

Istio 2022 Roadmap

Make simple easy, make complex possible

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Highlights of 2021

- Stability and Maintainability
 - Enhanced upgrade process: Revision labels, Skip-version, Gateway injection and simplified Helm.
 - Troubleshooting tooling: ***istioctl verify-install*** & ***istioctl analyze***
 - Extended support window by 6 weeks.
- Feature graduation
 - New process makes feature graduation consistent and promote movement through the phases.
 - Promoted features to Beta including VM support, Gateway Injection, the CNI plugin, and External Control Planes.



Highlights of 2021

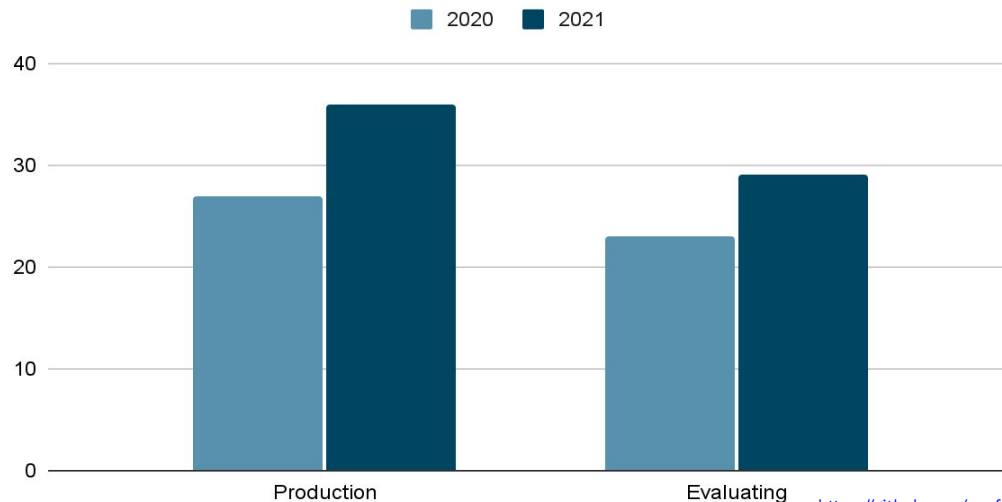
- Extension Ecosystem
 - Added new extensibility mechanisms: external authorization, remote WASM filters and a telemetry API.
- Operational Excellence
 - Increased the effectiveness of our CVE patch process.
 - Security Assessment by NCC Group
 - Shortened time from branch cut to published release.
 - More consistent patch release schedule.
- Other
 - Continuing to help drive and integrate the Kubernetes Gateway API.



Service Mesh Usage

Service Mesh production usage rose from 27% to 36% from 2020 to 2021 based on CNCF Annual Survey results.

Service Mesh Usage



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<https://github.com/cncf/surveys/tree/main/cloudnative>



Istio User Satisfaction

Based on user survey feedback, our user satisfaction has been increasing across the 2021 releases.

Skip level upgrades are up, while single level upgrades are down.

