A Brief Introduction to Alibaba Cloud and Its Servers

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Abstract

In this article I discuss the function and application of the cloud computing simply. And then draw forth cloud services suppliers. In particular, I make the focus on Alibaba Cloud, show its development history. In details, I make a brief contrast between different products which Alibaba Cloud has provided, such as cloud servers and disks. Finally, drawing a conclusion and making a summary.

Keywords: cloud services, Alibaba Cloud, ESC

1. Introduction

Today, it is difficult to imagine that something has changed our society and life more than cloud computing technology. We have been using cloud computing unknowingly. Without the cloud services, millions of businesses around the world would not be as competitive and flexible. Became aware of as a blurry concept at first, cloud computing has gradually evolved to an integral part of our everyday lives, with its bound being unthinkable.

Cloud computing is a process that entails accessing of services, including storage, applications and servers through the Internet. It has essentially evolved from various computing technologies like grid computing, utility computing, parallel computing, and virtualization.

2. Cloud services supplier

Cloud computing makes use of cloud services suppliers' remote services for a fee. This enables a company to store and access data or programs virtually in a cloud, rather than on local hard drives or servers. One does not need his own PC or laptop to check some stored data but any computer with an internet connection since the data is stored with the service provider on a remote cloud. In other words, the cloud is a place where you can store data and access apps and services easily and quickly. A device with an Internet connection is the only thing you need to use your cloud-based programs anywhere and

at any time.

The main benefits of using cloud computing by companies are that they need not buy any infrastructure, thus lowering their maintenance costs. They can do away with the services used when their business demands have been met. It also gives firms comfort that they have huge resources if they suddenly acquire a major project. On the other hand, transferring their data to cloud makes businesses share their data security responsibility with the provider of cloud services. This means that the consumer of cloud services reposes lot of trust on the provider of those services.

Globally, there are so many excellent companies provide cloud services, such Google, Microsoft, Amazon, IBM and HP. Those companies have developed before domestic companies a plenty of years. Their technology maybe slightly better than ours. In domestic, cloud computing is developing very fast. There are a number of companies provide cloud services. In this article I choose one of the most popular cloud services in China. It is Alibaba Cloud. More details will be shown as follows.

3. Alibaba Cloud

3.1 History and achievement

Founded in 2009, Alibaba Cloud provides cloud computing services for large and small businesses, individual developers, government agencies and the public sector in over 200 countries and regions. In August 2017, Alibaba's financial report data showed that Alibaba Cloud served more than one million cloud computing users.

Alibaba Cloud is one of a number of business units that form part of Alibaba Group which headquartered in Hangzhou, China. As a part of Alibaba Group, Alibaba Cloud provides a suite of global cloud computing services to power both international customers' online businesses and Alibaba Group's own e-commerce ecosystem.

Alibaba Cloud's timeline of significant events are shown in table-1 as following.

Table 1 Alibaba Cloud's timeline

Time	**Significant Events**
2009	Established in September as Aliyun.
2010	The first data center is opened. Supported the Double Eleven Taobao shopping festival firstly.
2011	Started providing public services.
2012	The first Chinese cloud service provider to pass the ISO2700:2005 (Information Security Management System) certification.
2013	Merged with HiChina for business.

	Awarded the world's first CSA-STAR Gold Medal Certification.
2014	Shenzhen and Hong Kong data centers start operations.
2015	Alibaba Group invested a further 1 billion USD to Alibaba Cloud. Announced Singapore as Alibaba Cloud's overseas headquarters. Alibaba Cloud Computing Conference was held in Hangzhou.
2016	Formalize joint venture with SoftBank to launch cloud services in Japan. Partnered with Vodafone Germany for Data Center operation and to provide cloud services to German and European companies.
2017	Became the Official Cloud Services Partner of the Olympic Games. Included in the Visionaries quadrant of Gartner's Magic Quadrant for IaaS. Became a presenting partner of the FIFA Club World Cup.
2018	Indonesia data center commences operations.

