

Cabling configurations for the IBM® @server xSeries 330 servers



This document provides information and instructions on how to install, route, and manage the cables connected to the IBM® @server xSeries 330 servers when they are mounted in racks. This information is specifically related to Cable Chaining Technology (C2T), Advanced Systems Management (ASM), and Power Distribution. For general information about C2T, ASM, or power distribution, select one of the following topics. For specific information as it relates to any of the listed racks, click either on the picture or the rack name above the picture.

[Connecting the Cable Chaining Technology](#)

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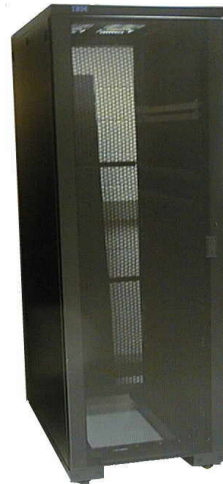
[Line cord and power cable management](#)

[IBM Netfinity Enterprise Rack](#)



Note: The glass door must be removed for ventilation purposes.

[IBM Netfinity Rack](#)



Note: If your rack has a glass door you must either remove the glass door, or replace it with the perforated door option for ventilation purposes.

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Note: The glass door must be removed for ventilation purposes.

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C2T cables

There are two different types of C2T cables. The [chaining cable](#), which comes in two lengths, is used in the C2T chain to connect two servers together. The [breakout cable](#) is used to connect a mouse, keyboard, and a monitor to an xSeries 330 server.

Note: The breakout cable can be used to connect a mouse, keyboard, and monitor to a single server or to a server that is part of the C2T chain.

Chaining Cable:



Black = C2T OUT

White = C2T IN

The short chaining cable shown is shipped with your server and covers a span of up to 3 Us (a U as defined in the EIA 310D Standard is equal to 1.75" in height). This cable enables you to connect or chain two servers together that are within 3 Us of each other installed in the same rack.

A longer, optional chaining cable is available in the C2T cable option kit (IBM part number 06P4792). This cable chains servers together that are in separate racks or servers that are separated by more than 3 Us.

Cable lengths:

Short cable: 265 mm (10.43 inches)

Long cable: 2M (6.5 ft.)

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Both C2T chaining cables have the same types of connectors as those shown. Color coding has been provided to help you identify the in and out connectors on the cable, and have bands marked with IN or OUT to help identify them further. The connector that attaches to the OUT port of the server is black, while the white connector attaches to the IN port.

The chaining cables give you the ability to chain together a maximum of 42 servers. When used with a breakout cable, you can share a single keyboard, mouse, and monitor across all 42 servers. For more information on how to chain your servers together, refer to [Connecting the Cable Chaining Technology](#) topic or to the documentation included with your server.

C2T breakout cable:



The breakout cable enables you to connect a mouse, keyboard, and monitor to your server through the OUT port. When used with the C2T chaining cable, you can share these devices with several servers.

Connections on the breakout cable:

Keyboard:

9-pin mini-din connector with keyboard icon (purple)

Mouse:

9-pin mini-din connector with mouse icon (green)

Monitor:

15-pin analog video connector (blue)

The opposite end of the cable has the same type of connector found on the chaining cable. This connector plugs into the C2T OUT port on the rear of your server.

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Connecting the Cable Chaining Technology

Keep the following guidelines in mind when you cable the xSeries 330 server to its associated hardware. Your particular application might vary from the ones shown here.

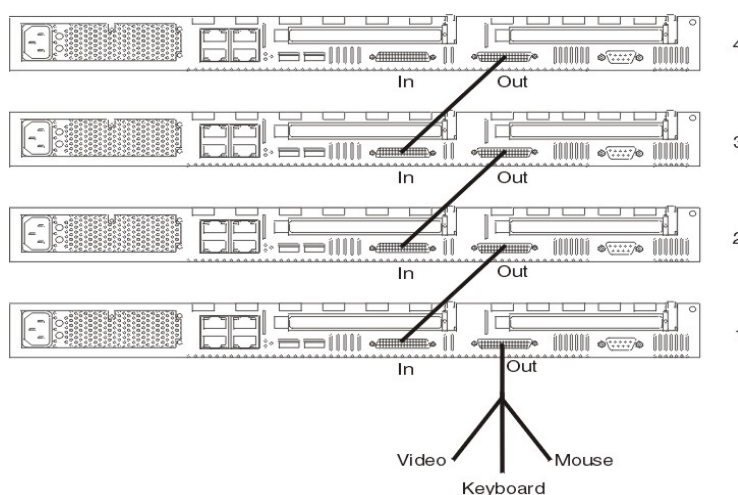
1. Use one C2T chaining cable to chain one server to another.
2. You will need one C2T breakout cable for each chain of servers you plan to connect together for use with a single mouse, keyboard, and monitor.
3. The C2T chaining cables can be hot-swapped.

Attention: When adding systems to or removing servers from the C2T chain, do not let the pins of the C2T chaining cable connectors touch a server chassis. For more information about connecting the servers in a C2T chain, see the *User's Reference* on the *IBM xSeries Documentation* CD that comes with your server.

To learn more about the C2T chaining and breakout cables, see [C2T cables](#).

Complete the following steps to connect the servers in a chain:

1. Connect the C2T breakout cable to the OUT port of server 1.
Note: Server 1 is usually the server at the bottom of the rack.
2. Connect the black connector of the C2T chaining cable to the IN port of the bottom server in the rack.
3. Connect the white connector of the C2T chaining cable to the OUT port of the server above it.
Note: Refer to the following illustration for additional information.
4. Repeat these steps until all of the servers are connected together.



2. Turn on the servers and check the operation of the monitor, mouse, and keyboard with each server. (See "[Testing the C2T chain](#)" for more information.)

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Testing the C2T chain

This section describes how to test the cable connections of the C2T chain. This test will show if the C2T chain is functioning properly and if the connections have been made correctly.

Follow these steps to test the C2T chain:

1. Turn on all the servers and the monitor, then press the select button on server 1 in the C2T chain. Verify that server 1 has been selected by looking at the select light, located above the select button on the front of the server.

Note: If the select light is not on, press the select button again. (Server 1 is the server the breakout cable is connected to.)

2. Verify that the monitor is working.
3. Use the mouse or pointing device to open an application.
4. Test your keyboard by typing a few words within an application.
5. Use the keyboard to switch to the last server in the chain:

Note: The following example is for a chain of 42 servers.

- a. Press the NumLock key on your keyboard twice.

Note: The monitor will go blank after the second time you press NumLock.

- b. Next, press the numbers 4 and 2, and then press Enter.

Note: The monitor will be active again after you press Enter. If everything is working correctly, the output from the selected server will be displayed on the monitor. To verify that the correct server has been selected, check to see if the select light on the front of the top server (42) is turned on.

Notes:

If you cannot perform steps 2 through 5:

1. Verify that the breakout cable is connected correctly to the server.
2. If you still cannot perform these steps, retry the test. Disconnect the breakout cable from the OUT port of server 1 and remove the C2T chaining cable between servers 1 and 2. Then, connect the breakout cable to the OUT port of server 2.
3. Retry the test.
4. If the problem persists, it could be due to a faulty breakout cable. Replace the breakout cable and retry the test.
5. If the problem still persists there might be a defective C2T chaining cable or server in the chain. You can try to isolate which cable or sever might be defective by connecting the breakout cable to server 1.
6. Add one server at a time to the chain until you isolate the defective cable or server.

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Cabling the Advanced Systems Management (ASM) ports

There are two kinds of ASM ports; the RS-485 and the management port (serial port A).

RS-485 ports:

The RS-485 ports on the rear of your server enable you to connect the Advanced System Management processors of several rack-mounted servers to each other so they can communicate with each other in half-duplex mode.

Management port (serial port A):

The management port uses a standard D-shell serial-port connector, labeled A on the rear of the server. You can attach a dedicated modem to the D-shell connector on the rear of your server to communicate with the integrated Advanced System Management processor.

For more information about the serial port, see “Input/Output ports” on the *IBM xSeries Documentation* CD that came with your server.

Connecting the ASM bus

This section provides instructions for connecting the Advanced System Management (ASM) bus and using the RS-485 ports located on the rear of the server.

Note: The servers in the Advanced System Management (ASM) bus are referenced by their assigned addresses and not their physical position in the rack.

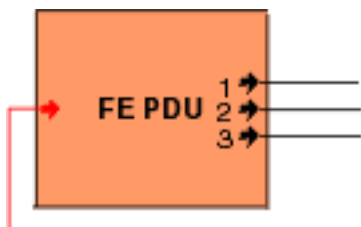
Complete the following steps to connect the ASM bus:

1. Turn off the servers.
2. Locate the RS-485 ports on the rear of the servers and several cables with RJ-14 connectors on both ends.
3. Starting with the top server in the ASM bus, connect one end of the cable into the RS-485 (B) port and the other end of the cable into the RS-485 (A) port of the next server.
4. Continue connecting the servers together in this manner until you reach the second to last server in the ASM bus.
5. Connect a cable from the RS-485 (B) port of the second to last server to the RS-485 (B) port of the last server.
6. Turn on the servers.

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Power distribution

This section contains general information about the following power distribution units (PDUs).



