

hack4glarus-2023-summer - Task #11862

[grab me] automate creating k8s clusters in IPv6 environments

07/07/2023 07:08 PM - Nico Schottelius

Status:	Closed	Start date:	07/07/2023
Priority:	Normal	Due date:	
Assignee:	Nico Schottelius	% Done:	0%
Category:		Estimated time:	0.00 hour
Target version:			
PM Check date:			
Description			
Motivation			
<ul style="list-style-type: none">• Creating a 1,2 or many k8s cluster should be a matter of "working seconds" and "setup minutes"			
Environment			
<ul style="list-style-type: none">• Assume you have an IPv6 network, f.i. a /48• Assume you have a router, such as bird• Assume you have a dynamic number of hosts ("k8s hosts")• Assume every k8s cluster will use 2x /64's<ul style="list-style-type: none">◦ one for pods◦ one for services (effectively only /108 is used, but that is an implementation detail)• Assume you can (and should) delegate the subnetworks of the /48 "automatically"<ul style="list-style-type: none">◦ i.e. define ranges that can be automatically deployed			
Steps			
<ul style="list-style-type: none">• define how to create nodes<ul style="list-style-type: none">◦ either virtual or hardware nodes• define how nodes are getting their networking			

History

#1 - 07/07/2023 07:36 PM - Nico Schottelius

- Description updated

#2 - 07/07/2023 07:45 PM - Nico Schottelius

- Status changed from New to In Progress

- Assignee set to Nico Schottelius

Manual flow (VMs, OpenNebula)

- Create VMs ("get something ssh-able")
- Configure them with cdist so that crio, kubelet and friends exist ("make it k8s usable")
- Configure the routers to allow bgp peering with the VMs ("prepare the network")
- Define ranges (take them from netbox) ("select the network")
- Create kubeadm config
- Run kubeadm init --config ...
- Install cni (such as calico)

Sample k8s "clusters" h4g

VM	net
2a0a-e5c0-2-2-0-84ff-fe41-f256.loves.ipv6.at.ungleich.ch	2a0a:e5c0:2:18::/63
2a0a-e5c0-2-2-0-84ff-fe41-f259.loves.ipv6.at.ungleich.ch	2a0a:e5c0:2:1a::/63
2a0a-e5c0-2-2-0-84ff-fe41-f258.loves.ipv6.at.ungleich.ch	2a0a:e5c0:2:1c::/63

Poor man's solution

- shell script with index
- configuring router with bgp/static routes
- assumption: range defined, nodes in network

#3 - 01/02/2024 12:37 PM - Nico Schottelius

- *Status changed from In Progress to Closed*