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HOW TO START AN E-COMMERCE WEBSITE FACING CHINESE CUSTOMER: ARCHITECTURE CASE



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Abstract. This article is a technical summary of how to build an initial architecture for a distributed e-commerce site, especially facing Chinese customer. A brief description of the architecture of a high-performance, highly available, scalable and distributed website is given.

Keywords: E-commerce architecture redundancy website

1. Why is the e-commerce website so complex to build?

There are several main types of distributed large-scale websites:

- Large portals such as Netease, Sina, etc. which provide news/information;
- SNS websites, such as campus, Kaixin, etc. (interactions);
- E-commerce websites, such as Alibaba, Jingdong Mall, Gome Online, Car Home, etc. (both information and interactions).

Large portals are generally news information, which can be optimized using CDN(Content Delivery Network), static web page(or URL rewrite) etc., and there are more interactions such as Kaixin. It may introduce more NoSQL, distributed cache, and use high-performance communication framework. The e-commerce website has the above two characteristics. For example, the product details can be CDN, static web page, and highly interactive, you need to use NoSQL and other technologies.

A e-commerce website is a news site plus a SNS site, this is why it is so complex to build. Therefore, when we want to start an e-commerce website, we must analysis what we should do and what techs we need.

2. Requirements of e-commerce website

A typical proposal is to create a full-category e-commerce website (B2C) where:

- Users can purchase goods online, pay online, or cash on delivery;

- Users can communicate with customer service online when they purchase;
- After receiving the product, the user can rate the product and evaluate it;
- There is a mature invoicing system; it needs to be connected to the website;
- Regularly hold activities such as Double 11, Double 12, Women's Day and Men 's Day;
- Other functions refer to websites such as Jingdong or Gome Online;
- I hope to support the development of the business for 3 to 5 years;
- It is estimated that the number of users will reach 10 million in 3~5 years.

The traditional approach to requirements management uses a use case diagram or a module diagram (requirements list) to describe the requirements. This often overlooks a very important requirement — evolution requirements, means functions need to optimized along business , so it is recommended that we use the requirements function matrix to describe the requirements.

The requirements matrix of this e-commerce website is as follows:

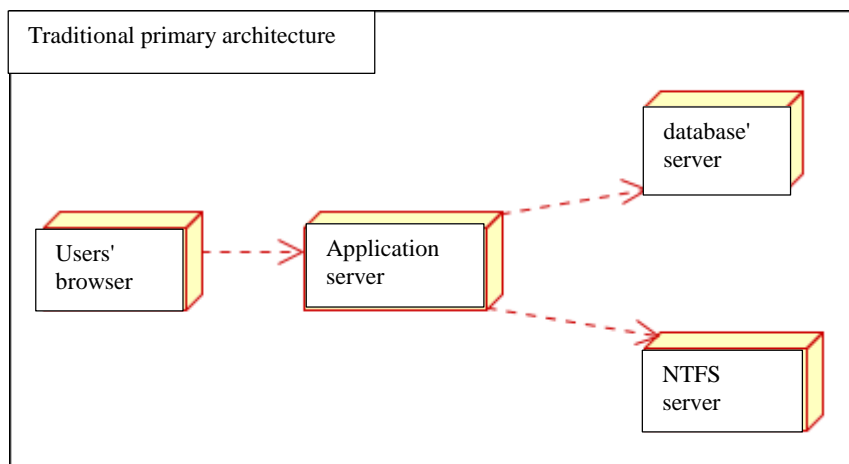
Original requirements	Function requirements	Evolution requirements
a full-category e-commerce website (B2C)	Classification management, commodity management	Convenient for multi-category management (flexibility) website access speed (high performance) image storage requirements (very large number of small pictures)
Users can purchase goods online	Member management, shopping cart, settlement function	Good shopping experience (availability, performance)
pay online, or cash on delivery	Multiple online payment methods	The payment process is secure, data encryption (security), flexible switching of multiple payment interfaces (flexibility, scalability)
can communicate with customer service online	Online customer service	Instant communication, reliability
can rate the product and evaluate it	Comment on products purchased	
a mature invoicing system	Interfacing with the invoicing system	Constraint, data consistency, robustness should be considered when docking
support the development of the business for 3 to 5 years		Constraints, need scalability and scalability
users will reach 10 million in 3~5 years		Constraints
Regularly hold promotions	Promotion management, bargains rush/dash	Guaranteed real-time (high performance) when access traffic suddenly increases
refer to websites such as Jingdong or Gome Online.		Reference

