From Dashboard Soup to Observability Lasagna

Building Better Layers

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Product Engineer

incident.io

What we'll cover

1. A process to unsoup your dashboards
2. The importance of a layered stack
3. Technical tips for great o11y UX


555-3215

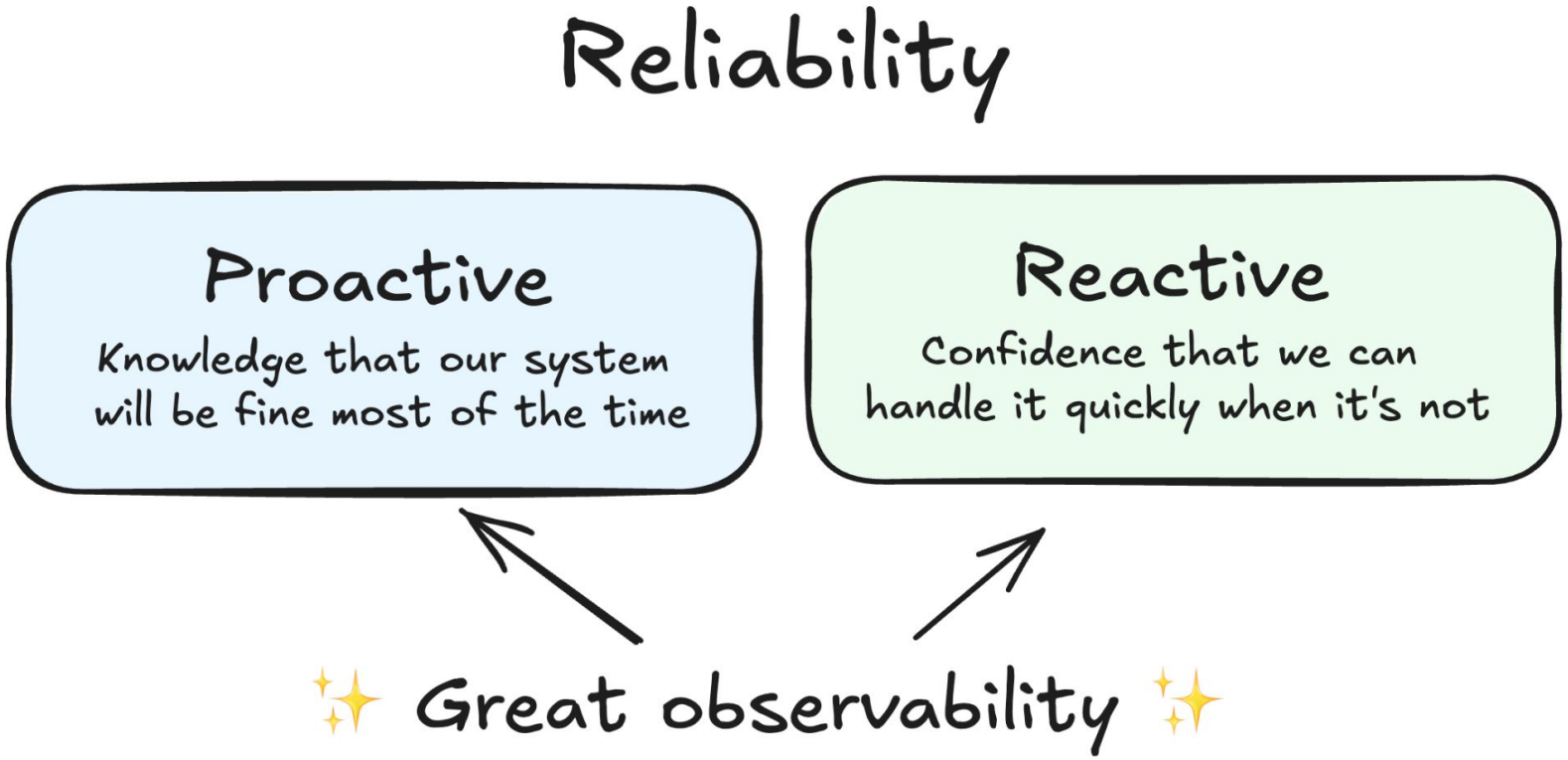
Reliability

Proactive

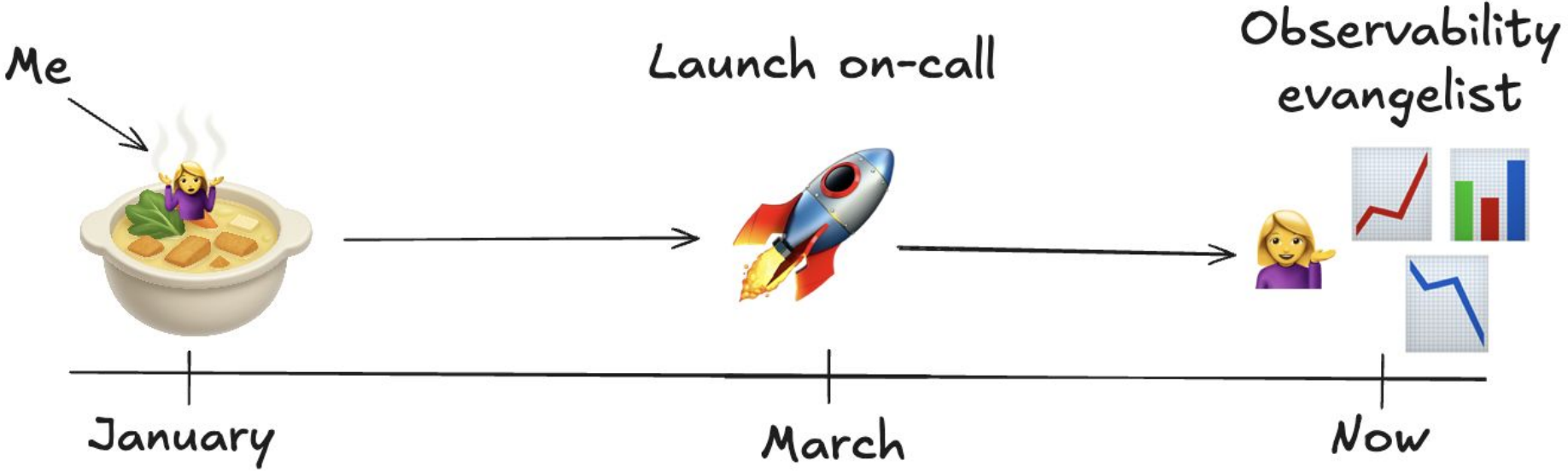
Knowledge that our system will be fine most of the time

Reactive

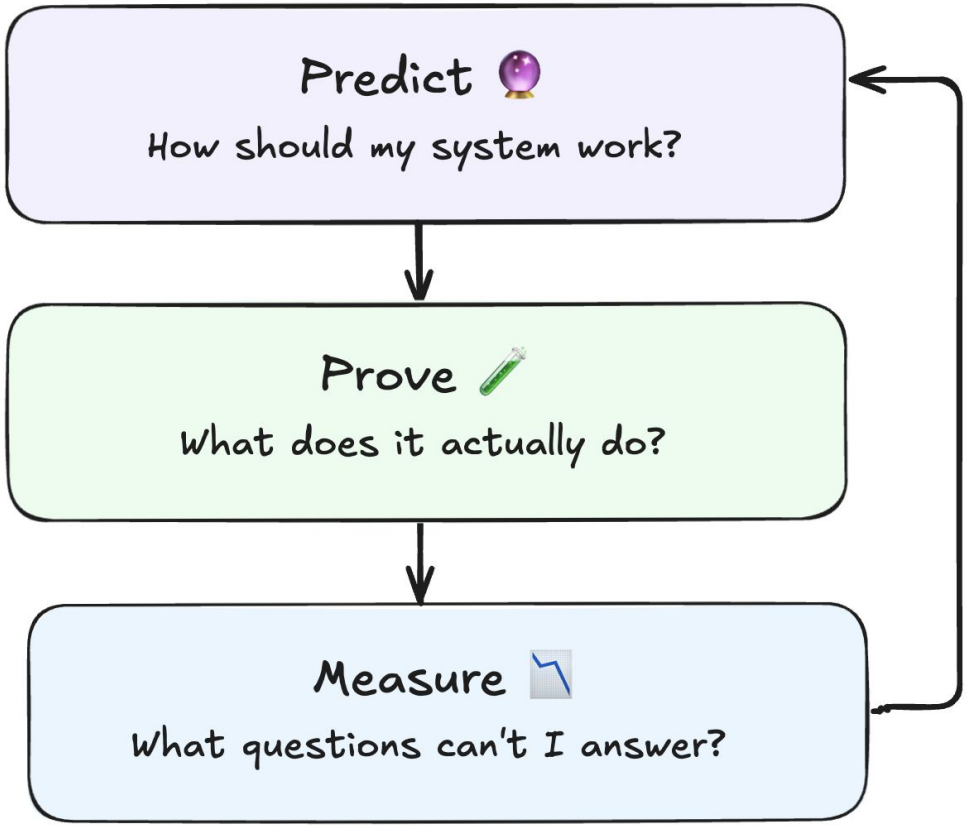
Confidence that we can handle it quickly when it's not


