Mimer SoftRadio

Connecting radios all over the world

When to use a **RadioServer** and when to use a **NetworkRepeater**

Mimer SoftRadio

When connecting over the Internet with TCP the Network Interface itself only handles one Dispatcher.

This can be expanded by the use of a **RadioServer**, or a **NetworkRepeater**, or in some cases by using both.

On the other hand in a local LAN-system where UDP is used between Dispatchers and NetworkInterfaces, 99 Dispatchers can share the same radio. No server needed!
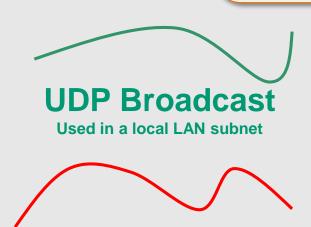
Mimer SoftRadio

In the examples we have used green lines to illustrate UDP-connections and red lines to illustrate TCP-connections.

There is also a special case at the end with a satellite connection.

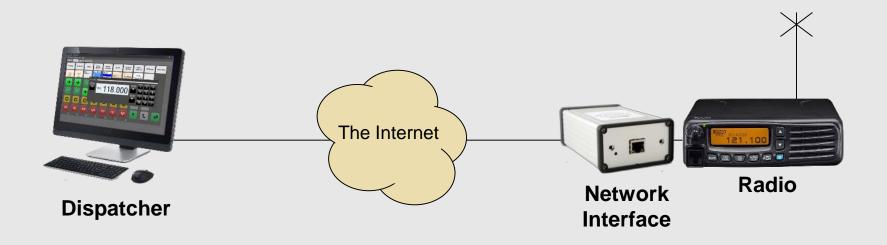Please note that there are many more setups possible, so please ask when uncertain.
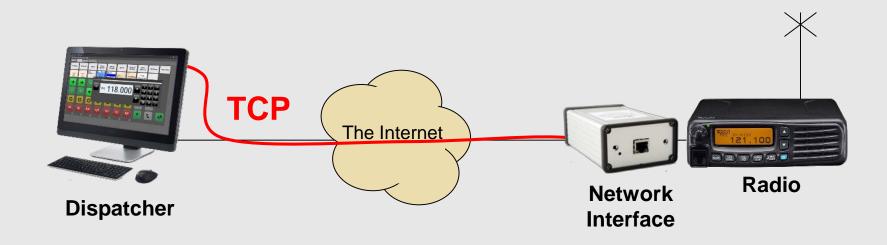
UDP Broadcast
Used in a local LAN subnet

UDP Unicast
(only used in satellite connections)

TCP
Used in remote connections

Remote Dispatcher over the Internet

Dispatcher

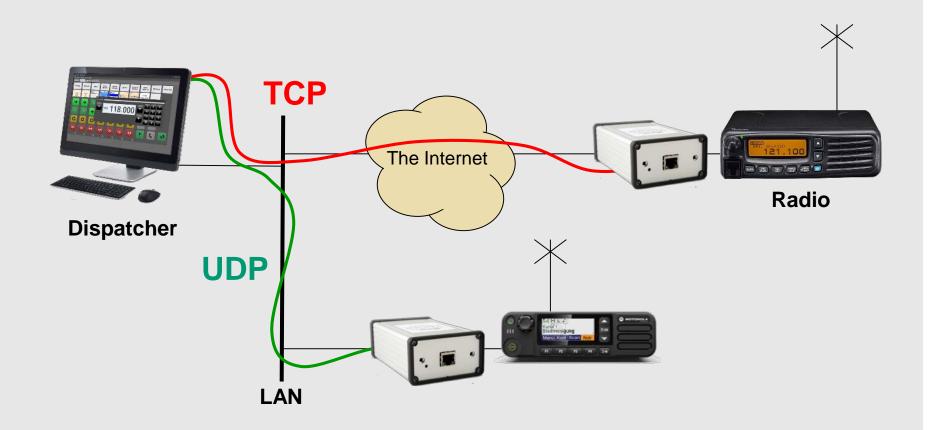The Internet

Network Interface

Radio

One radio can be connected via TCP through the Internet.

The Network Interface handles <u>one</u> connection of this type at any given moment.

