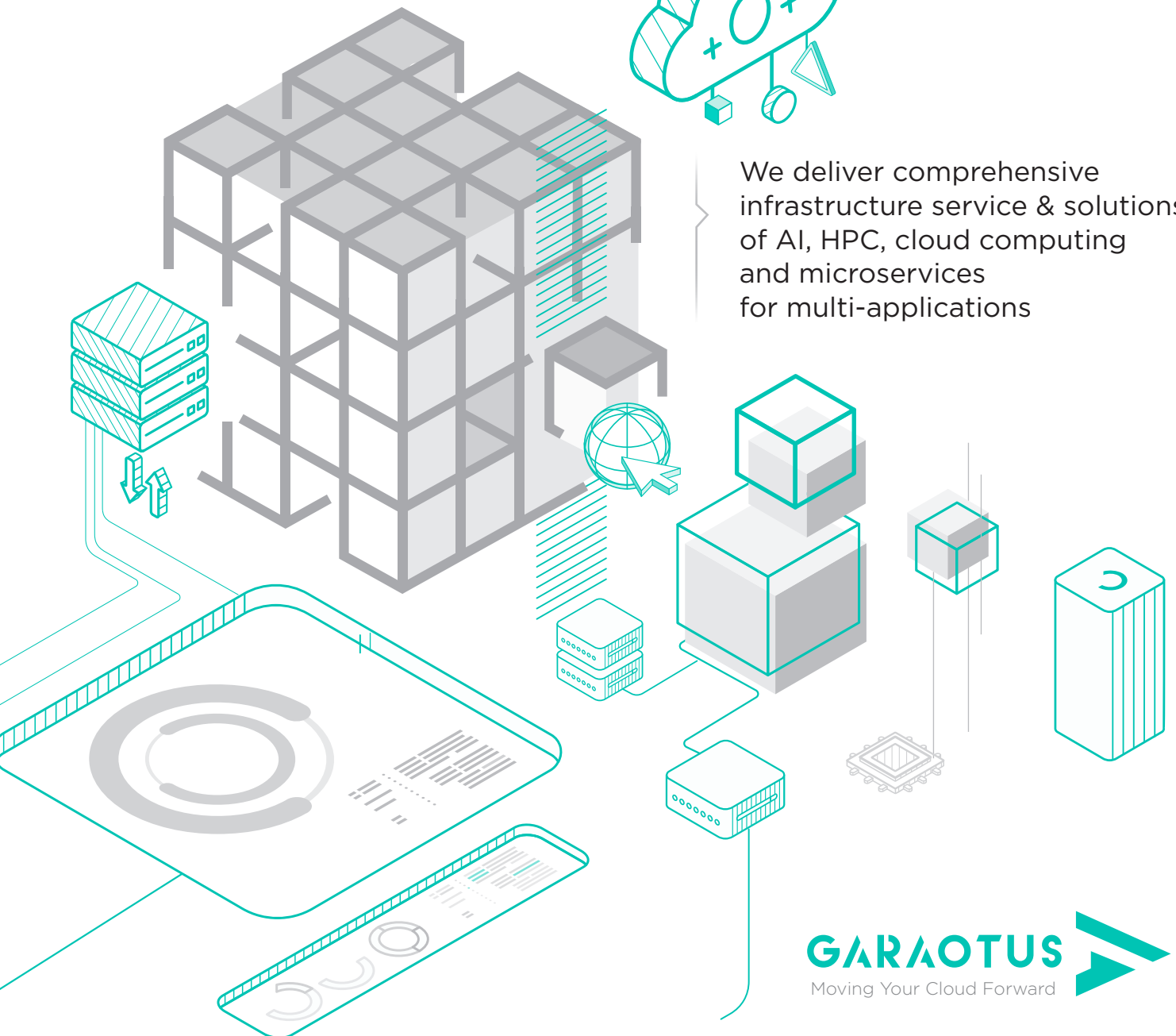


GARAOTUS

MOVING YOUR CLOUD BY REDUCING COPLEXITY



We deliver comprehensive infrastructure service & solutions of AI, HPC, cloud computing and microservices for multi-applications














GARAOTUS AI HPC CLOUD PLATFORM PROVIDES THE RESOURCE USAGE INFORMATION FOR FURTHER COMPUTING NODE EXPANSION REFERENCE

Reducing the complexity to adopt AI, HPC, Cloud Computing, and Microservices by multi-tenant architecture design.

