



# 4-Step Action Plan

## to equip data scientists for the hybrid world

### Have you assessed the tools your data scientists need to thrive in and out of the office?

No matter where data teams are working from, they require high-performance computing power. But the quick fixes that IT relied on in the early days of hybrid work—like VDI and VPNs—just aren't robust enough to meet these users' compute-intensive needs.

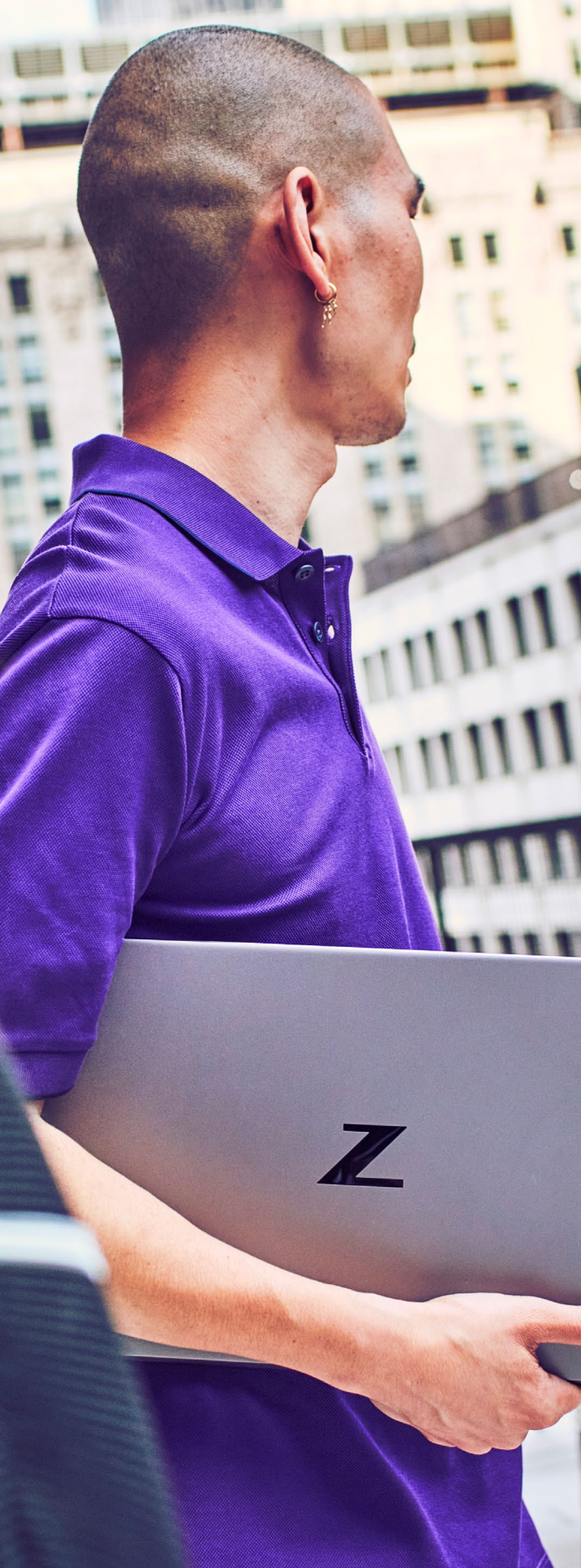
Data scientists require an experience that's consistent with their powerful office workstation, as lag times and unplanned interruptions may throw their work off course, inhibiting productivity. The security vulnerabilities inherent in less secure, "band-aid" solutions could prove problematic too—increasing both the risk of a breach and resulting unplanned downtime.

Given the sheer amount and value of data they work on, data scientists certainly top the list of ideal targets for hackers. When petabytes of sensitive data are being processed daily over at-home or public connections, securing your company's intellectual property and personally identifiable information is imperative. Ultimately, IT must deliver mature work-from-home solutions that enable secure, remote access to the horsepower an in-office data science computer provides.

IT decision makers can adapt the steps outlined here to their own needs, as they choose tools to enable their remote data scientists who depend on workstation-class resources for their job functions.



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## Step 1:

### Assess your current environment

The first step is to take stock of how well your existing environment serves the needs of compute-intensive data scientists. This assessment will help you understand where the strengths and weaknesses lie in your current approach.

- **Start with end-user devices:**  
Can standard laptops provide all the computer performance your data teams need?
- **Identify data-access requirements:**  
Do those users need regular, fast access to data files stored on site?
- **Factor in complexity:**  
Does setting up a virtual environment seem too costly, and will you be able to deliver the performance needed?  
Will virtual environments provide enough security for the data you're working with?

The shift to having hybrid data teams for the long haul brings challenges and opportunities to rethink the current environment compared to one that is built and optimized specifically with flexible workstation access in mind. HP ZCentral delivers an excellent user experience, cost efficiencies over other approaches, and secure remote access to workstation resources.

## Step 2:

### Plan for performance needs

After assessing your current environment, start considering what an optimal hybrid work environment for your data teams would look like. Delivering workstation performance over relatively slow broadband networks is fundamentally more difficult than over a LAN. New approaches to providing access to applications and data may be needed to support remote data teams.

