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Implementing Observability in Java-Based Projects



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SENIOR CONSULTANT

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Java Champion

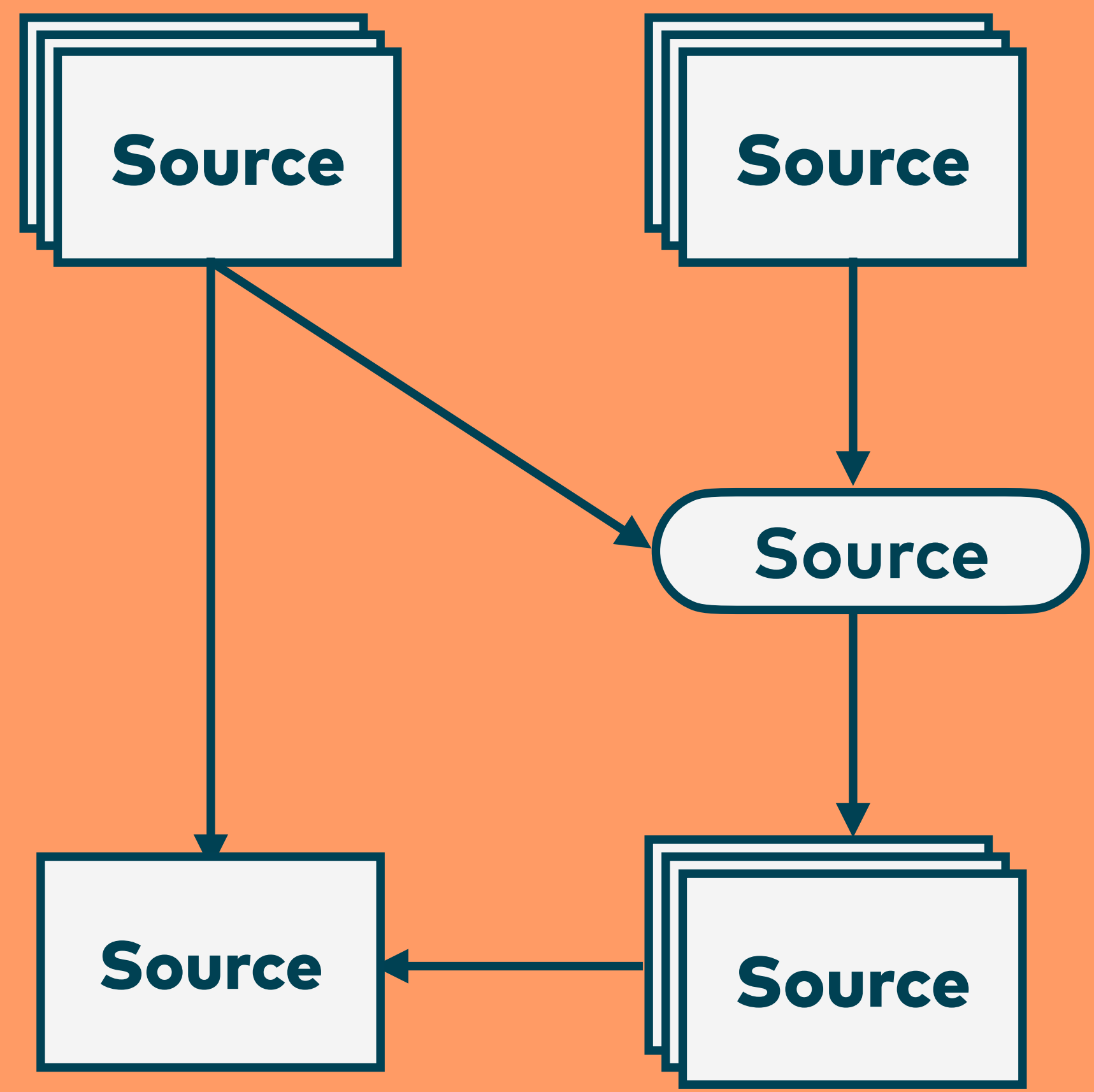
Senior Consultant @ INNOQ

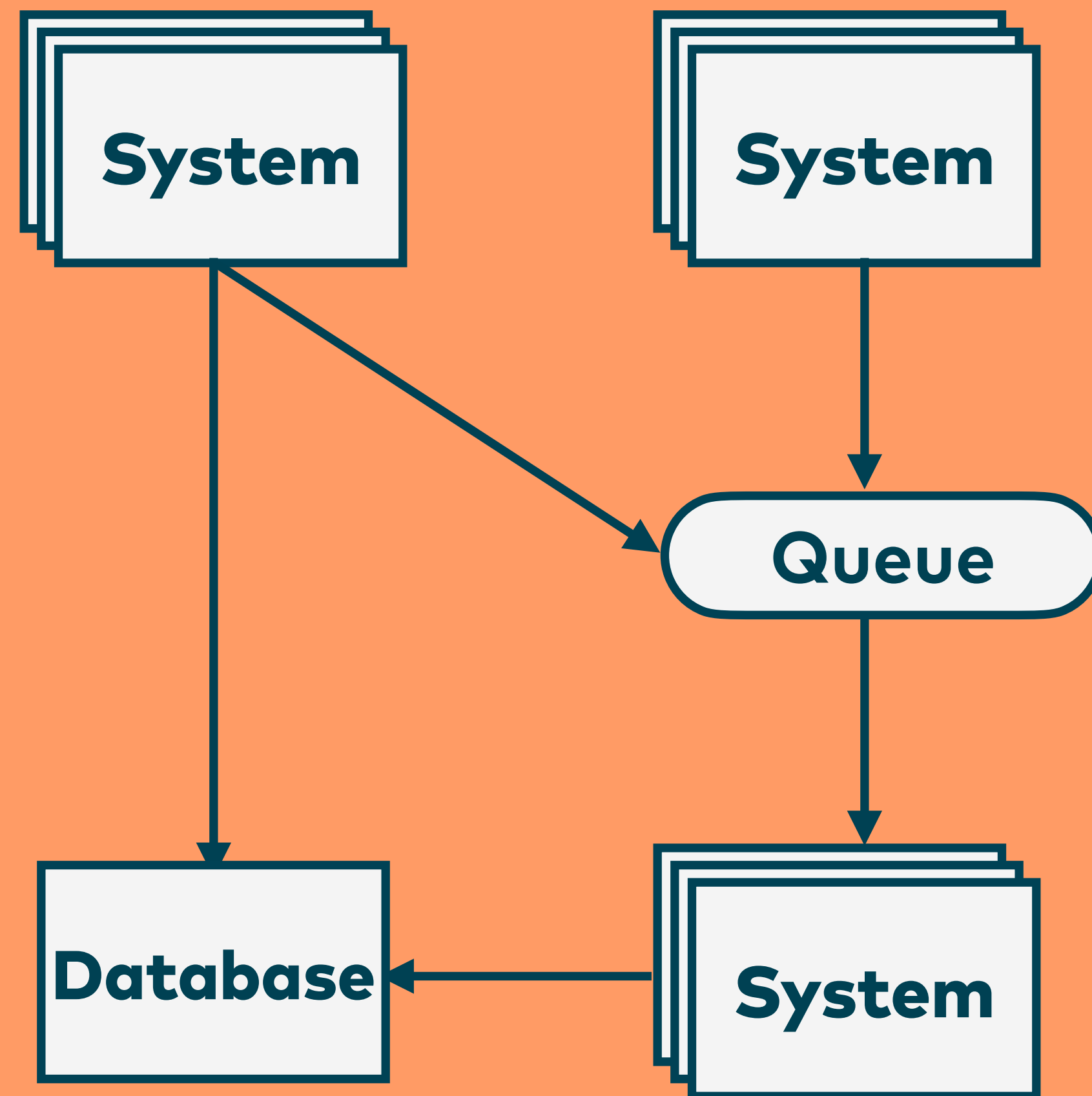


