# The Life After 1.0.0

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# Jakub Scholz

- Engineer @ CLOUDERA
- CNCF Ambassador
- Co-founder and Maintainer of Strimzi project
- Occasional Apache Kafka contributor

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# Strimzi 1.0.0 is out!



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# How does the **life after 1.0.0** look like?



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# We keep going!



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```
clusterCa:
  generateCertificateAuthority: false
  type: cert-manager
  certManager:
    issuerRef:
      name: my-ca
      kind: Issuer
      group: cert-manager.io
    caCertRef:
      secretName: my-ca
      certificate: ca.crt
```

# Focus on Security

- cert-manager integration
  - Strimzi CAs can be now managed by cert-manager
  - You provide your own (Cluster)Issuer
  - Strimzi will create the Certificate resource the Kafka cluster needs
  - *Uses internal Kubernetes DNS names, does not work with public CAs*

# Focus on Security

- Configurable security
  - Internal connections used to be hardcoded
  - Includes replication, control plane communication, …
  - Always TLS encryption with mTLS authentication

```
apiVersion: kafka.strimzi.io/v1
kind: Kafka
metadata:
  name: my-cluster
  annotations:
    strimzi.io/internal-cluster-security: |
                {
                  "encryption": {
                    "type": "none"
                  },
                  "authentication": {
                    "type": "service-account"
                  }
                }
```



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# Focus on Security

- Configurable security
  - You can disable encryption or authentication
  - You can use Service Account-based authentication
  - Performance improvements, cost savings
  - Improved Service Mesh integration

```
apiVersion: kafka.strimzi.io/v1
kind: Kafka
metadata:
  name: my-cluster
  annotations:
    strimzi.io/internal-cluster-security: |
                {
                  "encryption": {
                    "type": "none"
                  },
                  "authentication": {
                    "type": "service-account"
                  }
                }
```



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```
clusterCa:
  keySize: 4096
clientsCa:
  keySize: 4096
```

# Focus on Security

- Configurable key sizes
  - Configure the size of the private keys
- TLSv1.3 by default & post-quantum key exchange mechanism support
  - Moved to Java 25 which supports ML-KEM
  - TLS v1.3 will be used by default from Strimzi 1.6.0
  - TLS v1.2 will be disabled (but could be still enabled if needed)



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# Focus on Security

- Supply Chain Security
  - Container image signatures
  - SBOMs are part of CI builds / releases
  - Security and license scanning with FOSSA and Snyk
  - Build Attestation and Provenance



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# Focus on Ecosystem

- Cruise Control resuscitated
  - LinkedIn donated Cruise Control to Linux Foundation
- Tiered Storage plugins
  - Maintained by Aiven
  - Seems to continue?

```yaml
apiVersion: kafka.strimzi.io/v1
kind: Kafka
metadata:
  name: my-cluster
spec:
  # ...
  extraMetrics:
    groupRegex: my-group-.*
    topicRegex: my-topic-.*
```

# Focus on Ecosystem

- Kafka Exporter replacement
  - Kafka Exporter released 1.10 and 1.11 recently
  - But had a long periods without releases and CVE fixes
  - Our own Java-based replacement (Strimzi Sova project)

```
client, _ := strimzi.NewForConfig(config)
kafka := &kafkav1.Kafka{
    ObjectMeta: metav1.ObjectMeta{
        Name: “my-cluster”,
    },
    Spec: &kafkav1.KafkaSpec{
        Kafka: &kafkav1.KafkaClusterSpec{
            ...
            ...
        },
    },
}
```

# Focus on Ecosystem

- Strimzi Golang API
  - Moved under the Strimzi project
  - Allows managing Strimzi custom resources from Golang applications
  - Build your own Strimzi tools in Go



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```
apiVersion: kafka.strimzi.io/v1
kind: Kafka
metadata:
  name: my-cluster
  annotations:
    gatekeeper.strimzi.io/reload-hook: |
          [
            {
              “secretName": “my-secret”,
              “secretKeys": [“my-key”],
            }
          ]
```

# Focus on Ecosystem

- Gatekeeper plugins
  - Improved pluggability
  - Inspired by Kyverno, OPA, or Kubernetes Admission plugins
  - Enforcement & Enrichment
  - Extending the Strimzi Operators with per/post reconciliation hooks



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# AI

- Strimzi MCP
  - New Strimzi component
  - Donated by Red Hat / IBM and their StreamsHub project
  - Helps to analyze and solve operations issues
  - Currently read-only (subject to change in the future)

# Other improvements

- Gateway API support (TLSRoutes)
- Auto-rebalancing on imbalanced cluster
- Move to UBI9 micro base images
  - Smaller size and footprint, less CVEs
- Completed move from Kaniko to Buildah for Connect Build

# Future plans



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# Future plans

- Focus on security will continue in 2027 ...
  - Kafka Connect & MirrorMaker 2 security
  - Disabling Strimzi CAs completely
  - Better authorization for internal components
  - TLS named groups configuration (Post Quantum Cryptography)

# Future plans

- OTLP support
  - In Strimzi Metrics Reporter, Operators, and other components
- Kafka Roller 2.0
  - Getting back to an old idea
  - Parallel Kafka rolling and more
- Supporting new Kafka features

# Next stop?

# **Graduation!?!?**



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# Thank you


Website: https://strimzi.io


GitHub: https://github.com/strimzi


Twitter: @strimziio


YouTube: https://youtube.com/c/Strimzi


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