helpsystems

How to Right-Size Your Power10 Capacity and Configuration

FOREWORD

IBM announced the E1080 servers using the latest Power10 processor in September 2021. While it's too soon to tell what the adoption rate will be, the 2021 IBM i Marketplace Survey Results show that IBM Power shops are keeping their hardware current with 42 percent of respondents on Power9 and 54 percent on Power8. Meanwhile, Power6 servers and older have dropped 44 points over the last few years.

The survey results also show that 35 percent of IBM shops plan to upgrade their hardware in the next year. This could be you! Your business may be running older Power technology (Power6, Power7, or Power8) and is considering a move to Power9 or Power10. But, when it comes right down to it, how do you know:

- Which model?
- How many cores?
- How to configure them?
- How much memory you need?
- Which storage options to select?

And that's not all. As organizations plan their IBM i capacity needs, half the market is concerned about the accuracy of vendor recommendations, has limited or no internal expertise, or has no software to accurately predict what hardware is needed.

This guide can help! Hardware upgrades are necessary to stay current and take advantage of faster speeds and the latest technology, but with the right preparation they don't have to be a headache. Read on to learn how to right-size your Power10 capacity and configuration.

Enjoy!

As you plan your IBM i capacity needs (CPU, disk, I/O, memory, etc.), what concerns you most?

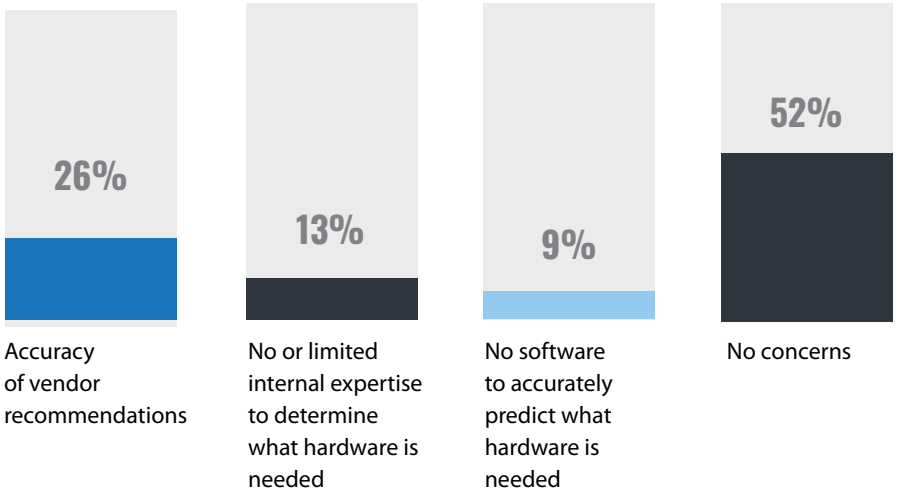

TABLE OF CONTENTS

A COMMON PROBLEM WITH EVALUATING NEW SERVER TECHNOLOGY

According to the 2020 Global Server Hardware, Server OS Reliability Report by ITIC, reliability was shown to decline in 67 percent of servers over four years old when the organization failed to retrofit or upgrade their hardware to accommodate increased workloads.

What's especially noteworthy from the survey is that a higher percentage of IBM Power users already adhere to a regular, three-year upgrade and retrofit their servers as needed. Smart move, considering one hour of downtime costs upwards of $300,000.

While regular upgrades are smart, many IT organizations get excited about the capabilities when new technologies come onto the market without carefully analyzing what they actually require to run their business, including any projected changes. Just as it's important to determine the number of employees you need to carry out day-to-day work, you also need to plan capacity for the underlying infrastructure, which likely encompasses many operating environments such as IBM i, AIX, VIOS, and Linux.

Unfortunately, undertaking a detailed evaluation of your utilization and projected needs can be a cumbersome or intimidating process, making it easy to sweep aside. And 22 percent of survey respondents said that their IT departments were already understaffed or overworked, contributing to reliability issues.

Not only does this mean team members are already spread thin and don't have time for planning initiatives, but it also begs the question of whether some of these issues could be happening due to a lack of effective planning.

