The road to SRE

@spanneberg @instanaHQ

What actually is this SRE thing ... ?

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“SRE is what happens when you ask a software engineer to design an operations team” ***Ben Treynor, VP Engineering Google***

“Google’s approach to Service Management” ***SRE book***

What actually is this SRE thing ... ?

SLI/O/As

Error Budgets

Blameless Postmortems

Capacity Planning

Being On-Call

But what is it for the rest of us … ?

SLI/O/As

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Capacity Planning

Being On-Call

But what is it for the rest of us ... ?

SLI/O/As

Automation

Eliminating Toil

System Engineering

Error Budgets

Blameless Postmortems

DB Operations

Releases

Cost Planning

Developer Support

Capacity Planning

Networking

Basic Operational Tasks

Being On-Call

Software Engineering

Internal Infrastructure

The SRE Pyramid

aka Dickersons Hierarchy of Reliability

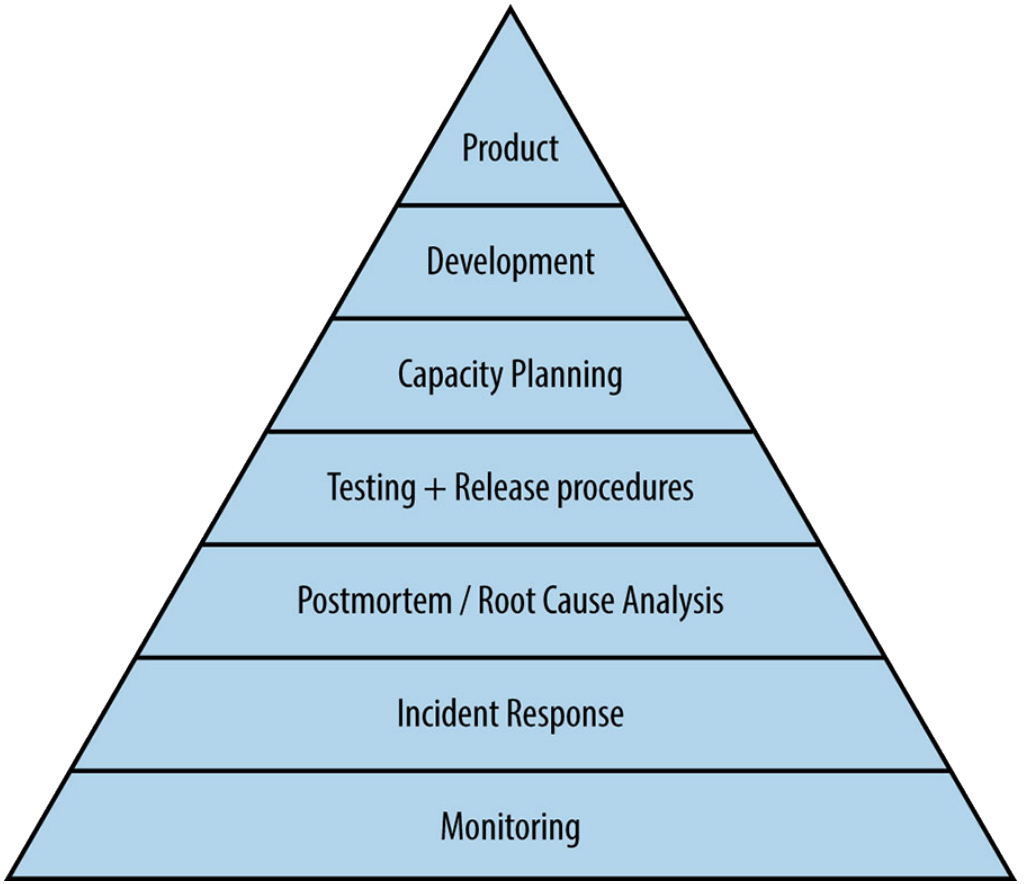

Image taken from https://landing.google.com/sre/sre-book/chapters/part3/

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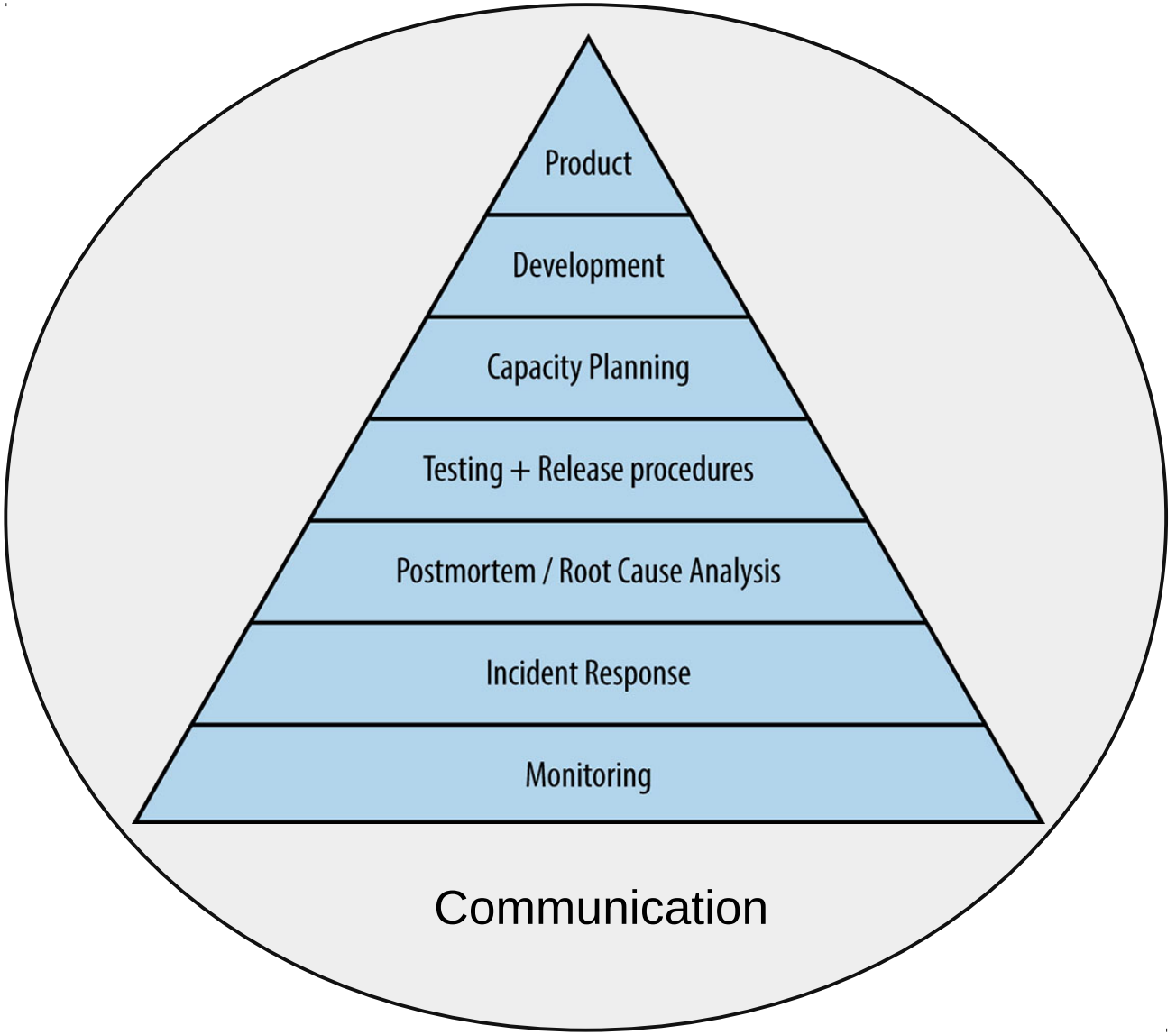
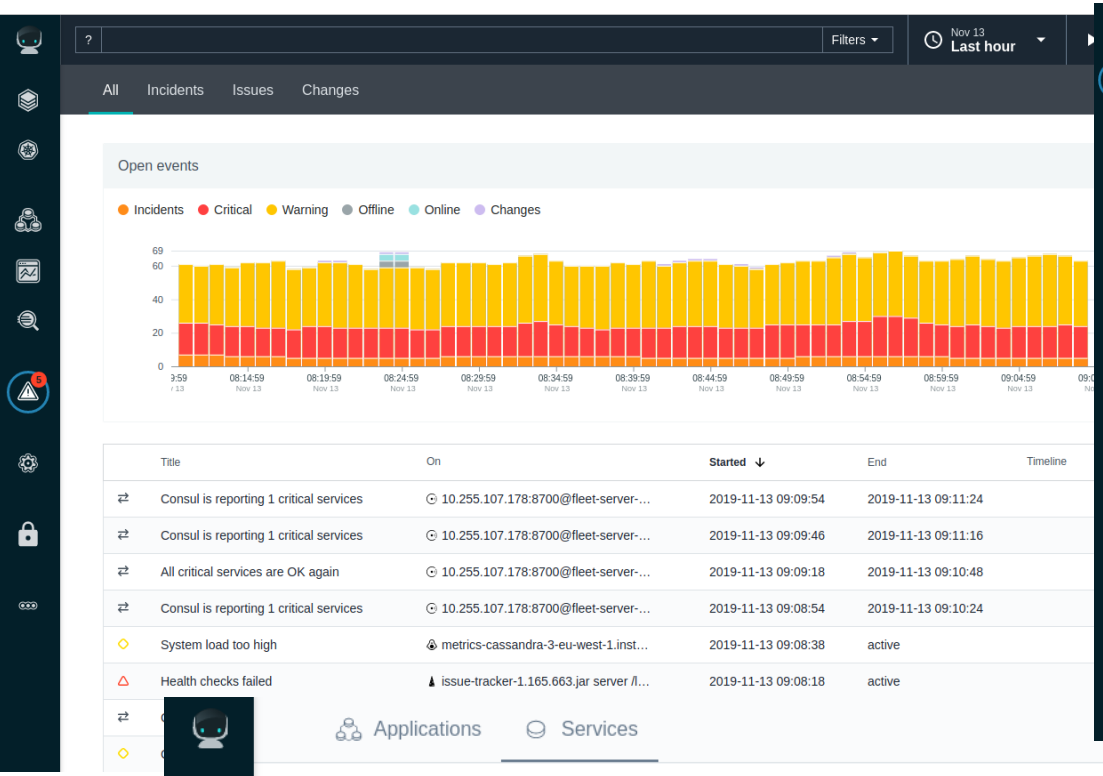
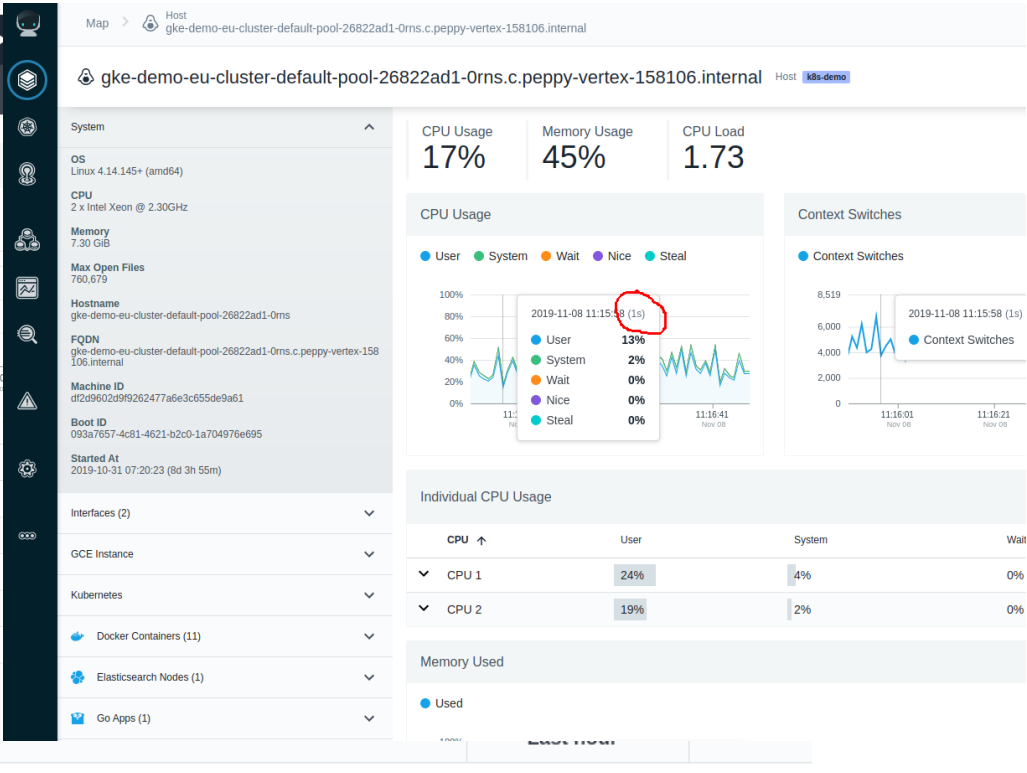