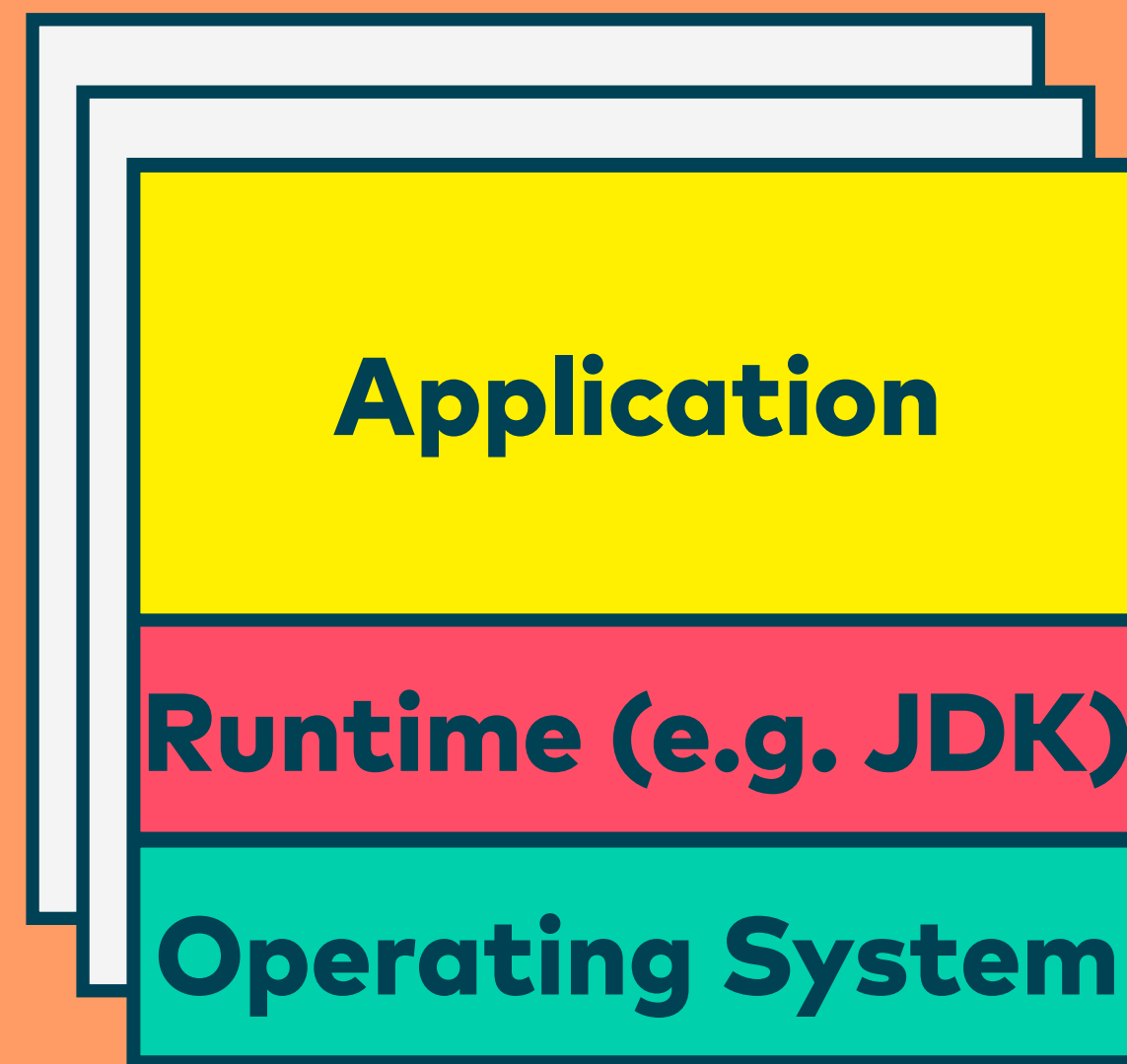
A lateral cephalometric radiograph (X-ray) of a human skull. The image shows the profile of the skull, including the cranium, facial bones, and the dental arches. A ruler is visible in the upper right corner, indicating a scale from 0 to 30. The word "Observability" is overlaid in orange text across the center of the image.