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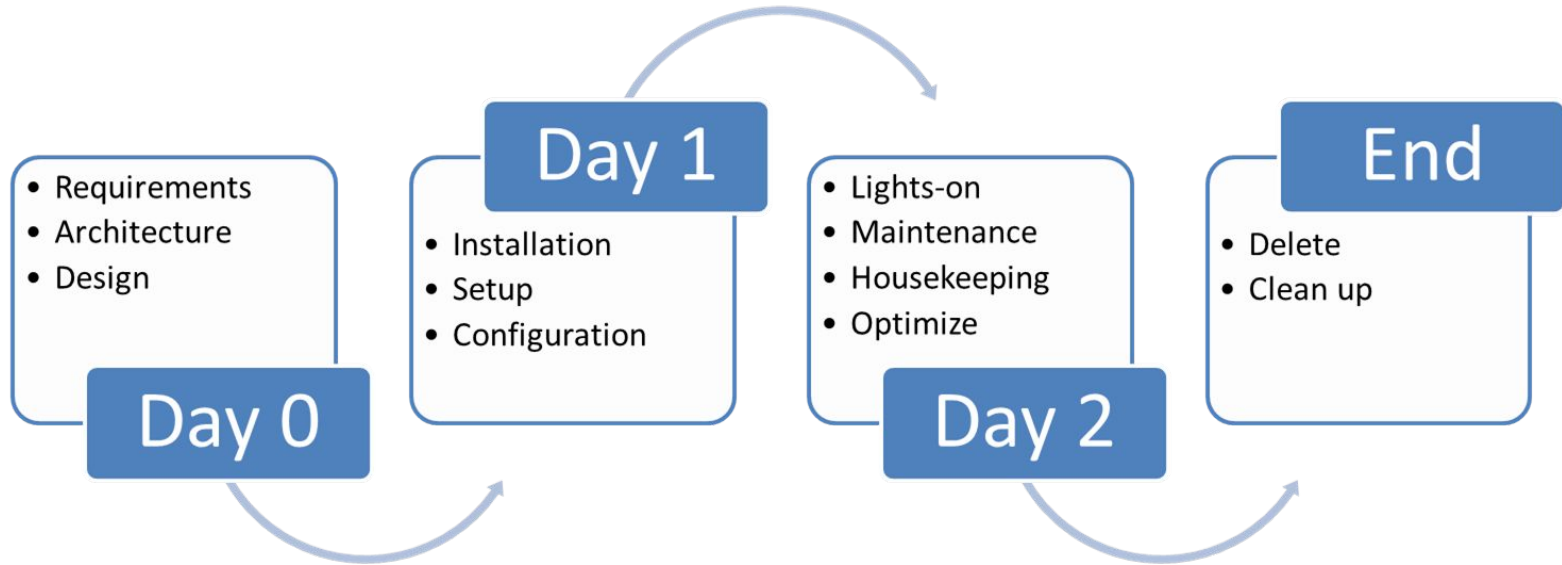
Theme for Istio 2022

Continue work around
Day-2 Operations

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Day 2 operations



<https://dzone.com/articles/defining-day-2-operations>

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Focus areas for 2022

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Stabilize & Refine Istio's API Surface

- Promoting existing features and APIs towards Stable.
- Moving APIs out of Mesh Config into Data Plane APIs so they can be promoted towards Stable.
- Continue to help with Kubernetes API definition and alignment of Istio APIs.
 - Kubernetes Gateway API support is Alpha
- Continued improvements to the Telemetry API
 - Add support for logging with providers like OpenTelemetry, filtering access logs, and customizing the trace service name.



Improving Upgrades and Troubleshooting

- Promote revision label based upgrades to Stable
- Promote Helm install to Beta
- Add more analyzers to istioctl and extend current analyzers
 - Including analyzers for environments beyond Kubernetes clusters
- Users want to troubleshoot their services with a service mesh, not troubleshoot the service mesh.



Improved Extensibility

- [WASM Plugin](#)
- [Custom Authorization](#)
- Standardized integration points to bring your own ...
 - Certificate Authority
 - Managed gateway



Expanding Istio's Reach

- Support for IPv6 and Dual Stack Networking
- Support for ARM
- Extend proxyless Istio with gRPC
- Performance Improvements:
 - Delta xDS
 - Reduce sidecar latency overheads



Security Hardening

- Secure by default (as much as possible)
- Continue with best practices documentation
- Promote distroless images
- Software Bill of Materials
- Adding additional Fuzz testing



Other Improvements

- Make upgrades easier with Automation
 - Make Istio upgrades work like other upgrades, publishing reference implementations of upgrade automation.
- Multi and large scale clusters
- For developers, we have moved to combined weekly WorkGroup meetings, one at a US friendly, and one at an APAC friendly time.



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Thank you!

@louiscryan

Understanding the new Istio Telemetry API - 11:00
Listening session: Telemetry API - 13:00
Gateway API Status Update - Thursday 11:40

How I upgraded 3000 proxies in my sleep - and you can too!

@kf0s

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