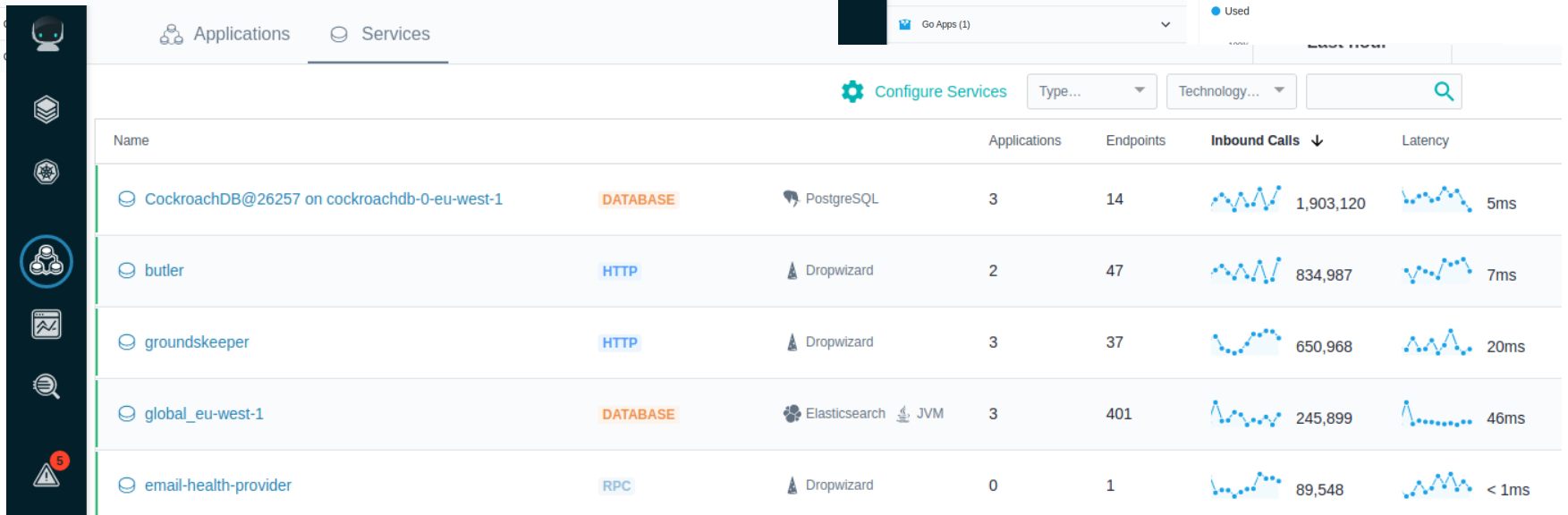
After Nat Welch, "Real-World SRE"

Setting the stage

What is Instana ?







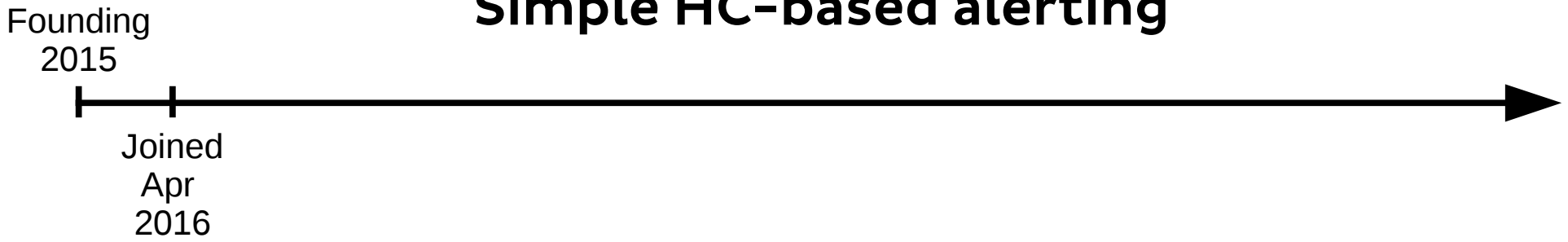
The early days

< 20 people. Mostly engineers + founders.
Sales roles just starting.

Family + friends customers.

~~SRE~~ Ops/DevOps.
Everybody could touch anything.
Focus on product.
Failures did not matter that much (yet)

Solid but limited platform (Ansible, Docker, EC2).
Simple HC-based alerting



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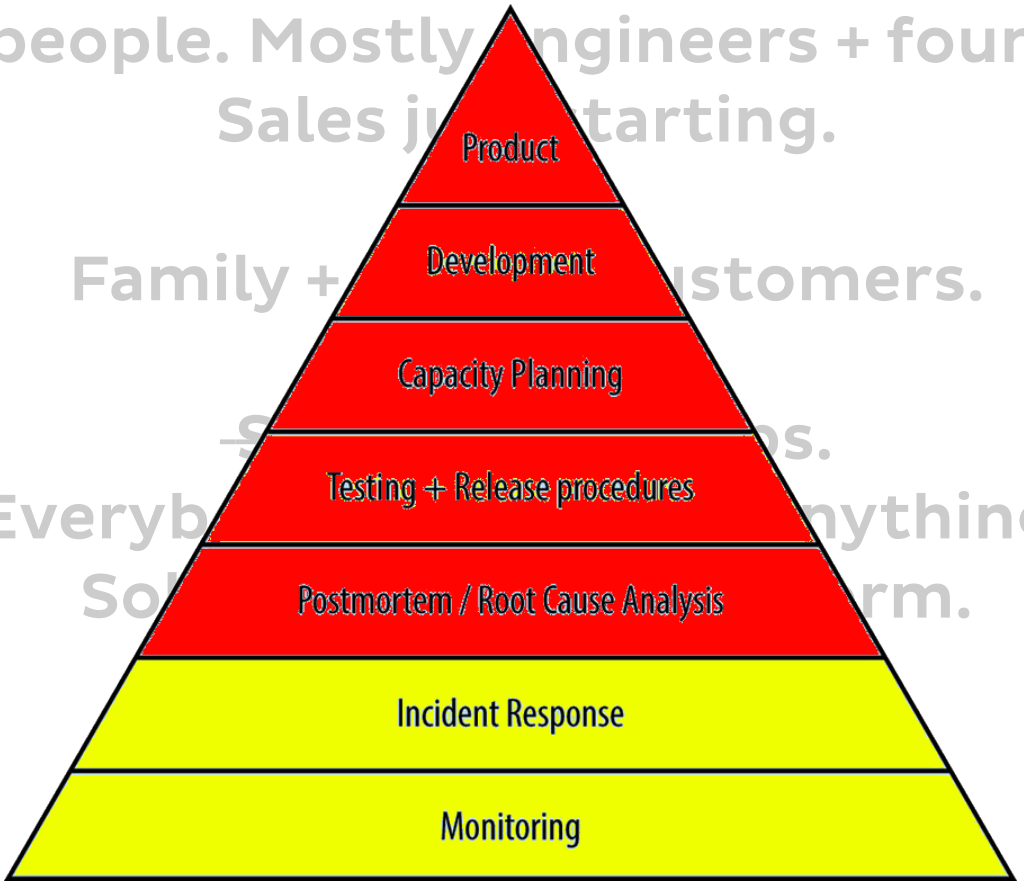


Making things harder ...

Enter: On-Prem!