Observability

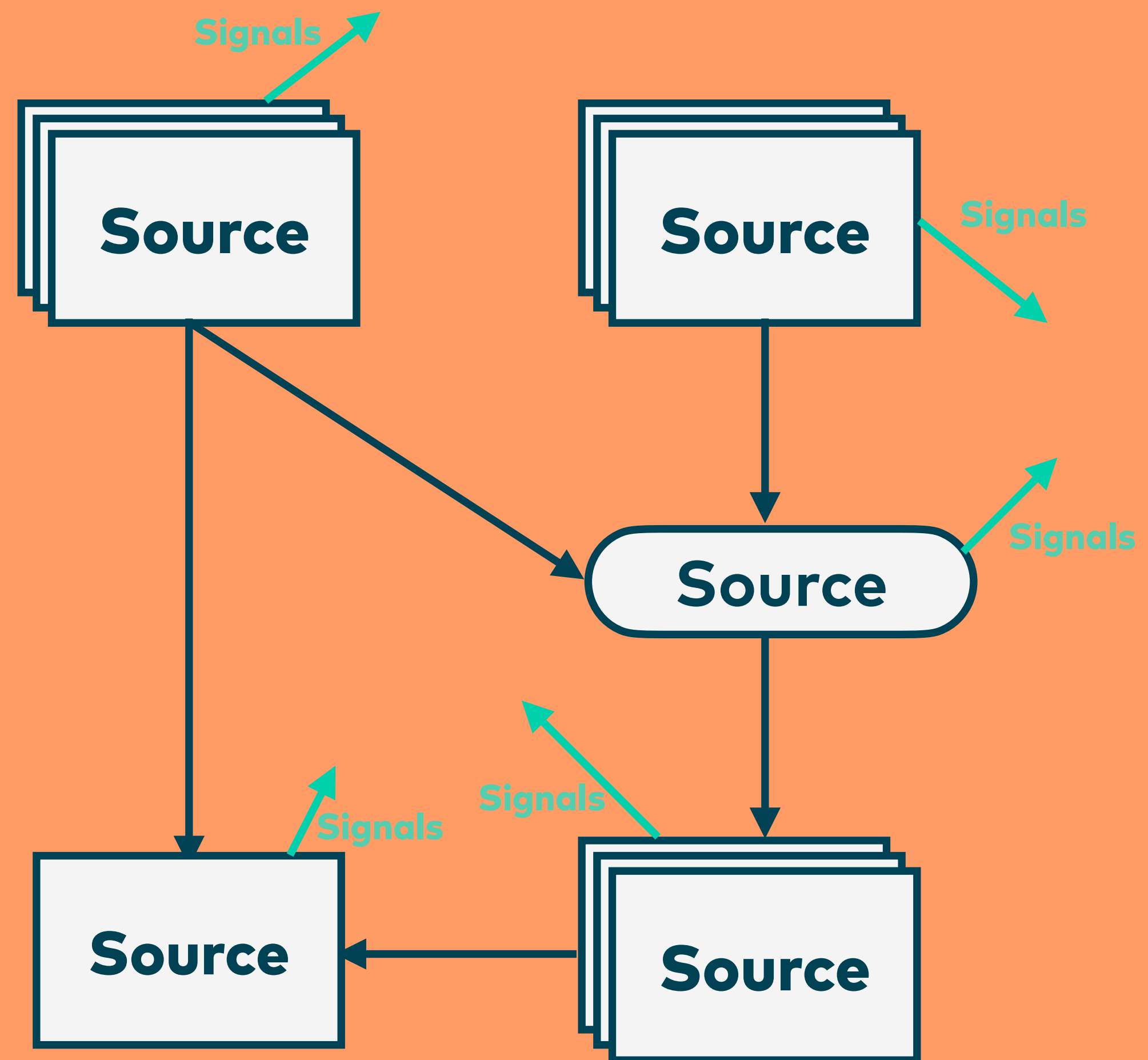
Sources

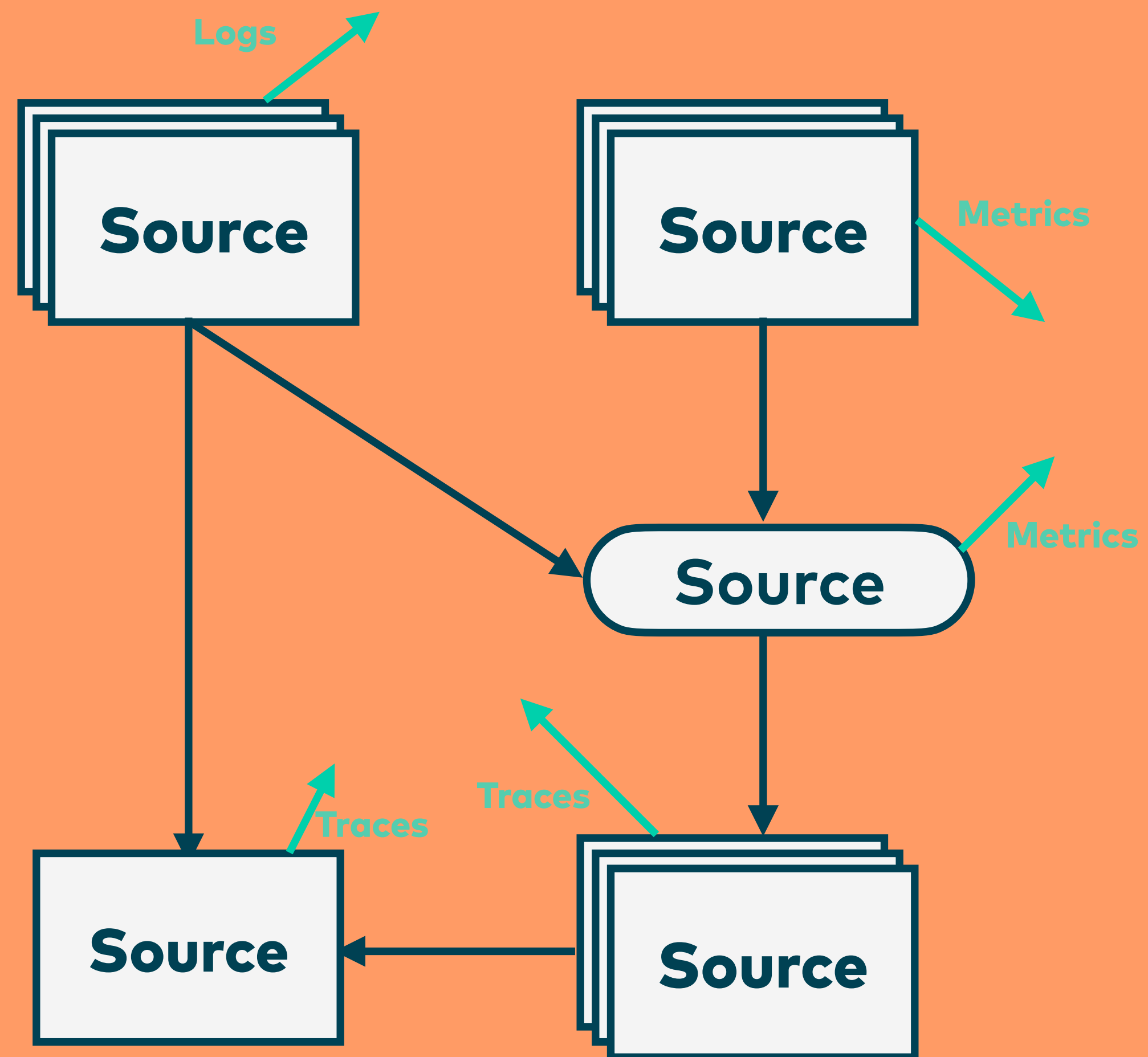