Remote Dispatcher over the Internet

TCP

The Internet

**Network
Interface**

Radio

Dispatcher

The Dispatcher PC connects to the Network Interface via TCP over the Internet.

Remote Dispatcher over the Internet

TCP

The Internet

Radio
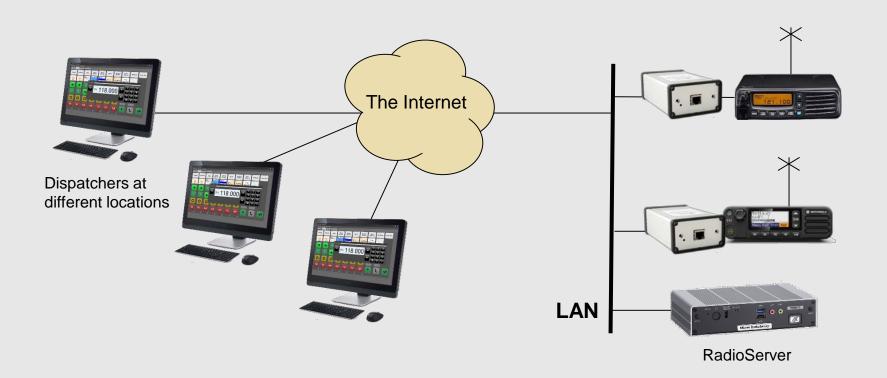
Dispatcher

UDP

LAN

The Dispatcher PC connects to the Network Interface via TCP over the Internet. At the same time, one or many radios can be connected locally via UDP.

Remote Dispatcher over the Internet

TCP

The Internet

X

Radio

Dispatcher

UDP

LAN

A second Dispatcher can connect to the local radio through UDP.
But <u>not</u> to the remote radio since the Network Interface only handles one TCP connection.
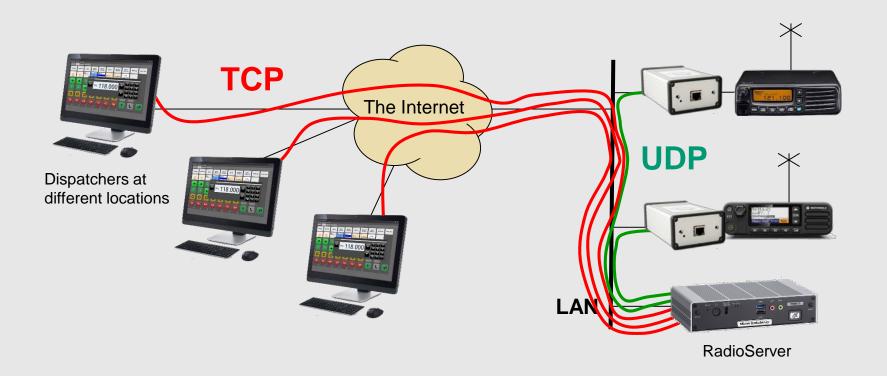
Several Dispatchers over the Internet

The Internet

Dispatchers at different locations

LAN

RadioServer

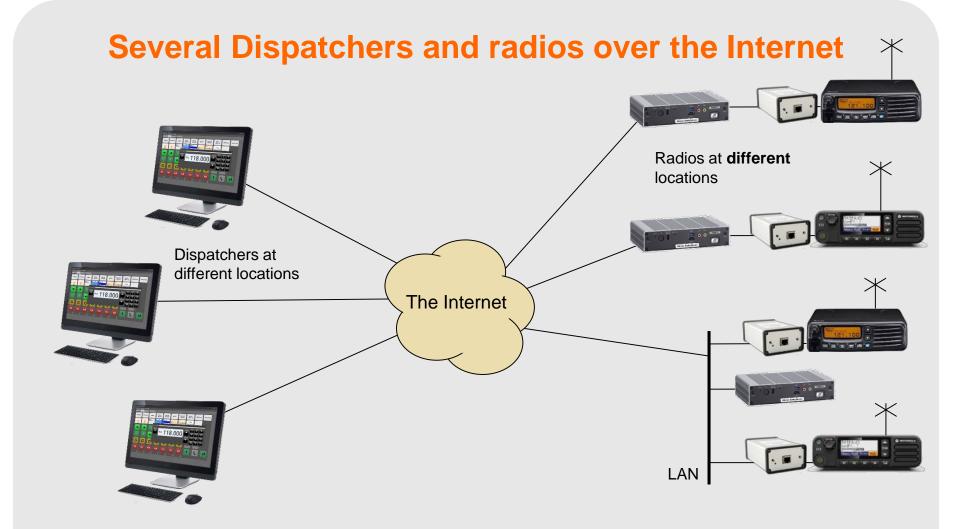With the help of a Mimer RadioServer many users can connect simultaneously from different locations to each radio.
The RadioServer also services many radios at the same remote site.