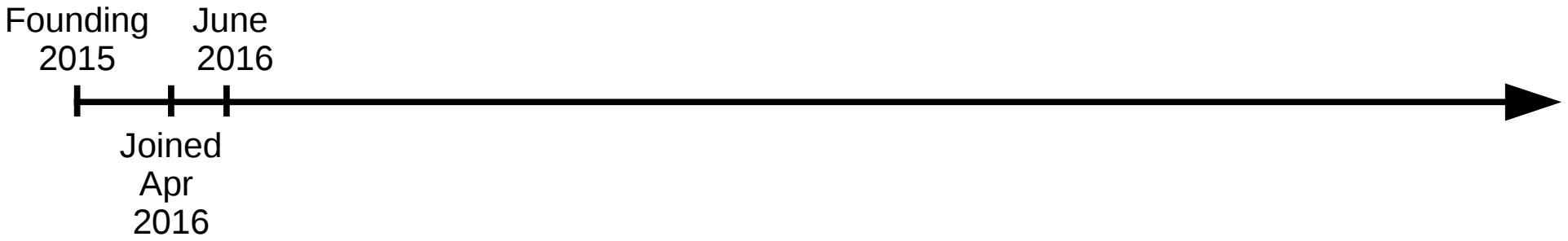
Business need.

Ops/SRE team best fit.

Container-based approach w/ docker-compose.

Need to handle different release streams.

Customer support.



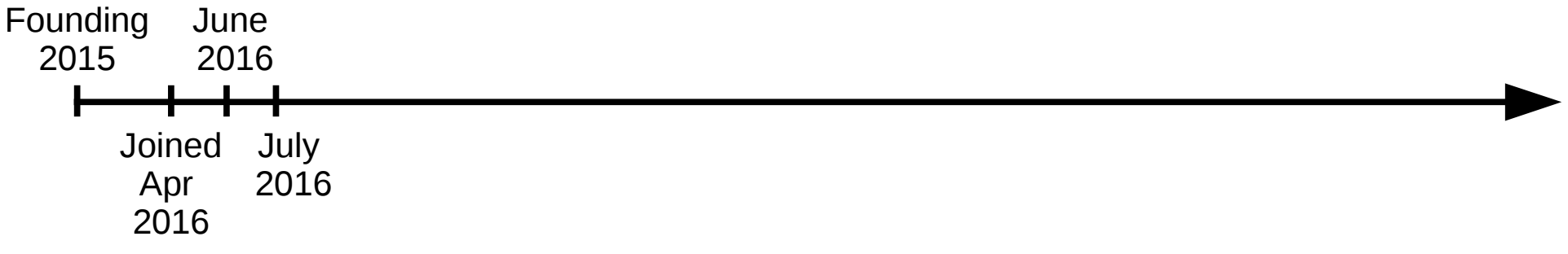
… and picking up traction

More customers.

Need for better on-call coverage.

First US colleague.

Prepare for scale.

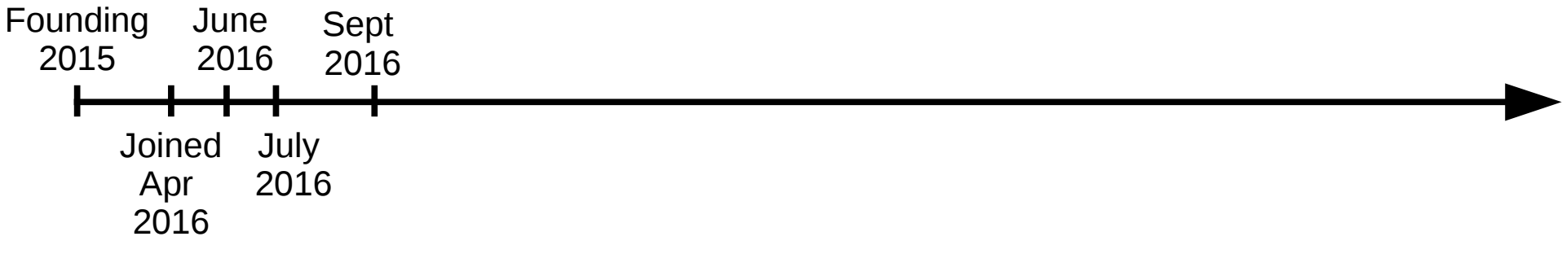


Next steps

Platform migration → Consul/Nomad
Proper failover. Multi-AZ.

Increase utilization. Lower cost.

More separation of concerns for the teams.



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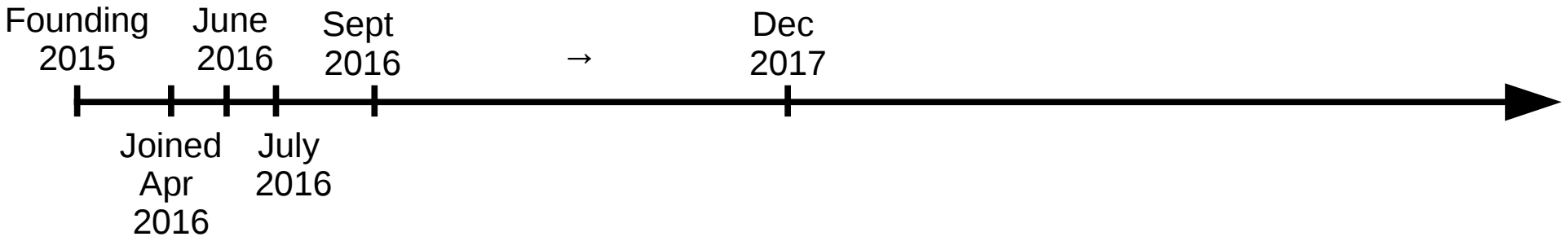
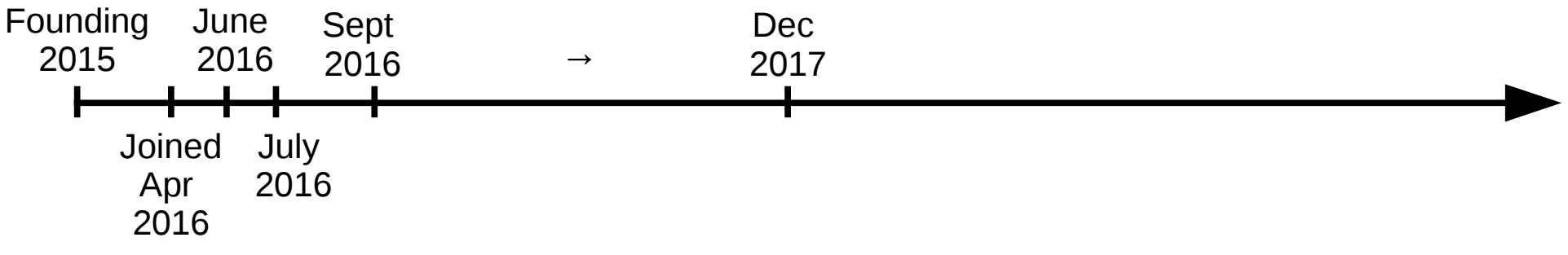
Re-work on-prem (package-based).

Eliminate parts that did not work/scale.
(Neo4J, Redis (Cluster), ...)



Lessons learned?