Smart move, considering one hour of downtime costs upwards of

$300,000.

TAKEAWAY:

Your goal is always to avoid a critical situation where you aren't able to effectively run your business in an optimal way. For example, Target.com crashed after large numbers of shoppers went online for a well-publicized sales event that the company didn't support with the appropriate level of web capacity. No business wants to find themselves managing this sort of disaster.

THE SOLUTION: EFFECTIVE CAPACITY PLANNING

In the 2020 Global Server Hardware, Server OS Reliability Report mentioned previously, it's remarkable that two-thirds of businesses say increased workloads negatively impact reliability, up 6 percent from 2019. Clearly this makes a case for careful capacity planning.

Capacity planning plays a critical role in making sure everything stays up and running at maximum efficiency. Whether you open another office, launch a new product or service, or simply want to be sure your infrastructure will be reliable and cost-effective, capacity planning will help you keep service levels up and costs down.

While capacity planning has long been important for minimizing the risk of downtime and maximizing uptime, reliability, and efficiency, the best ways to optimize service delivery have changed over time.

Not long ago, capacity planning was strictly focused on infrastructure in the on-premises data center. The top priority was keeping an eye on servers, storage, and network bandwidth to ensure resources were properly utilized. Adoption of virtualization eliminated the fixed tie between an application and the infrastructure. The capacity planning process then had to take things like workload placement and resource pools into consideration.

Regardless of technology, you need to know about future business demands and how they will impact capacity requirements over time. Only then can you optimize your sourcing strategy and cost.

2/3

of businesses say increased workloads negatively impact reliability, up 6 percent from 2019.

TAKEAWAY:

Consider the past, present, and future. Paradigm shifts are rarely binary, nor do they happen overnight. You will most likely have services running on older technologies that still need to be managed. Your capacity planning process must cover all the technologies your organization uses.

HOW CAPACITY PLANNING HELPS YOU RIGHT-SIZE YOUR INVESTMENT

Simply put, capacity planning eliminates guesswork and equips you with the facts you need to make an informed decision when buying Power10 hardware. Some IT teams may try to accomplish this using simple tools like Excel spreadsheets, but these can be prone to error, especially if a lot of data is involved.

Likewise, it usually doesn't work to assume a linear increase in capacity requirements; there could be cyclical or seasonal changes or usage spikes due to promotions or short-term business changes that you need to capture.

Capacity planning is a decision-making tool that enables you to:

- Avoid overspending and underspending on new equipment
- Justify the cost of purchases to decision makers on the buying team
- Make accurate capacity predictions that include reasonable buffers
- Identify technology gaps
- Evaluate your full IT environment, spanning multiple operating systems across on-premises, cloud, and hybrid infrastructure

The good news is your existing servers contain a veritable treasure trove of information regarding actual usage over time. The key is accessing and interpreting this data to inform your future investments. This takes the right tools and guidance.

An effective capacity planning assessment examines your system's performance data—which could span days, months, or years—to display information graphically across CPU utilization, memory utilization, disk I/O utilization, and network utilization.

Benefits of Effective Capacity Planning

There are many ways to approach capacity planning, but only the most effective evaluation will help you:

- Analyze historical data for complex CPU, memory, and disk reports in HTML output for one partition, the whole frame, or the entire enterprise
- Plan and configure upgrades, server consolidations, LPAR configurations, and competitive migrations with powerful, what-if capacity planning analysis
- Model or combine workloads from any or all servers to any IBM Power server

THE RISKS OF FORGOING CAPACITY PLANNING

Without taking the time to accurately analyze your hardware needs based on real-world data, you're flying blind when it comes to making a major hardware investment. Ultimately, not having the right capacity can negatively impact your ability to run your business the way you need to. Here are common scenarios and the risks associated with each.

With the tremendous processing capabilities of Power10, having excess capacity is possible. If you're just guessing what you need and overestimate your usage, you are tying up valuable dollars in equipment when you likely need it for other uses.