Reliability
Proactive
Knowledge that our system will be fine most of the time
Reactive
Confidence that we can handle it quickly when it's not
✨ Great observability ✨


Me

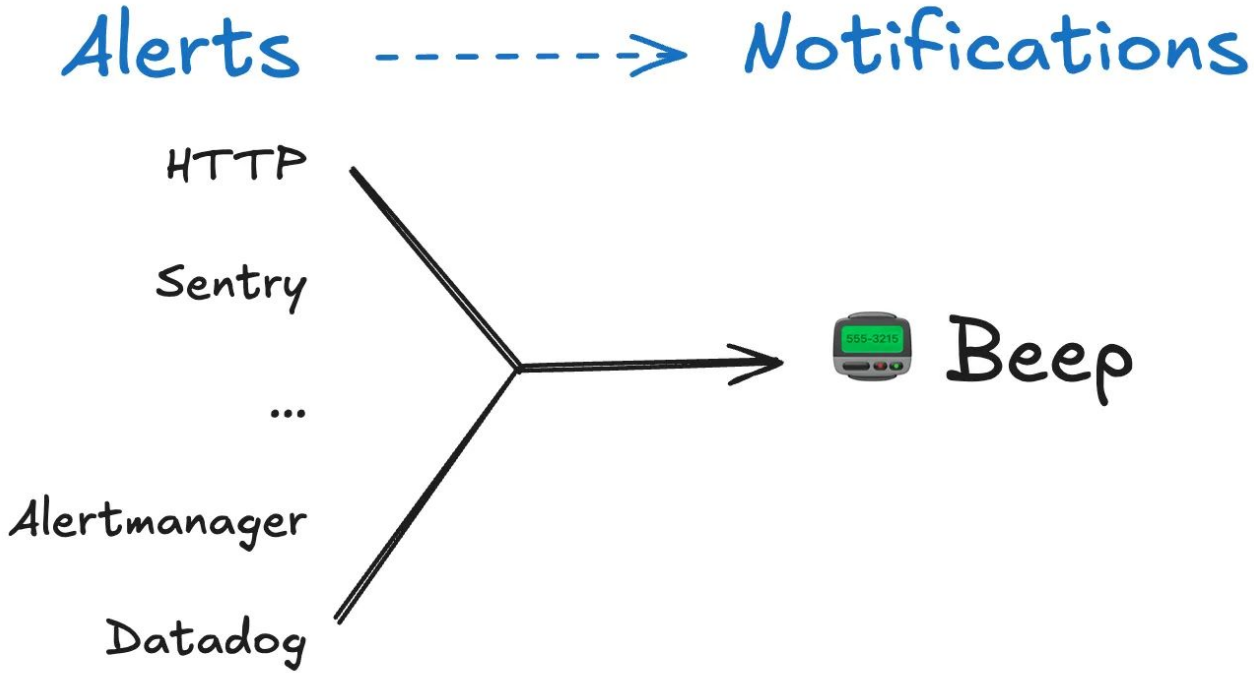

Me
Launch on-call
Observability evangelist
January
March
Now

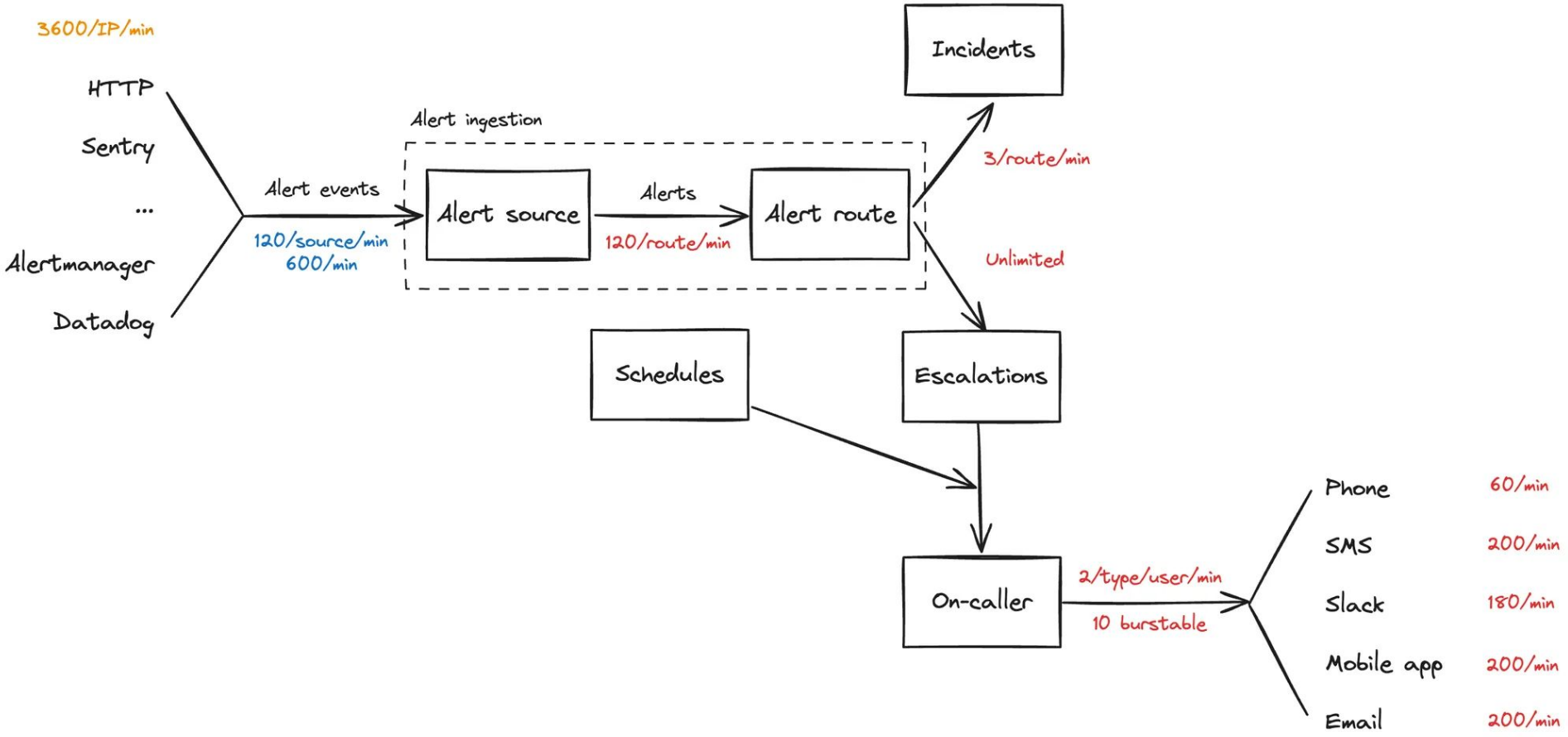
Unsouping our stack



Predict

How should my system work?


