

# Audio Conference Systems

## Technical Overview, Support and Warranty

Our ref. general\_systems\_and\_support\_01.doc - 02/09/2008 17:58:00

Subject to Contract

**STRICTLY CONFIDENTIAL**

**Prepared by:**

Mike Quelch  
Miton Systems Ltd  
49 Dove Park, Chorleywood  
Hertfordshire, WD3 5NY  
Tel: 01923 286501  
Fax: 01923 286498  
mikeq@miton.co.uk  
www.miton.co.uk



# Contents

1. INTRODUCTION .....	3
2. PHYSICAL SYSTEM COMPONENTS.....	4
Conference Bridge Technical Specification (Typical) subject to change .....	4
3. SYSTEM ARCHITECTURE.....	5
Hardware Schematic .....	5
1. Connection to the telephone network, either direct to the Public Telephone Network, or on the back of a corporate PBX, or both.....	5
2. Local Area Connection for in-office set-up and control by Agents. ....	5
3. Broadband connectivity for remote home/office Agents and support by Miton Systems Ltd.....	6
4. ONGOING TECHNICAL SUPPORT, MAINTENANCE AND WARRANTY.....	7
Technical Support .....	7
5. SYSTEM AREAS FOR CONSIDERING POTENTIAL ISSUES. ....	8
6. TECHNICAL SUPPORT FOR THE FIRST 12 MONTHS AT NO EXTRA CHARGE:.....	9
Hardware Warranty .....	9
Software Warranty .....	9
Expansion of System.....	9
Training .....	9
7. APPENDIX B: BACKGROUND INFORMATION .....	10
Introduction to Miton Systems Ltd .....	10
8. NOTES: .....	11

## Table of Figures

Figure 1: Digital Primary Rate E1/T1 Trunk Card.....	4
Figure 2: Connection Schematic.....	5

## 1. INTRODUCTION

---

The Conference Systems supplied by Miton usually become a critical component of our customers businesses. A failure in a Conference System would result in a serious loss of revenue and could cause significant damage to their business. It is therefore natural that our customers are keen to understand what steps Miton take to eliminate failure.

Miton have worked with a number of customers who have critical requirements and have thereby developed an understanding of how to build systems that provide reliable operation of services.

Broadly put, reliable operation of equipment is affected by two critical areas:

1. Quality and redundancy of physical system components
2. Ongoing Technical Support, Maintenance and Warranty strategy

This document outlines Miton's offering in these critical areas.

## 2. PHYSICAL SYSTEM COMPONENTS

Below are the technical components of the system. Miton use Industrial specification PC hardware which incorporates dual redundant power supplies and mirrored discs. This is operated by Linux operating system which the optimum environment for reliable operation.

### Conference Bridge Technical Specification (Typical) subject to change

#### □ Typical Main Software Components:

- Linux Operating System Software
- MySQL Databases for Users, Bookings, Configuration, Call Statistics and Audio Recordings
- Apache Web server to enable remote Browser based setup and control.
- PHP-based web interfaces for bookings, reports and data entry
- Clock synchronisation software
- VoIP Connectivity (SIP, H323) Option

#### □ Typical Main Hardware Components:


- 1 off 19" 2U Rack-Mount System in Black colour
- 1 off 2U Chassis: with 300W (N+1) redundant PSU
- PICMG Pentium IV Full-size SBC, Intel 845GV, w/ VGA, 10/100 BT single LAN 512MB DDR Memory Module with PIV 2.8G/533 CPU
- 1 off 3.5" 1.44MB FDD and 1 off CDROM Drive
- 1 off T1 Trunk Card with 4 ports.
- 2 off 3.5" 40GB HDD



#### □ Connection options to the PSTN

The Miton Audio Conference Bridge is capable of connectivity with combinations of the following options:

1. VoIP (SIP, H323 + Proprietary)
2. Analogue Line FXS, or FXO (multiples of 1, 2, 3 or 4 lines)
3. DIGITAL - ISDN BRI Interface (Multiples of 1, 2 or 4 ports)
4. DIGITAL - Primary Rate E1/T1 trunk Line using (Multiples of 1, 2 or 4 Ports) RJ45

