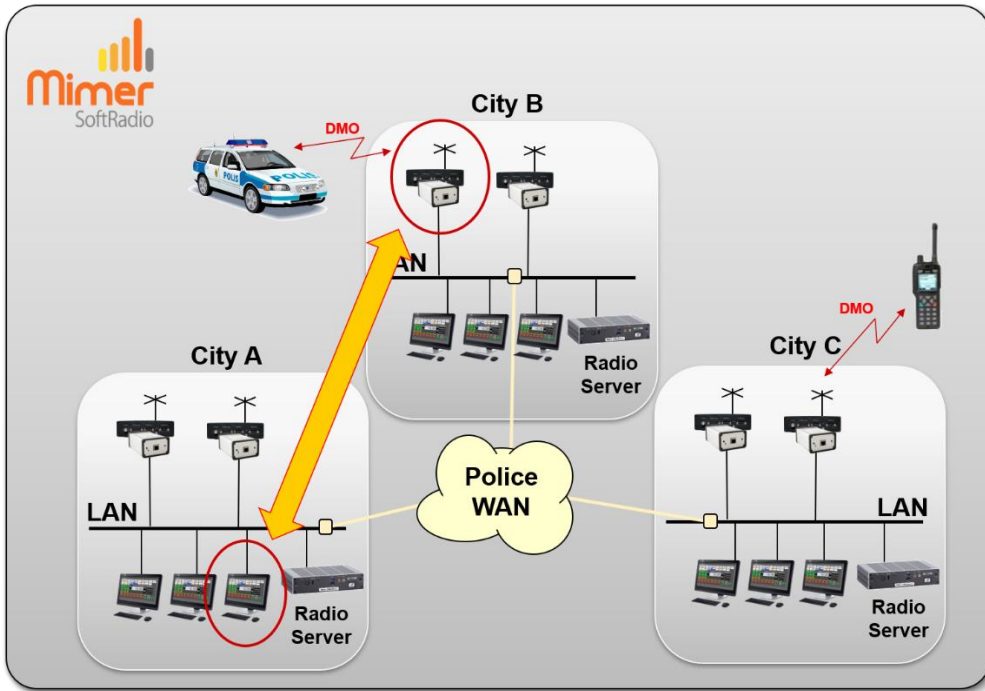
*Three cities connected through CrossPatch on the same DMO talkgroup.*

4 Fire Station

A typical fire station or police station has one or more radios on a desk. These take up space, are hard to connect to a good antenna and only a few people have access to them.

With Mimer SoftRadio the radios can be placed were they are not in the way, and the antenna can be placed high up and can have a short connection cable (for low loss). All computers at the station can be used as dispatchers or for monitoring only.

Radios of different types can be mixed in the system and calls can be cross patched between them. This means for example connecting a Tetra talkgroup to an analogue channel.

Fire defences that cooperate with nearby industries often needs to use their radio system when they are at their area. With SoftRadio they can have both systems at the dispatcher and they can cross patch the systems together.
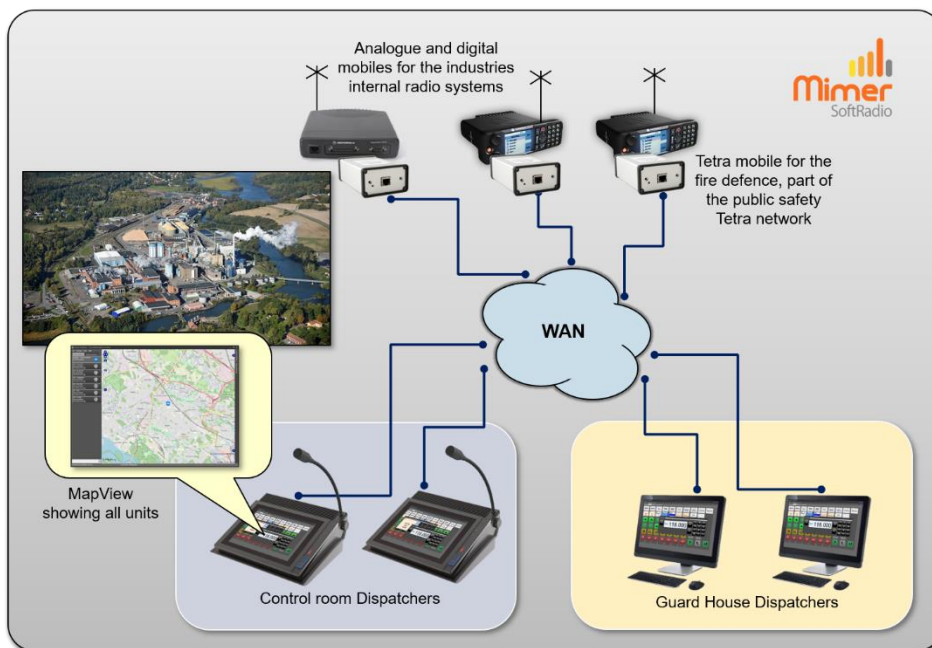
*Industry system with fire department radio*

If the system is connected to the Internet a user can connect from his home or from a fire station in another town maybe. This will get him the same access as if he was sitting locally.

5   A large security company

Large security companies often have a mix of radio systems coming from older companies that might have been bought up or merged. Some of them are in other towns and need to be remotely controlled.

There is often a need for voice logging and also status logging with time stamping of all activities and incidents.

This mixed environment is easily handled by Mimer SoftRadio with VoiceLog and StatusLog.
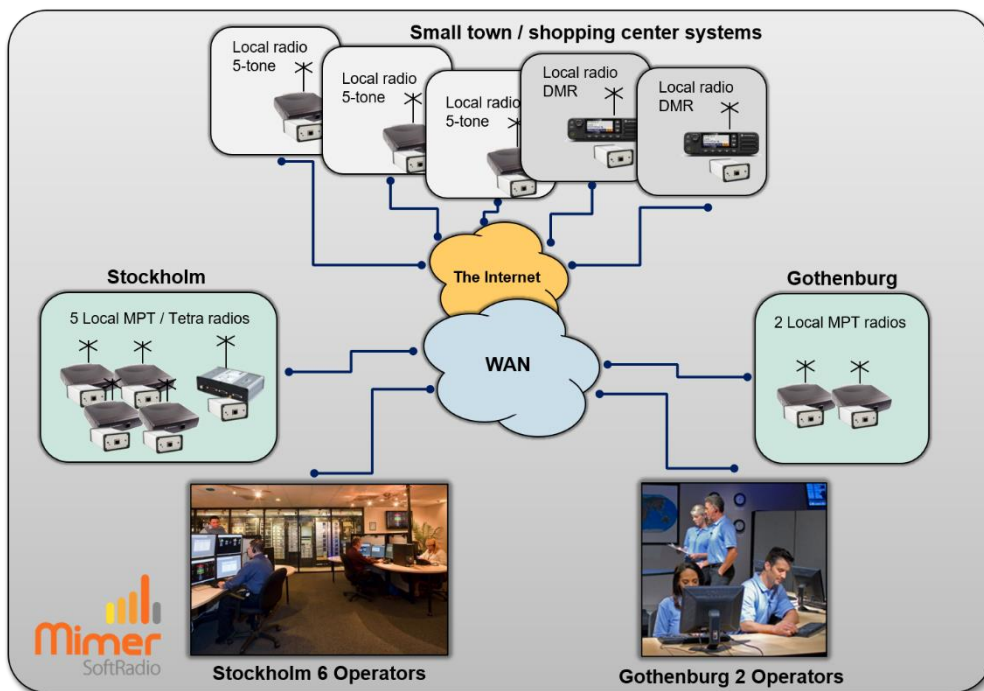
Large system at a one of Sweden's larger security companies

