DATA CENTER HAVING HEAT EXCHANGE AND TRANSFER CONFIGURATION

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Appl. No.: 12/805,480
Filed: Aug. 2, 2010

Related U.S. Application Data
Provisional application No. 61/213,947, filed on Jul. 31, 2009.

Publication Classification
Int. Cl.
P28D 15/00 (2006.01)

U.S. Cl. ....................... 165/47; 165/104.19

ABSTRACT
A building includes a data center to house computing equipment including computers and servers. The data center stores data. The building also includes a multipurpose center that houses office spaces, conference rooms and meeting rooms. The data center and multipurpose center differ in function but share resources. Computing equipment in the data center generates a lot of heat energy that is absorbed by the air. An air circulating system transfers the heated air from the data center to the multipurpose center. A fluid circulation system uses fluid to transfer heat energy to locations within the multipurpose center and also outside, such as a parking lot.
Operate Computing Equipment → Generate Heat Energy → Flow Air or Fluid

Flow to other Locations → Reduce Temperature → Capture Heat Energy

Disperse Heat Energy → Flow to Parking Lot / Grounds

Increase Temperature → Reduce Temperature of Air or Fluid

Flow Back to Data Center

FIG. 6
DATA CENTER HAVING HEAT EXCHANGE AND TRANSFER CONFIGURATION

FIELD OF THE INVENTION

[0001] The present invention relates to data centers and buildings housing computers/servers. More particularly, the present invention relates to data centers having a configuration to exchange or transfer heat produced by the data center.

DISCUSSION OF THE RELATED ART

[0002] A data center houses servers, computers and other equipment to store large amounts of data. The amount of data produced by organizations and individuals increases exponentially over time, and this data must be stored safely and effectively. Systems are backed up as well, which increases the need for data storage. Data centers remain the best option for such storage as it moves the computers and servers to a remote location having lower costs and greater security than a location within offices or a headquarters.

[0003] Servers and computing equipment consume vast amounts of energy, which raises concerns about the carbon footprint and other negative environmental impacts of these facilities. The energy consumed by data centers is significant. It is estimated that data centers consumed about 61,000,000,000 kilowatt-hours (kWh) in 2006, for a total electricity cost of about $4,500,000,000. These figures account for about 1.5% of total U.S. electricity consumption.

[0004] This estimated level of electricity consumption is more than the electricity consumed by the nation’s color televisions, or is the amount of electricity consumed by approximately 5,800,000 average U.S. households. Federal servers and data centers account for approximately 6,000,000,000 kWh, or 10%, of the electricity use for data centers at a total cost of about $450,000,000 based on the 2006 numbers. These numbers and costs have increased as the amount of data being generated and stored increases every year, as does the cost of providing energy.

[0005] Cooling operations drive costs in a data center as the servers and computing equipment must be cooled to perform. Electronic devices give off energy as heat. As temperatures rise, device performance degrades. Thus, data centers employ air conditioners, fans and other cooling devices to keep temperatures down. These cooling actions remain the most expensive and energy intensive part of maintaining the data center, along with the maintenance and repair of the systems that provide the cooling.

SUMMARY OF THE INVENTION

[0006] A data center uses a configuration to move heat from its server floors to other parts of the building or grounds, thereby removing the heat and using it for other purposes. The movement of the heat energy also creates a medium that is cooled when it returns to the data center. Thus, a building may include a data center as well as another section for offices, conference rooms, multipurpose rooms and the like that receives the heat energy. This symbiotic relationship helps reduce energy costs in operating both sections.

[0007] According to the present invention, a data center is disclosed. The data center includes a data center floor having computing equipment, wherein the computing equipment generates heat energy while in operation. The data center also includes a medium to flow through the data center floor and to absorb heat energy generated by the computing equipment. The data center also includes a system configuration to flow the medium to another location. The medium disperses heat energy at the location to increase a temperature at the location.

[0008] Further according to the present invention, a data center is disclosed. The data center includes a data center floor having at least one rack of computing equipment. The computing equipment generates heat energy. The data center also includes a system to circulate a medium within the data center. The medium absorbs heat energy within the data center floor. The data center also includes a room coupled to the system. The medium flows through the room and transfers heat energy to increase a temperature within the room.

[0009] Further according to the present invention, a method for transferring energy generated in a data center. The method includes generating heat energy by computing equipment within the data center. The method also includes capturing the heat energy by a medium flowing through the data center. The method also includes dispersing the heat energy at the location from the medium. The method also includes returning the medium back to the data center.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The accompanying drawings are included to provide further understanding of the invention and constitute a part of the specification. The drawings listed below illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention, as disclosed by the claims and their equivalents.