AI/HPC

> GARAOTUS Cloud Platform

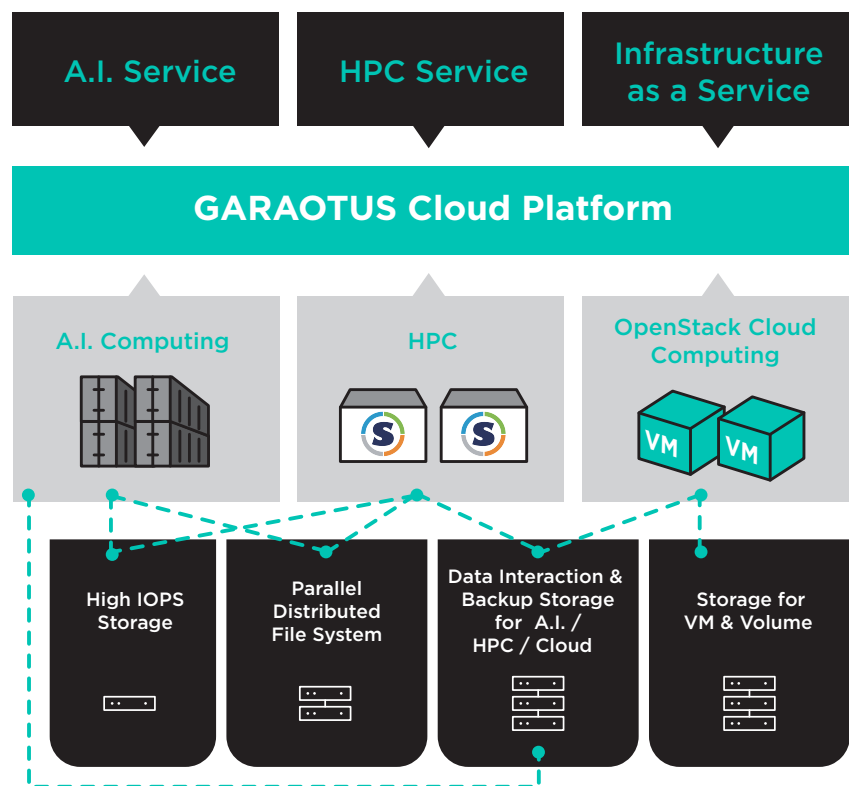
The business challenges are tougher nowadays. The business decision was relying on the experience in the past business practice; however, we collect more and more data from wearable devices, IoT devices, sensors, and even social media. Data-drive became a common decision-making practice today. The accuracy of data-driven decision-making can be improved time by time with the growing dataset.

Application	 Engineering & Science	 Biomedicine	 Disaster Prevention	 New Applications
Cloud Service	IaaS Infrastructure as a Service	GaaS Genomic as a Service	AaaS Atmosphere as a Service	
Core Technologies	 HPC	 Middleware	 Big Data	 Information Security
Core Facility	 High-performance Computing, Big data Analytics , AI machine		 Redundant Storage	 Data

GARAOTUS AI HPC & Cloud Solution is designed for the organizations to enable innovation process to enhance the business or services strength.

To fulfill the requirements from the innovation tasks, the infrastructure design has to be modernized for all types of applications, such as engineering & science, biomedicine, disaster prevention, and more new applications. The advantages of X as a service likes Infrastructure as a Service, Genomic as a Service and extra builds up the flexibility to meet different challenges from the applications.

➤ GARAOTUS AI HPC cloud Platform Enable the Innovation to the Organizations



GARAOTUS Cloud Platform is heterogeneous by architecture, supporting Cloud Computing, HPC and container technology for Artificial Intelligence technology. This design provides maximum control for workloads management in different computing resource with a single interface for a consistent user experience.

Heterogeneous architecture is available on GARAOTUS AI HPC Cloud Platform for **better capital expenditure.**

➤ GARAOTUS Cloud Platform Features

1 Online Ordering

A BPM (Business Process Management) ready system with workflow approval process for enterprises. Besides, online ordering is able to order HPC Computing Cluster, AI Computing Cluster, VM, Physical Server, and Container Resources.

2 Account Management

GARAOTUS supports LDAP, AD, OpenID and SSO (Single Sign-on) to manage the user accounts.

3 User self service

A self-service portal to access the resource without complicated process.

