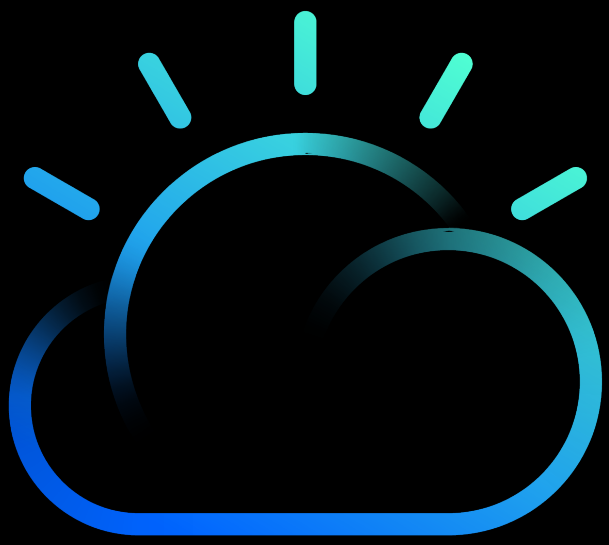
IBM **Cloud**

A High-Performing Cloud Begins with a Strong Foundation

A solution guide for IBM Cloud bare metal servers



Bare metal and the bottom line

Today's workloads are dynamic and power-hungry. Cloud requirements for mission-critical workloads often change overnight – causing IT priorities to shift, deadlines to tighten, and budgets to shrink.

Seconds matter, especially when it comes to the bottom line. And bottom lines take brutal hits when companies haven't properly established a powerful and flexible infrastructure.

Those in the trenches are starving for more control over provisioning. IT is a delicate game of strategy to deliver the best services and tools to end-users and customers. If the proper infrastructure is there, companies can accelerate their business through IT – be it transferring data faster, delivering new applications and updates, or gaining quick insights from machine learning. If the proper infrastructure isn't there, IT teams are forced to cut corners that eventually lead to costly fallouts.

The proper foundation for a high-performing cloud begins with an infrastructure that not only improves your bottom line, but also gives your IT team the essentials to make the magic happen.

IBM delivers the best foundation for an enterprise-strong infrastructure – IBM Cloud bare metal servers. We announced our first bare metal server in 2005, and since then, have become the industry's most trusted choice for bare metal solutions with our selection of flexible, proven configurations and latest GPU technologies. The value of bare metal is in its power, security, and configurability. And that value is in IBM Cloud.

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"Dedicated" means *dedicated*

IBM Cloud delivers bare metal and virtual servers – both fully integrated and both powerful. Only bare metal – and specifically bare metal from IBM Cloud – is "dedicated" to you. Whether you call them bare metal servers or dedicated servers, they're all yours.

Private cloud hardware

For infrastructure to be private, no one else (including the infrastructure provider) can have access to a given hardware node. With IBM Cloud bare metal servers, you never have to share compute capacity with another customer. You own the entire stack – configuration, components, and all – so you don't have to worry about "noisy neighbors" sharing resources and slowing down your performance or compromising security. Only your workloads are taking resources from the server.

IBM Cloud offers dedicated bare metal servers

Customize your IBM Cloud bare metal server installation based on your unique needs and then troubleshoot applications without worrying about the effects on neighboring virtual machines.

No noisy neighbors.

Are you *sure* your dedicated virtual servers are only assigned to you?

Total customization and control

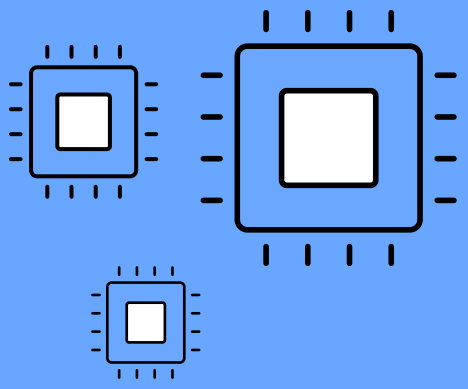
Match on-premises deployments with total control, down to the bare metal server.

IBM Cloud bare metal servers are built to handle processor-intensive and high I/O workloads. Our configuration choices are designed to give you full control over RAM, SSD, core, processor, and billing options (hourly or monthly).

Choose from single socket, 4-core architectures to 8 socket, 144-core architectures with up to 40 drives per server so you can simultaneously run multiple, parallel servers to handle a core business application without a single CPU-drain concern.

"A key differentiator is the availability of bare metal servers with fine-grained capabilities for defining what you need. With IBM Cloud, you can engineer a system fitted exactly to the task at hand."

— Kurt Florus, Chief Technical Officer, Bluebee



up to **144** cores

On demand

Every workload is different. Some require custom configurations and others can easily run on fixed configuration bare metal servers.

