



Mobitex™

System Support Description



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1 Introduction

The data and telecommunications industry today is characterized by intensified and escalating service requirements. Customers who find themselves in a highly competitive market are becoming increasingly aware of the need for long-term and cost-effective support services that provide not only system reliability, but also serve as a protection of investments. To provide the highest possible quality of services to your customers, your network needs to be fully operational at all times. You want to reduce the risk of downtime, if not eliminate them altogether.

Mobitex Technology AB with its local partner, will provide these services and can help you realize the full potential of your network. Signing a support agreement is an efficient way of protecting your investment.

Our maintenance and support services offer continuous access to hardware, software and system support around the clock.

This document describes the System Support services we offer and the value it will provide to the network operators and their customers.

2 The benefits of Mobitex Support Services

The Mobitex Support Services are adapted to your needs. The Technical Assistance Center (TAC) and its helpdesk, is available anytime (7/24), from anywhere and is backed up by Mobitex Technology's on-call experts. Our helpdesk tool enables us to log, monitor and report support activities into a detailed database, allowing the helpdesk team to conduct comprehensive reporting on the support activities.

All your service problems will be addressed quickly and conclusively, providing the following benefits:

Maximized network availability and performance

With professional assistance from Mobitex Technology, just a mail or a phone call away, and with the latest technologies for state-of-the-art service delivery and knowledge transfer, you can rest assured that your Mobitex network perform impeccably, minimizing downtime and maximizing revenue. Higher network performance generates more revenue and low customer churn.

Shortened lead times

Through the integrated e-support functionality, with direct access into our systems, lead times will be shortened. Two examples are the web-based tool used for reporting service requests and the web-based information database, a goldmine for proactive network operators.

Minimized risk

When signing up for the Mobitex Support Services, you will experience a minimized risk of serious network problems. Analogous to vehicles, a well serviced car rarely break down. Nevertheless, if an incident should occur and need immediate attention, help is near and guaranteed.

Full control of cost

With a Service Support Agreement at hand, you will get full control of your operational expenses. Comparable to an insurance policy, the cost for support is fixed and known from the beginning. Building up a network can be a heavy investment. With a support contract you will safeguard that investment.

Reduced operating costs

With access to Mobitex Technology's local and global support organizations there will always be someone to turn to if a problem should arise. This means that your operation and maintenance organization can be minimized, freeing up people for core business activities.

By selecting Mobitex Technology as your service provider, you will receive expert advice form engineers and other qualified personnel with proven experience and access. We understand your problems and challenges and we share your vision.

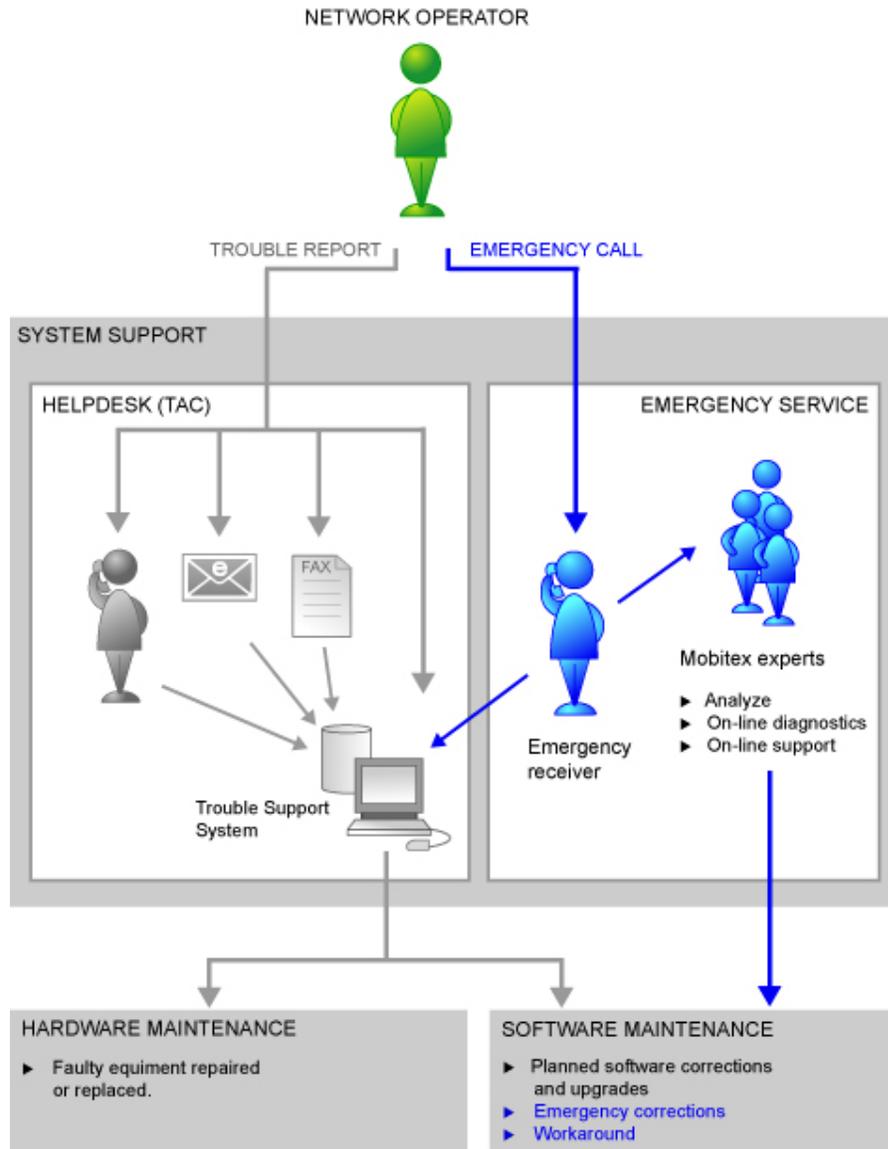
3 The Mobitex Support Services

The complete service package consists of three parts:

System Support is a comprehensive package of service components and a vital ingredient in helping you attain and maintain peak performance of your system at all times. Through integrated e-support functionality and our ever-increasing number of e-support services we will make your everyday job trouble-free and easy.