4 Metering & billing management

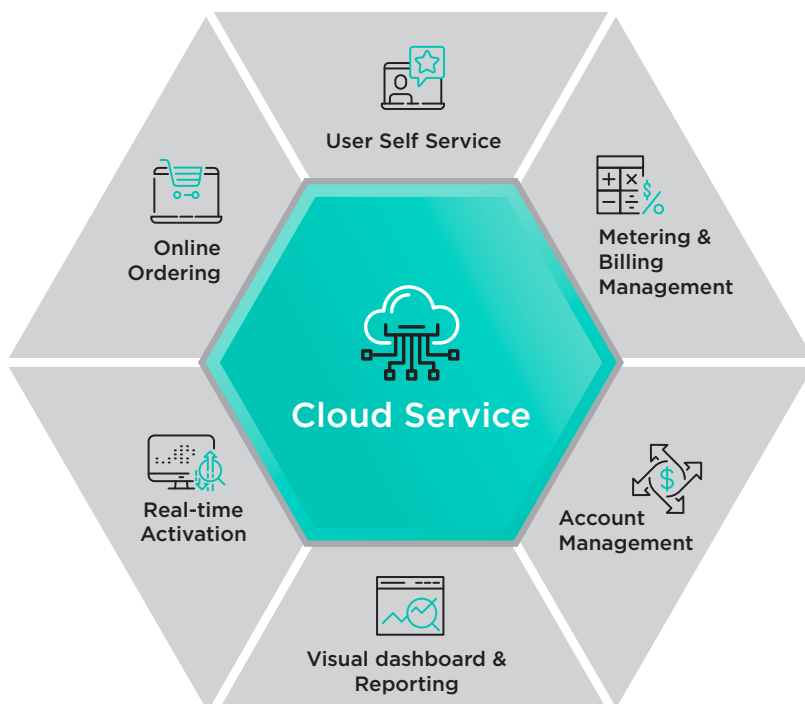
Metering & Billing management enables the users to utilize the resource efficiently also helps the administrators to manage the resource in a simple way.

5 Visual dashboard & reporting

A customizable dashboard for information visualization.

6 Real-time activation

Real-time resource activation online without waiting time.



THE MOST
COMPLETED FEATURES

> Reshape Infrastructure for Modern Technologies

Organization Management system can integrate with AD, LDAP and Open ID to provide a central account system for enterprise. It also has a SSO(single sign on) module that can provide enterprise to integrate with many their application easily.

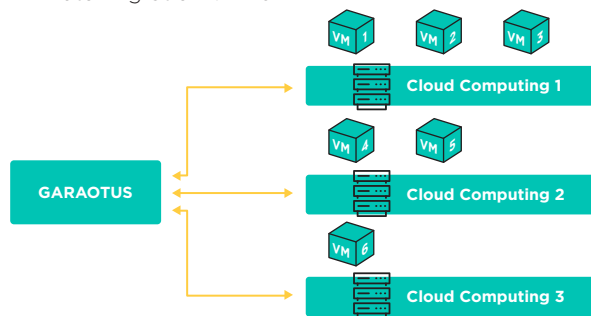
With AGARAOTUS Cloud Platform Form, the organizations can :

- Easy-on & Simple -Go.
- Workload design with customize / standard proces.

Auto Migration Module

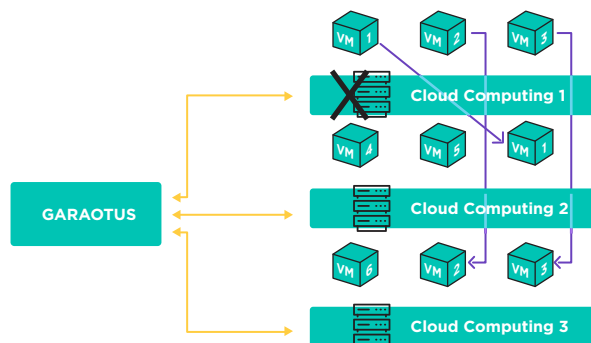
Auto Migration Operation

- 1 Detected compute server1 fall.
- 2 Calculate all hypervisor's resource and quotation.
- 3 Determine VM1-3 migration target.
- 4 Auto migration VM1-3.



Detect Operation

- 1 Check Hypervisor Network
- 2 Check OpenStack Service Operation.



- Less manual faults & shorten the R&D schedule.

