

# LIFTING ANTISPAM TO THE CLOUD AND BEYOND

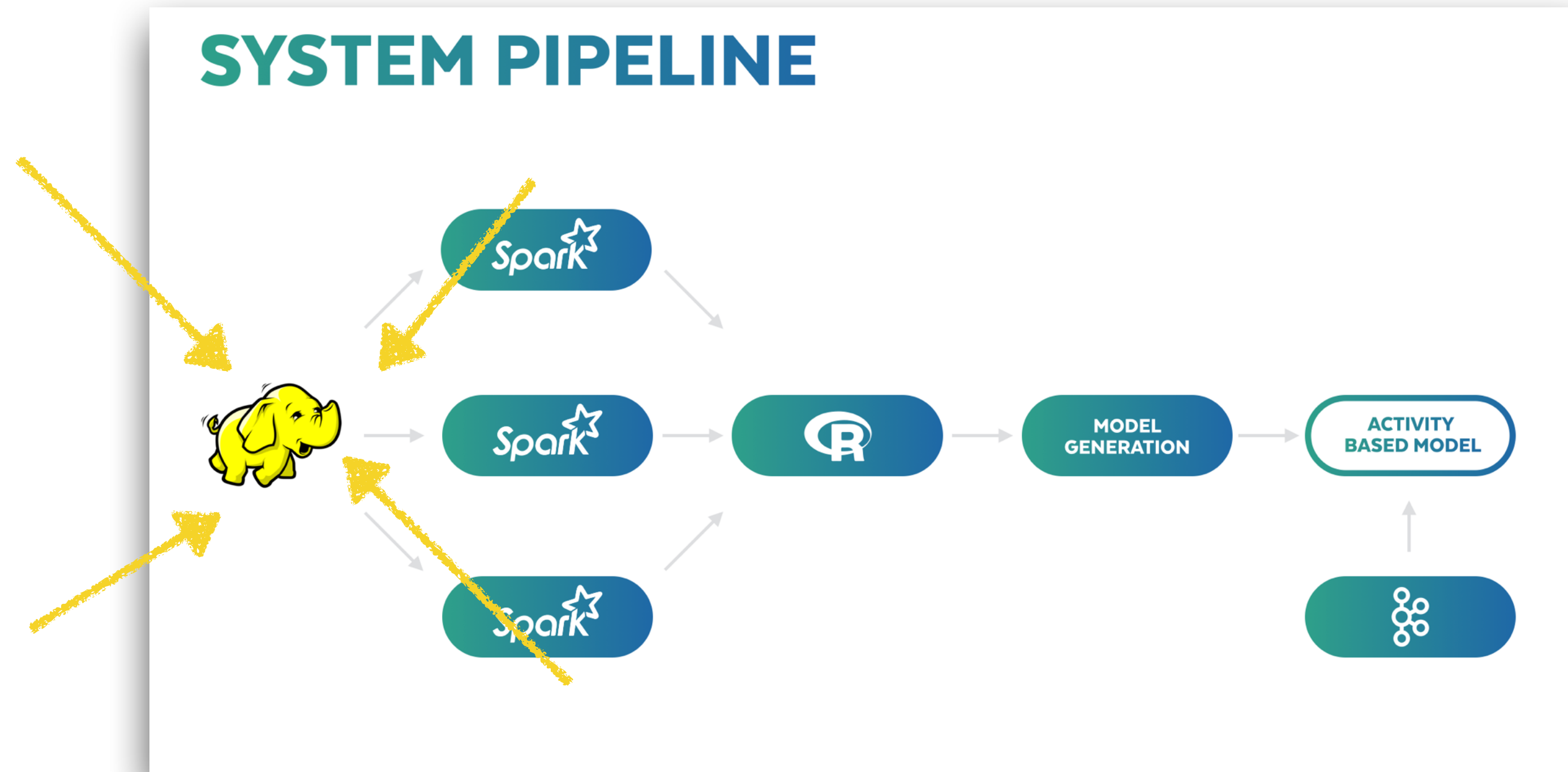
# ABOUT LOVOO AND ANTISPAM

LOVOO is a dating app. Thus, people are trying to engage into various sorts of activities with other users ;).

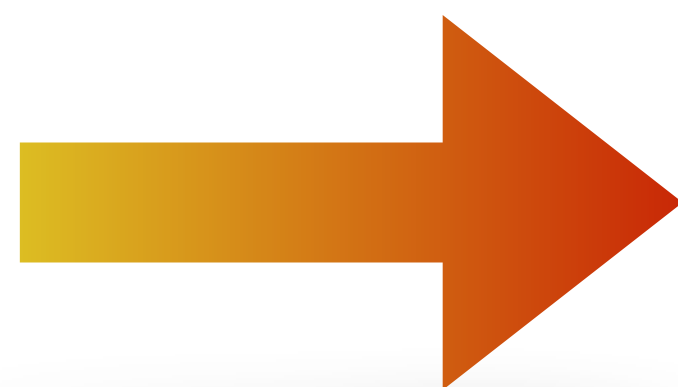
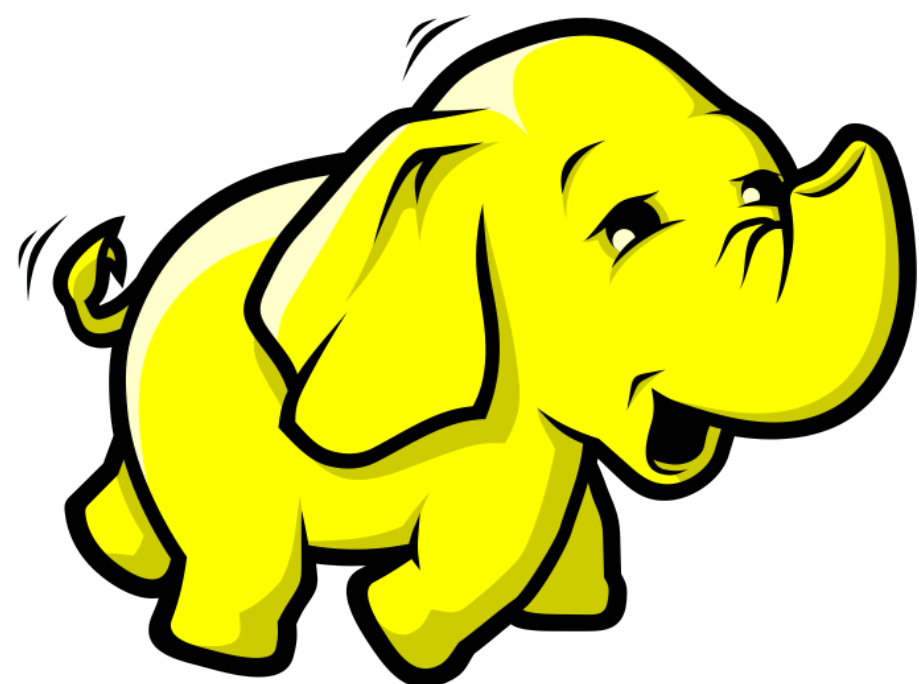
However, we have bad users, aka. **spammers**. These bad users use our app for malign purposes such as advertisement of other platforms, and trying to scam others.

The goal of the Antispam team is avoiding the creation and proliferation of these profiles.

# STORY TIME



# STORY TIME

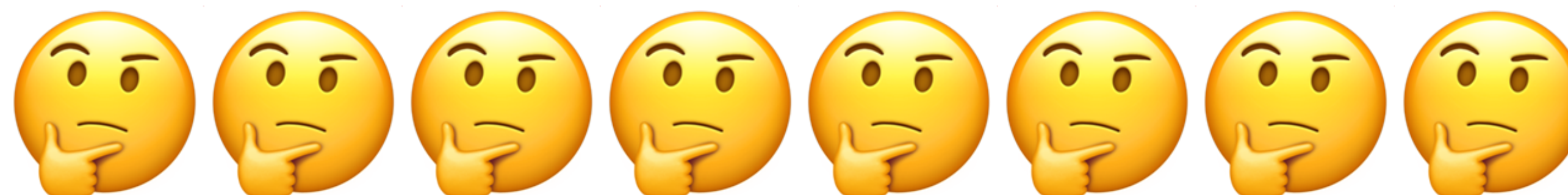




# STORY TIME

None of us wanted to take care of keeping Hadoop in one piece.

# STORY TIME



# STORY TIME



# STORY TIME



# STORY TIME

Why we moved up to the cloud, and how it is supporting us.

# AGENDA

- STORY TIME
- WHY THE CLOUD?
- ANTISPAM UP IN THE SKY
- IMPROVEMENTS TO ANTISPAM
- END :(

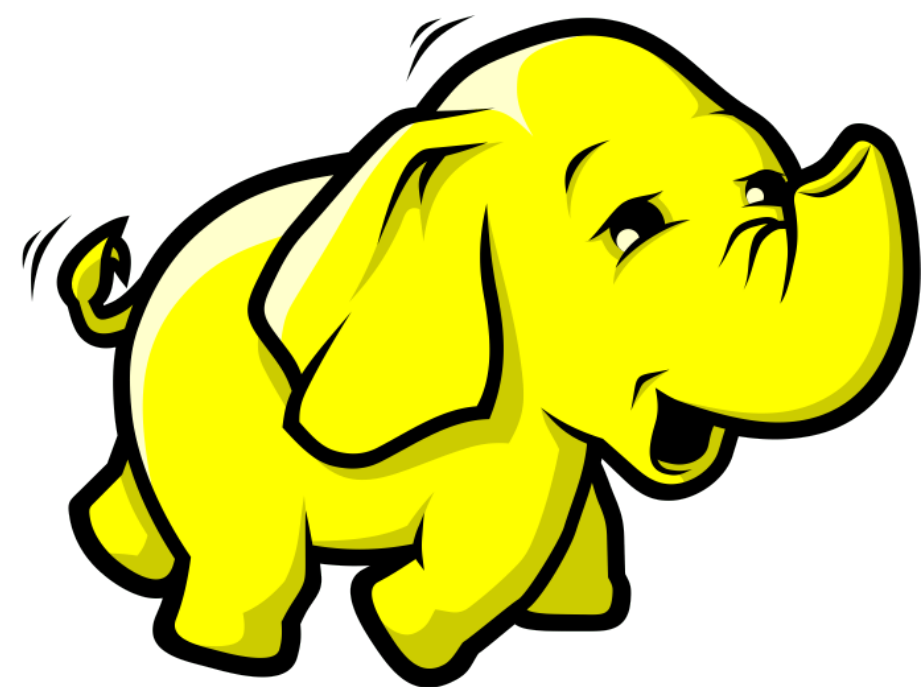
# WHY THE CLOUD?

