

IBM Cloud

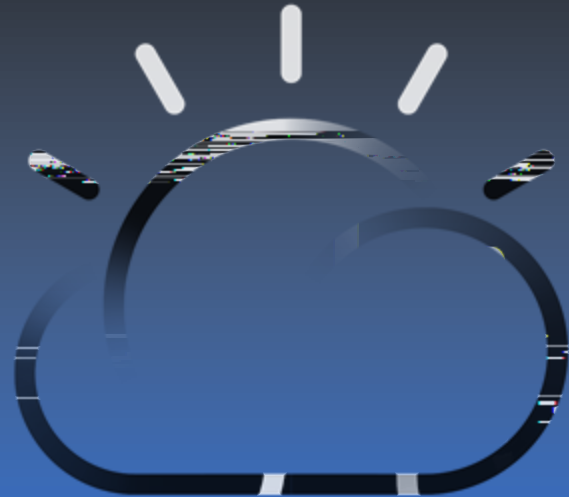
High Performance Computing (HPC)

Designed for your data.

AI ready.

Secure to the core.

IBM Cloud is the cloud for business.



Presented by:

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Why IBM for High Performance Computing

Performance

With dedicated physical servers, virtual servers and storage, fast networks, and the latest available technology, IBM delivers state of the art capabilities for high performance computing applications.

Reliability

IBM provides a global network of cloud data centers; all connected by a high-speed fiber network. You choose where to deploy - from nearly 60 locations in 19 countries

Flexibility

Whether your preference is single tenant or multi-tenant; on premises, in the cloud, or hybrid interoperability, IBM has the customizable infrastructure and scalability to meet your high performance computing needs

Security

IBM provides a high assurance, enterprise-strong cloud security portfolio, along with the expertise to help you adopt IBM Cloud with confidence

Value

Scalable, secure, and adaptable, the IBM Cloud ensures you can leverage your current investments while also meeting the dynamic needs of your business

Expertise

IBM brings deep High Performance Computing and Industry expertise, along with an understanding of the unique business models, critical applications, and security requirements across major industries

IBM provides a cloud infrastructure that meets you **where you are** and takes you **where you want to go**

Customized



Best-in-class, powerful compute, storage, & network infrastructure for any workload and any budget size — from born-on-cloud

to Fortune 500 enterprises

Open



First to build on a foundation of open source (Kubernetes, OpenWhisk, Cloud Foundry), paving the way for others

Trusted



Expertise in over 20 industries, standardized approach for auditable consistency, and global and regulated industry compliance

Visionary



First to see and build for future-proofing with Watson — the oldest AI at 7-years-old — blockchain, and a single architecture platform



“The ability to access IBM’s global network of cloud data centers, which are all connected by a high-speed fiber network, is extremely attractive to us.”

-Rob Platzer, chief technology officer, *Bitly*

End to end security for cloud native and enterprise workloads

Secure to the core: [Expertise](#)

- Deep security and regulatory compliance expertise
- Managed services for security operations and intelligence



A high performing cloud starts with a strong compute foundation

Choose a server type



Compute options from high-abstraction to high-control

Customize to suit your workloads



Pre-configuration to fully customizable server options

Provision on demand



Deploy an IaaS bare metal or virtual server in minutes and customize bare metal in 2–4 hours

Bare Metal Servers



Raw IaaS horsepower for processor-intensive and disk I/O-intensive workloads

Virtual Servers



Fast deployment when resources are needed on the fly

GPU Computing



Handle complex, compute-intensive workloads, including analytics, graphics, and AI

GPU Computing

Real challenges and real solutions

AI



Add GPUs to enable up to 65% more machine learning than traditional servers*

Big Data



Take on massive data analytics computations

GFX Applications



Get blazing speeds for graphic-intensive workloads like 3D CADs and data rendering for gaming

NVIDIA Tesla M60

Used for enterprise virtualization as well as boosting professional graphics performance.

**Bare Metal
Monthly & Hourly**

NVIDIA Tesla P100

Applications: AI, deep learning

Get up to 50x performance over the Tesla K80

Enable up to 65 percent more machine learning*

**Bare Metal and Virtual
Monthly and Hourly**

NVIDIA Tesla V100

IBM Cloud's most powerful and advanced GPU, purpose-built for progressive Deep Learning workloads — with the performance of 100 CPUs in a single GPU.