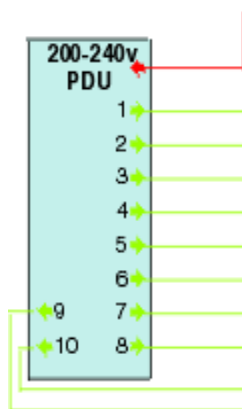
IBM NetBAY Front-End Power Distribution Unit

Used for adapting a three-wire or five-wire power source to three single-phase branch circuits.



IBM NetBAY Rack Power Distribution Unit

A universal voltage, rack power distribution unit that supports up to seven devices (servers) on a single-phase circuit.



IBM Netfinity 200-240V Power Distribution Unit

A high-voltage, rack power distribution unit that supports up to ten devices (servers) on a single-phase circuit.

PDU Cabling key

Line description	Line Color
Power cord from server to PDU	Green
Power cord between PDU's	Red
Line cords from PDU to power source	Black

PDU considerations

1. The power cord on each server is connected to a PDU mounted in the side wall compartment of the rack.
2. Label each end of the power cords for easy reference. An example of a numbering scheme is shown in the illustration at the right.
3. Determine the best fit for amperage, outlet, and space requirements for your configuration. For examples of PDU configurations within a specific rack refer to the links at the [top of the page](#).
4. Each of the PDU line cords, in accordance with safety requirements, leads to a separate AC source.



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The following table shows amperage and outlet requirements.

Amperage requirements

	Watts	100 V	115 V	120 V	127 V	200 V	208 V	220 V	230 V	240 V
Max	220	2.20	1.91	1.84	1.73	1.10	1.06	1.00	0.96	0.90
Typical	150	1.50	1.30	1.20	1.20	0.80	0.70	0.70	0.70	0.60

Thermal output

Based on information from the Netfinity Rack Configurator, the thermal output (load on the room air conditioning) can be calculated as the sum of (device power consumption x 3.41) x number of devices, for all the devices in the rack.

Using the device power-consumption figures for this configuration, the calculations are as follows.

Device	Typical device power consumption		Load from one device		Number of devices	Total load of these devices	
	Typical	Max	Typical	Max		Typical	Max
xSeries 330	150 Watts	220 Watts	511.5 Btu/Hr	750.2 Btu/Hr	39	19948.5 Btu/Hr	29257.8 Btu/Hr
Flat panel monitor	40 Watts	N/A	136.4 Btu/Hr	N/A	1	136.4 Btu/Hr	136.4 Btu/Hr
Total rack thermal output						20084.9 Btu/Hr	29394.2 Btu/Hr

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Line cord and power cable management

The following illustration shows one way in which you might manage the line cords for the PDUs and servers installed in your rack.



You will notice that the power cords and line cords are secured together with cable ties and have been placed between the supports in the wall compartment.

PDU Configurations for the IBM® xSeries 330 Server (Netfinity® Enterprise Rack)

This page provides information and instructions on how to install, route, and manage the power cables connected to the IBM®  xSeries 330 server while mounted in an IBM Netfinity® Enterprise Rack.



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Notes:

1. The glass door must be removed for ventilation purposes.
2. Remove the door latch for better clearance and for easier access into and out of the rack.

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Universal single-phase Solutions

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Power Distribution Unit

This section contains information and instructions on the different PDUs that can be installed in the Netfinity Enterprise Rack.

The following are some examples of how to connect your servers to the PDUs. Your solution could be different, based on differences in racks and server configurations.

Some considerations:

1. The line cord on each server is connected to a PDU mounted in the side wall compartment of the rack.
2. Label each end of the line cords for easy reference.
3. The Netfinity Enterprise Rack has been configured for your use (the type of electrical connector will differ according to geography). In this particular configuration, the line cords are 4.3 m (14 ft.) in length. Each of the line cords, in accordance with safety requirements, leads to a separate ac source circuit with appropriate emergency power-off controls and a properly sized circuit breaker.

IBM Netfinity Enterprise Rack 9308 Models 42P and 42X

Model 42P: Netfinity Enterprise Rack with glass door

Model 42X: Netfinity Enterprise Rack Expansion Cabinet with glass door

The following examples show the installation of PDUs in four different configurations. Each configuration includes an illustration depicting how the various cords are to be connected to the PDU and a brief description of the example.

Note: The glass door must be removed for ventilation purposes.

IBM NetBAY Rack Power Distribution Unit

The IBM NetBAY Rack Power Distribution Unit enables you to connect up to seven devices to a single dedicated power source, such as an electrical outlet or a UPS. The Rack PDU has one power inlet and seven IEC standard power outlets.

IBM NetBAY Single-phase and Three-phase Front-end Power Distribution Units

The IBM NetBAY single-phase and three-phase Front-end Power Distribution Units enable you to connect a single-phase or three-phase dedicated power source to three different single-phase PDUs. The Front-end PDU has one power source inlet and three IEC standard power outlets.

IBM 200-240V Power Distribution Unit

The IBM 200-240 V High-voltage Power Distribution Unit enables you to connect up to ten devices to a single dedicated power source, such as an electrical outlet or a UPS. The PDU has one power inlet and ten IEC standard power outlets.

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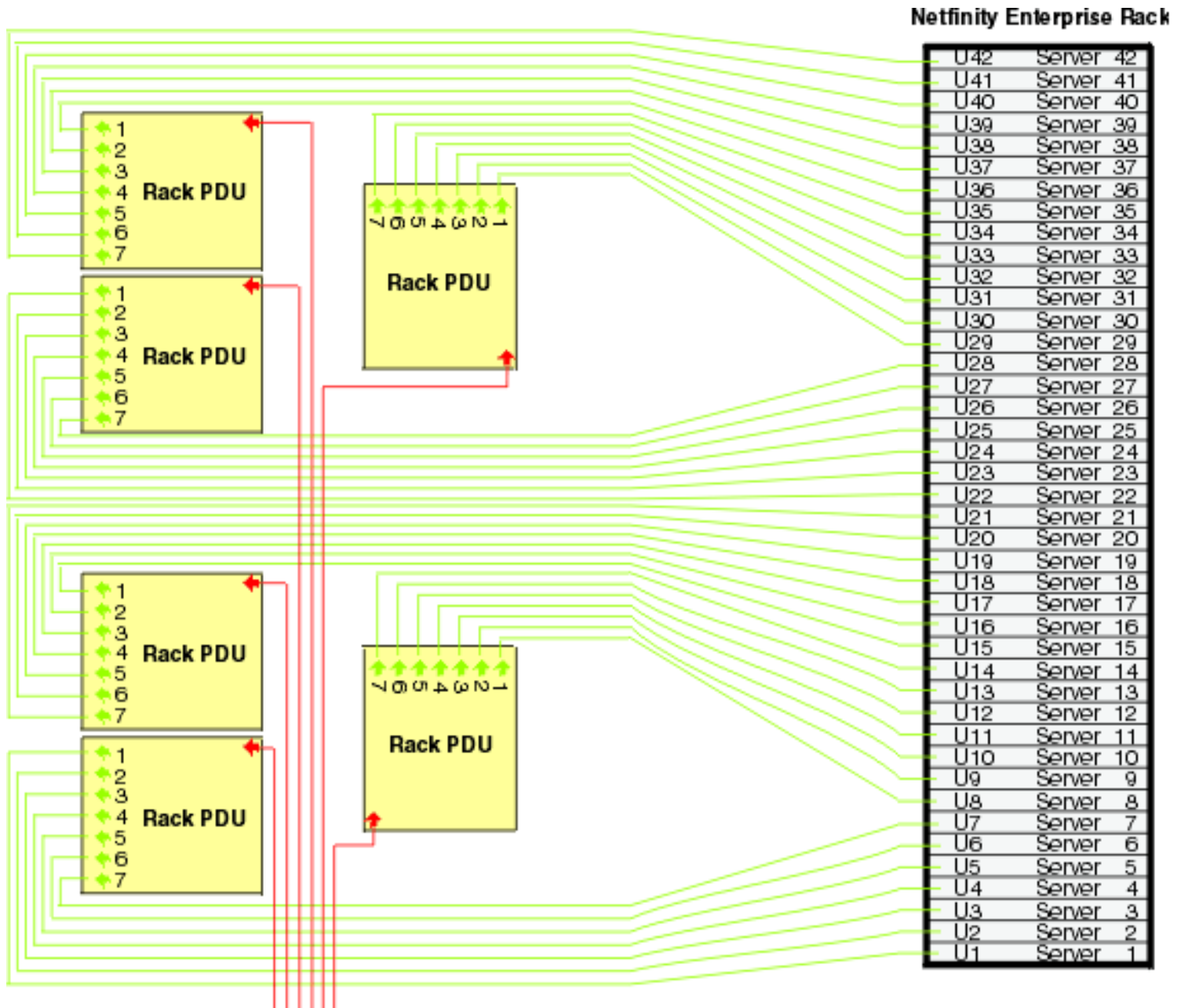
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IBM NetBAY Rack Power Distribution Unit (Example 1)

Universal single-phase solution

Note: The glass door must be removed for ventilation purposes.

This configuration supports 42 servers with six line cords being routed outside the rack through the side wall cable exits. Each rack PDU supports up to seven xSeries 330 servers.



There are a total of six PDUs installed in this example. All six are mounted on the left side of the rack cabinet.

