Debugging Istio Within the Department of Defense

Nick Nellis / Adam Toy

#IstioCon
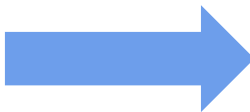
Istio Going Mainstream

Consumer Expectations

- Reliability

- Maintainability

- Usability

Highlights of 2020

- Better life cycle management
  - Istioctl install & Operator support
  - Re-introduced Helm v3
- Architectural simplification
  - Monolith control plane
  - Mixerless telemetry
- New extension capabilities
  - WebAssembly (Wasm) support
- Secure by default
  - Secret Discovery Service (SDS)
  - Auto mTLS
- API and feature promotion
  - Networking/Security APIs
  - Virtual Machine expansion/Multi cluster mesh
- Performance and scale improvements
  - Optimized config distribution
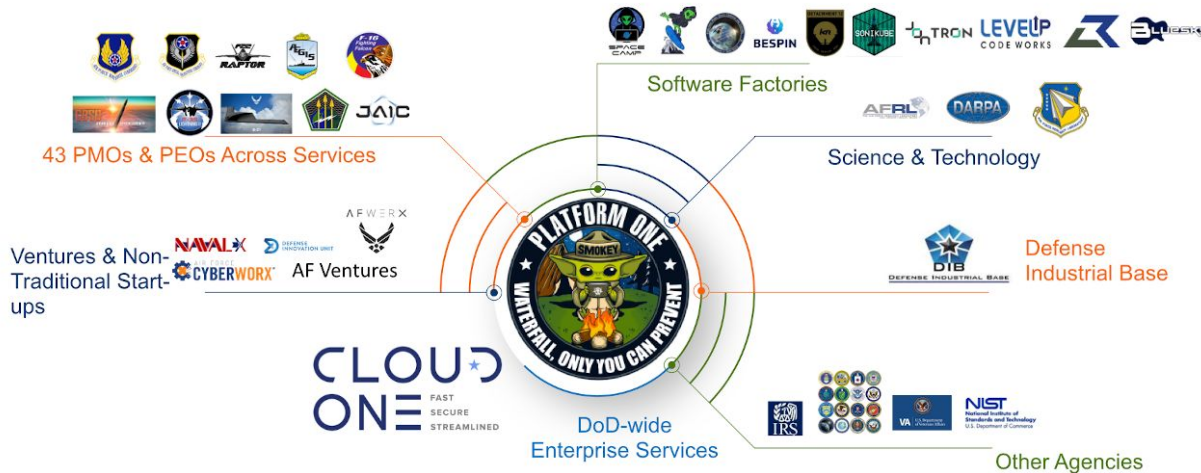 - Reduced sidecar proxy latency

