



Observe your API with an API Gateway Plugins

By Bobur Umurzokov





About me

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Agenda

- **APIs are everywhere – API Observability**
- **API Gateway – a central point for observation**
- **About Apache APISIX**
- **API Observability 3 pillars – logging, tracing, and metrics**
- **APISIX Plugins for observability**
- **Demo**



APIs

APIs are everywhere



Even ChatGPT uses APIs



Doest ChatGPT use REST API?



ChatGPT can be used through a REST API, which stands for Representational State Transfer API. This type of API allows for communication between different software systems over the internet, typically using the HTTP protocol. In the case of ChatGPT, this would involve sending a text prompt to the API, which would then return a response generated by the model. The API can be accessed by sending a HTTP request and receiving a HTTP response.



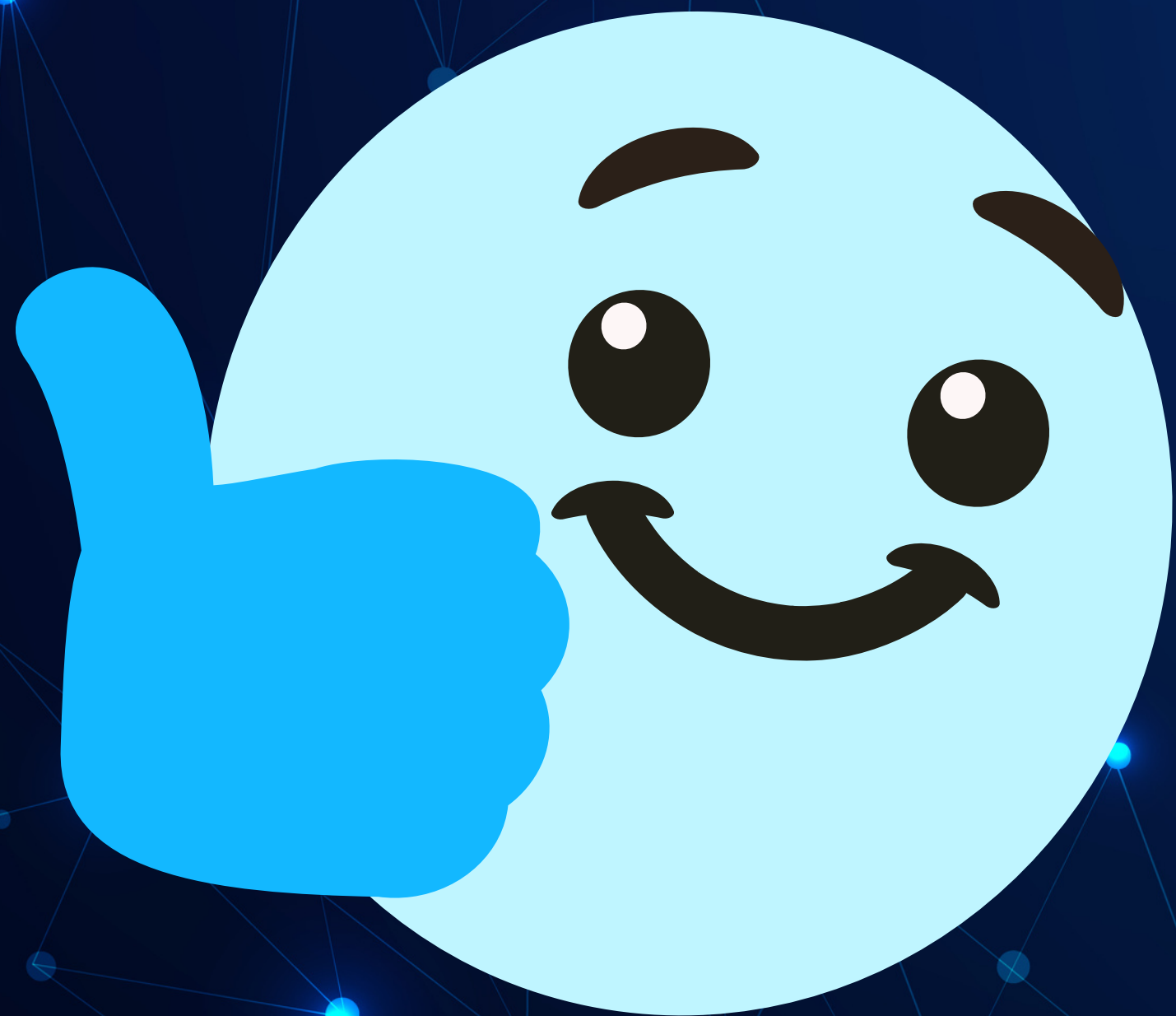


Performance

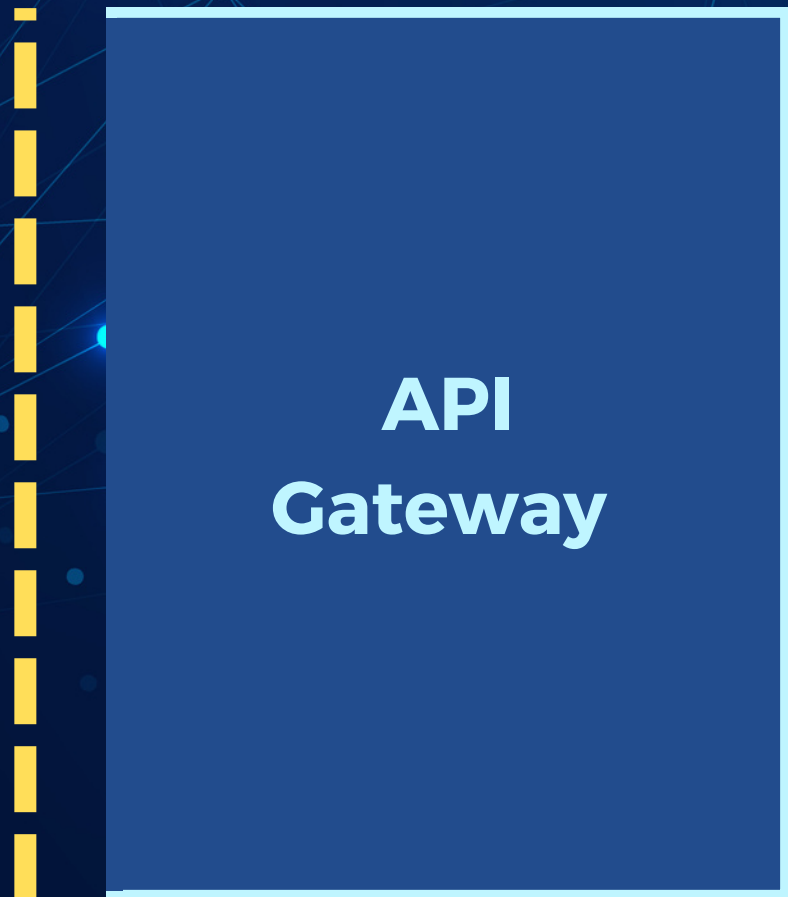
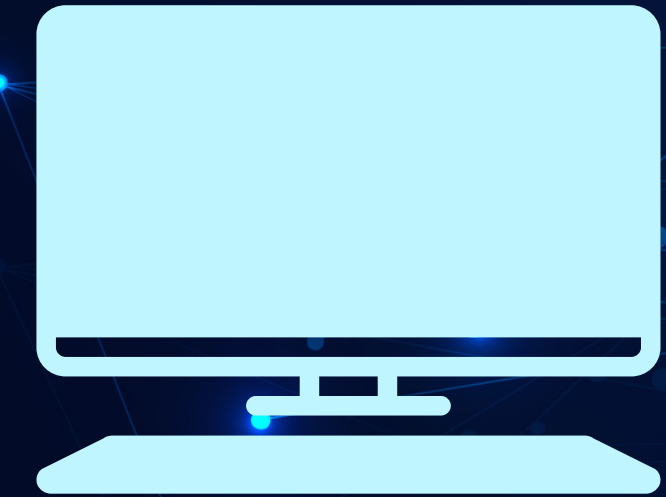
API

