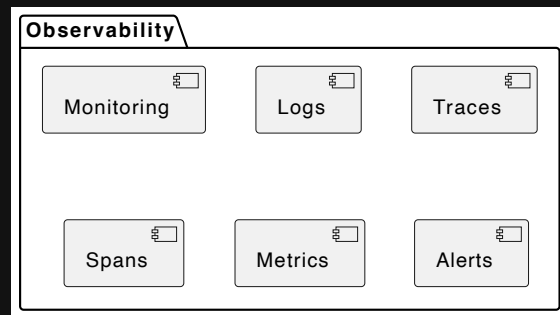# OpenTelemetry

Ashish Tiwari
Senior Developer Advocate

elastic

Monitoring != Observability

- When & What
  - Monitor
  - Watch
  - Trigger
  - Alert

- Why & How
  - RCA
  - Detection
  - Correlations
  - Anomaly detection

Observability

Monitoring	Logs	Traces
Spans	Metrics	Alerts

elastic

Performance that Delivers Relevant Results in Real-time

Any Data, Any Source

- Databases
- Legacy Systems
- Applications
- SaaS Apps
- Web Services
- Files

Public Cloud

On-Premises

Out-of-the-Box Solutions

Elastic Observability

Logs, APM, Tracing, Metrics, Synthetics, Profiling, RUM

Elastic Security

SIEM, Endpoint, Cloud

Build Your Own

Elastic Search

Generative AI Apps, Product Search, Workplace Search, Custom Search Apps

Elasticsearch™ Platform

Ingest & Secure Storage

- Data Extraction
- Transformation / Normalization
- Enrichment
- Loading / Indexing
- Intelligent Data Storage
- Security / Governance

AI / ML & Search

- Full-Text / Vector Search
- Machine Learning
- Correlations
- Analytics & Aggregations
- Data Manipulation
- Federated Searches & Queries

Visualization & Automation

- Share & Collaborate
- Data Exploration
- Data Visualization
- Custom Dashboards
- 3rd Party Integrations
- Workflow Automation

Business Outcomes for Everyone

69% Improvement in customer and employee satisfaction

60% Reduction in risk

62% Reduction in revenue disruption

Validated by third-party research

OpenTelemetry

OpenTelemetry is an Observability framework and toolkit designed to create and manage telemetry data such as traces, metrics, and logs.

- Why OTel?
    - No Vendor lock-in
    - Single set of APIs and conventions
    - Easy switch among backend