Now, Alibaba Cloud's cloud computing and data management services is China's largest public cloud service provider and has the third largest share of the cloud computing market globally, according to Gartner.

Alibaba Cloud has an international network of 18 data centers and 42 availability zones around the globe, including China North, China South, China East, US West, US East, Europe, Middle East, Japan, Hong Kong, Singapore, Australia, Malaysia, India, and Indonesia. The Data Center in Europe is operated by Vodafone Germany and located in Frankfurt. Alibaba Cloud's international operations are registered and headquartered in Singapore, and the company has teams stationed in Dubai, Frankfurt, Hong Kong, London, New York, Paris, San Mateo, Seoul, Singapore, Sydney and Tokyo.

According to its official white paper, Alibaba Cloud has attracted over 2.3 million customers worldwide, including over one million paying customers. And Alibaba Cloud was placed in the Visionaries' quadrant of Gartner's Magic Quadrant for Cloud Infrastructure as a Service, Worldwide 2017, and included in 2018.

The three prominent architectures of cloud computing for businesses are Infrastructure-as-a-Service (IaaS) is a solution where large cloud computing companies deliver virtual infrastructure, where consumers use the provider's computing resources including servers, networking, and data storage space; and Platform-as-a-Service (PaaS) gives the company the freedom to make its own custom applications that will be used by all its entire workforce , where the provider hosts tools for general software development on their cloud infrastructures; Software-as-a-Service (SaaS) requires a company to subscribe to it and access services over the Internet , where consumers gain access to a completed product managed by the provider.

Alibaba Cloud provides cloud computing IaaS, PaaS, and SaaS, including services such as elastic computing, storage & CDN, networking, database services, analytics & big data, application service,

media services, middleware, cloud communication, Apsara Stack and Internet of Things which can be managed from Alibaba web page or using its command line tool.

3.2 Contrast between different products

In this section, I will make a comparison between Alibaba Cloud products. In particular, I will focus on their cloud servers especially GPU services. A cloud server is powerful physical or virtual infrastructure that performs application- and information-processing storage. Cloud servers are created using virtualization software to divide a physical server into multiple virtual servers.

The Alibaba Cloud Server products' brand is Elastic Compute Service (ECS). ECS is an online computing service that offers elastic and secure virtual cloud servers to cater for cloud hosting needs.

In Beijing, with the standards: Windows or Linux operating system, x86-Architecture, Intel Xeon (Skylake) Platinum 8163 2.5 GHz processor, SSD cloud disk, General Purpose and Compute Optimized, usage of one month. Part of its products information is listed as following.

Table 2 part of ECS products of general purpose

Specification	**CPUs**	**RAM**	**Sys Disk**	**Bandwidth**	**Throughput**	**Price**
ecs.g5.large	2	8 GB	128 GB	1 Gbps	300000 PPS	¥ 769.68
ecs.g5.xlarge	4	16 GB	128 GB	1.5 Gbps	500000 PPS	¥ 1403.28
ecs.g5.2xlarge	8	32 GB	256 GB	2.5 Gbps	800000 PPS	¥ 2806.56
ecs.g5.3xlarge	12	48 GB	256 GB	4 Gbps	900000 PPS	¥ 4080.96
ecs.g5.4xlarge	16	64 GB	256 GB	5 Gbps	1000000 PPS	¥ 5117.76
ecs.g5.6xlarge	24	96 GB	500 GB	7.5 Gbps	1500000 PPS	¥ 8157.60
ecs.g5.8xlarge	32	128 GB	500 GB	10 Gbps	2000000 PPS	¥ 10706.40
ecs.g5.16xlarge	64	256 GB	500 GB	20 Gbps	4000000 PPS	¥ 20901.60
ecs.c5.large	2	4 GB	128 GB	1 Gbps	300000 PPS	¥ 575.28
ecs.c5.xlarge	4	8 GB	128 GB	1.5 Gbps	500000 PPS	¥ 1021.68
ecs.c5.2xlarge	8	16 GB	128 GB	2.5 Gbps	800000 PPS	¥ 1921.68
ecs.c5.3xlarge	12	24 GB	256 GB	4 Gbps	900000 PPS	¥ 2943.36
ecs.c5.4xlarge	16	32 GB	256 GB	5 Gbps	1000000 PPS	¥ 3836.16
ecs.c5.6xlarge	24	48 GB	256 GB	7.5 Gbps	1500000 PPS	¥ 5628.96
ecs.c5.8xlarge	32	64 GB	500 GB	10 Gbps	2000000 PPS	¥ 7660.80
ecs.c5.16xlarge	64	128 GB	500 GB	20 Gbps	4000000 PPS	¥ 14824.80