Alerts
Notifications
HTTP
Sentry
...
Alertmanager
Datadog
555-3215
Beep


3600/IP/min
HTTP
Sentry
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Alertmanager
Datadog
Alert events
120/source/min
600/min
Alert ingestion
Alert source
Alerts
120/route/min
Alert route
Incidents
3/route/min
Unlimited
Schedules
Escalations
On-caller
2/type/user/min
10 burstable
Phone
60/min
SMS
200/min
Slack
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Mobile app
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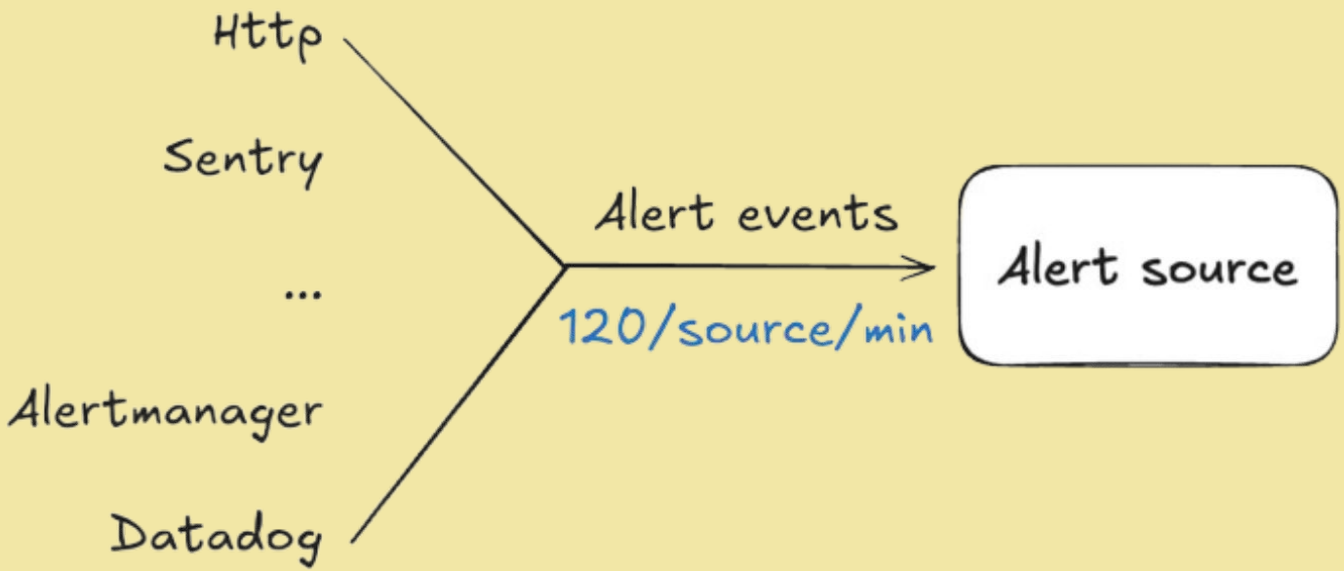
Http
Sentry
...
Alertmanager
Datadog
Alert events
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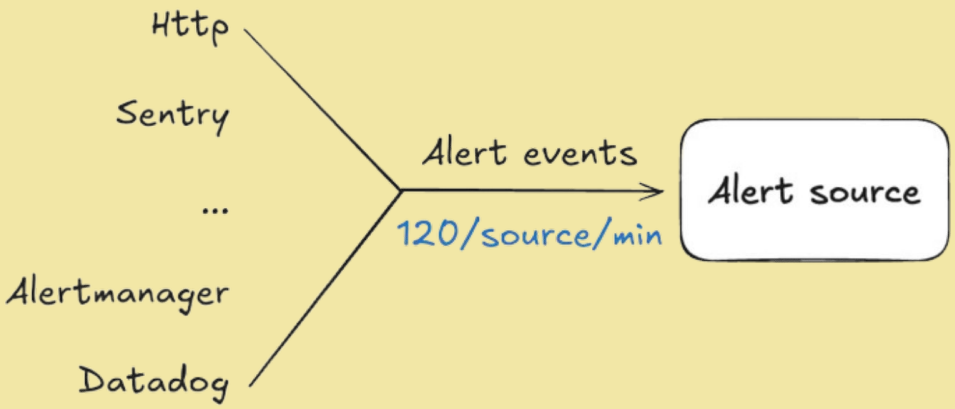
Alert source



Can we handle multiple alert storms at once?

Prove

What actually happens?

We can handle multiple alert storms at once

We can handle multiple alert storms at once

- We’re doing what our users expect
- The rest of our app is unaffected
- We could handle more load if we needed to

What questions can’t you answer?

- What are we rate limiting?
- What delays are our users experiencing?
- Where are our bottlenecks?

Measure

What actually happens?

But how does dashboard soup happen?

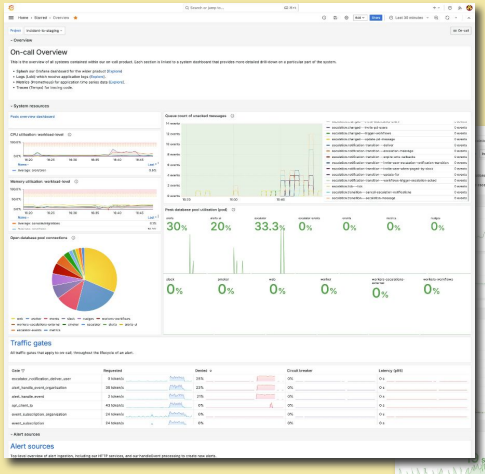
1. They answer overly-specific, now irrelevant questions

2. They are static and disconnected from the rest of your debugging stack

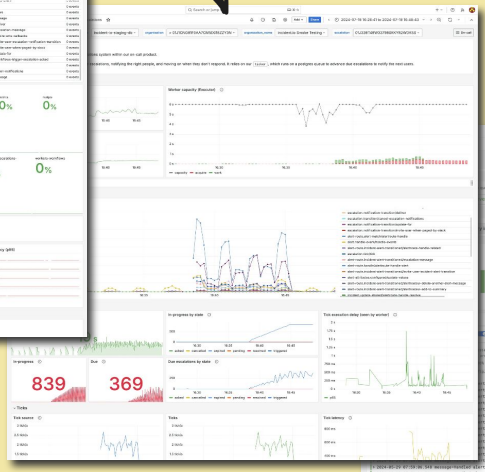
Your dashboards are a product

And your engineers are your customers

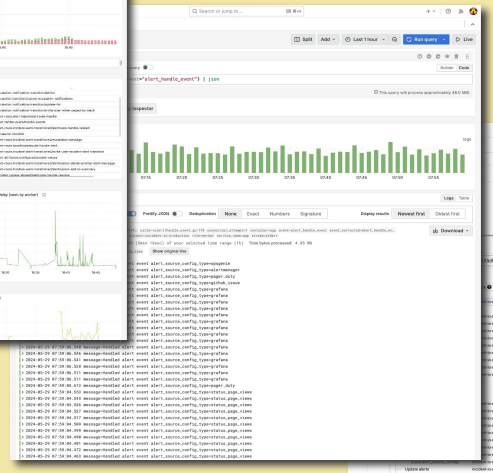
The Observability Lasagna



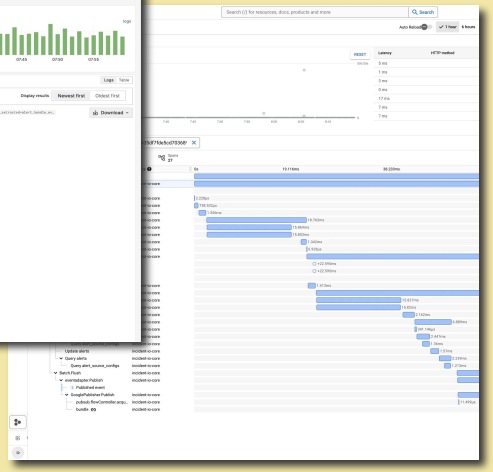
Overview Dashboard



System Dashboard

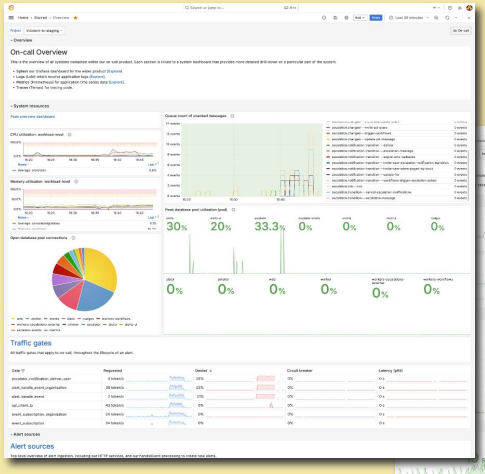


Logs



Traces

The Observability Lasagna



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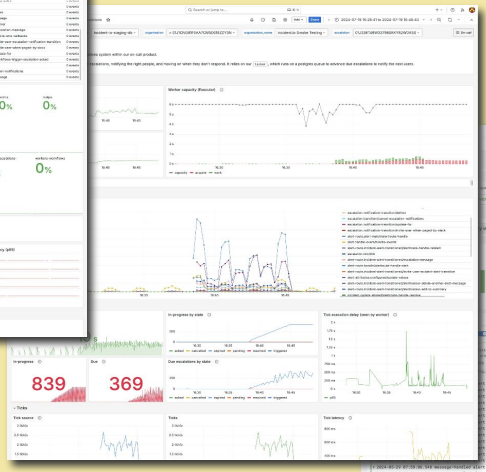
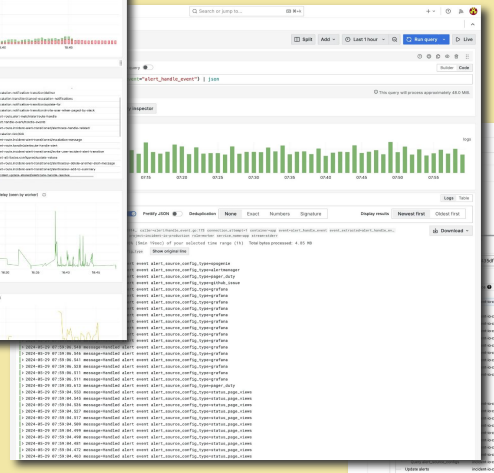
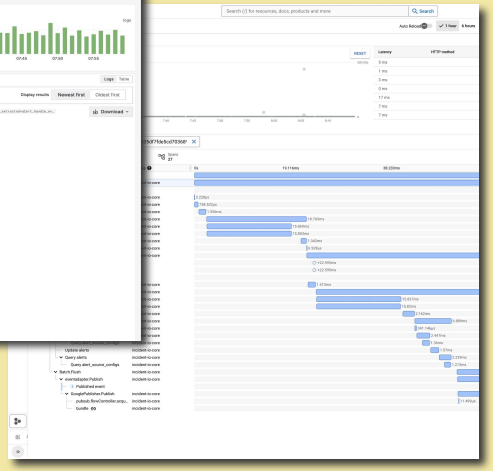


