Data Science at Work

7 things to consider when selecting tech for data teams

When it comes to data modeling and analysis, a professional data science workstation is a world away from the standard PC. The differences go beyond just power and include software solutions, specific components, and a range of other elements that make data science more fluid, cost-effective, and secure.

Read on to see the edge that true data science workstations can give you versus a standard PC.

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PyTorch   **RAPIDS**   **scikit learn**

Save time with a preloaded data science software stack

Data scientists rely on version management and a specific range of software tools—making sure these tools are compatible can pose a considerable challenge, even for experienced data scientists. Those companies preloading data science workstations with a version-managed software stack are preventing a great big headache and enabling productivity from day one.

Click the arrows below to learn more

Data science with a standard PC

Hours of installing, configuring, and dealing with software version management impedes data scientists' work, leads to downtime, and can become a problem for IT.

Data science with a Z workstation

With essential software preinstalled and version controlled, data scientists can get to the fulfilling parts of their jobs from the start.

42%

of data scientists say that configuring their environment takes too much time.[1]

"All I had to do was turn on my workstation and get started right away."

Ruchi Bhatia, data scientist at OpenMind, graduate student at Carnegie Melon University, and a Z by HP Data Science Ambassador[2,3]

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Achieve unthrottled speed and performance in the most demanding workloads

Data science work can be massive. It's going beyond terabytes well into petabytes now, and while CPU and GPU power is not the only story, it makes a difference. A recent case study described how Z customers reported a 150 times boost to processing speeds after they transitioned a large project from their old workstation to an HP Z8 workstation. And they were working with 20 petabyte files, so the difference was tremendous.[4]

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Data science with a standard PC

The kinds of PCs deployed across companies work well for typical business users, but they disappoint during resource-intensive data science workloads. When standard PCs cannot deliver the performance necessary, data scientists must rely more heavily on the cloud.

41%

of data scientists say they must break down tasks due to limited compute.[1]

Data science with a Z workstation

With up to 56 cores of scalable Intel® Xeon® processors[5] and next-generation NVIDIA RTX™ Ampere-based professional GPUs,[5] the Z8 and other Z data science workstations are made to withstand heavy usage. Data scientists can run complete models without downsampling, which improves the discovery process with a continuous supply of analytical power.

"I have a Z8 workstation. It's a monster. I have terabytes of memory. [Comparing it to an ordinary PC] is like comparing a regular car to a jet fighter."

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Choose workstations that reduce your cloud bill

The field of data science may run on imagination, but cloud costs should not. Cloud expenses may lead businesses to consider maximizing data science workflow efficiency and optimizing cloud usage. Encourage the cloud enthusiasts at your company to keep costs predictable using a supplementary local hardware solution.

Click the arrows below to learn more

Data science with a standard PC

It's not fun to wake in a panic wondering if you remembered to power down your virtual machine on the cloud. Data scientists know how easy it is to rack up a huge bill due to a minor oversight.

54%

of data collection and management is done on the cloud compared with 44% on local computers.[1]

Data science with a Z workstation

Compared to the cloud, data science workstations provide a quick, cost-effective way to run time-consuming workloads. This financial predictability restores control over the IT environment and gives users more options so that they can pick the most time- and cost-saving route.

"Before Z, I usually preferred cloud solutions, and it made the whole thing very pricey. It becomes pricier and pricier every day, considering all these foreign exchange rates."

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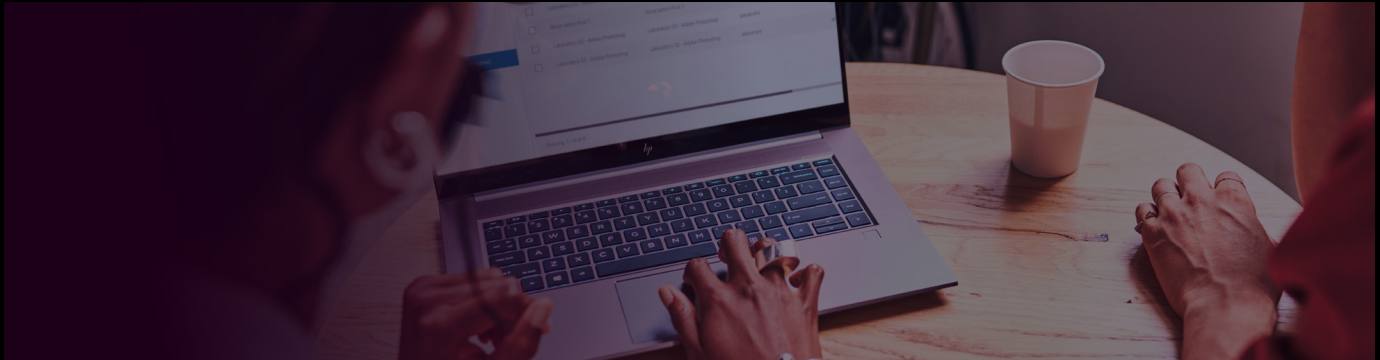
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Access troubleshooting and diagnostic support whenever you need it

Data teams are happy to call on IT when things go wrong, but sometimes they don't know what they don't know. Having the guidance of an expert is an asset to both departments: Data scientists get round-the-clock support from staff who intimately understand their work, and IT pros get a reprieve from responding to unfamiliar, complex technical problems.

