

CAPI v1alpha4 multitenancy support

We need to figure out how to support CAPI v1alpha4's new multi-tenancy model in Metal3.

CAPI v1alpha4 documentation:

<https://github.com/kubernetes-sigs/cluster-api/blob/master/docs/book/src/developer/providers/v1alpha3-to-v1alpha4.md#multi-tenancy>

CAPI multi-tenancy model

Up until CAPI v1alpha3, the need of supporting multiple credentials was addressed by running multiple instances of the same provider, each one with its own set of credentials while watching different namespaces.

Starting from v1alpha4 CAPI is going to require that a single infrastructure provider should manage different credentials, each one of them corresponding to an infrastructure tenant.

CAPI contract

In order to support multi tenancy, the following rule applies:

- Infrastructure providers MUST be able to manage different sets of credentials (if any)
- Providers SHOULD deploy and run any kind of webhook (validation, admission, conversion) following Cluster API codebase best practices for the same release.
- Providers MUST create and publish a {type}-component.yaml accordingly.

How to support CAPI multi-tenancy

1. Taking BMO outside the CAPM3

- Multitenancy support meaning that we will deploy one BMO and Ironic instance per tenant/namespace?
 - Would multiple BMO talking to the same Ironic be supported? i.e. is it ok to have nodes registered and managed by different BMO, or would that be causing some issues for BMO?
- How should we handle webhooks when different BMO versions are deployed in different namespaces?

2. Keep BMO as part of CAPM3

- We need a single BMO instance to be able to communicate with multiple Ironic instances in different namespaces.