

METHOD AND SYSTEM FOR MONITORING DATA TRAFFIC ON A BUS

FIELD OF INVENTION

The present invention relates broadly to a method and system for monitoring data traffic on a bus, and to a computer readable medium having stored thereon computer readable code means for instructing a computer to execute a method of monitoring data traffic on a bus.

BACKGROUND

A system for monitoring of e.g. Muxbus traffic between a bus controller and one or more remote terminals typically involving a dedicated bus monitor workstation. On the bus monitor workstation, a vendor supplied Muxbus card and proprietary monitoring software are installed. The Muxbus card in the bus monitor workstation has appropriate connectors allowing it to be connected to a Muxbus Coupler enabling bus traffic monitoring to be carried out. Typically, the Muxbus monitoring software does not allow multiple instances to be launched, and only allows limited data sources to be monitored concurrently.

Recently, bus monitoring software has been proposed which utilizes a client/server architecture in which raw Muxbus data is transmitted directly over a network to a client monitoring software on a workstation connected to the network. In one such system, the server runs on a dedicated monitoring workstation, effectively replacing the previous bus monitoring software installed on the dedicated monitoring workstation described above. In another such system, the server may be embedded in a customized bus structure, effectively replacing the entire dedicated monitoring workstation described above.

The present invention has been made and is now reduced to practice with a view to providing an alternative method and system for monitoring data traffic on a

bus, which, in at least preferred embodiments, can provide networked bus monitoring and multiple instances bus monitoring.

SUMMARY

In accordance with a first aspect of the present invention there is provided a monitoring system for monitoring data traffic on a bus, the system comprising a data storage unit for recording raw bus data in a bus data file; a network connected to the data storage unit; one or more workstations connected to the network and having installed thereon a data traffic monitoring application program; and wherein the workstations access the bus data file through file-sharing over the network.

Accordingly, the present invention can provide a system in which multiple instances of the data traffic monitoring application can be executed concurrently from the one or more workstations.

A recording application program for recording the raw bus data in the bus data file may be provided as part of a dedicated bus monitoring application program installed on a monitoring workstation directly connected to the bus and the network.

Accordingly, the present invention may be implemented as an add-on or upgrade to an existing dedicated bus monitoring application program.

The data storage unit may reside on the monitoring workstation.

The data traffic application program may comprise a command line tool.

The command line tool may comprise a plurality of switches for filtering of the raw bus data from the bus data file for displaying on a display of each respective workstation.

The command line tool may comprise a source flag for specifying the bus data file from which the raw bus data is accessed.

The command line tool may comprise a tail flag which, if selected, causes end-of-file-growth sampling of the bus data file in accessing the raw bus data.

In accordance with a second aspect of the present invention there is provided a method of monitoring data traffic on a bus, the method comprising recording raw bus data in a bus data file; and accessing the bus data file through file-sharing over a network.

One or more workstations may be connected to the network and have installed thereon a data traffic monitoring application program, and the workstations access the bus data file through file-sharing over the network.

The data traffic application program may comprise a command line tool.

The command line tool may comprise a plurality of switches for filtering of the raw bus data from the bus data file for displaying on a display of each respective workstation.

The command line tool may comprise a source flag for specifying the bus data file from which the raw bus data is accessed.

The command line tool may comprise a tail flag which, if selected, causes end-of-file-growth sampling of the bus data file in accessing the raw bus data.

A recording application program for recording the raw bus data in the bus data file may be provided as part of a dedicated bus monitoring application program installed on a monitoring workstation directly connected to the bus and the network.

In accordance with a third aspect of the present invention there is provided a computer readable medium having stored thereon computer readable code means for instructing a computer to execute a method of monitoring data traffic on a bus, the method comprising recording raw bus data in a bus data file; and accessing the bus data file through file-sharing over a network.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be better understood and readily apparent to one of ordinary skill in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

Figure 1 is a schematic drawing illustrating a system for monitoring data traffic on a bus according to an example embodiment.

Figure 2 shows a screen-shot illustrating the operation of a system for monitoring data traffic on a bus according to an example embodiment.

Figure 3 shows a screen-shot illustrating the operation of a system for monitoring data traffic on a bus according to an embodiment.

Figure 4 is a schematic drawing illustrating a computer system for implementing a method of monitoring data traffic on a bus according to an example embodiment.

DETAILED DESCRIPTION

Figure 1 is a schematic drawing illustrating a networked bus monitoring system 100 according to an example embodiment. The system 100 comprises a bus controller 102 connected to a plurality of remote terminals e.g. 104, 106, via a Muxbus Coupler 108.

A bus monitor workstation 110 has a Muxbus card 112 installed, which is connected to the Muxbus Coupler 108. The Muxbus Coupler 108 forms part of the pathway, or bus, between the bus controller 102 and the remote terminals e.g. 104, 106. Also installed on the workstation 110 is a Muxbus monitor software 114, which, in the example embodiment, is provided by the vendor of the Muxbus card 112. The Muxbus monitor software 114 includes a recording function which enables recording of raw bus data into a file at the workstation 110.

It has been recognised that the raw bus data stored in the file on the workstation 110, in the example embodiment utilizing a record functionality of the Muxbus monitor software 114, can enable accessibility of the raw bus data using file-sharing services to a plurality of workstations e.g. 116, 118 connected to a network 120 to which the workstation 110 is also connected using file-sharing services. Those file-sharing services are for example available in windows-based operating systems having networking capabilities. The example embodiment, because a record functionality of the Muxbus monitor software 114 is utilised, is implemented as an add-on or upgrade to an existing dedicated bus monitoring application program. Alternatively, the record functionality may be provided through additional software not part of an existing bus monitoring application program.