To install the PDUs and route the power cables and line cords:

1. If necessary, remove the front door and latch from the rack cabinet.
2. Remove the left side panel from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord down toward the rack side braces; then route the line cord along the side brace toward the back of the rack cabinet.
5. Secure the line cord with the cable straps that come with the PDU.
6. Starting with the lowest server in the rack, route the power cord to the closest PDU.
7. Plug the server power cord into the the first outlet on the PDU.
8. Continue routing and connecting the server power cords to the PDU until all the servers are connected.

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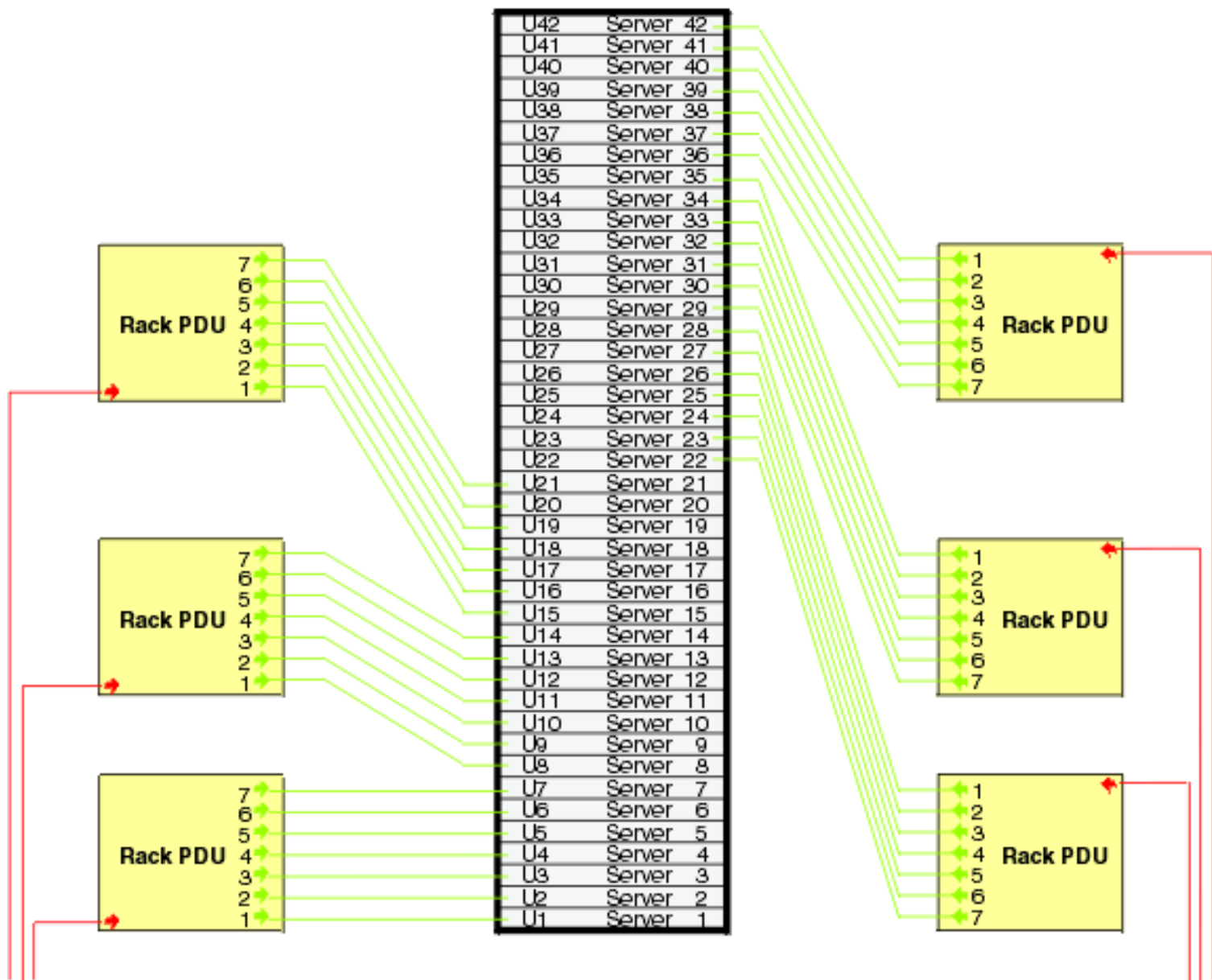
IBM NetBAY Rack Power Distribution Unit (Example 2)

Universal single-phase solution

Note: The glass door must be removed for ventilation purposes.

This configuration supports 42 servers with six line cords being routed outside the rack through the side wall cable exits. Each rack PDU supports up to seven xSeries 330 servers.

Netfinity Enterprise Rack



There are a total of six PDUs installed in this example. Three on the left side of the rack cabinet and three on right side.

To install the PDUs and route the power cables and line cords:

Note: The referenced orientation in this procedure is from the rear of the rack.

1. If necessary, remove the front door and latch from the rack cabinet.
2. Remove the two side panels from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord down toward the rack side braces; then route the line cord along the side brace toward the back of the rack cabinet.
5. Secure the line cord with the cable straps that come with the PDU.
6. Starting with the lowest server in the rack, route the power cord to the closest PDU on the left side of the rack.
7. Plug the server power cable into the the first outlet on the PDU.
8. Continue routing and connecting the server power cords to each of the PDU outlets on the left side of the rack until all the PDU outlets are used.
9. Route the remaining server power cables across the back of the servers toward the right side of the rack.
10. Connect the power cables to the PDU outlets on the right side until all of the remaining servers are connected.

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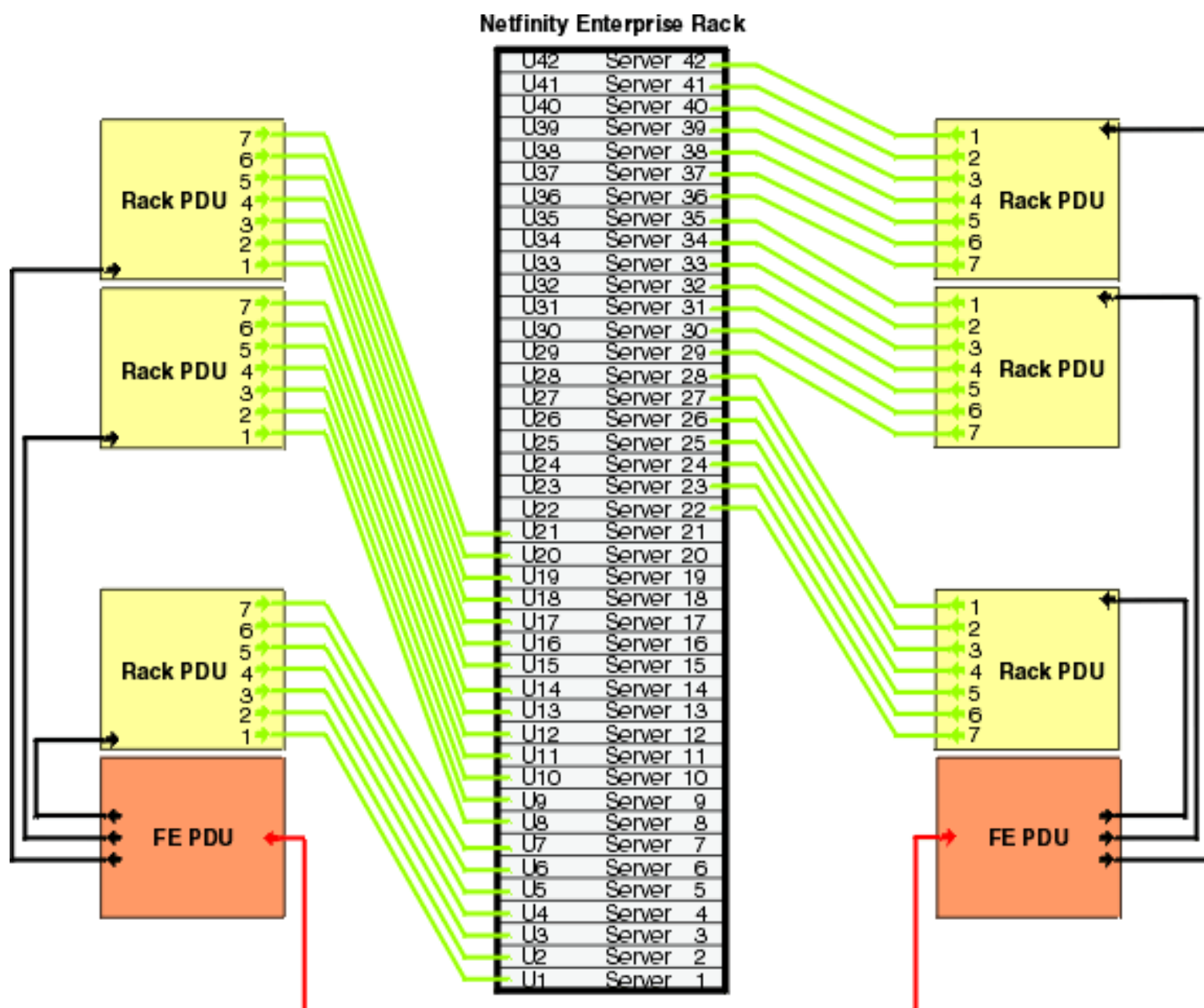
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IBM NetBAY Rack and IBM NetBAY Front End Power Distribution Units (Example 3)

High-voltage three-phase solution

Note: The glass door must be removed for ventilation purposes.

