WHITE PAPER

Solving IBM Power Hardware and i7.1 End-of-Life Issues

SECURE Infrastructure & Services | DataStorage CORPORATION

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Introduction

Several end-of-life (EOL) issues are facing IBM Power system shops in 2018 and 2019.

First, the IBM i 7.1 operating system went end-of-life on April 30, 2018, causing a migration decision for many shops to upgrade to IBM i 7.2 or i 7.3.

Next, IBM will discontinue standard hardware maintenance for IBM POWER6 and POWER7 machines in 2019. It will discontinue standard POWER6 hardware maintenance on March 30, 2019, and POWER7 standard hardware maintenance will be discontinued on September 30, 2019, forcing users to upgrade to new IBM POWER8 or POWER9 machines or lose hardware maintenance.

Shops facing these decisions have three alternatives:

1. Do nothing and continue running their systems at the same operating system and hardware levels.
2. Upgrade their IBM i operating system and IBM Power hardware.
3. Migrate their existing IBM i partitions to the cloud.

This white paper examines these IBM Power system end-of-life decisions and the pluses and minuses of each alternative. Recommendations will be made on the best course of action for shops facing these decisions.

The risks of end of life/end of support for IBM Power technology

Generally speaking, customers running end-of-life IBM operating system and Power server technology face the following risks, as shown in figure 1:

Figure 1: The risks of running end-of-life IBM operating system and Power hardware

Security & operating system risk

When IBM i 7.1 reached EOL, it stopped offering Software Maintenance (SWMA) to its customers. It also stopped offering support for licensed products running under the IBM i 7.1 operating system, such as Developer Kit for Java, NetServer, WebSphere, DB2, and cryptography.

IBM offers premium service extension support for product defects in end-of-life operating systems, such as IBM i 7.1. The service extension supports basic usage and problem rediscovery support for out of service products, as well as known defect and new defect support. It does not include new features introduced in later operating system versions. Service extension support can be very expensive for i 7.1, possibly costing 90% or more of the price for obtaining it for a current machine.

Even with extended support, now that IBM i 7.1 has gone end-of-life, it is much more vulnerable to viruses, malware, and hacking, issues than currently supported products.

IBM Power hardware also has its own security exposures. Two recent hardware vulnerabilities, Spectre and Meltdown, exposed programs to data that they are not allowed to access and made it possible for programs to bypass hardware security. IBM provided fixes for Spectre and Meltdown, but those fixes were only available for POWER7 machines and above. POWER6 computers were not covered.

Hardware support and maintenance risk

When an IBM Power hardware product reaches EOL, IBM may offer limited extended maintenance. Organizations may also be able to purchase post-EOL maintenance from third-party maintenance providers, even after IBM stops supporting the product.

There are two risks in running IBM Power hardware past EOL. First, some organizations do not purchase maintenance for older machines. If a company does not have a maintenance contract, it can be very expensive to fix a critical server on an emergency basis.

The second risk is that as machines age, a maintenance vendor may be unable to find replacement parts. While refurbished parts can usually be found on the used market, there is always a chance that a vendor may not be able to locate the parts needed to fix an end of life machine.

Legal and regulatory liability risk

Organizations are sometimes required to use a new technology for processing transactions under regulatory or business requirements, such as a customer Service Level Agreement (SLA) or a government or industry regulation such as the EU's General Data Protection Regulation (GDPR), the Health Insurance Portability and Accountability Act of 1996 (HIPAA) or the Payment Card Industry Data Security Standard (PCI DSS). Unsupported EOL technology may not have the necessary new features needed for regulatory requirements, forcing organizations using that technology to pay a fine or rapidly upgrade their hardware and software.

If a data breach results in an unintended disclosure of company or protected data, the organization may also be liable for hefty damages or lawsuits filed by interested parties, including customers, stockholders, governments, employees, and business partners.

Financial risk

Running an old IBM Power server past its end of lease can be expensive. Keeping old servers can cause multiple lease extensions that if not handled correctly, can force organizations to pay for leased equipment several times over.

Power system upgrades are also a recurring cost. A typical IBM Power system may be traded in every three-to-six years, causing you to either buy or renegotiate an upgrade on a continuing cycle, disrupting your hardware platform each time an upgrade is considered.

Options When Your IBM Power Hardware or Operating Systems Reaches EOL

There are three options an IT shop can select when its IBM Power operating system or hardware reach end-of-life.

1. *Do nothing and continue running the operating system or physical hardware without upgrading to the latest version.*
2. *Upgrade your company-owned operating system or IBM Power hardware to the latest version.*
3. *Migrate your production software and operating systems environment to the cloud.*

Here are more detail on the risks and benefits for choosing each of these alternatives to handle your EOL issues.

Doing nothing about an end-of-life situation

Risks: There are several risks to running an operating system or IBM hardware past end-of-life. First, there are the **Security and Operating System and Legal and Regulatory** risks explained above, that can leave your system vulnerable to attackers and threaten regulatory compliance and violate customer service level agreements (SLAs).