Several Dispatchers over the Internet

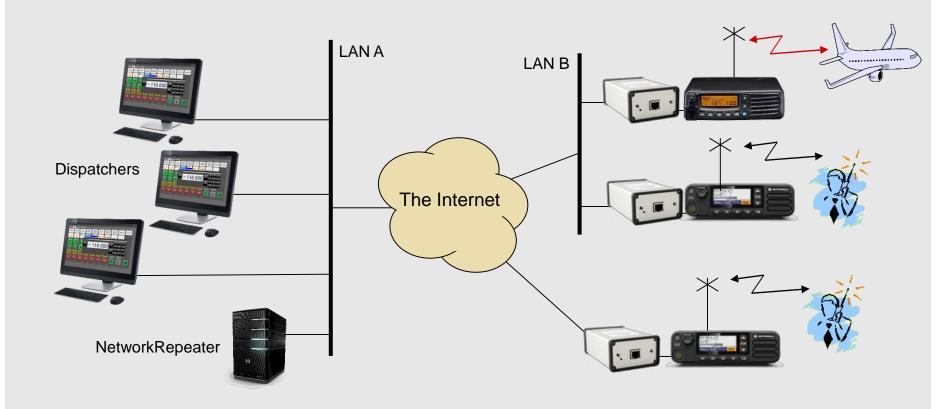**TCP**

The Internet

UDP

Dispatchers at different locations

LAN

RadioServer

The RadioServer connect to the local Network Interfaces via UDP.
The Dispatcher PC´s then connect to the RadioServer via TCP over the Internet.

Several Dispatchers and radios over the Internet

Radios at **different** locations

Dispatchers at different locations

The Internet

LAN

In a system where both radios and dispatchers are spread out and using the Internet for access. One RadioServer is needed at each radio site. Connections are made in the same manner as in the example above.
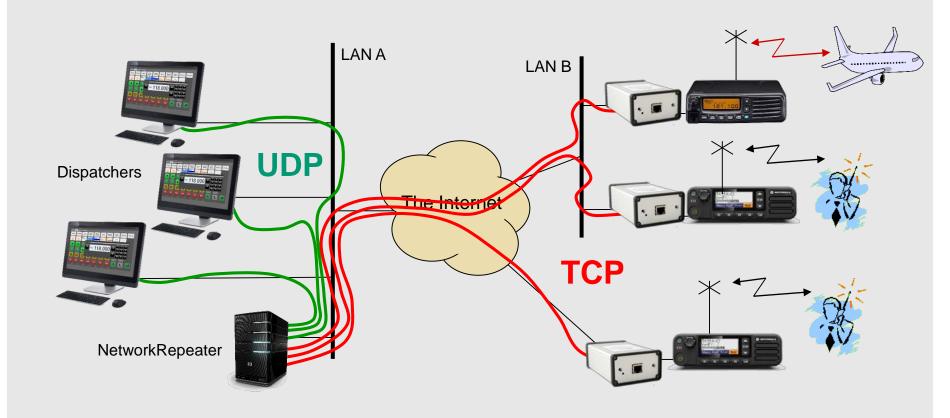
One Dispatch Central and several radio sites spread out

LAN A

LAN B

Dispatchers

The Internet

NetworkRepeater

When you have <u>one</u> Dispatch Central with several operators that need to connect to several radios, <u>at different</u> locations, over the Internet, the NetworkRepeater will do the TCP connection to each radio and each Dispatcher will connect locally via UDP to the NetworkRepeater.
Compared to RadioServers you will save bandwidth over the Internet.

