Environment Requirements of Private Deployment

0. Overview

Currently, BOYUN TECHNOLOGY LIMITED has two main products: Pixso and Boardmix, where Pixso includes 3 sub-products: **Pixso Design, Pixso Prototype, and Pixso Whiteboard**. Form them:

1. All products use mainstream **microservice** architecture, which can be horizontally and smoothly scaled up with the increase of usage.
2. All products and middleware support mainstream CPUs, including **x86_64** (universal) and **arm64** (NXP).
3. All products and middleware use **container** technology and are released through docker images.
4. Compatible with various container cloud platforms, such as K8S, OpenShift, Rancher, and DockerCompose.

1. Operating System

Support any Linux distribution that supports Docker 19 or later, **including but not limited to the following versions or higher**: CentOS 7.6, Redhat 7.6, Ubuntu 18.04, Kylin v10, openEuler 20.03...

2. Hardware Resources

Both Pixso and Boardmix are **online collaborative tools**. All collaboratively edited documents need to be stored in the server memory, which requires higher hardware memory. The memory size requirement for each document depends on its complexity, and memory estimates can refer to the empirical value with some margin. Pixso requires 100 to 150MB, and Boardmix requires 20 to 50MB.

As there are other supporting services, the following formula must be met:

Maximum number of concurrently open documents x estimated document memory <

total memory of application services x 60%.

2.1 Standalone Version

All products and middleware are deployed on a single Linux server, which is simple and fast to deploy.

- Scenario: product trials, POC, small and medium-sized companies.
- Resources: 8 cores of CPU / 32G of memory / 500G to 1T of hard disk (evaluated based on actual usage, support smooth expansion).
- Capacity: 100 to 150 Pixso documents or 300 to 500 Boardmix documents can be edited online at the same time.

2.2 Cluster Version

The cluster version is relatively complex and divided into two parts: service cluster and middleware cluster.

The service cluster is designed to improve business capacity, while the middleware cluster is designed to improve reliability.

If your company already has a self-built container cloud (such as Alibaba ACK, Huawei CCE, OpenShift, Rancher, etc.) and middleware PAAS services, it is recommended to reuse existing resources and improve infrastructure efficiency through unified operations and maintenance.

The following only describes the scenario for building a new cluster. For deployment in an existing container cloud, **the deployment plan should be designed according to actual situations**.

2.2.1 Service Cluster

- Scenario: Enterprises with a large number of users and high reliability requirements.
- Resources:

1. Container mirror: 1×4C/8G/1T
2. Data node: 1×8C/16G/1T (to deploy management nodes and middleware, the hard disk needs to support smooth expansion)

3. Worker nodes: 3×8C/16G/200G (at least 3 devices, with the total memory meeting the formula in the red part)

- Capacity:

1. 200 to 300 Pixso documents or 1000 to 2000 Boardmix documents can be edited online at the same time.
2. It's possible to perform smooth expansion horizontally through increasing the memory capacity of existing worker nodes or adding more worker nodes.

2.2.2 Middleware Cluster

- Scenario: Require high reliability of middleware and high capability of O&M.
- Resources: 3×8C/16G/1T (hard disk must support smooth expansion)

Note: For most enterprises, using a standalone version of middleware is sufficient to meet their needs. Daily data backup is enough.

3. Other Resources

3.1 Internal Domain Name of Enterprise

In order to facilitate internal management and ensure secure transmission, it is **strongly recommended to access the product via domain name + HTTPS**. You need to apply for a domain name and a corresponding nginx SSL certificate within your enterprise.

The suggested domain names are as follows, where "company.com" should be replaced by the internal network domain name of your enterprise:

- pixso.company.com
- boardmix.company.com

3.2 Authentication Center Docking

For the convenience of internal staff and permission management within enterprises, almost all enterprises have an internal authentication center.

The common ones are **Microsoft AD domain (LDAP)** and **OAuth2**.

All of our products can adapt to these two common protocols. After providing

relevant parameters and finishing staff configuration, existing enterprise accounts can be used for login.

Middleware List			
Name	**Version**	**Usage**	**Description**
MySQL	8.0.x	Relational database	You can also use databases that are compatible with MySQL syntax, such as PolarDB (Alibaba), GoldenDB (ZTE), GaussDB (Huawei).
MongoDB	4.4.x	NoSQL database	
Redis	5.x	KV database	
ElasticSearch	7.17.x	Full-text search, logs	
RabbitMQ	3.10.x	Message array	
MINIO	22.07.x	Object storage	Support integrating with third-party devices that have a standard S3 interface, such as OSS (Alibaba), OBS (Huawei), COS (Tencent), and AWS.
Note	1. The "x" in the version number represents any number and can be compatible (in most cases, as long as the first version number is the same). 2. It is recommended to reuse the centralized middleware for operation and maintenance within the enterprise. If not available, we can set it up.		