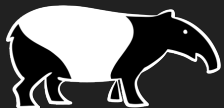
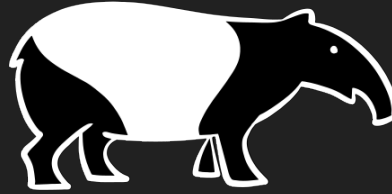


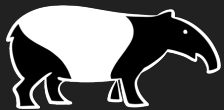
# DNS TAPIR

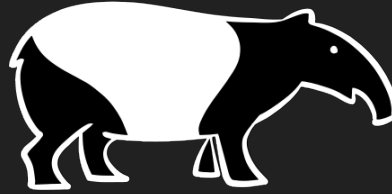
Mikael Kullberg





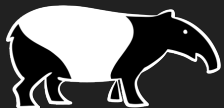
# DNS Threat AND Privacy Internet Research

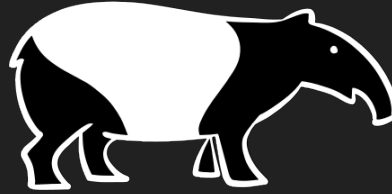




# DNS Threat AND Privacy Internet Research

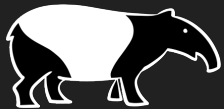
It's always  
**DNS**

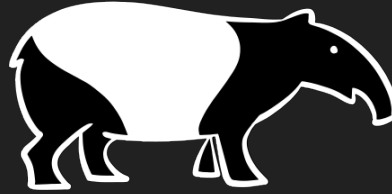




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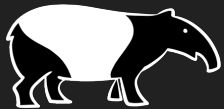
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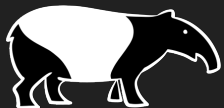
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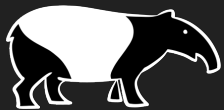


“The personal is political”

Carol Hanisch

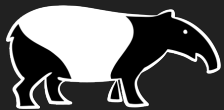


“First they came for the H1B’s...”



“First they came for the H1B’s...”

“...then they came for Jimmy Kimmel”