The example above shows a large security company with alarm centres in two towns and with old radio systems based on both MPT and 5-tone.

Expansions have been made with new systems based on DMR and with Tetra radios in the Public Safety network. *Further described on the web page.*

5.1   Long distance back up

We have a security company in Stockholm that uses an MPT-system. They have a local separate radio in their alarm centre that receives all alarms. But this is not enough; they also need to have the alarm to go to a separate remote alarm centre in parallel.

This is solved with a radio at a different location monitoring the MPT-system and connected to a Network Interface and then through the Internet to an alarm centre 600km away.

When using IP connection's, the distance is no longer a problem.

6 Casinos

The state-owned casinos in Sweden, "Casino Cosmopol", has a common Alarm Central located in a Stockholm suburb. There they have camera monitoring of all four casinos and also radio communication to the casinos.

The system is built with SoftRadio and Motorola MotoTrbo and run on their own WAN.

There are both local control of the radios at each casino and remote from the alarm centre. The system can be expanded with more radios as well as a VoiceLog for audio recording at a later stage.
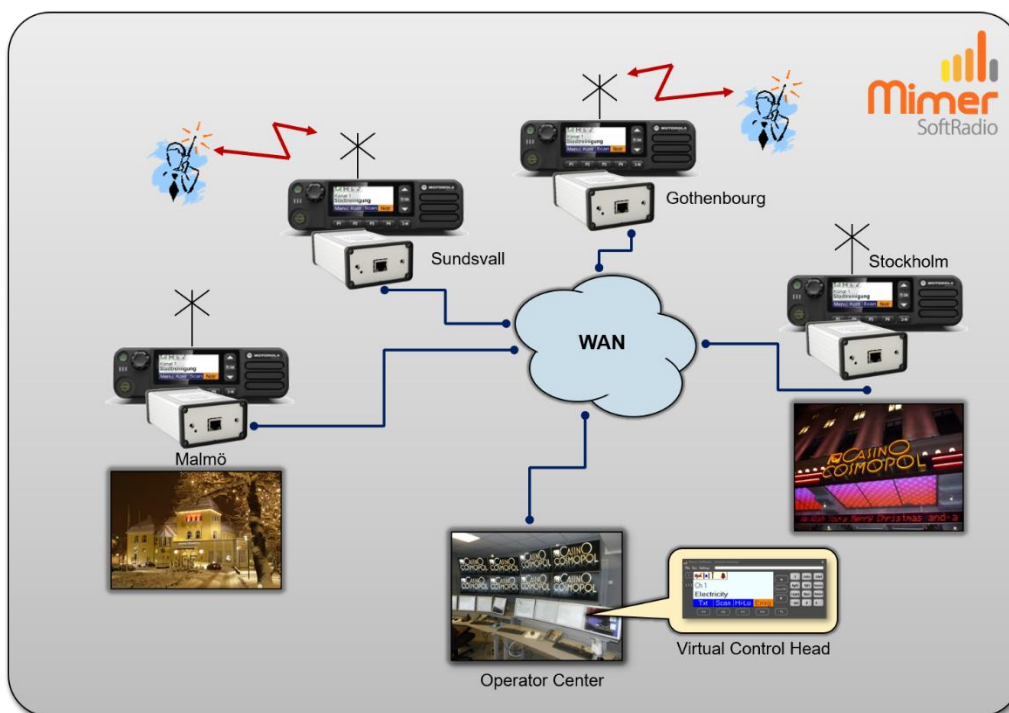
System with radios in four towns and dispatchers at a fifth place

7 Airports

Airports are places with many radio systems; Mimer SoftRadio then becomes ideal for the operators. They can handle calls from all types of radios.

SoftRadio is for example used at: Schiphol, Arlanda, Bial, Dublin, Tahiti and many more airports.

7.1 Remote Airband radios

The radios at a small airport can be both locally controlled and remotely controlled from a larger airport to save operators. In this way one command centre can talk to planes anywhere in the country.

This can for example be used so that the local operators are used in the daytime and the common operator is used during times with low traffic.
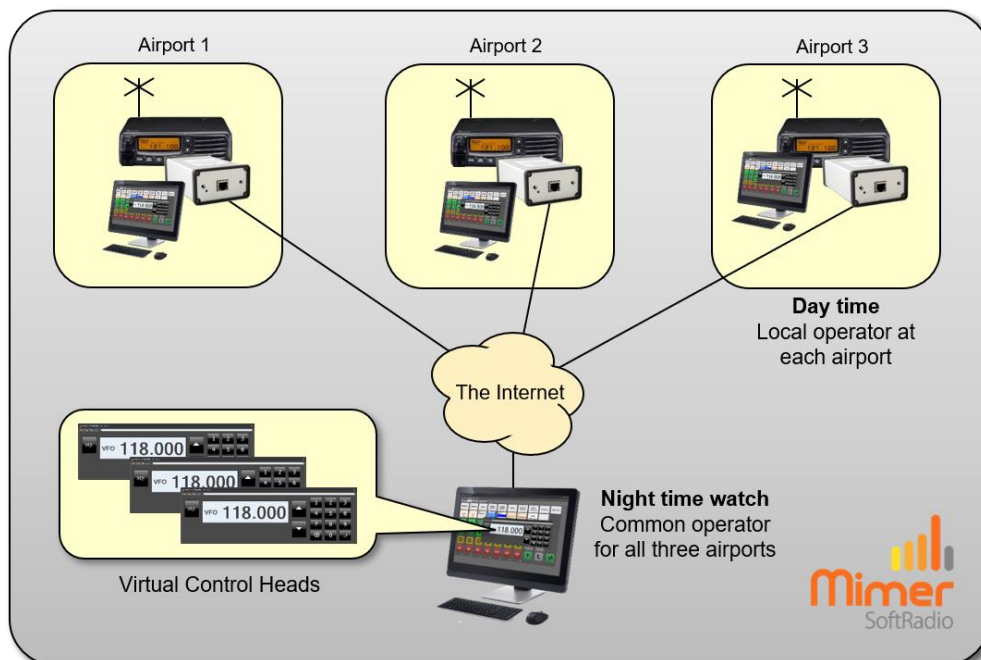

7.2 At the gates

An airport dispatcher can connect to a number of different radio systems through his Mimer SoftRadio and also to phones. Through the use of CrossPatch, calls from air band channels can be connected to ground channels or talk groups.