Optimized for TensorFlow

**Bare Metal and Virtual
Monthly and Hourly**

High Performance Computing as a Service from Rescale on IBM Cloud

Accelerate problem solving using a turnkey high-performance computing (HPC) platform as a service with built-in automation running on the IBM Cloud

HPCaaS from Rescale enables you to rapidly deploy and execute your HPC workloads, with your chosen execution environment. This service greatly simplifies HPC execution on IBM Cloud, even for complex workloads.

Rescale at a Glance



CUSTOMERS **125+ ENTERPRISES, 300%+ ANNUAL GROWTH**

LOCATIONS **SAN FRANCISCO (+ AMSTERDAM, LONDON, TOKYO, SEOUL)**

SOLUTION **ENTERPRISE BIG COMPUTE PLATFORM**

FUNDED



Sam Altman



Jeff Bezos



Richard Branson



Paul Graham



Peter Thiel



ENDORSED



INDUSTRIES



Aerospace



Automotive



Industrials



Life Sciences



Universities



Oil & Gas



Semiconductor



Financial Services

The Rescale HPC Platform experience



FULLY INTEGRATED
STACK OF
ENTERPRISE
DEPLOYMENT TOOLS



Rescale ScaleX Platform

- Enterprise big compute
- Innovation acceleration
- User-first platform
- Security and admin controls