This configuration supports 42 servers with two line cords being routed outside of the rack through the side wall cable exits. Each rack PDU supports up to seven xSeries 330 servers.



There are a total of eight PDUs installed in this example. Four on the left side of the rack cabinet and four on right side.

To install the PDUs and route the power cables and line cords:

Note: The referenced orientation in this procedure is from the rear of the rack.

1. If necessary, remove the front door and latch from the rack cabinet.
2. Remove the two side panels from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord for the NetBAY Front End PDUs down, toward the rack side braces; then route the line cord along the side brace toward the back of the rack cabinet.
5. Starting with the lowest server in the rack, route the power cord to the closest PDU on the left side of the rack.
6. Plug the server power cable into the the first outlet on the PDU.
7. Continue routing and connecting the server power cords to each of the PDU outlets on the left side of the rack until all the PDU outlets are used.
8. Route the remaining server power cables across the back of the servers toward the right side of the rack.
9. Connect the power cables to the PDU outlets on the right side until all of the remaining servers are connected.

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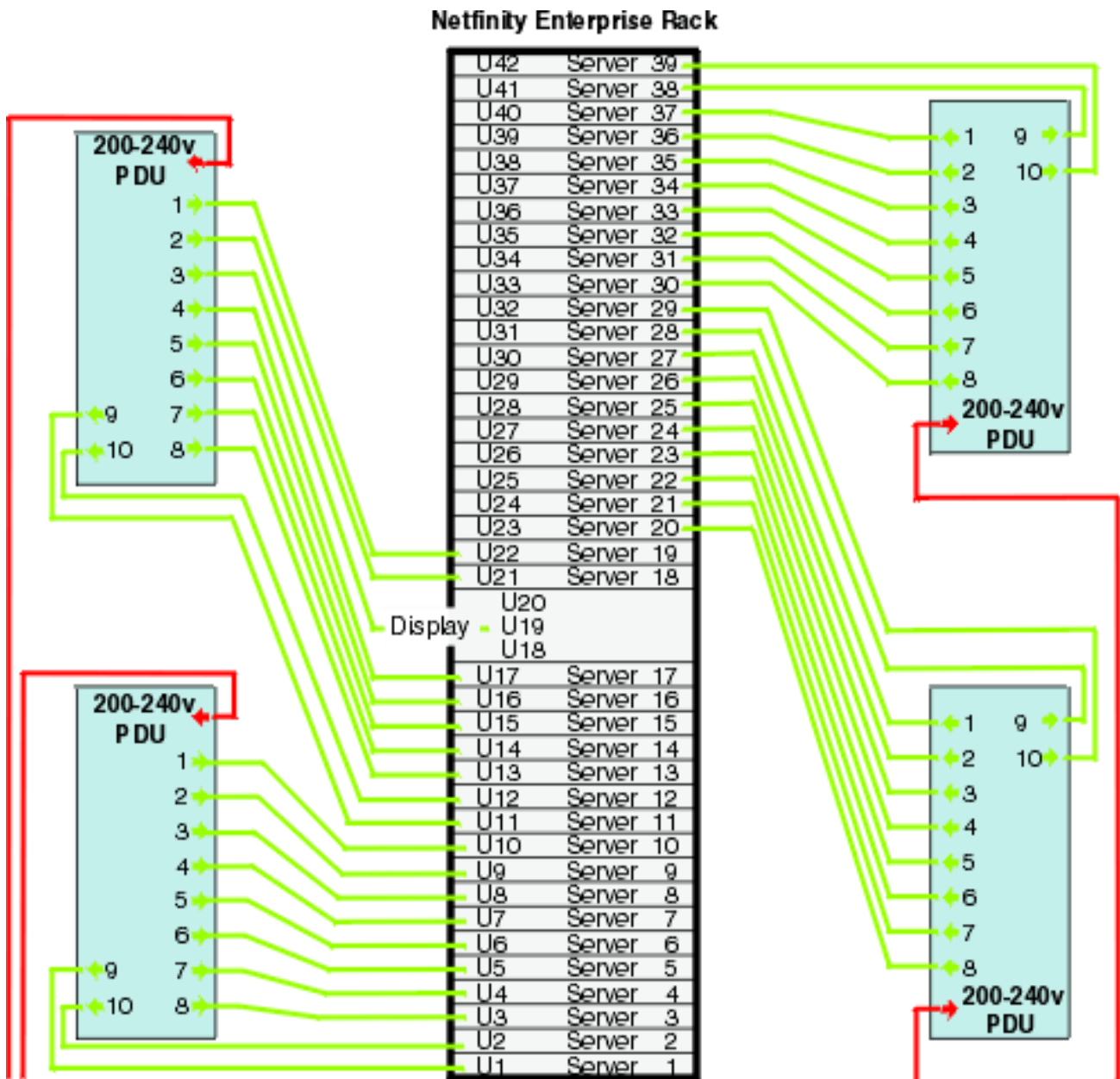
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IBM Netfinity 200-240 V Power Distribution Unit (Example 4)

High-voltage single-phase solution

Note: The glass door must be removed for ventilation purposes.

This configuration supports up to 39 servers and a flat panel monitor, with four line cords being routed outside of the rack through the side wall cable exits. Each rack PDU can support up to ten xSeries 330 servers.



There are a total of four PDUs installed in this example. Two PDUs are mounted on each side of the rack cabinet.

To install the PDUs and route the power cables and line cords:


Note: The referenced orientation in this procedure is from the rear of the rack.

1. If necessary, remove the front door and latch from the rack cabinet.
2. Remove the two side panels from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord down toward the rack side braces; then route the line cord along the side brace toward the back of the rack cabinet.
5. Secure the line cord with the cable straps that come with the PDU.
6. Starting with the lowest server in the rack, route the power cord to the closest PDU on the left side of the rack.
7. Plug the server power cable into the the first outlet on the PDU.
8. Continue routing and connecting the server power cords to each of the PDU outlets on the left side of the rack until all the PDU outlets are used.
9. Route the remaining server power cables across the back of the servers toward the right side of the rack.
10. Connect the power cables to the PDU outlets on the right side until all of the remaining servers are connected.

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PDU Configurations for the IBM® server xSeries 330 Server (Netfinity® Rack)

This page provides information and instructions on how to install, route, and manage the cables connected to the IBM®  server xSeries 330 server while mounted in an IBM Netfinity® Rack. Each of the configurations shown on this page require that the perforated door and a rack extension be installed.



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Notes:

1. If your rack has a glass door you must remove it for ventilation purpose.
2. The front door can be replaced with the perforated door option (IBM part number 06P6010) for ventilation purposes.
3. The rack extension kit (IBM part number 36L9703) improves cable management when you have multiple xSeries servers installed in the Netfinity Rack.

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High-voltage three-phase Solutions

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Power distribution unit

This section contains information and instructions on the different PDUs that can be installed in the Netfinity Rack. It contains information on how to connect the servers to the PDUs, route the power cables, and connections for high voltage solutions.

The following are some examples of how to connect your servers to the PDUs. Your solution could be different, based on differences in racks and server configurations.

Some considerations:

1. The line cord on each server is connected to a PDU mounted in the side wall compartment of the rack.
2. Label each end of the line cords for easy reference.
3. This Netfinity rack has been configured for your use (the type of electrical connector will differ according to geography). In this particular configuration, the line cords are 4.3 m (14 ft.) in length. Each of the line cords, in accordance with safety requirements, leads to a separate ac source circuit with appropriate emergency power-off controls and a properly sized circuit breaker.

IBM Netfinity Rack 9306 Models 900 and 910

Model 900: Netfinity Rack with glass door - The glass door must be removed or the perforated door option (IBM part number 06P6010) installed.

Model 910: Netfinity Rack with perforated door installed - No need to change the door

The following examples show the installation of PDUs in four different configurations. Each configuration includes an illustration depicting how the various cords are to be connected to the PDU and a brief description of the example.

Note: If your rack has a glass door you must remove it, or replace it with the perforated door option for ventilation purposes.

IBM NetBAY Rack Power Distribution Unit

The IBM NetBAY Rack Power Distribution Unit enables you to connect up to seven devices to a single dedicated power source, such as an electrical outlet or a UPS. The Rack PDU has one power inlet and seven IEC standard power outlets.

IBM NetBAY Single-phase and Three-phase Front-end Power Distribution Units

The IBM NetBAY single-phase and three-phase Front-end Power Distribution Units enable you to connect a single-phase or three-phase dedicated power source to three different single-phase PDUs. The Front-end PDU has one power source inlet and three IEC standard power outlets.

IBM 200-240 V Power Distribution Unit

The IBM 200-240V High-Voltage Power Distribution Unit enables you to connect up to ten devices to a single dedicated power source, such as an electrical outlet or a UPS. The Rack PDU has one power inlet and ten IEC standard power outlets.