# Privacy, why do we care?

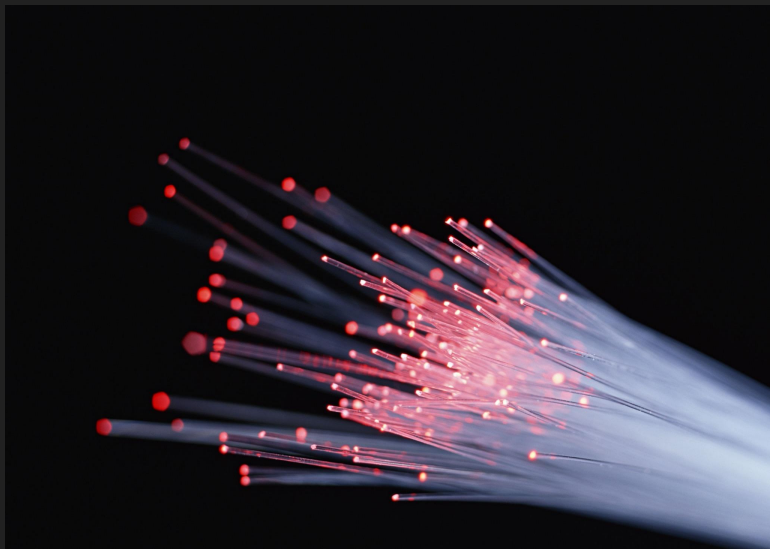


Photo by Hongkong <https://freeimages.com/photographer/honghong-36228>



Photo by Monokini <https://freeimages.com/photographer/monokini-42309>



# Guiding principles

Privacy by design

Transparency

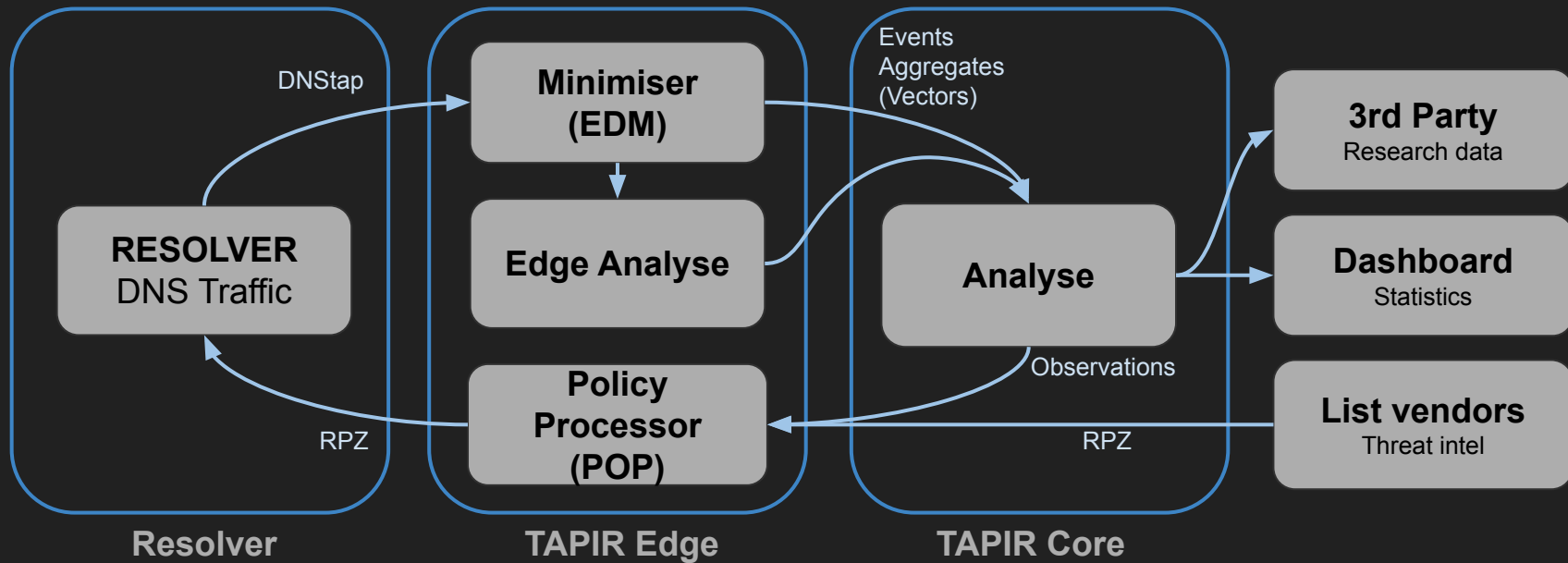
Collaboration

Open Source



Photo by alee01 <https://freeimages.com/photographer/alee01-31702>





# Guiding principles

Privacy by design

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Open Source



Photo by Smile\_pls [https://freeimages.com/photographer/smile\\_pls-55875](https://freeimages.com/photographer/smile_pls-55875)



# Guiding principles

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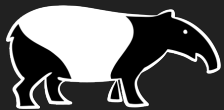
Open Source



Photo by Tambako the Jaguar <https://www.flickr.com/photos/tambako/9375652812/sizes/>



# Privacy, again?



# Privacy, again?

Pseudonyms don't work



# Privacy, again?

Pseudonyms don't work

Break up sequences





# Privacy, again?

Pseudonyms don't work

Break up sequences

Aggregate



# Privacy, again?

Pseudonyms don't work

Break up sequences

Aggregate

Make new stuff event-driven



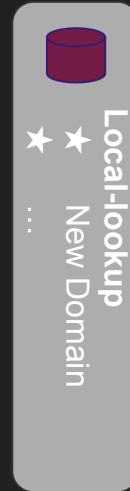
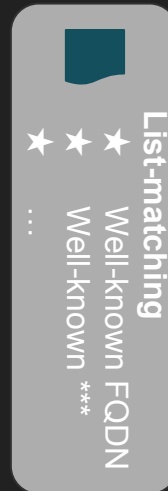
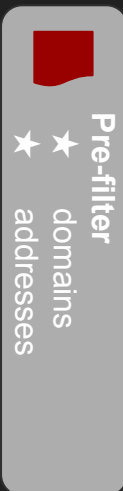
# Query Segmentation

r-d2n4.internal.carrier.com

www.google.com

3d98ae41c.trk.adtech.com

your.local.shop.se



/dev/null



/var/log/..