# WHY DID WE MOVE?

Back to our Hadoop story...



# WHY DID WE MOVE?



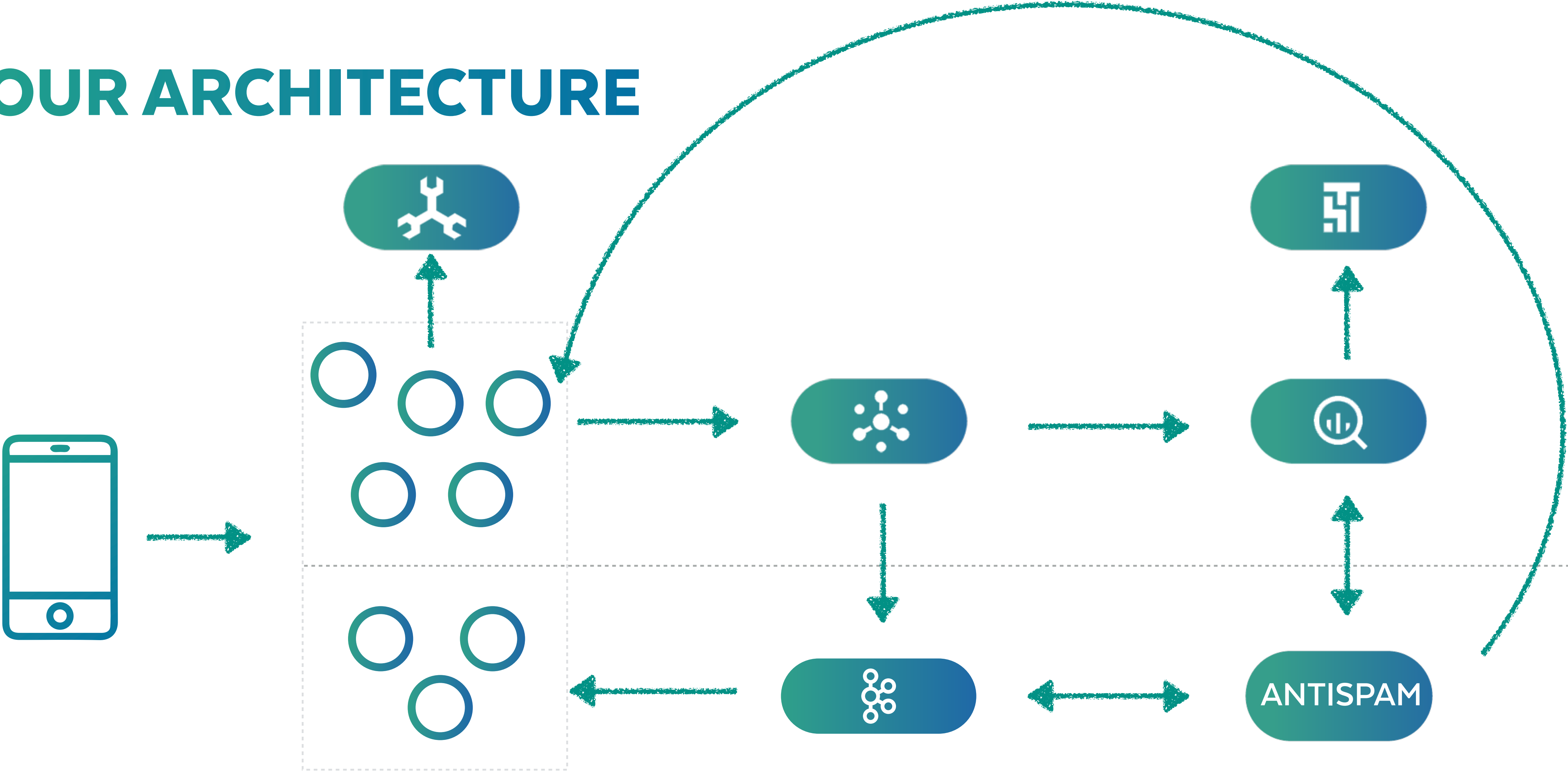
# WHY DID WE MOVE?

To make our lives easier.

# WHY DID WE MOVE?

However, Hadoop was only the beginning. After we got rid of it, and adopted BigQuery, we decided to migrate everything.

# OUR ARCHITECTURE



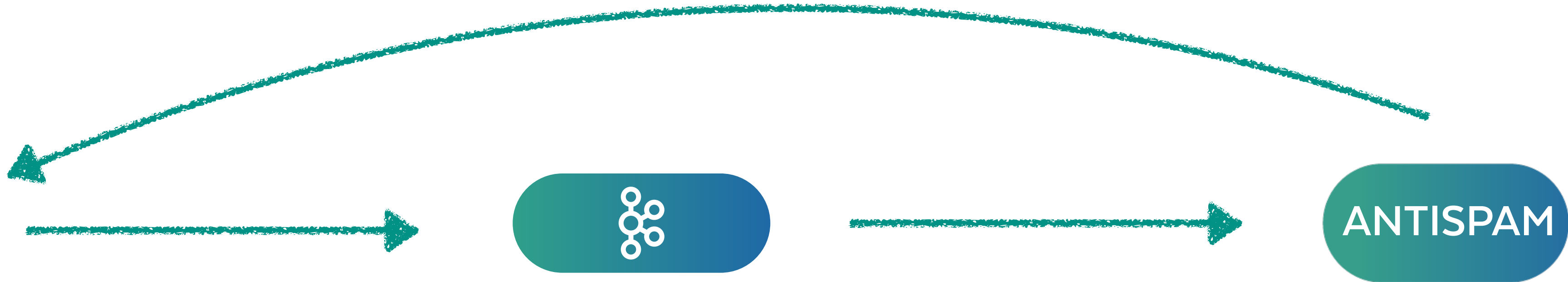
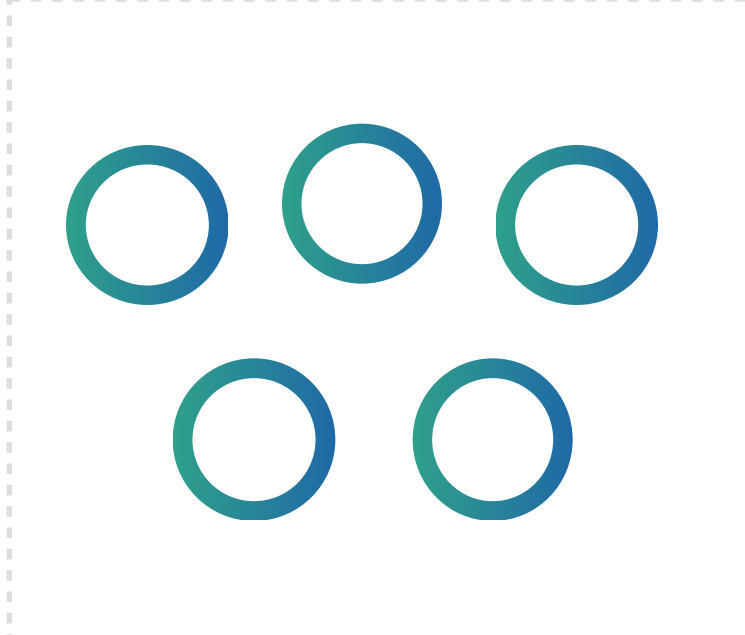
# ANTISPAM UP IN THE SKY

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Antispam was the first service that was migrated.

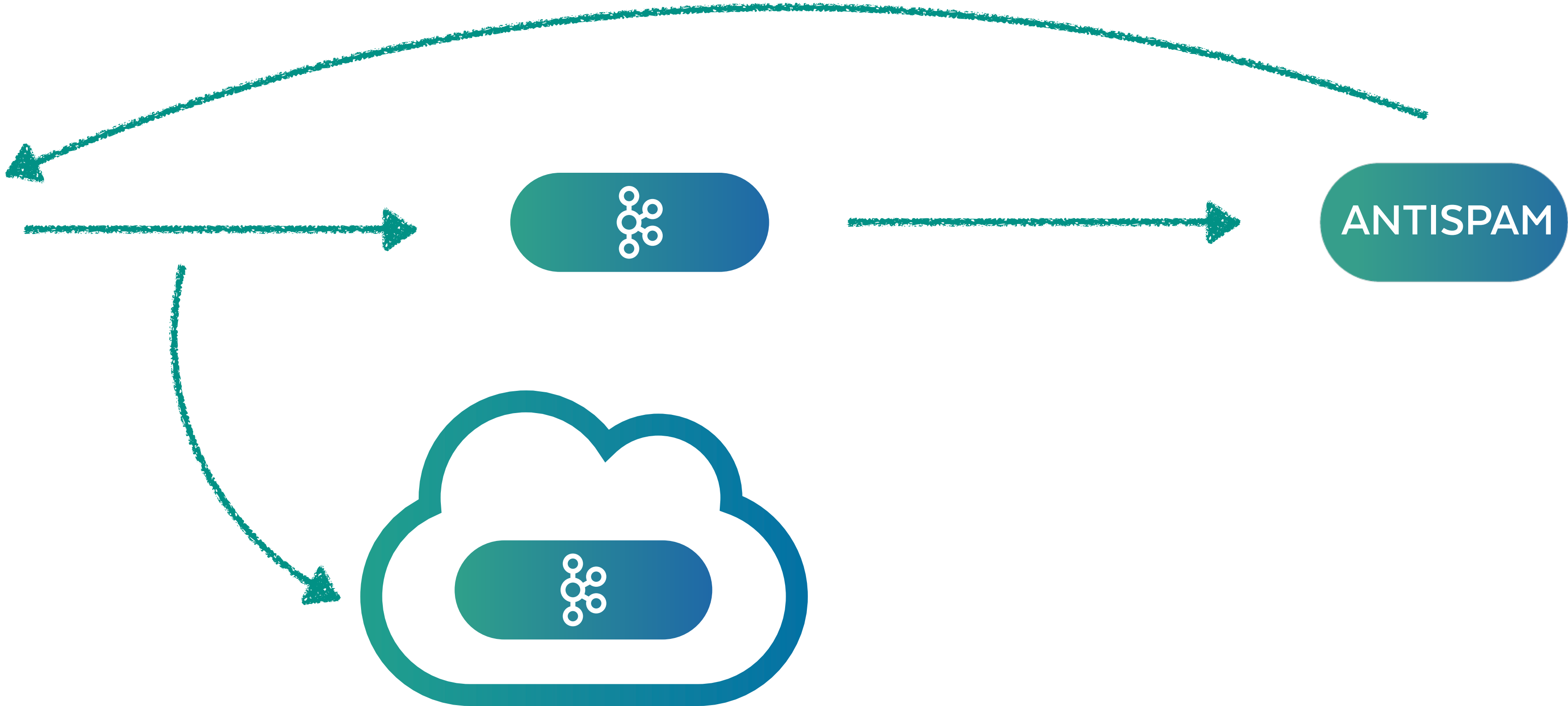
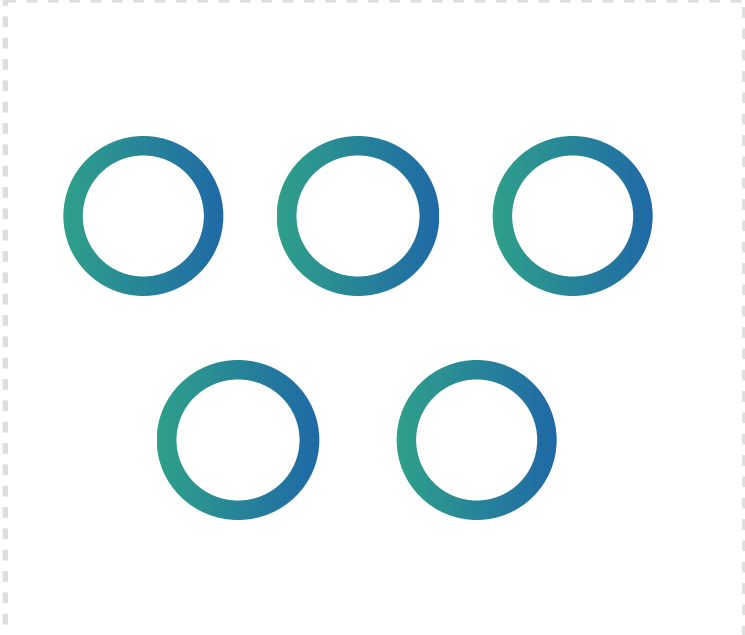
# ANTISPAM UP IN THE SKY

