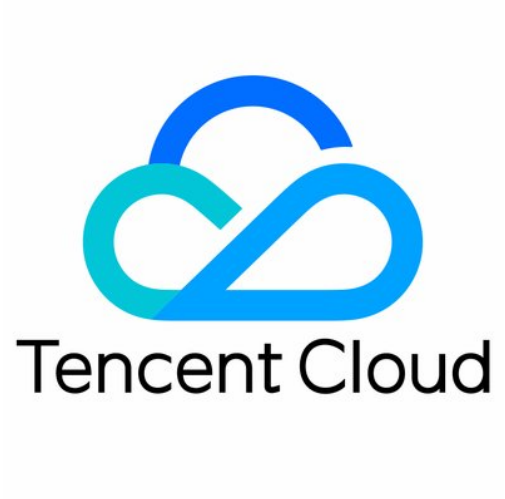
Tencent HealthCare Omics Platform

Product Introduction

Product Documentation



Contents

Product Introduction

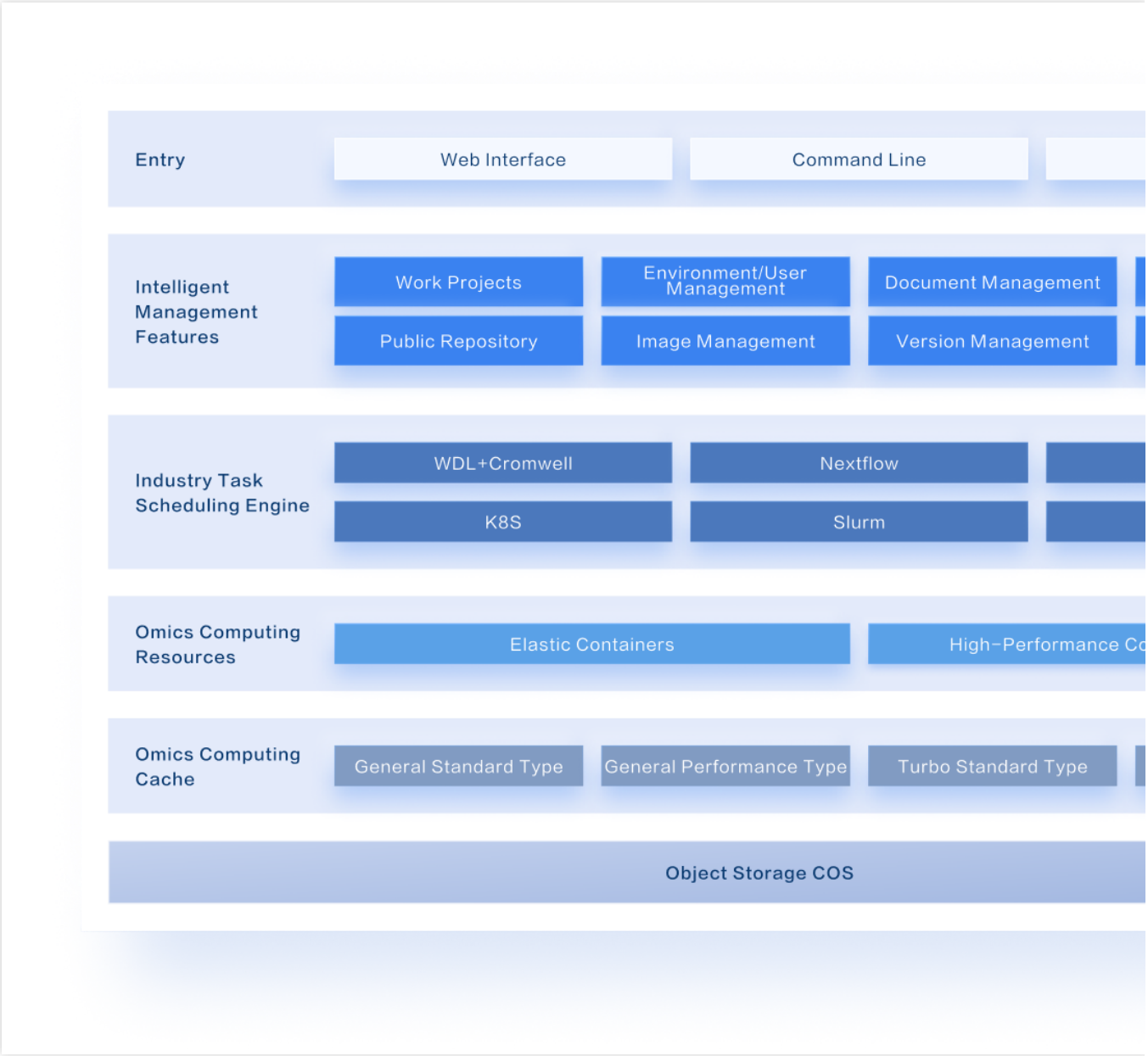
Overview

Last updated：2024-10-22 15:26:45

The Tencent HealthCare Omics Platform provides users in the life science industry with a one-click cloud migration overall solution with industry features. It has elastic cloud computing, task scheduling, and management capabilities, helping big data analysis users quickly, conveniently, and efficiently use Tencent Cloud resources to perform omics-related data analysis.

The platform supports multiple workflow languages, such as Workflow Description Language (WDL), Nextflow, and Snakemake. It manages and schedules tasks carefully through workflow management engines such as Cromwell, Nextflow, Snakemake, and self-developed task scheduling engines, effectively and extensively connecting different data analysis use cases.

The product architecture of the Tencent HealthCare Omics Platform is shown in the figure below:



Strengths

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Lower the entry barrier for cloud-based analysis. Provide one-click cloud migration solutions to Life Sciences Industry.

The Tencent HealthCare Omics Platform is a general Tencent Cloud PaaS product designed to serve the life science industry. It integrates multiple Tencent Cloud IaaS products and saves you the trouble of deploying, associating, and managing multiple underlying cloud resources by yourself. It is ready for use and can be accessed through one click.

Make data computing easier and more effective with the intelligent engine for scheduling tasks.

The platform integrates multiple workflow engines and task scheduling systems with industry specific features.It can automatically parse workflows and intelligently schedule tasks. It supports common bioinformatics scenes and refined task management.

Customize the workflow and be suitable for different analysis cases.

It supports building workflow by using modular and nested WDL, meets the needs of various sophisticated application. It provides large computing power support for analysis use cases involving tumors, diseases, drug targets, etc., and improves the reusability, flexibility, and portability of the workflow.

Second-level scaling of computational resources enhances resource utilization and achieves cost optimization.

Based on the underlying computing capabilities of Tencent Cloud elastic containers and TencentCloud High Performance Computing, scaling-out can be achieved in seconds during business peak periods. Billing will stop immediately after the running ends. Fine-grained control of computing resources and dynamic display of usage effectively improve resource utilization.