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Data science with a standard PC

When faced with a technical issue, most data scientists turn to computer support groups or try to figure it out themselves. Because typical user groups aren't familiar with data scientists' needs, they often get stuck trying to fix something that would take an expert little time.

What slows down and gets in the way of everyday work?[1]

Data scientists say:

37% 35%

Hardware needs   **Software needs**

Data science with a Z workstation

Dedicated support from HP's experienced staff helps preserve IT's sanity and erase downtime from data scientists' workdays. With a crew of experts who understand the mission of data scientists, specialists can quickly and easily get the relevant information they need.
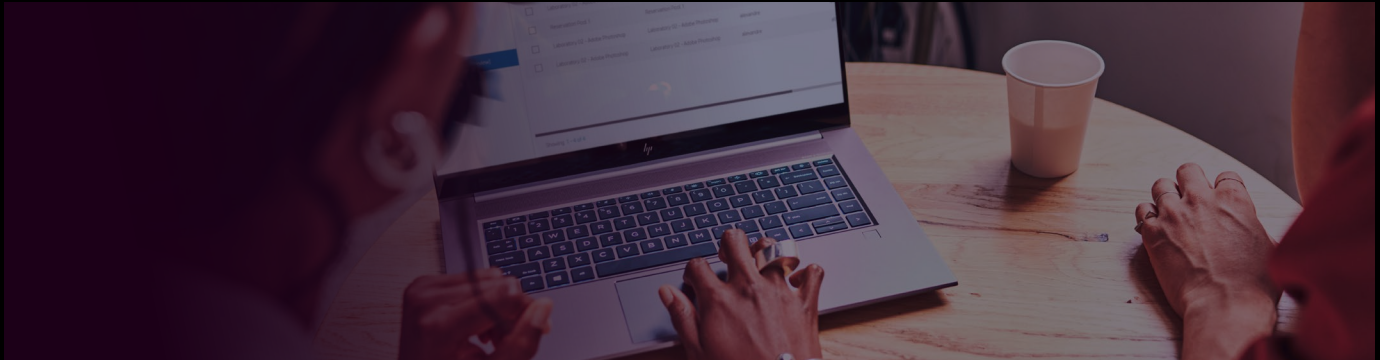
"If I have any issues with any of the Z by HP solutions that I'm using, I know exactly who to call. They're informed about the data science lifecycle and process. They can help me diagnose these things. That level of support is, in my mind, unparalleled."

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Taking data science capabilities anywhere

Mobility is critical in the new work world. That's especially so for data scientists, who work spontaneously, logging in from anywhere to run models and train datasets whenever inspiration strikes them. Their computers must enable fluid, productive collaboration with colleagues, without exposing any of the sensitive data they work with.

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Data science with a standard PC

Among the standard PCs powerful enough to handle data science, few are mobile enough for today's work-from-anywhere approach. And the alternative of connecting to the cloud for an out-of-office work solution presents serious cost and security issues.

Data science with a Z workstation

The remote access solution from HP and Teradici provides a security advantage over others by transmitting only the pixels. This keeps sensitive intellectual property off the web, freeing up users to work fluidly and collaborate as they please, enjoying consistent, highly secure access to their powerful workstation from any device or system—even a smartphone.

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Security that takes care of itself

Data scientists at your company likely run through terabytes, even petabytes, of data in a day, much of which contains sensitive, personally identifiable information or intellectual property. Looking after the security of dozens of open-source tools and libraries (which may not be approved by IT) is not a topic on which data scientists are focused or even especially knowledgeable. Instead, their computers should do the heavy lifting regarding security so the data scientist can get back to making discoveries.

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Data science with a standard PC

Data scientists—who aren't usually security experts—are often left to fend for the security of their open-source software, remote connections, and more. Tasking these data specialists with the responsibility for their own system security can increase the risk of a breach.

Data science with a Z workstation

Z workstations are designed to meet the most stringent security requirements. That's why organizations with stringent security standards—like NASA—use it. Z keeps everything native and prevents data exposure, while the HP and Teradici remote access solution shields intellectual property.