Data Center



# ANTISPAM UP IN THE SKY

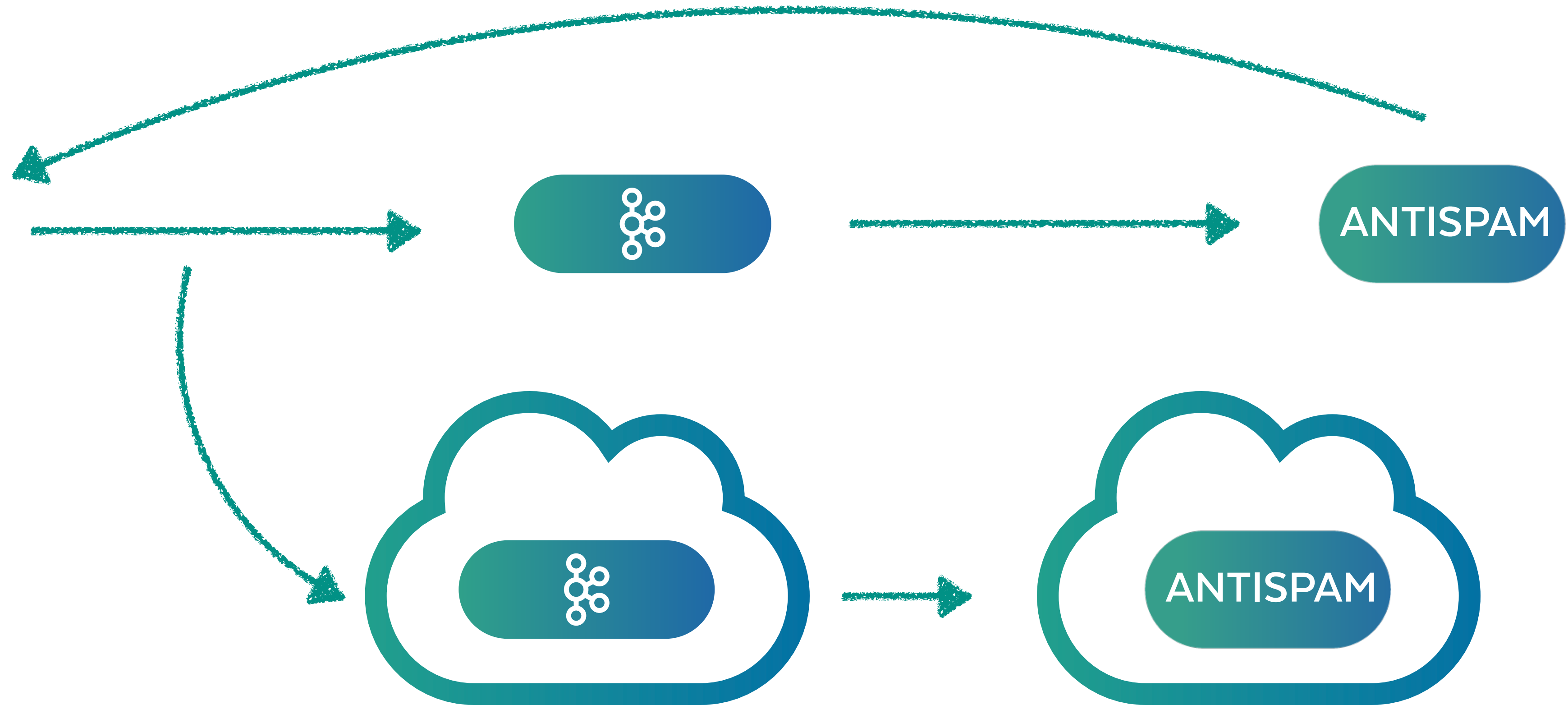
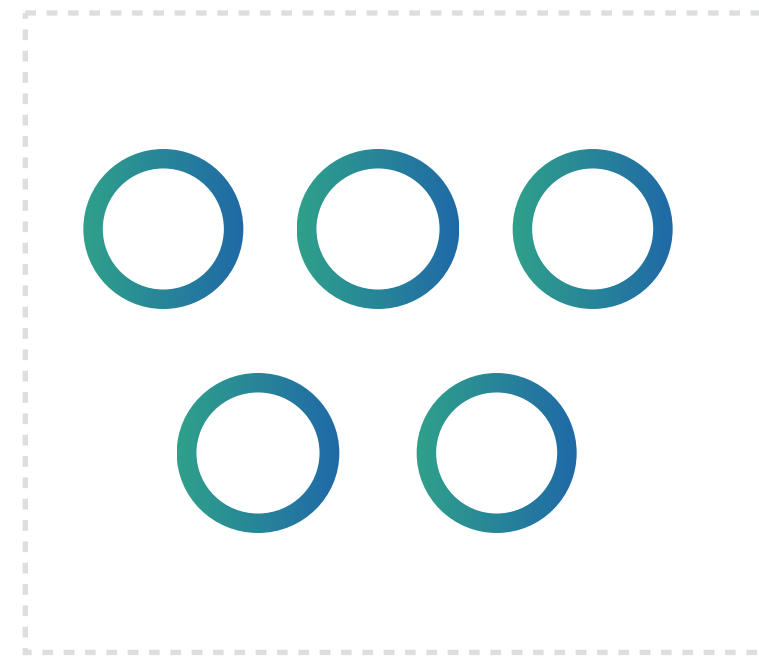
Data Center