[0011] FIG. 1 illustrates a block diagram of a building having a data center and a multipurpose center according to the disclosed embodiments.

[0012] FIG. 2 illustrates the energy transfer flow from the data center floor according to the disclosed embodiments.

[0013] FIG. 3 illustrates the energy transfer flow from the data center to the multipurpose center according to the disclosed embodiments.

[0014] FIG. 4 illustrates the energy transfer flow to an office space within the multipurpose center according to the disclosed embodiments.

[0015] FIG. 5 illustrates a configuration for heating a parking lot or other grounds according to the disclosed embodiments.

[0016] FIG. 6 depicts a flowchart for heat transfer using a data center of a building according to the disclosed embodiments.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] Aspects of the invention are disclosed in the accompanying description. Alternate embodiments of the present invention and their equivalents are devised without parting from the spirit or scope of the present invention. It should be noted that like elements disclosed below are indicated by like reference numbers in the drawings.

[0018] FIG. 1 depicts a block diagram of a building 100 having a data center 102 according to the disclosed embodiments. Building 100 includes a modular, multipurpose facility that includes grounds, parking, landscaping and other features associated with stand-alone buildings on a campus setting. Building 100 includes data center 102 and multipurpose center 104. Although shown as separate features of building 100,
data center 102 and multipurpose center 104 are interconnected to allow movements of personnel, equipment, resources, air and the like between each.

[0019] Data center 102 is the heart of building 100. It houses the computing equipment, such as computers and servers, to store, process and compile data. Data center floor 106 includes the racks of computing equipment including computers and servers, along with connections, power lines, data buses and the like. The configuration of data center floor 106 is disclosed in greater detail below. Data center floor 106 may have a 10,000 square foot area with a raised floor to better circulate heat and allow access to the equipment on the floor. Additional data center floors may be added to data center 102 to increase available space for operations.

[0020] Data center 102 also includes control room 112, electrical room 110, and mechanical room 108. Control room 112 may be an operations center to monitor and control the equipment, computers, servers and other resources on data center floor 106. Control room 112 also may be responsible for receiving and distributing data throughout data center floor 106. Operators may sit in control room 112 and use networked devices and computers to oversee the servers and computers on data center floor 106.

[0021] For example, clients and customers sign agreements to store, compile or process their data at data center 102. This data is provided to control room 112 at an ongoing basis for storage within servers on data center floor 106. The data may be temporarily stored at resources in control room 112 until the data is scanned or secured prior to placement in the equipment on data center floor 106. Further, operators in control room 112 may monitor equipment for bugs, breakdowns and the like and take corrective action.

[0022] Electrical room 110 houses the power sources and connections for the grid of servers and computers within data center floor 106. Essentially, electrical room 110 may be configured such that power is provided along the rows of racks crossing data center floor 106. Power for data center floor 106 may be about 200 watts per square foot, with the ability to increase from about 400 watts per square foot to about 600 watts per square foot. These upgrades can be made at the equipment in electrical room 110 without the need to retrofit the servers on data center floor 106.

[0023] Mechanical room 108 houses the air handling and circulation equipment for data center floor 106. Air is moved off the floor to cool the servers, computers, and other equipment on data center floor 106. Alternatively, cooled air may be moved onto the floor of data center floor 106. Movement of the air may be accomplished by air conditioners, fans, and the like. Alternatively, mechanical room 108 may include power supplies for heavy duty equipment within data center floor 106. In other words, electrical room 110 supplies power to computers and servers, while mechanical room 108 supplies power to large fans, machinery, or other equipment that place loads on the electrical grid for building 100.

[0024] Building 100 also includes multipurpose center 104. Multipurpose center 104 differs from data center 102 in that a large number of servers and computers are not housed within, and most of its area is for office space or commercial purposes. Multipurpose center 104 includes a lobby 116, which serves as the entrance to data center 102 as well. Personnel may check-in depending on their clearance. In other words, personnel authorized for multipurpose center 104 may not have authorization for data center 102, and vice versa.

[0025] Multipurpose center 104 also includes office spaces 114-1 through 114-4. These office spaces may house individual offices, cubicles, storage, conference facilities, and the like. Further, the disclosed embodiments are not limited to four office spaces, but may be any number of offices desired. The number shown is for illustrative purposes only. An office space may be set up with computer, desks, furniture and other devices for working. Alternatively, office spaces 114-1 through 114-4 may be stores or retail spaces.