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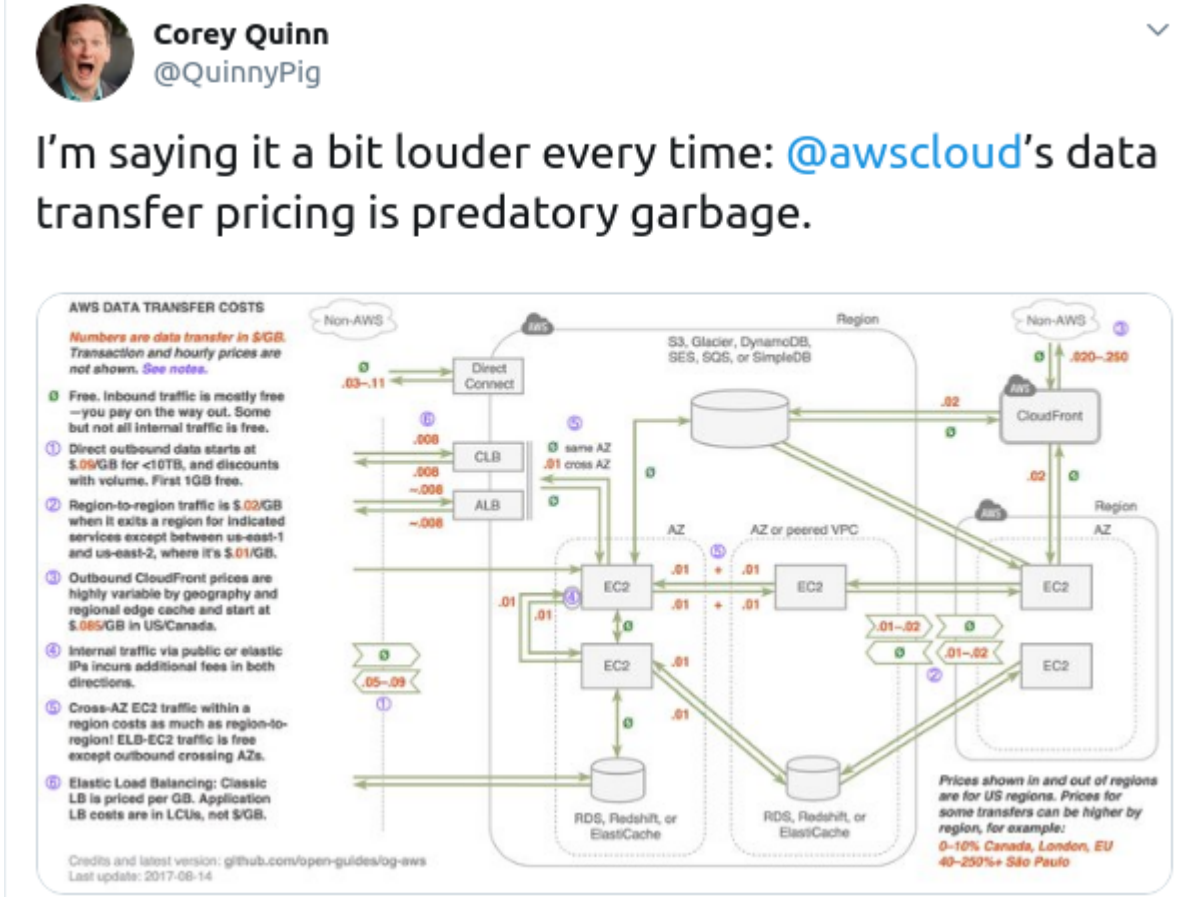


<u>Reliability costs money!</u>

And effort.

→ Architecture changes.

→ Maintenance

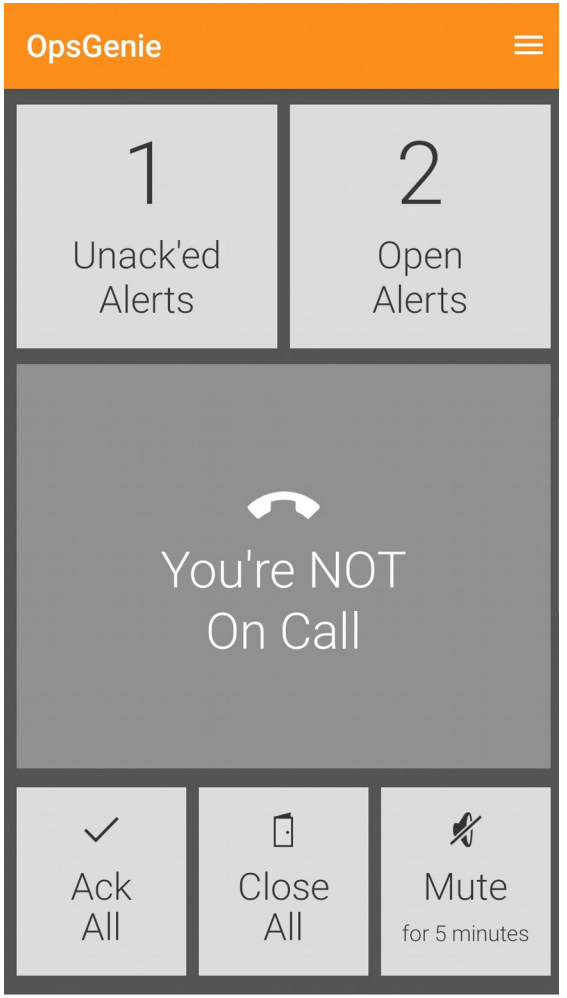
Founding 2015 — Joined Apr 2016 — June 2016 — July 2016 — Sept 2016 → Dec 2017

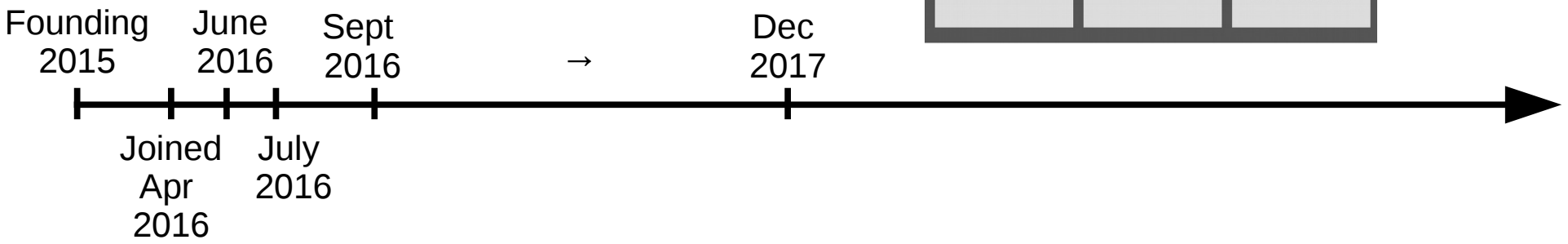
Lessons learned?

Beware of unhealthy on-call schedules!