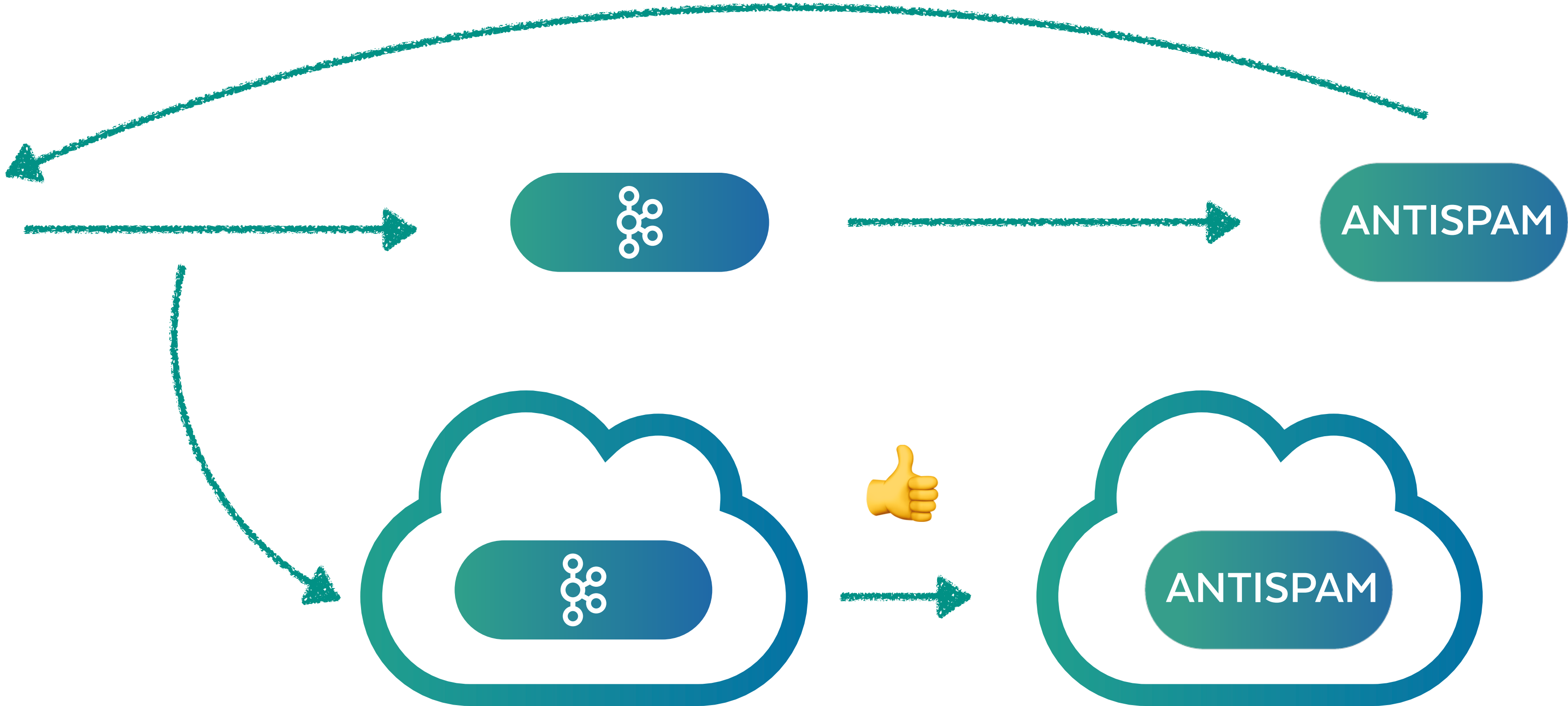
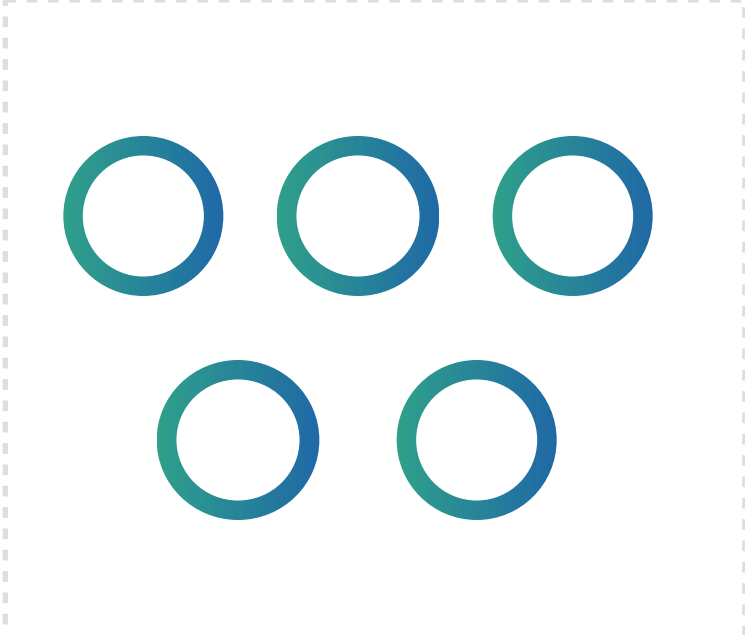
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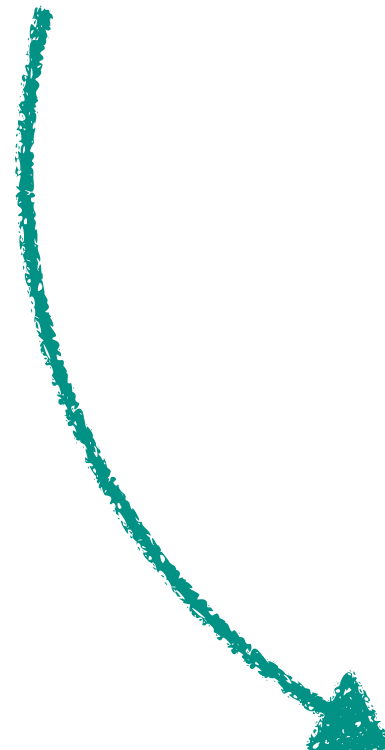
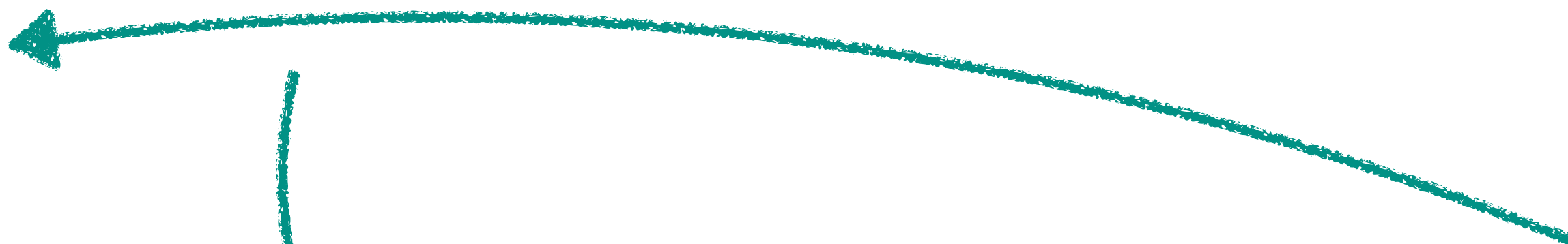
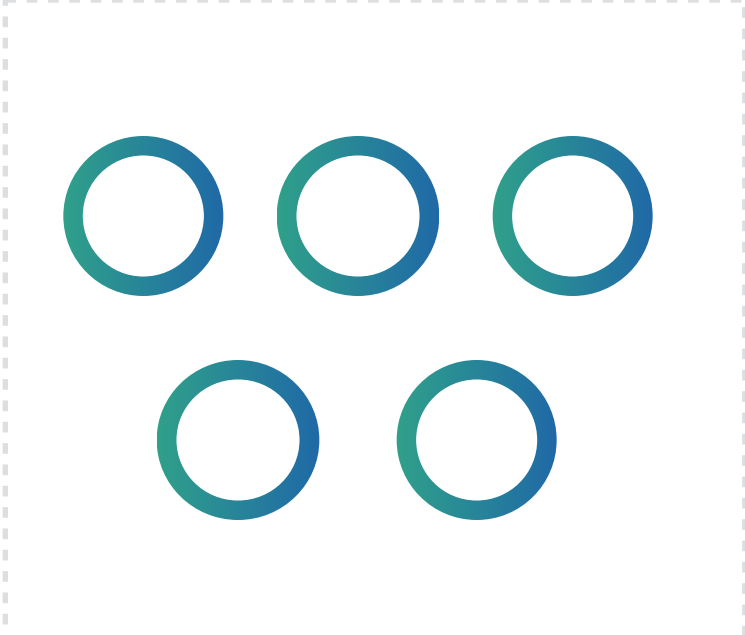
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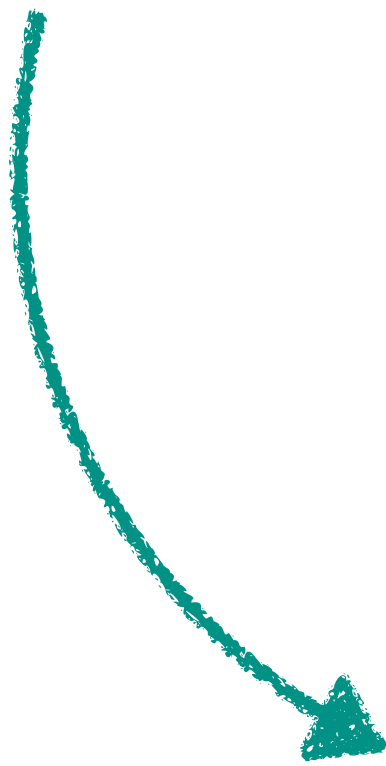
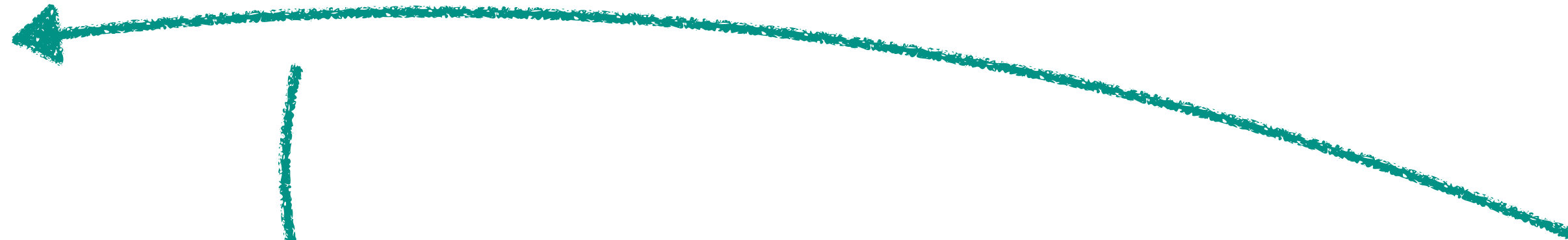
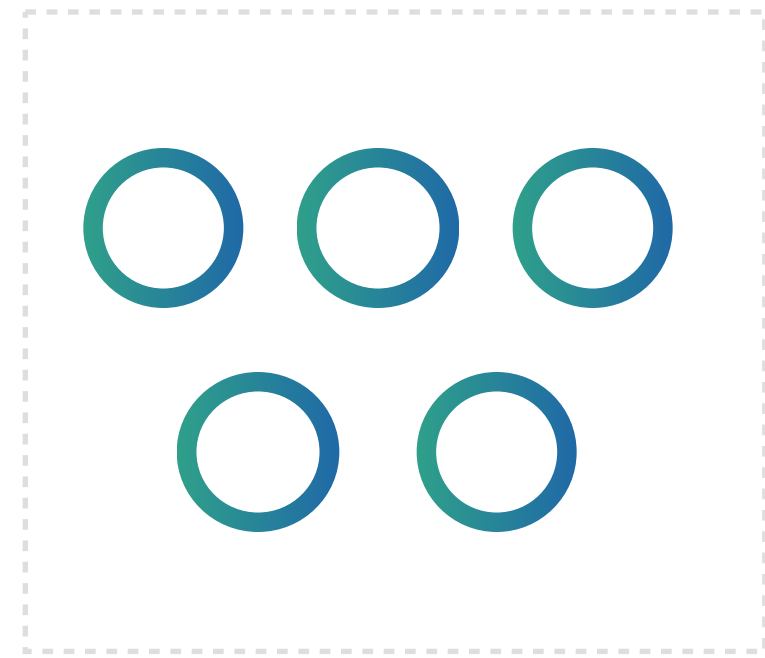
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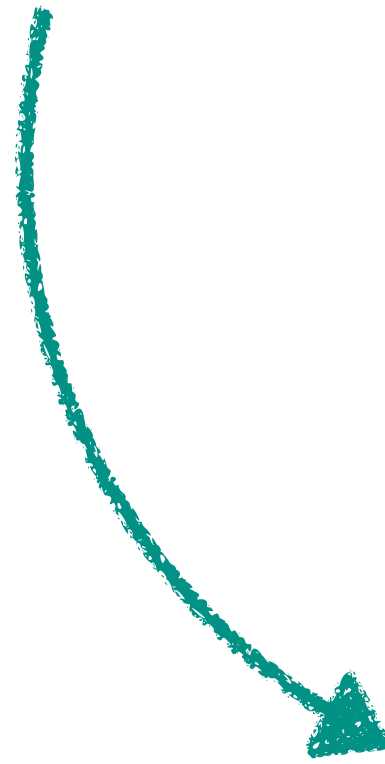
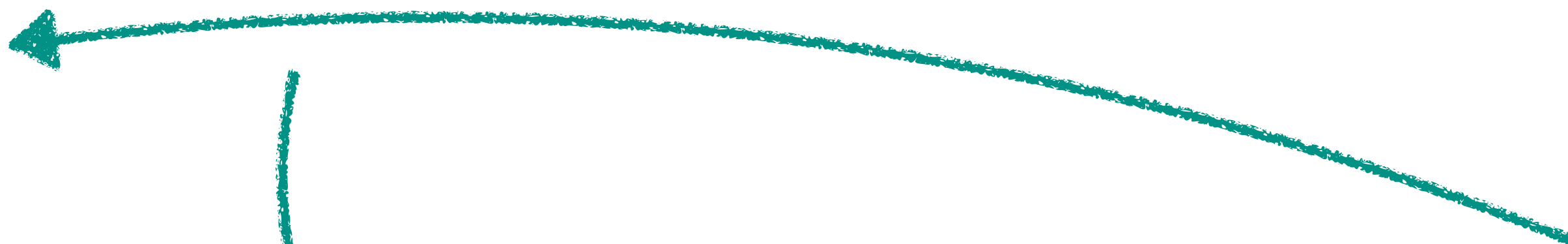
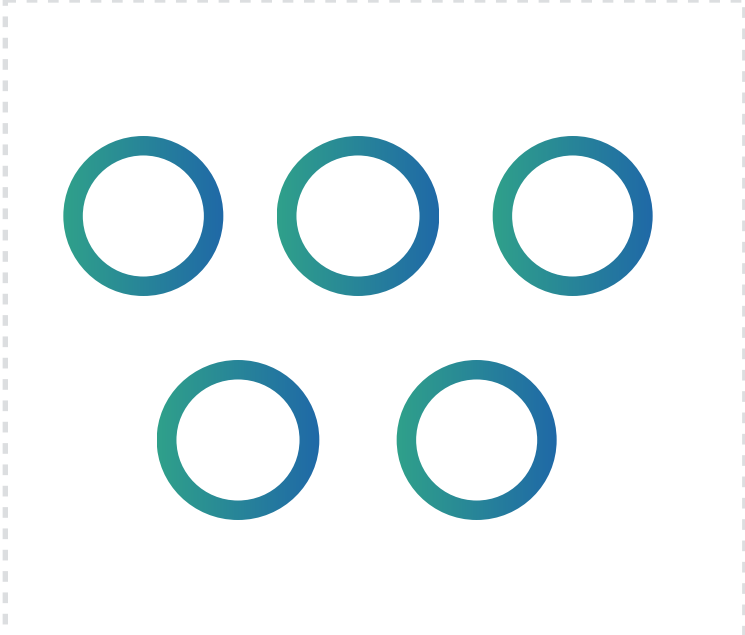
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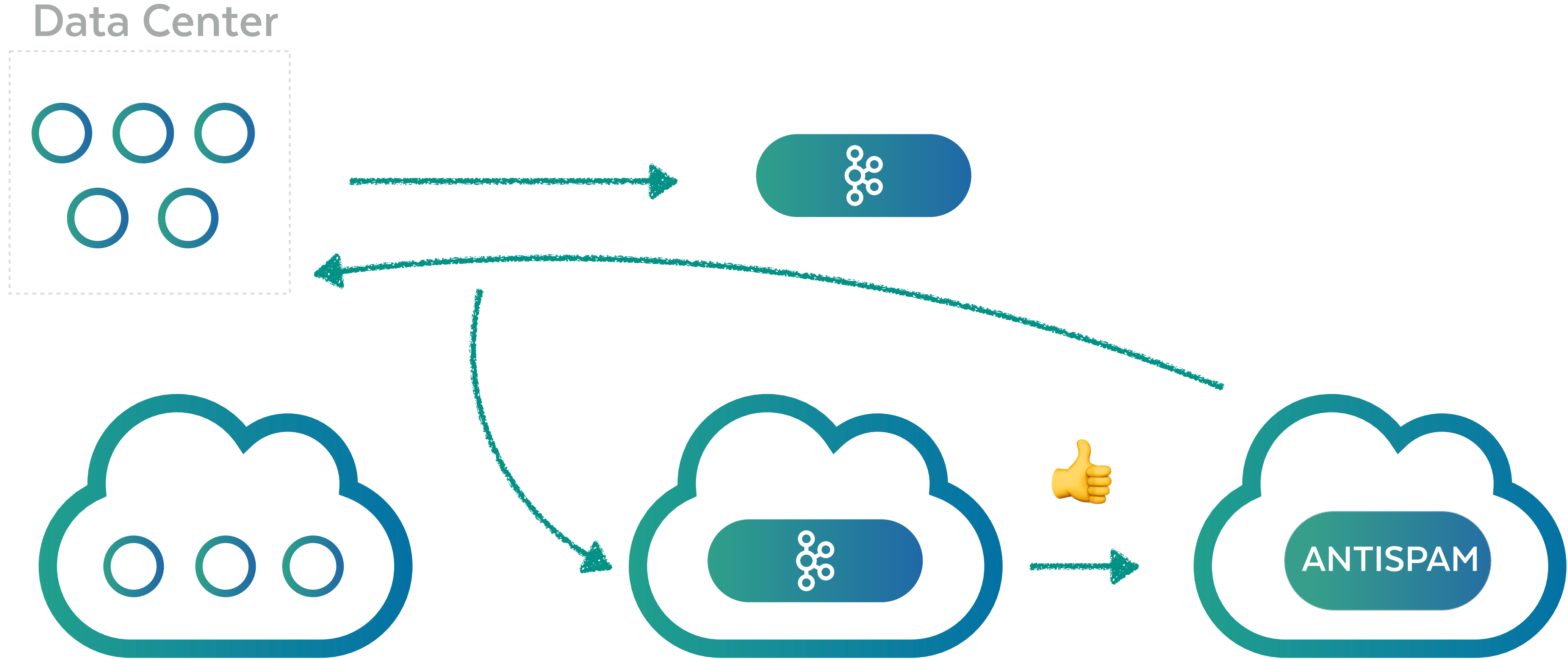


