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Debugging in Istio ServiceMesh

Chaitanya Solasa · [Follow](#)

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Hello people, I am just thinking what should I write in my next article and then I thought of this , Is it only me or anyone else who struggles sometimes to debug what's happening with your request inside Istio servicemesh ? Afterall if you are always assigned debugging work this is going to be a nut to crack with the amount of issues that can come in , Atleast in my case it used to be , In the beginning of my Istio journey I always used to pray hoping nothing goes wrong with the requests but my prayers arent answered well I would say ! So here I am to help guys like me who get lost when issues come inside a servicemesh.

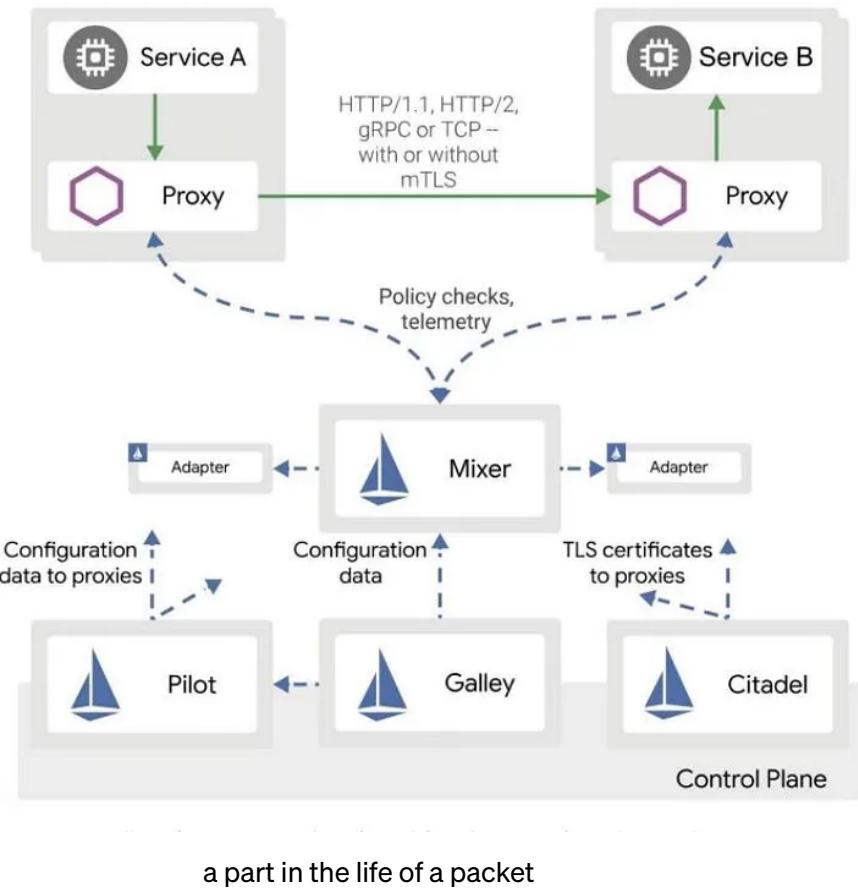
Firstly why its hard to track/debug your request/packet inside servicemesh ?

The reason is simple, Because there are no enough logs! So why not find ways to get better with logging right!

And why is it having inadequate logs ! Simple by default we don't enable it and also when you enable it, it throws ample amount of logs(when I mean that imagine each request generating 1000's of lines of logs). And why do we get these many logs because if you understand the mesh it is a complicated architecture where you can customize your mesh with additional layers like tracing or security rules or policies etc.. So this is gonna be hecking hard with these many components involved.

But before you go ahead I would say I would like you guys to go through this video from Matt Turner about [Life-of-packet-in-istio](#) , I would suggest have a view at it ,

Ahh I understand its about 2 hours but I would say it would save you in worst times. But here is the transcript if you want to read as an [article](#). Also adding couple of articles from [gojek](#) team and a medium blog from [Dinesh Kumar Ramasamy](#) down below in references please go through them I would like to postmortem and make them simple in sometime soon .