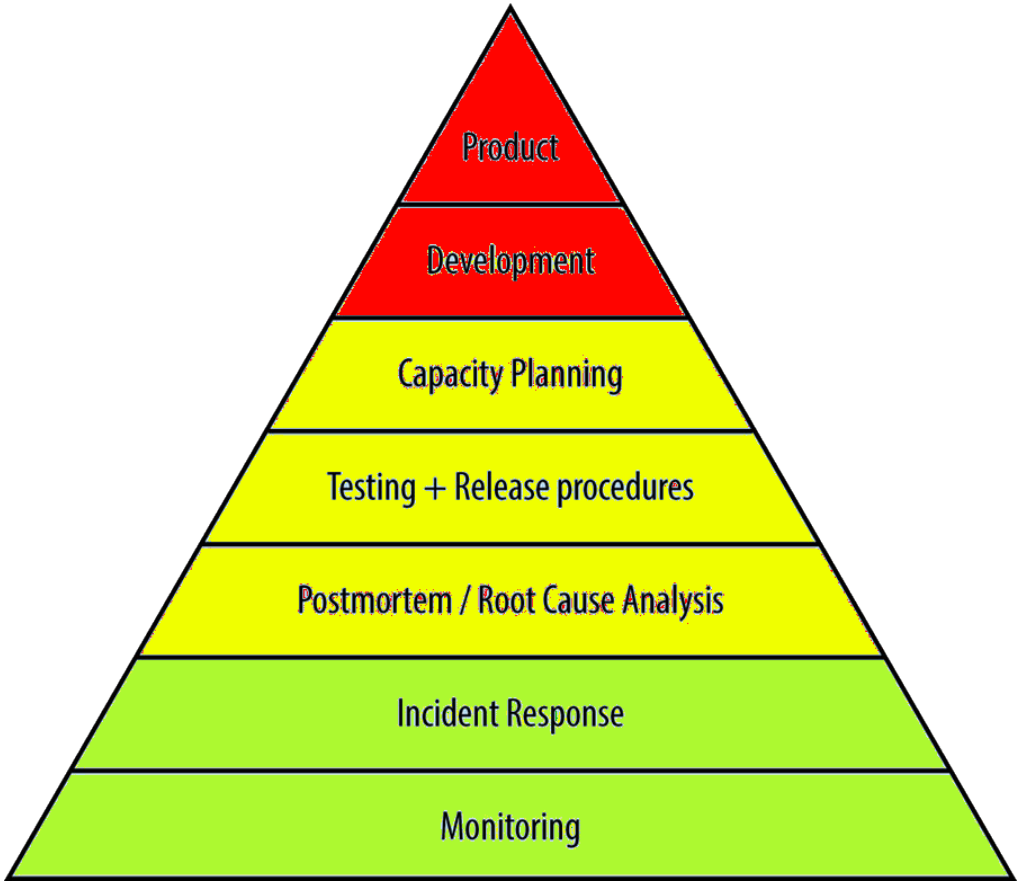
Implement rules to define <u>who</u> deals with <u>what</u> and <u>when</u>

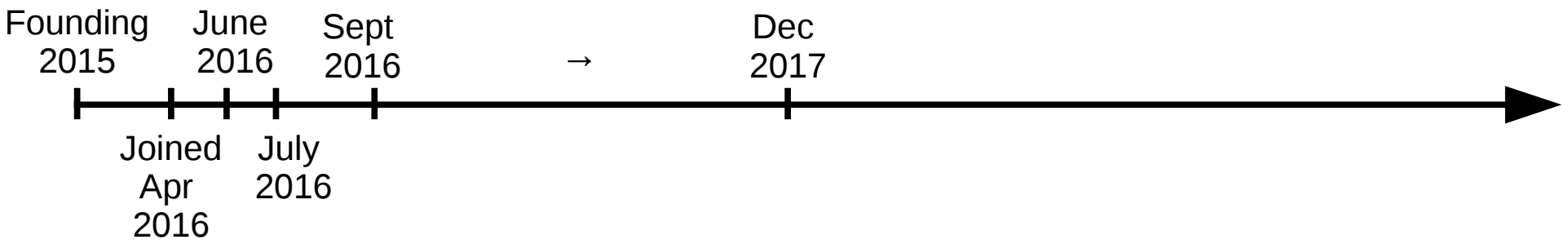
Not everything is urgent





So where are we now?





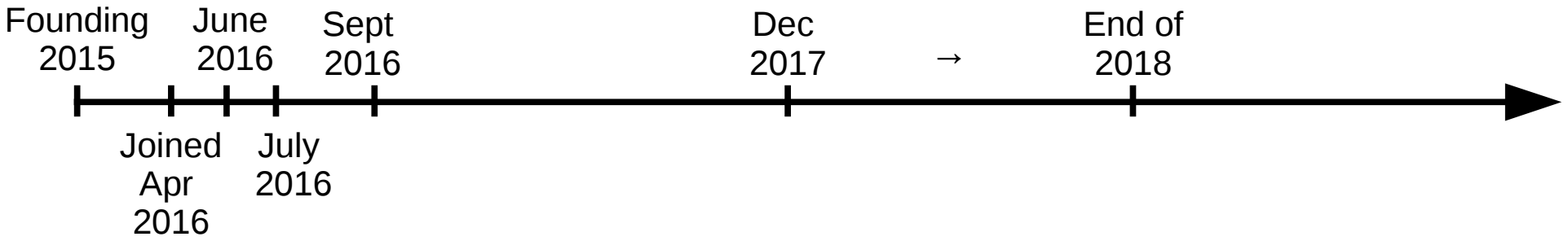
More growth – more changes

A lot more non-engineers join.

Communication becoming more important.

→ Learn how to deal with and avoid panic ;)
(re-visited Slack structure)

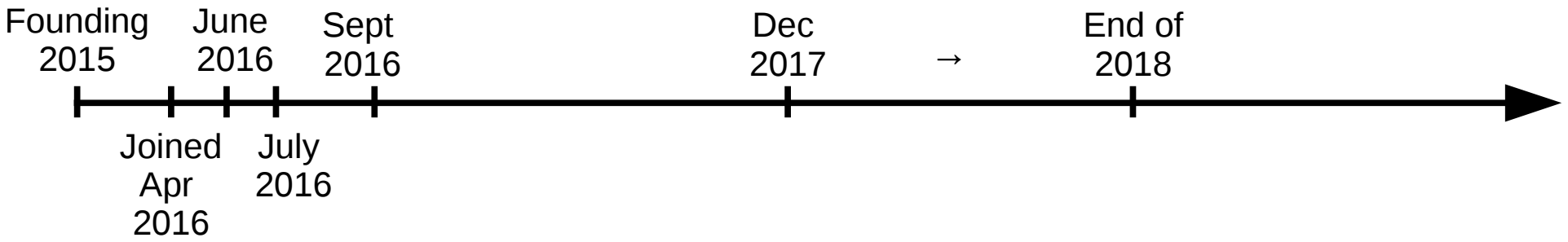
Provide RCAs to Customer Success to enable them to properly communicate with customers.



More growth – more changes

More work with SLOs to ensure platform QoS.

