CLAIMS

1.- A method for transmitting at least one data stream of a multimedia session through a distributed telecommunications network (3) comprising at least one network core (4) comprising a plurality of nodes (10, 12) interconnected by a plurality of links (7), each node (10, 12, 14) of said network (3) having a routing module (18), said session being established between a first terminal (1) and at least one second terminal (2) outside the network core (4), and said network core (4) also comprising at least two border modules (20, 20', 20") making up points of access to said network core (4) for the first and second terminals (1, 2), characterized in that it includes the following steps:

- determination (30), by said border modules (20, 20', 20"), of information relative to the routing topology and the status of the links (7, 16) of said network, necessary for the transmission of data streams of the session,
- determination (38), by a border module (20) addressed by the first terminal (1), of parameters of said session comprising a length of the session and flow constraints for the streams of said session in the network core (4),
- selection (40), by said addressed border module (20), when said data streams must pass through the network core (4), of an input border module (20') and an output border module (20") of said network core (4) for said streams, as a function of said stream flow constraints and said predetermined session parameters, and said information relative to the routing topology and the status of the links (7, 16),
- predetermination (42) of a path, from said input border module (20') to said output border module (20"), for all of said streams of the session, through said network core (4), as a function of said flow constraints of the streams and said information relative to the routing topology and the status of the links (7, 16), and as a function of optimization objectives for the network core (4),
- establishment (44) of the resources necessary to satisfy said flow constraints along said path and the optimization objectives, and definition of routing rules with routing modules (18) situated along said path, and
- transmission (48) of said streams of the session only using said predetermined path.

2.- The method for transmitting data streams of a multimedia session according to claim 1, characterized in the step (30) for determination by the border modules (20, 20', 20") of information relative to the routing topology and the status of the links (7, 16) of the

network (3) comprises the determination by the routing modules (18) of said information and the transmission of the information from the routing modules (18) to the border modules (20, 20', 20").

3.- The method for transmitting data streams of a multimedia session according to one of the preceding claims, characterized in that it also comprises a step for marking the streams so that they follow the predetermined path.

4.- The method for transmitting data streams of a multimedia session according to one of the preceding claims, characterized in that the step (38) for determining the flow constraints of the streams comprises determining the priority of the session relative to other sessions, and in that the step (44) for establishing the necessary resources comprises preempting resources along the path, as a function of the priority of the session.

5.- The method for transmitting data streams of a multimedia session according to one of the preceding claims, characterized in that the step (44) for establishing the resources and defining the routing rules comprises reserving resources along the path, in the network core (4), prohibiting them from being used by other sessions throughout the entire length of the session.

6.- The method for transmitting data streams of a multimedia session according to one of the preceding claims, characterized in that it also comprises a step for compressing headers of the packets of the streams of the session, before they are transmitted in the network core (4), and a step for decompressing those headers, after they are transmitted in the network core (4).

7.- A system for transmitting at least one data stream of a multimedia session through a distributed telecommunications network (3) comprising at least one network core (4) comprising a plurality of nodes (10, 12) interconnected by a plurality of links (7), said session being established between a first terminal (1) and at least one second terminal (2) outside said network core (4), said system comprising at least two border modules (20, 20', 20") on the border of the network core (4), making up points of access to said network core for the first and second terminals (1, 2), and a routing module (18) in each node (10, 12, 14) of said network, characterized in that:

- said border modules (20, 20', 20") comprise means for determining information relative to the routing topology and the status of the links (7, 16) of said network (3), necessary for the transmission of data streams of the session,

- said border modules (20, 20', 20") comprise means for determining parameters of said session comprising a length of the session, and flow constraints of the streams of said session in the network core (4), when they are addressed by the first terminal (1),

- the border modules (20, 20', 20") comprise means for selecting, when the data streams must pass through the network core (4), an input border module (20') and an output border module (20") of said network core (4) for said streams, as a function of the stream flow constraints and the predetermined session parameters, and the information relative to the routing topology and the statuses of the links (7, 16),

- said system comprises means (20, 20', 20") for predetermining a path, from the input border module (20') to the output border module (20"), for all the streams of the session, through said network core (4), as a function of the flow constraints of the streams and the information relative to the routing topology and the status of the links (7, 16), and as a function of optimization objectives of the network core (4),

- the system comprises means (18) for establishing the resources necessary to satisfy the flow constraints and the optimization objectives along said path and to define routing rules with the routing modules (18) situated along the path, and

- the system comprises means for transmitting the streams of the session only using the predetermined path.

8.- The system for transmitting at least one data stream of a multimedia session according to claim 7, characterized in that the routing modules (18) also include means for determining the information relative to the routing topology and the status of the links (7, 16) of said network (3), and for transmitting that information to the border modules (20, 20', 20").

9.- The system for transmitting at least one data stream of a multimedia session according to one of claims 7 or 8, characterized in that it comprises means for marking the streams so that they follow the predetermined path.

10.- The system for transmitting at least one data stream of a multimedia session according to one of claims 7 to 9, characterized in that the means for determining the flow constraints of the streams of the session comprise means for determining the priority of the session relative to other sessions, and the means for establishing the resources

necessary to satisfy the flow constraints along the path comprise means for preempting the resources along the path, as a function of the priority of the session.