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Platform One

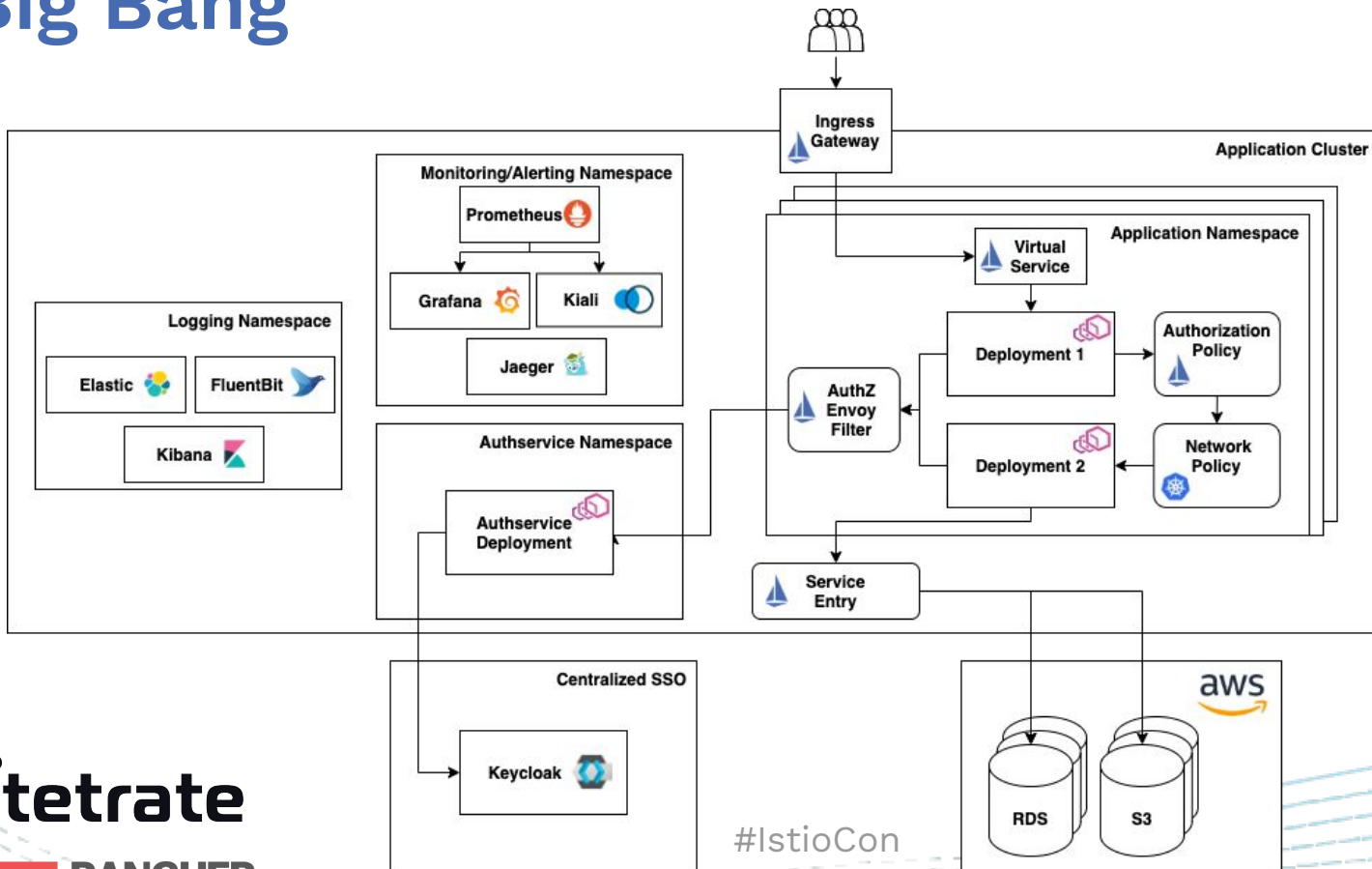**Software Ecosystem**
Multiple Innovation Hubs – One Platform