Constantly re-visiting usefulness of SLOs



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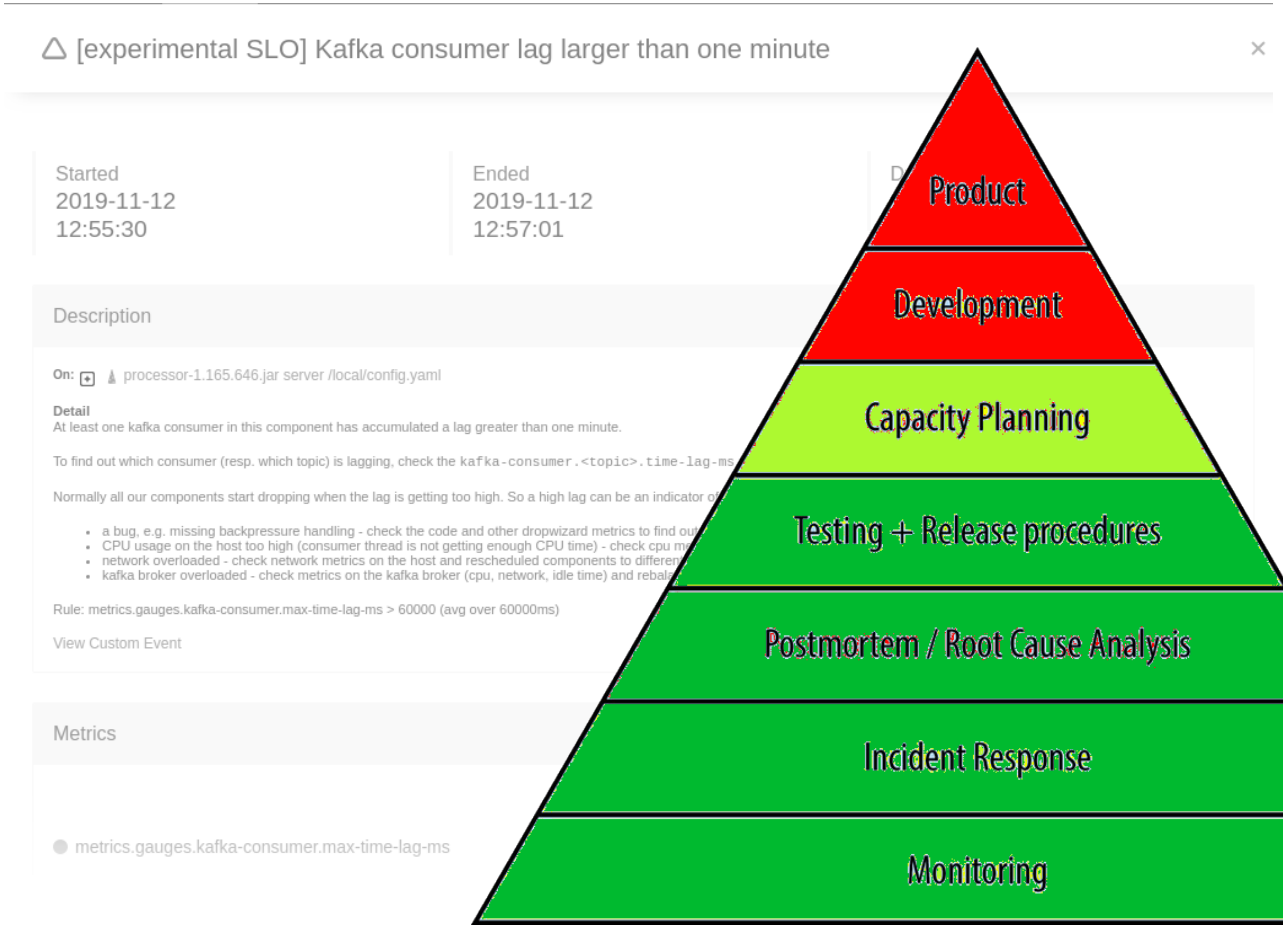

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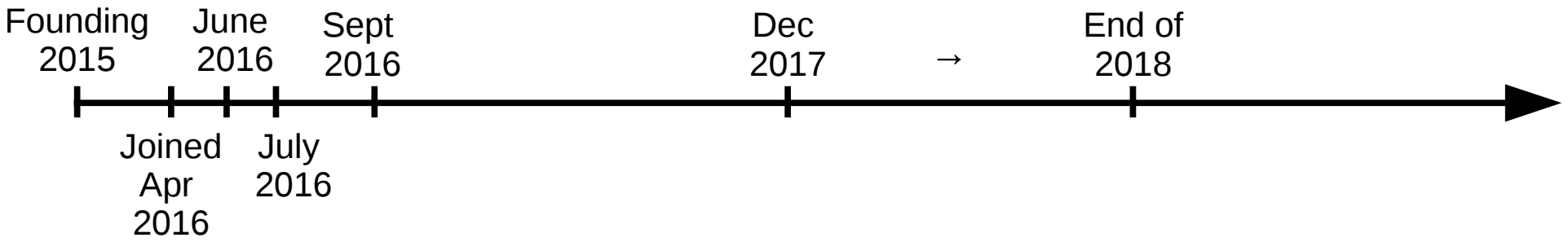
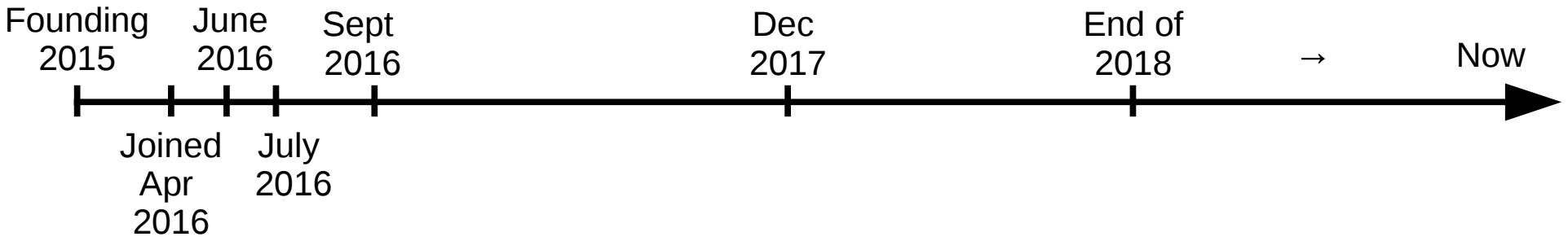


What's next ?
Consolidate Tooling

Next platform migration, replacing Consul/Nomad with Kubernetes.

In preparation for multi-cloud deployments.