Use Cases

Last updated：2024-10-22 15:26:45

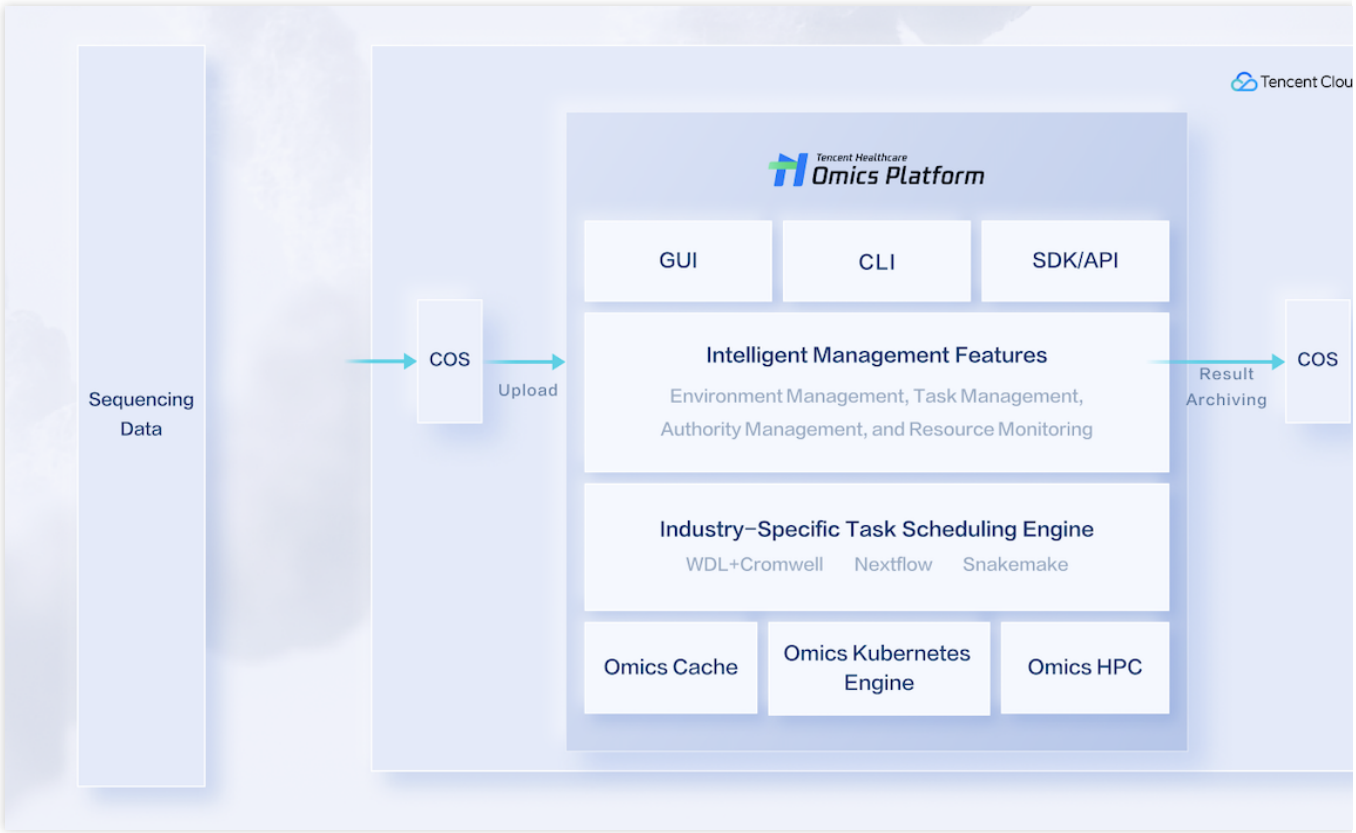
The General Analysis Cloud Platform for Omics Data

It helps the life science industry complete large-scale standard analysis and customized analysis more easily and efficiently using Tencent Cloud resources. It is applicable to various use cases such as tumors, drugs, population, and disease research.

The General Analysis Cloud Platform for Omics Data.

It supports Cromwell/Nextflow/Snakemake and automatically parses task dependencies.

