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PDF

Deployment Options¶

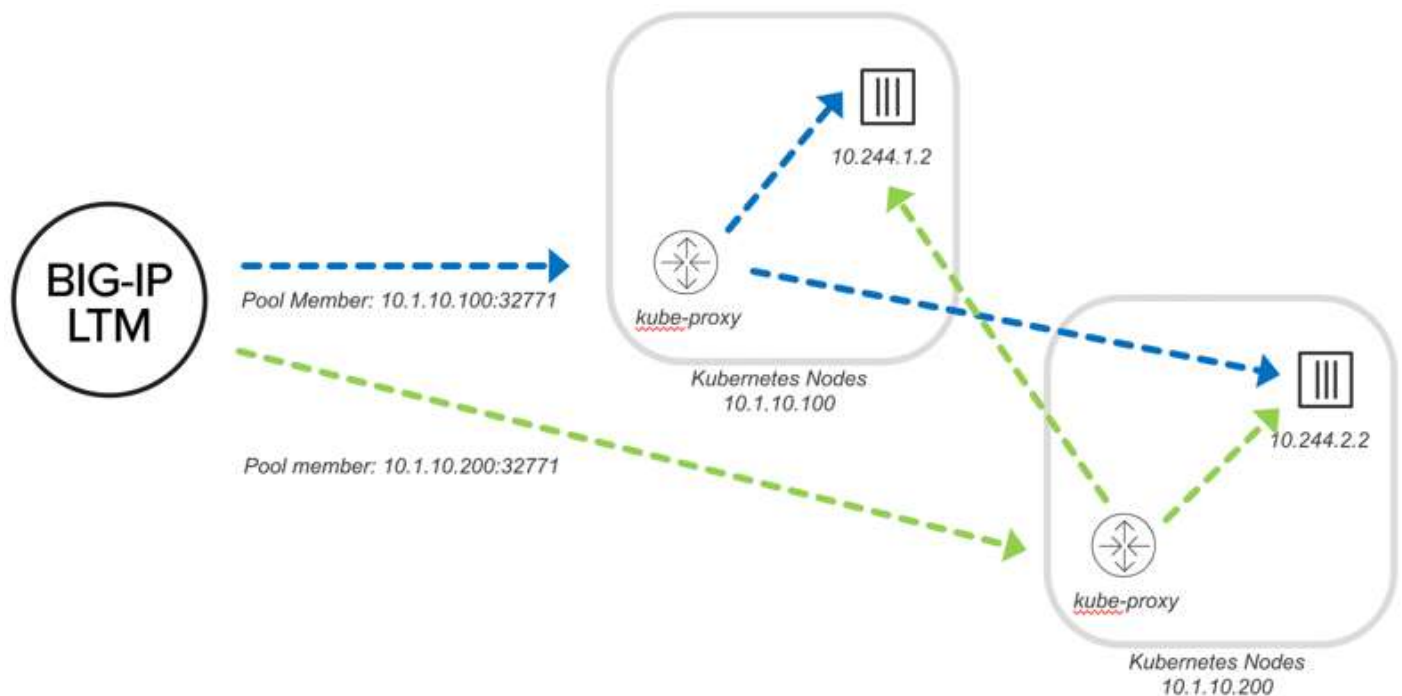
These options are configured using `pool-member-type` parameter in CIS deployment.

NodePort¶

This section documents K8S with integration of CIS and BIG-IP using NodePort configuration. Benefits of NodePort are:

- It works in any environment (no requirement for SDN)
- No persistence/visibility to backend Pod
- Can be deployed for “static” workloads (not ideal)

Similar to Docker, BIG-IP communicates with an ephemeral port, but in this case the kube-proxy keeps track of the backend Pod (container). This works well, but the downside is that you have an additional layer of load balancing with the kube-proxy.



