DARC Paging System

In today's communities the need for mobile messaging is increasing. Certain groups, e.g. Rescue professionals, have set high demands on receiving the alarm messages in real-time. It is also of greatest importance that messages always gets through – anytime and everywhere. With the Sectra DARC Paging System you get a robust and secure system, dedicated for broadcast and group messaging services via the FM-network.

Turn-key System

The Sectra DARC Paging system enables multiple message senders (Paging Terminals) to connect to a central Paging Server and deliver their messages using a high-level addressing scheme. The Paging Server formats the messages, resolves addressing issues and transmits the messages over DARC using standard Sectra server software. The receivers are always online and will notify the user immediately when a message arrives.

Addressing

The addressing concept is central to the Paging System since it allows a message to be directed to all receivers, one specific receiver or a group of receivers.

The DARC Paging System offers three ways to address a message.

- all receivers
- an individual receiver or
- a group of receivers

Priority

The priority handling is essential to the Sectra DARC Paging System. The DARC Network Server, the heart of the system, is designed to balance the load to the DARC encoders depending on the service's priority and allocated bandwidth. Buffers in the DARC encoders handle any temporary overload. The DARC Network Server will stop sending data on services with lower priority when the channel is full. The stopped data will be buffered in the input queues in the DARC Network Server for later transmission if the load decreases. To maximize the usage of bandwidth, it is possible to over-allocate the channel. The transmission of higher priority messages in a situation where the total load exceeds 100% is still guaranteed.

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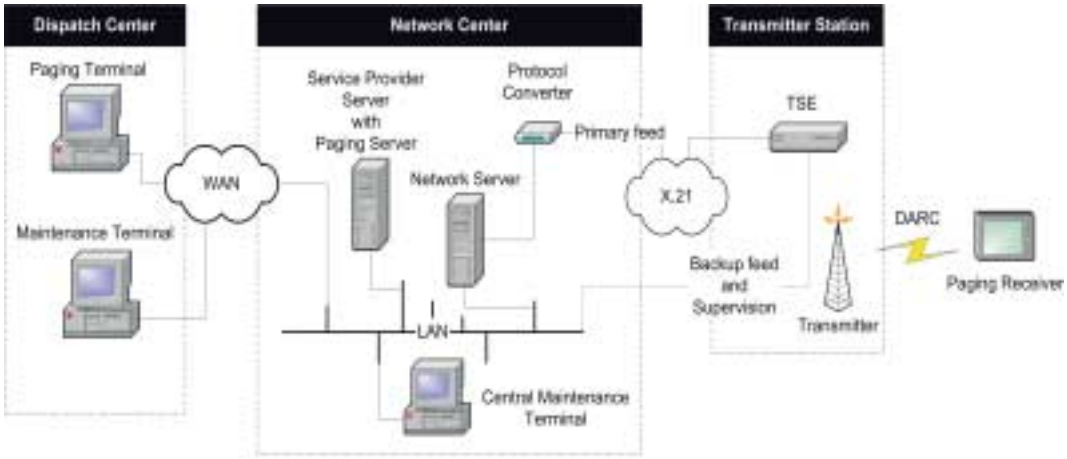

Paging Terminal (PT)

A Paging Terminal is a software application that feeds messages into the Paging System with addressing information and formatted according to Paging System specifications. It uses the Sectra Paging Command Protocol to communicate with the Paging Server.

Maintenance Terminal (MT)

The Maintenance Terminal is a software application that is used for configuring the Paging System with regard to receivers, users, addressing. It can also be used for getting status and statistics from the Paging System.

WAN

This is a transparent TCP/IP network that connects all the Dispatch Centers with the Network Center so that the Paging Terminals and Maintenance Terminals can access the Paging Server. Typically a leased line for high security and reliability.

Paging Server (PS)

This is a software application that is the central part of the Paging System. The Paging Terminals and the Maintenance Terminals connect to the Paging Server and use its interfaces to send messages and manage the receivers and Paging System. It handles the mapping of Paging System addresses to the physical addressing of the DARC system as well as encrypting the messages using the Sectra SMS conditional access system. The data is sent to the Network Server through the Sectra SPS.

Central Maintenance Terminal (CMT)

This is a central software that is used to configure the entire Paging System with regard to access rights for Dispatch Centers, configuring central properties like regions and the mapping between the Paging System's logical representation and the DARC world.

DARC Network Server (NWS)

The Sectra DARC Network Server (NWS) handles the data distribution from service providers to the physical DARC network. It handles load balancing, priorities and low-level receiver addressing.

Protocol Converter

This is a protocol converter that converts data from asynchronous serial format (RS-232) to synchronous serial (X.21). It is placed between the NWS and the DARC distribution network to the TSEs if a synchronous network is used.

Network Center LAN

This is the local area TCP/IP network within the Network Center. It connects the central servers (NWS and SPS/PS) and also gives the dispatch centers access to the Paging Server computer. This network can also be used as a backup for data distribution to the TSEs and also for supervising the TSEs.

X.21 network

This is a reliable synchronous network between the NWS and the TSEs commonly used as a primary data distribution network. Other data distribution solutions are available.

DARC encoder (TSE)

The DARC encoder, Sectra TSE 760 (TSE), converts the digital data from the NWS, handles low level DARC framing and adds the DARC carrier to the FM signal before it is fed to the FM transmitter.

FM Transmitter

A transmitter is the final link in the data distribution line. The FM transmitter takes its input from a TSE.

CitySurfer

The CitySurfer is a mobile DARC receiver. It contains a paging application that lets the user read incoming messages.

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