> Conclusion

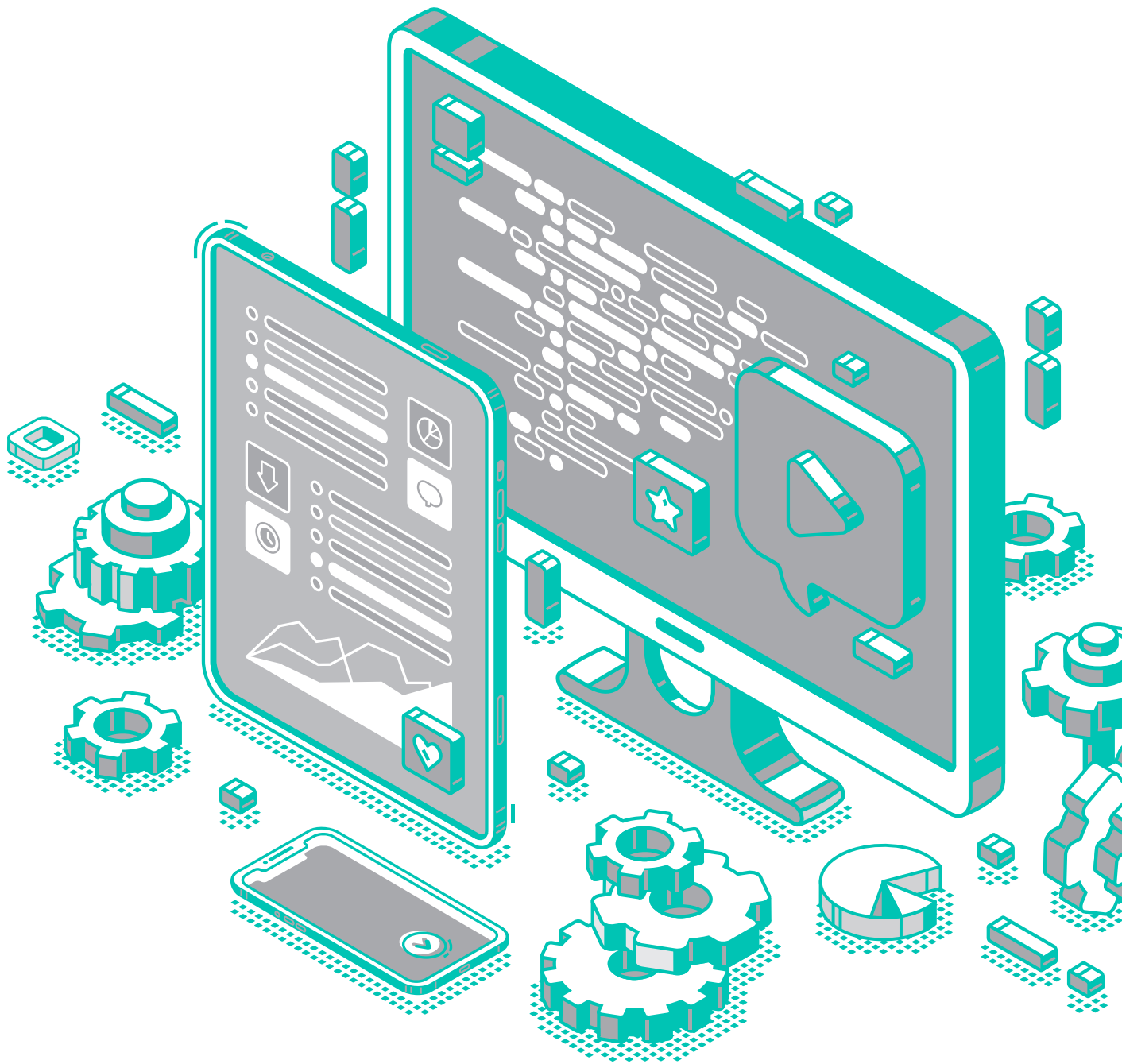
The flexibility and immediacy of GARAOTUS Cloud Platform provided by Infrastructure as a Service, HPC as a Service, and A.I. Service are transformative to business, but only if executed in a way that makes it easy and effective. We witnessed the visionary organizations evolving the change of their infrastructure with the leading process, and it resulted in these visionary organizations start to enjoy the benefits from the change in terms of efficiency and productivity.

GARAOTUS Cloud Platform offers a proven technology and synergy enables your entire organization with innovated technology choices, and allows the teams focus the business values to the customers.



