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Networking

Each container deployed by a **docker** daemon has an IP address assigned from an internal network that is accessible only from the host running the container. Because of the container's ephemeral nature, IP addresses are constantly assigned and released.

Kubernetes provides a software-defined network (SDN) that spawns the internal container networks from multiple nodes and allows containers from any pod, inside any host, to access pods from other hosts. Access to the SDN only works from inside the same Kubernetes cluster.

Containers inside Kubernetes pods are not supposed to connect to each other's dynamic IP address directly. It is recommended that they connect to the more stable IP addresses assigned to services, and thus benefit from scalability and fault tolerance.

External access to containers, without OpenShift, requires redirecting a port on from host to the internal container IP address, or from the node to a service IP address in the SDN. A Kubernetes service can specify a **NodePort** attribute that is a network port redirected by all the cluster nodes to the SDN. Unfortunately, none of these approaches scale well.

OpenShift makes external access to containers both scalable and simpler, by defining *route* resources. HTTP and TLS accesses to a route are forwarded to service addresses inside the Kubernetes SDN. The only requirement is that the desired DNS host names are mapped to the OCP routers nodes' external IP addresses.



References

[Docker documentation](#)

[Kubernetes documentation](#)

[Red Hat OpenShift documentation](#)

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