One Dispatch Central and several radio sites spread out
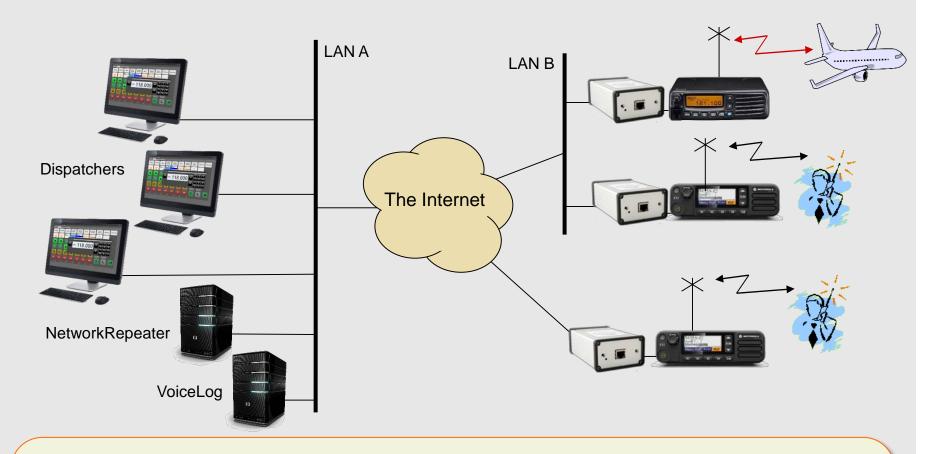

UDP

Dispatchers

LAN A

LAN B
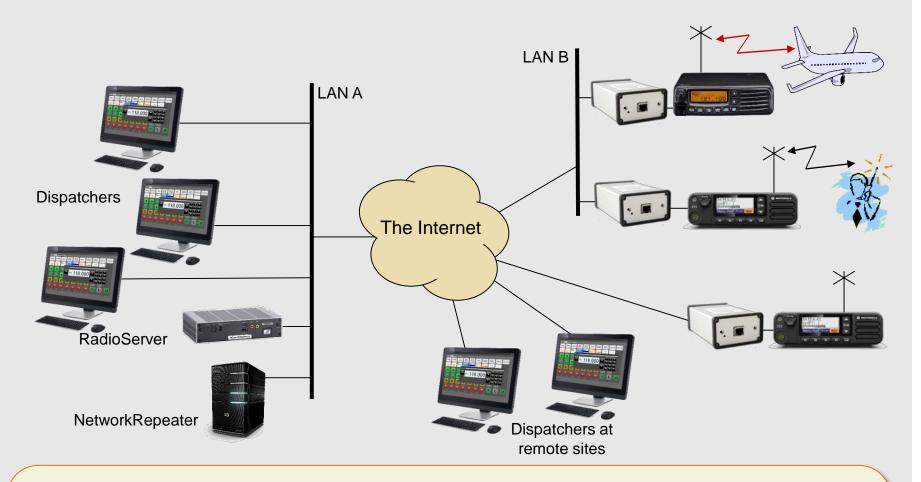
The Internet

TCP

NetworkRepeater

The NetworkRepeater connect to the Network Interfaces via TCP over the Internet.
The local Dispatchers then connect to NetworkRepeater via UDP.

One Dispatch Central and several radio sites spread out, with VoiceLog

LAN A

LAN B

The Internet

Dispatchers

NetworkRepeater

VoiceLog

When you add a Mimer VoiceLog (for audio recording) to the system, this must be placed in the LAN where you have the NetworkRepeater. It will get its received radio audio from the NetworkRepeater as UDP. It can not connect directly to the Network Interfaces using TCP.

Remote control from several places of several radios

LAN B

LAN A

Dispatchers

RadioServer

NetworkRepeater

The Internet

Dispatchers at remote sites

If you both have a Dispatch Central with many operators and you have other operators spread over the internet, working from home or a back up Dispatch Central. You will need both a RadioServer and a NetworkRepeater.