System Dashboard



Logs

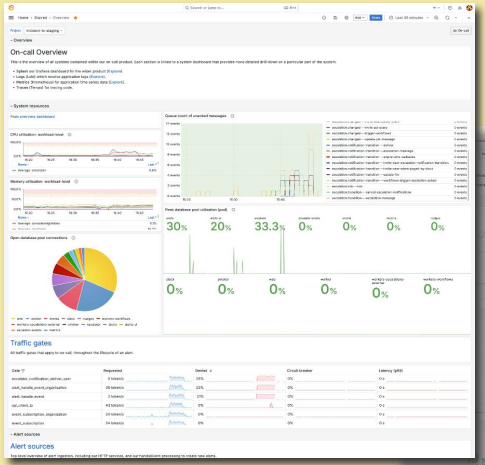


Traces

Connect your layers

Each layer of your stack should clearly point to the next level down

The Observability Lasagna



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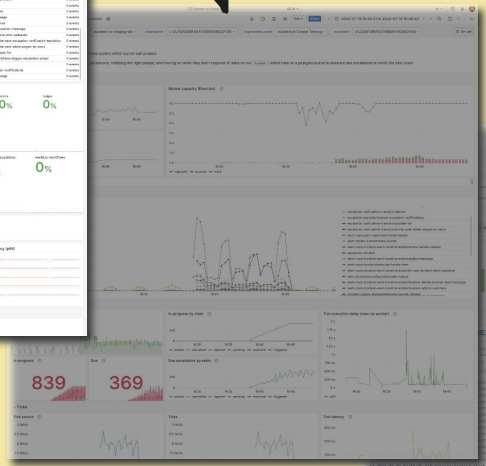
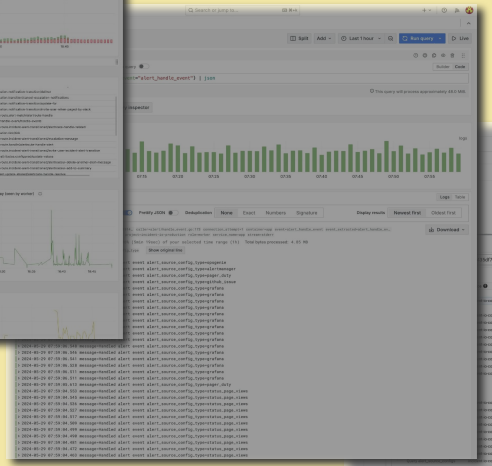
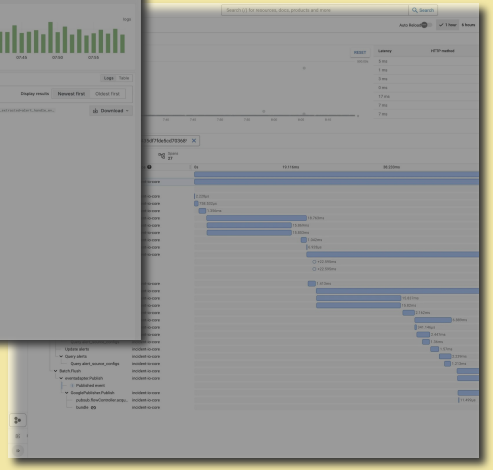


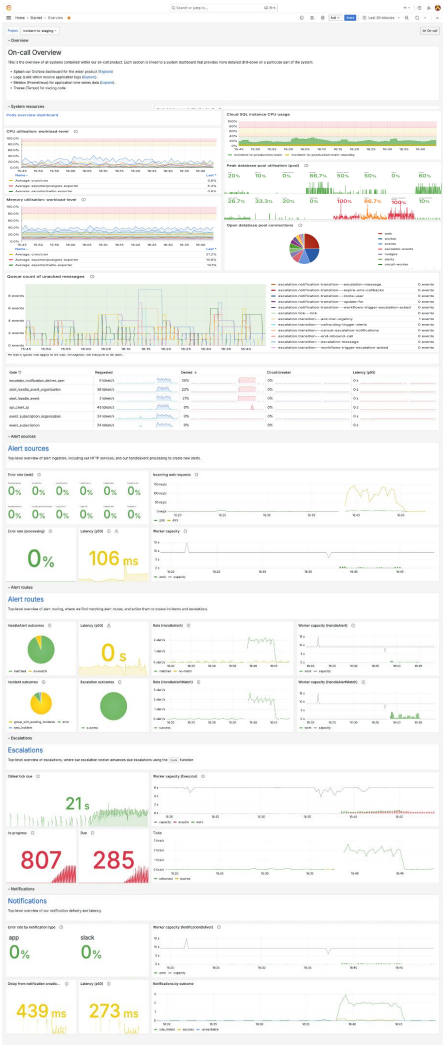
System Dashboard



Logs



Traces



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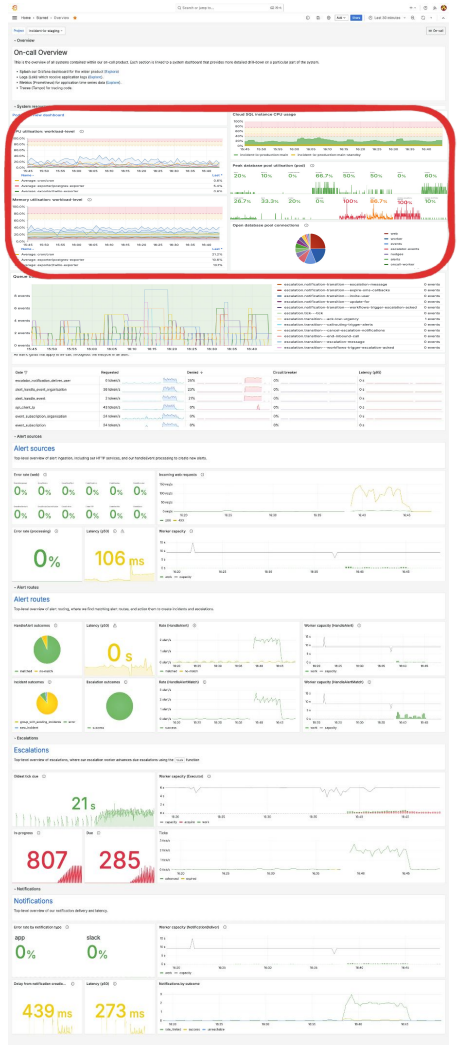


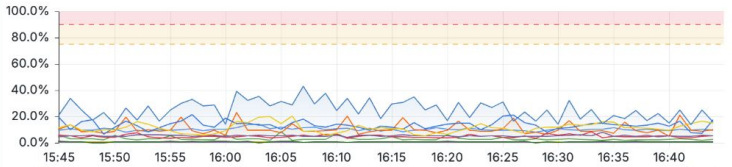
Infrastructure health

Overview dashboard

Infrastructure health

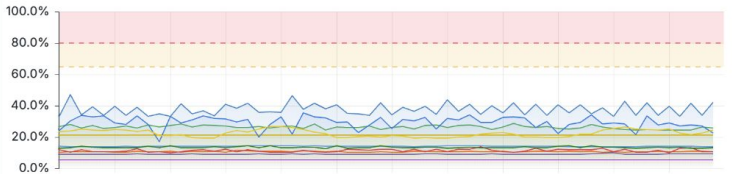
Pods overview dashboard

CPU utilisation: workload-level



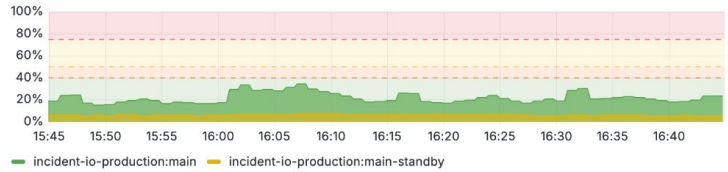
Name	Last *
Average: cron/cron	0.6%
Average: exporter/postgres-exporter	5.4%
Average: exporter/twilio-exporter	0.6%