The larger airports have trunked radio systems and often use a dedicated talk group for the work that is done around a gate. This is very effective; all personnel involved with one flight will hear each other from baggage loading and fuelling to boarding card checking. But there is
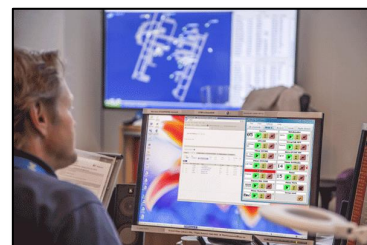
also a demand to get the pilot and purser on-board the flight into this talk group. The aim is to shorten the turnaround time for each flight at the airport.
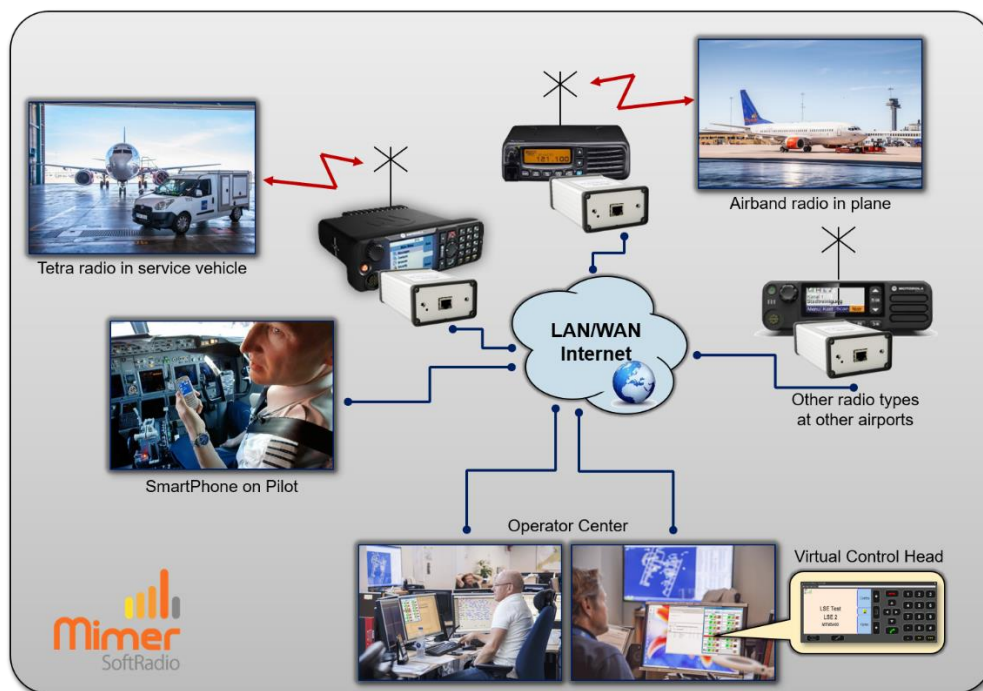
System at Scandinavian Airlines Systems

At SAS we have solved this by letting the pilot, purser and maybe more of the cabin crew, connect to a PTT call over cellular (PoC) that is connected to the radio group call that is ongoing around the airplane. All personnel working around and inside the plane can then be in the same conference, regardless of if they use a radio or a phone.


The system is set up in most Swedish, Danish and Norwegian airports for analogue radio, analogue trunked radio and Tetra, depending on the respective airports system.

7.3   Cross patching with SoftLine

We have also made a special CrossPatch solution for airport use. It connects for example an Icom IC-A120 air band radio to a Motorola MTM5400 Tetra radio over the Internet or local LAN/WAN.

This gives Tetra users (ground personnel) the ability to talk to air band radios (planes).

The system can be set up for almost any two types of radios. The functionality can also be achieved by using SoftRadio with the option CrossPatch.
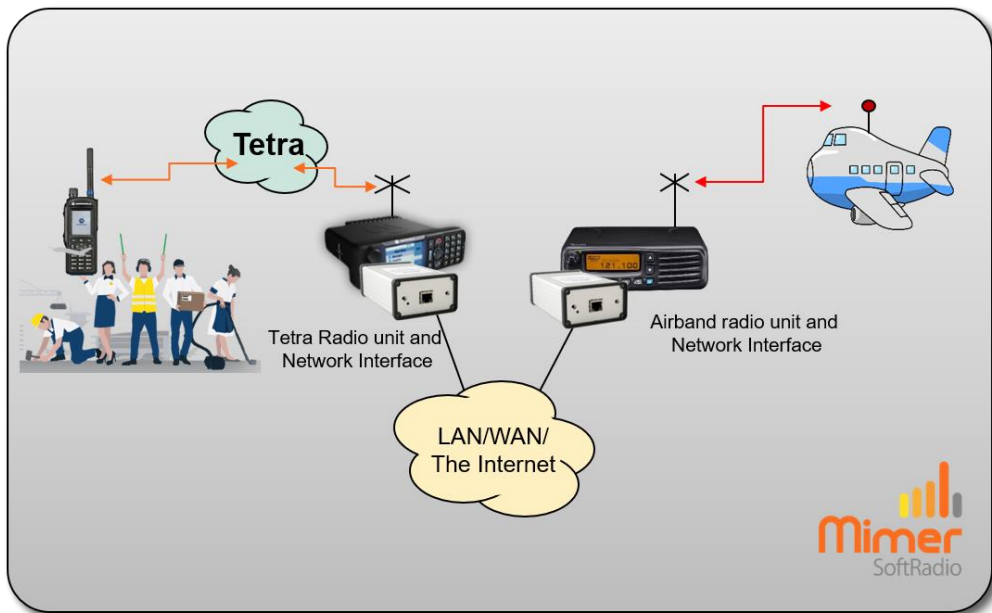
Mimer SoftLine, crosspatch without dispatchers

7.4 Cross patching with X-Link

There is also another possible solution to bridge two radio systems together, this is called X-Link and uses a small interface box between the radios. With this setup the two radios need to be installed close to each other.