Software Factories

43 PMOs & PEOs Across Services

Science & Technology

Ventures & Non-Traditional Start-ups

AF Ventures

Defense Industrial Base

CLOUD ONE
FAST SECURE STREAMLINED

DoD-wide Enterprise Services

Other Agencies

Big Bang

Welcome App

A flowchart showing: A user at the top flows down to a decision "Is user already logged in via SSO?". If **No**, it goes to "Keycloak OIDC Provider for Login" then "Redirect with Valid Authentication Token" back to the user. If **Yes**, it branches to "UI Presenting Welcome Message" and "Backend Grabbing User Location based on Authentication Token" which connects to "User Locations" data store.
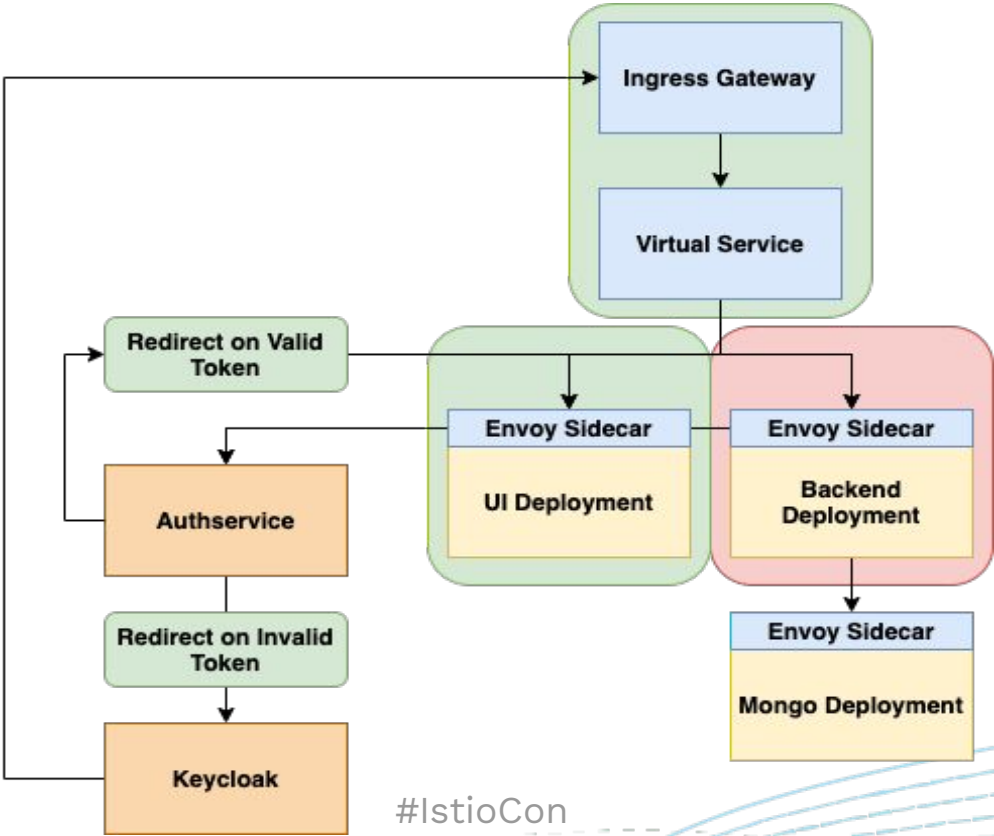
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Welcome App
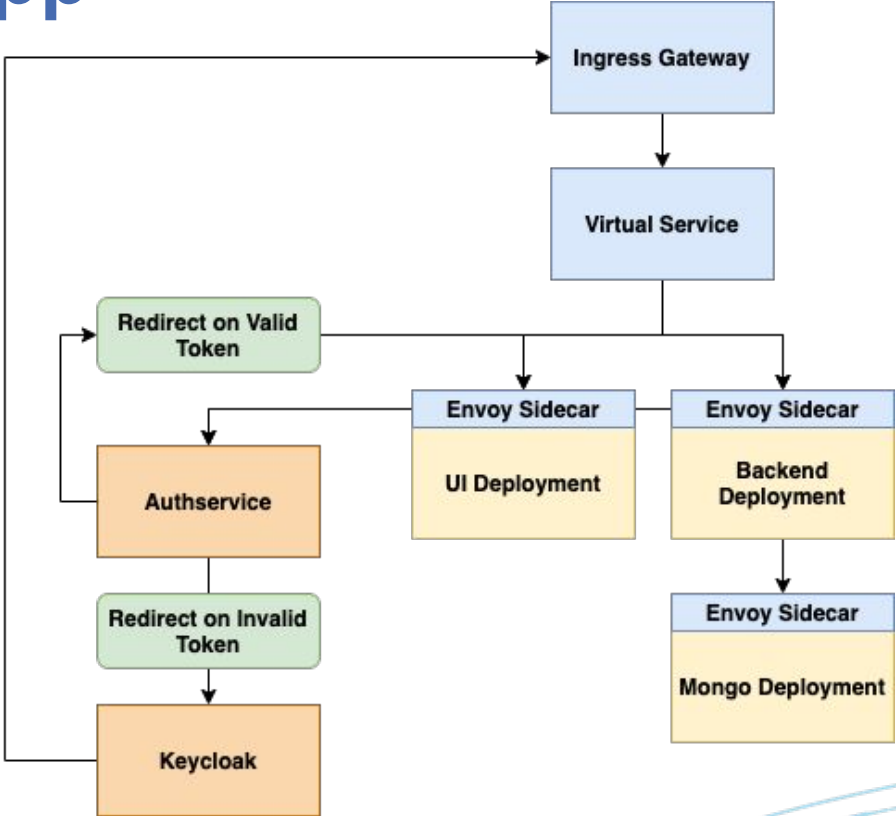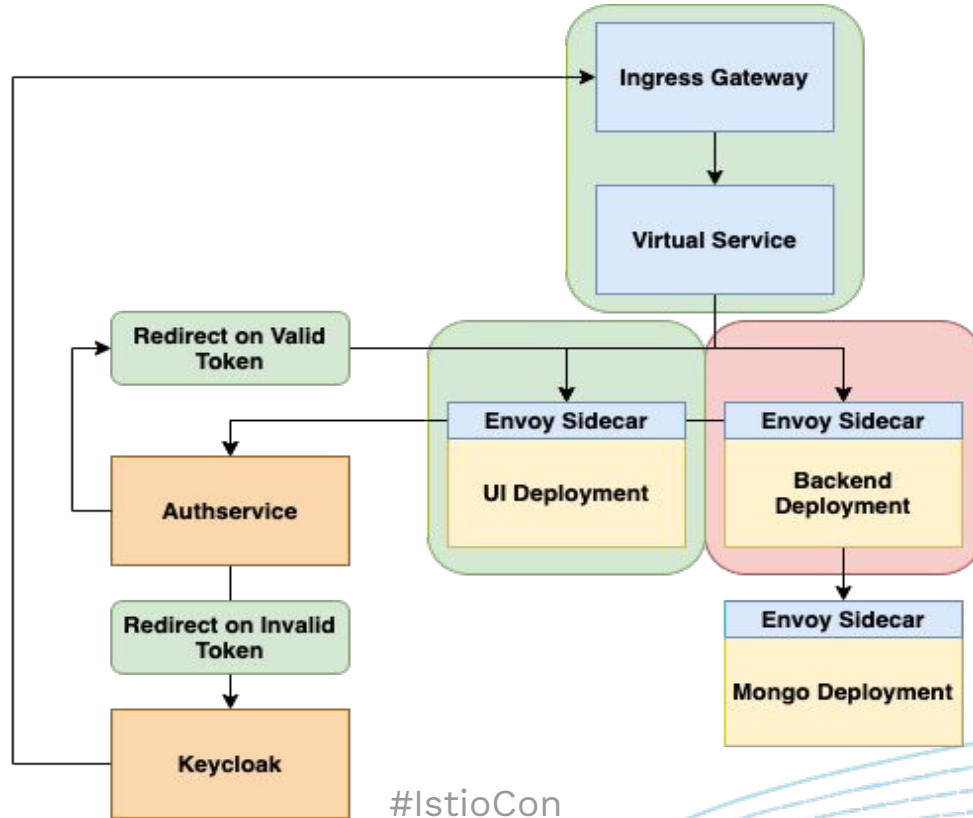