Availability

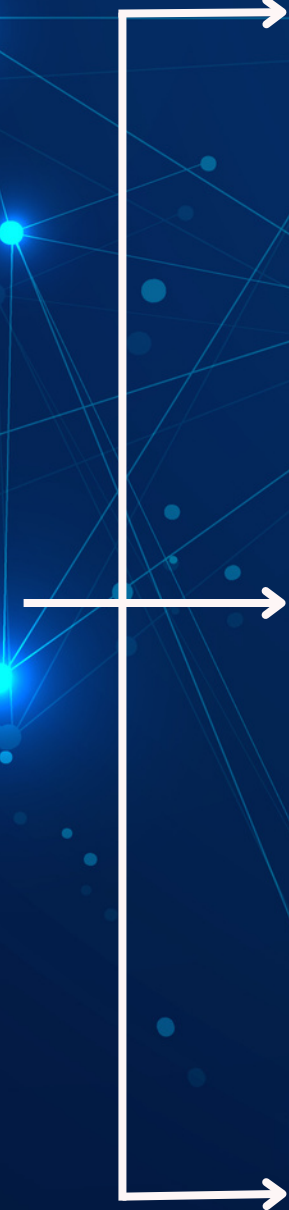
Integrity



API Gateway



Single entry point
client API

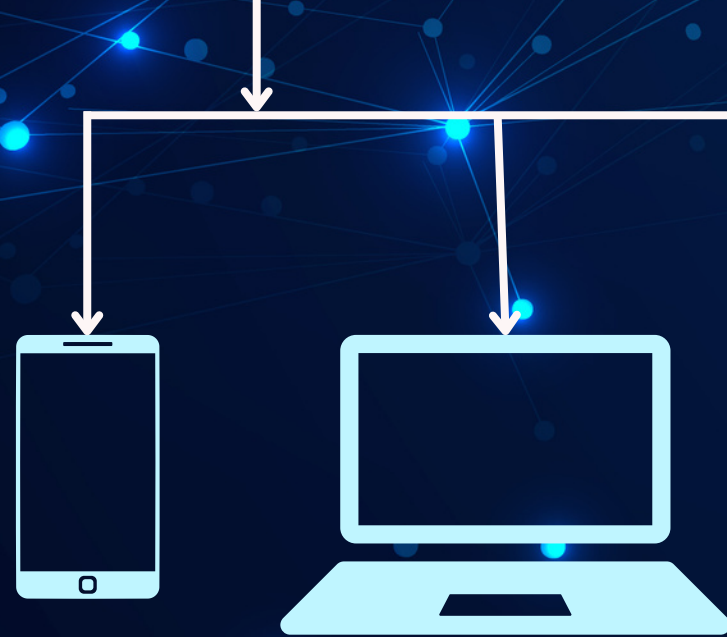


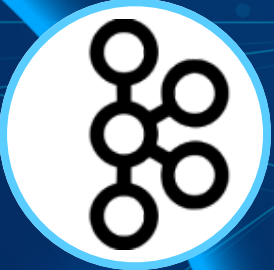
Backend APIs
can change





A central point for APIs observation







What is Apache APISIX?

- One of the fastest-growing top projects of the [Apache Software Foundation](#) in 2022.
- Cloud native API gateway.
- It has rich traffic management features.
- Many well-known organizations use APISIX in production.
- APISIX has a user-friendly dashboard.
- It support plugin hot reloading.
- You can write custom plugins.