HISTOGRAM



EVENT



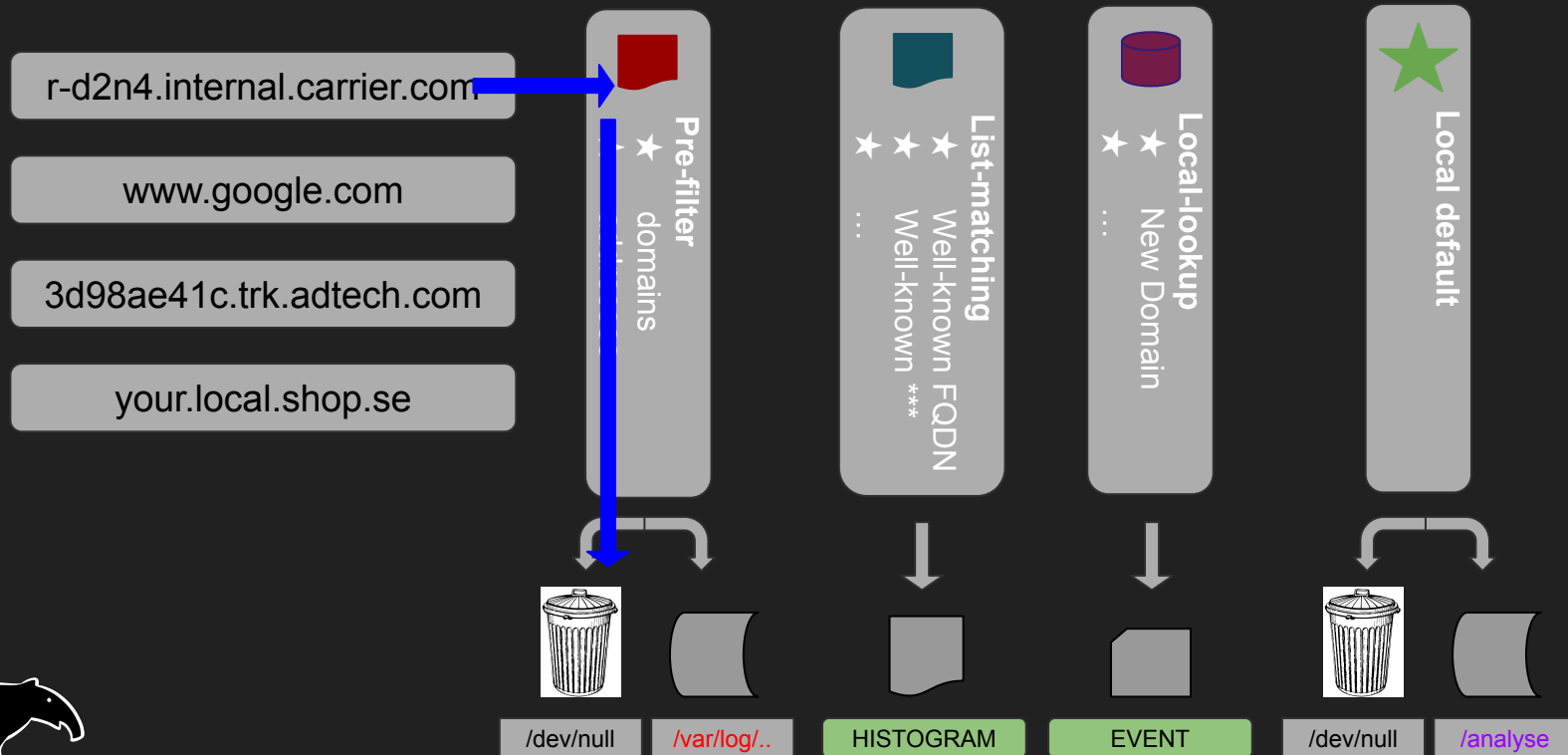
/dev/null