Regardless of your build, we can have it up in a short time — check that – in minutes. It's called "provision on demand" and depending on the operating system requirement, the approximate time is as little as 30 minutes. For custom provisioned bare metal servers, the time is typically 2 - 4 hours. And if you're only upgrading features, you can be up in just a few clicks. Provisioning on demand with IBM Cloud bare metal servers is available across 40 IBM Cloud data centers worldwide.

Help save costs with monthly and hourly servers

Monthly and hourly options for IBM Cloud bare metal servers provide all the raw performance of physical servers – with flexible commitments to billing.

Hourly configurations are ideal for temporary processing power needs when you need just enough extra resources for a few hours per day, week, or month, like software certifications that require hardware and software with definitive time stamps.

Monthly

Bare metal servers are built to spec, with 500 GB/month outbound bandwidth included.

Hourly

Bare metal servers are customizable and have a charge per gigabyte for public outbound bandwidth.

✓ No long term contracts
✓ Monthly and hourly options

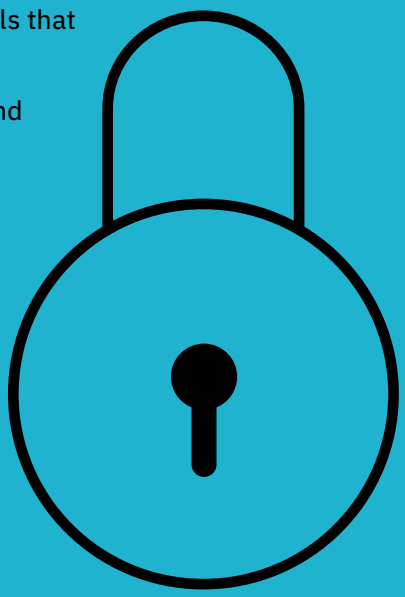
Secure to the core

Data breach disasters hit the newsstands weekly. The demand for encryption has skyrocketed to protect cloud-based data and applications. Enterprise organizations are constantly improving measures for data security in their clouds, especially heavily regulated industries, like banking, financial sectors, and healthcare.

To stay secure, you must enable high security solutions to protect your cloud infrastructure. IBM Cloud provides unique, integrated protection for sensitive data and continuous security for cloud native applications. With our bare metal servers, you can add a variety of features to help ensure your data is protected against malware attacks that can lead to downtime and data loss. It's crucial to note that these features are not solely for those who must adhere to HIPAA, HITECH, PCI DSS, and internal governance controls. They're equally essential to the "everyday" small, medium, or large enterprise businesses that need to protect their networks and data.

Key IBM Cloud security features:

- Experience **non-shared bare metal servers**. IBM Cloud bare metal server resources are dedicated to a single user – you. Issues that traditionally reside in a multitenant environment, like neighbors competing for server resources or hackers competing to get in, are non-issues.
- Enable **Intel TXT** hardware monitoring and security controls that assure your workload is running on trusted hardware.
- Add **HyTrust Security Software**, which ensures security and compliance automation.
- Encrypt with **Hardware Security Module (HSM)**, a physical device with key management and key storage. You own your encryption keys and control your data with scalable security.



Raw horsepower

Build up your bare metal server with add-ons that provide next-level compute performance to help accelerate your heavy workloads.

GPUs + AI

Add GPUs to handle your most complex workloads, including machine learning, deep learning, and AI. Configure bare metal servers with your choice of the latest NVIDIA Tesla GPUs, designed for high-performance acceleration of scientific computation, data analytics, and large-scale calculations, or NVIDIA GRID, engineered for professional-grade virtualized graphics.

SAP

Run SAP workloads when and where you need them on bare metal servers, without refactoring or retooling existing SAP applications. Select IBM Cloud bare metal servers are certified to run SAP HANA and SAP NetWeaver applications. Now you can run and manage your own SAP workloads in the cloud with the power, control, and flexibility you're used to in your on-premise data center.

Intel and IBM Cloud bare metal servers

Together, IBM Cloud and Intel deliver the latest CPU technology straight to you.

- **Intel Xeon Scalable Processors** provide impressive "per core" performance, faster memory, and advanced reliability to help your intensive applications run up to 63% faster than previous generation processors – ideal performance for faster insights from big data workloads.
- **Intel® Optane™ SSD DC P4800X** is the first product to combine the attributes of memory and storage for faster caching and performance to increase scale per server and reduce transaction costs for latency sensitive workloads. The DC P4800X offers amazing response times for virtually any workload — making it ideal for critical applications with demanding latency requirements.

"The launch of Intel Xeon Scalable processors and Optane SSDs on IBM Cloud is another milestone in IBM's commitment to providing access to the latest infrastructure technology so clients can continue to generate greater value from their data."

—John Considine, GM, IBM Cloud Infrastructure