11.- The system for transmitting at least one data stream of a multimedia session according to one of claims 7 to 10, characterized in that the means (18) for establishing the necessary resources comprise means for reserving said resources along the path, in the network core (4), and for prohibiting them from being used by other sessions throughout the entire duration of the session.

What is claimed is:

1. A method of transmitting at least one data stream of a multimedia session through a distributed telecommunications network comprising at least one network core comprising a plurality of nodes interconnected by a plurality of links, each node of the network having a routing module, the session being established between a first terminal and at least one second terminal outside the network core, and the network core also comprising at least two border modules, making up points of access to the network core for the first and second terminals, wherein the method comprises:

determining, by the border modules, information relative to the routing topology and the status of the links of the network, necessary for the transmission of data streams of the session;

determining, by a border module addressed by the first terminal, parameters of the session comprising a length of the session and flow constraints for the streams of the session in the network core;

selecting, by the addressed border module, when the data streams must pass through the network core, of an input border module and an output border module of the network core for the streams, as a function of the stream flow constraints and the predetermined session parameters, and the information relative to the routing topology and the status of the links;

predetermining a path, from the input border module to the output border module, for all of the streams of the session, through the network core, as a function of the flow constraints of the streams and the information relative to the routing topology and the status of the links, and as a function of optimization objectives for the network core;

establishing resources necessary to satisfy the flow constraints along the path and the optimization objectives, and definition of routing rules with routing modules situated along the path; and

transmitting the streams of the session only using the predetermined path.

2. The method of transmitting data streams of a multimedia session according to claim 1, wherein determining, by the border modules, information relative to the routing topology and the status of the links of the network comprises determining by the routing modules the information and transmitting the information from the routing modules to the border modules.

3. The method of transmitting data streams of a multimedia session according to claim 1, further comprising marking the streams so that they follow the predetermined path.

4. The method of transmitting data streams of a multimedia session according to claim 1, wherein determining the flow constraints of the streams comprises determining the priority of the session relative to other sessions, and wherein establishing the necessary resources comprises preempting resources along the path, as a function of the priority of the session.

5. The method of transmitting data streams of a multimedia session according to claim 1, wherein establishing the resources and defining the routing rules comprises reserving resources along the path, in the network core, and prohibiting them from being used by other sessions throughout the entire length of the session.

6. The method of transmitting data streams of a multimedia session according to claim 1, further comprising compressing headers of the packets of the streams of the session, before they are transmitted in the network core, and decompressing those headers, after they are transmitted in the network core.

7. A system for transmitting at least one data stream of a multimedia session through a distributed telecommunications network comprising at least one network core comprising a plurality of nodes interconnected by a plurality of links, the session being established between a first terminal and at least one second terminal outside the network core, the system comprising at least two border modules on the border of the network core, making up points of access to the network core for the first and second terminals, and a routing module in each node of the network, wherein:

the border modules comprise a determination mechanism configured to determine information relative to the routing topology and the status of the links of the network, necessary for the transmission of data streams of the session;

the border modules further comprise a second determination mechanism configured to determine parameters of the session comprising a length of the session, and flow constraints of the streams of the session in the network core, when they are addressed by the first terminal;

the border modules further comprise a selection mechanisms, when the data streams must pass through the network core, configured to select an input border module and an output border module of the network core for the streams, as a function of the stream flow constraints and the predetermined session parameters, and the information relative to the routing topology and the statuses of the links;

the system further comprises a path determination mechanism configured to predetermine a path, from the input border module to the output border module, for all the streams of the session, through the network core, as a function of the flow constraints of the streams and the information relative to the routing topology and the status of the links, and as a function of optimization objectives of the network core;

the system further comprises a resource establishing mechanism configured to establish the resources necessary to satisfy the flow constraints and the optimization objectives along the path and to define routing rules with the routing modules situated along the path; and

the system further comprises a transmitter configured to transmit the streams of the session only using the predetermined path.

8. The system for transmitting at least one data stream of a multimedia session according to claim 7, wherein the routing modules further comprises a determination mechanism configured to determine the information relative to the routing topology and the status of the links of the network, and configured to transmit that information to the border modules.

9. The system for transmitting at least one data stream of a multimedia session according to claim 7, further comprising a marking mechanism configured to mark the streams so that they follow the predetermined path.

10. The system for transmitting at least one data stream of a multimedia session according to claim 7, wherein the determination mechanism configured to determine the flow constraints of the streams of the session is configured to determine the priority of the session relative to other sessions, and wherein the resource establishing mechanism configured to satisfy the flow constraints along the path is further configured to preempt the resources along the path, as a function of the priority of the session.

11. The system for transmitting at least one data stream of a multimedia session according to claim 7, wherein the resource establishing mechanism is further configured to reserve the resources along the path, in the network core, and configured to prohibit them from being used by other sessions throughout the entire duration of the session.

12. The system for transmitting at least one data stream of a multimedia session according to claim 7, wherein the transmission system comprises a compression mechanism configured to compress headers of the packets of the streams of the session, before they are transmitted in the network core, and configured to decompress the headers after they are transmitted in the network core.