Software Maintenance support services gives you access to highly skilled and experienced software engineers that will keep the Mobitex software up to date. They will also help you analyze any irregular software behavior to find safe and quick solutions if such problems should occur.

Hardware Maintenance is a comprehensive package of services spanning from basic repair of faulty units to prompt replacement of the same.



3.1 System Support

3.1.1 Helpdesk

The support services include remote diagnostics, expert assistance and advice from the Mobitex TAC, which is located in Sweden. TAC offers technical consultation, analysis, and/or fault location to resolve any problems discovered in the system.

The helpdesk (phone assistance) is available during normal working hours, 8:00 a.m. to 5:00 p.m. CET.

Depending on the nature of enquiry, support matters are handled differently. Basic consultation or more advisory support is usually handled immediately over the phone, whereas more complicated questions and network problems need more thorough investigations and are registered in the Trouble Report System as a trouble report (TR).

3.1.2 Emergency Support

The Emergency Support can be considered as an extended helpdesk service. It includes telephone support round the clock seven days a week (24/7). Support will be provided through telephone, fax and/or an on-line modem connection to the Mobitex network to locate the problem. Mobitex experts can also make a simulation of the erroneous network to recreate the error and verify corrections without involving the actual network

To utilize the Emergency Support Service the situation needs to be classified as a severe condition. Severe conditions are defined below. Response from the Mobitex TAC will be provided within one hour and assistance will always commence within four hours.

3.1.3 Trouble Report System

All TRs are handled through the Trouble Report System (ClearDDTs) providing a single interface for all kinds of *operation- and maintenance* requests. With this system Mobitex Technology has established a working method that ensures correct and timely handling of all requests for service.

When having questions regarding the Mobitex network or experiencing a software problem, the network operator can register a trouble report using the TAC web site or by sending an e-mail or fax to Mobitex Technology (TAC). Mobitex Technology will analyze the problem/question and provide an answer within a predefined time interval, which is determined by the severity of the problem. All TRs are assigned a certain severity code upon registration. Using the web-based application for TR registration will guarantee that all relevant information is included from the start, reducing the risk of unnecessary delays later on.

Provision of temporary corrections (workarounds) will, if applicable, be provided to solve the reported problems.

3.1.4 Severity classification of TRs

Severity	Definition
Emergency	The following conditions are emergencies: <ul style="list-style-type: none"> • <i>Loss of contact between the NCC and the network.</i> • <i>Outage leading to inability to control and operate the network.</i> • <i>Node outage, resulting in traffic-handling capacity being severely reduced.</i>
High	<i>Situations that may result in emergencies (see definition above). Such potential situations can be described as a stage prior to an emergency. Example: A situation in which network or System redundancy has dropped to a level in which single points of failures are identified.</i>
Medium	<i>Severe problems or disturbances affecting a specific area of functionality, but not the whole system. Examples: Small restarts, degraded performance.</i>
Low	<i>General consultation and minor problems that have a minor effect on the functionality of the product. Examples: Documentation faults, minor design imperfections. Operational questions.</i>

Table 1. How to prioritize a TR.

3.1.5 ClearDDTs

The trouble report system, ClearDDTs, contains a database and a web-based user interface. The ClearDDTs database is an extensive source of information that is constantly updated. It provides information about emergencies as well as other less urgent events that have occurred in the Mobitex networks. This function has proved to be of great value to all network operators who can examine their own TRs as well as those of others (provided the consent of the other operators).

The operator can also find out when the next software release are due and what it will include, making implementation and update planning easier. All of the ClearDDTs information is accessible 24 hours a day.

3.1.6 Optional Services

On-site Support

When installing new features, performing major upgrades, expanding the network or doing other larger network adjustments, it is sometimes wise to be accompanied by a Mobitex system expert to secure a smooth and trouble free operation.

With on-site support, the network operator has direct access to on-site consultation of highly qualified support personnel.

Network Audit Support

From time to time it is advisable to inspect the performance of the network. The Network Audit service aims to provide the network operator with valuable information regarding the system performance and highlight areas where improvements can be made.

Software Upgrade Support

Use the Software Upgrade Support service to minimize the risk of any downtime during a software upgrade. Through this optional support service the network operator will be assisted by a Mobitex system expert when upgrading the NCC, a network node or both.

Emergency Restoration & Fault Detection Exercise

Hands-on training is key when operating a wireless network. The Emergency Restoration & Fault Detection Exercise is a workshop with hands-on training to provide practical skills and knowledge transfer to operation and maintenance staff.

3.2 Software Maintenance

Software maintenance is vital in keeping systems updated and running at peak performance. Upgrading the system software and installing correction releases are important for the continuous quality of your network. The Software Maintenance service includes free access to the latest correction releases and the latest software upgrade release and related documentation.

Software problems reported via Trouble Reports are handled according to the Severity Classification. As a result of analyses and observations of reported errors, software corrections are developed and bundled into a correction release.

The correction releases are either delivered in the form of files on a CD-ROM or remotely transferred (ftp).

3.3 Hardware Maintenance

The service includes repair or replacement of a faulty hardware unit within 30 calendar days. The service also includes troubleshooting, testing, verification and packaging.

A replacement of the faulty units might sometime be necessary. Where applicable or necessary, a hardware unit subject to repair may be upgraded to the latest version.