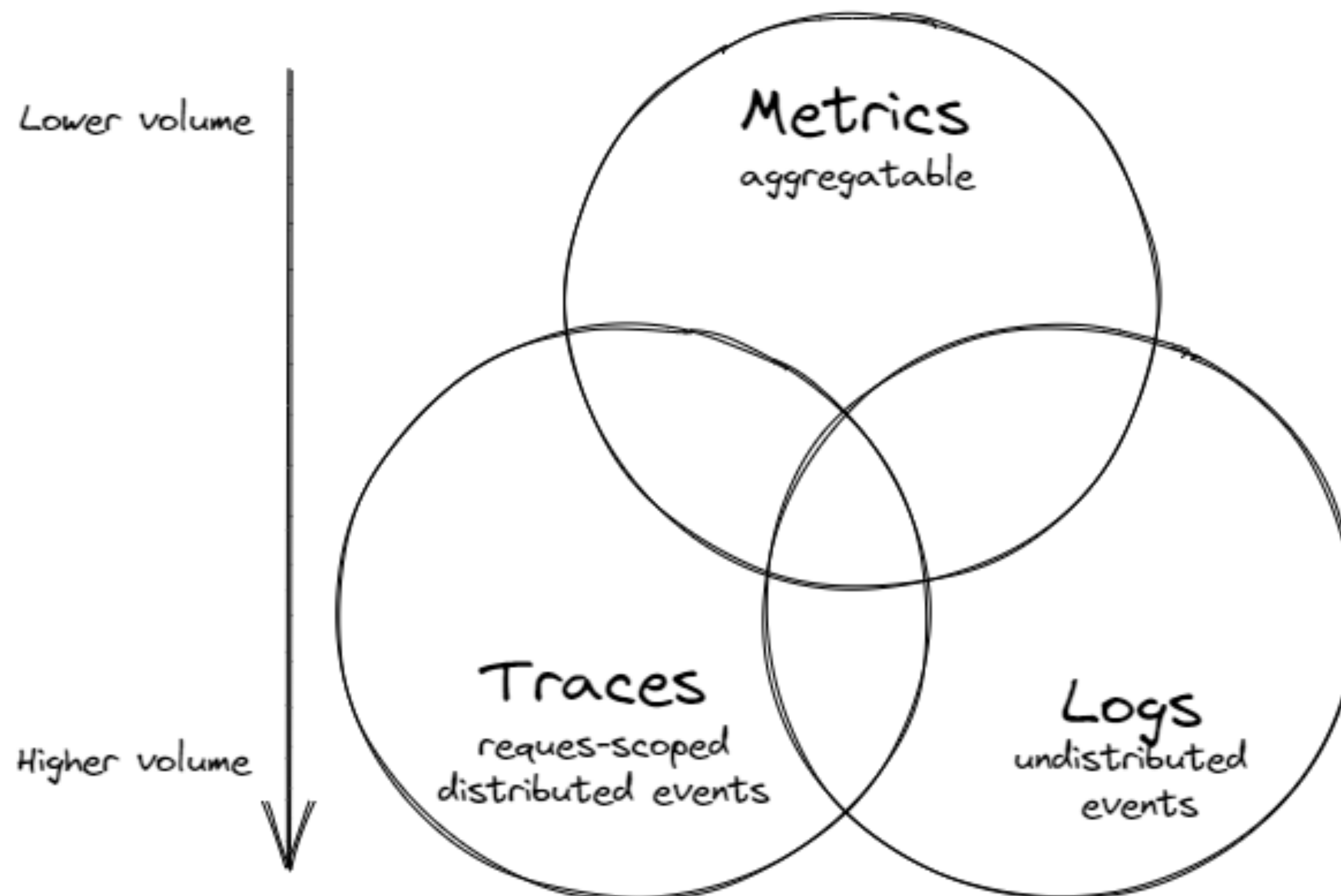


Signals

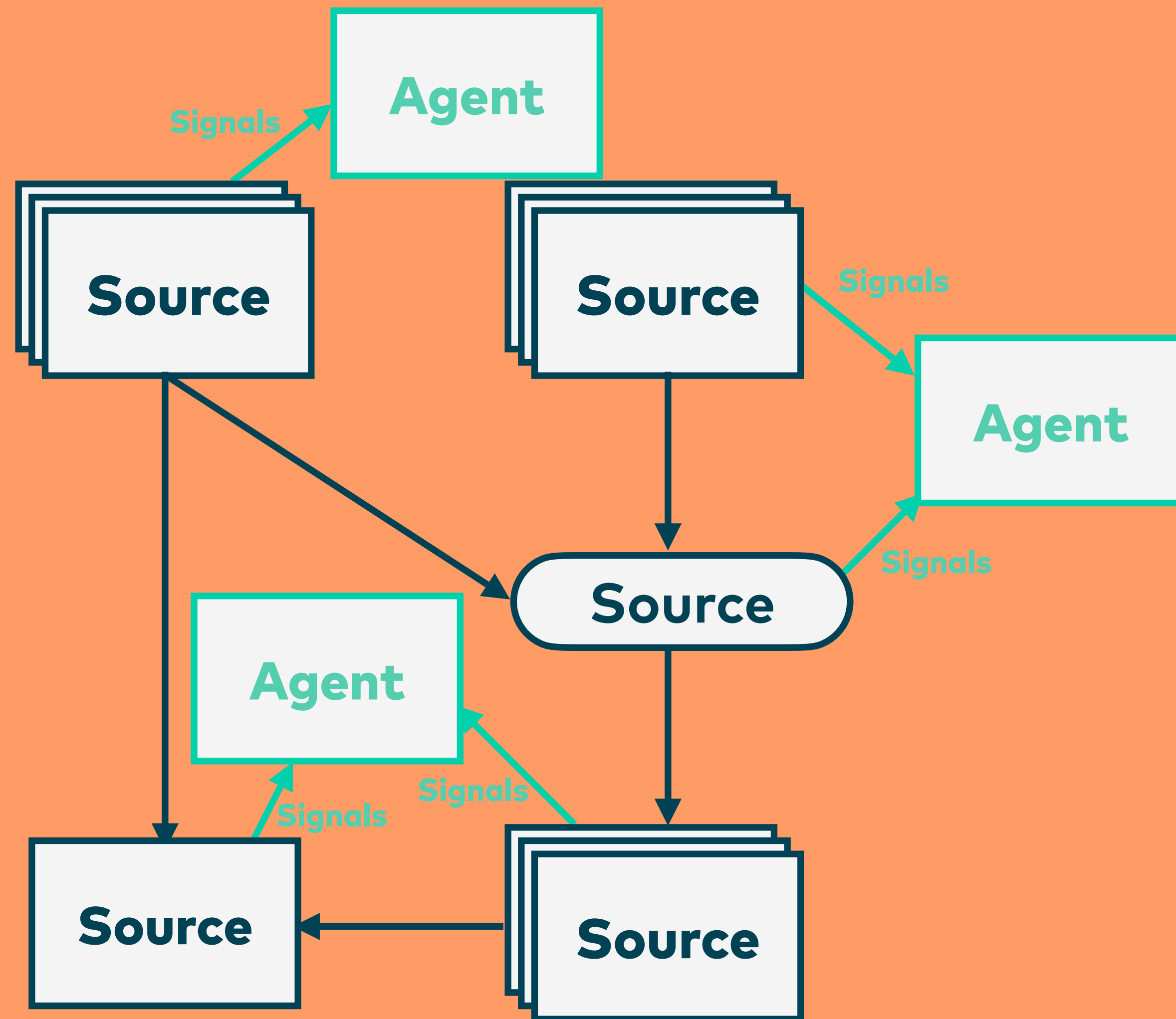