API Gateway Plugins

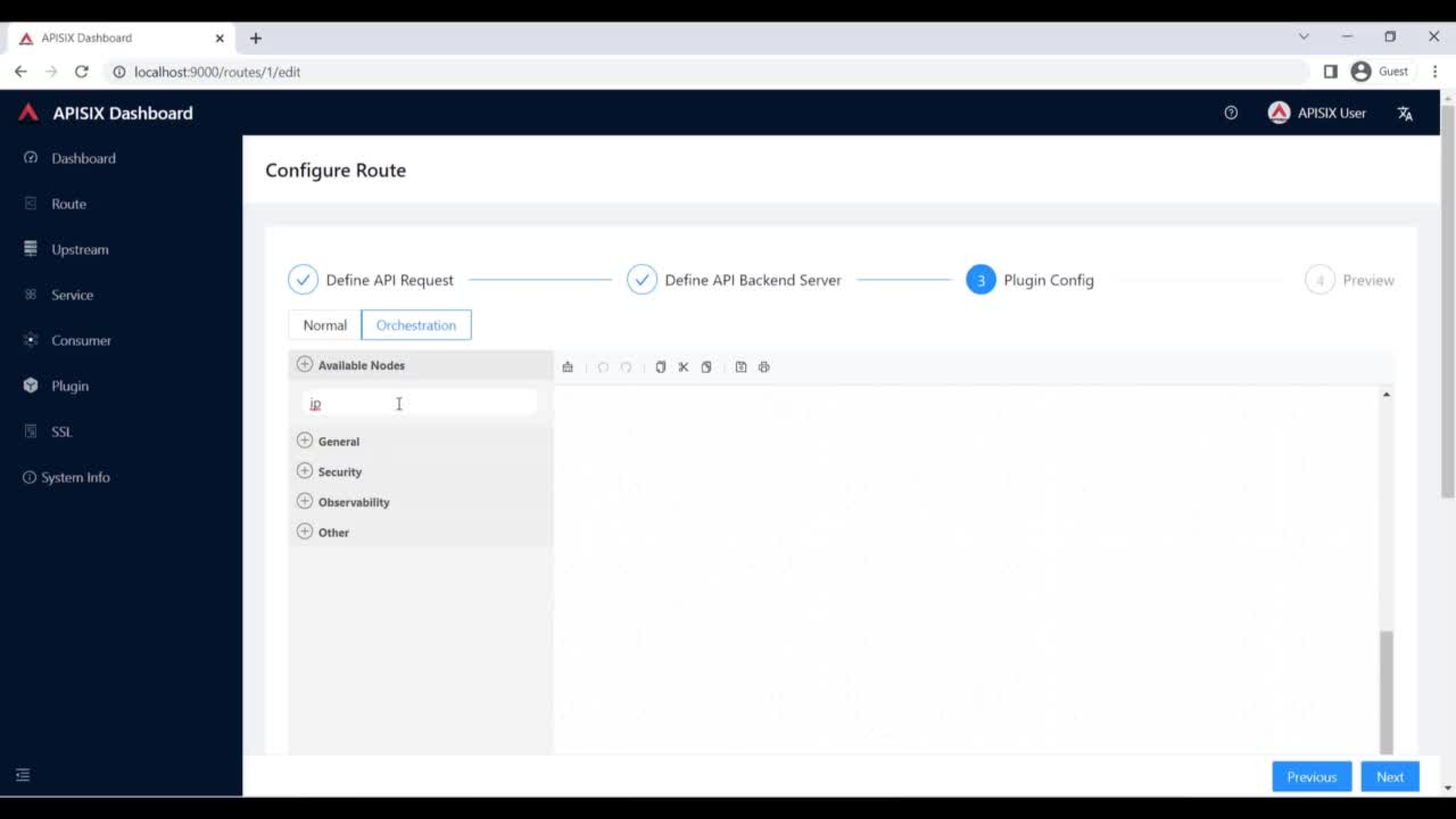
- **Authentication**
- **Security**
- **Traffic Control**
- **Observability**
- **Serverless**
- **Transformation**
- **Other**





Custom plugin development





APISIX Dashboard

- Dashboard
- Route
- Upstream
- Service
- Consumer
- Plugin
- SSL
- System Info

Configure Route



Normal **Orchestration**

- Available Nodes
- id
 - General
 - Security
 - Observability
 - Other

Canvas area for configuring plugins.

