

Blade Server - New server architecture

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Suppliers are advertising blade servers as a new architecture to replace traditional server designs - stand alone or rack-mounted. However, experts also have to deal with many key issues related to this fledgling technology. Blade server, or blade, is a circuit board containing one or more processors, memory, data storage and network connections, used for a particular application, such as the web. We can plug the blades into the backplane of a server, similar to when we plug the USB devices into the computer. Therefore, changing the blades to meet customer requirements will be quicker and easier.

The advantage of blades is that they can share power and cooling systems. Thus, the server will be more compact, powerful and cheaper than traditional systems such as central servers (mainframes) or collections of servers (server farms). However, this advantage is also one of the concerns of professionals. The high energy use of the system will lead to HVAC problems - heating (Heating), ventilation (Ventilation) and air conditioning (Air-Conditioning) inside the server.

Umesh Jagannatha, senior manager in charge of Embarcadero Systems' engineering services in Alameda, California, said energy-related problems and cooling systems could push the overall cost of ownership. (TCO) of the system is high.

According to Tim Dougherty, IBM's director of eServer BladeCenter, HVAC is not a blade issue, but of all types of servers that use multiple processors. He suggested that system administrators should not insert multiple blades in the server as this may increase the temperature in the machine.

The blade's value is its compact, modular design for easy assembly. If there are multiple processors on a blade, it can become bulky, fast. That is one of the reasons why blades have not yet appeared to four processors, analyst Jane Wright of Gartner said.

The user is still hesitant

Wright says blade technology will progress rapidly over the next two years with new air conditioning solutions. This means that there will be a new framework for blade servers. IBM has announced that it is developing a new way of using water or liquid to cool the blades. Therefore, the user has not yet decided whether to buy a blade now because there will be a major design change within the next 1-2 years, she said.

IBM also confirmed this, but added that they still maintained the air-cooling system until 2008. Last fall, the company gave technical details about its BladeCenter architecture, similarity. I like the latest I / O devices. Since then, many vendors have turned to producing BladeCenter compatible devices.

However, if each vendor offers its own model, the blade produced by another company will have a matching interface for each different model. For example, a blade designed for use with IBM's BladeCenter will not work with Hewlett-Packard (HP) servers, and vice versa. This problem will also limit the flexibility of this architecture to be exchanged between different servers. And users have to accept this by default and must choose a brand to buy the right product.

Price is also an important factor making the blade not widely accepted. Wright estimates the cost of blades accounts for more than 10% of the price of a server, including the chassis. Many people believe that the price of a 1U (*) server is cheaper than the blade.

However, according to IDC analyst John Humphreys, the comparison is unfair because the blade needs a chassis to hold them. The cost of the blade will be high unless it is calculated with the chassis having at least half the blade size compared to the design, he said.

Standards for blade

'Users want products to be diverse, interoperable and interchangeable,' said Kevin Kettler, Dell's chief technology officer. The company has only recently penetrated the blade server market, so they want more standards for this new architecture to make competition more fair. However, IBM and HP, two giants in this field, still prefer to develop products in their own direction.

IBM's Dougherty admits that a common standard can be achieved, but only with I / O devices, not with processing devices.

However, according to Wright, only after the issues related to HVAC are resolved, the new suppliers focus on other issues such as compatibility and standardization. And any standard requires the cooperation of two IBM and HP giants because they are taking over 75% of the blade market share.

Currently, InfiniBand and Ethernet are two popular standards, said Jim Pappas, Intel Group's director of digital business.

Ethernet is the connection standard in the most popular local area network today, allowing for up to 1,024 devices to be connected. InfiniBand is a bidirectional data transfer standard between processors and I / O devices at a rate of 2.5 Gbps per way. InfiniBand uses IPv6 Internet protocol, so its scalability is very high (up to 64,000 devices). The standard is a combination of two Future I / O designs (developed by Compaq, IBM and HP) and Next Generation I / O (ngio - developed by Intel, Microsoft and Sun Microsystems).

Dang Thieu synthesized

(*) 'U' is the standard for measuring rack height in servers. 1U = 1.75 inch = 44mm.

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