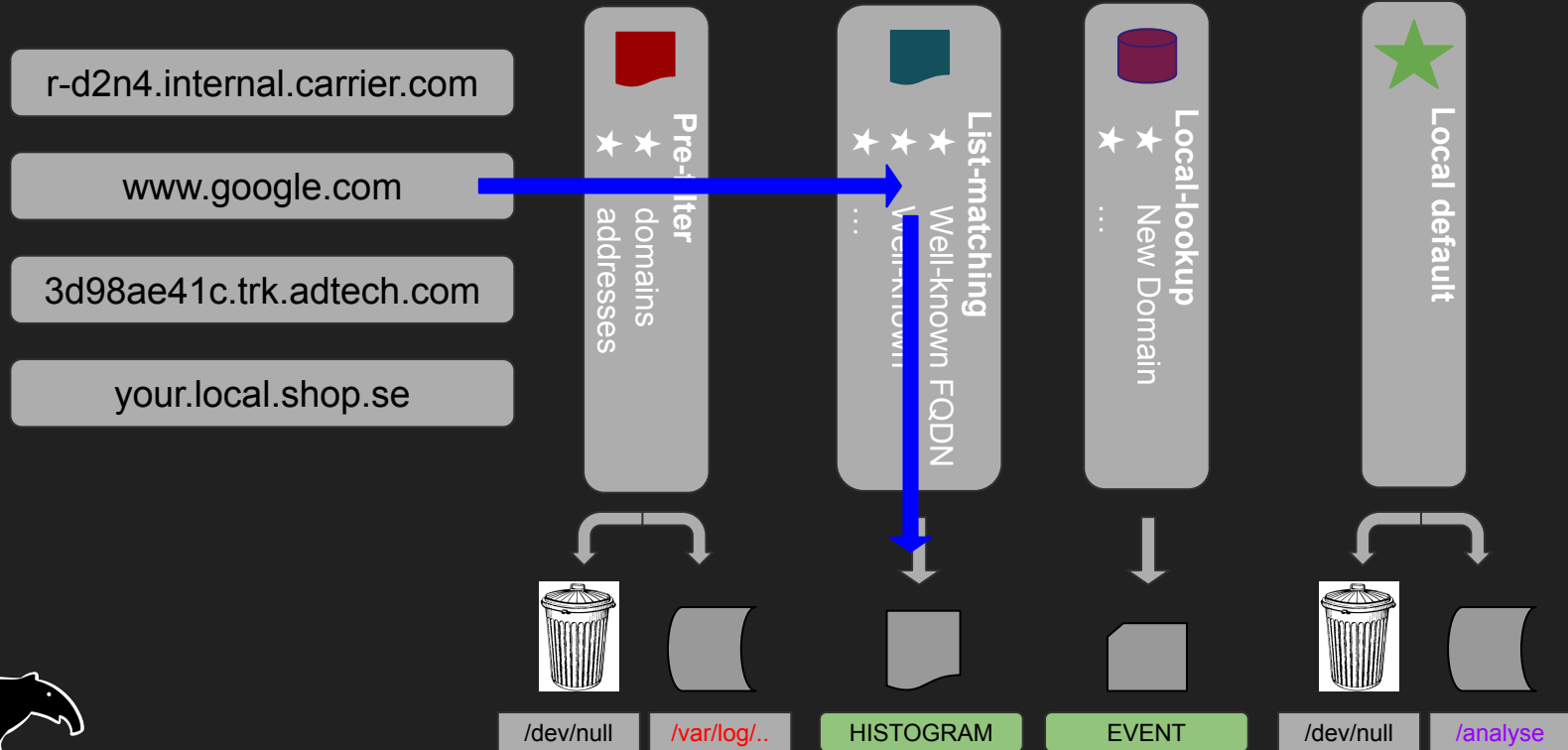
/analyse



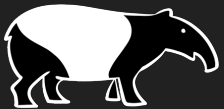