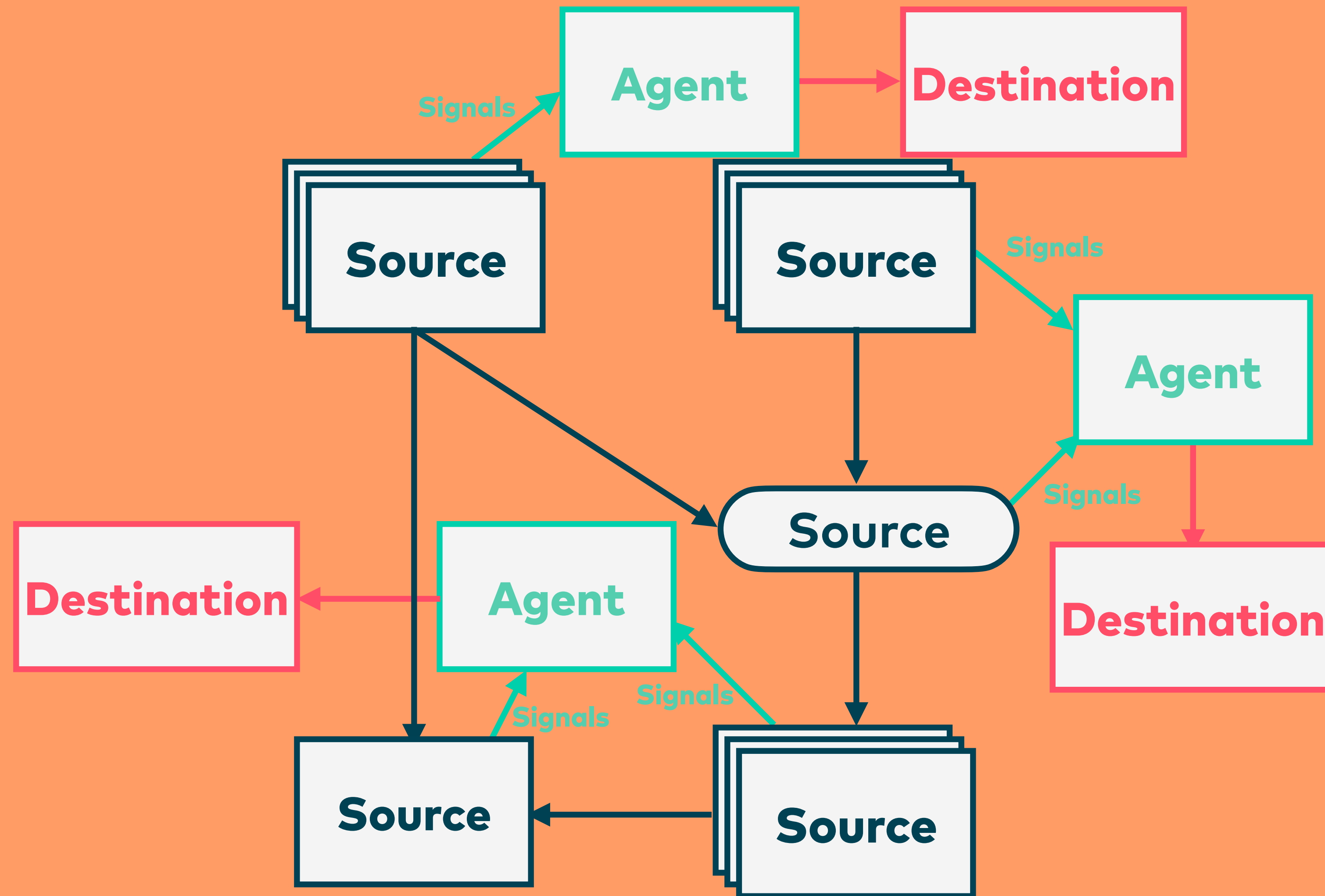
Primary Signals



