Contained Based Cross-cloud Horizon VDI

As public cloud prevails, enterprises tend to deploy VDI in multiple clouds to get the most benefit from cloud infrastructure and avoid cloud lock-in. This brings new problems like, complexity in management, security concerns and workload isolation between clouds. Horizon VDI cross-cloud aims to enable enterprise to run, manage, migrate and secure virtual desktops across clouds using unified software interface and allow end user from anywhere to access desktop on cloud with the lowest latency.

This presents many challenges. First, the VDI desktop manager, which currently runs on premise or single cloud, is tightly coupled and large in size, making it hard to migrate efficiently cross clouds with limited bandwidth. Second, network connectivity is affected by mixed factors. Different cloud vendors provide different network solution that may be incompatible; And application framework may have unique requirement on the network connectivity. Third, to migrate and load balance service cross clouds effectively, we’d like to adapt our service to existing technology that excels in this area rather than invent our own. Fourth, the network latency cross cloud will be much higher, how can we present remote desktop fluently to user based on such infrastructure?

To address these issues, we design our container based cross cloud VDI. With this new design, the VDI desktop manager is divided into several lightweight micro services which communicate with each other using RESTful API. Micro services are shipped into containers, managed by container orchestration tools, like docker swarm or kubernetes. We leverage container orchestration tools to auto scale, load balance and migrate services cross cloud. we also design a distributed data store tailored for the desktop manager to reduce the latency.

Desktop from any cloud, installed with VDI agent software, can be managed by this system. Desktops are designed to be floating cross cloud. The goal is to deliver desktop of low latency from any cloud instantly to user when login, then release it to reduce cost when user logoff.

The main advantages of the system are as follows. Enterprises enjoy the freedom to run their desktops on any cloud without complexity in management and workload isolation. Using this approach, various concerns on clouds are addressed, like reduce cost, protect privacy, meet compliance, or improve dependability. End users enjoy reliable desktop service with lower latency whether in office or on travel.