(../_images/nodeport-diagram.png)

When using NodePort, pool members represent the kube-proxy service on the node. BIG-IP needs a local route to the nodes. There is no need for VXLAN tunnels or Calico. BIG-IP can dynamically ARP for the Kube-proxy running on node.

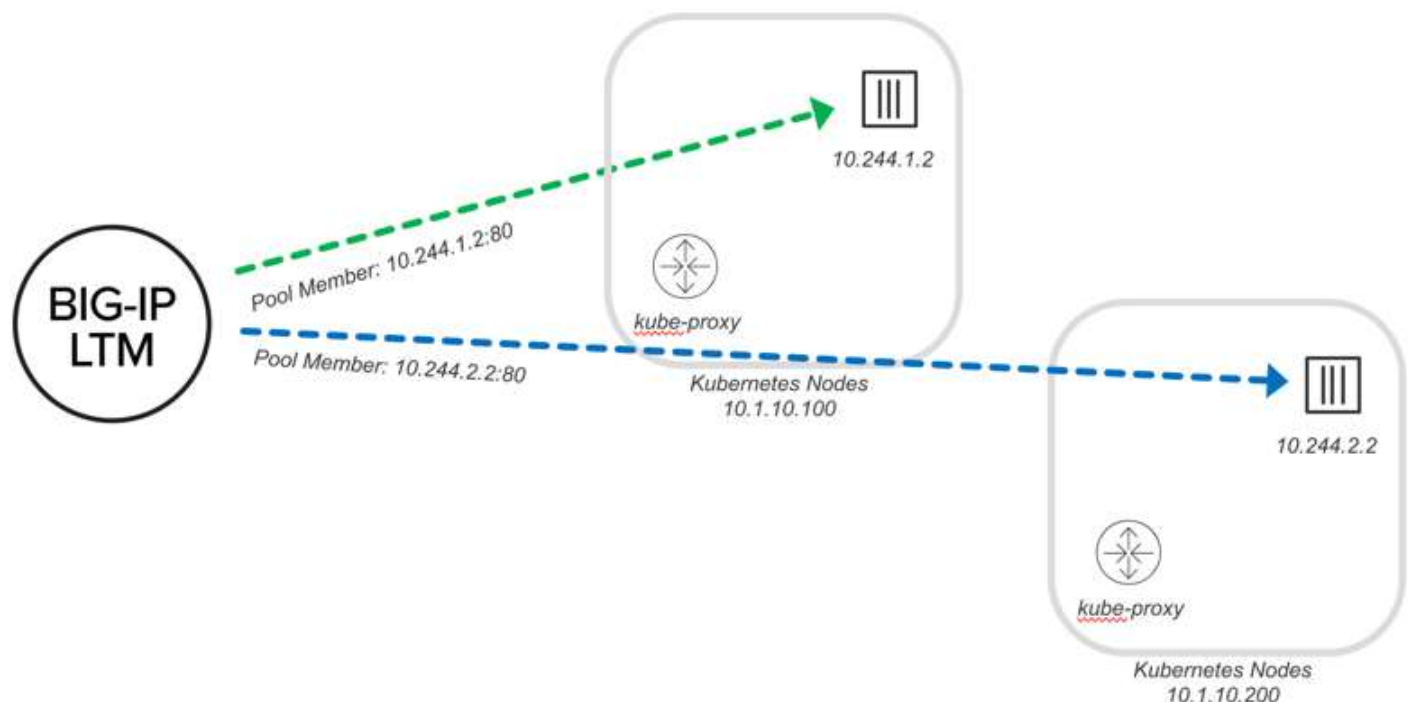
ClusterIP¶

This section documents K8S with integration of CIS and BIG-IP using clusterIP configuration.

Benefits of clusterIP are:

- Requires ability to route to Pod
- Flannel VXLAN, OpenShift VXLAN
- Alternately Pod routable through network, for example:
 - Calico BGP
 - Public Cloud network

The BIG-IP CIS also supports a cluster mode where Ingress traffic bypasses the Kube-proxy and routes traffic directly to the pod. This requires that the BIG-IP have the ability to route to the pod. This could be by using an overlay network that F5 supports (Flannel VXLAN, or OpenShift VXLAN). Leave the kube-proxy intact (no changes to underlying Kubernetes infrastructure).



