for servers as a whole by obtaining an average operating rate for each rack from operating rates of servers. Accordingly, heat control of an individual server cannot be made even though a generated heat amount is different depending on each server.

[0011]

Embodiments of the present invention provide a cooling system which can control the performance of a heat exchanger in more detail.

[Solution to Problem]

[0012]

~~According to a first aspect of the present invention, there is provided a cooling system for an electronic device storing apparatus, comprising: an electronic device, a rack including said electronic device and a plurality of placement shelves to place said electronic device; in said rack, a vaporizer having a refrigerant internally being mounted; outside said rack, a condensing part connected with said vaporizer by a laying pipe being installed; and a refrigerant adjustment means for adjusting a height of a refrigerant surface in said vaporizer.~~

According to a first aspect of the present invention, there is provided a cooling system for an electronic device storing apparatus, comprising: a rack including a plurality of placement shelves to place an electronic device; a plurality of vaporizers, each vaporizer having a refrigerant internally and being mounted in said rack; a condensing part being installed outside of said rack and connected with said plurality of vaporizers by a laying pipe; a plurality of tanks, each tank storing a refrigerant and being connected to a respective vaporizer by a heat exchanger connecting pipe; a plurality of tank connecting pipes connecting said plurality of tanks; a condenser pipe connecting one of said plurality of vaporizers and said condensing part; and a refrigerant adjustment means for adjusting a height of a refrigerant surface in said plurality of vaporizers.

[0012a]

~~According to a second aspect of the present invention, there is provided a cooling system of an electronic device storing building, comprising: a rack including an electronic device and a plurality of~~

~~placement shelves to place said electronic device; said rack being arranged in a building storing a plurality of said racks; in said building, a plurality of air intake openings and air exhaust openings to take in and exhaust an outside air being installed; in said rack, a vaporizer having a refrigerant internally being mounted; outside said rack, a condensing part connected with said vaporizer by a laying pipe being installed; and a refrigerant adjustment means for adjusting a height of a refrigerant surface in said vaporizer.~~

According to a second aspect of the present invention, there is provided a cooling system for an electronic device storing apparatus, comprising: a rack including a plurality of placement shelves to place an electronic device, said rack being arranged in a building being installed with a plurality of air intake openings and air exhaust openings to take in and exhaust an outside air; a plurality of vaporizers, each vaporizer having a refrigerant internally and being mounted in said rack; a condensing part being installed outside said rack and connected with said plurality of vaporizers by a laying pipe; a plurality of tanks, each tank storing a refrigerant and being connected to a respective vaporizer by a heat exchanger connecting pipe; a plurality of tank connecting pipes connecting said plurality of tanks; a condenser pipe connecting one of said plurality of vaporizers and said condensing part; and a refrigerant adjustment means for adjusting a height of a refrigerant surface in said vaporizer.

[0012b]

According to a third aspect of the present invention, there is provided a cooling apparatus, comprising: a plurality of vaporizers having a refrigerant internally; a condensing part connected with said plurality of vaporizers by a laying pipe; a plurality of tanks, each tank storing a refrigerant and being connected to a respective vaporizer by a heat exchanger connecting pipe; a plurality of tank connecting pipes connecting said plurality of tanks; a condenser pipe connecting one of said plurality of vaporizers and said condensing part; and a refrigerant adjustment means for adjusting a height of a refrigerant surface in said plurality of vaporizers.

[Advantageous Effects of Invention]

[0013]

By a cooling system according to embodiments of the present invention, a heat exchanger performance can be controlled in more detail.

[Brief Description of Drawings]

[0014]

[Fig. 1] Fig. 1 is a sectional view showing a data center.

[Fig. 2] Fig. 2 is an upper part sectional view showing a data center.

[Fig. 3] Fig. 3 is a front view of a cooling system.

CLAIMS

1. A cooling system for an electronic device storing apparatus, comprising:

~~an electronic device,~~

a rack including ~~said electronic device and~~ a plurality of placement shelves to place ~~said~~ an electronic device;

~~in said rack,~~ a plurality of vaporizers, each vaporizer having a refrigerant internally and being mounted in said rack;

~~outside said rack,~~ a condensing part being installed outside of said rack and connected with said plurality of vaporizers by a laying pipe ~~being installed~~;

a plurality of tanks, each tank storing a refrigerant and being connected to a respective vaporizer by a heat exchanger connecting pipe;

a plurality of tank connecting pipes connecting said plurality of tanks;

a condenser pipe connecting one of said plurality of vaporizers and said condensing part; and

a refrigerant adjustment means for adjusting a height of a refrigerant surface in said plurality of vaporizers.

~~2. The cooling system of an electronic device storing apparatus according to claim 1, wherein a tank to store a refrigerant is provided in a vaporizer of said heat exchanger.~~

~~3~~2. The cooling system of an electronic device storing apparatus according to claim ~~2~~1,

wherein said refrigerant adjustment means ~~for adjusting a height of a refrigerant surface~~ has a means for controlling a height of said tank.

~~4~~3. The cooling system of an electronic device storing apparatus according to claim ~~2~~1,

wherein said refrigerant adjustment means ~~for adjusting a height of a refrigerant surface~~ is provided with a plurality of fluid control devices each being connected to said condensing part and being connected to a different height of said tank.

~~5~~4. The cooling system of an electronic device storing apparatus according to any one of claims 1 to ~~4~~3, comprising

a temperature sensor to detect temperature of said rack; and, according to a detection result of said temperature sensor, controlling said refrigerant adjustment means for adjusting a height of said refrigerant surface.

~~6~~5. A cooling system for an electronic device storing apparatus, comprising:

~~an electronic device,~~

a rack including ~~said electronic device and~~ a plurality of placement shelves to place ~~said~~ an electronic device~~;~~, said rack being arranged in a building ~~storing a plurality of said racks; in said building,~~ being installed with a plurality of air intake openings and air exhaust openings to take in and exhaust an outside air ~~being installed; in said rack,~~;

~~in said rack,~~ a plurality of vaporizers, each vaporizer having a refrigerant internally and being mounted in said rack;

~~outside said rack,~~ a condensing part being installed outside said rack and connected with said plurality of vaporizers by a laying pipe ~~being installed~~;

a plurality of tanks, each tank storing a refrigerant and being connected to a respective vaporizer by a heat exchanger connecting pipe;

a plurality of tank connecting pipes connecting said plurality of

tanks;

a condenser pipe connecting one of said plurality of vaporizers and said condensing part; and

a refrigerant adjustment means for adjusting a height of a refrigerant surface in said vaporizer.

~~7~~6. The cooling system of an electronic device storing building according to claim ~~6~~5, wherein a fan is provided in an air exhaust opening of said electronic device storing building.

~~8~~7. The cooling system of an electronic device storing building according to claim ~~6~~5 or ~~7~~6,

wherein a temperature sensor to detect temperature of said rack is provided, and, according to a result of said temperature sensor, output of said fan of said electronic device storing building and a refrigerant adjustment means are controlled.

8. A cooling apparatus, comprising:

a plurality of vaporizers having a refrigerant internally;

a condensing part connected with said plurality of vaporizers by a laying pipe;

a plurality of tanks, each tank storing a refrigerant and being connected to a respective vaporizer by a heat exchanger connecting pipe;

a plurality of tank connecting pipes connecting said plurality of tanks;

a condenser pipe connecting one of said plurality of vaporizers and said condensing part; and

a refrigerant adjustment means for adjusting a height of a refrigerant surface in said plurality of vaporizers.