Why Keep Legacy Servers Around?
By David Geer

Legacy servers do not have to go to a recycler or a third-party service that charges to refurbish and re-sell them. So, why keep them around? To run legacy operating systems that support legacy applications.

Some data centers still run legacy operating systems such as NetWare 3.11 in order to support legacy applications that do not virtualize well, says Saurav Sen, country practice manager, Information Management Group, LTD, India. The applications do not virtualize well because driver support for the older operating systems that must run beneath them is difficult.

The trouble starts with virtualizing NIC cards. Many of these legacy operating systems attempt to access the underlying hardware directly, says Sen, and they have trouble using the stub drivers or other technologies that redirect them through the virtual environment rather than through a physical NIC card.

Virtualization makes the functionality of a NIC card available through emulation, a stub driver, or via pass through. Emulation software masquerades as a commonly used, older NIC card that is required but which does not exist on the host server. The design intent is that the OS that the data center installs inside the virtual environment detects the simulation of the older card.

Commonly used older cards appearing as emulated cards include those from well-known companies that the OS supports. This method of NIC card virtualization is difficult, offers slow performance, and is CPU intensive, Sen says. However, if an older version of Netware is available that has a kind of network card that works well with emulation, this could work. "If" and "could" are the reasons that technicians simply seek an older physical server that is compatible.

Virtualization also uses stub drivers as another method of virtualizing the NIC card. This is a means of communication between the virtualized OS and an actual physical NIC card that is not the NIC card the OS is able to recognize natively. "The physical NIC card could be a Broadcom, while the NIC card detected by the legacy OS could be a Tulip (a really old NIC)," says Sen.

The stub is a way of sending data to the physical (Broadcom) card so that it accepts the data, and a way of sending data from the Broadcom card back to the virtual Tulip card. "This may or may not work well," says Sen.

Older operating systems and their applications want to access the physical network card directly. This method may not work properly when the legacy OS tries to access the card directly and it cannot establish network connectivity.

Finally, virtualization may make a network card available via pass through. Using pass through, the physical card is available to the virtualized OS. But, in this instance, the genuine driver for that physical card must be available and it must also be compatible

with that older OS. "This is not usually the case, and I would be very happy to find such a driver!" says Sen.

"The result of using virtualization is either that the installation on the virtual server fails or some services fail to run. In these cases, unfortunately, the only option is to run on legacy servers.

Obviously, new servers do not support older operating systems either, says Sen. While compatible network card drivers (and RAID controllers) are critical to running older OSes, the newer server hardware uses current RAID controllers and NIC cards that do not have software drivers for the older OSes. Legacy servers often have the older RAID and NIC hardware the older OSes require.

Data center managers should consider using legacy servers as backup and disaster recovery resources. They can be used for cold failover. For cold failovers, the servers that applications will failover to remain turned off until needed. This is good for non-mission critical applications that do not require instant failover.

Servers that are still only one or two generations behind the production servers will suffice for cold failover if the data center budget cannot cover new servers for this purpose. "IT staffers are typically familiar with their older servers and there is no time required to get up to speed on them while setting them up as backup repositories as there would be with new servers," says Sen.

However, older servers are less reliable and offer more down time. It takes longer to get repairs done because the vendors are happier selling servers than to repairing the older models.

Whether supporting older applications or non-mission critical backup and recovery routines, legacy servers have more to offer and avoid the added cost of secure disposal through a third-party service.

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