Memory utilisation: workload-level

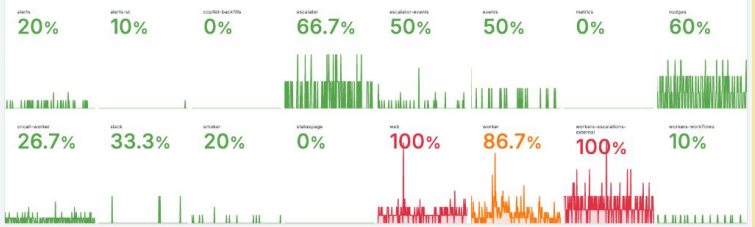


Name	Last *
Average: cron/cron	21.2%
Average: exporter/postgres-exporter	10.6%
Average: exporter/twilio-exporter	13.1%

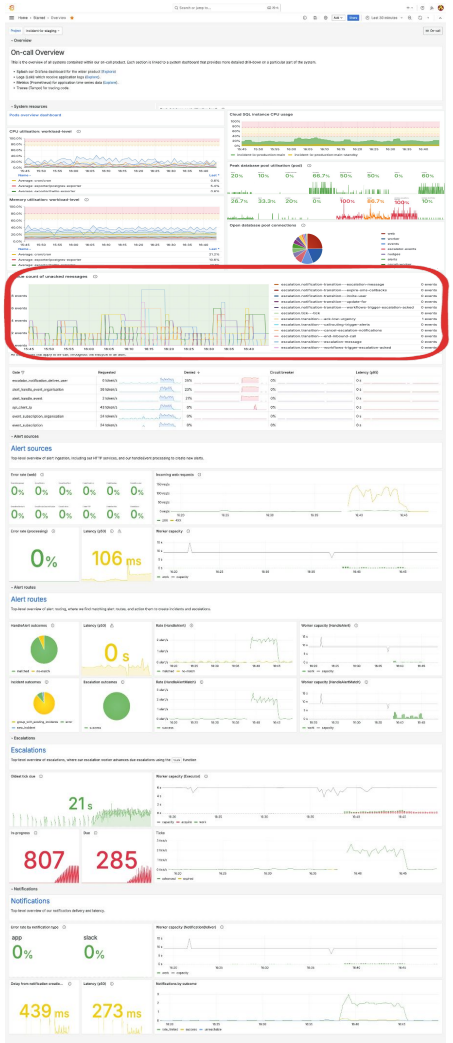
Cloud SQL instance CPU usage



Peak database pool utilisation (pod)