 <p><b>Figure 1: Digital Primary Rate E1/T1 Trunk Card</b></p>	<p><b>PRI Switch Compatibility</b></p> <ul style="list-style-type: none"><li>Euro ISDN (PRI or PRA) — Q.931/Q.921</li><li>AT&amp;T 4ESSDMS 100</li><li>Lucent 5E</li><li>Network or CPE</li><li>National ISDN 2</li></ul> <p><b>CAS Voice Modes</b></p> <ul style="list-style-type: none"><li>Feature Group D</li><li>E&amp;M Wink</li><li>A-Law, Mu-Law, and Linear Modes Supported</li></ul> <p><b>Data Modes</b></p> <ul style="list-style-type: none"><li>SyncPPP (both Fixed and Dialup)</li><li>Frame Relay</li><li>Cisco HDLC</li><li>Multi-link PPP</li></ul>
---	---

### 3. SYSTEM ARCHITECTURE

#### Hardware Schematic

The diagram below shows typical connectivity options for a Miton Conference Bridge Server that is located at the offices of the users. The Bridge is a self-contained unit which incorporates all the necessary components to operate a Telephone Translation Business.

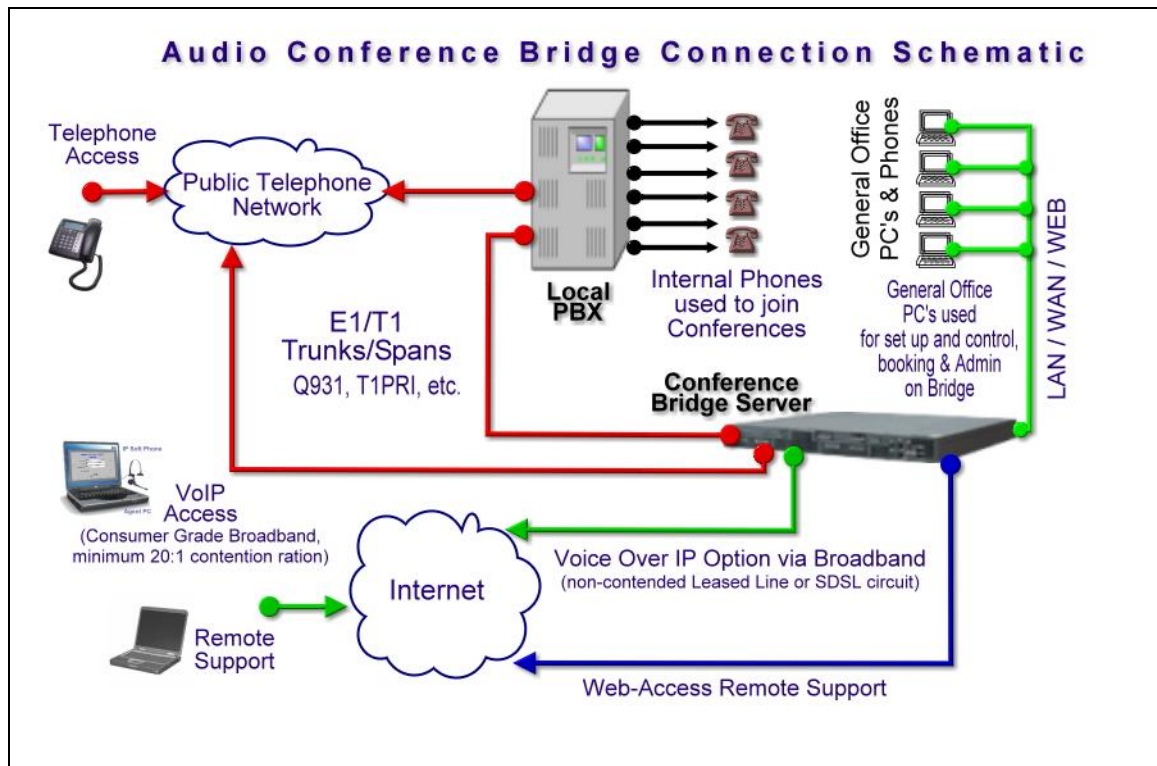


Figure 2: Connection Schematic

The Bridge has three main external connections:

1. Connection to the telephone network, either direct to the Public Telephone Network, or on the back of a corporate PBX, or both.
2. Local Area Connection for in-office set-up and control by Agents.
3. Broadband connectivity for remote home/office Agents and support by Miton Systems Ltd.

***1. Connection to the telephone network, either direct to the Public Telephone Network, or on the back of a corporate PBX, or both.***

The Bridge can either be connected directly to the Public Telephone Network, or be connected behind the PBX using standard telephony connectivity, or be connected to both simultaneously. If the Bridge is only connected via the PBX, then the local PBX must be direct dial enables so that the Bridge appears as single PBX extension number to callers from the Public Telephone Network.