[0026] Moreover, office spaces 114-1 through 114-4 may be separated by movable walls so that larger spaces may be created by removing the walls. For example, one large multi-use or conference room may be created with no partitions, or possibly two rooms may be set up using office spaces 114-1 and 114-2, and office spaces 114-3 and 114-4, respectively.

[0027] Other rooms in multipurpose center 104 include kitchen 122, break room 124, restrooms 126 and 128, and training rooms 130 and 132. Other rooms may be included in multipurpose center 104, such as an information technology room or printer/copier room. Multipurpose center 104, therefore, may include additional rooms and facilities as needed. Further, multipurpose center 104 may include additional floors with rooms or a conference center up or below the rooms disclosed above. Preferably, a multi-use or large room resides on the first floor of multipurpose center 104 while the offices and rooms shown in FIG. 1 are on the second floor. Multipurpose center 104 also may include a basement below these floors.

[0028] Hallway 118 may connect the different rooms together, and serves as an access corridor between the floors of multipurpose center 104. Hallway 120 may connect multipurpose center 104 with data center 102. Alternatively, hallway 120 may stay separate from data center 102 such that no access is allowed. In this instance, data center 102 may include a separate entrance from lobby 116.

[0029] Building 100 also includes storage or extra areas 134 and 136. These areas may allow expansion by electrical room 110, mechanical room 108 or control room 112. For example, electrical room 110 may take over storage area 134 if extra power supplies need to be housed in data center 102. Alternatively, areas 134 and 136 may house rooms for sleeping or exclusively for personnel of data center 102.

[0030] Building 100 provides continuity of operations such that data center 102 and multipurpose center 104 continue services despite power outages, security threats, or other disruptions during normal business. Not only does data center 102 keep the stored data intact or available, but the multipurpose center 104 also remains up and running so that work or operations continue by personnel during a crisis. Thus, companies and agencies utilizing building 100 may keep their data secure and available within data center 102 as well as continue business in multipurpose center 104.

[0031] Multipurpose center 104 also provides an improved appearance over the box-like look of conventional data centers. For example, a storm water pond may be located nearby to run off water, and stays dry in the summer but wet in the winter. The pond allows plants and vegetation to grow during the proper seasons. Vegetation, trees, shrubs and other landscaping may improve the overall appearance of building 100.

[0032] Building 100 also may include parking lot 140. Parking lot 140 is not located within building 100 but is coupled to it via pipes 142 and 144. Pipes 142 and 144 flow heated water or other fluid to parking lot 140 to transfer heat energy to warm the parking lot, sidewalks and any other
associates grounds. For example, pipe 142 may bring heated fluids from data center 102. The heated fluid flows through pipes and the like embedded in or below parking lot 140. The cooled fluid flows back to data center 102 via pipe 144. These features are disclosed in greater detail below.

Fig. 2 depicts the energy transfer flow from data center floor 106 according to the disclosed embodiments. The disclosed embodiments use a medium to transfer heat from one part of building 100 to another. Energy transfer using a medium may occur in two ways. First, heated air from data center 102 flows to multipurpose center 104, where the heated air is dissipated within the rooms as “heat.” Second, the disclosed embodiments circulate heated fluid, such as water, through a sprinkler system through building 100. The fluid cools down in multipurpose center 104 and cycles back through data center 102, where it absorbs more heat on data center floor 106.

By circulating fluid through data center 102 and multipurpose center 104, as well as parking lot 140, the temperature in the working areas of multipurpose center 104 may increase by 3-6 degrees Fahrenheit. The opposite effect occurs when the cooled water is circulated back through the hot data center areas housing the computing equipment. Ambient temperatures may drop 3-6 degrees Fahrenheit in data center 102.

This feature of the disclosed embodiments drives down operating expenses and improves power usage efficiency for heating and cooling the floor space in building 100. Each of these actions reduces direct energy demand and costs.

These actions are disclosed in greater detail below. Referring to Fig. 2, data center floor 106 is shown with computing equipment 202. Computing equipment 202 includes servers, computers, processors, storage devices and the like that perform operations or store data in electronic form. Computing equipment 202 generates heat energy 222.