Read more here: www.lse.se/x-link

X-Link setup of Tetra and Airband
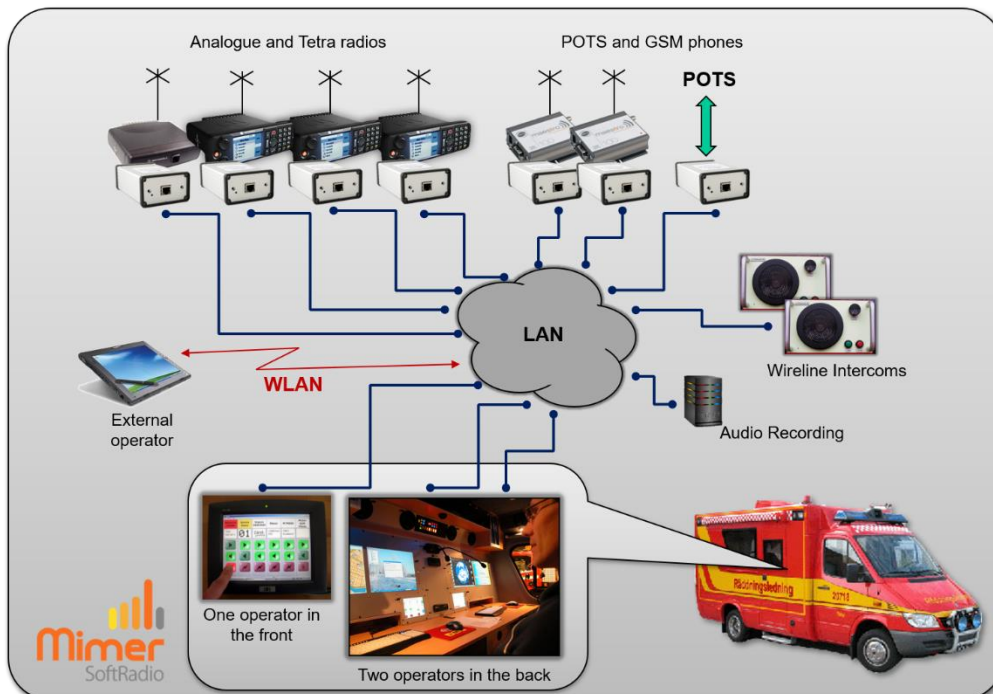
8   Command and Control Vehicles

The very first system built with Mimer SoftRadio was four command and control vehicles for the fire defences in the Stockholm Area. They needed eight two-way radios and three mobile phones plus land line phone and intercom in each car. All dispatched from three operator positions. We saw before us a mess of microphone cords and radio control heads and realised that a new system was needed.

The solution is that every operator position has one 8" touch screen where the operator can handle all the systems above. Together with the screen they have one headset or microphone/speakers. For every radio and phone, it is selectable if the audio should be in the right or in the left speaker. Two of the radios can also be switched over to external antennas through push buttons on the screen. All functions on all radios and phones are handled from the same touch screen.

The picture shows two operator positions in the vehicle, the SoftRadio screens are the small screens at the bottom of the panel.

Command and Control vehicle system

Since then the cars have been upgraded from analogue to Tetra. The operator PC´s have been changed out and two of the cars have been changed out after running for 10 years.

The same type of setup can of course be used on other mobile command and control centres in cars and onboard ships.

9 Ships

Large ships have many different communication paths. It is not only Marine VHF; it is UHF on board channels, safety channels, long distance channels, short wave radio and phone through GSM and satellite. If it is the Coast Guard they need to speak to fire and police maybe via Tetra and often there is also an on-board intercom system.

All of these systems need to be accessed from many positions in the ship. Mimer SoftRadio is then very useful, it might be that we cannot mimic all radios control heads, but we can definitely connect all audio channels into one system, reducing the need for many handsets at each operator.

With the option "Mimer MarineCalls" you can decode and log ATIS and DSC messages from the marine channels, and you can send DSC messages.
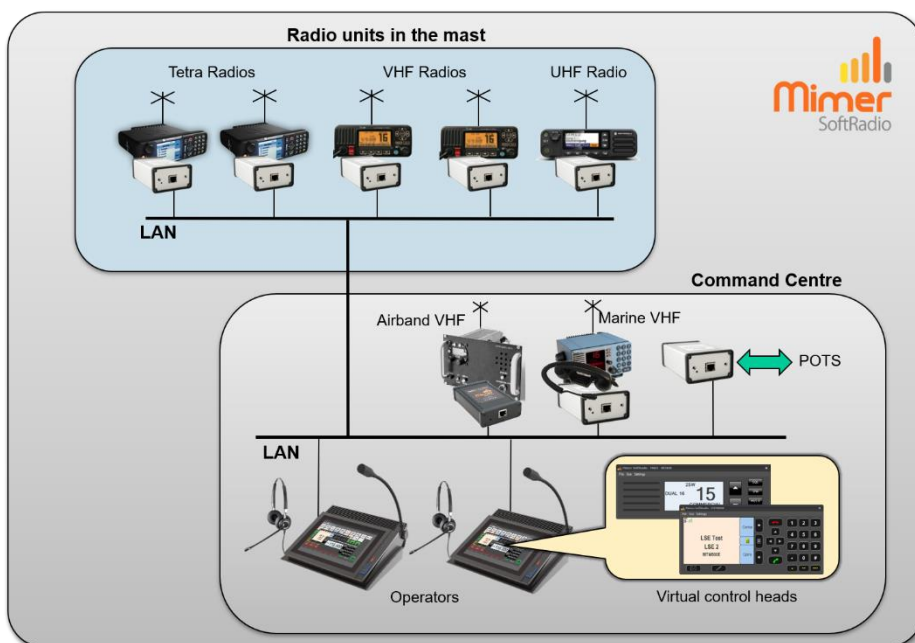

System onboard the Coast Guard Ships 001, 002 and 003

The Swedish Coast Guard use SoftRadio for Command and Control onboard their largest ships. Most of the radios are placed in a radio room high up in the mast. This gives a short aerial cable and only one TP-cable down to the command room. Meaning low loss on the between radio and antenna and easy installation onboard the ship.

9.1　Unmanned ships

There are many tests ongoing with unmanned ships. This means that one operator can handle several ships at the same time, remotely. But the ships still need communication. The remote ship operator needs to be able to talk on Marine VHF to close by ships.