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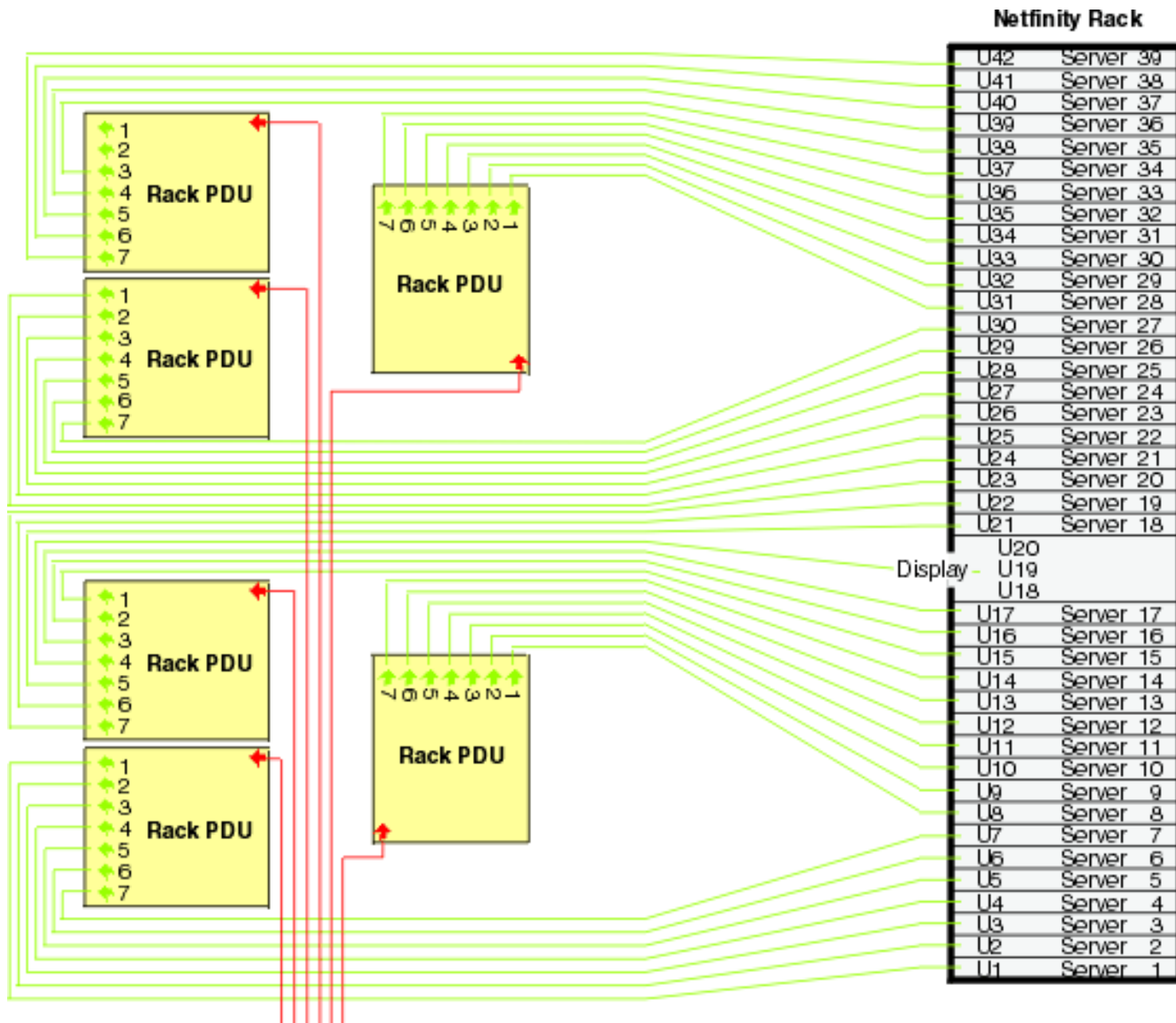
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IBM NetBAY Rack Power Distribution Unit (Example 1)

Universal single-phase solution

Note: If your rack has a glass door you must remove it and or replace it with the perforated door option for ventilation purposes.

This configuration supports 39 servers with six line cords being routed outside the rack under the bottom server in the rack. Each PDU supports up to seven xSeries 330 servers with the rack extension installed.



Note: The line cords exiting the rack are to be routed under the server rails of the lowest server and out through the exit in base.

There are a total of six PDUs installed in this example. All six are mounted on the left side of the rack cabinet.

Note:

- If your rack came with the glass door, start with step one.
- If your rack came with the perforated door, skip step one.
- If you have ordered or installed the perforated door option, skip step one.

To install the PDUs and route the power cables and line cords:

1. Remove the front door and the latch from the rack cabinet.
2. Remove the left side panel from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord down toward the rack side braces; then route the line cord along the side brace toward the back of the rack cabinet.
5. Secure the line cord with the cable straps that come with the PDU.
6. Starting with the lowest server in the rack, route the power cable to the closest PDU.
7. Plug the server power cable into the the first outlet on the PDU.
8. Continue routing and connecting the server power cables to the PDU until all the servers are connected.

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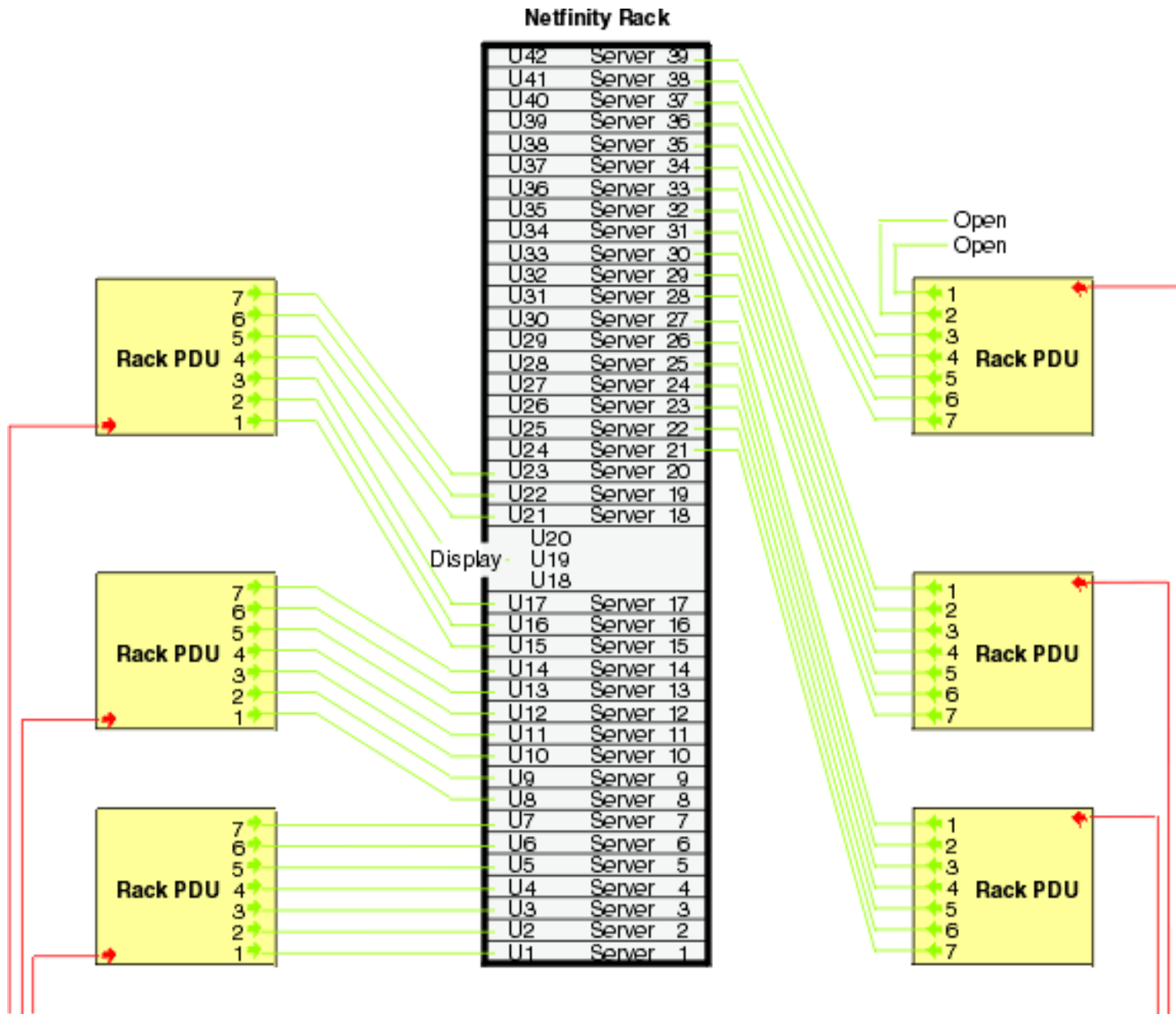
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IBM NetBAY Rack Power Distribution Unit (Example 2)

Universal single-phase solution

Note: If your rack has a glass door you must remove it and or replace it with the perforated door option for ventilation purposes.

This configuration supports 39 servers and a flat panel monitor, with six line cords being routed outside the rack under the bottom server in the rack. Each PDU supports up to seven xSeries 330 servers.



Note: The line cords exiting the rack are to be routed under the server rails of the lowest server in the rack and out through the exit in the base.

There are a total of six PDUs installed in this example. Three on the left side of the rack cabinet and three on right side.

Note:

- If your rack came with the glass door, start with step one.
- If your rack came with the perforated door, skip step one.
- If you have ordered or installed the perforated door option, skip step one.

To install the PDUs and route the power cables and line cords:

1. Remove the front door and latch from the rack cabinet.
2. Remove the two side panels from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord down toward the rack side braces; then route the line cord along the side brace toward the back of the rack cabinet.
5. Secure the line cord with the cable straps that come with the PDU.
6. Starting with the lowest server in the rack, route the power cord to the closest PDU on the left side of the rack.
7. Plug the server power cable into the the first outlet on the PDU.
8. Continue routing and connecting the server power cords to each of the PDU outlets on the left side of the rack until all the PDU outlets are used.
9. Route the remaining server power cables across the back of the servers toward the right side of the rack.
10. Connect the power cables to the PDU outlets on the right side until all of the remaining servers are connected.