For more information
please contact us directly at
www.GARAOTUS.com





GARAOTUS

**HPC Service Module –
A HPC Management Platform**

> HPC Supports the Real-Time Results in the New Era

HPC has been widely utilized for the applications for modeling and simulation on or physical servers in the datacenter of an organization. Since a series of applications from machine learning and data analytics, the importance of HPC is present clearly in terms of its highly computing power.

Because of the increasing demand of HPC from research institutes, academies, medical centers, government agencies and high-tech manufacturers ... etc., to enhance the user experience and manageability, GARAOTUS designed a HPC Service Module to resolve the challenges from HPC users and administrators.

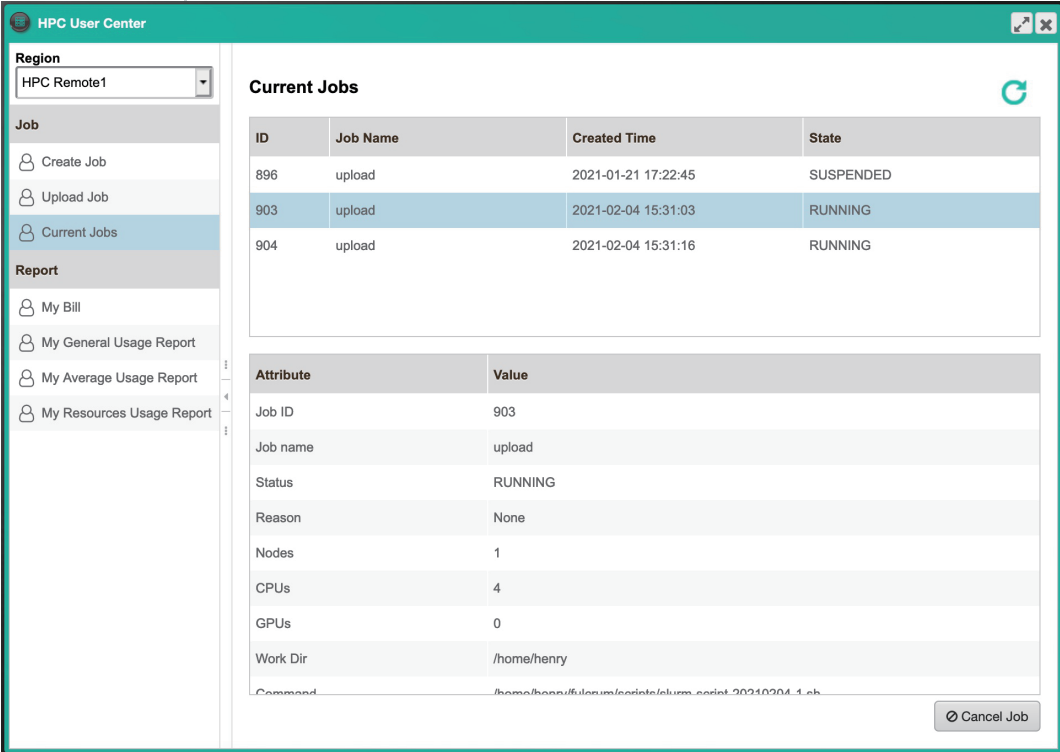
The HPC challenges at a glance are:

- Simpler computing workload manager for new users in academy or enterprises
- Higher priority or important works throttled by limited permission
- Urgent access to the HPC for time-intense jobs

GARAOTUS HPC Service Module features by multi-tenant with self-service portal. This user portal integrates with the Job Scheduler from Slurm to manage the computing workloads. To setup the workload computing resource either by GUI (Graphic User Interface) for new users in HPC or CLI (Command Line Interface) for the experienced HPC users.

> The Intuitive Design of GARAOTUS HPC Service Module

Due to GARAOTUS HPC Service Module divides the users with multi-tenant architecture, also with the feature of Metering & Billing, the administrators manage the different types of resource by roles for the occasions of urgent access for time-intense jobs or higher priority access.



