subscriber server (HSS), etc. The implementation of the network management device 13 is not limited in this embodiment of the disclosure.

[0040] The execution body involved in the embodiments of the disclosure include, but are not limited to: a mobile phone terminal, a network-side device (such as a base station and other access network devices) and a core network device in a cellular mobile communication system.

[0041] In a case where all UEs are awakened within the PO, the UEs may be grouped for paging. The grouping information may be carried in paging downlink control information (paging DCI) or in a paging early indication (PEI). The UE determines whether to wake up within the PO based on the grouping information. The grouping information may be used to determine a group to which the UE belongs. For example, the grouping information may include a subgroup ID, etc.

[0042] One grouping method is to group based on UE identification information (UE_ID). The group may be determined based on the following expression:

[0043] $wg = floor(floor(\frac{UE_ID}{N \times N_s})/N_n) mod N_w$ (1),

[0044] where wg represents an index of different paging group resources. The UE_ID modulus method is a random selection or random allocation method (randomization). That is, the modulus is taken according to the UE_ID in all paging group resources. N represents a paging frame density in a time domain, N_s represents a paging density within a paging frame in the time domain, N_n represents a paging narrowband, and N_w represents a total number of paging group resources.

[0045] Another grouping method is performed by taking the core network device as a unified node. In this method, a subgroup ID is directly assigned in NR. At this time, when the network assigns the subgroup ID, it will be assigned based on implementation such as terminal attributes, or statistical paging probability, etc.

[0046] In an example, the PEI may use 1 bit to wake up all UEs, that is, it may wake up ungrouped UEs.

[0047] Therefore, when two paging grouping methods are adopted and PEI may wake up the ungrouped UEs, how to wake up the UE based on the PEI is an urgent problem to be solved.

[0048] As illustrated in FIG. 2, the exemplary embodiment provides a method for information transmission, which may be executed by a base station in a cellular mobile communication system. The method includes the following step 201.

[0049] At 201, first capability indication information is received. The first capability indication information indicates whether a UE supports a PEI.

[0050] The PEI may be used to instruct the UE to wake up and monitor a paging message within

WHAT IS CLAIMED IS:

1. A method for information transmission, performed by a base station, the method comprising:

receiving first capability indication information, wherein the first capability indication information indicates whether a user equipment (UE) supports a paging early indication (PEI);

wherein the first capability indication information indicates at least one of:

whether the UE supports a first type of PEI; or

whether the UE supports a second type of PEI, wherein the first type of PEI is different from the second type of PEI.

2. The method according to claim 1, wherein whether the UE supports the second type of PEI comprises at least one of:

whether the UE supports a second type of PEI at least corresponding to a first type of paging grouping mode; or

whether the UE supports a second type of PEI at least corresponding to a second type of paging grouping mode;

wherein the first type of paging grouping mode comprises a paging grouping mode where a paging group is determined by a core network device; and/or, the second type of paging grouping mode comprises a paging grouping mode where a paging group is determined based on a UE identifier.

3. The method according to claim 1, further comprising at least one of:

in response to the first capability indication information indicating that the UE supports the second type of PEI, determining that the UE supports the first type of PEI; or

in response to the first capability indication information indicating that the UE does not support a second type of PEI at least corresponding to a first type of paging grouping mode and a second type of PEI at least corresponding to a second type of paging grouping mode, determining that the UE does not support the first type of PEI.

4. The method according to claim 1, wherein receiving the first capability indication information comprises at least one of:

receiving from the UE, the first capability indication information indicating whether the UE supports the first type of PEI;

receiving from the UE, the first capability indication information indicating whether the UE supports a second type of PEI at least corresponding to a second type of paging grouping mode;

receiving from a core network device, the first capability indication information; or

receiving from a counterpart base station, the first capability indication information.

5. The method according to claim 4, wherein receiving from the core network device, the first capability indication information, comprises:

in response to receiving grouping information of a first type of paging grouping mode of the UE from the core network device, determining that the UE supports a second type of PEI at least corresponding to the first type of paging grouping mode.

6. The method according to claim 1, further comprising at least one of:

sending to a counterpart base station, second capability indication information indicating whether the UE supports the first type of PEI;

sending to the counterpart base station, second capability indication information indicating whether the UE supports the second type of PEI;

sending to a core network device, second capability indication information indicating whether the UE supports the first type of PEI; or

sending to the core network device, second capability indication information indicating whether the UE supports a second type of PE at least corresponding to a second type of paging grouping mode.

7. The method according to any one of claims 1 to 6, further comprising:

sending third capability indication information to the UE, wherein the third capability indication information is configured for the UE to determine a PEI that the base station is capable of sending;

the third capability indication information is configured for the UE to determine at least one of the following that the base station is capable of sending:

the first type of PEI;

a second type of PEI corresponding to a first type of paging grouping mode, wherein the first type of PEI is different from the second type of PEI;

a second type of PEI corresponding to a second type of paging grouping mode; or

a second type of PEI corresponding to the first type of paging grouping mode and the second type of paging grouping mode.

8. A method for information transmission, performed by a user equipment (UE), the method comprising:

sending first capability indication information, wherein the first capability indication information indicates whether the UE supports a paging early indication (PEI);

wherein the first capability indication information indicates at least one of:

whether the UE supports a first type of PEI; or

whether the UE supports a second type of PEI, wherein the first type of PEI is different from the second type of PEI.