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Issue 1 - Gateway
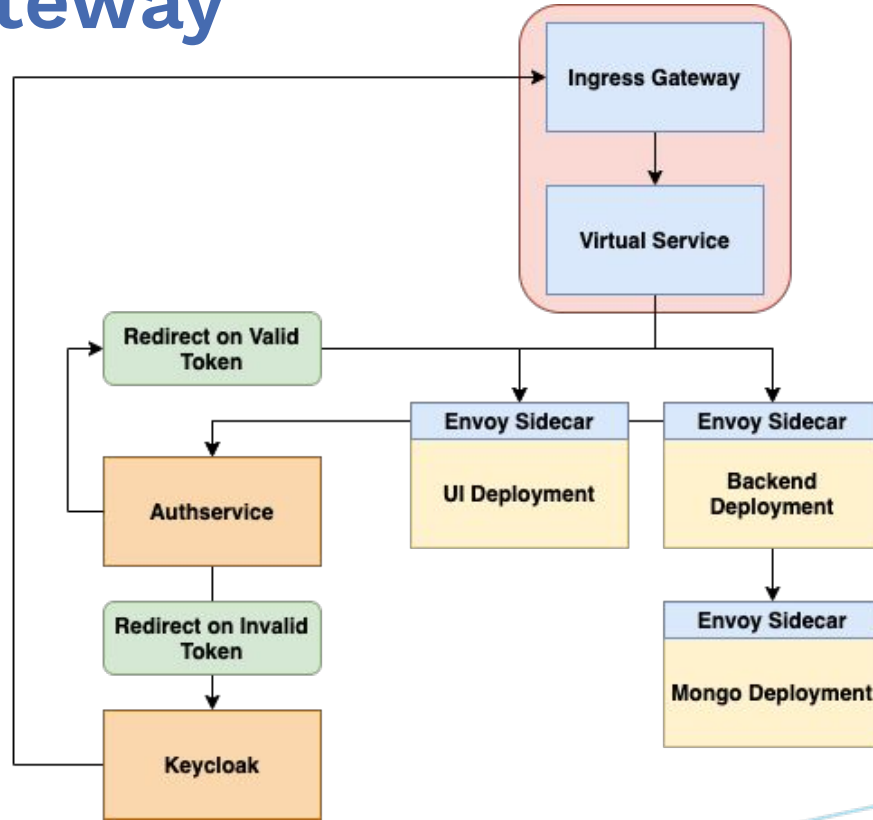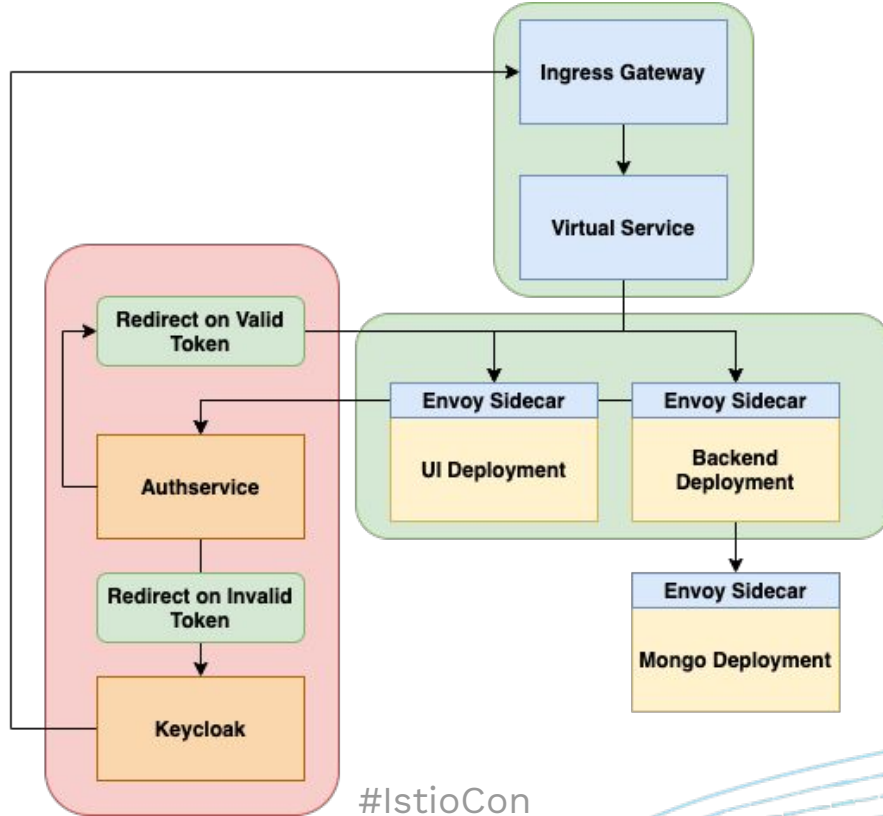
Issue 2 - Service