**What is API
observability?**





Things we are neither aware of nor understand. Future events or situations that are impossible to predict or plan for.

Knowns

Known Knowns

Things we are aware of and understand.

Known Unknowns

Things we are aware of but don't understand .

Unknowns

Unknown Knowns

Things we understand but are not aware of.

Unknowns Unknowns

Things we are neither aware of nor understand.

Knowns

Unknowns

Monitoring



Things we are neither aware of nor understand. Future events or situations that are impossible to predict or plan for.

Knowns
Unknowns

Known Knowns

Things we are aware of and understand.

Known Unknowns

Things we are aware of but don't understand .

Unknown Knowns

Things we understand but are not aware of.

Unknowns Unknowns

Things we are neither aware of nor understand.

Knowns

Unknowns

Observability





API Observability is a part of every API development

- **Sales and growth teams to monitor your API usage, free trials, observe expansion opportunities and ensure that API serves the correct data.**
- **Engineering teams to monitor and troubleshoot API issues.**
- **Product teams to understand API usage and business value.**
- **Security teams to detect and protect from API threats.**



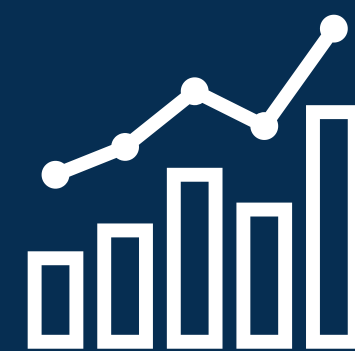
Observability



Tracing



Logging



Metrics





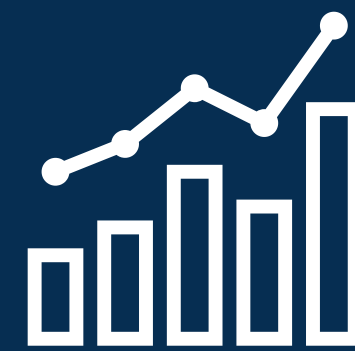
Observability



Tracing



Logging



Metrics





Logger Plugins

http - logger

skywalking -
logger

tcp -logger

kafka -logger

rocketmq -
logger

udp - logger

clickhouse -
logger

error- log -
logger

google- cloud -
logger



HTTP logger Plugin



HTTP logger Plugin pushes Log data requests to HTTP/HTTPS servers or sends them as JSON objects to Monitoring tools.



Observability



Tracing



Logging



Metrics





Prometheus Plugin



[Prometheus plugin](#) can fetch API metrics data and you can show metrics exported by the plugin in [Grafana](#).