After going through you would have understand that your packet is subjected to multiple validations moving from one hop to another before reaching to your pod and the path will not be constant because as you know you can customize your mesh / envoy in different ways be it wrt auth validations, telemetry, routing rules, envoy configurations etc.

But as we are talking we thought of understanding what is happening with our request right ? So yeah and as we know any request coming from outside reaches to your ingressgateway first right ? which in turn is your ingressgateway-service which is binded with your ingressgateway-pod, And here is the keeper of *half* of your secrets and you crack this guy you hold the potential information you are seeking for

like Where your request went ? What's happening with your request ? What's the responses? almost everything so why to wait lets crack this up , its quite easy anyways just a command like below does it

```
istioctl proxy-config log <ingresspodname>.istio-system --level debug <ingres  
admin: debug  
aws: debug  
assert: debug  
backtrace: debug
```

```
cache_filter: debug  
client: debug  
config: debug  
connection: debug  
conn_handler: debug  
decompression: debug  
dubbo: debug  
envoy_bug: debug  
ext_authz: debug  
rocketmq: debug  
file: debug  
filter: debug  
forward_proxy: debug  
grpc: debug  
hc: debug  
health_checker: debug  
http: debug  
http2: debug  
hystrix: debug  
init: debug  
io: debug  
jwt: debug  
kafka: debug  
lua: debug
```

```
main: debug  
  
matcher: debug  
  
misc: error  
  
mongo: debug  
  
quic: debug  
  
quic_stream: debug  
  
pool: debug  
  
rbac: debug  
  
redis: debug  
  
router: debug  
  
runtime: debug  
  
stats: debug  
  
secret: debug  
  
tap: debug  
  
testing: debug  
  
thrift: debug  
  
tracing: debug  
  
upstream: debug  
  
udp: debug  
  
wasm: debug
```

The moment you do this remember you will be thrown with an abundant debuggers for different type calls/validations and u get see everything happening to your request at the gateway level . So lets say I want to only get logs of http call all I need to do is change my command like below instead of generalizing for all , but the

above one tells every small info that its is aware of , but I would suggest you to do that just during the moment you are debugging and change it back to info afterwards

enable debugger for only http requests:

```
istioctl proxy-config log <ingresspodname>.istio-system --level http:debug
```

Now lets say you fired your request and got whatever success/failure message, the next moment you need to change this back to info mode like below

```
istioctl proxy-config log <ingresspodname>.istio-system --level debug <ingressp
```

Remember now if you do “`kubectl logs ingresspodname -n istio-system`” you will get hold of all the logs , I would say if u have a logging tool it would be easier to analyze ,if not you can copy them to a file and view it editor of your choice and I would bet you will get more than enough logs to analyze.

But lets say you want to see what's happening to your request after it reaches your pod be it wrt service discovery or anything ? Remember the above command can be customized for any pod , not just your ingress pod

for ex:

```
istioctl proxy-config log <podname>.<namespace> --level debug
```

That's cool right ! This debugging is not limited to this , lets say you want to make your envoy/sidecar logs much clearer because as you know by default if may not hold enough information you can just configure your envoy by changing its configuration using envoy filters too like this. I will try to write an article around it may be in sometime

Again the istioctl have great debug options be it wrt proxy-configs or any of the diagnostic-tools that istio provide.

I will try to cover them in next few parts of this Istio series.

References:

Life of packet :

Life of a Packet through Istio

Turner: Hopefully I've got the three hours done enough because I know I stand between you and beer. You've had literal...

www.infoq.com

Life of a Packet in ISTIO — Part 1

The term “service mesh” has probably insinuated your consciousness sometimes if you are working with backend systems...

dramasamy.medium.com

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Debugging your mesh components:

<https://support.f5.com/csp/article/K50554509>

IBM Developer

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developer.ibm.com

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Tools and techniques to help troubleshoot an Istio mesh.

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Component Logging

Istio components are built with a flexible logging framework which provides a number of features and controls to help...

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Istio debugging tools :: Istio Service Mesh Workshop

Check list of service handled by the proxy for a pod: istioctl proxy-config clusters POD-ID
istioctl proxy-config...