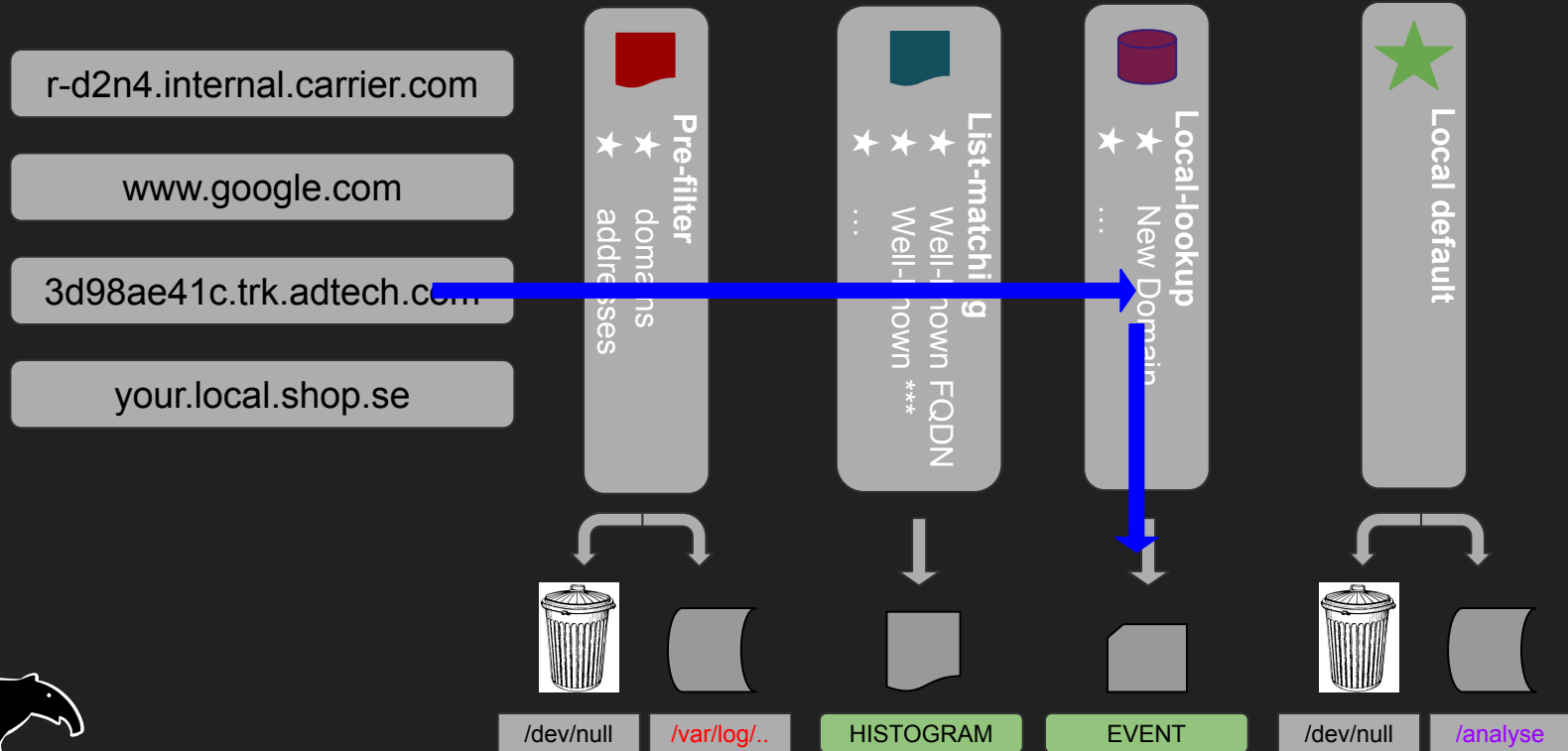
# Query Segmentation