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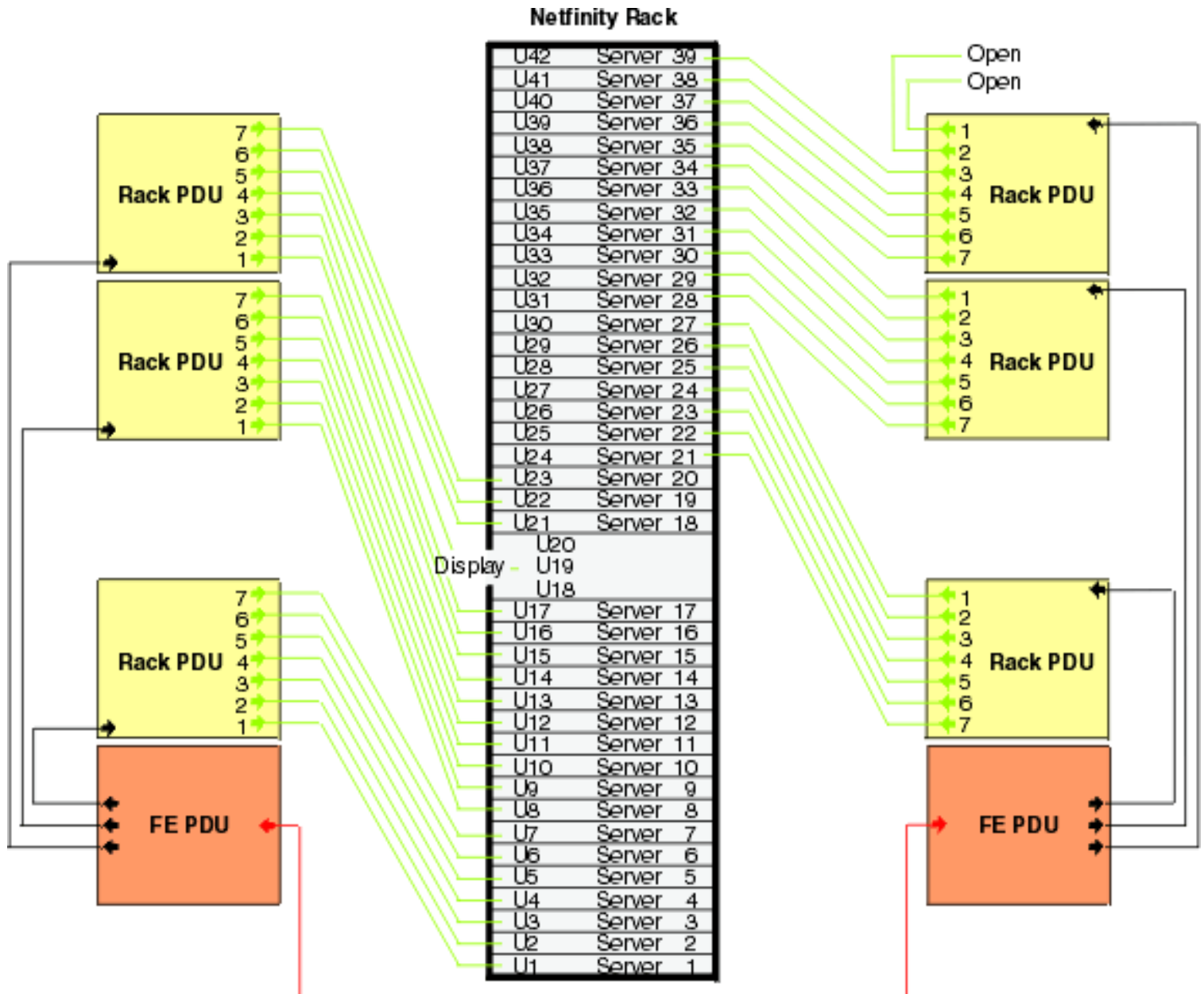
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IBM NetBAY Rack and IBM NetBAY Front End Power Distribution Units (Example 3)

High-voltage three-phase solution

Note: If your rack has a glass door you must remove it and or replace it with the perforated door option for ventilation purposes.

This configuration supports 39 servers and a flat panel monitor, with six line cords being routed outside the rack under the bottom server in the rack. Each Rack PDU supports up to seven xSeries 330 servers.



Note: The line cords exiting the rack are to be routed under the server rails of the lowest server and out through the exit in the base.

There are a total of eight PDUs installed in this example. Four on the left side of the rack cabinet and four on right side.

Note:

- If your rack came with the glass door, start with step one.
- If your rack came with the perforated door, skip step one.
- If you have ordered or installed the perforated door option, skip step one.

To install the PDUs and route the power cables and line cords:

Note: The referenced orientation in this procedure is from the rear of the rack.

1. If necessary, remove the front door and latch from the rack cabinet.
2. Remove the two side panels from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord for the NetBAY Front End PDUs down, toward the rack side braces; then route the line cord along the side brace toward the back of the rack cabinet.
5. Secure the line cord with the cable straps that come with the PDU.
6. Connect the NetBAY Rack PDUs line cords to the outlets on the NetBAY Front End PDU.
7. Starting with the lowest server in the rack, route the power cord to the closest PDU on the left side of the rack.
8. Plug the server power cable into the the first outlet on the PDU.
9. Continue routing and connecting the server power cords to each of the PDU outlets on the left side of the rack until all the PDU outlets are used.
10. Route the remaining server power cables across the back of the servers toward the right side of the rack.
11. Connect the power cables to the PDU outlets on the right side until all of the remaining servers are connected.

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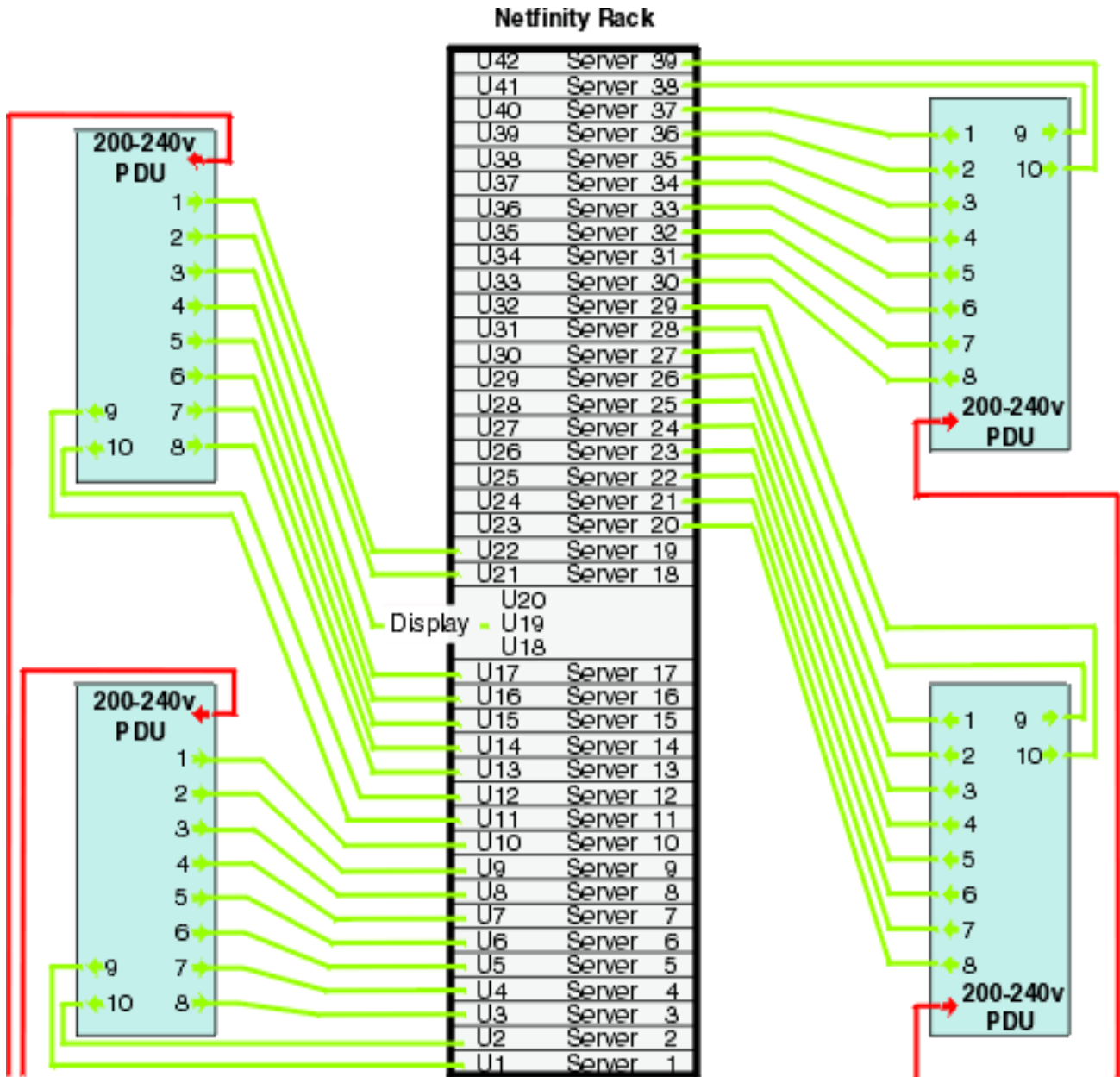
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IBM Netfinity 200-240 V Power Distribution Unit (Example 4)

High-voltage single-phase solution

Note: If your rack has a glass door you must remove it and or replace it with the perforated door option for ventilation purposes.