9. The method according to claim 8, wherein whether the UE supports the second type of PEI comprises at least one of:

whether the UE supports a second type of PEI at least corresponding to a first type of paging grouping mode; or

whether the UE supports a second type of PEI at least corresponding to a second type of paging grouping mode;

wherein the first type of paging grouping mode comprises a paging grouping mode where a paging group is determined by a core network device; and/or, the second type of paging grouping mode comprises a paging grouping mode where a paging group is determined based on a UE identifier.

10. The method according to claim 8, wherein sending the first capability indication information comprises at least one of:

sending to a base station, the first capability indication information indicating whether the UE supports the first type of PEI;

sending to the base station, the first capability indication information indicating whether the UE supports a second type of PEI at least corresponding to a second type of paging grouping mode; or

sending to a core network device, the first capability indication information indicating whether the UE supports a second type of PEI at least corresponding to a first type of paging grouping mode.

11. The method according to any one of claims 8 to 10, further comprising:

receiving second capability indication information from a base station, wherein the second capability indication information is configured for the UE to determine a PEI that the base station is capable of sending; and

determining whether to monitor the PEI sent by the base station according to the PEI supported by the UE;

wherein the second capability indication information is configured for the UE to determine at least one of the following that the base station is capable of sending:

the first type of PEI;

a second type of PEI corresponding to a first type of paging grouping mode, wherein the first type of PEI is different from the second type of PEI;

a second type of PEI corresponding to a second type of paging grouping mode; or

a second type of PEI corresponding to the first type of paging grouping mode and the second type of paging grouping mode.

12. The method according to claim 11, wherein determining whether to monitor the PEI sent by the base station according to the PEI supported by the UE, comprises at least one of:

in response to determining that the UE supports the PEI that the base station is capable of sending, monitoring the PEI sent by the base station; or

in response to determining that the UE does not support the PEI that the base station is capable of sending, not monitoring the PEI sent by the base station.

13. The method according to claim 12, wherein in response to determining that the UE supports the PEI that the base station is capable of sending, monitoring the PEI sent by the base station comprises at least one of:

in response to the base station being capable of sending the first type of PEI and the UE supporting the first type of PEI, monitoring the PEI sent by the base station; or

in response to the base station being capable of sending the second type of PEI and the UE supporting the second type of PEI, monitoring the PEI sent by the base station.

14. The method according to claim 13, wherein in response to the base station being capable of sending the first type of PEI and the UE supporting the first type of PEI, monitoring the PEI sent by the base station comprises at least one of:

in response to the base station being capable of sending the first type of PEI and the UE supporting the first type of PEI and the second type of PEI, monitoring the PEI sent by the base station; or

in response to the base station being capable of sending the first type of PEI and the UE supporting the second type of PEI, monitoring the PEI sent by the base station.

15. The method according to claim 13, wherein in response to the base station being capable of sending the second type of PEI and the UE supporting the second type of PEI, monitoring the PEI sent by the base station comprises at least one of:

in response to the base station being capable of sending a second type of PEI at least corresponding to a first type of paging grouping mode, and the UE supporting the second type of PEI at least corresponding to the first type of paging grouping mode, monitoring the PEI sent by the base station; or

in response to the base station being capable of sending a second type of PEI at least corresponding to a second type of paging grouping mode, and the UE supporting the second type of PEI at least corresponding to the second type of paging grouping mode, monitoring the PEI sent by the base station; or

wherein in response to the base station being capable of sending the second type of PEI at least corresponding to the first type of paging grouping mode, and the UE supporting the second type of PEI at least corresponding to the first type of paging grouping mode, monitoring the PEI sent by the base station, comprises:

in response to the base station being capable of sending the second type of PEI at least corresponding to the first type of paging grouping mode, and the UE having grouping information of the first type of paging grouping mode, monitoring the PEI sent by the base station.

16. A method for information transmission, performed by a core network device, the method comprising:

receiving first capability indication information, wherein the first capability indication information indicates whether a user equipment (UE) supports a paging early indication (PEI);

wherein the first capability indication information indicates at least one of:

whether the UE supports a first type of PEI; or

whether the UE supports a second type of PEI, wherein the first type of PEI is different from the second type of PEI.

17. The method according to claim 16, wherein whether the UE supports the second type of PEI comprises at least one of:

whether the UE supports a second type of PEI at least corresponding to a first type of paging grouping mode; or

whether the UE supports a second type of PEI at least corresponding to a second type of paging grouping mode;

wherein the first type of paging grouping mode comprises a paging grouping mode where a paging group is determined by the core network device; and the second type of paging grouping mode comprises a paging grouping mode where a paging group is determined based on a UE identifier.

18. The method according to claim 16, wherein receiving the first capability indication information comprises at least one of:

receiving from the UE, the first capability indication information indicating whether the

UE supports a second type of PEI at least corresponding to a first type of paging grouping mode;

receiving from a base station, the first capability indication information indicating whether the UE supports the first type of PEI; or

receiving from a base station, the first capability indication information indicating whether the UE supports a second type of PE at least corresponding to a second type of paging grouping mode.

19. The method according to any one of claims 16 to 18, further comprising at least one of:

sending to the base station, second UE capability indication information indicating whether the UE supports the first type of PEI; or

sending to the base station, second UE capability indication information indicating whether the UE supports the second type of PEI.

20. A communication device, comprising: a processor, and a memory storing an executable program capable of being run by the processor which, when executed by the processor, implements steps in the method for information transmission according to any one of claims 1 to 7, claims 8 to 15, or claims 16 to 19.