73%

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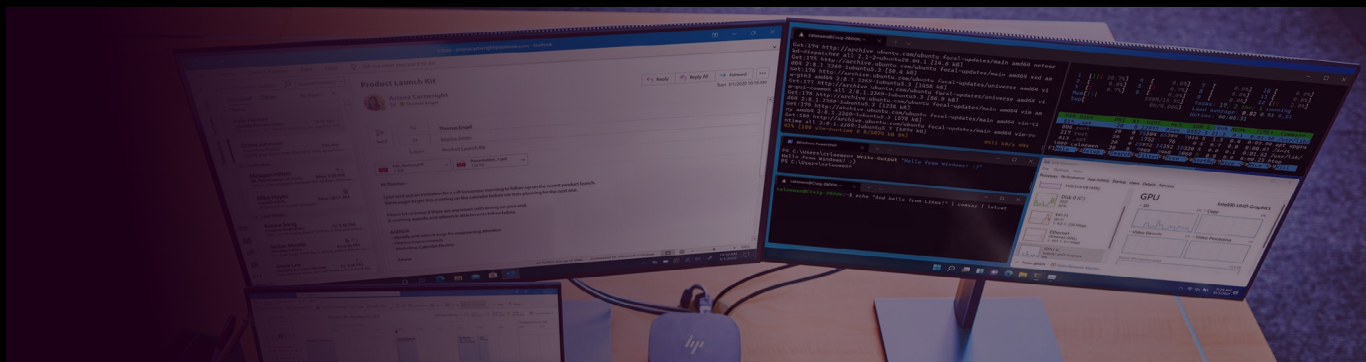
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Navigate from Windows to Linux in seconds

Windows and Linux[®5] are both useful operating systems but with different strengths. Linux provides compatibility with utilities and applications specific to data science, while Windows provides security, manageability, and business tools like email and collaboration applications. With Windows Subsystem for Linux 2 (WSL 2),[8] data scientists gain the best of both worlds and can seamlessly switch between operating systems on the same workstation.

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Without a workstation equipped with WSL 2, many data scientists resort to having two entirely different devices, or dual-booting, to have the benefits of both Windows and Linux.

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Z by HP data science workstations can be configured with WSL 2 preinstalled, to access both Windows and Ubuntu. It enables data teams to work however they choose in either OS environment without a dual boot or a need for a second device.
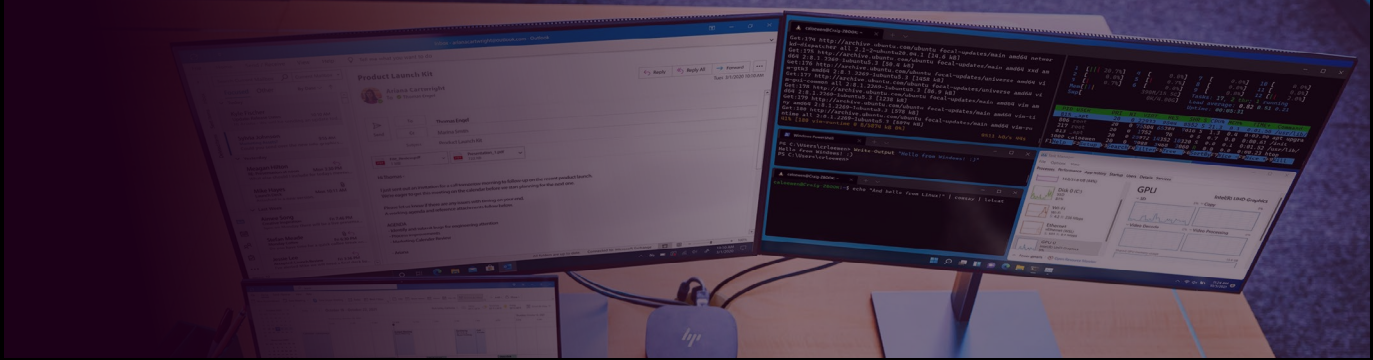
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"The fact that you have WSL 2 already available on a Windows workstation, and you don't have to think about whether or not it has been downloaded properly, because it's already been done by masters in the branch, makes everything very seamless."

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Gear up for the next era of data science ▶

Read about how Z workstations accelerate data science workflows ▶

[1] HP proprietary research (Understanding Data Scientists, November 2021).

[2] Ruchi Bhatia, in discussion with the authors, 2021. Ruchi Bhatia is part of the Z by HP Data Science Ambassador program and is provided with products.

[3] Z Data Science Ambassadors are provided with products for personal use.

[4] Mike Leone and Josh Clark, ESG Case Study: "Monitoring the Surface of the Sun with NASA's Solar Dynamics Observatory, Z by HP, and NVIDIA," January 2021.

[5] All third-party trademarks are the property of their respective owners.

[6] Firat Gonen, in discussion with the authors, 2021. Firat Gonen is part of the Z by HP Data Science Ambassador program and is provided with products.

[7] Ken Jee, in discussion with the authors, 2021. Ken Jee is part of the Z by HP Data Science Ambassador program and is provided with products.

[8] WSL 2 requires Windows 10 or higher, Intel® Core™ i5 processor or higher, and is available on select Z workstations. It requires the user to run Windows 10 version 21H2 or higher (Build 19044 and higher) or Windows 11.

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Ruchi Bhatia, Firat Gonen, Ken Jee, and Andrada Olteanu are Z by HP Ambassadors who were provided with a variety of Z by HP Workstations and peripherals. The observations they've provided are their own.

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