base station. As an example of the small-or-medium-scale base station, a relay apparatus is disclosed, for example, in Non-Patent Literature 1.

Citation List

Non-Patent Literature

[0005]

Non-Patent Literature 1: R1-090015, "Consideration on Relay.ppt", China Potevio, CATT, Jan 2009

Summary of Invention

Technical Problem

[0006]

Here, the case in which a function for executing a plurality of types of operations is implemented in one small-or-medium-scale base station is assumed. For example, a small-or-medium-scale base station corresponding to both an operation for reinforcing link quality between a communication terminal and a macro-cell base station and an operation for increasing an area capacity is assumed to be developed. However, when the operation of the small-or-medium-scale base station is controlled from the fixed network side as described above, it is difficult for the small-or-medium-scale base station corresponding to a plurality of types of operations to immediately execute an appropriate operation corresponding to a situation.

[0007]

Embodiments~~The present invention has been made in view of the above-described problems, and an object~~ of the present invention ~~is to~~ provide a novel and improved communication control method and small-or-medium-scale base station, which can autonomously select an operation range in the small-or-medium-scale base station and perform communication in accordance with the selected operation range.

Solution to Problem

[0008]

~~According to the first aspect of the present invention in order to achieve the~~ above-mentioned object, there is provided a communication control method for use in a small-or-medium-scale base station including the steps of: receiving a radio signal transmitted from a communication terminal or a large-scale base station; acquiring information of the communication terminal or the large-scale base station by analyzing the radio signal; selecting one operation range among a plurality of types of operation ranges based on the information of the communication terminal or the large-scale base station; and communicating with the communication terminal in accordance with the operation range selected from among the plurality of types of ~~operation ranges.~~

According to one aspect, there is provided a communication control method for use in a small-or-medium-scale base station, comprising the steps of:

receiving a radio signal transmitted from a communication terminal or a large-scale base station;

acquiring information of the communication terminal or the large-scale base station by analyzing the radio signal;

selecting one operation range among a plurality of types of operation ranges based on the information of the communication terminal or the large-scale base station; and

communicating with the communication terminal in accordance with the operation range selected from among the plurality of types of operation ranges,

wherein the plurality of types of operation ranges include a first operation range for link reinforcement between the communication terminal and the large-scale base station, a second operation range for improving a capacity, a third operation range for extending communication coverage, and a fourth operation range in which the small-or-medium-scale base station operates a cell.

[0009]

The plurality of types of operation ranges may include: a first operation range for link reinforcement between the communication terminal and the large-scale base station; a second operation range for improving a capacity; a third operation range for extending communication coverage; and a fourth operation range in which the small-or-medium-scale base station operates a cell.

[0010]

The step of selecting the operation range may be a step of selecting the first operation range when link quality between the communication terminal and the large-scale base station is less than a predetermined standard.

[0011]

The step of selecting the operation range may be a step of selecting the second operation range when a degree of congestion of traffic in the large-scale base station is greater than an upper limit.

[0012]

The step of selecting the operation range may be a step of selecting the third operation range when a distribution of the communication terminals is biased toward a cell edge of the large-scale base station.

[0013]

The step of selecting the operation range may be a step of selecting the fourth operation range when the small-or-medium-scale base station and the

~~According to the second aspect of the present invention in order to achieve~~ the above-mentioned object, there is provided a small-or-medium-scale base station including: a reception unit for receiving a radio signal transmitted from a communication terminal or a large-scale base station; an information acquisition unit for acquiring information of the communication terminal or the large-scale base station by analyzing the radio signal; a selection unit for selecting one operation range among a plurality of types of operation ranges based on the information of the communication terminal or the large-scale base station; and a communication control unit for controlling communication with the communication terminal in accordance with the operation range selected from among the plurality of types of operation ranges.

According to another aspect, there is provided a small-or-medium-scale base station comprising:

a reception unit for receiving a radio signal transmitted from a communication terminal or a large-scale base station;

an information acquisition unit for acquiring information of the communication terminal or the large-scale base station by analyzing the radio signal;

a selection unit for selecting one operation range among a plurality of types of operation ranges based on the information of the communication terminal or the large-scale base station; and

a communication control unit for controlling communication with the communication terminal in accordance with the operation range selected from among the plurality of types of operation ranges,

wherein the plurality of types of operation ranges include a first operation range for link reinforcement between the communication terminal and the large-scale base station, a second operation range for improving a capacity, a third operation range for extending communication coverage, and a fourth operation range in which the small-or-medium-scale base station operates a cell.

Advantageous Effects of Invention

[0020]

According to embodiments of the present invention as described above, a small-or-medium-scale base station can autonomously select an operation range and perform communication in accordance with the selected operation range.

Brief Description of Drawings

[0021]

[Fig. 1] Fig. 1 is an explanatory diagram illustrating a configuration of a communication system according to an embodiment of the present invention.

[Fig. 2] Fig. 2 is an explanatory diagram illustrating a configuration example of a small-or-medium-scale base station according to the embodiment of the present invention.

[Fig. 3] Fig. 3 is a sequence diagram illustrating the entire operation in the communication system according to the embodiment of the present invention.

[Fig. 4] Fig. 4 is an explanatory diagram illustrating an example of interference to be considered during overlay transmission.

[Fig. 5] Fig. 5 is an explanatory diagram illustrating a method of selecting an operation range.