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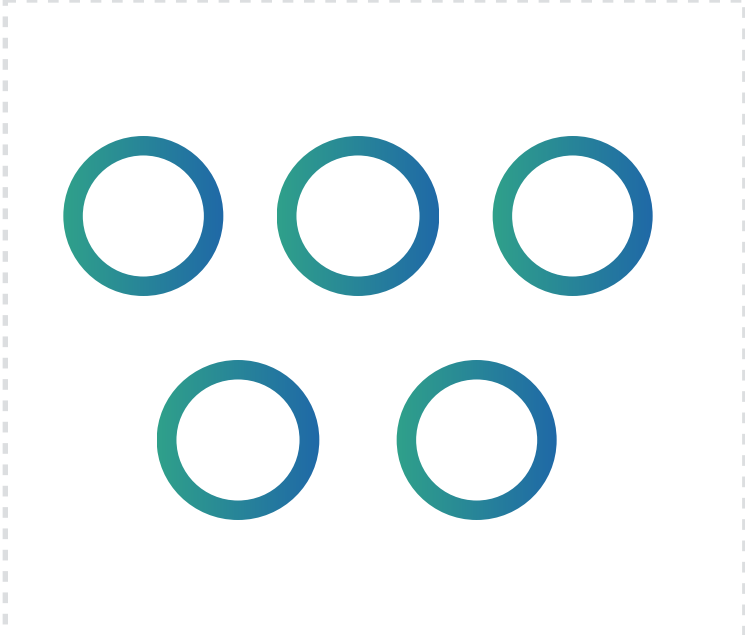