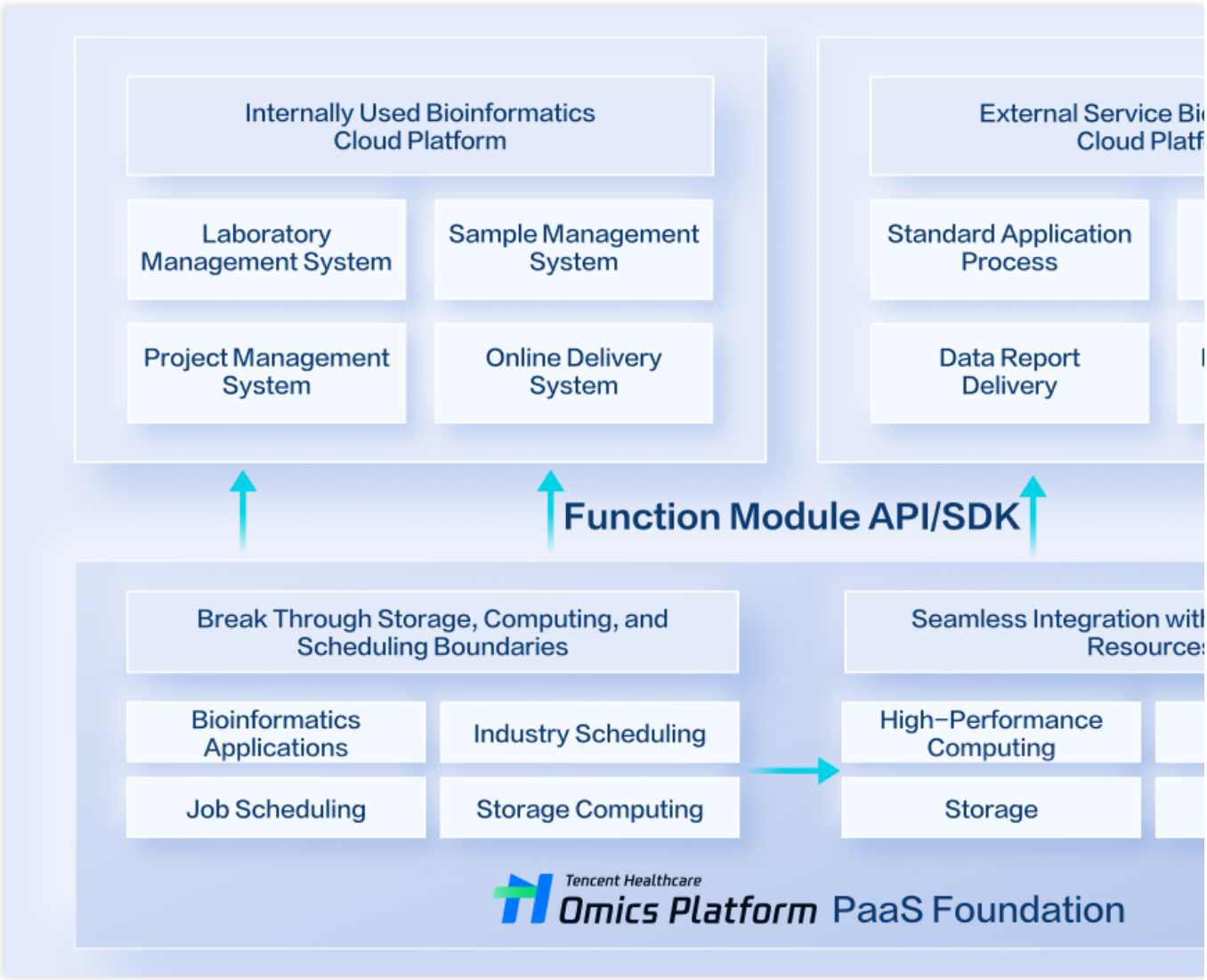
It has visualization and command line product forms and can easily process massive data.



The Enterprise-Level Internal And External Analysis Cloud Platform

Developers can freely combine the different functional modules of the platform and quickly integrate them into the internal and external business systems of the enterprise to achieve full integration of business processes.

It supports requirements from enterprises for elastic computing power in the cloud in the form of a base.
It provides functional module API/SDK APIs, greatly reducing development complexity and workload.
It builds ecological collaboration with a rich workflow framework, the structure of system tools, and dynamic resource management.



Use Limits

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Supported Regions

A Region refers to the geographical area of a physical data center. Different regions are completely isolated from each other to maximize stability and fault tolerance. For lower access latency and higher download speed, it is recommended to choose the region closest to your customers.

Regions supported by the Tencent HealthCare Omics Platform:

Region	Region Abbreviation
Hong Kong (China)	ap-hongkong

Resources Quotas

Omics container cluster and pod limitations:

Resources	Limit (pcs)	Description
Maximum Quantities of Clusters in the Same Region	5	Clusters in the creating and running status are included.
Maximum Pod Size in the Same Cluster	100	All namespaces, all loads, and pods in any status are included.

Omics cache limitations and descriptions:

Type	Standard	High-Performance	Standard Turbo	High-Performance Turbo
Storage Capacity	160TiB	32TiB	100PiB	100PiB
Start Capacity	No Requirements	No Requirements	40TiB	20TiB
Bandwidth Cap	300MiB/s	1GiB/s	100GiB/s	100GiB/s
Upper	Min[15,000*used	Min[20,000*deployed	Min[15,000*deployed	Min[30,000*deployed

Limit of Files Number	capacity(GiB), 1 billion]	capacity (GiB), 1.5 billion]	capacity (GiB), 1 billion]	capacity (GiB), 1.5 billion]

Running limits:

Items of Restrictions	Limit	Notes
Maximum Error Suspension Time	72 hours	When the time limit is exceeded, the job status changes to calculation failure, and the running failed.