(../_images/clusterip-diagram.png)

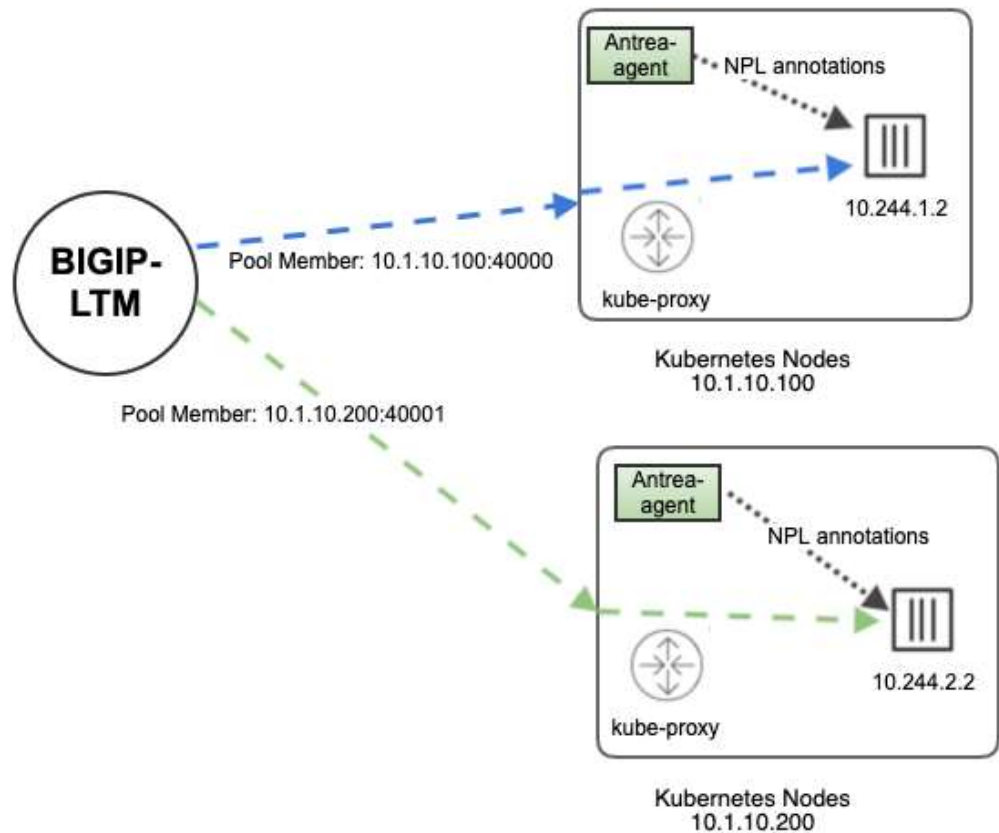
NodePortLocal¶

This section documents K8S with integration of CIS and BIG-IP using the NodePortLocal feature provided by Antrea CNI. Benefits of NodePortLocal are:

- CIS consumes NPL port mappings published by the Antrea Agent (as K8s Pod annotations). So unlike NodePort mode, it bypasses the Kube-proxy and routes traffic directly to the pod

removing the secondary hop of load balancing carried by kube-proxy.

- Exposes the port on node where pod is running. It decreases the port range requirements, unlike NodePort which requires a range of ports to be exposed in all Kubernetes nodes.



(../_images/nodeportlocal-1.png)

In NodePortLocal, rather than using kube-proxy for node to pod routing, there is a single iptables entry per pod which means direct connectivity to each pod.

Note

To provide feedback on Container Ingress Services or this documentation, please file a GitHub Issue (<https://github.com/F5Networks/k8s-bigip-ctlr/issues>).

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