From Table 2 we can see that Alibaba Cloud supplies different combinations of the number of CPU and the size of RAM. In this way can they meet the different kinds of needs of users vary from personal to Internet companies.

In Beijing, with the standards: Windows or Linux operating system, Heterogeneous Computing, Intel Xeon E5-2682v4 processor, 256 GB SSD cloud disk, Nvidia or AMD GPU Compute, usage of one month. Part of its products information is listed as following.

Table 3 part of ECS products of GPU Compute

Specification	CPUs	RAM	GPU	Bandwidth	Throughput	Price
ecs.gn4.8xlarge	32	48 GB	M40	6 Gbps	800000 PPS	¥ 11007.36
ecs.gn5i-c2g1.large	2	8 GB	Tesla P4	1 Gbps	100000 PPS	¥ 6507.36
ecs.gn5i-c4g1.xarge	4	16 GB	Tesla P4	1.5 Gbps	200000 PPS	¥ 7234.56
ecs.gn5i-c8g1.2arge	8	32 GB	Tesla P4	2 Gbps	400000 PPS	¥ 8660.16
ecs.gn5i-c16g1.4arge	16	64 GB	Tesla P4	3 Gbps	800000 PPS	¥ 11511.36
ecs.gn5i-c16g1.8arge	32	128 GB	Tesla P4*2	6 Gbps	1200000 PPS	¥ 22757.76
ecs.ga1.4xlarge	16	40 GB	S7150	3 Gbps	500000 PPS	¥ 6586.56
ecs.ga1.8xlarge	32	80 GB	S7150*2	6 Gbps	800000 PPS	¥ 12915.36
ecs.ga1.14xlarge	56	160 GB	S7150*4	10 Gbps	1200000 PPS	¥ 25572.96

GPU S7150 is belong to AMD, the rest are belong to NVIDIA.

On the other hand, in artificial intelligence there will be huge amount of data, so reliable cloud disks are also important. Alibaba Cloud Object Storage Service guarantees reliability of 99.999999999%. Here is the difference between alternative choices.

Table 4 different storage service

Category	Type	Price on Usage	Price per month
System Disk	Average Cloud Disk	¥ 0.00034/ 1 GB/ hour	¥ 0.24/ 1 GB/ month
System Disk	Effective Cloud Disk	¥ 0.00038/ 1 GB/ hour	¥ 0.28/ 1 GB/ month
System Disk	SSD Cloud Disk	¥ 0.00112/ 1 GB/ hour	¥ 0.80/ 1 GB/ month
Data Disk	Average Cloud Disk	¥ 0.00034/ 1 GB/ hour	¥ 0.24/ 1 GB/ month
Data Disk	Effective Cloud Disk	¥ 0.00038/ 1 GB/ hour	¥ 0.28/ 1 GB/ month
Data Disk	SSD Cloud Disk	¥ 0.00112/ 1 GB/ hour	¥ 0.80/ 1 GB/ month

4. Conclusion

Alibaba Cloud is one of the earliest companies that launch cloud computing services in domestic. After nearly ten years of accumulation, it has a wide coverage of consumers. Above all, we can see that Alibaba Cloud provides various specification of cloud servers which meet the needs of most kinds of consumers, both for personals and companies. As for students major in machine learning, they supply several cloud severs with good performance GPUs in a reasonable price.