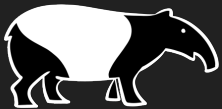
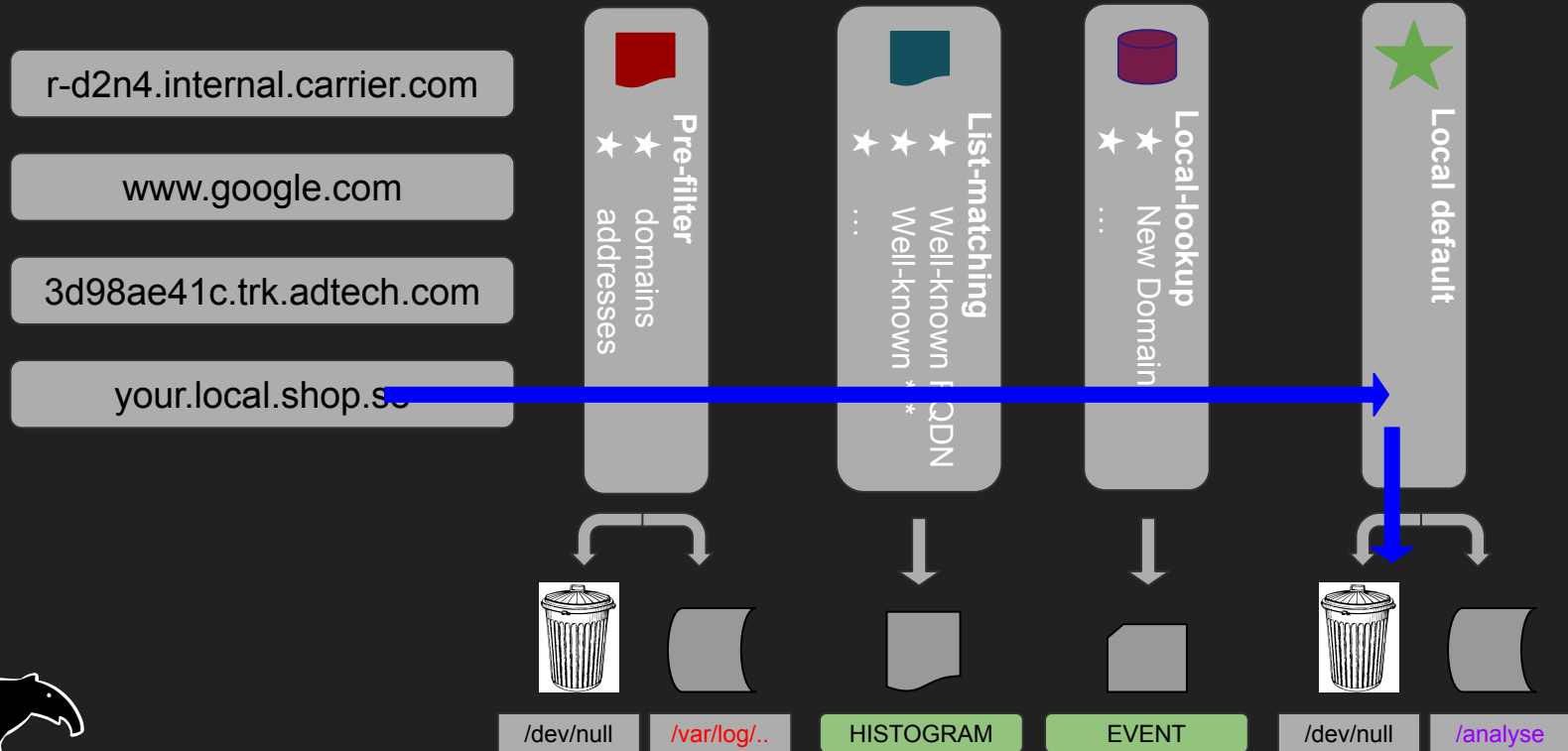
# Query Segmentation