Coming Soon
IBM Power

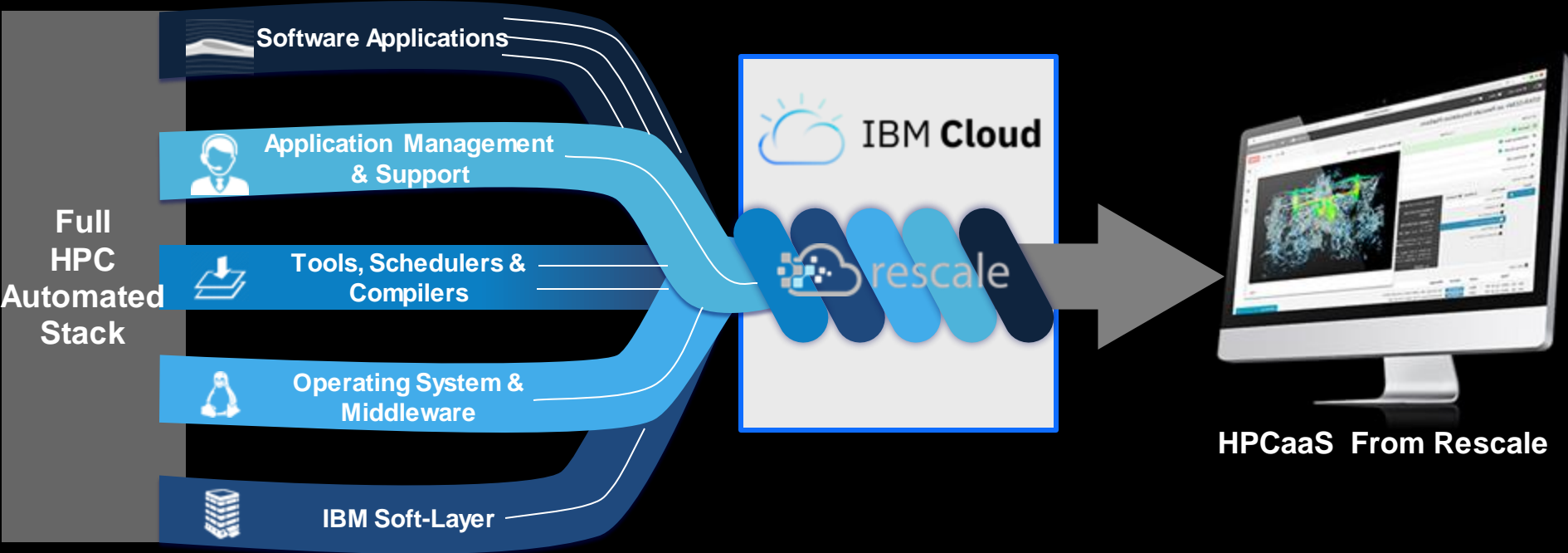

IBM Cloud

 **NVIDIA.**

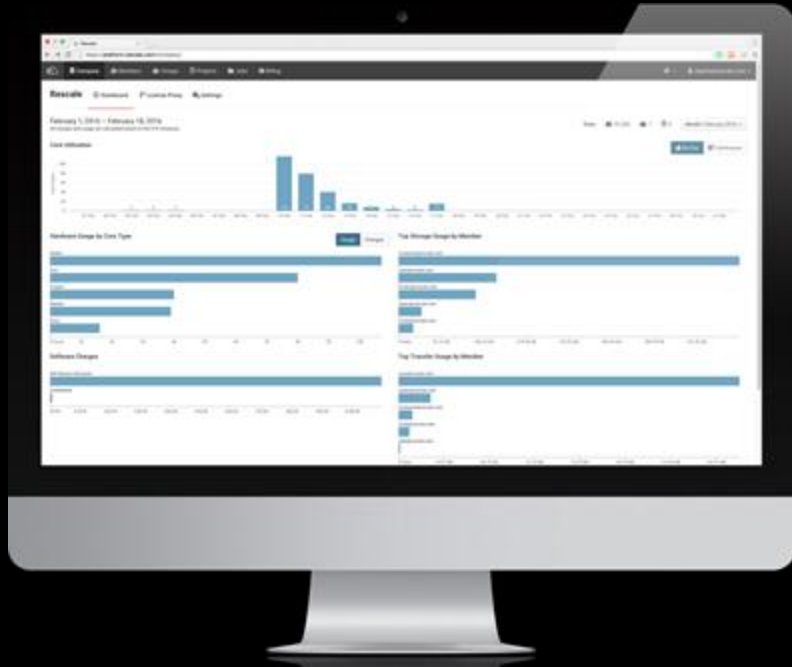
HPCaaS from Rescale on IBM Cloud



Rescale aggregates the full HPC technology stack to deliver turnkey performance on IBM CLOUD



HPCaaS From Rescale



Key Enterprise Features

Role-based Access

- Manage users
- Manage roles
- Manage groups
- Manage projects

Platform

- HW access, regions, and pricing
- SW access, licenses, and pricing
- Platform features access
- Data retention and sharing settings

Security

- Restricted access by IP address range
- Password complexity rules
- Multi-factor authentication (MFA)
- User audit logs & notification rules

Cost Management

- Budget by level
- Reports by application type
- Payment methods and history
- License usage optimizer

Connect

- On-premise compute
- PDM/SLM integration
- VPN
- Single sign-on (SSO)

Demo: HPCaaS from Rescale on IBM Cloud



Rescale | Job | Hardware

https://platform.rescale.com:8081/jobs/new-job/setup/hardware/

IBM HPCaaS from Rescale

Transfers Help

Submit

Input → Software → Post Processing → Output

Hardware Settings

Filters

Specify Hardware Settings

Create new cluster | Save as persistent cluster

Core Types

Primary Core Types

Type	Memory	Interconnect	Storage	Price
Feldspar Intel Xeon E5-2650 v2 (Ivy Bridge) @ 2.6 GHz	32.0 GB	1 Gb/s	25.0 GB	\$ 0.140
Coral NVIDIA P100 enabled, Intel Xeon CPU E5-2690 v4 (Broadwell) @ 2.6 GHz	7.0 GB	1 Gb/s	75.0 GB	Instant \$ 0.520 On Demand \$ 0.520
Talc Intel Xeon Gold 6140 (Skylake) @ 2.3 GHz	4.0 GB	1 Gb/s	28.0 GB	\$ 0.130

Specialty Core Types

Type	Memory	Interconnect	Storage	Price
Lithium NVIDIA K80 GPU-enabled, Intel Xeon E3-2620 v4 (Broadwell) @ 2.1 GHz	8.0 GB	1 Gb/s	250.0 GB	\$ 0.370 - \$ 0.540
Indium Intel Xeon Gold 6140 (Skylake) @ 2.3 GHz	2.4 GB	10 Gb/s	75.0 GB	
Opal Intel Xeon Gold 6140 (Skylake) @ 2.6 GHz	10.6 GB	10 Gb/s	53.0 GB	\$ 0.200
Turquoise Intel Xeon Silver 4110 (Skylake) @ 2.1 GHz	6.0 GB	10 Gb/s	60.0 GB	\$ 0.200

Number of Cores: 1024

Setup (3/3)

- Input Files
- Software Settings
- Hardware Settings
- Post Processing (Optional)
- Review

Hardware Summary

Type	Memory / server	Memory
Coral	120.0 GB	7.7 TB

GPUs / server	Storage / server	Storage
2	1.2 TB	76.8 TB

Servers	Cores / server	Total Cores
64	16	1024

Hourly Price Summary

Coral Core (x1024)	\$ 532.48 / hour
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Status

Results

Charts

Need Help?
Save and share this job with Rescale Support, and we can help you set up your job.