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Senior DevOps Engineer who works on the ever-changing DevOps stack who is here to help the tech community who faced issues just like me ! So yeah go ahead

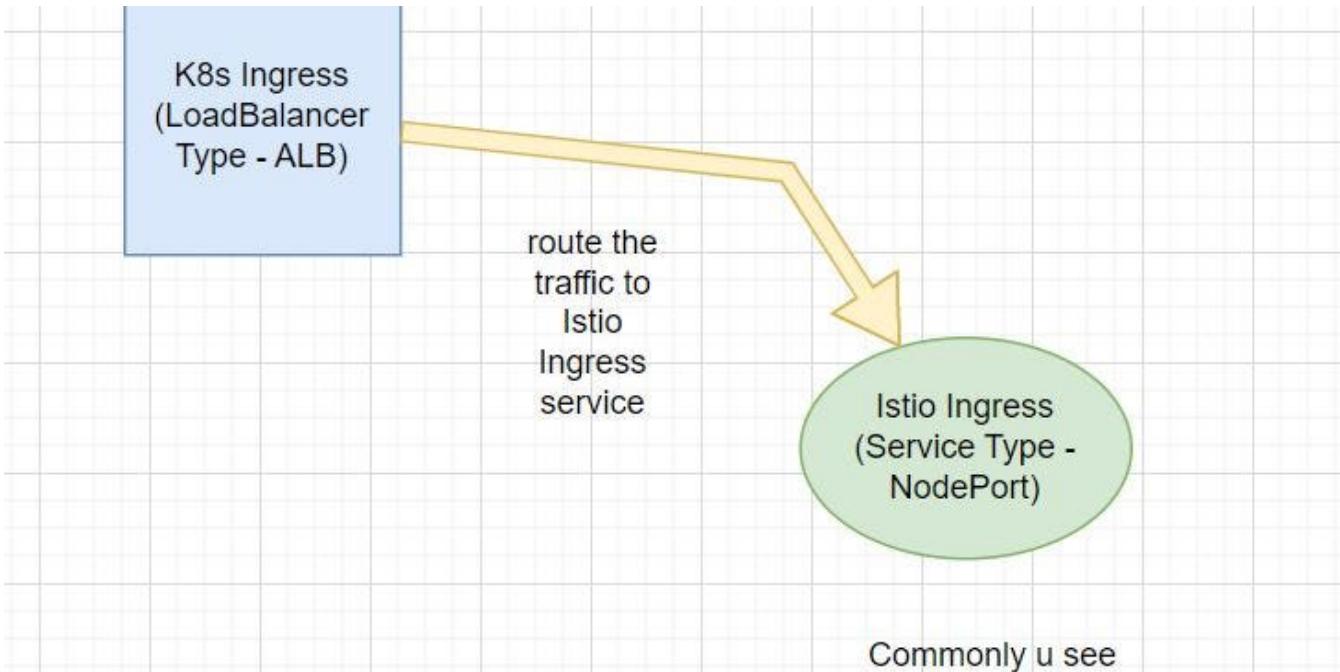