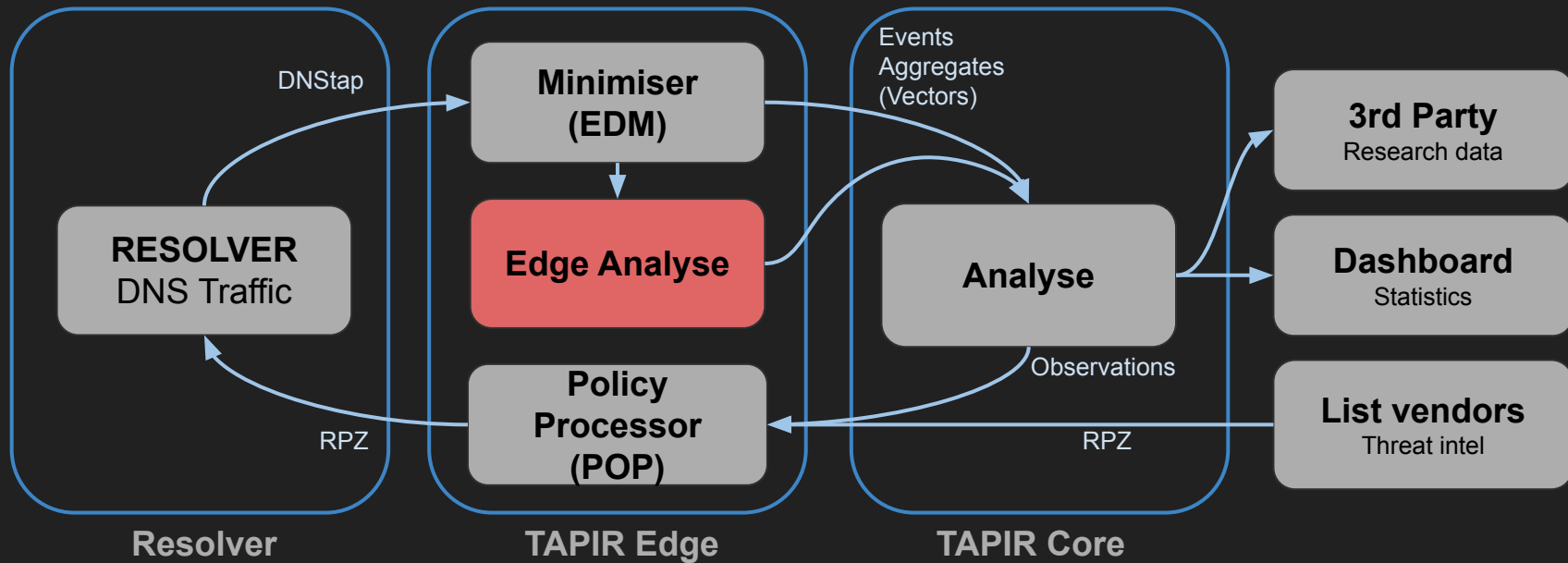


# Query Segmentation




# Query Segmentation







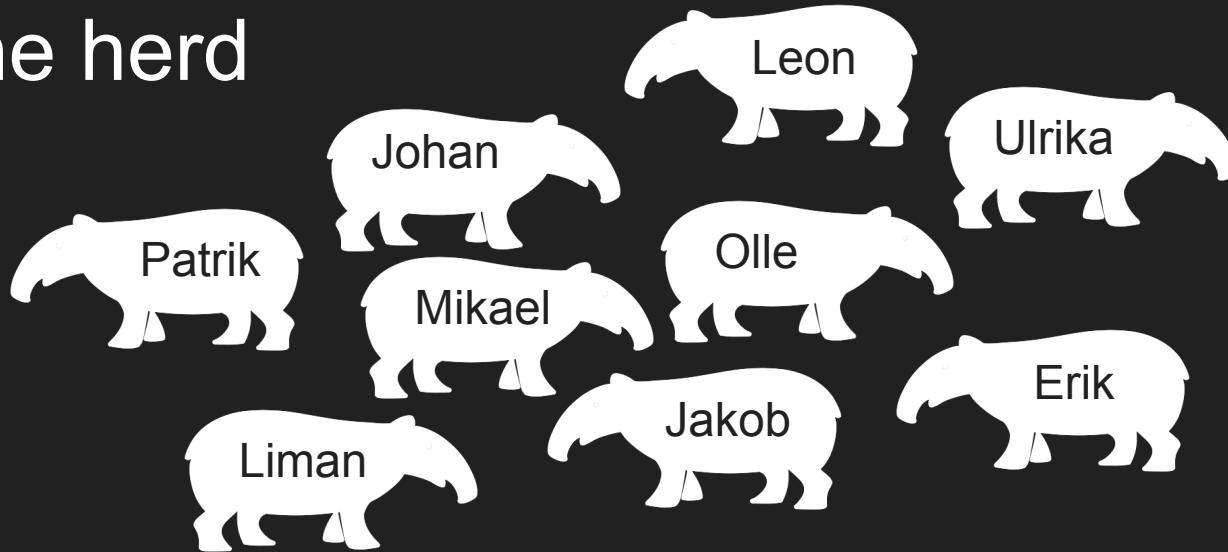


“Analysis as an instrument of enlightenment and civilization is good, in so far as it shatters absurd convictions, acts as a solvent upon natural prejudices, and undermines authority”

Thomas Mann



# The herd



... and interested parties such as the Swedish Internet Foundation, Netnod, PTS, SUNET, Telia, and others.



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