Chat with us

Appendix



End to end security for cloud native and enterprise workloads



Enable Security-as-a-Service

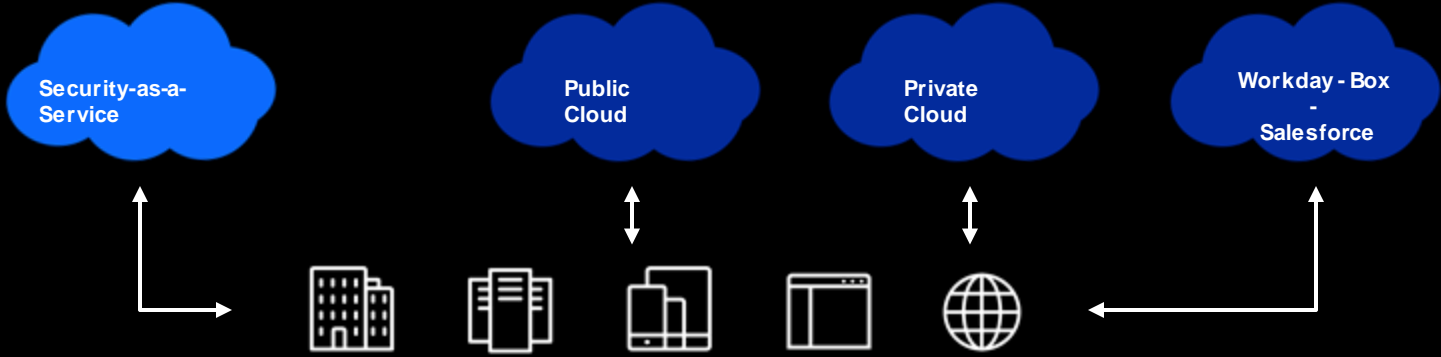
- Provide immediate access to cloud-delivered security

Deliver cloud services securely

- Manage access to cloud workloads
- Secure infrastructure & apps in the cloud
- Protect data at rest and in transit
- Gain security visibility across hybrid deployments

Consume SaaS services securely

- Manage access to SaaS applications
- Protect data managed by SaaS
- Gain visibility around secure access




For decades, IBM has been a leader in security and privacy, with the most trusted global and industry certifications to back it up.

IaaS certifications:

- FISMA
- FedRAMP
- FFIEC
- SOC reports
- ISO 27001
- ISO 27017
- ISO 27018
- Cloud Security Alliance
- PCI Compliance
- HIPAA
- HITRUST Assessment
- GSMA (DAL09, PAR01)
- CJIS Standards
- EU Model Clauses
- Privacy Shield

Bare Metal Servers

	
Tenancy	Single
Billing	Hourly & Monthly
Configuration options	All hardware resources, like RAM, drives, networking
Computing power	From single socket 4-core architectures to 8 socket 144-core architectures
Local storage range	Up to 40 drives per server SSD: 800GB to 3.8TB
RAM	Up to 12TB
Public network outbound bandwidth	500GB FREE with monthly billing Competitive pricing in all locations
Public network inbound bandwidth	Included
Private network all bandwidth	Included
Management network all bandwidth	Included
Chat and phone support	24x7
Available operating systems	<ul style="list-style-type: none"> • CentOS • CloudLinux • Debian GNU/Linux • FreeBSD • Ubuntu Linux • Microsoft Windows Server • Citrix XenServer • Red Hat Enterprise Linux • VMware vSphere • Vyatta • Virtuozzo

Virtual Server Family Sizes



Step 1: Choose Deployment Option	Step 2	Step 3	Step 4
Public	Select family instance type: 1: Balanced 2: Compute 3: Balanced Local* 4: Memory	Select monthly or hourly	Configure cores, RAM, and other add-ons
Dedicated Instance	Select monthly or hourly	Select location	Configure cores, RAM, and other add-ons
Dedicated Host	Select monthly or hourly	Select host	Configure cores, RAM, and other add-ons

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