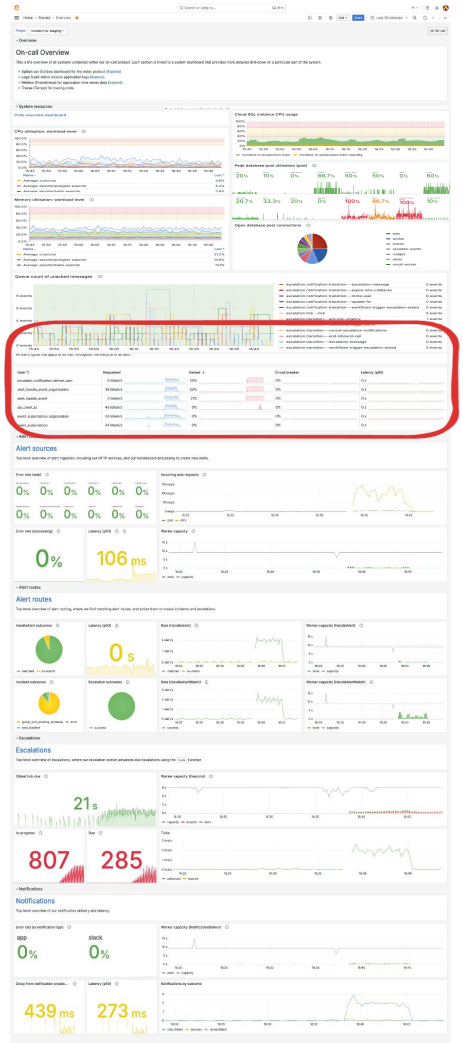
Open database pool connections



Infrastructure health

Queue health

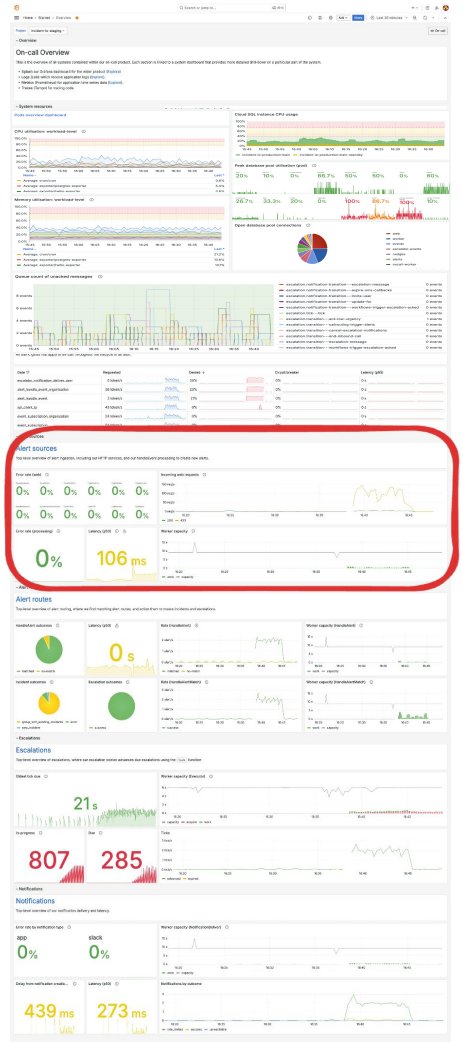
Overview dashboard



Infrastructure health

Queue health

Rate limits

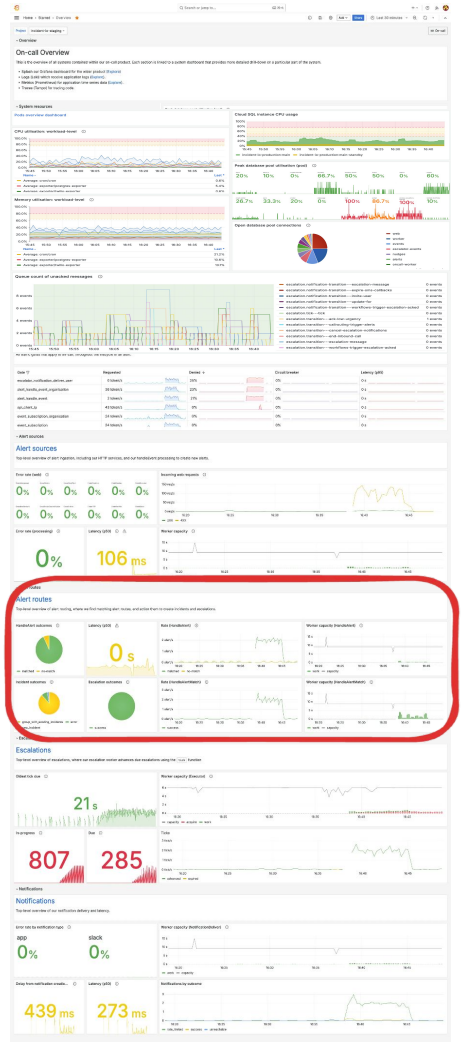


Infrastructure health

Queue health

Rate limits

Alert sources



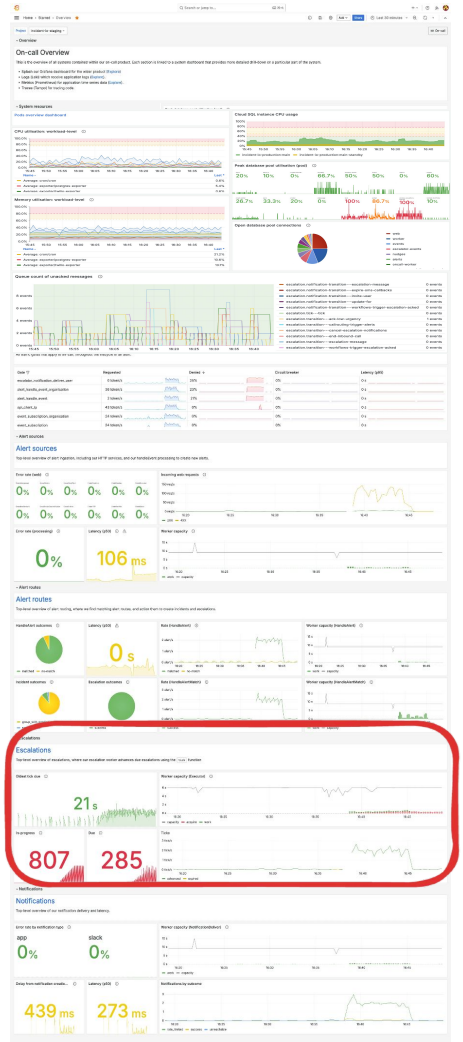
Infrastructure health

Queue health

Rate limits

Alert sources

Alert routes



Infrastructure health

Queue health

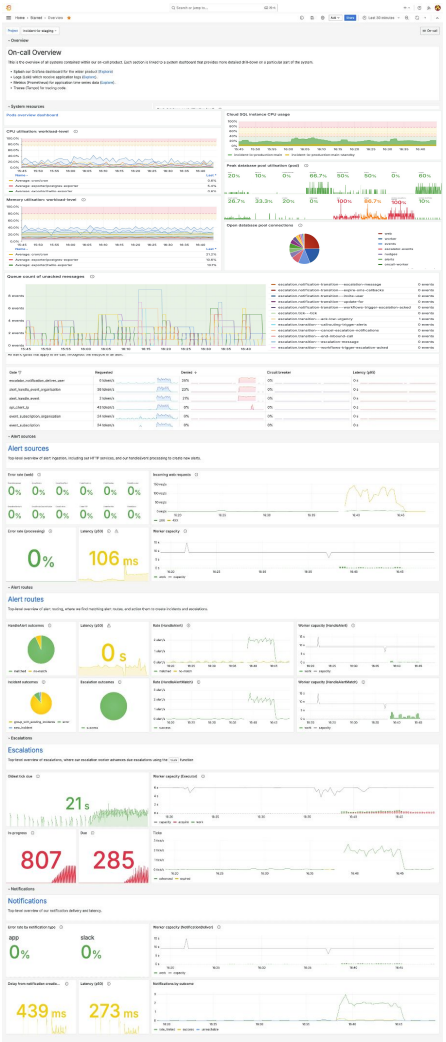
Rate limits

Alert sources

Alert routes

Escalations

Escalations



Infrastructure health

Queue health

Rate limits

Alert sources

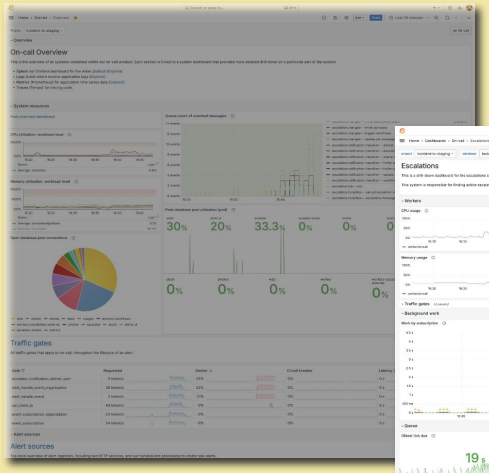
Alert routes

Escalations

Notifications

Overview dashboard

The Observability Lasagna



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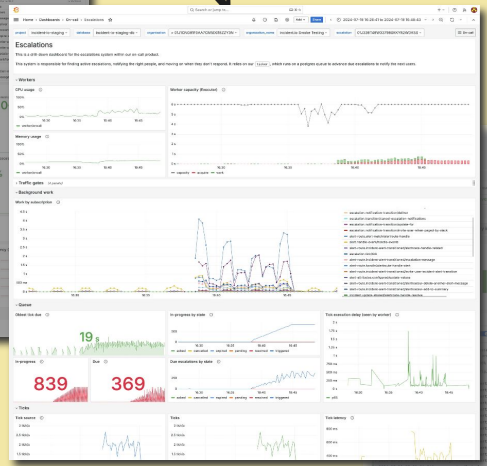
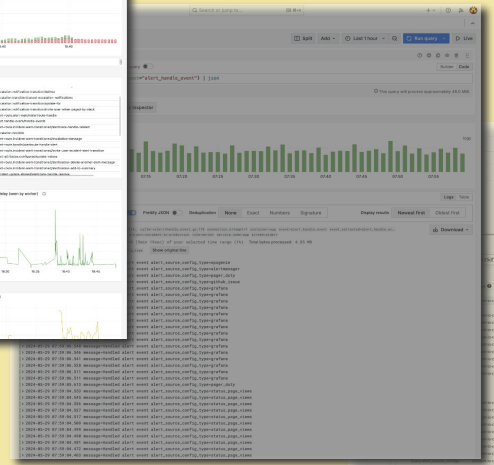
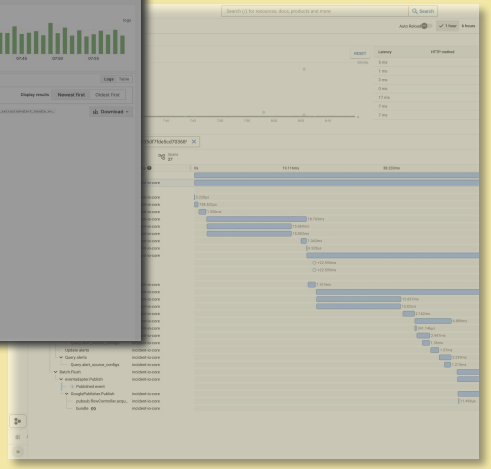


System Dashboard

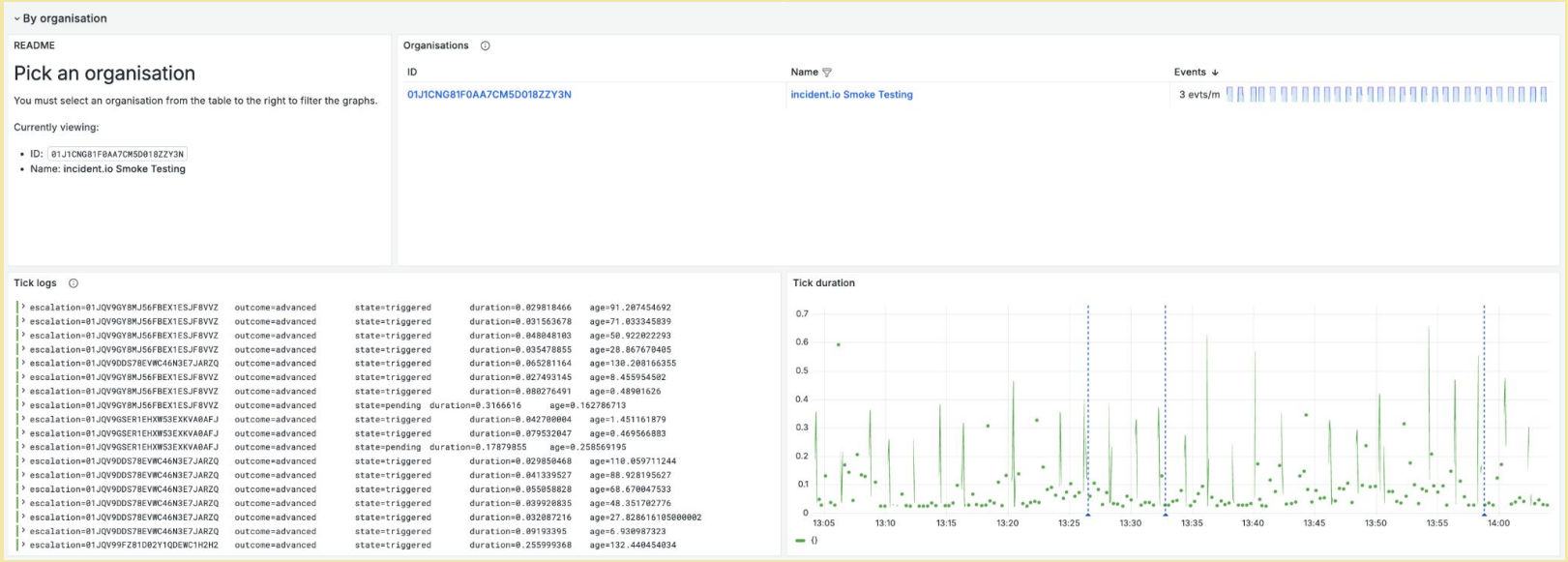


Logs



Traces

Logs


By organisation
README
Pick an organisation
You must select an organisation from the table to the right to filter the graphs.
Currently viewing:
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Name: incident.io Smoke Testing
Organisations
ID
Name
Events
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incident.io Smoke Testing
3 evts/m
Tick logs
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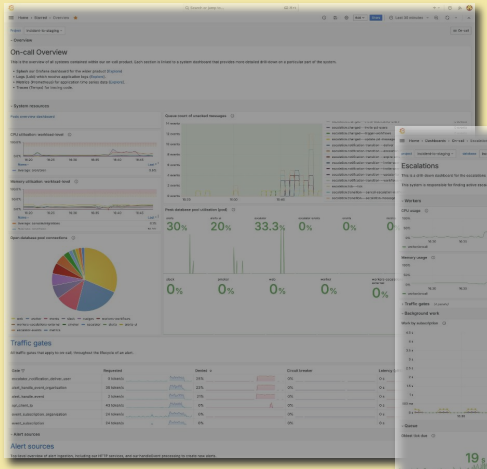
The Observability Lasagna