Buying a more powerful server or more servers than you require could also lead to higher total cost of ownership (TCO) or hidden costs, such as an increase in the electricity needed to run the equipment. You may also have to purchase additional software licenses or staff to manage the excess capacity. Remember that TCO includes not only hardware, but also software and maintenance.

Not having enough capacity is often caused by a perceived lack of budget. However, if you can build out the business case and financials using capacity planning, you'll be better off in the long run. Otherwise, your infrastructure could become your Achilles' heel. If you fail to implement the right server capacity, you could experience service outages or interruptions that can affect your customers.

Another risk is the possibility of developing internal bottlenecks that impede efficient project completion or lead to higher costs than you originally anticipated.

Finally, you could negatively impact your organization's ability to carry out important initiatives such as launching a new product, expanding operations, or facilitating a merger or acquisition.

What's at Stake?

Excess capacity
Hidden costs
Service outages
Bottlenecks
Blocking business initiatives

TAKEAWAY:

In a best-case scenario, poor capacity planning results in excess and overspending. In a worst-case scenario, it leads to business disruption, which can cost $300,000 or more per hour. It pays to plan your capacity decisions carefully.

WHY GUESS WHEN YOU CAN KNOW FOR SURE?

Accurate capacity planning is a critical step for any business considering the purchase of new technology to support their operations. Not only does this exercise give you the opportunity to consider how your IT team will be involved in and support ongoing business changes, but it also gives you a clear picture of how your data center has been running to date.

No doubt it can be difficult to carve out time for your busy team to undertake a capacity planning project. But the risks of not understanding where you are today and where you need to be down the road are simply not worth taking for your business.

The first step is to develop a baseline understanding of your current system performance. Once you've collected historical data on the performance status of each LPAR, make it easy on yourself and bring that information into a capacity planning consultation with experts who can help you interpret the data and make smart planning decisions.

Before you make an investment in Power10 or other Power server technology, here are a few things to consider

- Do you have old hardware that is no longer supported?
- What operating system releases are supported on the new hardware?
- How can virtualization reduce cost and improve performance?
- Which storage options are best for your environment?
- Which models are best, scale-out or scale-up?
- Should you purchase for growth up front or purchase as needed?
- How does this affect high availability, disaster recovery, and backups?

Thinking about your answers to these questions will get you headed in the right direction. HelpSystems is a leading expert in this space and we're ready to support you in your capacity planning efforts.

Top 10 Reasons to Collect Performance Data 24/7

1. A performance issue arises.
2. Management asks for performance information.
3. Get before and after analysis for application and hardware changes.
4. Understand business cycles and trends.
5. Develop accurate capacity planning and server consolidation.
6. Share the data with IBM or your business partner.
7. Measure virtualization benefits and overhead.
8. Performance Navigator data collection software trial is free with no prerequisites.
9. Performance Navigator collection overhead is insignificant.
10. Performance Navigator provides peace of mind. The data is ALWAYS available.

Performance Navigator allows you to look at your data, drill down into it, graph it, create reports, model the future, analyze cause and effect, and take many other actions for problem determination and capacity planning across your IBM Power servers.

MEET PERFORMANCE NAVIGATOR

Performance Navigator is a graphical PC tool for performance analysis and capacity modeling for IBM i, AIX/VIOS, Linux, Solaris, and HP-UX workloads on IBM Power, Oracle, and HP servers. Performance Navigator securely feeds data from Collection Services, NMON, and/or SAR to the Windows client nightly and updates the history files on your system—all proven to have little or no overhead.

After gathering all this juicy historical data into one place, Performance Navigator provides thousands of graphs, custom reports, and special features to help with performance analysis, server consolidation, and upgrades. No need to replace your performance methodology! Performance Navigator can coexist as the sharpest tool in your belt.

As the industry standard for system sizing, IBM business partners and end users around the world rely on its trademark What If functionality to facilitate server consolidations and hardware upgrade projects.

Based on days, months, or years of historical performance and capacity data stored on your system, the What If feature allows you to model hypothetical scenarios and determine how capacity changes will impact server performance, so you can make capacity planning decisions with precision.