Second, your third-party software providers may drop support when their applications are running on end-of-life operating systems or hardware no longer supported by IBM, making it difficult to get fixes.

Third, there are the **Hardware Support and Maintenance and Reliability risks** explained above, where extended or third-party hardware maintenance can cause problems when machines break down. Third-party hardware maintenance vendors may not have access to IBM parts and expertise in providing fixes, and they may not be able to fix all hardware-related issues.

Benefits: No additional cost is required as older machines are either fully paid for or will continue operation under their existing financial terms. No additional resources or machine reconfiguration is needed to upgrade or modify the machine. Your IBM i system will continue to run as long its hardware and operating system keep functioning.

Upgrading your company-owned IBM i operating system or IBM Power hardware

Risks: IBM i operating system upgrades require additional resources for test partitions, including more disk or CPU, causing more upgrade expense. IBM Power purchasers usually buy extra disk, memory, and CPU capacity to account for future growth, causing many organizations to purchase capacity that won't be used for several years.

Upgrading your machine also exposes you to the **Financial risks** that were explained in the last section. Hardware upgrades require capital approval, and access to cash through capital expenditures or updated lease agreements. Paying cash may produce a big financial hit in the year a new system is purchased. Hosting IBM Power systems on-site also require additional network infrastructure, such as routers, telecommunication lines, site-to-site VPNs or MPLS networks, UPS systems, and backup devices.

Benefits: Upgrading and hosting your own Power system on-site provides complete control over all aspects of OS and machine operations. Your Power machine is budgeted and paid for, and 1-3 years of maintenance can be rolled into the purchase price. Your machine will be at the latest OS level and hardware version for next several years. Your existing infrastructure remains in place and no additional changes to your network need to be made.

Migrating your production software and operating systems environment to the cloud

Risks: A cloud-based machine is not owned or controlled by your organization, making your applications dependent on the cloud provider's hardware and telecommunication setup.

A one-time partition, operating system, and application migration to the cloud will require more effort and network reconfiguration than upgrading your existing hardware and operating system. But your IBM Power and IBM i operating system upgrades will become easier as the cloud service provider will manage your hardware, instead of your IT staff.

Benefits: Hosting your IBM Power partitions at a cloud service provider provides a number of benefits for an organization using IBM Power systems, including:

Future proofing your IBM Power setups – Since you are running on vendor equipment, the cloud provider not your organization, will arrange for hardware and operating system upgrades and fixes. You only need to worry about your applications.

Paying only for the IBM Power capabilities you need. We had noted that IBM Power shops frequently buy extra hardware to account for future growth. Running in the cloud, shops can contract for the CPU, disk, and memory you need now, instead of what you need three years from now. When growth occurs, you can contact your cloud provider and expand your partitions with additional resources, far more quickly than you can if you own the hardware. You only pay for the hardware you need.

Lower local Data Center costs – When you move your IBM Power application environment to the cloud, you also remove any local Data Center costs associated with your Power system from your environment. Here are some of the functions you no longer have to support locally in your corporate Data Center, because they will be provided by your cloud provider.

- Tape or other media backup units
- Site-to-site VPNs or MPLS networks dedicated to connecting remote sites to your IBM Power partitions. Remote users will now access your partitions through regular Internet lines.
- Backup Universal Power Supplies (UPSes) or power generation capability dedicated to your IBM Power system.
- Climate control costs, such as air conditioning
- Security costs, including required security for regulatory agencies and network equipment needed to protect your hardware
- Telecommunication costs involved to remote access your IBM Power hardware

Lower personnel and consultant costs – When you host IBM Power systems in the cloud, you need fewer people on site to manage your IBM Power partitions and the networking and security surrounding those partitions.

Easier to provide access for remote locations – New locations added through acquisition or expansion can more easily reach your Power systems through the Internet, rather than having to provide an MPLS spoke and hub network, ethernet lines, or other dedicated telecommunications line for connectivity.

Cloud-based IT Recovery Services – Cloud-based backup, disaster recovery, and high availability services are available from cloud service providers, as a monthly service. Because cloud IT recovery is divorced from owning the individual hardware, companies can move their backup, disaster recovery, and high availability scenarios away from company-owned equipment and perform all their IT recovery services off-site.

Turning capital costs into operating expenses – Running IBM Power systems in the cloud changes your machine costs from a capital expense that must be renegotiated every few years to an operating expense that can be budgeted month to month. Organizations eliminate the capital allocation process and no longer have to finance or buy new equipment every time a machine upgrade is needed.

Easier to handle system outages for maintenance – The vendor handles all hardware maintenance and may even be able to keep your Power system partitions running during a system outage. During hardware upgrades, your cloud vendor can usually switch your IBM i, Linux, or AIX partitions to another machine while the hardware is upgraded.

Recommendations on upgrading your IBM Power hardware and IBM i Operating systems

Given these situations, we can confidently make the following recommendations regarding end-of-life decisions for POWER6 and POWER7 hardware and IBM i 7.1 operating system partitions.