We solve this with SoftRadio over an IP link to the ship. Either using 4G when close to the shore or satellite when far out at sea. The software at the operator can handle many ships and can be expanded with DSC call handling and voice recording.
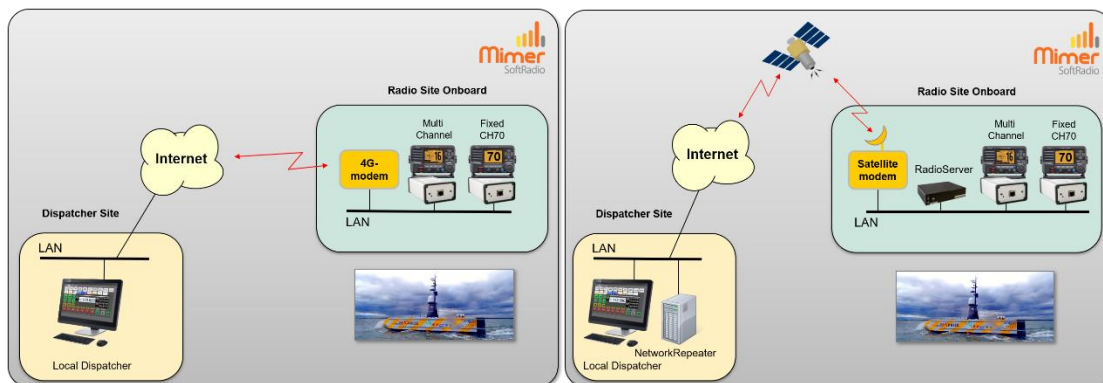
Remote Marine VHF using 4G or satellite

10 Offshore Industry

10.1 Oil and gas platforms

Oil and Gas industry as well as windfarms offshore have a large need for radio communication. Often the dispatchers are placed onshore, for cost reasons. The IP connection use fibre links out to the rigs. In early stages of building before the fibre is in place a satellite link can be the only solution.

Mimer SoftRadio can connect all the needs of the dispatcher at the Marine Control Centre. All radio types can be connected like Tetra, Marine band and Airband as well as Phones and intercom. For satellite connection there are special versions of the Radio Server.
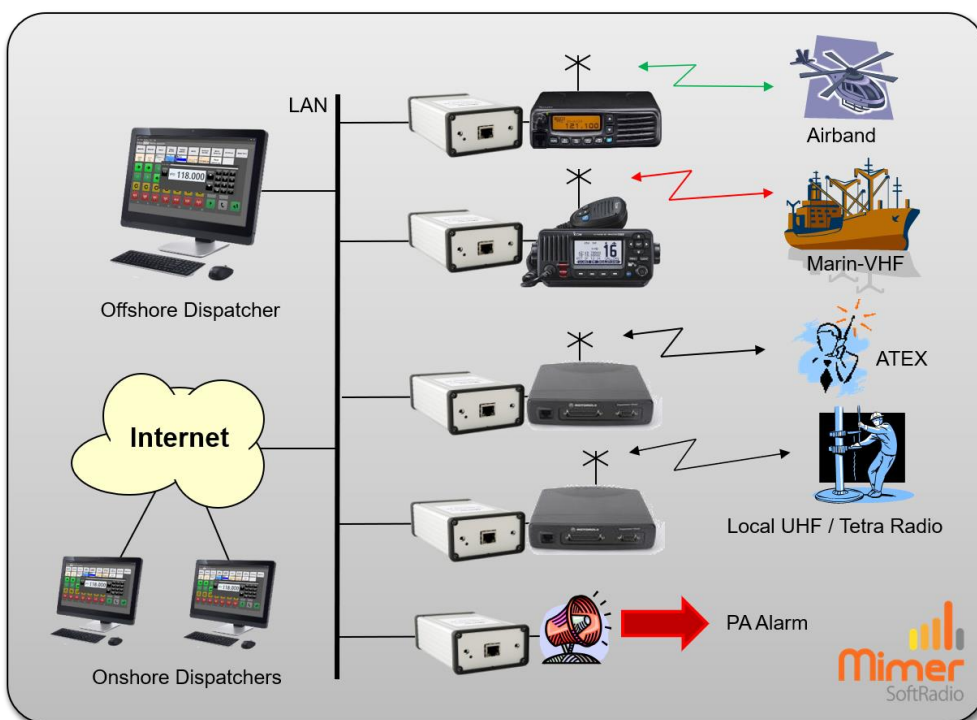

Oil rig example with different radio types and dispatch both offshore and onshore

On oil and Gas rigs the onboard communication portables are ATEX radios since the environment is an explosive hazardous area. But there are no Airband radios with ATEX approval. So, when personnel on deck needs to talk to an inbound helicopter, he can ask a dispatcher to make a cross patch in the SoftRadio system between the onboard radio and the Airband radio, and then use his ATEX approved onboard radio and still be able to talk to the helicopter.

10.2 Windfarms at sea

The building of a wind farm at sea starts with a container with a lot of technical equipment, for example radios to communicate both with ships and helicopters.

At start the system is connected through satellite and at a later stage reconnected through a fibre cable. In this way operators on shore can talk to the building personnel and to nearby ships and helicopters.
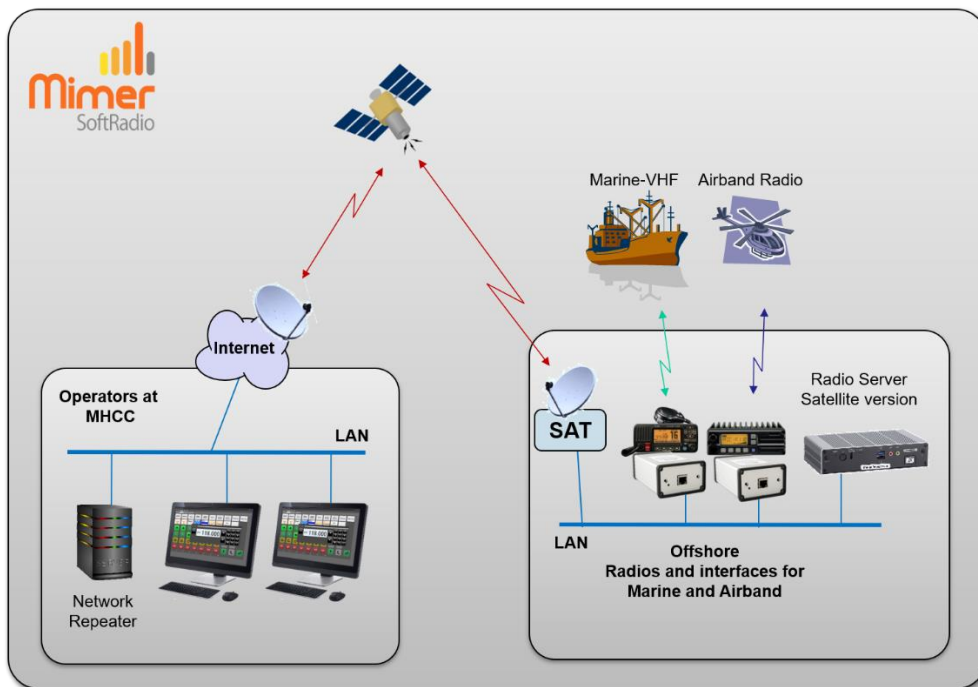