This configuration supports 39 servers and a flat panel monitor, with six line cords being routed outside the rack through the 3U gap and out under the bottom server in the rack. Each PDU supports up to seven xSeries 330 servers.



Note: The line cords exiting the rack are to be routed under the server rails of the lowest server and out through the side wall exits.

There are a total of four PDUs installed in this example. Two PDUs are mounted on each side of the rack cabinet.

Note:

- If your rack came with the glass door, start with step one.
- If your rack came with the perforated door, skip step one.
- If you have ordered or installed the perforated door option, skip step one.

To install the PDUs and route the power cables and line cords:

Note: The referenced orientation in this procedure is from the rear of the rack.

1. If necessary, remove the front door and latch from the rack cabinet.
2. Remove the two side panels from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord down toward the rack side braces; then route the line cord along the side brace toward the back of the rack cabinet.
5. Secure the line cord with the cable straps that come with the PDU.
6. Starting with the lowest server in the rack, route the power cord to the closest PDU on the left side of the rack.
7. Plug the server power cable into the the first outlet on the PDU.
8. Continue routing and connecting the server power cords to each of the PDU outlets on the left side of the rack until all the PDU outlets are used.
9. Route the remaining server power cables across the back of the servers toward the right side of the rack.
10. Connect the power cables to the PDU outlets on the right side until all of the remaining servers are connected.

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PDU Configurations for the IBM® @server xSeries 330 Server (Netfinity® NetBAY22)

This page provides information and instructions on how to install, route, and manage the power cables connected to the IBM® @server xSeries 330 server while mounted in an IBM Netfinity® NetBAY22 rack. Each of the configurations shown on this page require that the lower server locations be left vacant for cable routing and a rack extension kit (IBM part number 36L9702) must be installed.



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Notes:

1. The glass door must be removed for ventilation purposes.
2. Remove the door latch for better clearance and easier access into and out of the rack.

[Power distribution unit](#)

[Line cord management](#)

Universal single-phase Solutions

[Example 1](#)

High-voltage three-phase Solutions

[Example 2](#)

High-voltage single-phase Solutions

[Example 3](#)

Power distribution unit

This section contains information and instructions on the different PDUs that can be installed in the Netfinity NetBAY22 Rack. It contains information on how to connect the servers to the PDUs, and route the power cables.

The following are some of the examples of how to connect your server to the PDUs. Your solution could be different, based on differences in racks and server configurations.

Some consideration:

1. The line cord on each server is connected to a PDU mounted in the side wall compartment of the rack.
2. Label each end of the line cords for easy reference.
3. This Netfinity NetBAY22 rack has been configured for your use (the type of electrical connector will differ according to geography). In this particular configuration, the line cords are 4.3 m (14 ft.) in length. Each of the line cords, in accordance with safety requirements, leads to a separate ac source circuit with appropriate emergency power-off controls and a properly sized circuit breaker.

IBM Netfinity NetBAY22 9306 Model 200

Model 200: Netfinity NetBAY22 - The door must be removed.

The following examples show the installation of PDUs in four different configurations. Each configuration includes an illustration depicting how the various cords are to be connected to the PDU and a brief description of the example.

IBM NetBAY Rack Power Distribution Unit

The IBM NetBAY Rack Power Distribution Unit enables you to connect up to seven devices to a single dedicated power source, such as an electrical outlet or a UPS. The Rack PDU has one power inlet and seven IEC standard power outlets.

IBM NetBAY Single-phase and Three-phase Front-end Power Distribution Units

The IBM NetBAY single-phase and three-phase Front-end Power Distribution Units enable you to connect a single-phase or three-phase dedicated power source to three different single-phase PDUs. The Front-end PDU has one power source inlet and three IEC standard power outlets.

IBM 200-240 V Power Distribution Unit

The IBM 200-240V Power Distribution Unit enables you to connect up to ten devices to a single dedicated power source, such as an electrical outlet or a UPS. The PDU has one power inlet and ten IEC standard power outlets.

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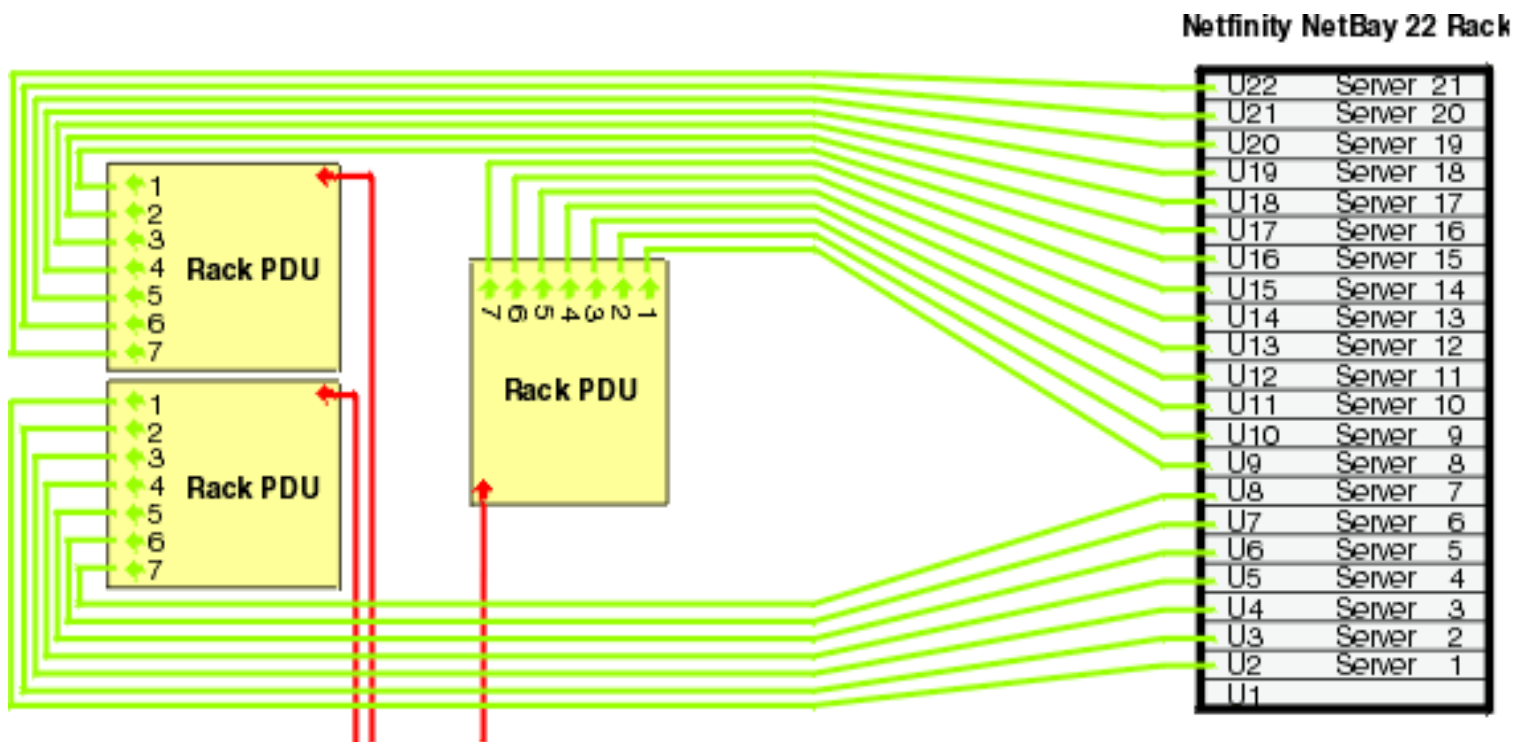
IBM NetBAY Rack Power Distribution Unit (Example 1)

Universal single-phase solution

Note: The glass door must be removed for ventilation purposes.

This configuration supports 21 servers with three line cords being routed outside of the rack through the open U space at the bottom of the rack. Each Rack PDU can support up to seven xSeries 330 servers.

Note: Leave bottom U location open for cable routing.



Note: The line cords exiting the rack are to be routed under the server rails of the lowest server and out through the exit in the base.

There are a total of three PDUs installed in this example. All three are installed on the left side of the rack cabinet.

To install the PDUs and route the power cables and line cords:

1. Remove the front door and latch from the rack cabinet.
2. Remove the two side panels from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord down toward the rack side braces; then, route the line cord along the side brace toward the back of the rack cabinet.
5. Secure the line cord with the cable straps that come with the PDU.
6. Starting with the lowest server in the rack, route the power cable to the closest PDU.
7. Plug the server power cable into the the first outlet on the PDU.
8. Continue routing and connecting the server power cable to the PDU until all the outlets are used.