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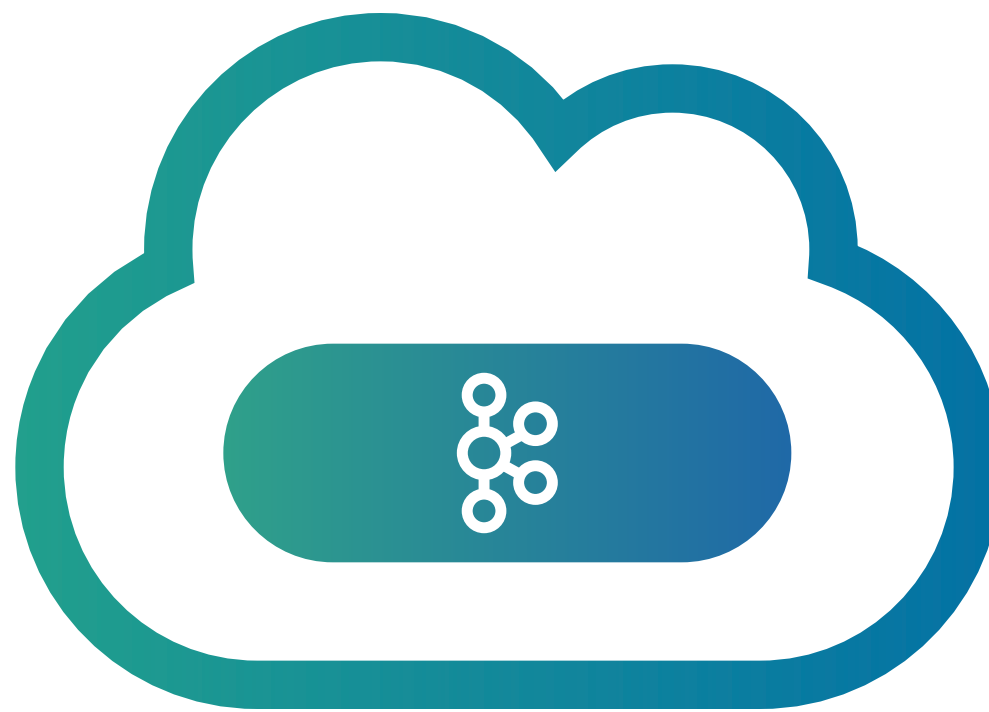
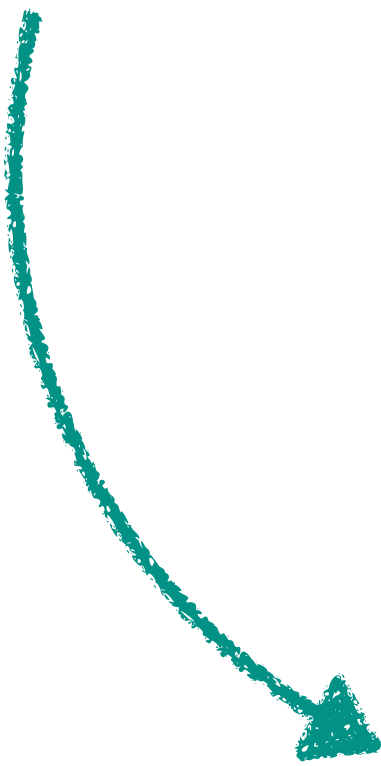
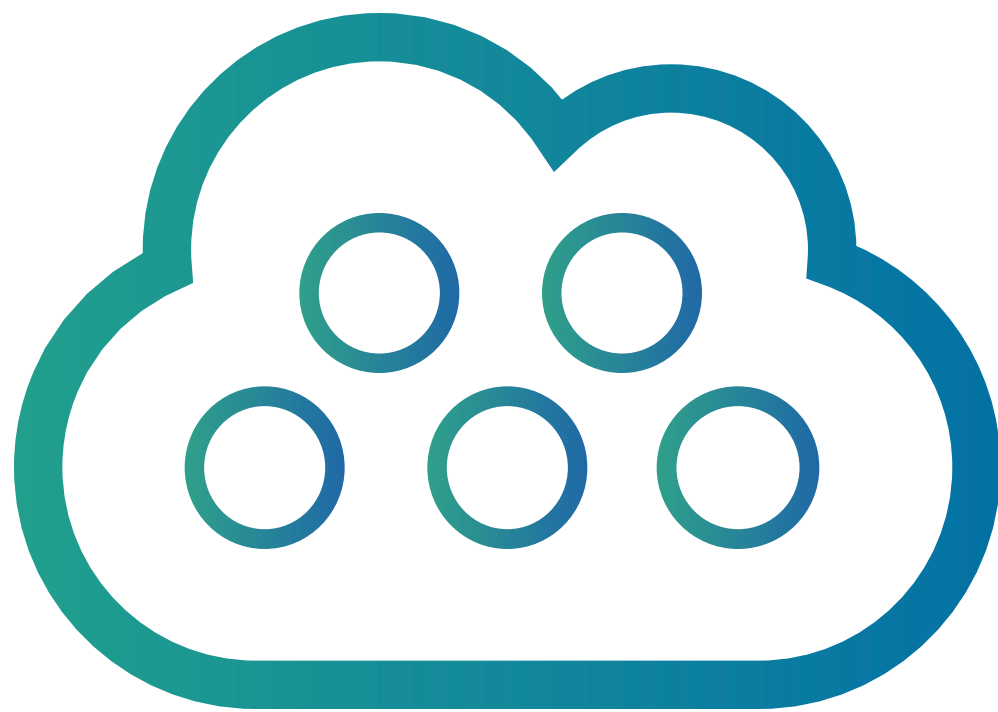
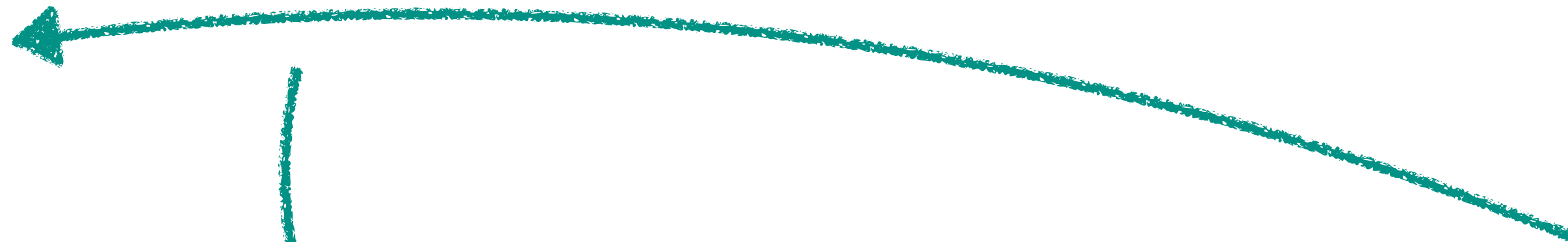
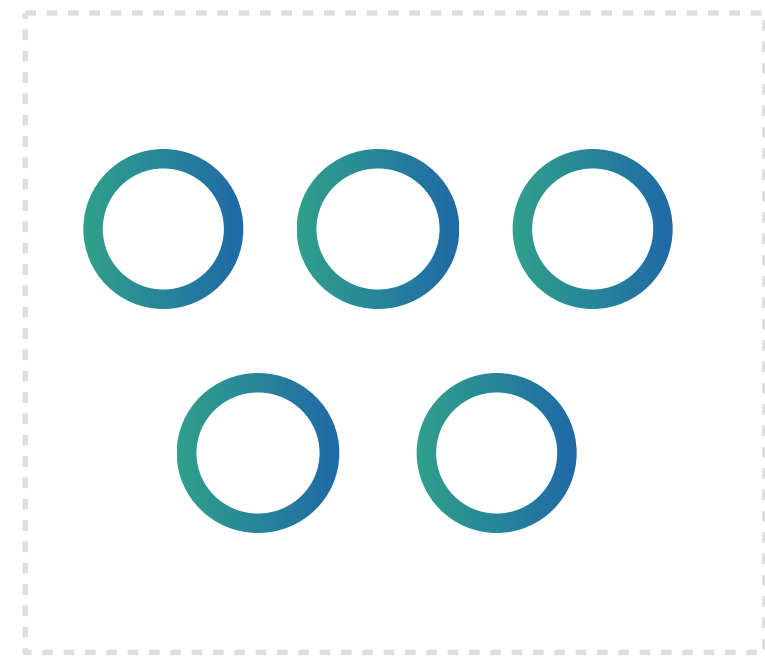
Data Center





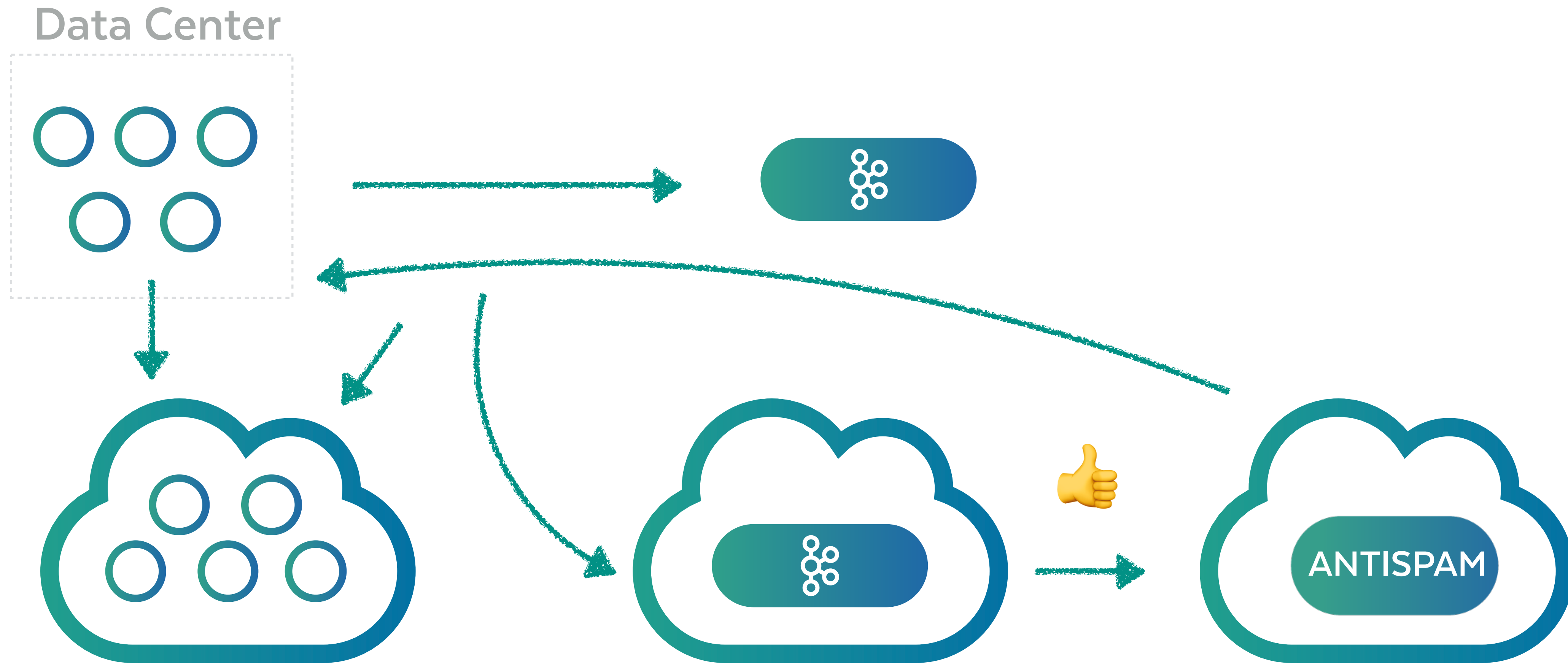
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Data Center

