

POWER8—Its Time Is Now

April 2015 | by [Jaqui Lynch](#)

POWER8 servers have been out since April 2014, causing a rapid migration to the new technology from older ones. However, some customers have yet to make the transition—for a number of reasons. Given recent announcements and the performance seen in the POWER8 servers, it's truly time that everyone starts to put together a POWER8 migration plan.

Let's start with the announcements. IBM has already withdrawn POWER6 and upgrades for many POWER6 servers. This means that any updates to those servers (and prior POWER5 servers, etc.) are dependent on finding used equipment. On February 24, 2015, IBM announced that it's withdrawing all of the POWER7 servers, with the exception of the 720, 750 and 760, effective November 30, 2015. At that time, it's also withdrawing all POWER6 and POWER7 upgrades to the POWER7+ D model servers. This means that any upgrades to POWER7 servers must be ordered prior to November 30, 2015. Having priced many of these upgrades and new servers, I've found that it's significantly less expensive to purchase a POWER8 server than the equivalent POWER7 server today.

Comparing Models

As an example, I just compared a 16 core 32GB 740 express with a 12 core 32GB S822 and with a 12 core 128GB S822. It was an interesting comparison. Keeping in mind that the S822 has more disk bays (12 versus 6) and more PCIe slots (9 versus 6) I found the following:

740 compared to S822 32GB	1.6X list
740 compared to S822 128GB	1.41X list

Comparing performance, the 740D 3.6ghz 16 core is rated at 197.7 rPerf (SMT4) whereas the S822 3.89ghz 12 core is rated at 220.1 rPerf (SMT4) or 235.6 rPerf (SMT8).

So you can get 11 to 19 percent more performance, more memory, more disk bays and PCIe slots for about 40 percent less cost. Another point to note is that the memory and I/O bandwidth for the POWER8 servers (scale out and enterprise) is significantly higher than all of the previous architectures. And there are additional follow-on savings for software licensing—for our 740D versus S822, we need four fewer cores on the POWER8, which allows for additional savings on software licensing.

Reasons for Delay

So why hasn't everyone jumped into POWER8 immediately? The first reason is that it requires the servers to be fairly current in OS versions. Native AIX 5.3 isn't supported although you can run it in a versioned WPAR. While earlier service packs for AIX are supported, it's best to get to AIX 6.1 TL9 SP4 (SMT4 only) or AIX 7.1 TL3 SP4. AIX 7.1 TL3 is the first version that supports SMT8. IBM i 7.1 or 7.2 is required for POWER8. There are also specific minimum release levels for the various Linux types.

The other thing that has stopped people from transitioning is that POWER8 requires the HMC to be at least a 7042-cr5 with a minimum of 4 GB of memory. It is, however, recommended that you install at least 8 GB of memory in the HMC. Additionally the HMC software has to be at a minimum of HMC v8.8.1.0,

which only supports POWER6 servers and higher. There may also be some required firmware updates for older POWER6 and POWER7 servers. You can check this at the IBM POWER Code Matrix. If you still have older POWER5 servers, this is a good time to bring in a new HMC and put the new POWER8 servers on it, then over time you can transition older servers across as they're updated. If you have no POWER5 servers and your HMC is a CR5 or higher, then you should be able to install HMC v8. Make sure you read the readme to ensure all the requisite steps are followed.

So how do you get from here to there? If you bring in a new POWER8 with its own HMC, things are fairly straightforward. You can bring over workloads that are at supported AIX levels using Live Partition Mobility (LPM) if you prefer. Just remember you'll need to reactivate the partitions to get them to run in POWER8 mode as when they LPM they remain in the same mode as the server they came from. If AIX is not at a supported level, you can either upgrade it prior to the move or you can migrate it on the fly—I do this all the time with NIM. I take a mksysb of the system, then install the mksysb using NIM, whilst pointing to a SPOT and LPPSOURCE at the higher level that I want to get to. This is also your opportunity to ensure that the new server is running the latest level of PowerVM.

Now Is the Time

No one wants to be the first to move to a new technology. However, POWER8 has now been around for almost a year and is a well-proven technology. Additionally, the supporting levels of AIX or IBM i and the HMC are also well proven in production. In just over eight months, most POWER7 servers will be withdrawn from marketing. Add to that the fact that they cost more than the equivalent POWER8 servers, have less memory and I/O bandwidth and require more cores to run the same workload then it makes sense to start the migration now while there's time. I understand that customers get limited maintenance windows and have significant testing requirements before new technologies can go into production—this is why I'm recommending that you start now so you can get current and get better value for your money. Finally, by being at the latest levels, you'll be fully supported and will also be up-to-date for the security hole patches for items like the SSL and poodle bugs. Now is the time to start planning for that migration to POWER8.

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