Example of satellite connection to an offshore radio site

11 Harbour

At a harbour many different types of systems need to work together. You have everything from loading ships, to calling ships and pilots coming in to the harbour, to safety and to security.

With Mimer SoftRadio at the harbour operating central, all types of systems can be handled from the same operator PC. Calls can be cross patched between systems and connected to phone lines. It does not matter if one system is Tetra and another is Marine VHF, all are accessed from the same operator console.
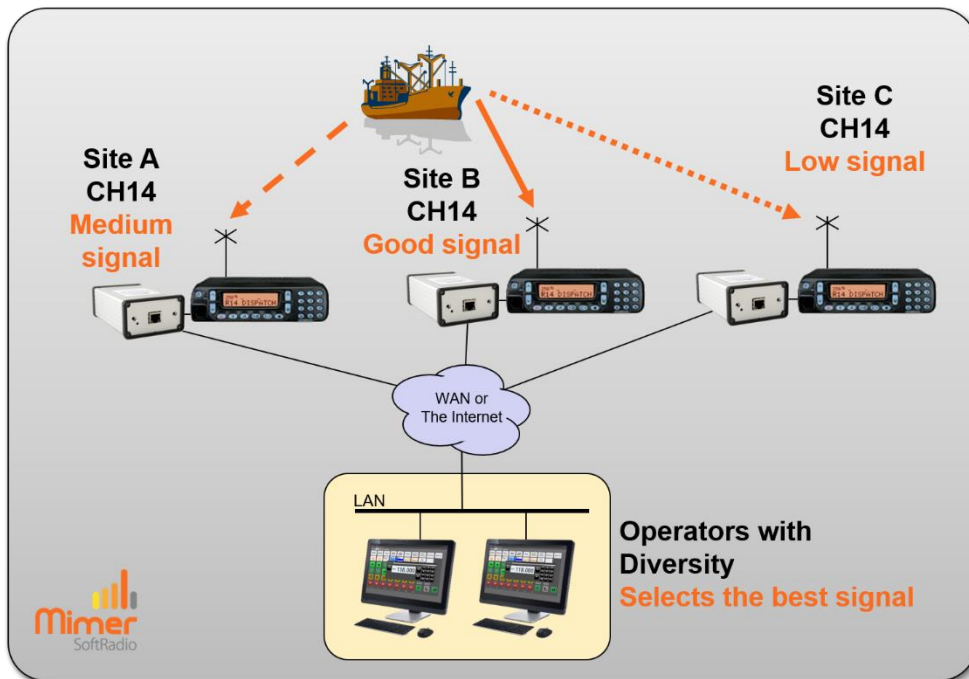
A marine example with three sites and CH14 on all sites

When several base stations work on the same fixed channel (for example CH14 as above) they can be connected in a voting/diversity system so that the operator only hears the strongest signal. More reading here: www.lse.se/voting

Many harbours have also combined the SoftRadio system with the PoC service GroupTalk so that they can have the marine channels in their smart phone.

12 Coasts and Rivers

Coastal lines or waterways such as rivers and canals often have several base station sites connected to one, or more, dispatcher centrals. At these centrals a continuous monitoring is needed of certain channels and the selective calling systems ATIS and DSC.

Mimer SoftRadio can easily handle both base stations with fixed channels (for example CH16) and base stations with selectable channels.

In the example below each base radio site have three radios. One of them is fixed to CH16 and one is fixed to the DSC channel, CH70. The third radio the operator can set to a selectable channel.

Since the system in the example is used on a European inland waterway the ships send an ATIS message at each transmission that identifies them. This is decoded, displayed and logged in SoftRadio.
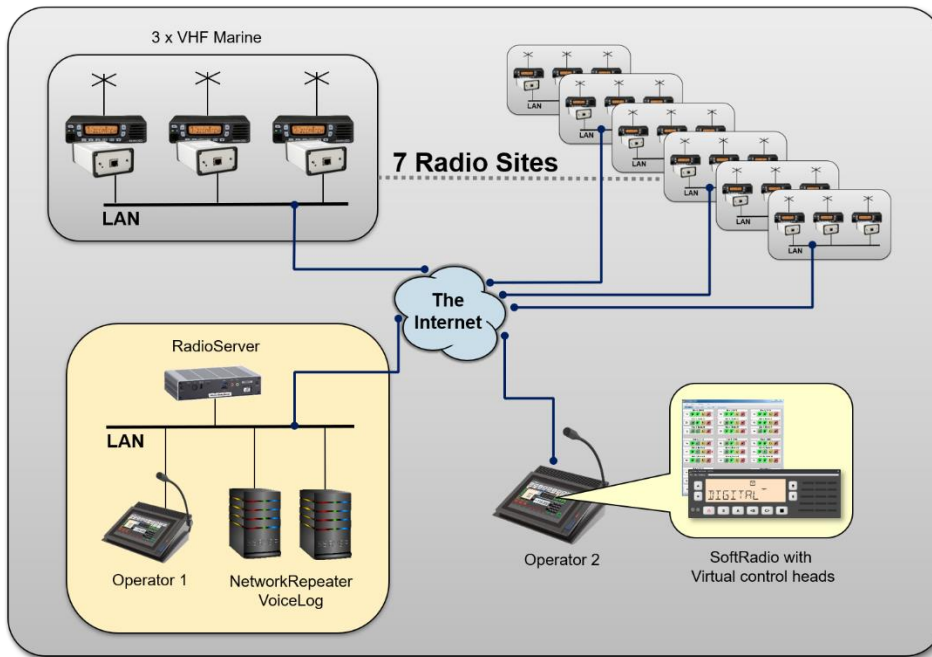
An example of a river system with seven base sites and two dispatchers

With the option "Marine Calls", ATIS and DSC messages can be decoded, logged and presented for the dispatchers. DSC messages can also be sent.