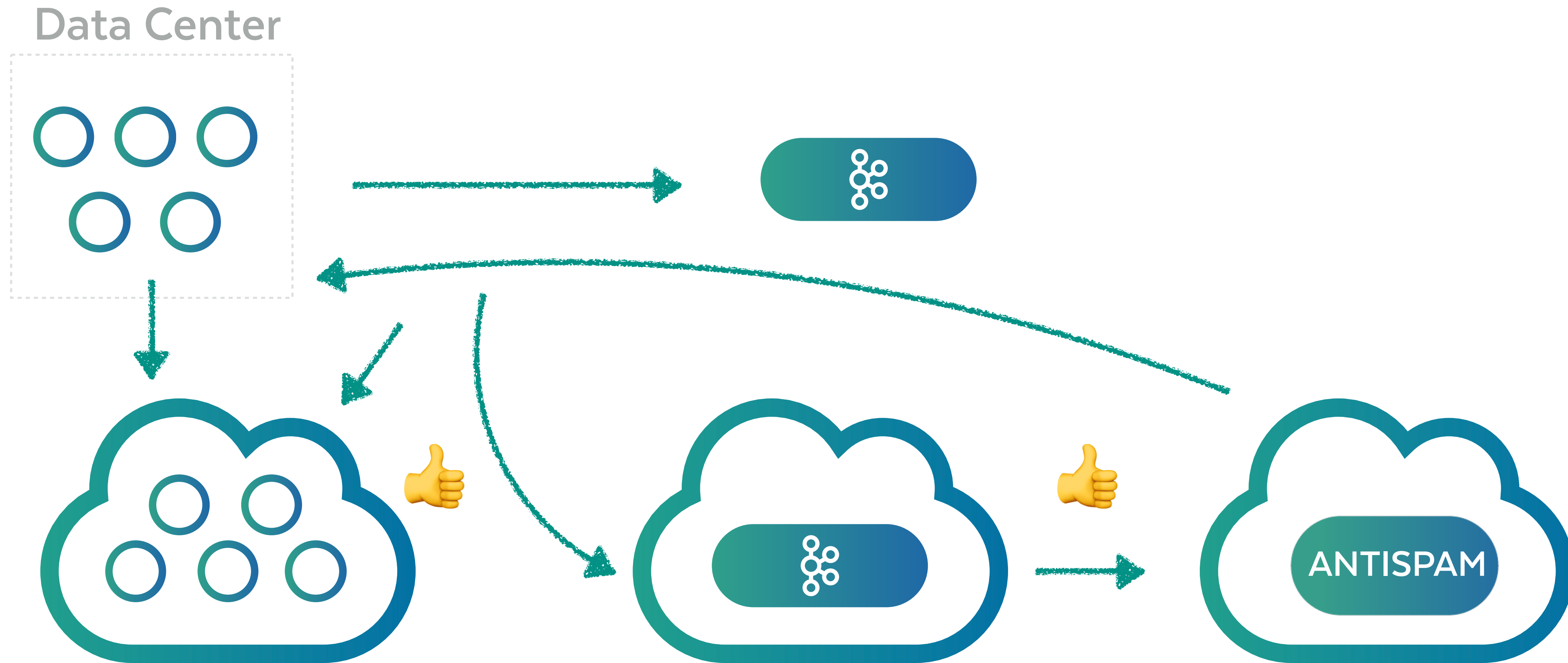




# ANTISPAM UP IN THE SKY



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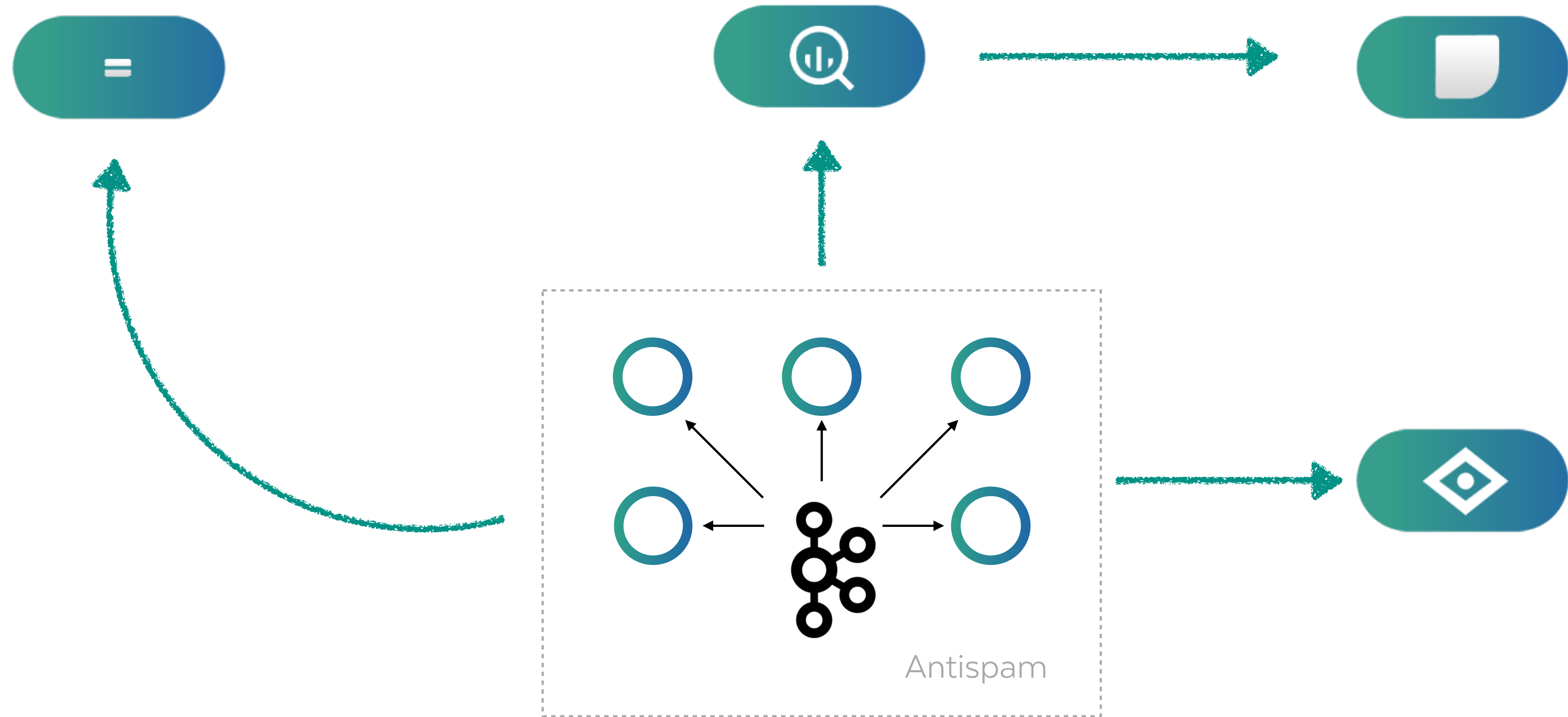
# ANTISPAM UP IN THE SKY



# CLOUD COMPONENTS OF ANTISPAM

Let's focus on Antispam.

# CLOUD COMPONENTS OF ANTISPAM



# IMPROVEMENTS TO ANTISPAM

# IMPROVEMENTS TO ANTISPAM

Besides all the fancy new tools and components of the cloud suite, there are other features that have allow us to improve our work.



# TOOLING LANDSCAPE

StackDriver (logging), secret management, permissions and right managements.

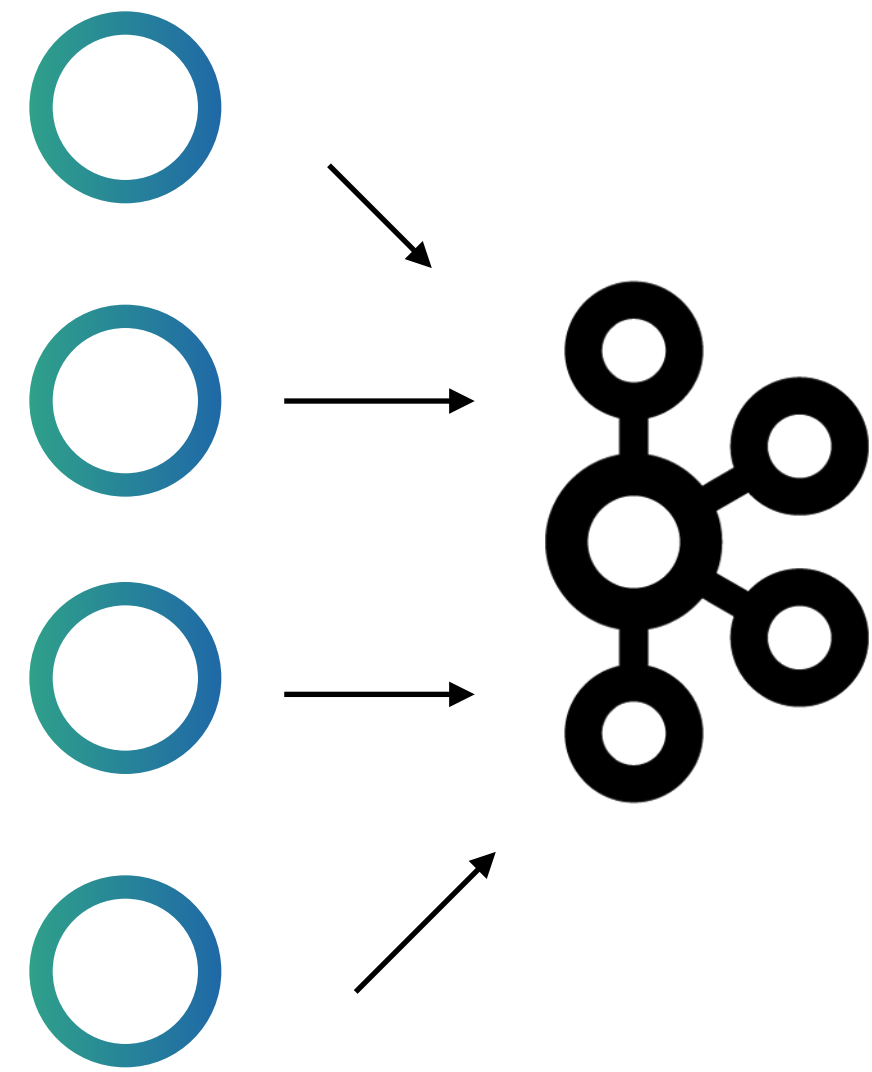
# IMPROVEMENTS TO ANTISPAM

In a less technical comment, I'd like to say to mention that our competence is to write code, do machine learning and kick spammers ass, so having to worry less about certain things (aka. maintenance) allows us to do focus on what we like.

# IMPROVEMENTS TO ANTISPAM

Let's take a look at the actual new strategies we have employ to fight the spammers :)

# BBQ





Thanks to BBQ we have been able to analyse and make use of all the data that is produced by Antispam. This has lead to the creation of new components such as the...

# CONVICTION

USER_ID	COMPONENT 1	COMPONENT 2	COMPONENT 3	...
A	0.78	1.0	7	...
B	0.89	.69	0	...
C	0.38	0.39	1	...
D	0.90	0.74	4	...