Data center floor 106 utilizes a raised floor configuration to allow air to flow freely within the structure and for heat to dissipate. The raised floor also allows building 100 to take advantage of free cooling in temperate locations, which reduces the carbon footprint and energy needs. The temperate locations enjoy significantly reduced seasonal, nighttime and sustained ambient temperatures. In other words, the ground below data center floor 106 may be cool or even cold during the winter months, and this fact may help reduce energy needs for cooling the servers and computers.

Computing equipment 202 is set on racks that extend across floor 210. Preferably, a variable-load bus bar configuration is used to power and access computing equipment 202. Variable-load bus bar 204 places everything above the racks and off floor 210. The bus bars may be set up or torn down as needed. The overhead location keeps cables, connectors, power supply cords, networking cords, and the like off floor 210, and out of the way of operators. The overhead placement also reduces degradation of equipment. One may deploy additional racks and servers quickly by adding more bars along the top of data center floor 106.

Data center floor 106 also includes a plenum space 212 between slab 208 and floor 210. Plenum space 212 allows air to collect below servers 202. Preferably, plenum space 212 is about 36 inches in depth, which provides 360,000 cubic feet of air to cool servers 202 in a 10,000 square foot structure. Floor 210 may be supported by stanchions 213 rising from slab 208. Stanchions 213 are easy-to-construct units of support. Stanchions 213 are implemented modularly along slab 208 such that as more floor space is needed, the support for servers 202 is added accordingly.

Air circulating, or climate control, units 206 are located along wall 207 and extend from mechanical room 108. Units 206 may provide cooling to the air in data center floor 106 or may direct air flow 214 out from plenum space 212 to other locations within building 100. Air flow 214 moves through plenum space 212, where it is subject to the free cooling effect. Air flow 214 then moves upwards into the space of data center floor 106, where it absorbs heat energy 222. Units 206 then direct air flow out of data center floor 106 and plenum space 212.

Data center floor 106 also includes pipes 216. Pipes 216 may be a sprinkler system that extends throughout data center floor 106, and circulates fluid 218. Preferably, fluid 218 is water, and more preferably, desalinated water. Flow 220 moves fluid 218 within pipes 216. As fluid 218 moves through pipes 216, it absorbs heat energy 222. The temperature of fluid 218 rises accordingly. This action, in turn, reduces the temperature of data center floor 106.

Thus, the temperature of data center floor 106 reduces by moving the heated air flow 214 and fluid 218 through the spaces below and above computing equipment 202. The heated air or the heated fluid may be referred to as a medium for heat transfer. The medium is able to absorb and disperse heat energy 222. If the medium is “warmer” than its surrounding location, then it cools down by providing heat energy to the location. If it is “cooler,” then it warms up by absorbing the heat energy. Thus, the medium of the disclosed embodiments transfers heat energy from one location within data center 102 to another location.

Additional cooling systems should be used to cool down data center floor 106, but the demand placed on these systems is reduced. Thus, at least some of heat energy 222 is transferred out of data center 102 to other places where the heat energy is needed.

Fig. 3 depicts the energy transfer flow from data center 102 to multipurpose center 104 according to the disclosed embodiments. Heated air and fluid flows from data center 102 to multipurpose center 104. The heated air and fluid includes the heat energy generated by servers in data center 102.

Data center floor 106 directs air flow 214 through air circulation system 302. In a preferred embodiment, the heated air flows out of mechanical room 110 to hallway 120, which separates data center 102 and multipurpose center 104. Heated air may be made available to hallway 120. Air circulation system 302 then may branch to any location in multipurpose center 104. Thus, heated air is made available to all the rooms and spaces in multipurpose center 104.

Pipes 216 also carry heat energy to multipurpose center 104. Pipes 216, as disclosed above, may be part of a sprinkler system that traverses building 100. Heat energy within fluid 218 within pipes 216 is carried with flow 220.

Fig. 4 depicts the energy flow to an office space 114 within the multipurpose center according to the disclosed embodiments. In this portion of the energy transfer process, heat energy 222 is given off to the air and space within office space 114. Office space 114 may represent any room or space within multipurpose center 104. An office space is shown for illustrative purposes only.

Air circulating system 302 flows heated air within air flow 214 into the space of office space 114. Thus, users may receive heat during cooler months directly from data
center 102. This reduces the load on the heat and ventilation system of building 100. Air flow 214 disperses its heat energy 222 and then flows out back to data center 102. The cooler air helps lower the temperature in data center 102. [0049] Heat energy transfer also occurs using fluid 218 circulating in pipes 216. Fluid 218 disperses its heat energy 222 to the air and space in office space 114. Fluid 218 reduces its temperature as a result. Flow 220 carries the cooler fluid 218 back to data center 102. Thus, fluid 218 may act as a "coolant" when it returns to data center 102. The temperature drop in fluid 218 results in an increased temperature for office space 114.