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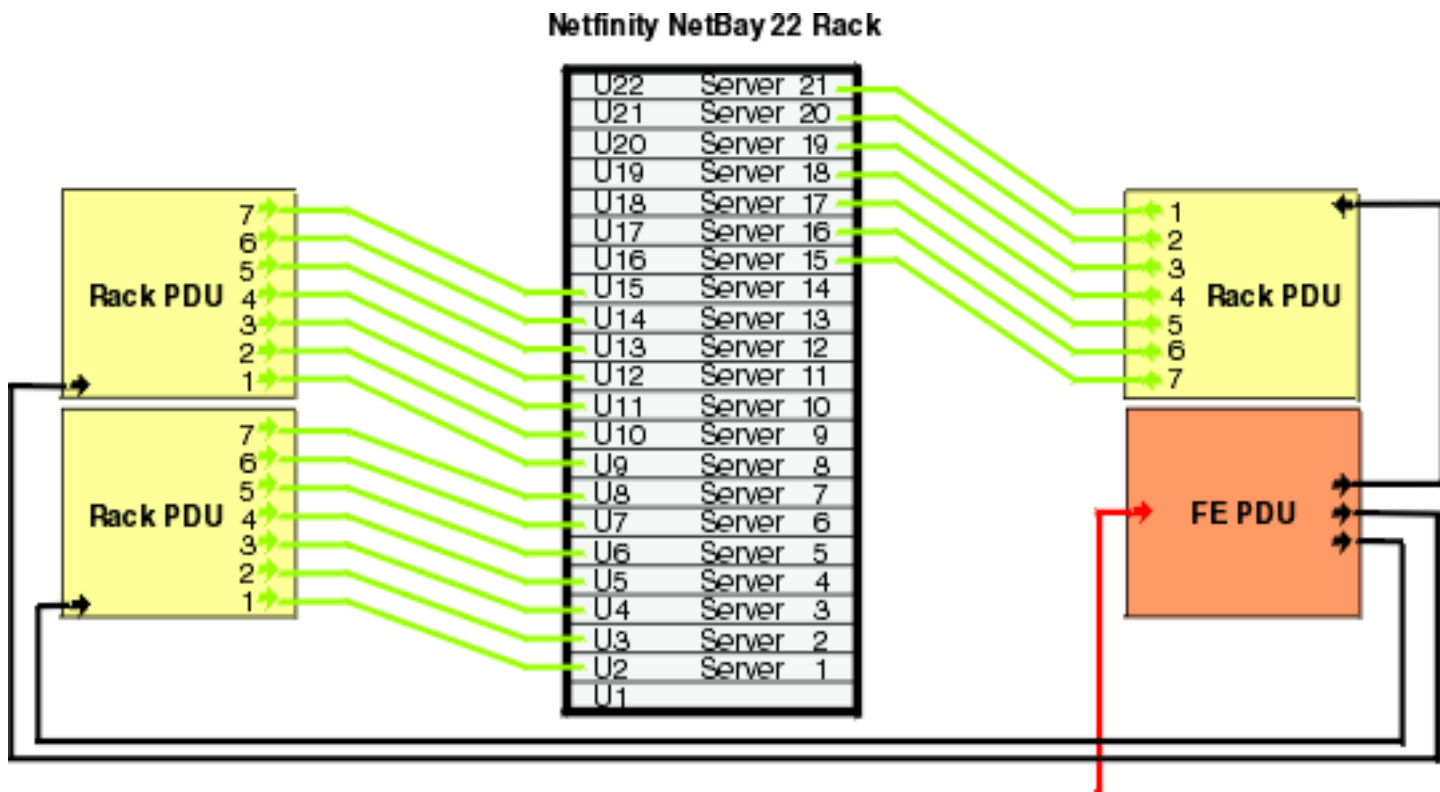
IBM NetBAY Rack and IBM NetBAY Front End Power Distribution Units (Example 2)

Low-voltage three-phase solution

Note: The glass door must be removed for ventilation purposes.

This configuration supports 21 servers with three line cords being routed outside of the rack through the open U space at the bottom of the rack. Each Rack PDU can support up to seven xSeries 330 servers.

Note: Leave the bottom U location open for cable routing.



Note: The line cords exiting the rack are to be routed under the server rails of the lowest server and out through the exit in the base.

There are a total of four PDUs installed in this example. Two IBM NetBAY Rack PDUs on the left side of the rack cabinet, one IBM NetBAY Rack PDU, and one IBM NetBAY Front End PDU on the right side.

To install the PDUs and route the power cables and line cords:

1. Remove the front door and latch from the rack cabinet.
2. Remove the two side panels from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the IBM NetBAY Front End PDU line cord through the bottom of the rack; then install the lowest rail.
5. Secure the line cord with the cable straps that come with the PDU.
6. Connect the NetBAY Rack PDUs line cords to the outlets on the NetBAY Front End PDU.
7. Starting with the lowest server in the rack, route the power cord to the closest PDU on the left side of the rack.
8. Plug the server power cable into the the first outlet on the PDU.
9. Continue routing and connecting the server power cords to each of the PDU outlets on the left side of the rack until all the PDU outlets are used.
10. Route the remaining server power cables across the back of the servers toward the right side of the rack.
11. Connect the power cables to the PDU outlets on the right side until all of the remaining servers are connected.

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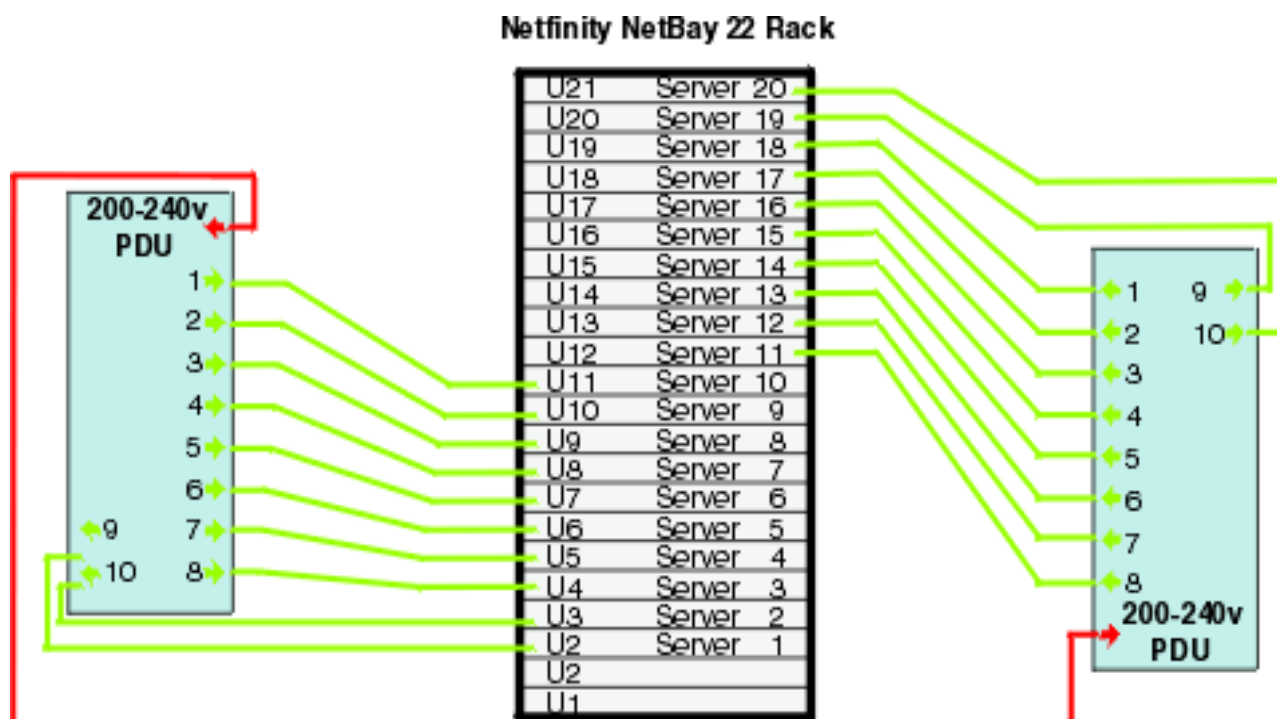
IBM Netfinity 200-240 V Power Distribution Unit (Example 3)

High-voltage single-phase solution

Note: The glass door must be removed for ventilation purposes.

This configuration supports 20 servers with three line cords being routed outside of the rack through the open U space at the bottom of the rack. Each Rack PDU can support up to seven xSeries 330 servers.

Note: Leave the bottom two U's location open for cable routing.



Note: The line cords exiting the rack are to be routed under the server rails of the lowest server and out through the exit in the base.

There are a total of two PDUs installed in this example. Two PDUs are mounted on each side of the rack cabinet.

To install the PDUs and route the power cables and line cords:

1. Remove the front door and latch from the rack cabinet.
2. Remove the two side panels from the rack cabinet.
3. Mount the PDUs to the rack as described in the documentation that came with the PDUs.
4. Route the line cord down toward the rack side braces; then, route the line cord along the side brace toward the back of the rack cabinet.
5. Secure the line cord with the cable straps that come with the PDU.
6. Starting with the lowest server in the rack, route the power cord to the closest PDU on the left side of the rack.
7. Plug the server power cable into the the first outlet on the PDU.
8. Continue routing and connecting the server power cords to each of the PDU outlets on the left side of the rack until all the PDU outlets are used.
9. Route the remaining server power cables across the back of the servers toward the right side of the rack.
10. Connect the power cables to the PDU outlets on the right side until all of the remaining servers are connected.

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