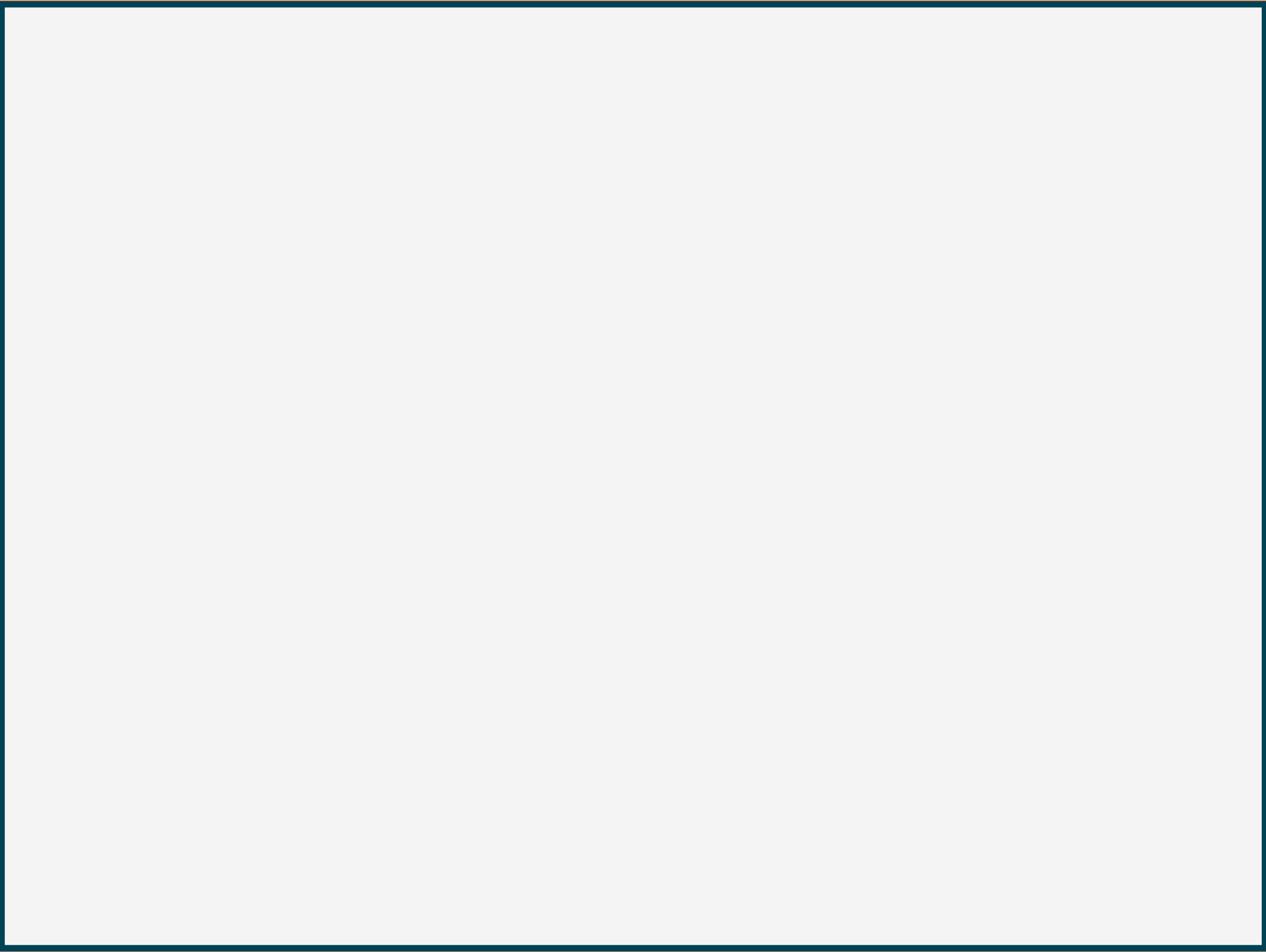
Agents



Destinations



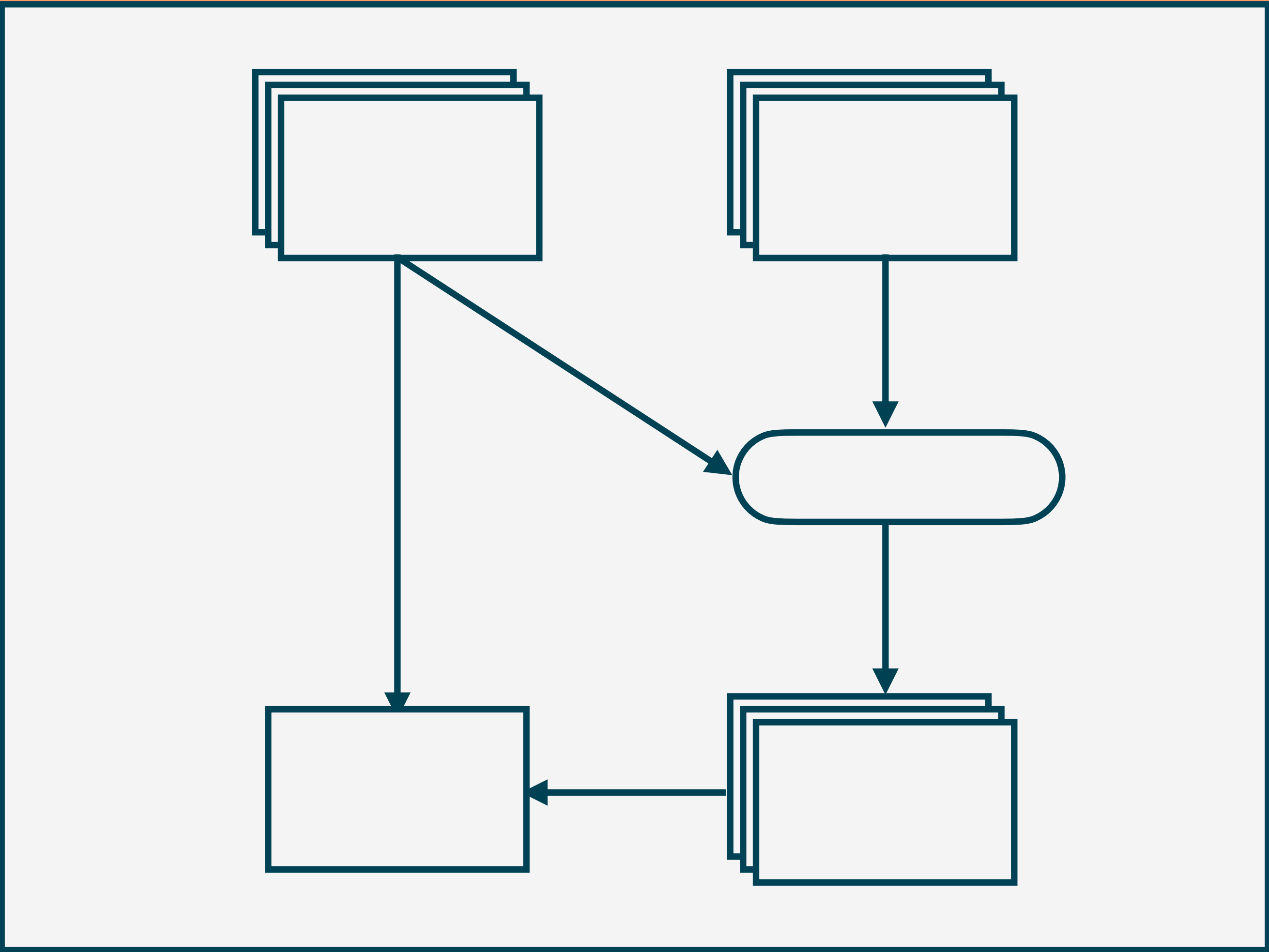






```
ssh user@some_server
```

```
cat /var/logs/myapp.log | grep ERROR
```