Observability



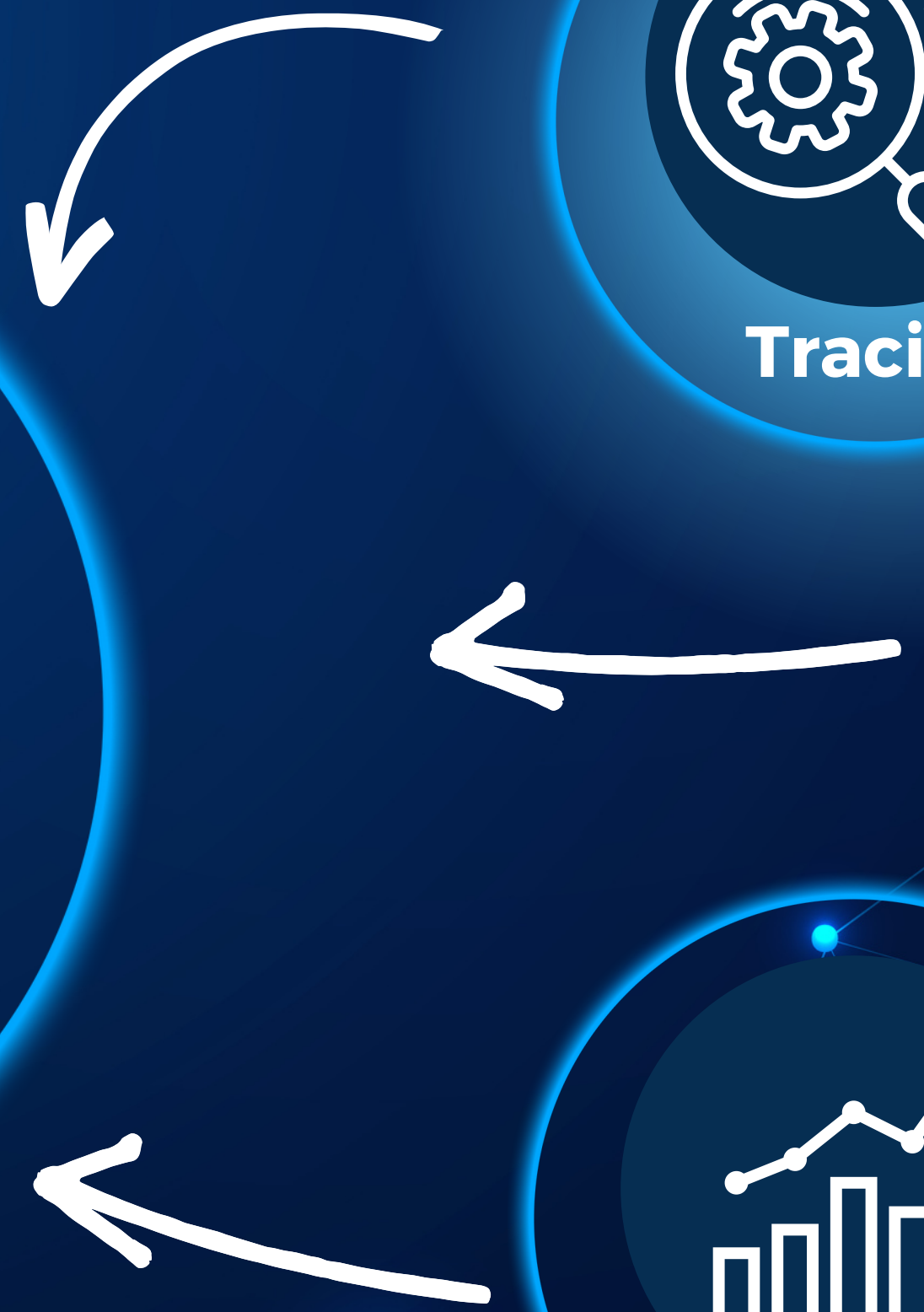
Tracing



Logging



Metrics





Zipkin Plugin

Zipkin an open-source distributed tracing system.
APISIX Zipkin plugin is supported to collect tracing
and report to Zipkin Collector based on **Zipkin API**
specification.