Remote control from several places of several radios

LAN B

LAN A

UDP

Dispatchers

TCP

TCP

RadioServer

The Internet

NetworkRepeater

Dispatchers at
remote sites

The NetworkRepeater connect to the Network Interfaces via
TCP over the Internet.
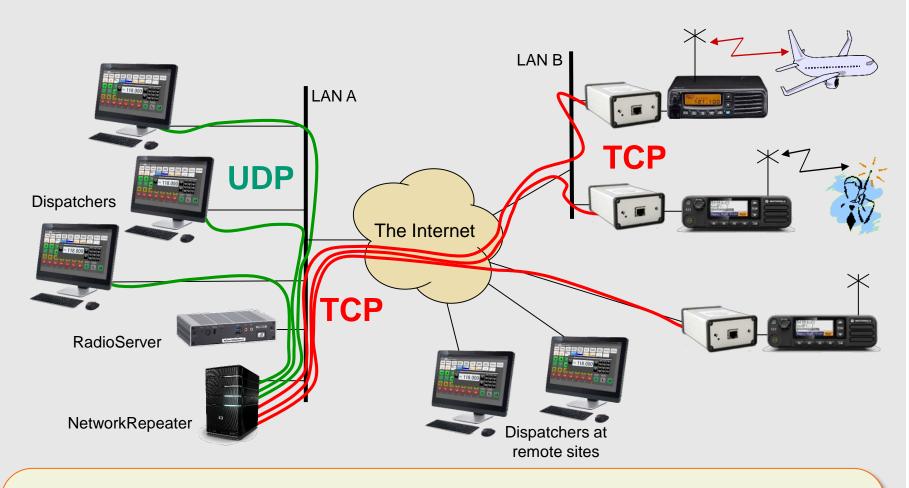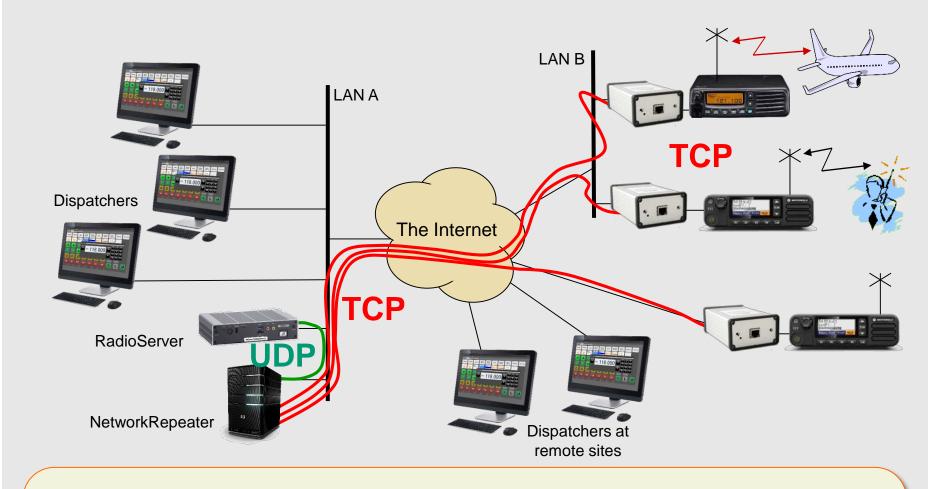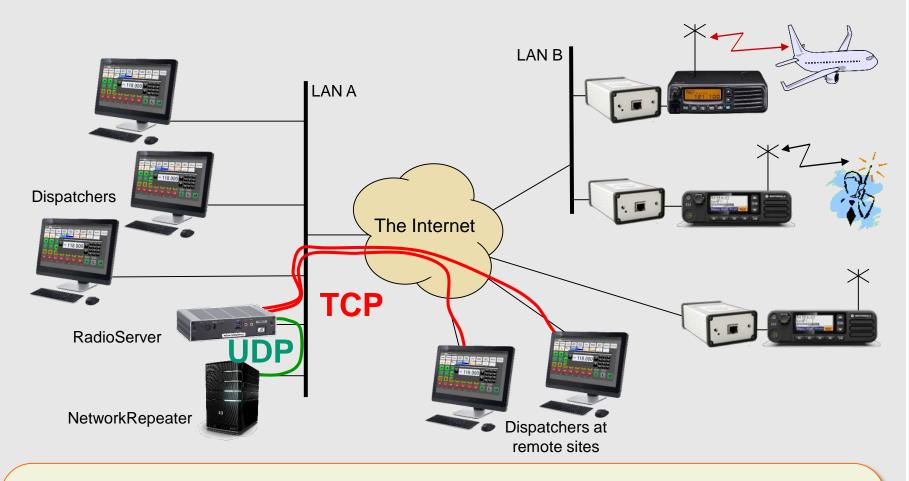The local Dispatchers then connect to NetworkRepeater via UDP.