# CONVICTION

$$y = f(x_1, x_2, \dots, x_n)$$

# CONVICTION

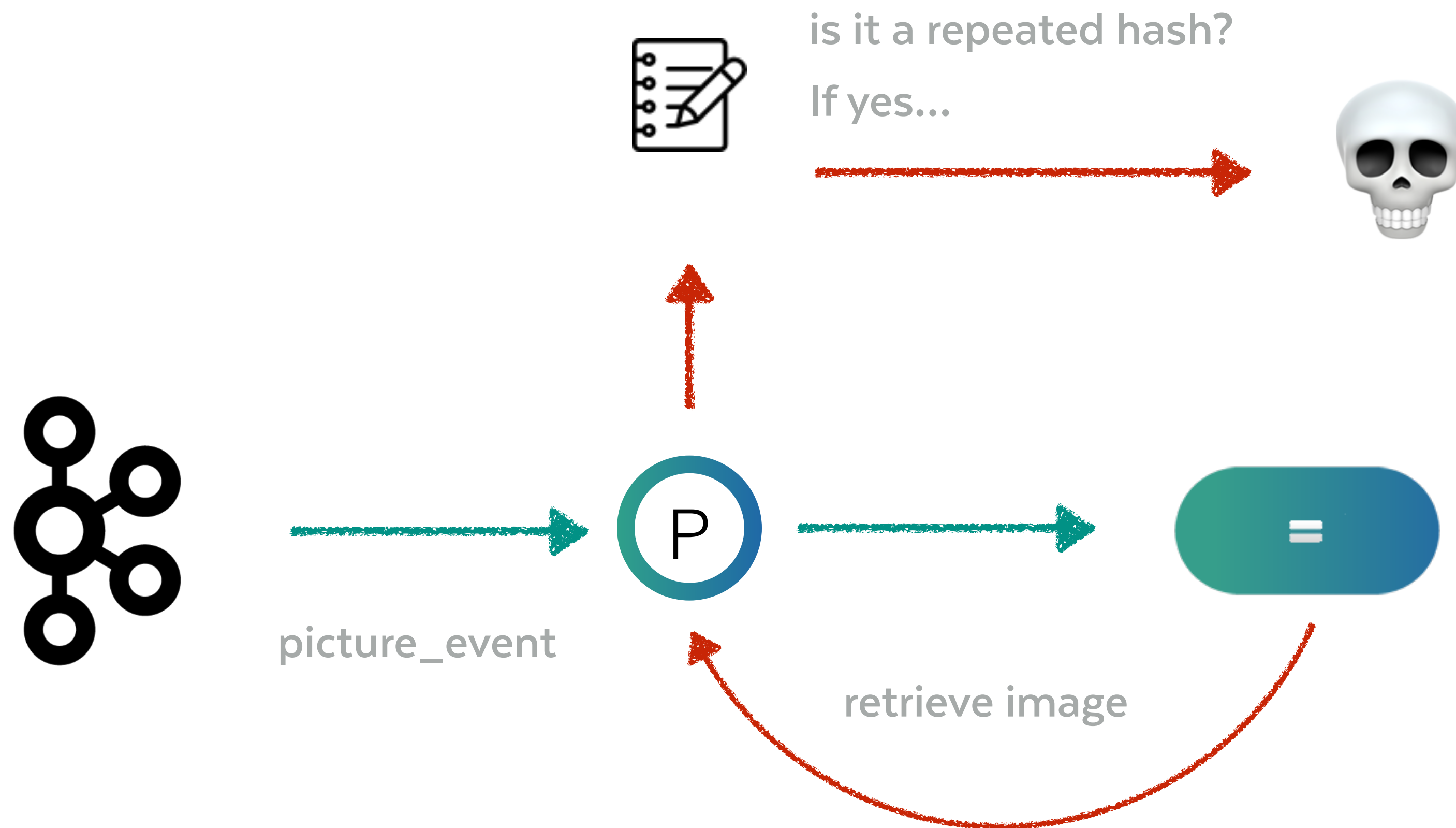
if  $y \geq \textit{threshold}$ , then 



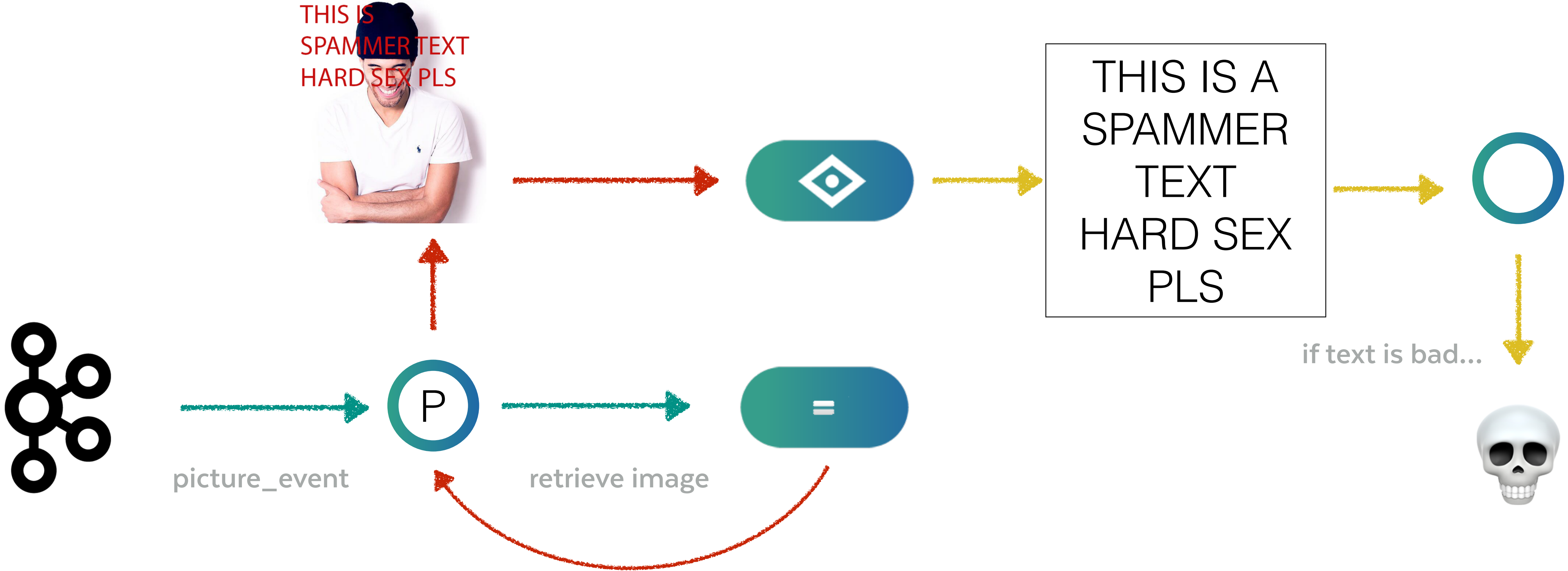
# PHOTOGRAPHER

Photographer is the component that deals with everything picture-related.

# PHOTOGRAPHER: IMAGE HASHES



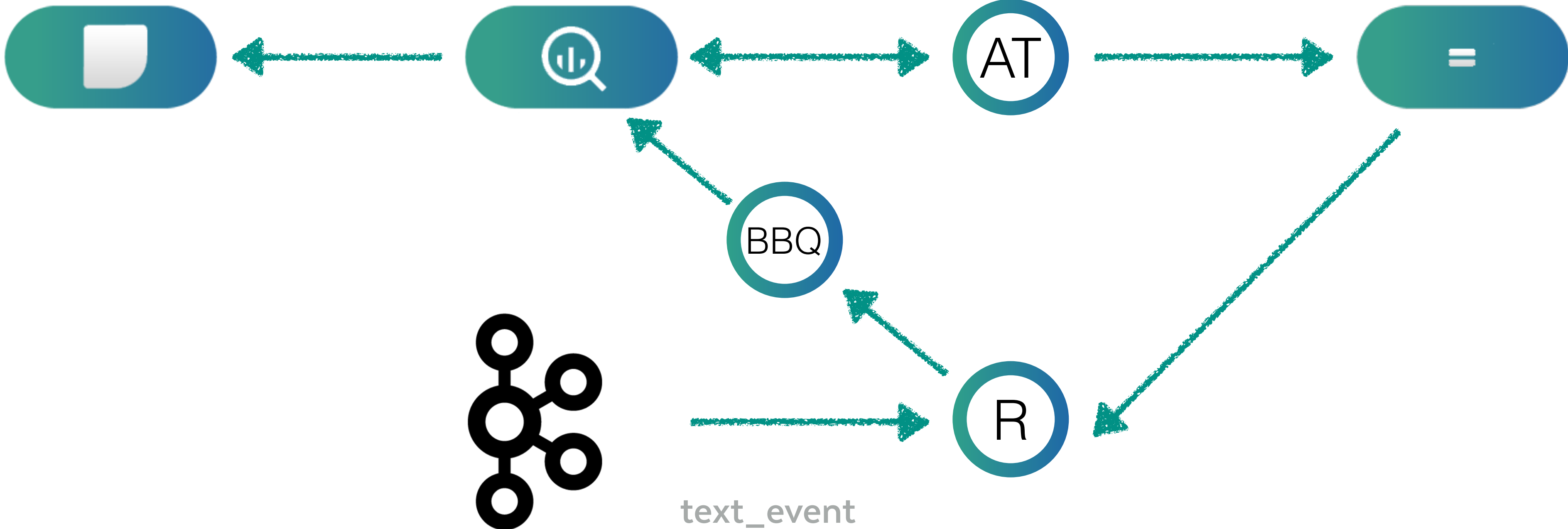
# PHOTOGRAPHER: TEXT DETECTION + OCR



# ROSETTA

Rosetta is the component that deals with punishments related to the username and the user's profile text description (aka. freetext).

# ROSETTA



# DATA STUDIO



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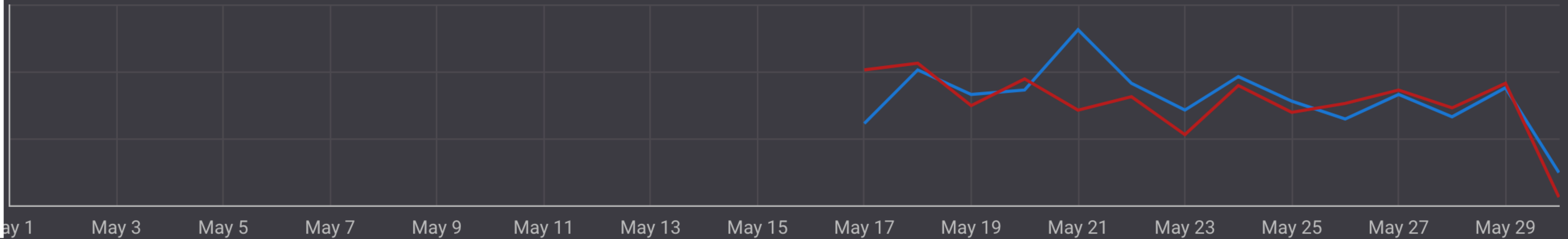
Ratio between number of punishments and DAU



# DATA STUDIO

## Username Logistic Regression punishments by gender

— m — f





# RECAP AND CONCLUSION

Moving to the cloud was a good decision. As a result of having all these fancy and shiny components, we are able to focus on the things that brings us closer to our goals: **punishing spammers.**

# THANKS

**Say no to spam!**

- **Twitter: @jdiossantos**
- **LOVOO Engineering @lovooeng**