API Gateway Observability Plugins demo



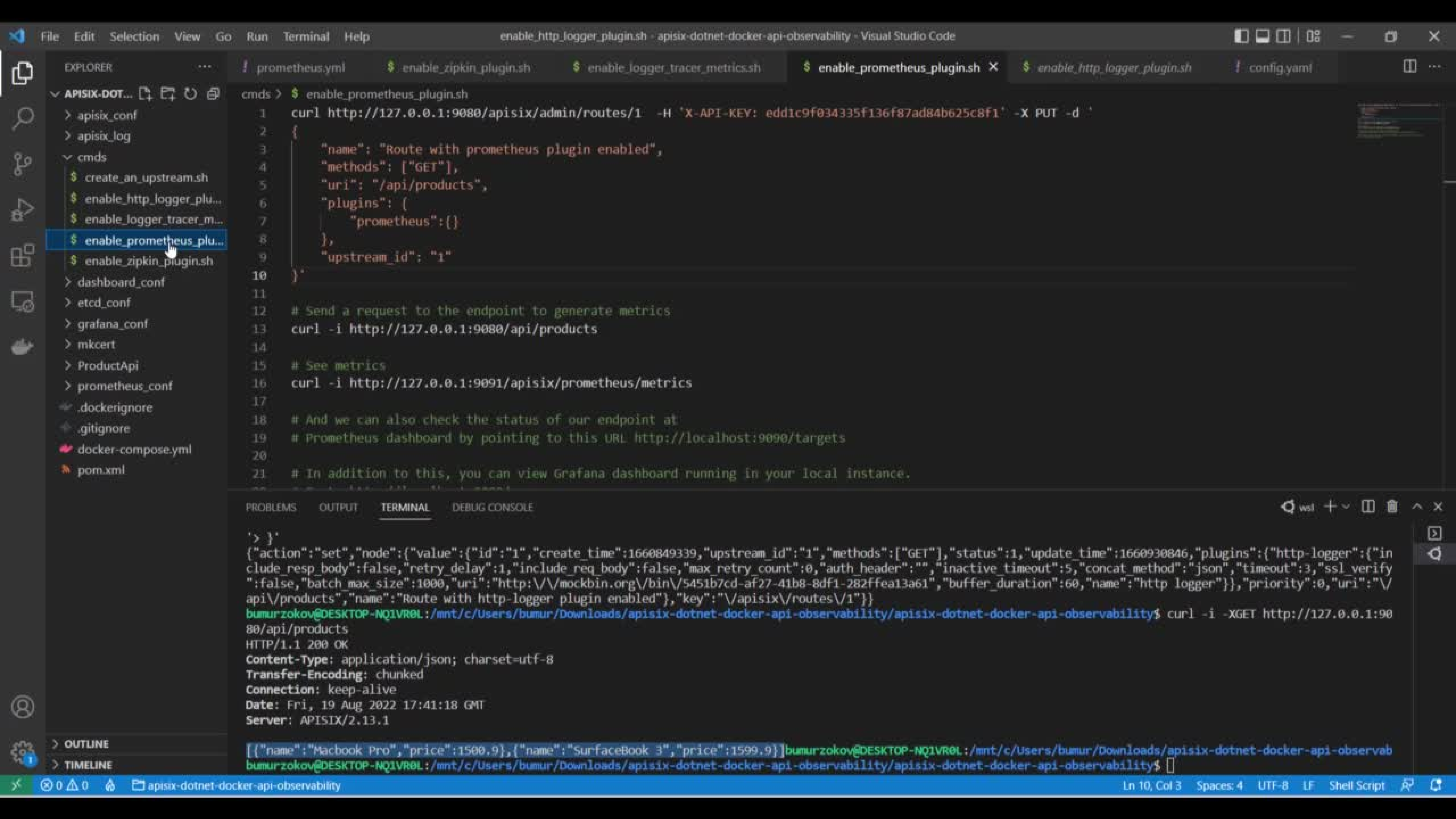
Observe ASP.NET Core WEB API with APISIX

- Multi-container app (backend, db, apisix and etcd together) with [Docker compose](#).
- Configure APISIX an upstream and a route for Product API.
- Enable Http-logger, Prometheus and Zipkin plugins.
- <https://github.com/Boburmirzo/apisix-dotnet-docker> source code on GitHub and check out the branch api-observability



Takeaways

- Use API Gateway to easily observe your APIs without the need for additional SDKs, libraries, or tools.
- Modern API Gateways have built-in connections to all popular observability platforms.
- You can enable these plugins without writing any code on your API service.
- Use other plugins to enable cross-cutting functionalities.





References

- [Apache APISIX official website](#)
- [Apache APISIX GitHub repo](#)
- Read [Getting Started](#) guide
- Watch Video Tutorial [Getting Started with Apache APISIX](#)
- [Download Apache APISIX](#)
- Read the full written [guide on](#) our docs
- View the complete [Apache APISIX documentation](#)
- [Read the blog posts](#)
- Learn [plugin development](#)
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- Mail to us with your questions: dev@apisix.apache.org

Questions



Thank You

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APISIX