The screenshot displays the HPC User Center interface. On the left, there is a navigation menu with sections for 'Region' (HPC Remote1), 'Job' (Create Job, Upload Job, Current Jobs), and 'Report' (My Bill, My General Usage Report, My Average Usage Report, My Resources Usage Report). The main area is titled 'Current Jobs' and contains a table with the following data:

ID	Job Name	Created Time	State
896	upload	2021-01-21 17:22:45	SUSPENDED
903	upload	2021-02-04 15:31:03	RUNNING
904	upload	2021-02-04 15:31:16	RUNNING

Below the table is a detailed view for Job ID 903, showing the following attributes and values:

Attribute	Value
Job ID	903
Job name	upload
Status	RUNNING
Reason	None
Nodes	1
CPUs	4
GPUs	0
Work Dir	/home/henry
Command	/home/henry/files/ncprime/ncprime.csh:20210204_1.sh

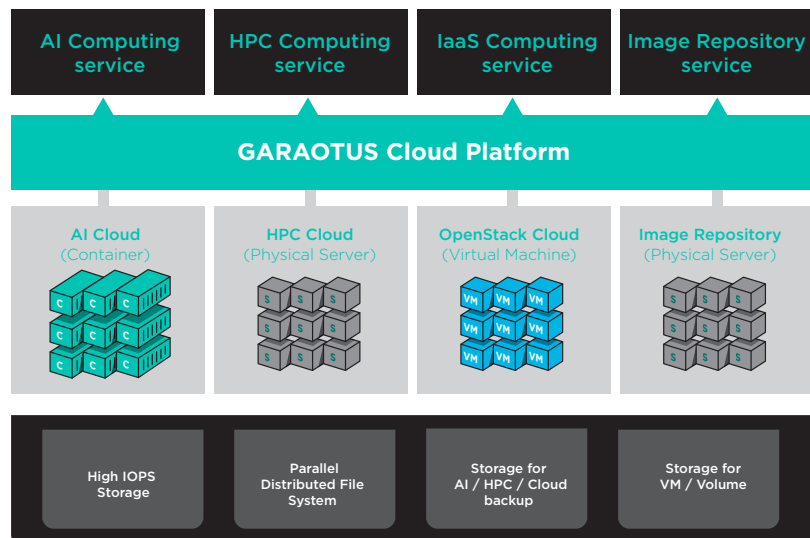
A 'Cancel Job' button is located at the bottom right of the job details section.

HPC Service Module Integrated
HPC Slurm Scheduler to Provide Universal
GUI Interface to Manage Job for HPC Users.

> HPC-as-a-Service Triggers the Revolution of Infrastructure Service

The growing complexity driven by new technologies, the strategic decision of increasing the size of the HPC cluster by adding more servers or having a professional service to design an architecture to migrate existing servers to a new HPC cluster for building up a HPC as a Service is a dilemma for the IT administrators.

GARAOTUS also provides the solution of HPC as a Service design for the challenges of growing demand of complexity of infrastructure. This design partitions the infrastructure to A.I. Computing as a Service, HPC Computing as a Service, IaaS Computing as a Service and Image Repository Service.



GARAOTUS helps the innovation tasks of organization by the cutting-edge design of datacenter infrastructure. The emerging 5G will bring the explosive data growth, also more and more edge devices are connected to the datacenter. A visionary entrepreneur in the organizations have to plan ahead with HPC computing resource for further innovation challenges. GARAOTUS HPC Service Module or GARAOTUS Cloud Platform would be the one of the great partners in this class.

The HPC Service Module is a great product for the datacenters with HPC computing service. However, GARAOTUS also designed HPC turnkey solution for different requirement. The detail of the HPC turnkey solutions is below.

➤ Moving forward HPC as a Service by Turnkey Solutions

Basic	Advanced	Premium	Enterprise
Up to 15 Nodes	Up to 25 Nodes	Up to 50 Nodes	Over 50 Nodes

Softwares

Cent Os	✓	✓	✓	✓
GCC	✓	✓	✓	✓
Open MPI	✓	✓	✓	✓
Quay	✓	✓	✓	✓
Slurm		✓	✓	✓
Singularity		✓	✓	✓
Anisble				✓
OpenStack				✓
Ceph				✓

HPC Service Module

Slurm integration		✓	✓	✓
GUI for Billing & Metering		✓	✓	✓
GUI for Monitoring			✓	✓
GUI for Singularity Management			✓	✓
Professional Service			✓	✓

14 Man-Day	20 Man-Day	30 Man-Day	60 Man-Day
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HPC as a Service (Only for Enterprise Package)

- Multi-Tenant Management
- Online ordering for HPC resource
- Job Scheduler/Workload Manager
- GUI for Metering, Billing and Report
- GUI for Monitoring
- GUI for Singularity Management

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