On the workstations e.g. 116 connected to the network 120, a networked Muxbus monitor software 122 is installed. In the example embodiment, the networked Muxbus monitor software 122 comprises a command line tool having various switches to allow filtering of displayed bus data from the raw bus data stored in the file on the workstation 110. Accordingly, in the example embodiment multiple instances of the Muxbus

monitor software 122 can be executed concurrently from the workstations e.g. 116, 118.

Figure 2 shows an example screen shot 200 illustrating the displayed data utilizing the command line tool of the networked Muxbus monitor software 122 (Figure 1). In the screen shot 200 shown in Figure 2, engineering data 202 is displayed, together with the current filter flags 204. In the example screen shot 200 shown in Figure 2, the engineering data relates to radio traffic in one direction, and for different types of radios operating over the Muxbus connection.

Figure 3 shows an example screen shot 300 of a help screen utilized in the command line tool in the example embodiment. The screen shot 300 shows a number of flag definitions, for example a source flag 302, and a tail flag 304. The source flag 302 specifies the source (file name) from which the raw bus data is accessed via the network 120 (see Figure 1). The tail flag 304, which is selected for following a "live" raw bus data file, initiates an end-off-file-growth sampling of the bus data file accessed over the network 120 (Figure 1).

The method and system of the example embodiment can be implemented on a computer system 800, schematically shown in Figure 4. It may be implemented as software, such as a computer program being executed within the computer system 800, and instructing the computer system 800 to conduct the method of the example embodiment.

The computer system 800 comprises a computer module 802, input modules such as a keyboard 804 and mouse 806 and a plurality of output devices such as a display 808, and printer 810.

The computer module 802 is connected to a computer network 812 via a suitable transceiver device 814, to enable access to e.g. the Internet or other network systems such as Local Area Network (LAN) or Wide Area Network (WAN).

The computer module 802 in the example includes a processor 818, a Random Access Memory (RAM) 820 and a Read Only Memory (ROM) 822. The computer module 802 also includes a number of Input/Output (I/O) interfaces, for example I/O interface 824 to the display 808, and I/O interface 826 to the keyboard 804.

The components of the computer module 802 typically communicate via and interconnected bus 828 and in a manner known to the person skilled in the relevant art.

The application program is typically supplied to the user of the computer system 800 encoded on a data storage medium such as a CD-ROM or floppy disk and read utilising a corresponding data storage medium drive of a data storage device 830. The application program is read and controlled in its execution by the processor 818. Intermediate storage of program data maybe accomplished using RAM 820.

In the foregoing manner, a method and system for monitoring data traffic on a bus are disclosed. Only several embodiments are described. However, it will be apparent to one skilled in the art in view of this disclosure that numerous changes and/or modifications may be made without departing from the scope of the invention.

CLAIMS

1. A monitoring system for monitoring data traffic on a bus, the system comprising:

a data storage unit for recording raw bus data in a bus data file;
a network connected to the data storage unit;
one or more workstations connected to the network and having installed thereon a data traffic monitoring application program; and
wherein the workstations access the bus data file through file-sharing over the network.

2. The system as claimed in claim 1, wherein a recording application program for recording the raw bus data in the bus data file is provided as part of a dedicated bus monitoring application program installed on a monitoring workstation directly connected to the bus and the network.

3. The system as claimed in claim 2, wherein the data storage unit resides on the monitoring workstation.

4. The system as claimed in any one of claims 1 to 3, wherein the data traffic application program comprises a command line tool.

5. The system as claimed in claim 4, wherein the command line tool comprises a plurality of switches for filtering of the raw bus data from the bus data file for displaying on a display of each respective workstation.

6. The system as claimed in claims 4 or 5, wherein the command line tool comprises a source flag for specifying the bus data file from which the raw bus data is accessed.

7. The system as claimed in any one of claims 4 to 6, wherein the command line tool comprises a tail flag which, is selected, causes end-of-file-growth sampling of the bus data file in accessing the raw bus data.

8. A method of monitoring data traffic on a bus, the method comprising:
recording raw bus data in a bus data file; and
accessing the bus data file through file-sharing over a network.

9. The method as claimed in claim 8, wherein one or more workstations are connected to the network and have installed thereon a data traffic monitoring application program, and the workstations access the bus data file through file-sharing over the network.

10. The method as claimed in claim 9, wherein the data traffic application program comprises a command line tool.

11. The method as claimed in claim 10, wherein the command line tool comprises a plurality of switches for filtering of the raw bus data from the bus data file for displaying on a display of each respective workstation.

12. The method as claimed in claims 10 or 11, wherein the command line tool comprises a source flag for specifying the bus data file from which the raw bus data is accessed.

13. The method as claimed in any one of claims 10 to 12, wherein the command line tool comprises a tail flag which, if selected, causes end-of-file-growth sampling of the bus data file in accessing the raw bus data.

14. The method as claimed in any one of claims 9 to 13, wherein a recording application program for recording the raw bus data in the bus data file is provided as part of a dedicated bus monitoring application program installed on a monitoring workstation directly connected to the bus and the network.

15. A computer readable medium having stored thereon computer readable code means for instructing a computer to execute a method of monitoring data traffic on a bus, the method comprising:

recording raw bus data in a bus data file; and

accessing the bus data file through file-sharing over a network.