

High level evaluation checklist for etcd operators

Operator summary - <Operator name here>

Date released	Sep 10, 2024	Last release	Sep 10, 2024 Actively maintained
GitHub stars	# 🌟	GitHub contributors	#
		Contributing companies	Single
Built with	Golang KubeBuilder	License	GNU GPLv3

Feature support summary:

This list is based on the top 10 features requested by the etcd community in the wg-etcd-operator survey. Results documented here <https://github.com/etcd-io/etcd-operator>

#	Feature	Support level
1	Create a new etcd cluster, e.g 3 or 5 members cluster of a specified etcd version	0 - Not supported
2	Understand health of a cluster	0 - Not supported
3	Enabling TLS communication, including cert renewal	0 - Not supported
4	Upgrade across patches or one minor version	0 - Not supported
5	Scale in and out, e.g 1 -> 3 -> 5 members and vice versa	0 - Not supported
6	Support customizing etcd options (via flags or env vars)	0 - Not supported
7	Recover a single failed cluster member (still have quorum)	0 - Not supported
8	Recover from multiple failed cluster members (quorum loss)	0 - Not supported
9	Create on-demand backup of a cluster	0 - Not supported
10	Create periodic backup of a cluster	0 - Not supported
	Feature scoring	0/20

Additional Features:

Any additional features the operator has that aren't part of our roadmap list of features.

Additional notes:

Any additional notes on code quality, architecture or any other considerations relevant for wg-etcd-operator.

High level evaluation checklist for etcd operators

Operator summary - [gardener/etcd-druid](#)

Date released	Feb 5, 2020	Last release	Sep 11, 2024 Actively maintained
GitHub stars	70 🌟	GitHub contributors	42
		Contributing companies	Single
Built with	Golang Controller Runtime	License	Apache 2

Feature support summary:

This list is based on the top 10 features requested by the etcd community in the wg-etcd-operator survey. Results documented here <https://github.com/etcd-io/etcd-operator>

#	Feature	Support level
1	Create a new etcd cluster, e.g 3 or 5 members cluster of a specified etcd version	2 - Supported
2	Understand health of a cluster	1 - Partial support
3	Enabling TLS communication, including cert renewal	1 - Partial support
4	Upgrade across patches or one minor version	1 - Partial support
5	Scale in and out, e.g 1 -> 3 -> 5 members and vice versa	2 - Supported
6	Support customizing etcd options (via flags or env vars)	1 - Partial support
7	Recover a single failed cluster member (still have quorum)	2 - Supported
8	Recover from multiple failed cluster members (quorum loss)	1 - Partial support
9	Create on-demand backup of a cluster	Not tested yet
10	Create periodic backup of a cluster	2 - Supported
Feature scoring		/20

Additional Features:

Any additional features the operator has that aren't part of our roadmap list of features.

Additional notes:

Uses [gardener/etcd-wrapper](#) instead of the official etcd image. The etcd-wrapper runs etcd as an embedded server, refer to [internal/app/app.go#L120](#).

TLS is supported by "bringing your own CA". Doesn't seem to manage cert renewal. On step 8, documentation suggests it's possible, but it's mostly a manual process

High level evaluation checklist for etcd operators

Operator summary - coreos/etcd-operator

Date released	Sep 10, 2024	Last release	Feb 8, 2018 Not actively maintained ▾
GitHub stars	1.8k 🌟	GitHub contributors	67#
		Contributing companies	Single ▾
Built with	Golang ▾	License	Apache 2 ▾

Feature support summary:

This list is based on the top 10 features requested by the etcd community in the wg-etcd-operator survey. Results documented here <https://github.com/etcd-io/etcd-operator>

#	Feature	Support level
1	Create a new etcd cluster, e.g 3 or 5 members cluster of a specified etcd version	2 - Supported ▾
2	Understand health of a cluster	2 - Supported ▾
3	Enabling TLS communication, including cert renewal	1 - Partial support ▾
4	Upgrade across patches or one minor version	2 - Supported ▾
5	Scale in and out, e.g 1 -> 3 -> 5 members and vice versa	1 - Partial support ▾
6	Support customizing etcd options (via flags or env vars)	2 - Supported ▾
7	Recover a single failed cluster member (still have quorum)	2 - Supported ▾
8	Recover from multiple failed cluster members (quorum loss)	Not tested yet ▾
9	Create on-demand backup of a cluster	2 - Supported ▾
10	Create periodic backup of a cluster	0 - Not supported ▾
Feature scoring		14/20

Additional Features:

- Built-in Chaos Monkey: <https://github.com/coreos/etcd-operator/blob/master/pkg/chaos/chaos.go>
- Prometheus metrics out of the box. Mostly reconciliation status metrics

Additional notes:

- Project has been archived since Mar, 27 2020. Could not really install a test cluster to test some features. Existing APIs used by this operator don't really work with recent K8s versions.
- Etcd members, as pictured in the examples, use Deployment as opposed to StatefulSets
- Enabling TLS communication, including cert renewal: relies on users providing certs. Not integrated with cert-manager, for example.
- Scale in and out, e.g 1 -> 3 -> 5 members and vice versa: scaling out is supported, but document does not suggest scaling back in is.
- In theory, supports custom etcd image: <https://github.com/coreos/etcd-operator/blob/master/pkg/apis/etcd/v1beta2/cluster.go#L80>

High level evaluation checklist for etcd operators

Operator summary - Aenix-etcd-operator

Date released	Mar 7, 2024	Last release	Aug 9, 2024 Actively maintained
GitHub stars	#82 🌟	GitHub contributors	#17
		Contributing companies	Multiple
Built with	Golang KubeBuilder	License	Apache 2

Feature support summary:

This list is based on the top 10 features requested by the etcd community in the wg-etcd-operator survey. Results documented here <https://github.com/etcd-io/etcd-operator>

#	Feature	Support level
1	Create a new etcd cluster, e.g 3 or 5 members cluster of a specified etcd version	2 - Supported
2	Understand health of a cluster	1 - Partial support
3	Enabling TLS communication, including cert renewal	2 - Supported
4	Upgrade across patches or one minor version	1 - Partial support
5	Scale in and out, e.g 1 -> 3 -> 5 members and vice versa	1 - Partial support - WIP
6	Support customizing etcd options (via flags or env vars)	2 - Supported
7	Recover a single failed cluster member (still have quorum)	0 - Not supported
8	Recover from multiple failed cluster members (quorum loss)	0 - Not supported
9	Create on-demand backup of a cluster	0 - Not supported
10	Create periodic backup of a cluster	0 - Not supported
Feature scoring		10/20

Additional Features:

Any additional features the operator has that aren't part of our roadmap list of features.

Additional notes:

- Documentation is very scant, making it difficult to figure out whether some features are supported.
 - API Examples <https://github.com/aenix-io/etcd-operator/tree/main/examples/manifests>
 - Agreed architecture design <https://github.com/aenix-io/etcd-operator/blob/docs/design/docs/DESIGN.md>
- Does not use MemberAdd or other Etcd methods, but rather manipulates the StatefulSet. Overall, operator relies heavily on StatefulSet behavior for a lot of its functionality.
- Supports using Cert-manager for TLS.
- ~~Resize is supported partly only in HEAD (currently in development)~~ PVC resizing supported since [v0.4.0](#)
- ~~Customization of etcd is done using custom images instead of passing flags or configmap~~