Based on internal tooling written in Go.
→ Replacing current legacy automation code



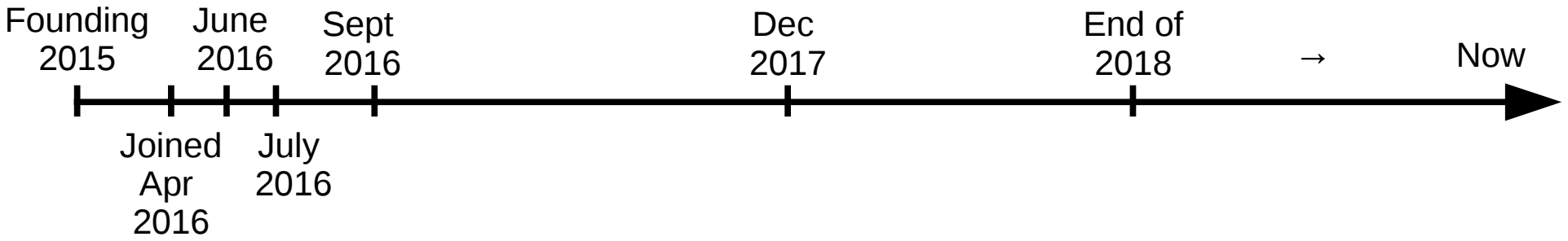
What's next ?
Sustainability

Expand SRE team based on on-call needs
→ first colleague in Australia

Move non-core topics into other teams
→ Dev Support and On-Prem

Focus on core responsibilities
→ QoS. Cost. Scalability.

Onboarding. Knowledge Sharing. Education.



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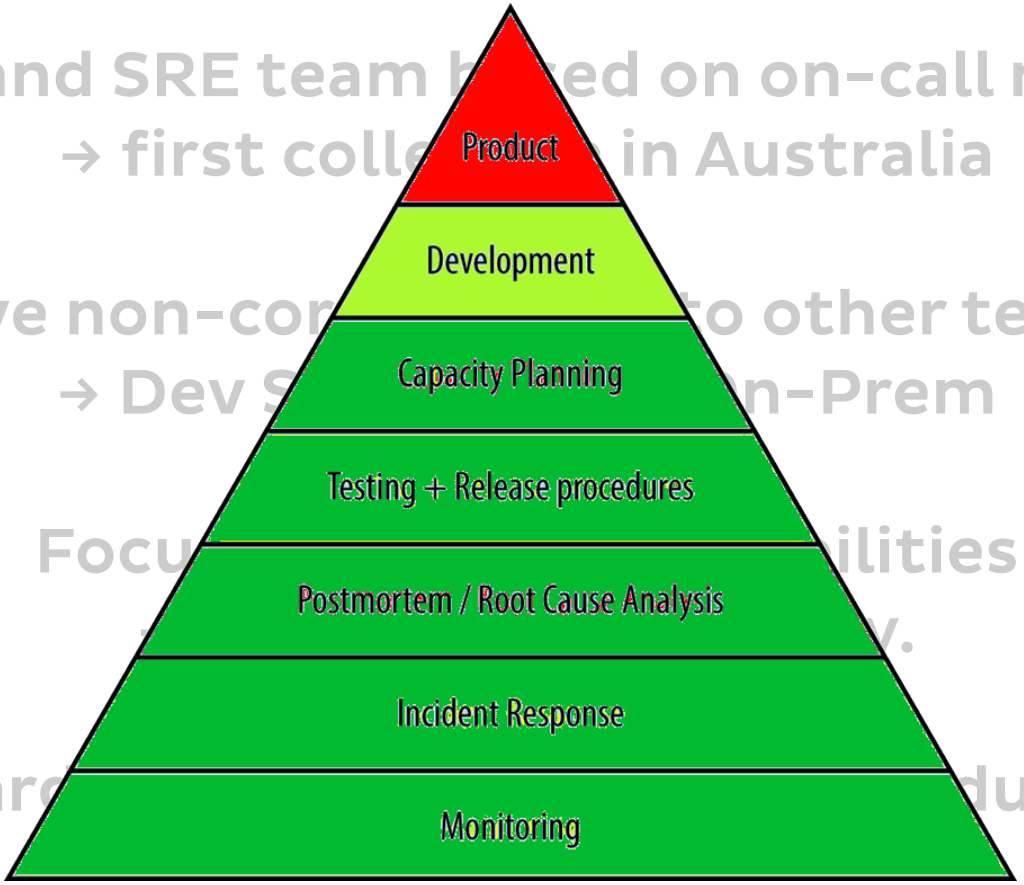
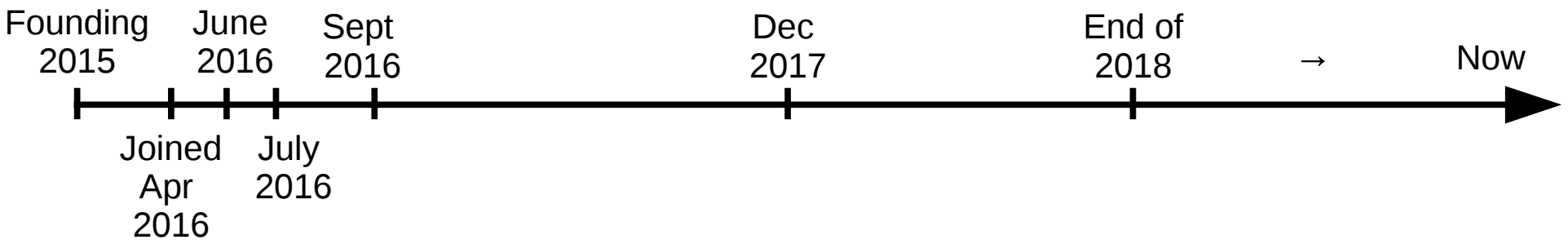




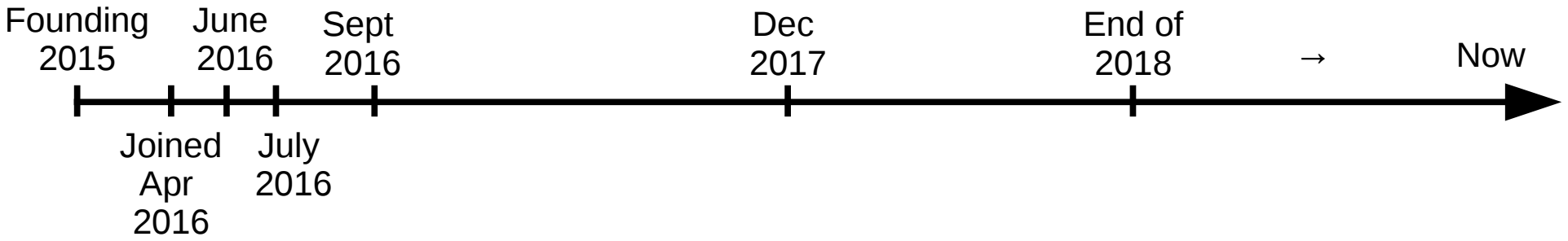
Takeaways

SRE is not a tool you use or a switch you turn on.
SRE is a mindset and requires constant adjustment

Try (to learn) to do the right thing at the right time.
Don’t be afraid to break things.

You probably cannot avoid politics.
→ Communication becomes more and more important as you grow!

It’s all about customer satisfaction!




Thank you!
Questions ?
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