[0050] According to the disclosed embodiments, heat energy 222 generated by servers 202 is transferred to rooms and locations by a medium within multipurpose center 104 that needs heat. Thus, heat energy 222 is not wasted and serves to reduce energy consumption by building 100. Pipes 216 are shown as being located overhead in building 100, as part of a sprinkler system. Pipes 216 may be located below ground to take advantage of the free cooling aspects of the disclosed embodiments, especially as flow 220 returns back to data center 102. The reduced temperature of fluid 218 results in greater heat energy absorption within data center 102, further reducing cooling costs. Pipes 216 also may transfer heat energy outside, as shown in FIG. 5. [0051] FIG. 5 depicts a configuration 500 for heating a parking lot 140 according to the disclosed embodiments. As disclosed above, fluid 218 absorbs heat energy 222 within data center 102. Fluid 218 may flow outside building 100 to parking lot 140. Pipe 142 may serve to bring flow 220 of fluid 218 to pipe system 502. Pipe system 502 may be located beneath parking lot 140 and any adjoining sidewalks, grounds, and the like. Pipe system 502 may cover the entire area of parking lot 140. In fact, though parking lot 140 is shown, any grounds may be applicable. [0052] As flow 220 moves through pipe system 502, heat energy 222 is dispersed into the ground or areas surrounding the pipes. The temperature of these areas increases as the ground or material absorb heat energy 222. Further, the temperature of fluid 218 reduces as well, so that as it flows out of pipe system 502, it is up to several degrees cooler. The heat energy is transferred to the ground.

[0053] Flow 220 carries fluid 218 to pipe 144. Pipe 144 carries fluid 218 back to data center 102. The lower temperature of fluid 218 enables it to absorb more heat energy 222 when it gets back to data center floor 106. Pipes also may flow heated fluid to any ground or area near building 100. Sidewalks, gardens, and the like also may have pipes that flows fluid and perform heat energy transfer.

[0054] Thus, according to the disclosed embodiments, a building includes a data center and multipurpose center that act in concert with each other to supply heat and energy where needed, and to save on energy costs. The data center includes a control room, an electrical room and a mechanical room in a specified configuration. This configuration allows expandability from the data center to add new data centers as needed.

[0055] FIG. 6 depicts a flowchart 600 for heat transfer using data center 102 of building 100 according to the disclosed embodiments. Step 602 executes by operating computing equipment 202 within data center 102. Computing equipment includes servers, computers, power supplies, storage and the like that consumes energy, such as electricity, as it performs its functions.

[0056] Step 604 executes by generating heat energy 222 with computing equipment 202. Electrical devices produce heat while performing operations, especially servers and computers. Thus, some of the electrical energy consumed by computing equipment 202 is converted into heat energy 222. Heat energy 222 dissipates throughout data center floor 106 such that the temperature increases and the air gets hotter in those areas receiving heat energy 222.

[0057] Step 606 executes by flowing air or fluid through data center floor 106 and other areas of data center 102. The air or the fluid may be known as the medium for heat transfer. As disclosed above, an air circulation system or pipes may flow air or fluid throughout building 100. As the air or fluid enters those areas housing computer equipment 202, it is exposed to the air within those areas. For example, air flow 214 and fluid 218 in FIG. 2 move through data center floor 106. For illustrative purposes, air flow 214 may indicate air moving within building 100 and fluid 218 may indicate fluid, such as water, moving within pipes 216 of building 100.

[0058] Step 608 executes by capturing or absorbing heat energy 222 by air flow 214 or fluid 218. As air or fluid moves through a hot environment, it absorbs heat energy 222, thereby raising its own temperature. Heat energy 222 seeks to be absorbed by the cooler air or fluid. Step 610 executes by reducing the temperature within data center 102. Referring to FIG. 2, heat energy 222 captured by air flow 214 and fluid 218 removes that heat energy from data center floor 106. The result is a lower temperature for data center floor 106 as less heat energy 222 remains after the transfer.

[0059] Step 612 executes by flowing the heated air or the heated fluid to other locations within building 100. Preferably, air flow 214 or fluid 218, now warmer due to heat transfer, moves to rooms, offices, open spaces and the like within multipurpose center 104. Known systems may accomplish this feature, such as a heat and ventilation system for air flow 214, and a sprinkler system for fluid 218. Step 614 executes by flowing heated fluid 218 to parking lot 140 or other grounds around building 100. Fluid 218 may move through pipes and other circulating systems to locations outside building 100.