Even organizations who just completed an upgrade or are only considering a development machine can have performance issues. With Performance Navigator installed on your systems, you can drill down into end-of-day and end-of-month activity or long backups to analyze system performance and make improvements.

Or, the next time you innocently install a new software release or apply a PTF and performance takes a nose dive, you could have all the answers at your fingertips instead of wasting time searching for the problem. Performance Navigator makes it possible!

CASE STUDY: BUNZL DISTRIBUTION USA, INC.

Bunzl Distribution USA, Inc. supplies a range of products including outsourced food packaging, disposable supplies, and cleaning and safety products to food processors, supermarkets, non-food retailers, convenience stores, and other users.

After the company outgrew its IBM i servers, it decided to move to two new IBM Power servers and an IBM storage area network (SAN) solution. New servers and more power sounded great, but that upgrade—which also forced an operating system upgrade—brought many challenges, including performance issues.

Three things went wrong.

First, before the new hardware, Bunzl had been moving processors around depending on workloads. "We were robbing Peter to pay Paul," said Technical Support Manager Cindy Baur. "As we continued to grow, so did our memory, disk, processor, and storage requirements. So, it was time to rethink nearly everything." That rethink included a switch from internal to SAN storage, which led to problems two and three: system lags that shouldn't have existed—especially after the expected performance boosts from the new hardware—and QTFTP jobs that were consuming many more system resources than needed.

What did she do?

Baur brought Performance Navigator on board to monitor her systems and identify the bottlenecks. That's how she knew "many, many months ahead of time" that things were beginning to spiral out of control. Using vital data from Performance Navigator, she worked with IBM to resolve her performance problems. "Without a tool like Performance Navigator, I might not have known what the root causes were. Now, we have more than enough performance to accommodate both current and future growth."

AT-A-GLANCE

OVERVIEW

Company	**Bunzl Distribution USA, Inc.**
Industry	**Distribution**
HQ Offices	**St. Louis, MO**
Established	**1981**

CHALLENGES

- Struggling to keep up with growing demand for increased processing and storage
- System utilization had skyrocketed from 5% to 25%, causing system lags
- QTFTP job number jumped from between 400 and 500 a month to more than 700,000, consuming up to 8% of CPU for each job

BUSINESS RESULTS

- Upgraded servers and operating system
- Moved to a SAN-based storage environment
- Provided details, including specific jobs, to IBM for help troubleshooting
- Returned utilization rates back within normal range
- Resulting PTFs helped not only Bunzl, but others who were experiencing similar problems

NEXT STEPS

Start building your baseline historical performance data TODAY by downloading the Performance Navigator freeware at https://www.helpsystems.com/cta/performance-navigator-software-free-download. This free tool gives access to CPU and disk space utilization graphs, as well as a daily health check. From there, you can choose to unlock the full product by entering a trial or purchasing the software from HelpSystems or your business partner.

Why Performance Navigator?

Performance Navigator is updated with the latest Power10 specs for accurate server sizing and provides access to a number of reports for interpreting the data to determine your capacity needs. But system sizing barely scratches the surface of what Performance Navigator has to offer. Trusted by thousands of organizations and technology partners each year, Performance Navigator can help you:

- Size your next Power9 or Power10 hardware purchase
- Determine internal and external disk configurations
- Interpret IBM's Collection Services and/or NMON data
- Analyze difficult performance situations
- Evaluate VIOS, SAN, PowerHA, or other new technologies

DOWNLOAD NOW

Thanks for reading!

Don't have the time or expertise to interpret the data?

Contact HelpSystems and our capacity planning experts will help you navigate the complex process with a data-driven look at how to approach your technology spend. You'll come away with the cost justification information decision makers such as IT infrastructure managers, IT directors, and CTOs need to move forward with an investment for your business.

About HelpSystems

HelpSystems is a people-first software company focused on helping exceptional organizations Build a Better IT™. Our holistic suite of security and automation solutions create a simpler, smarter, and more powerful IT. With customers in over 100 countries and across all industries, organizations everywhere trust HelpSystems to provide peace of mind. Learn more at www.helpsystems.com.

rb-gd-0921-as