Remote control from several places of several radios

LAN B

LAN A

TCP

Dispatchers

The Internet

RadioServer

TCP

UDP

NetworkRepeater

Dispatchers at
remote sites

The RadioServer also connect to the NetworkRepeater via UDP.

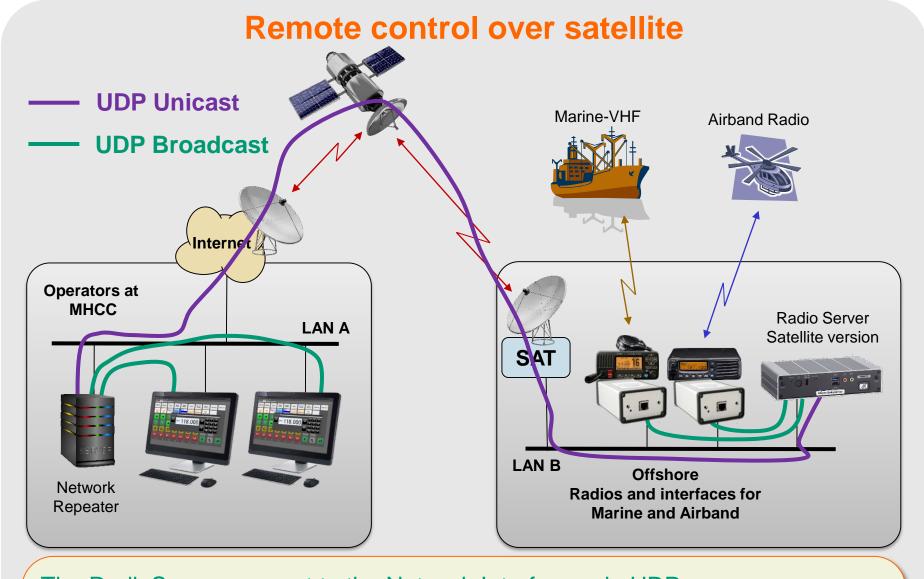# Remote control from several places of several radios

The RadioServer connect to the NetworkRepeater via UDP.
The remote Dispatchers then connect to the RadioServer via TCP over the Internet.

Remote control from several places of several radios
Alternative setup

LAN A

LAN B

Dispatchers

The Internet

Dispatchers at
remote sites

LAN C

Network
Repeater

RadioServer

Alternative setup, where the servers are placed in another location. This could be a server hall or similar. The NetworkRepeater connects to all radios and the RadioServer to all Operators, both using TCP. Between the servers there are UDP in the local LAN.

Remote control over satellite

UDP Unicast
UDP Broadcast

Marine-VHF

Airband Radio

Internet

Operators at MHCC

LAN A

Network Repeater

SAT

Radio Server Satellite version

LAN B

Offshore Radios and interfaces for Marine and Airband

The RadioServer connect to the Network Interfaces via UDP.
The NetworkRepeater connects to the RadioServer using UDP Unicast.
The Dispatchers connect to the NetworkRepeater using UDP.

Mimer RadioServer

Mimer RadioServer

The RadioServer is delivered as a ready to run box. It consists of a Linux computer and software. It runs on 12VDC, so that it can be powered from the same source as the radio for redundancy. It will reboot automatically if the power has been out, and then been restored.

The RadioServer is also available as a VDMK-file, to be run on a virtual computer using Oracle Virtual Box or VMWARE, on a customer preferred server platform.

www.lse.se/radioserver

Mimer NetworkRepeater

The NetworkRepeater is delivered as a Windows software to be run on a Windows computer or server.

Mimer NetworkRepeater LE: Up to 8 devices connected
Mimer NetworkRepeater: Up to 60 devices connected

www.lse.se/networkrepeater