[0060] Step 616 executes by dispersing heat energy 222 to the environment accessed by heated air flow 214 or heated fluid 218. As the heated air or the heated fluid enters cooler areas of building 100, heat energy 222 seeks to move to those areas, whether they are rooms in multipurpose center 100 or below ground. Step 618 executes by increasing the temperature of those areas or grounds with heat energy 222. As more energy disperses, the temperature rises accordingly. Thus, energy generated in data center 102 is transferred to rooms and areas within multipurpose center 104 or to the grounds surrounding building 100, such as parking lot 140. The transfer of the energy helps lower energy costs and the demand for cooling and heating within building 100.

[0061] Step 620 executes by reducing the temperature of the air or fluid as it passes through the locations disclosed above. As heat energy 222 disperses, the energy within air flow 214 or fluid 218 is lowered. As a result, air flow 214 or fluid 218 cools down and lowers its temperature. Thus, these mediums may serve as "coolant" as they flow back to data center 102. Step 622 executes by flowing back the air or the fluid to data center 102, where its lower temperature increases its ability to absorb heat energy 222 generated by computing equipment 202.
Although the disclosed embodiments recite data center 102 and multipurpose center 104, they also include data center 102 by itself. Heat transfer may occur within rooms of data center 102, and does not need to flow to a multipurpose facility. Further, heat transfer may occur in parking lot 140 or other grounds without the need of multipurpose center 104. Other embodiments include passing the fluid or the air through a below ground system to cool the fluid or air without the need of air conditioners or other devices, even though not targeted for a specific warming function.

Thus, heat generated by the servers, computers and other devices within a data center may transfer to those locations that need the heat. The heat is used to warm up the air or grounds in those locations. Meanwhile the medium for heat transfer cools down and cycles back to the data center to absorb more heat. The data center is cooled by the medium, which then goes back to the other areas or locations to disperse more heat. Thus, the data center uses a self-contained heating and cooling system to reduce energy costs and increase environmental friendliness.

It will be apparent to those skilled in the art that various modifications and variations can be made in the disclosed embodiments of the privacy card cover without departing from the spirit or scope of the invention. Thus, it is intended that the present invention covers the modifications and variations of the embodiments disclosed above provided that the modifications and variations come within the scope of any claims and their equivalents.

What is claimed is:

1. A data center comprising:
   a data center floor having computing equipment, wherein the computing equipment generates heat energy while in operation;  
   a medium to flow through the data center floor and to absorb heat energy generated by the computing equipment; and  
   a system configuration to flow the medium to another location, wherein the medium disperses heat energy at the location to increase a temperature at the location.

2. The data center of claim 1, wherein the location includes a room having the system configuration to flow the medium through the room.

3. The data center of claim 1, wherein the room is in a multipurpose center adjoining the data center.

4. The data center of claim 1, wherein the location includes an area of grounds outside the data center.

5. The data center of claim 4, wherein the area of grounds includes a parking lot.

6. The data center of claim 1, wherein the medium is air.

7. The data center of claim 1, wherein the medium is a fluid.

8. The data center of claim 7, wherein the fluid comprises water.

9. The data center of claim 1, wherein heat energy is transferred using the medium from the data center floor to the location.

10. The data center of claim 1, wherein the system configuration comprises a sprinkler system.

11. A data center comprising:
   a data center floor having at least one rack of computing equipment, wherein the computing equipment generates heat energy;
   a system to circulate a medium within the data center, wherein the medium absorbs heat energy within the data center floor; and
   a room coupled to the system, wherein the medium flows through the room and transfers heat energy to increase a temperature within the room.

12. The data center of claim 11, further comprising an area outside the data center, wherein the system flows the medium through the area to transfer heat energy to the area.

13. The data center of claim 11, wherein the system is a sprinkler system.

14. A method for transferring energy generated in a data center, the method comprising:
   generating heat energy by computing equipment within the data center;
   capturing the heat energy by a medium flowing through the data center;
   flowing the medium to another location;
   dispersing the heat energy at the location from the medium; and
   returning the medium back to the data center.

15. The method of claim 14, further comprising increasing a temperature within the location.

16. The method of claim 14, further comprising reducing a temperature within the data center.

17. The method of claim 14, wherein the flowing step includes flowing the medium to another location outside the data center.

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