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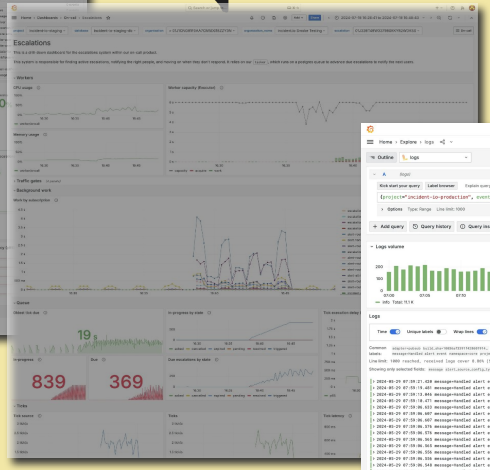

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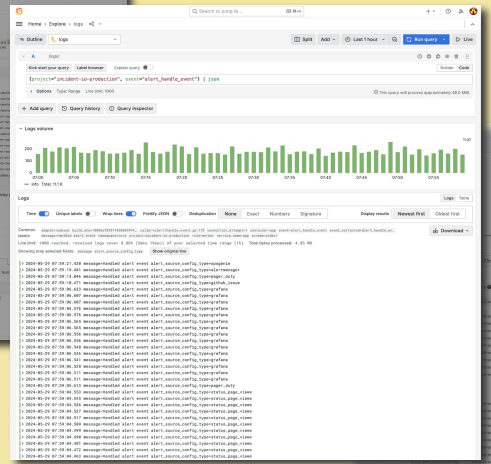
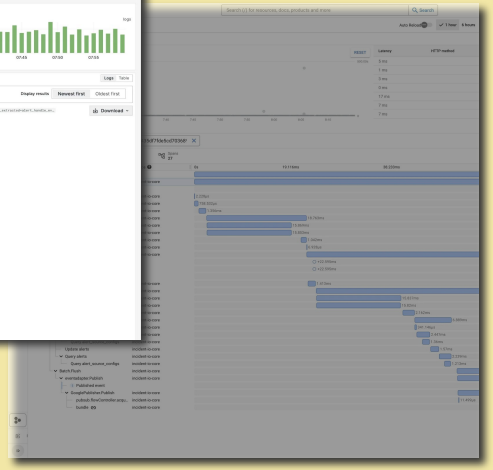


Logs



Traces

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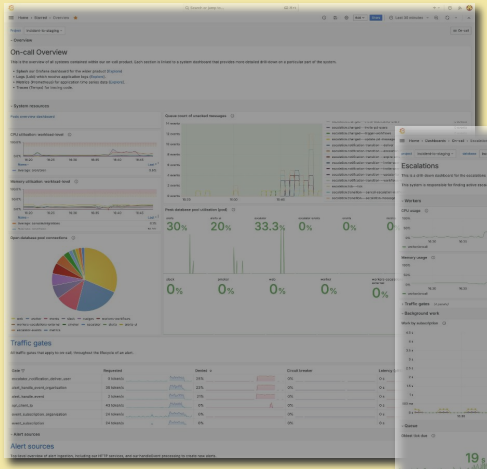

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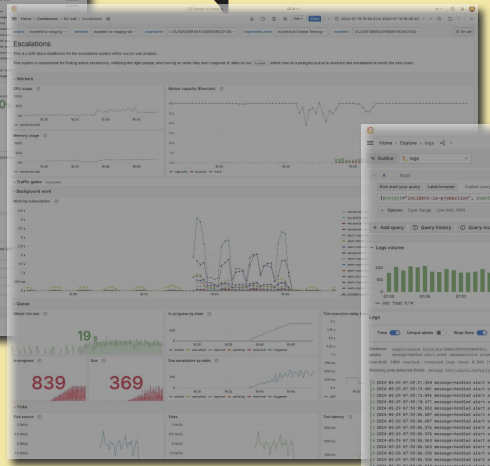

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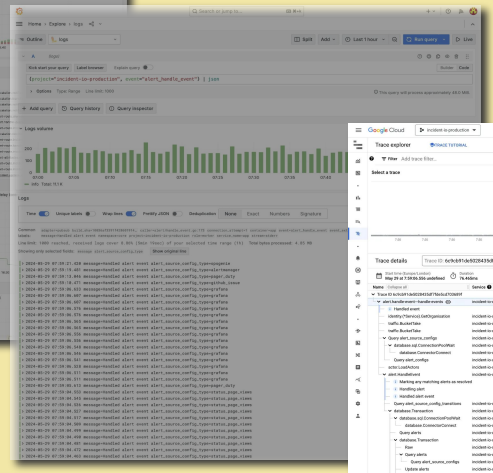
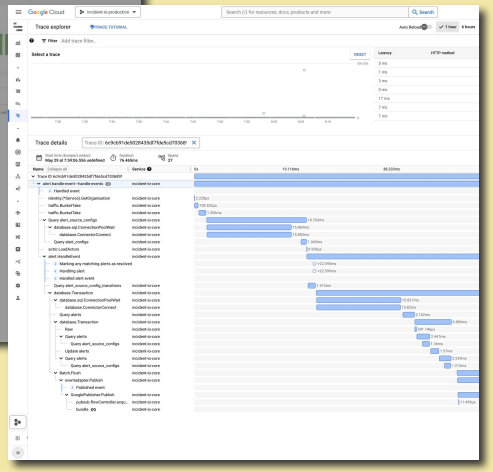


Logs



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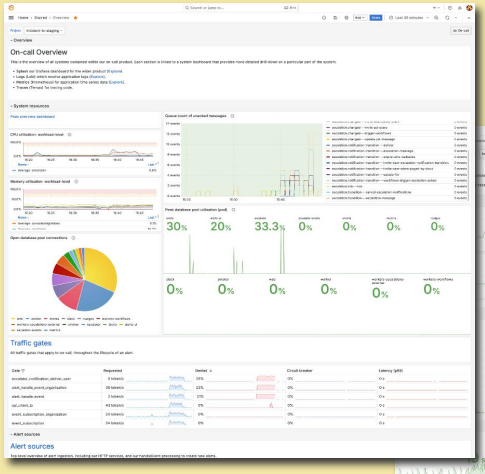

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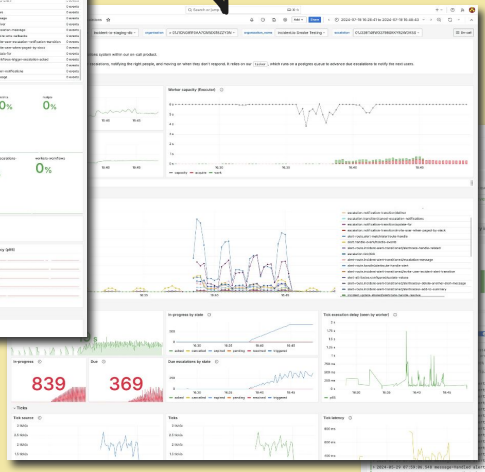
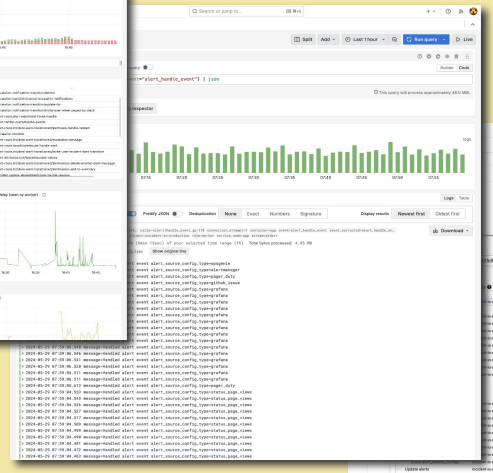
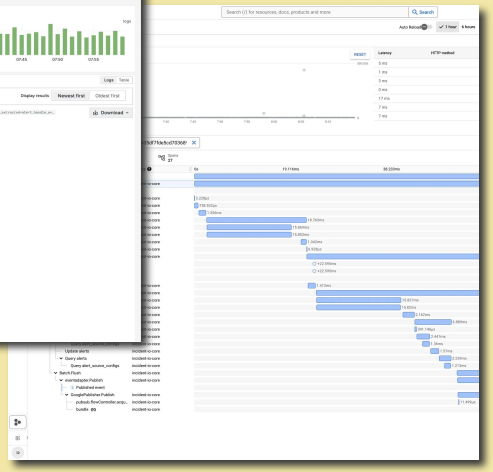


System Dashboard



Logs



Traces

Practical tips

How do we actually implement this?