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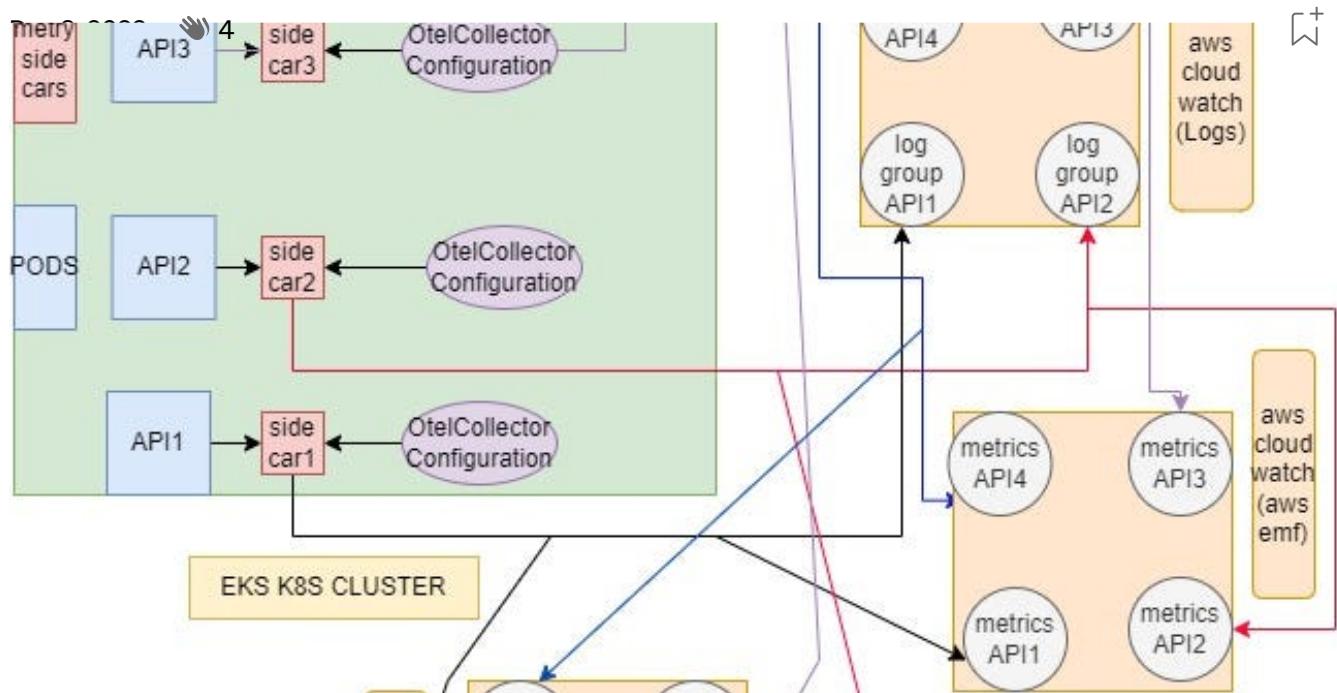
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es -A
      AGE      VERSION
  -plane  6m29s  v1.28.3
          5m59s  v1.28.3
          5m34s  v1.28.3