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Issue 3 - AuthorizationPolicy
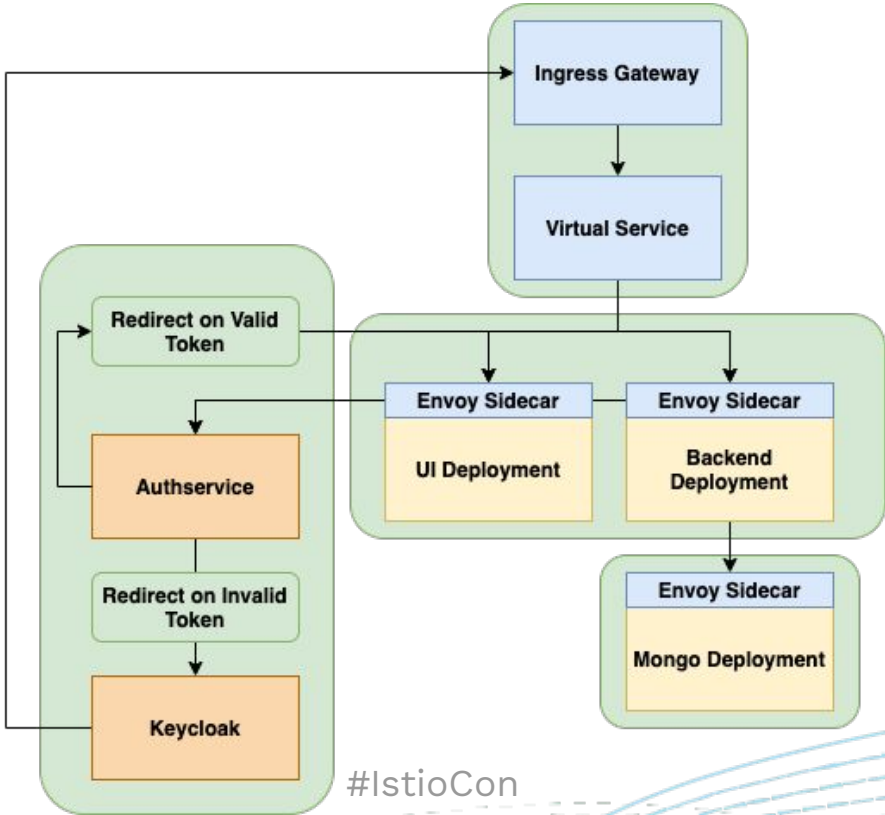

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Issue 4 - Proxy Configuration

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Functioning Welcome App

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istioctl...

