

Hybrid Cloud

Background

For most organizations, cloud deployment has traditionally come down to two models: **Public** and **Private**. The public cloud provides unlimited scalability and elasticity at minimal cost while the private cloud provides greater control and increased security through provisioning of dedicated servers.

However, organizations increasingly require a combination of flexibility at reduced cost as well as strong security and control over their data. A hybrid cloud is an ideal solution, as it brings together the advantages of both the public and private cloud.

The hybrid cloud provides the flexibility to migrate and test data and applications on the public cloud, while keeping important information and resources in a private environment.

A hybrid solution is suitable for organizations with strict security requirements experiencing rapid growth and lacking the funds to make large-scale investments in traditional IT infrastructure.



Challenges

Cloud computing has opened new horizons for business innovation and organizations are rapidly adopting the cloud as an industry standard in infrastructure deployment. However, cloud deployment is not without its shortcomings, and there are certain points that one should consider before moving to a hybrid cloud environment.

Data Security

When data resides in the hands of the cloud service provider, customers may not have complete control over their data. When planning to move to a hybrid cloud environment, issues such as compliance, identity management, and data protection take center stage.

Networking Limitations

Significant hybrid integration is incomplete without an intelligent network design. It is important to consider potential latency between the public cloud edge location and the private infrastructure. It is crucial that cloud providers offer sophisticated networking options to switch existing topology to the cloud.

Fluctuating Traffic

Another important challenge stemming from the area of integration for hybrid environments is the management of oscillating traffic. Applications should be capable of successfully handling downtime and traffic fluctuations that may occur due to scarce resources during peaks in traffic.

Portability Restrictions

Portability is extremely important for the convenient flow of workload between hosts as per the needs of the business. It is essential that virtual machines and applications along with their metadata and configurations can move seamlessly between environments.

Cost Considerations

As the organization is the sole proprietor of managing its private cloud setup, infrastructure handling and maintenance can be costly and time intensive. Often, organizations underestimate the cost of migrating to the hybrid cloud. Furthermore, provisioning of extra resources demands a considerable amount of time and money; with a direct impact on ROI.

Scalability Restrictions

Scalability is another crucial point to consider when deploying on a hybrid cloud. The flexibility of applications to offer resource provisioning in real-time is necessary. In addition, users need to establish virtualized and containerized environments that help to zero-in on the cause when something goes wrong.

Lack of Talent and Manpower

It is difficult to find technical talent with expertise in infrastructure configuration/integration, network architecture, application design, and business process automation for a successful hybrid cloud deployment.

Along with substantial business benefits, a hybrid cloud brings with it a completely new paradigm of complexity. Organizations must ensure that the cloud provider brings in the necessary effort to set up a functional and integrated cloud architecture with an assured performance.

Why Alibaba Cloud

Alibaba Cloud is a go-to provider for hybrid cloud deployment. Alibaba Cloud offers a one-stop solution and a team of solution architects who can design tailor-made solutions for specific requirements. This ensures that customers enjoy a hassle-free hybrid cloud deployment.

Alibaba Cloud's **one-stop solution** offers the following:

Flexible Model

Alibaba Cloud Hybrid Solutions provide customers with state-of-the-art connectivity and enhanced security (for data and network) to ensure smooth integration between an organization's on-premise/private cloud and public cloud, without regulatory and compliance concerns. Organizations can also leverage the Pay-As-You-Go model to save on costs.

Uncompromised Application Security

The Alibaba Cloud Hybrid model integrates ECS instances with Anti-DDoS protection to safeguard your data and applications from DDoS and Trojan attacks. It allows monitoring and real-time visibility of security breaches and blocks common attack patterns. The Alibaba Cloud Hybrid model offers customers the freedom to choose a dedicated network, servers, and storage with limited or authorized only access.

Automatic Resource Provisioning

Customers benefit from the added flexibility of fast-paced resource provisioning and de-provisioning. Organizations can deploy cloud and dedicated resources to continue production with Alibaba Cloud Hybrid Solutions. Customers can choose synchronous or asynchronous integration through a queue service between the on-premise and Alibaba Cloud VPC environment.

Elimination of SPOFs

In many cases, it is not sufficient to take back-ups and replicate data. Alibaba Cloud Hybrid Solutions enable replication of mission-critical data to the cloud in different locations, which not only provides data insurance but minimizes downtime and revenue loss. To minimize downtime, it is important to consider the organization's scaling and DNS strategies with the support of Alibaba Cloud virtualization, containers, load balancers, and scaling.

Architectural Agility

Alibaba Cloud Hybrid Solutions allow companies to be selective in their migration and reduce overall capital implementation costs. Alibaba Cloud provides a minimum setup option running in the cloud to ensure that disaster recovery remains cost-effective. If disaster strikes, the organization can deploy applications on larger ECS instance types (vertical scaling) and increase the size of the ECS fleets in service with the Server Load Balancer (horizontal scaling).