- **Survey data workloads:**  
Which are your most performance-intensive workloads?
- **Determine infrastructure suitability:**  
Do virtual or cloud instances offer the performance those workloads need?
- **Investigate infrastructure options:**  
How do the cost and performance of various potential solutions compare?

A centralized computing infrastructure with ZCentral and racked Z workstations can deliver up to 16-33% higher performance at up to 59-72% of the cost of server-based virtualization.<sup>1</sup> Even organizations that are dedicated to server-based or cloud-based workstation virtualization find that layering HP and Teradici remote access software on top of their existing solutions can dramatically improve performance and end-user experience.

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## Solution stack for data teams

HP delivers a purpose-built solution stack for remote workstation access that rivals the experience of working locally, with significant performance, cost, and security advantages over other approaches.

- **Z Desktop Workstations** can be centralized and rack-mounted to keep the performance close to the data and provide dedicated remote performance for compute-intensive workflows
- **HP and Teradici Remote Access Software** provides high-performance, high-fidelity remote workstation access
- **HP and Teradici Connection Management Software** manages access between groups of data scientists and pools of workstations available.

## Step 3: Survey system requirements for data scientists

Having identified the current state of your environment and begun understanding the overall organization's immediate and future needs, consider the requirements of individual data scientists and data teams. You may find significant variation, from their frequency of workstation access to the types of devices they will use to access those resources.

- **Decide what end-user devices are needed:**  
Will some work be done from the end user device or will it only be a portal to a remote workstation?
- **Identify workstation-usage patterns:**  
Do specific data scientists need constant or more sporadic access?
- **Identify the tasks that require dedicated performance:**  
What workflows need the full workstation performance to ensure data scientists get the job done in a timely fashion without errors?

## HP ZCentral: Technical and Business Advantage

**16-33%**  
higher performance

**59-72%**  
of the cost

ZCentral solutions compared to server-hosted virtualized workstations.



ZCentral offers the unique ability to move desktop workstations from data scientists' desks to the compute room, install ZCentral software on Z devices<sup>2</sup> and enable them to access those resources both in the office and remotely. HP ZBook laptops can be used at home when only certain tasks require the additional performance of a racked workstation. Individual workstations can have one dedicated user or be available to a broader group of users to be checked out when needed. Entire facilities have made the switch within 24-48 hours.

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## Step 4: Evaluate security ramifications

Having remote teams work on data-intensive projects from outside the controlled confines of the business raises the need to protect that data. Especially when devices become involved that aren't company-issued, data owners are rightly concerned about unauthorized access and compromise.

- **Assess all the locations of your data:**  
Are you comfortable having critical data outside IT's control?
- **Gauge priorities of performance versus security:**  
Could your performance needs compromise data protection?
- **Integrate connectivity and security:**  
How good is interoperation with measures like VPNs and single-sign-on?

Data never leaves the data centers of organizations that adopt ZCentral for a centralized computing model and infrastructure. All processing and visual rendering is done on the racked workstations within a secured environment.

The only information that HP and Teradici remote access software transmits over the broadband network is the pixel information to draw the display on the target user device, and the underlying data is never exposed, eliminating that attack surface.

**With HP and Teradici remote access software, you keep your sensitive data and IP in a controlled compute room, sending only pixels over the wire to remote data scientists.**



## Conclusion

Strategies for hybrid work must satisfy cost, performance and security requirements. For data teams, this often means that traditional virtualization and remote desktop tools are not the best approach.

ZCentral offers innovative solutions with world-class performance, security and reliability at considerable savings for hybrid data scientists.

**Z equips IT professionals with the powerful tools their data teams need to accelerate their workflow.**

**Check out more at:**  
[hp.com/IT-professionals](http://hp.com/IT-professionals)



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1. Based on hp.com store and dell.com store pricing dated September 2019, and performance based on core count of a racked-mounted HP Z4 G4, 6 core workstation configuration with 3 year warranty support, compared with two configurations of Dell PowerEdge R740 Rack Server configured with VMware Horizon Advanced 10 pack CCU license and 3 year support, Quadro Virtual Data Center Workstation hardware and licenses, and 3 year support. One configuration of the server uses 36 cores to be shared among 9 concurrent users, the other uses 56 cores to be shared among the same 9 users to ensure that each of the 9 users avail of 6 cores simultaneously, to more closely approximate the maximum CPU core availability of 9 racked Z4 workstations. Note that the processors on the Dell servers have a lower base frequency in both cases.

2. HP ZCentral Remote Boost Sender does not come preinstalled on Z Workstations but can be downloaded and run on all Z Workstations (desktops and laptops) without license purchase through December 31, 2022. License purchase is required to use ZCentral Remote Boost Sender on non-Z hardware. Starting December 15, 2021, a CA+ subscription (ZCentral Remote Boost and Teradici CAS) can be purchased at <https://teradici.com/products/future-of-remote-compute>. ZCentral Remote Boost Sender requires Windows 10 or 11, RHEL/CentOS (7 or 8), or UBUNTU 18.04 or 20.04 LTS operating systems. macOS (10.14 or newer) operating system and ThinPro 7.2 are only supported on the receiver side. Requires network access. The software is available for download at [hp.com/ZCentralRemoteBoost](http://hp.com/ZCentralRemoteBoost).

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