

CLAIMS

1. A transmission management system that selects a relaying apparatus to actually relay content data between a first terminal and a second terminal, from a plurality of
5 relay apparatuses capable of relaying the content data for conversation between the first and second terminals, the management system comprising:

a receiving unit that receives a first transmission time information and a first receiving time information
10 before the content data is transmitted and received between the first and second terminals, the first transmission time information indicating a transmission time point when prior transmission information is transmitted from the first terminal, the first receiving time information indicating a
15 receiving time point when the prior transmission information is received at the second terminal, the prior transmission information being relayed by each of the relaying apparatuses after transmitted from the first terminal before received at the second terminal;

20 a calculating unit that calculates a first necessary time period from when the first terminal transmits the prior transmission information to when the second terminal receives the prior transmission information, on the basis of a time difference between the receiving time point
25 indicated by the first receiving time information and the transmission time point indicated by the first transmission information, for each relay apparatus through which the prior transmission information is relayed;

a selecting unit that selects the relay apparatus
30 through which the prior transmission information is relayed with a minimum first necessary time period, from among the plurality of relaying apparatuses.

2. The transmission management system according to claim 1, wherein

the first transmission time information is contained in the prior transmission information transmitted from the first terminal to the second terminal, and

the receiving unit receives the first transmission time information and the first receiving time information from the second terminal.

3. The transmission management system according to claim 1, wherein

the receiving unit receives a second transmission time information and a second receiving time information before the content data is transmitted and received between the first and second terminals, the second transmission time information indicating a transmission time point when prior transmission information is transmitted from the second terminal, the second receiving time information indicating a receiving time point when the prior transmission information is received at the first terminal, the prior transmission information being relayed by each of the relaying apparatuses after transmitted from the second terminal before received at the first terminal, and

the calculating unit calculates a second necessary time period from when the second terminal transmits the prior transmission information to when the first terminal receives the prior transmission information, on the basis of a time difference between a receiving time point indicated by the second receiving time information and a transmission time point indicated by the second transmission time information, for each relay apparatus through which the prior transmission information is relayed, the calculating unit calculates a total necessary time

period which is a sum of the first necessary time period and the second necessary time period, and

the selecting unit selects the relay apparatus through which the prior transmission information is relayed with a minimum total necessary time period, from among the plurality of relaying apparatuses.

4. The transmission management system according to claim 3, wherein

the second transmission time information is contained in the prior transmission information transmitted from the second terminal to the first terminal, and

the receiving unit receives the second transmission time information and the second receiving time information from the first terminal.

5. A transmission system comprising the first terminal, the second terminal, and the transmission management system according to any one of claims 1 to 4.

6. A selection method that selects a relaying apparatus to actually relay content data between a first terminal and a second terminal, from a plurality of relay apparatuses capable of relaying the content data for conversation between the first and second terminals, the selection method comprising:

receiving a first transmission time information and a first receiving time information before the content data is transmitted and received between the first and second terminals, the first transmission time information indicating a transmission time point when prior transmission information is transmitted from the first terminal, the first receiving time information indicating a

receiving time point when the prior transmission information is received at the second terminal, the prior transmission information being relayed by each of the relaying apparatuses after transmitted from the first terminal before received at the second terminal;

calculating a first necessary time period from when the first terminal transmits the prior transmission information to when the second terminal receives the prior transmission information, on the basis of a time difference between the receiving time point indicated by the first receiving time information and the transmission time point indicated by the first transmission information, for each relay apparatus through which the prior transmission information is relayed;

selecting the relay apparatus through which the prior transmission information is relayed with a minimum first necessary time period, from among the plurality of relaying apparatuses.

7. A computer program product comprising a non-transitory computer-readable medium having computer-readable program codes embodied in the medium, the program codes when executed causing the transmission management system to function as each unit according to any one of claims 1 to 4.

8. A program supply system that supplies the program codes according to claim 7 to the transmission management system through a communications network.

9. A maintenance system that performs maintenance of the transmission management system according to any one of claims 1 to 4.

CLAIMS

1. A transmission system comprising:

a plurality of relay apparatuses;

a first terminal;

a second terminal; and

a transmission management system that selects a relay apparatus to actually relay content data between the first terminal and the second terminal, from the plurality of relay apparatuses capable of relaying the content data for conversation between the first terminal and the second terminal, wherein

each of the plurality of relay apparatuses comprises

a receiving unit that receives first prior transmission information transmitted from the first terminal and second prior transmission information transmitted from the second terminal before the content data is transmitted and received between the first terminal and the second terminal;

a measurement unit that measures a first receiving time point at which the receiving unit receives the first prior transmission information and a second receiving time point at which the receiving unit receives the second prior transmission information; and

a relay apparatus transmitting unit that transmits first receiving time information indicating the measured first receiving time point to the first terminal, and transmits second receiving time information indicating the measured second receiving time point to the second terminal,

the first terminal transmits, to the transmission management system, the received first receiving time information and first transmission time information

indicating a transmission time point at which the first terminal transmits the first prior transmission information,

the second terminal transmits, to the transmission management system, the received second receiving time information and second transmission time information indicating a transmission time point at which the second terminal transmits the second prior transmission information, and

the transmission management system comprises

a calculating unit that calculates a first necessary time period from when the first terminal transmits the first prior transmission information to when the receiving unit receives the first prior transmission information, on the basis of a time difference between the receiving time point indicated by the first receiving time information and the transmission time point indicated by the first transmission information, calculates a second necessary time period from when the second terminal transmits the second prior transmission information to when the receiving unit receives the second prior transmission information, on the basis of a time difference between the receiving time point indicated by the second receiving time information and the transmission time point indicated by the second transmission information, and further calculates a total necessary time period which is a sum of the first necessary time period and the second necessary time period; and

a selecting unit that selects a relay apparatus involved with a minimum total necessary time period, from among the plurality of relay apparatuses.

2. The transmission system according to claim 1, further comprising a maintenance system that performs maintenance

of the plurality of relay apparatuses, the first terminal,
the second terminal, or the transmission management system.