***2. Local Area Connection for in-office set-up and control by Agents.***

The Bridge is given an IP address such that it can be connected to the Corporate Local Area Network. This IP address is then used by Administrators and Agents to access the built-in Apache Web server which manages PHP and Active X Web-Browser based pages for set-up and control. All transactions via these Web pages are logged into a local MySQL database. In particular, Agent call transaction records are logged as soon as they occur, which significantly reduces the chances of data-loss.

Agents use the General Office PC's to open their control screen, together with either a normal or VoIP telephone. The VoIP telephone can either be a stand-alone unit, or a PC-based soft phone.

### ***3. Broadband connectivity for remote home/office Agents and support by Miton Systems Ltd***

The third type of connection of the Bridge is to the Internet via Broadband. This is used by remote Agents to access their control screens. It is also possible for them to use Voice over IP to talk to clients, this eliminating telephone costs. Miton also use this connection for remote support and preventative maintenance.

The diagram in Figure 2: Connection Schematic shows the possibility of external VOIP users via "Broadband minimum 20:1 contention ration". That is the specification for the remote user's internet connection, not that of the Bridge. If a Bridge is to support remote VOIP users, it can't be just put on a consumer-grade "broadband" ADSL or Cable connection; it should be on a non-contended Leased Line or SDSL circuit. If there are no remote VOIP users, then a consumer-grade broadband connection is perfectly suitable just for remote access and administration.

## 4. ONGOING TECHNICAL SUPPORT, MAINTENANCE AND WARRANTY

---

### Technical Support

It is not possible to eliminate risk – we have to do what we can to minimise it, whilst keeping the costs versus risk reduction to acceptable levels.

In our experience, because of the specialist nature of our systems, the best way to provide effective continuous service of equipment is by:

1. Providing automatic regular error reporting from the Bridge of issues. The Bridges incorporate a detailed logging system which creates reports of events within the Bridge. These reports can be emailed to selected support personnel. These reports contain information that enables both preventative action to be taken, and also track down operational problems that may occur from time to time. The 'Log watch' as it is called, is a daily job that looks in the system log files - it understands what is in the logs and looks for odd occurrences. Examples include:
  - a. disk space,
  - b. Authorised logins and unauthorised attempts to log in
  - c. messaging from hard drives reporting disk space and read/write errors that may point to a future failure
  - d. Where the main services are running, and/or have been restarted
  - e. Hardware monitoring of fan speed and processor temperature.
2. Providing Miton with secure internet access to the Bridge so that logs can be analysed and remote updates and maintenance can be achieved
3. Have key software services on the Bridge restart automatically when errors occur within them.
4. Empowering customer support personnel to provide first level support through the use of 1 above, and simple-to-use interfaces for checking system status.
5. Employing hot-standby backup server(s).

## **5. SYSTEM AREAS FOR CONSIDERING POTENTIAL ISSUES.**

---

Errors within our systems are rare. We use Linux which is highly stable, and incorporates a firewall to prevent unauthorised access. We also use industrial specification PC's that have some built-in redundancy. It is useful to segment the system in to areas when considering where potential issues may occur.

The System can be split down into four main areas.

1. Internet connectivity – is the Internet up and does the bridge have connection?

Each Bridge has its own Web server, Internet connectivity can be simply checked by accessing this server via a remote web browser

2. The Miton Bridge Software – are the Miton software services running?

This can be checked via a simple web page that is available to technical personnel.

3. The Miton Bridge Hardware – has there been a hardware failure?

Power supplies and hard drives are duplicated so that if one fails then the system can carry on until the faulty part is replaced. It is difficult to check total hardware failure remotely, but a simple restart of the Bridge is probably the first thing to try.

4. E1/T1 Trunks and telco supply – do the telephone lines operate?

Miton provide tools within the Bridge so that alarms on the trunks can be checked. If the lines are down, (this rarely happens in our experience) then contact needs to be made with the support centre at the telco so that this can be rectified.

In the event of a total failure with the main system, the stand-by server will need to be made live by Miton or Our Customers IT Staff. This may involve using a local technician to swap cables for example.

Using the above principles we have successfully maintained consistent service of equipment in mission critical applications and also in remote countries such as Shell Nigeria, where even telephone contact is inconsistent.