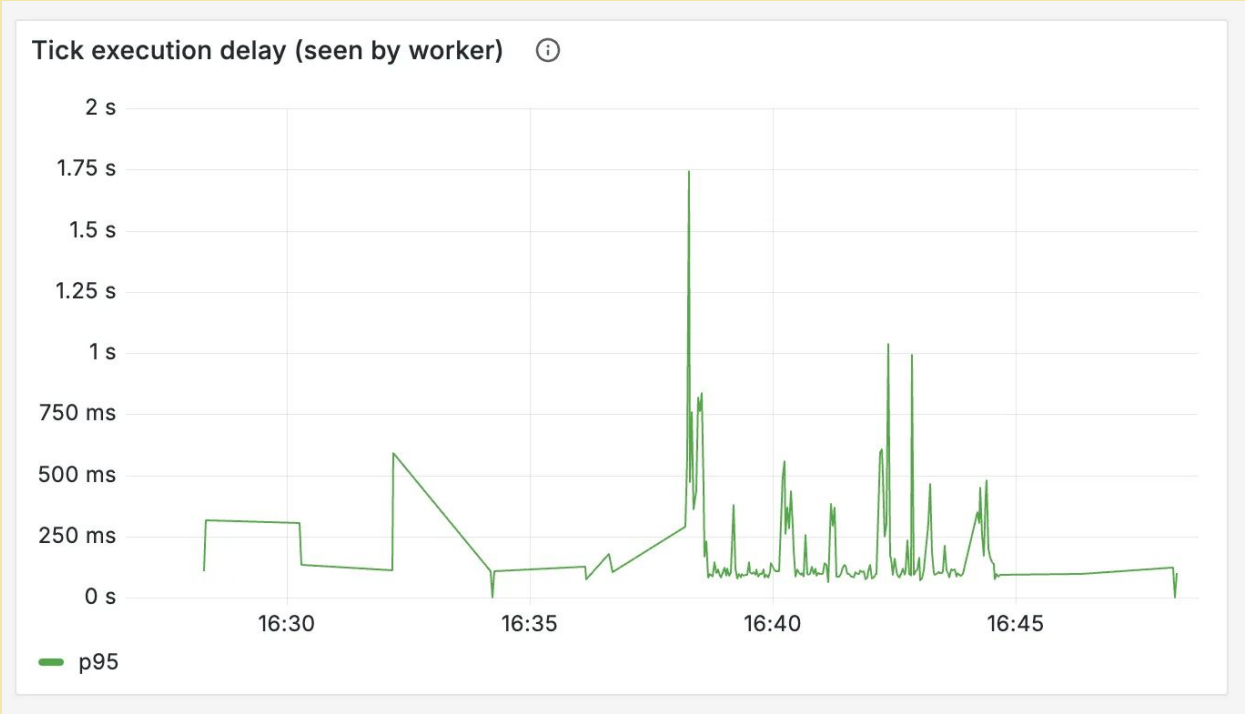
Make user impact your lens

Build observability that shows you what your end users are experiencing

Outcome field on metrics

```
type TickOutcome string

var (
    TickOutcomeArchived            TickOutcome = "archived"
    TickOutcomeExpired             TickOutcome = "expired"
    TickOutcomeGracePeriod         TickOutcome = "grace_period"
    TickOutcomeAdvanced            TickOutcome = "advanced"
    TickOutcomeAwaitScheduleCommit TickOutcome = "await_schedule_commit"
    TickOutcomeError               TickOutcome = "error"
)
```

Track user observed times



Connect metrics to logs

Always anchor metrics to a corresponding log with more detail

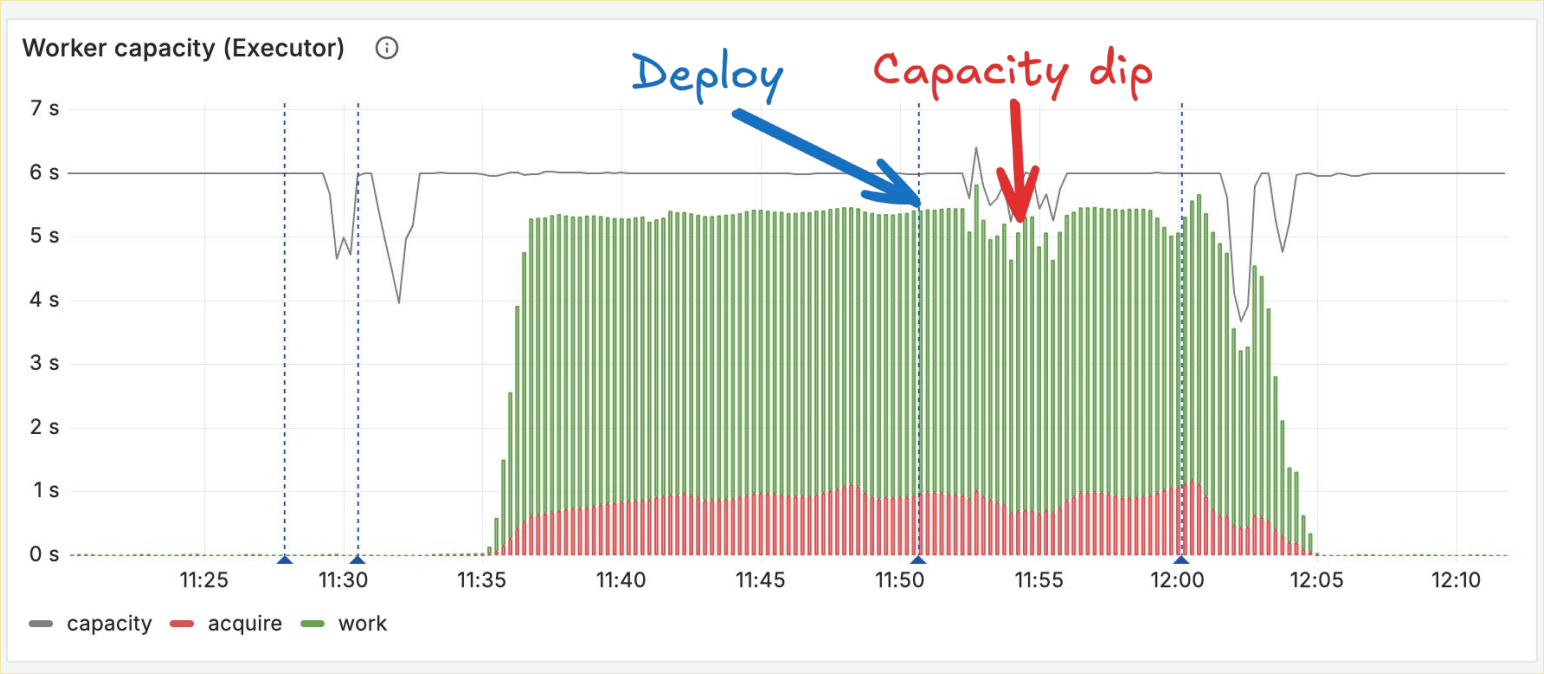
Event logs

```
log.Info(ctx, "Escalation ticked", o11y, map[string]any{
    // Event to search for quickly
    "event": "escalation_executor_tick",

    // Values tracked with our metrics
    "outcome":  outcome,
    "duration": time.Since(startAt).Seconds(),
    "escalation_initial_tick_delay_seconds": lo.Ternary(
        time.Since(escalation.TickDueAt).Seconds() > 0,
        time.Since(escalation.TickDueAt).Seconds(), 0,
    ),      You, 1 second ago • Uncommitted changes

    // High cardinality fields that we couldn't track with metrics
    "escalation":                    escalation.ID,
    "source":                        tickSource,
    "organisation_id":               escalation.OrganisationID,
    "escalation_idempotency_key":    escalation.IdempotencyKey,
    "escalation_start_at":           escalation.StartAt,
    "escalation_age_seconds":        time.Since(escalation.StartAt).Seconds(),
    "escalation_grace_period_seconds": escalation.GracePeriodSeconds,
    "escalation_initial_state":      escalation.CurrentTransition.State(),
    "escalation_initial_tick_due_at":  escalation.TickDueAt,
})
```

Visualise your limits

Know how much wiggle room you have

Capacity metrics



Practical tips

1. Make user impact your lens

2. Connect metrics to logs

3. Visualise your limits

Don’t do it alone

Build your observability stack with your team to get them bought in

Game days

- Quarterly drill of incident management scenario
- Closed book exercise
- See observability stack used in the wild

Observability Lasagna

Exercise your system

Connect your layers

Make user impact your lens

Don’t do it alone