```

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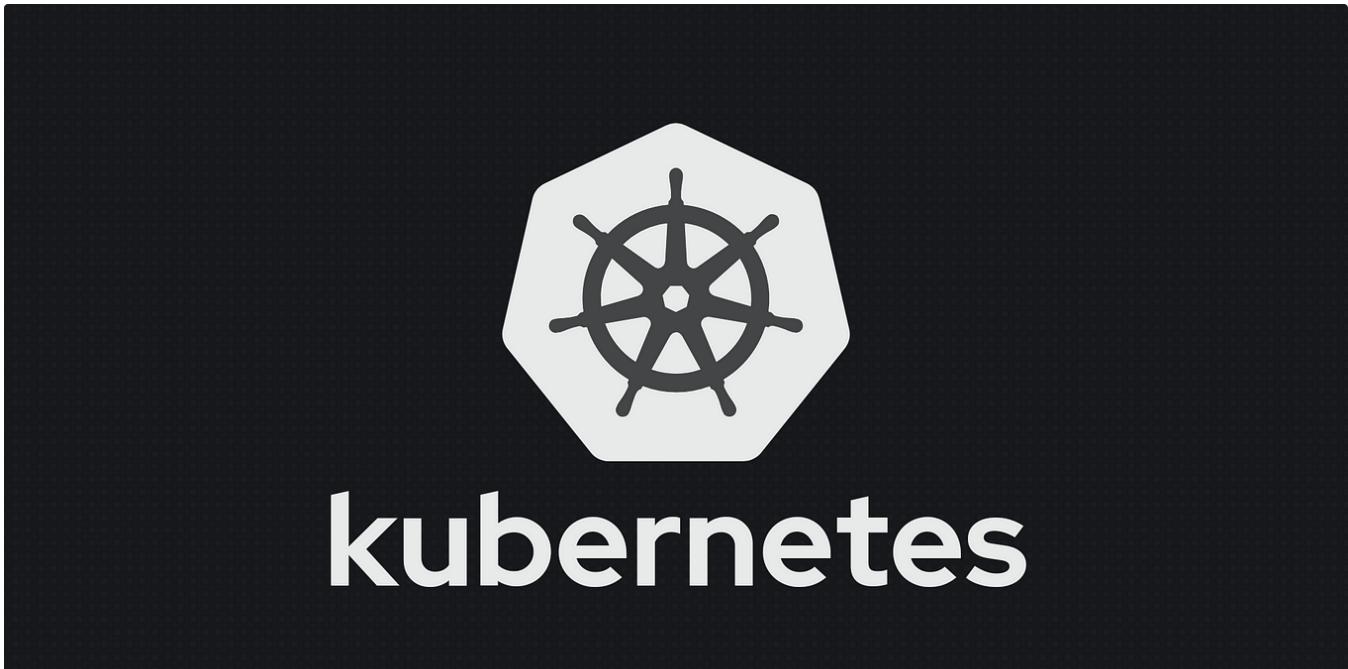
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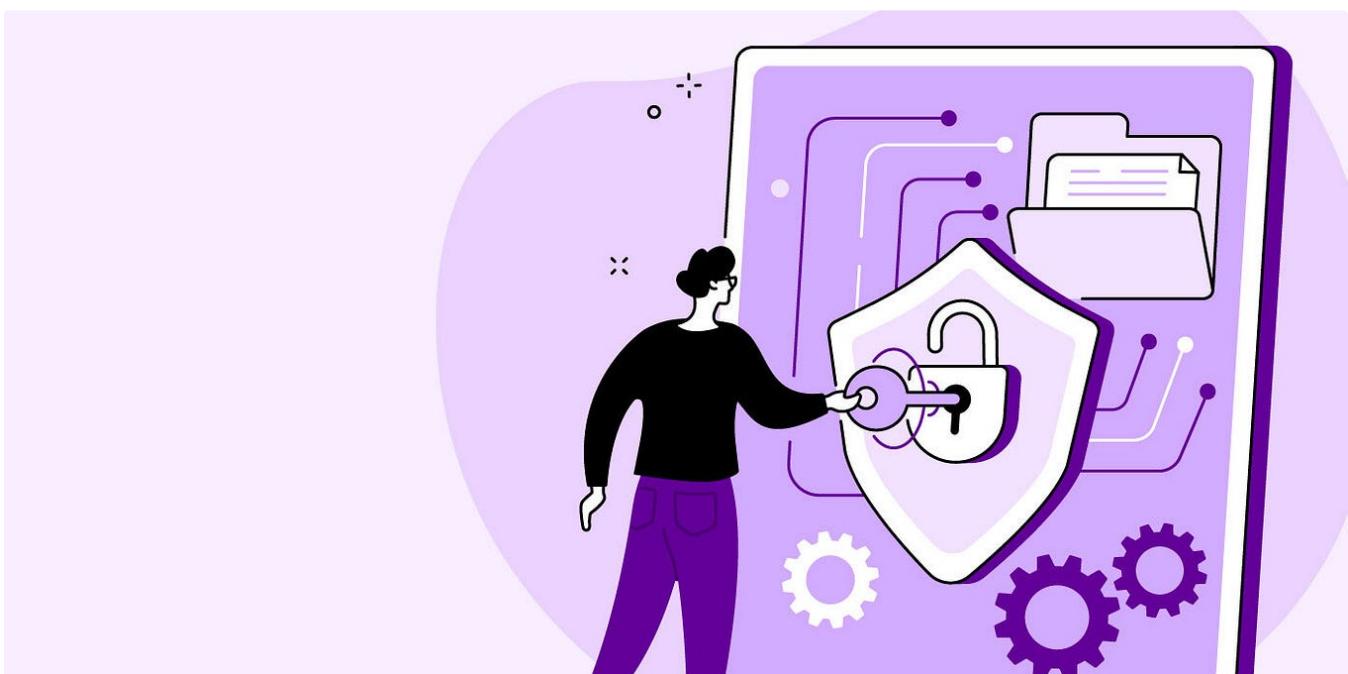


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