Superior Connectivity through Express Connect

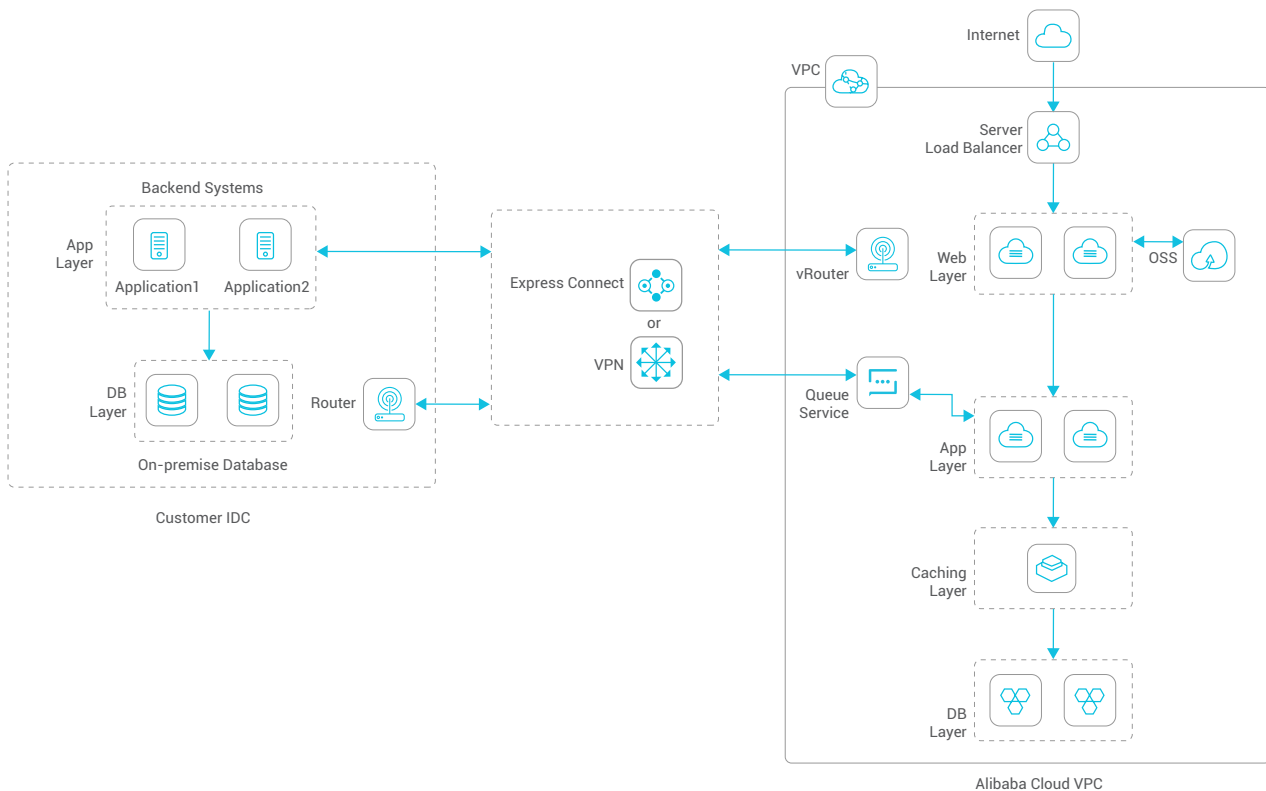
Alibaba Cloud Express Connect streamlines the process of establishing a dedicated connection between your on-premise environment, such as your IDC or colocation centers and Alibaba Cloud VPC, to establish private connectivity for those environments. Alibaba Cloud Express Connect allows you to establish dedicated private network connections of up to 10 Gbps.

Global Reach

Deploy globally on Alibaba Cloud's international network of 14 data centers and manage all regions through a single global account. Alibaba Cloud has international teams stationed in Dubai, Frankfurt, Hong Kong, London, Melbourne, New York, Paris, San Mateo, Seoul, Singapore, Sydney, and Tokyo.

Development Architecture

Products Used: Virtual Private Cloud (VPC), Elastic Compute Service (ECS), Express Connect, MySQL



This architecture diagram explains the model solution used in a hybrid cloud environment. ECS, VPC, and Express Connect form an integral part of the architecture. This setup allows systems running on Alibaba Cloud VPC to communicate seamlessly with on-premise backend systems through a private network. The hybrid variation of cloud also allows customers to choose between synchronous and asynchronous integration through a queue service between the on-premise and Alibaba Cloud VPC environment.

This integration enables customers to put all cloud-ready systems within the Alibaba Cloud VPC. This helps to leverage reliable and scalable infrastructure services such as compute, storage, and networking as well as managed services, including relational database, NoSQL, and caching services. Systems running on the cloud can securely access the backend systems running on-premise to meet synchronous or asynchronous data exchange needs.

Key Benefits



Enhanced security at data centers with specialized network and backup



Smooth integration between on-premise/private and public cloud



Superior connectivity to Alibaba Cloud VPC through Express Connect



Highly trained solution architects with expertise in Hybrid deployment

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