TREND MICRO UTILIZES VMWARE ENTERPRISE PKS TO SIMPLIFY MULTI-CLUSTER KUBERNETES AND BUILD A STRONG R&D BACKING

TREND MICRO 趨勢科技

Industry

IT service

Region

Taipei, Taiwan

Results

- In the past, it was necessary to mobilize a number of dedicated management personnel to perform basic maintenance of more than 20 Kubernetes clusters 2 to 3 days each week. Thanks to the automatic upgrade, patching, and repair features of Enterprise PKS, only one part time DCS personnel is needed and maintenance takes little to no time.
- It used to take weeks to set up a new cluster; now, a new cluster is ready to use in less than half an hour.
- Through the assistance of Enterprise PKS, the DCS department automates the Kubernetes cluster application process, providing CaaS to the R&D team in a self-contained manner, which greatly enhances IT value.

Products imported

- VMware Enterprise PKS
- VMware vSphere Enterprise Plus Edition
- VMware NSX-T Data Center
- VMware Harbor
- VMware vSAN
- VMware vRealize Automation/ Operations/ LogInsight

Unit introduction

CNCF conducted a survey in March and November of last year (2018). In the 8 month period, the number of Kubernetes clusters built by most organizations quickly climbed from 1 to 5, to 6 to 10 and even 11 to 20; it is obvious that the multi-cluster Kubernetes trend has taken shape. Founded in 1988, Trend Micro has long been a leader in global enterprise network security. The key is to continuously invest in top-notch technology research and development, and repeatedly launch innovative products with strong defense capabilities. To maintain the innovative energy, Trend Micro gives its R&D team the most flexible freedom and encourages the adoption of any new technology that will help increase R&D agility; thus, many R&D colleagues started to use containers and Kubernetes in 2015, and the multi-cluster Kubernetes adoption trend earlier than most companies. So far, the company has created a total of more than 20 clusters, and the burden of maintenance is becoming heavier. Fortunately, the IT team is helping to introduce VMware Enterprise PKS to effectively solve problems.

Key evaluation points

In the past, the R&D team maintained the Kubernetes cluster itself; the number was small in the beginning, so it can be properly controlled. However, with the increase in clusters, a heavy burden gradually formed, which in turn reduced development efficiency. The DCS (Data Center & Cloud Services) department, which is responsible for providing IT infrastructure for R&D, discovered the problem and took over the Kubernetes maintenance needs of the R&D team.

At the beginning of 2017, the DCS department began to evaluate related programs. Originally, it focused on a container platform well known by the open source camp. However, it can only manage a

"Automated Kubernetes cluster lifecycle management through VMware PKS enables Trend Micro' s R&D team to accelerate innovation and increase protection odds against security threats."

SR. DIRECTOR
GLOBAL INFORMATION TECHNOLOGY
GLOBAL INFORMATION SERVICES DEPT.
ALEX KUO

single Kubernetes cluster at that time, making it more suitable for a multiple namespace environment and did not meet Trend Micro's requirements.

In talking with the platform supplier, it was clear that the current status could not be changed; so they decided to look for a more suitable solution. By the beginning of 2018, the DCS department had access to VMware Enterprise PKS, and learned that the solution supports multi-cluster Kubernetes management and has key functions such as automated upgrade and repair. It is the ideal solution that the DCS department has long been waiting for.

Challenges encountered and import benefits

In July 2018, the DCS department intended to conduct Enterprise PKS proof of concept (POC), and held a briefing session on the eve of verification to introduce the solution to the R&D team to gather feedback. The whole process of the introduction and verification of the Enterprise PKS solution is time-consuming and labor-intensive. Fortunately, VMware has been supportive through the whole process and has assigned a team of foreign experts to support it. Many workshops were carefully organized to explain how to monitor and back up the Enterprise PKS environment, and use the Multiple-AZ (Availability Zone) function to achieve high availability, which sped up the work process significantly.

The DCS department received positive reviews from the R&D colleagues, and immediately started the POC. After the establishment, adjustment, and process establishment, the enterprise PKS environment was built with 6 hosts from March to April this year. Since May, three microservices were deployed one after another, including two Android microservices that analyze viruses on mobile phones, an IT infrastructure monitoring program developed by the DCS department, and a microservice that exports data indicators of private cloud monitoring systems.

In the initial stage of installation and use, there were slight problems. Due to the failure of the virtual network card under Enterprise PKS, the above container could not be connected to for a while. Through discussions between colleagues in the DCS department and VMware experts, it was quickly confirmed the

problem is the compatibility between the virtual network card driver and the hardware within one day; the problem did not recur after the upgrade.

This episode gave us greater confidence in the support capabilities of VMware's domestic and international experts in addition to the strength of the container and other network and system technologies. After all, the container platform is the integration of the overall infrastructure of the network, storage, systems, and containers. At present, only one part-time DCS colleague is needed to use the PKS system to easily manage multiple Kubernetes clusters. The system can also integrate with the existing log management server (Log Insight), Docker Repository (Harbor), and internal monitoring system (vRops+Grafana), forming a strong backing for the R&D team.

Outlook

Overall, the success of the Enterprise PKS test is significant and is expected to have two major impacts on Trend Micro. The first is the technical impact. The original repair and maintenance of more than 20 Kubernetes clusters usually takes 2 to 3 working days, and it takes more than a few weeks to set up new clusters; now that Enterprise PKS is introduced into the R&D process, a ready-to-use cluster can be created in 30 minutes, and the problematic Kubernetes nodes and automatic platform upgrades and updates can be automatically repaired, minimizing the burden of regular maintenance.

Moreover, the Kubernetes cluster application process was successfully automated, providing the R&D team with CaaS (Container as a Service), which perfectly demonstrates the value of IT existence.

The second is the business impact. Trend Micro launched Deep Security Smart Check last year to help users protect the CI/CD process. Now, it can further convey the concept of VMware Enterprise PKS usage to users to promote the integration of multi-cluster Kubernetes to ensure management consistency to inject the Kubernetes environment with stronger protection, which means that Enterprise PKS can produce synergistic effects that make Trend Micro related products better. It means that Enterprise PKS can produce synergistic effects that complement the benefits of Trend Micro's related security products.

In fact, Trend Micro's original intention to introduce Enterprise PKS is not only to serve more than 20 existing clusters, but also to create a diffusion effect, so that the R&D colleagues who have not yet used Kubernetes will participate in the Kubernetes journey as soon as possible, showing more powerful productivity. Looking forward, the DCS department will continue to perform the precise maintenance of the Enterprise PKS environment. On the one hand, discussions with VMware will take place to determine whether they can provide HVM (Hardware-Assisted-Virtualization) pods to facilitate the dynamic generation of Kubernetes during the testing process to achieve test automation. On the other hand, the plan is to introduce VMware Wavefront, which is expected to satisfy the R&D team's performance monitoring needs for Kubernetes and even overall application services.

VMWARE, INC. 3401 HILLVIEW AVENUE PALO ALTO CA 94304 USA TEL 877-486-9273 FAX 650-427-5001 WWW.VMWARE.COM
台北市 110 信義路五段七號台北 110 大樓 57 樓 C 室 電話 +886-2-8758-2804 傳真 +886-2-8758-2708 WWW.VMWARE.COM/TW