- analyze
- experimental
- proxy-config
- proxy-status
- upgrade (--dry-run)
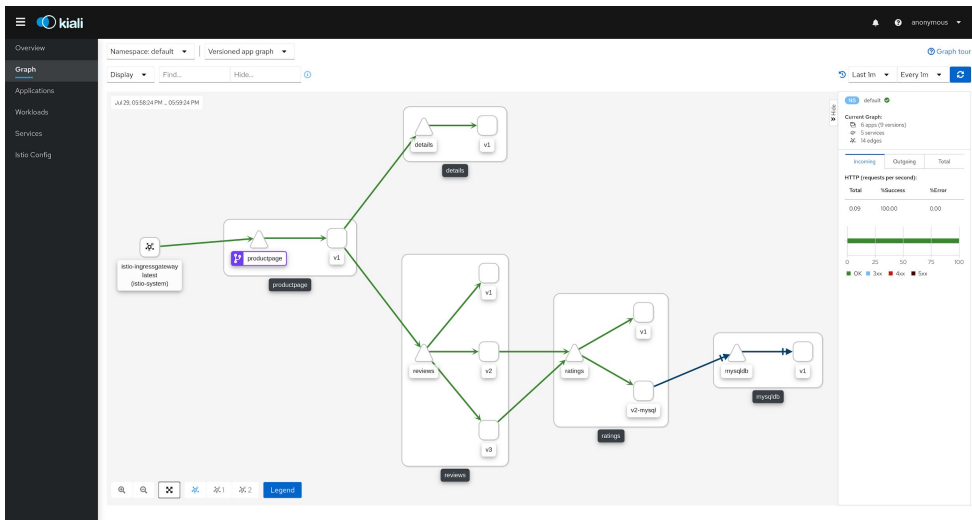- verify-install
- bug-report

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Maintaining Istio

- Deployments
  - IstioOperator
- Monitoring
  - Prometheus
  - Grafana
  - Zipkin or Jaeger
  - Kiali

GetIstio

Simple, safe enterprise-grade Istio distro

- Easiest way of installing, operating, and upgrading Istio
- Tested and hardened for your application and cloud platform
- Community hub for users, ecosystem, and partners

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Community

discuss.istio.io

Community

👥 Getting Involved

🕐 2 MINUTE READ

Istio is an open source project with an active community that supports its use and on-going development. We'd love for you to join us and get involved! There are quite a few ways to get plugged in:

Head for the Istio discussion board to ask questions, participate in discussions, and get help troubleshooting problems. You can use your GitHub ID (or Google, Twitter or Yahoo) to log in!

Stack Overflow is for practical questions and curated answers on deploying, configuring, and using Istio.

If you'd like to have live interactions with members of our community, you can join us on Istio's Slack workspace.

Attend events on our Community calendar.

Follow us on Twitter to get the latest news.

GitHub is where development takes place on Istio code.

If you want to get into the nuts and bolts of Istio, check out our growing collection of design documents. To access these, simply join the istio-team-drive-access@ group. Once you've done that, you can head straight to our folder full of technical goodies.
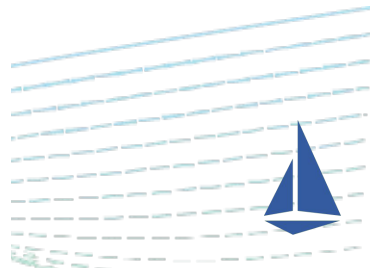
If you'd like to contribute to the Istio project, please read our code of conduct and contribution guidelines, and consider participating in our working groups.

If you would like to know more about Istio governance, please learn how we do things as a project, and read in more detail about the Istio Steering Committee and Technical Oversight Committee.

Our Chinese-language documentation is maintained by the ServiceMesher community, join us and get involved!

Thank you!

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https://p1.dso.mil/#/products/big-bang

https://repo1.dso.mil/platform-one/big-bang/bigbang

https://github.com/atoy3731/istiocon-demo (WIP)

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