DevOps & Shift Left



Logging

Logback

SLF4J

Log4j



```
LOGGER.debug("The calculated value is: {}", value);  
LOGGER.info("Cleanup job started");  
LOGGER.warn("Geocoding service is not reachable falling back to ...");  
LOGGER.error("Unable to detect geo location because address is invalid");
```



```
try (var ignored = MDC.putCloseable("tenantId", tenantId)) {  
    LOGGER.info("Updating session {}", v("sessionId", sessionId));  
}
```




```
{  
  "timestamp": "2023-06-22T16:05:35.910522+02:00",  
  "@version": "1",  
  "message": "Started Application in 4.32 seconds ...",  
  "logger_name": "de.mvitz.tnhh.backend.Application",  
  "thread_name": "main",  
  "level": "INFO",  
  "level_value": 20000,  
  "app": "backend"  
}
```



Alibaba Cloud Log Service

Alibaba Cloud Log Service

MCap: \$233.4B



DataSet

DataSet

Scalyr

Funding: \$27.6M



elastic

Elastic

Elastic

★ 63,438

MCap: \$5.8B



fluentd

Fluentd

Cloud Native Computing Foundation (CNCF)

★ 11,914

Funding: \$3M



Grafana loki

Grafana Loki

Grafana Labs

★ 18,861

Funding: \$535.2M



graylog

Graylog

Graylog

★ 6

Funding: \$27



humio

A CrowdStrike Company

humio

Funding: \$31.8M



Loggie

Loggie

NetEase

★ 938

MCap: \$60.3B



LOGGLY

Loggly

Loggly

Funding: \$47.4M



LOGIQ

Logiq

Logiq.ai

Funding: \$1.8M



logstash

Logstash

Elastic

★ 13,408

MCap: \$5.8B



mezmo

Mezmo

Mezmo

Funding: \$108



OpenSearch

OpenSearch

★ 6,761

MCap: \$1.1T



Pandora

Pandora2.0

Qiniu

Funding: \$396.9M



parseable

Parseable

Parseable

★ 1,076



日志易

rizhiyi.com

Rizhiyi

Rizhiyi

Funding: \$11.4M



sematext

Sematext

Sematext



splunk

Splunk

Splunk

MCap: \$1



sumo logic

Sumo Logic

MCap: \$1.5B



Tencent Cloud Log Service

Tencent Cloud Log Service

Tencent

MCap: \$425.4B



TRINK

Trink.io

Trink.io

Metrics

Micrometer

Dropwizard Metrics

Eclipse Microprofile Metrics









USE

RED

Push

Pull

Tracing

Service & Operation		0μs	503.1ms	1.01s	1.51s	2.01s
▼	frontend /{sessionId}					
▼	frontend UiController.update	1.91s				
▼	frontend BackendSessionService.update	1.87s				
	frontend DelayGenerator.delay		459.47ms			
▼	frontend HTTP PUT		1.36s			
▼	backend /sessions/{sessionId}		1.35s			
▼	backend SessionController.upd...		1.35s			
	backend DelayGenerator...		48.2ms			
▼	backend SessionService.u...		1.05s			
	backend DelayGener...		84.08ms			
▼	backend RedisSessio...		3.05ms			
	backend GET		2.07ms			
	backend DelayGener...		462.31ms			
▼	backend RedisSessio...			4.71ms		
	backend SET			3.61ms		

Observability and Analysis - Tracing (18)



Aspecto

Aspecto



EaseAgent

MegaEase, Inc.

★ 516



elastic apm

Elastic APM

Elastic

★ 1,093

MCap: \$5.8B



Grafana Tempo

Grafana Labs

Grafana Tempo

★ 2,922

Funding: \$535.2M



Helios

Helios

Funding: \$5M



Honeycomb

Honeycomb

Funding: \$148.9M

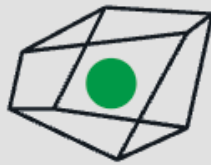


Jaeger

Cloud Native Computing Foundation (CNCF)

Funding: \$3M

★ 17,481



LightStep

LightStep

Funding: \$70M



OpenTelemetry

Cloud Native Computing Foundation (CNCF)

Funding: \$3M

★ 607



OpenTracing

Cloud Native Computing Foundation (CNCF)

Funding: \$3M

★ 3,459



Pinpoint

Pinpoint

★ 12,712



SkyWalking

The Apache Software Foundation

★ 21,668



SOFATracer

Ant Group

★ 1,047

MCap: \$233.4B

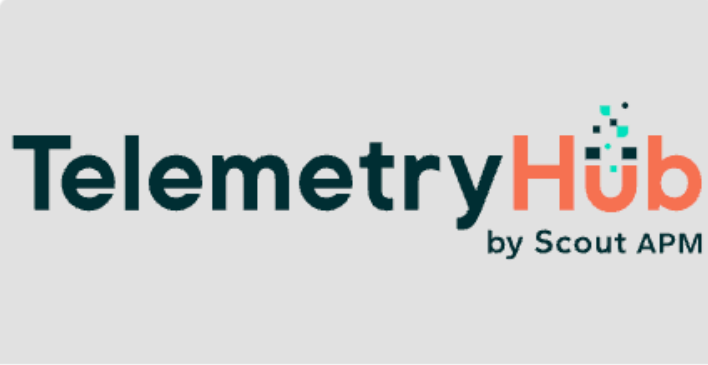


Spring Cloud Sleuth

VMware

★ 1,687

MCap: \$55B



TelemetryHub by Scout APM

TelemetryHub by Scout APM

Funding: \$8M



Teletrace

Cisco

★ 535

MCap: \$190.8B



Tracetest

Kubeshop

★ 504



Zipkin

Zipkin

★ 16,118



Thanks! Questions?



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<https://www.innoq.com/de/talks/2023/11/implementing-observability-in-java-based-projects/>

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