The system in the example also uses voting between the base stations that have the same channel, as described above. A Mimer VoiceLog for audio recording is also implemented.

13 Industrial

At industrial sites there is often control rooms filled with operator screens for the process at the industry. These screens are all dedicated for their own purpose and no other software can be loaded on the same machines.


For that purpose, we use small touch screens together with equally small PC´s. This means that the Mimer system will have its own screens that fit nicely into the control room environment without disturbing the plants process equipment.

The Mimer Software is made to be usable via touch screens, all the standard push buttons are large enough for your index finger.

Screens can be external, installed into panels or even waterproof if needed.

Systems can be mixed so that you for example may have the industries standard radio system mixed and cross patched with a local system used between headsets with built in radios.
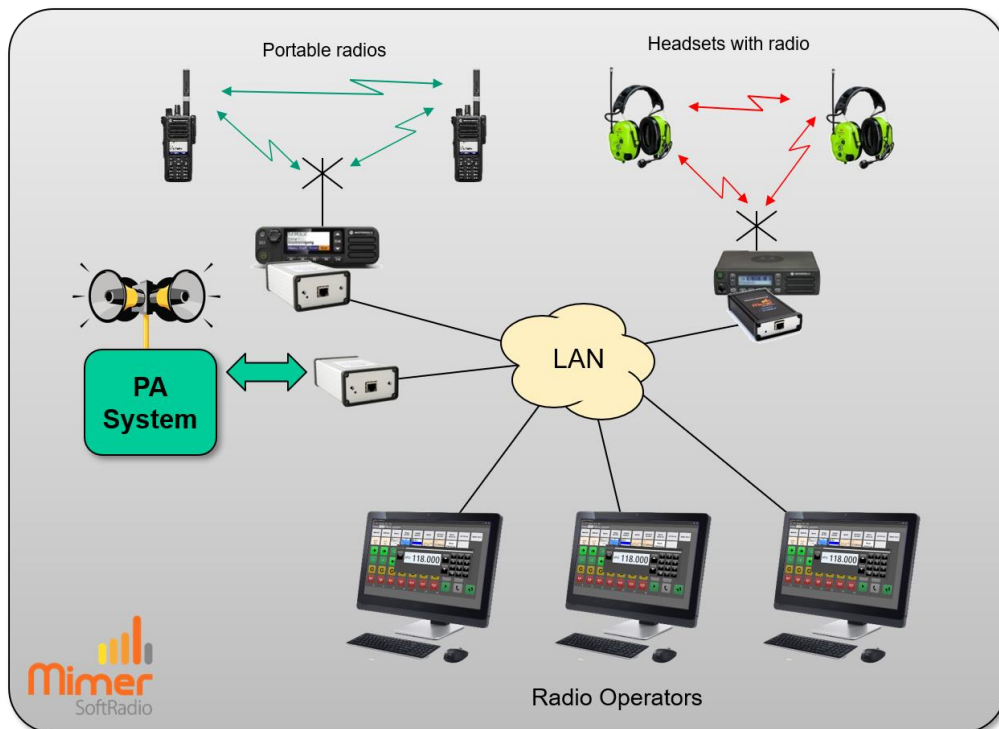
System example where the operators work with one radio towards the hand portables and one radio towards headsets with built in radio. Plus, connection to the PA system.

If temporary staff comes to the site bringing their own radio system, this can also be cross patched into the SoftRadio system.
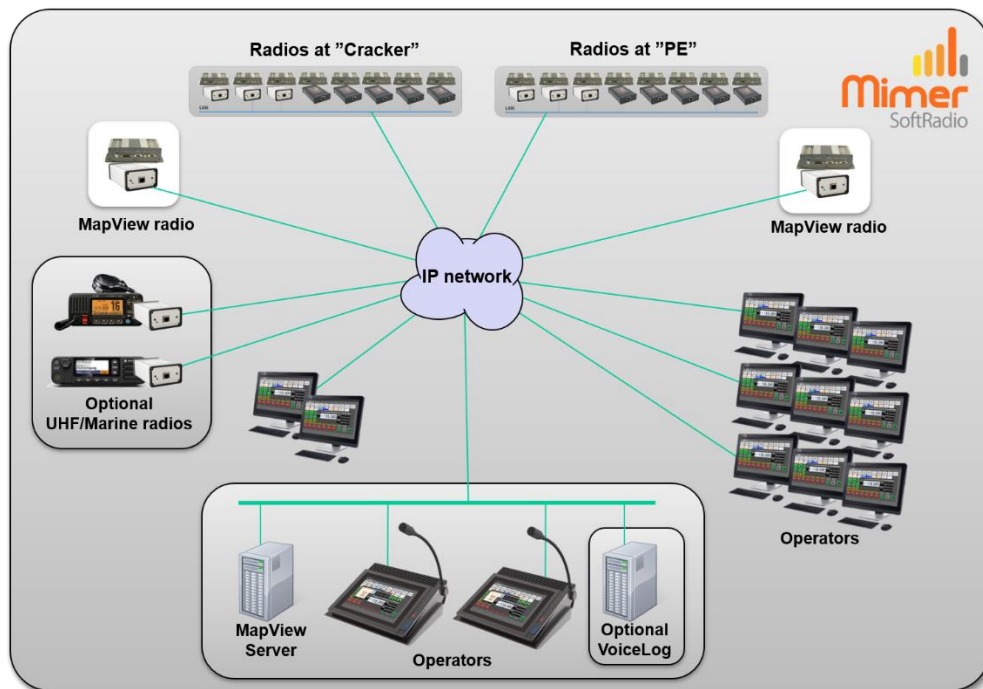

An example from a large industry mainly using Tetra. And with MapView for positioning of the users.

The fixed Tetra radios are a mix of radios with one fixed talkgroup, the most used groups, and radios with full selection. In this way all the major talkgroups will always be monitored in parallel by the dispatchers.

13.1 Mimer MapView at the industry

Modern systems like Tetra and DMR have the possibility to send in GPS information from the radios. This can be used both to localise where there are available resources and to find someone that has pushed the alarm button on his radio.