3. The site's primary architecture

In traditional website, the primary architecture is three servers: one deployment application, one deployment database, and one deployment NFS file system.

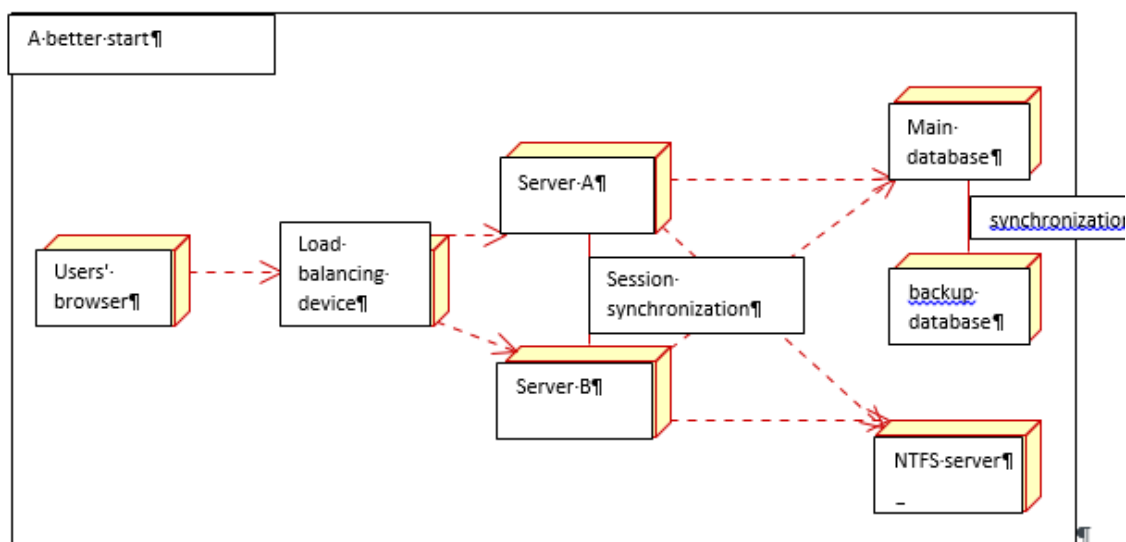
This is a relatively traditional approach in previous years. I have seen more than 100,000 members of a website, vertical clothing design portal, and N pictures. Applications, databases, and image storage were deployed using a single server. There have been many performance issues.

As shown below :



Graph1. Traditional primary architecture

However, the current mainstream website architecture has undergone tremendous changes. Generally , a cluster of application servers for redundancy are used for high-availability design. A main database with a backup database for better data backup and high availability. At least we need to start like the following :



Graph 2. Current primary architecture

Large site architecture is based on the business needs of continuous improvement, according to different business characteristics and will need specific design considerations. This article only describes some of the techniques and tools will involve a conventional large site, I hope it can bring some inspiration.

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КАК СОЗДАТЬ САЙТ ЭЛЕКТРОННОЙ КОММЕРЦИИ ДЛЯ КИТАЙСКИХ КЛИЕНТОВ: АРХИТЕКТУРА НА ВАРИАНТАХ СОБЫТИЙ

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Аннотация. Эта статья является техническим обзором того, как построить начальную архитектуру расширяемого сайта электронной коммерции, в частности, для китайских клиентов. Дается краткое описание архитектуры высокопроизводительного, высокодоступного, расширяемого и распространяемого веб-сайта.

Ключевые слова: веб-сайт, архитектура, избыточность, электронная коммерция.