If you're running IBM i 7.1 on POWER8 hardware

If you are running IBM i 7.1 on a POWER8 machine, there will be no problems upgrading to i 7.2 or 7.3 as both operating systems are currently supported on those machines. You can easily keep your existing machines, as IBM will continue providing hardware support for POWER8 and POWER9.

If you own an IBM POWER6 and POWER7 machine that will lose hardware maintenance in 2019

If you are leasing your current box, there is financial risk in extending a lease for an old technology POWER6 or POWER7 machine. You may find that you would pay more for extending a lease on your existing system than you would buying a new POWER8 or POWER9 system.

You can upgrade your IBM i 7.1 operating system to IBM i 7.2 or 7.3 on an IBM POWER7 machine, but POWER6 hardware does not support IBM i 7.3. Your only IBM i 7.1 upgrade option on POWER6 hardware is IBM i 7.2.

POWER6 machines are still vulnerable to hardware chip vulnerabilities as IBM is not issuing PTFs to handle Spectre and Meltdown POWER issues on POWER6. There are POWER7 PTFs for hardware chip vulnerabilities.

The biggest issue is support. IBM may offer "limited" hardware support for POWER6 and POWER7 machines, but no support has been announced at the time of this writing and it's unclear what the parameters of proposed support would be. POWER6 and POWER7 owners may be able to get third-party hardware support but that support will be susceptible to the problems outlined in the Hardware support and maintenance risk section.

Upgrading on-site to POWER8 or POWER9 is a safe choice

Upgrading your POWER6 or POWER7 machine to POWER8 and POWER9 is a safe move. You may incur some financial risk if your current POWER6\POWER7 machine is still on lease, as the leasing company may assess a buyout charge for the residual value of the old equipment, which can increase your new lease.

If you are not leasing a machine, you'll have to go through your company's capital approval process, which usually increases the time period for buying your new hardware as management evaluates the purchase. Like other companies, you will probably buy additional CPU, disk, and memory to satisfy your planned growth objectives for the planned lifespan of the new machine.

After you set up your new POWER8 or POWER9 system, you can migrate any IBM i 7.1 partitions, update them to i 7.2 or 7.3, and test the upgraded partition before releasing to production.

Aside from procuring a new IBM POWER8 or POWER9 system, your entire environment will remain the same with an on-site Power upgrade. You will migrate your IBM Power partitions to the new hardware and the partitions will generally use the same network resources that your previous POWER6 or POWER7 used. No network changes outside of the machine swap will need to occur.

The Best Choice: Migrating POWER6 and POWER7 partitions to the cloud

Whatever backup technologies you use, it's important to implement standby compute, storage, and network infrastructure resources that can provide turn-key access to your applications and data, even when your primary system is not available.

When standby compute, storage, and network infrastructure resources are deployed in the cloud, you can provide geographical high availability. Production workloads can be instantly switched to the cloud, complete with all the networking needed to present and run your workloads transparently for both your internal and external customers. Your applications run on the standby resources, allowing your customers to continue using these apps when the production system is down.

If you need to upgrade an IBM POWER6 or POWER7 machine, your best option may be to migrate your IBM i, Linux, and AIX partitions to a cloud IBM Power hardware solution provider. As long as you're moving your partitions to a new machine, you can incur a number of additional benefits by moving those partitions to a cloud service provider, as listed earlier in this white paper. These benefits include:

- Future Proofing your IBM Power setups and upgrades
- Paying only for IBM Power capabilities you need
- Lower local Data Center costs
- Lower personnel and consultant costs
- Easy to provide IBM Power access for remote locations
- Cloud-based IT Recovery services
- Turning capital costs into operating expenses
- Easier to handle system outages for maintenance

Without much additional effort, a cloud migration for your POWER6, and POWER7 IBM i 7.1, Linux, and AIX partitions can cut hardware and data center costs, decrease personnel costs, simplify your network configurations, and provide off-premise cloud-base recovery solutions. Of the three potential solutions for dealing with IBM i 7.1 and POWER6/POWER7 end-of-life solutions, migrating to the cloud is the one solution that has the most potential to improve your Data Center and application delivery systems.

Partner with Data Storage Corporation

It's beneficial to bring in a trusted partner who can objectively look at your IBM i operating system and Power hardware and assess your EOL situation. Data Storage Corporation is an experienced consultant who can identify the risks associated with using EOL products, recommend solutions, and help set up an ongoing end of life management strategy.

Questions about your particular end-of-life infrastructure exposure? Contact the experienced IT management and end-of-life consultants at Data Storage Corporation. We can analyze your situation, create and implement a customized end-of-life management strategy for your organization.

About Data Storage Corporation

Data Storage Corporation is a leading server and network solutions provider specializing in IBM POWER environments. We enable our clients to maximize their IT efficiency, improve service levels and reduce costs through expert network design and efficient infrastructures using IBM and other industry-leading platforms. Your business relies on the latest and greatest information technology. Ultimately, you can depend on us to keep your systems current, integrated and operating at peak efficiency. At Data Storage Corp, we have the expertise and knowledge to be your total IT solution provider in the present and future.

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