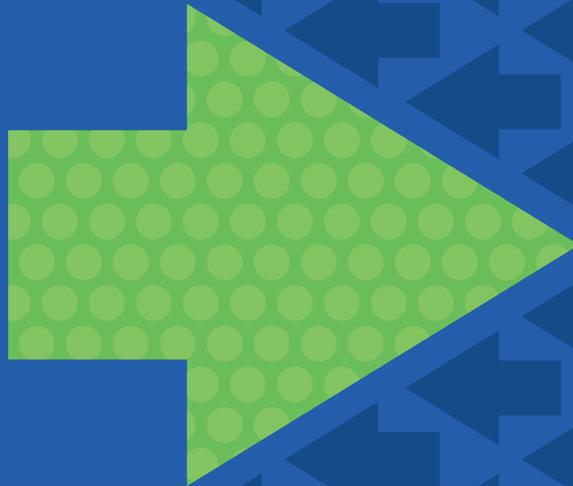# Transform Your Data Center

with Kubernetes as a Service on
SUSE. OpenStack Cloud 7

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Application containers are the hottest trend in data center innovation—with good reason. By unshackling applications from the underlying infrastructure, containers enable organizations to ramp up capacity for a variety of workloads in a fraction of a second, and scale at will. Plus, organizations can pack hundreds or even thousands of containerized workloads onto each server, which can drive down capital and operational costs.

As with other data center trends, the devil is in the details for organizations that want to reap the full benefits of containers. Specifically, enterprises need to assess which infrastructure platform can best meet today's needs for container workload development and deployment, while also providing the agility, scalability, and cost-effectiveness necessary to meet future demands. As you'll see, the SUSE OpenStack Cloud 7 platform provides a dynamic solution that can answer all these needs.

Containers Enter the Mainstream

The proliferation of mobile devices and rising customer demands are driving the need to continually accelerate development and deployment of new applications—which containers do exceptionally well. Container technologies are already available on every major public and private cloud platform, and 451 Research forecasts that the application container market will grow to $2.7 billion by 2020.[1] That is 3 times today's market size and represents an estimated compound annual growth rate of 40 percent.

A container is a lightweight software package that includes everything needed to run it, including its own minimal operating system, run-time resources, and dependencies. Compared to virtual machines, containers are more resource-efficient, because they do not require hypervisors, are highly automated and easy to orchestrate, and can be provisioned extremely quickly. In addition, containers require less memory space and can help organizations avoid the high costs and hassles associated with server sprawl.

To be clear, containers are not the answer for every type of workload. Some applications—especially monolithic

applications that do not need to be deployed or scaled quickly—still run best on bare metal or virtualized machines. Containers are better suited for developing microservice applications that can be broken down into small and highly portable components. By simplifying complex applications into basic building blocks that can be quickly and easily linked together as needed, enterprises can be more responsive to business and customer needs.

Although containers will never be—and are not designed to be—the single solution for all enterprise workloads, they are a smart way to accelerate development, deployment, and scaling of cloud-native workloads. They can also play a key role in shifting to DevOps methodologies and CI/CD (continuous integration/continuous deployment) strategies to accelerate innovation. The question becomes: which platform can best support the move toward containerization?

One Platform for Every Workload

SUSE OpenStack Cloud 7 is an enterprise-ready, OpenStack private cloud platform that provides Containers-as-a-Service (CaaS) capabilities, as well as supporting bare metal and virtualized workloads. The latest enterprise-class features, along with easy integration and management, make SUSE OpenStack Cloud 7 an ideal solution for organizations that want to spur innovation and respond faster to ever-changing market demands. SUSE was the first to release a truly enterprise-grade OpenStack cloud distribution, which allows organizations to avoid vendor lock-in and its associated high costs and limited flexibility.

SUSE OpenStack Cloud 7 provides full support for Kubernetes clusters, which can be used to deploy and manage

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[1] https://451research.com/images/Marketing/press_releases/Application-container-market-will-reach-2-7bn-in-2020_final_graphic.pdf

containerized workloads that are compliant with the Open Container Initiative (OCI). OpenStack Magnum delivers Kubernetes as a Service by taking advantage of the Heat tool within OpenStack to create a set of virtual machines (VMs). Users can quickly configure these VMs as a cluster, with Kubernetes installed and ready to accept workloads. The whole environment has the flexibility to scale as requirements grow—users simply launch more VMs and automatically incorporate them into the cluster.

Many organizations favor the Kubernetes framework because it is highly portable and provides a smooth migration path for legacy applications. It is also self-healing and auto-scaling, has a flexible plug-in architecture, and provides a convenient pathway to a hybrid cloud implementation. Although these and other features make it popular with developers and administrators, Kubernetes is traditionally difficult to deploy and does not support multitenancy—two challenges that are resolved in SUSE OpenStack Cloud 7 with OpenStack Magnum.

BENEFITS OF OPENSTACK MAGNUM

OpenStack Magnum is a dedicated service for containers that makes it easy to spin up Kubernetes clusters and provides a full multitenant environment that allows each user to have their own Kubernetes cluster. That means organizations can effectively achieve Kubernetes as a Service, deploying multiple Kubernetes clusters for production, dev/test, and other workloads as needed across multiple departments, and managing and metering each cluster with ease.
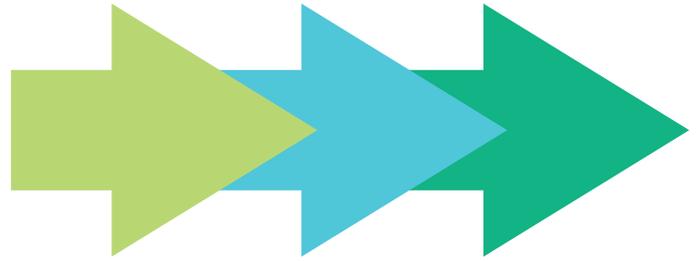
Positioning for the Future

The data center is constantly evolving, so organizations need to identify platforms with the flexibility and features necessary to support whatever tools, technologies, and strategies come next. One example is Platform as a Service (PaaS), which is growing in popularity and can offer organizations a valuable option for a complete, automated development environment.

Compared to CaaS, PaaS offers more tools and automation, while being more restrictive in how workloads can be handled. Some developers will probably prefer the flexibility of mixing and matching their own tools with CaaS, while others will appreciate the advanced capabilities of PaaS, which will allow them to focus on their workloads without worrying about libraries, tools, or other components.

SUSE OpenStack Cloud will not only enable organizations to run containerized, bare metal, or virtualized workloads but will also soon support Cloud Foundry PaaS. Because Cloud Foundry is an open source solution, organizations can be assured of maximum flexibility and choice as the path toward PaaS continues to evolve. In other words, whatever an organization's requirements, now or in the future, SUSE OpenStack Cloud will be ready to support them.

Summary

Containers are an increasingly vital part of the data center, providing organizations with a fast, scalable, and cost-effective way to support cloud-native and other microservice applications. SUSE OpenStack Cloud 7, a dynamic OpenStack private cloud platform, gives organizations the flexibility they need to meet requirements—whether that means running container, bare metal, virtualized, or even PaaS workloads.

With the widest hardware certification, the most comprehensive workload support, and the best interoperability on the market, SUSE OpenStack Cloud 7 is the right solution for enterprise data centers, now and in the future.

Contact SUSE to discuss your infrastructure requirements and how we can help your organization deploy containers and other data center solutions:

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