

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~~