Mimer MapView can present the information both on maps, on satellite pictures and on the customers own industry chart.
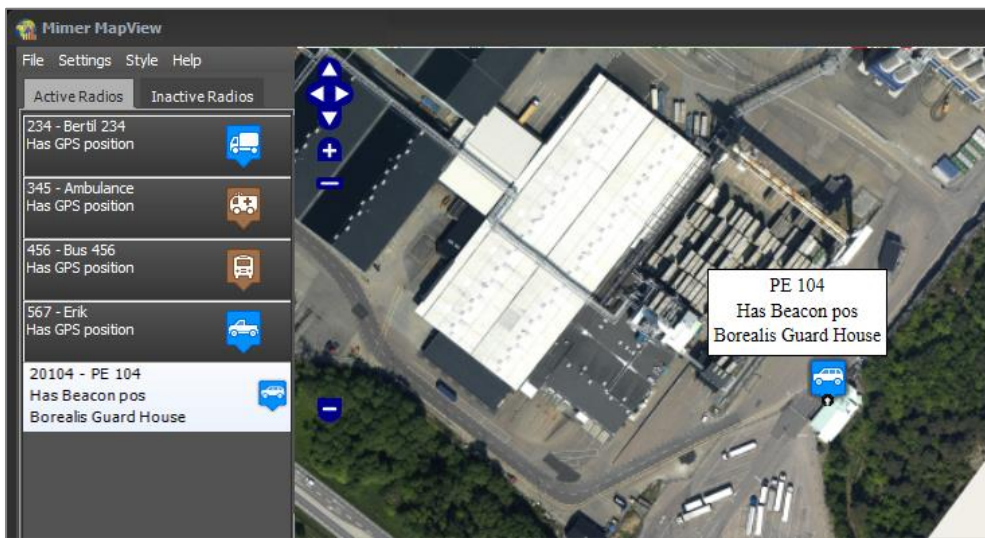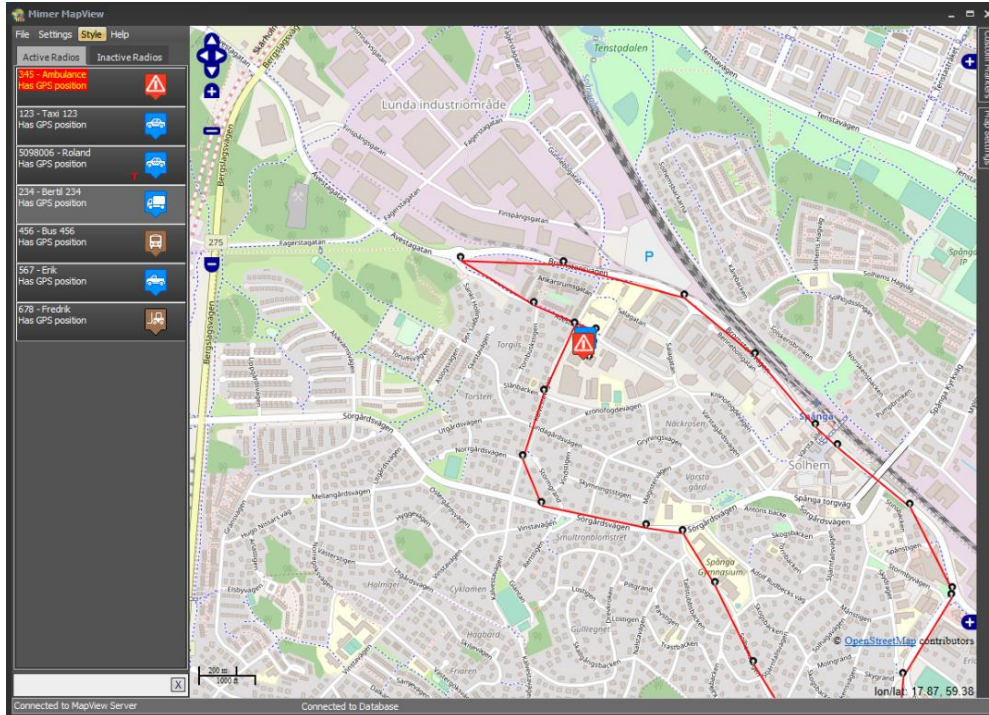

An example with an industry shown with a satellite photo
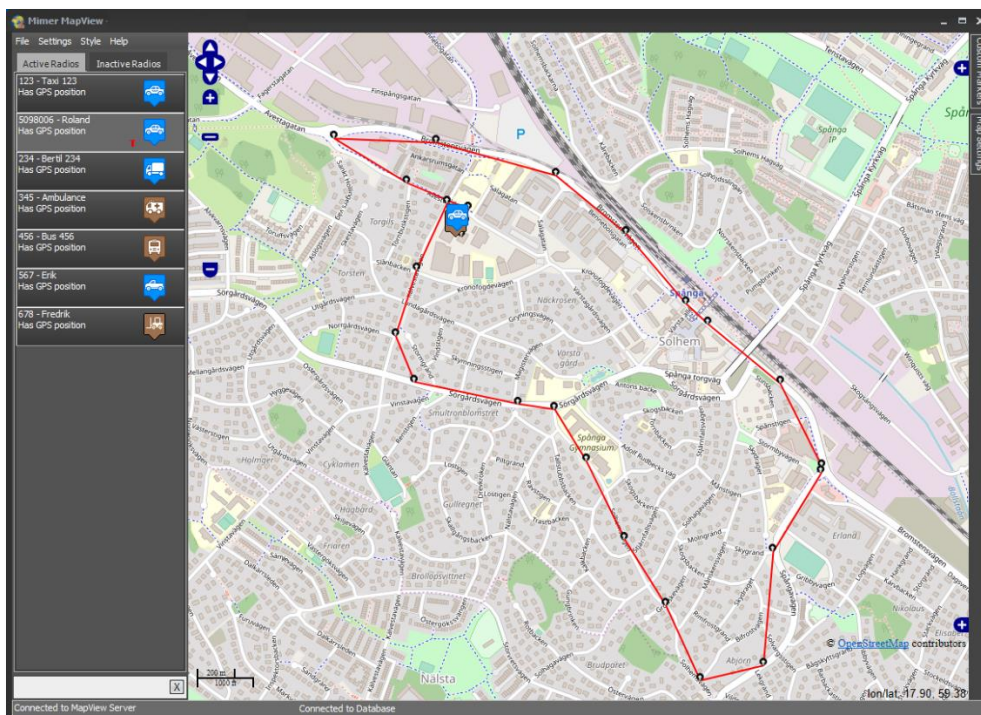
An example of a route trace to see where a car has been

An incoming radio emergency alarm state will be highlighted and centred on the map. If the last position is uncertain a trail of the last time period can be presented so that a good guess can be made of the alarm position.

A guard has pushed his alarm key

Mimer MapView can be combined with Sepura´s indoor positioning system. Through the use of beacons in areas where GPS has no cover a good position can still be established.

I will help with your design of a system.
Please give me a call or send an email.

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