It should also be noted, that Miton are able to upload system changes remotely without the need to be on-site. During the installation and commissioning process, Miton engineers will be on site, but once the system has been tested in a live situation it is anticipated that system maintenance will primarily be via the support access link. Where it is not possible to fix operational issues via this access link, Miton will provide on-site engineers.

## **6. TECHNICAL SUPPORT FOR THE FIRST 12 MONTHS AT NO EXTRA CHARGE:**

---

1. Telephone 'Hot-Line' support during normal office hours
2. Secure internet access by Miton Systems for system day-to-day support
3. System software revision updates
4. Support Engineer(s) and Introductory Operator Training where necessary
5. Minor updates and changes to application and operational software
6. All documentation
7. Development of engineering support procedures so that user can eventually become self sufficient supporting the installation
8. Replacement of hardware due to failure
9. Telecom Network side of system support and issue resolution

### **Hardware Warranty**

1. Telephony Hardware – 2 Years. Return for repair, or replacement
2. PC Chassis and all components, where supplied by Miton Systems Ltd – 2 years warranty. Return for repair or replacement.

### **Software Warranty**

The Miton software is warranted for 12 months. Any implementation errors will be rectified free of charge within this period. Following this twelve months period and providing ongoing support is taken out, Miton will maintain the software to be free of operational defects.

### **Expansion of System**

The system is expanded either by adding VoIP channels, which require no additional hardware, or by adding telephony cards with the required standard telephone connectivity: e.g. Analogue or digital. With this type of system, it is generally good practice to keep the maximum number of channels to 120 per PC Chassis. Larger systems can be achieved by clustering Bridges together. In this configuration a greater number of normal-sized conferences can be accommodated by distributing them across multiple servers.

### **Training**

Miton's goal is to make Our Customers as self sufficient as possible with respect of on-going user training. Good training both minimises the support we have to give and makes good business sense. We have found that by investing time to make sure the Administrators are properly trained, and giving them clear lines of contact with Miton, that the required ongoing training is minimal. This coupled to our ability to remotely administer the Bridge, means that users get the maximum usage from our systems.

One day of training is included as part of the initial installation. The Bridge is quite straightforward to operate and maintain. It has been designed for a minimal training and support overhead. It is anticipated that users will quickly be able to use the system. Some may even be self taught. The important aspect here is that proper communications channels are set up between Our Customers and Miton so that on-going issues can be quickly assessed and recommendations made. Our experience shows it is during the first month of use of the Bridge in which most of the questions arise. We have in the past even changed standard voice prompts for some companies so that support questions are minimised. This is all included as part of the purchase of the equipment.

## 7. APPENDIX B: BACKGROUND INFORMATION

---

### Introduction to Miton Systems Ltd

Miton Systems Ltd ([www.miton.co.uk](http://www.miton.co.uk)) is a company which is based on a next generation technology. It has two main directors: Mike Quelch and Tony Mountifield. This partnership is based on a relationship which first started about 15 years ago. Mike brings experience of designing and installing Telephony Systems for over seven years, with design wins at major corporations in the UK and Abroad, such as Thomson, Shell, T-Mobile, and RNIB. Tony's background is Linux and real-time process critical control systems – so he knows how to make mission critical solutions.



We are a Company that is based on Technical Excellence. We employ the best engineers and produce products that technically reflect this. Our key people have many years of experience developing, installing and supporting products world-wide. Miton are dedicated to providing a fresh approach to this market and pioneered the development of high-density, user friendly Computer Telephony systems using Linux PC-Based Telephony.

Our mission is to enable our customers to focus on their applications and leave the technology to us by delivering user-friendly interfaces and feature sets and to provide total scalability that enable our customers to start small and grow big as their business grows so protecting their investment.

Miton specialise in the development and deployment of advanced Linux based Computer Telephony systems and services. Our core product is a PC-Based PBX Switch that can be used in many general-purpose applications, where reliability, future expansion and cost are primary requirements. It includes Voice over IP technology as standard, and is particularly suited to distributed remote office user applications – especially home workers.

Our proposal is based solely on the Miton Technology. The Miton Technology provides the best fit both technically, because of its many connectivity options, and from a cost perspective.

Miton's core competencies are in PC-Based Telephone Systems specially suited for distributed office environments, Audio Conferencing, IVR Systems with Voice over IP (VoIP) built in as standard.

Pre-configured solutions can be provided, plus customised versions that fit specific needs.

We are committed to providing our current and prospective customers with reliable, cost-effective and flexible Computer Telephony solutions that exceed their expectations.

**8. NOTES:**

---