- Instrumentation
    - Zero code (auto): Bytecode, monkey patching, eBPF etc.
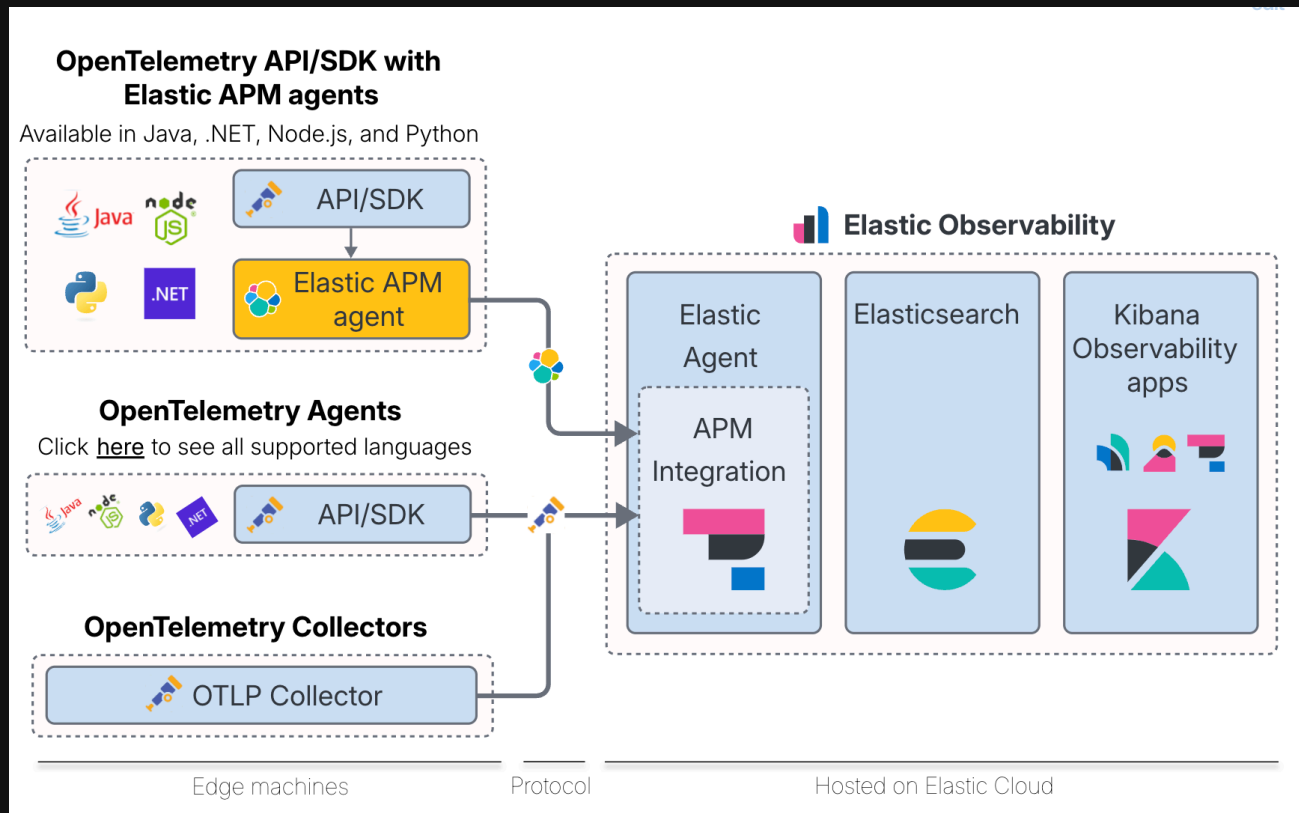   - Code-based (manual): OTel API & SDKs
    - Libraries and Frameworks

- Language APIs & SDKs

Checkout the registry to know about instrumentation libraries, collector components, utilities, and other useful projects in the OpenTelemetry ecosystem.

OTel -> Elastic

Get telemetry data into Elastic

Let's see how it works with Flask - Python web framework

Flask is a micro web framework written in Python. It use to build lightweight web applications quickly.

```
pip install flask
```

```
# install dependency
pip install opentelemetry-distro
opentelemetry-bootstrap -a install

# run flask app
flask run -p 8080

# run instrumented flask app
export OTEL_PYTHON_LOGGING_AUTO_INSTRUMENTATION_ENABLED=tr
opentelemetry-instrument \
    --traces_exporter console \
    --metrics_exporter console \
    --logs_exporter console \
    --service_name dice-server \
    flask run -p 8080
```

app.py

```python
from flask import Flask
app = Flask(__name__)

@app.route('/')
def hello_world():
    return 'Hello, World!'
```

https://opentelemetry.io/docs/languages/python/

Demo - ElasticFlix

https://github.com/elastic/observability-examples/tree/main/Elastiflix

Get started with OTel + Elastic

Independence with OpenTelemetry on Elastic	https://www.elastic.co/observability-labs/blog/opentelemetry-observability
What is OTel	https://www.elastic.co/what-is/opentelemetry
Semantic Conventions for Elasticsearch	https://opentelemetry.io/docs/specs/semconv/database/elasticsearch/
Instrumentation	https://opentelemetry.io/docs/concepts/instrumentation/
Other concepts	Baggage, Context Propogation
OTel	https://opentelemetry.io

Thank You

in/ashishtiwari93
@_ashish_tiwari