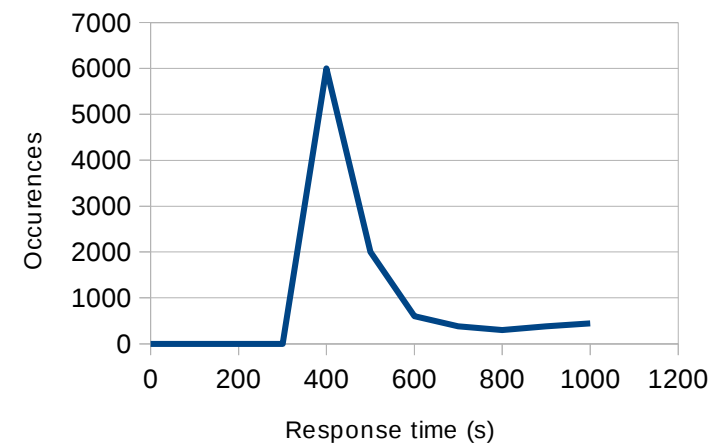
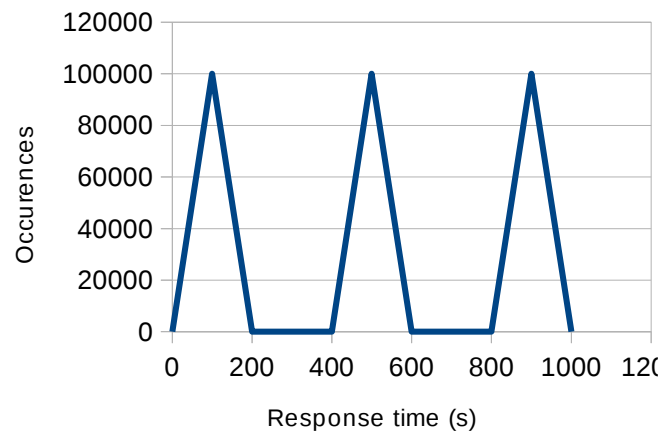
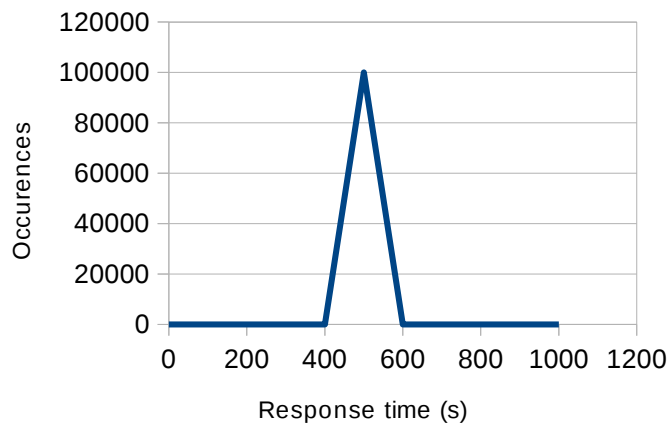


# ASL Fall'16

A word on averages...

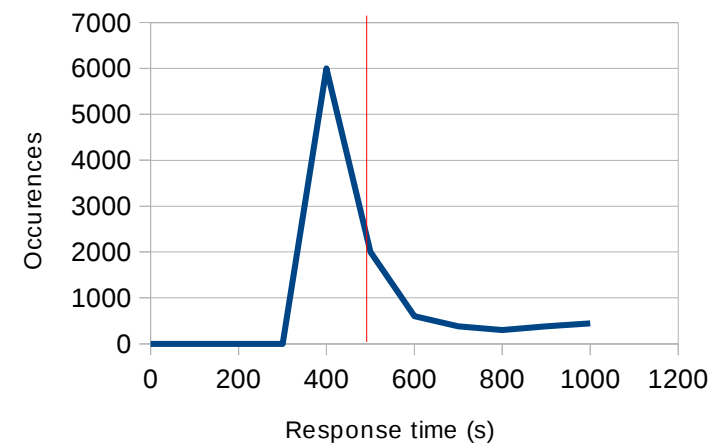
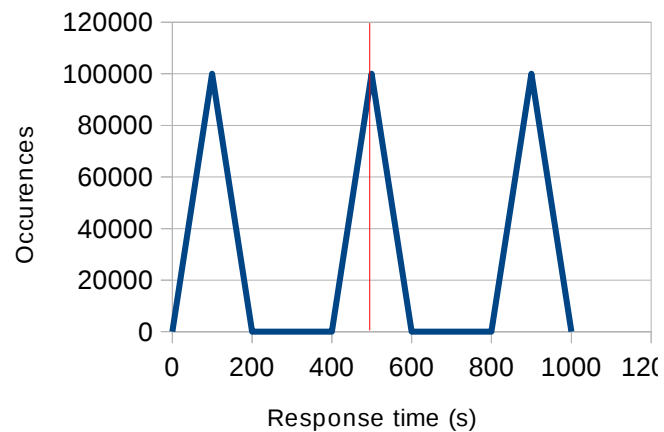
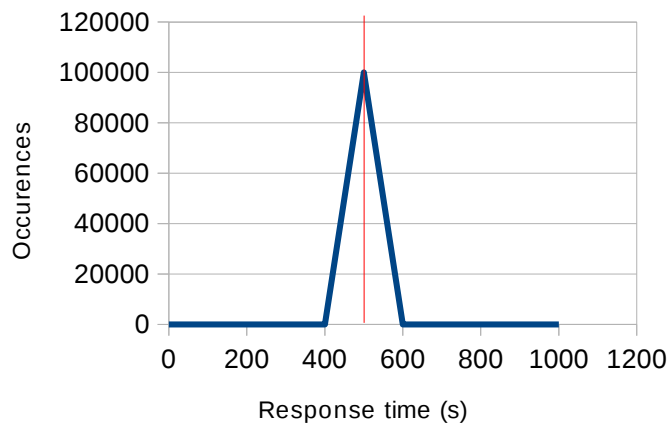
# The simplest thing...

- ...is sometimes also wrong
- Which of the following distributions has average=500?



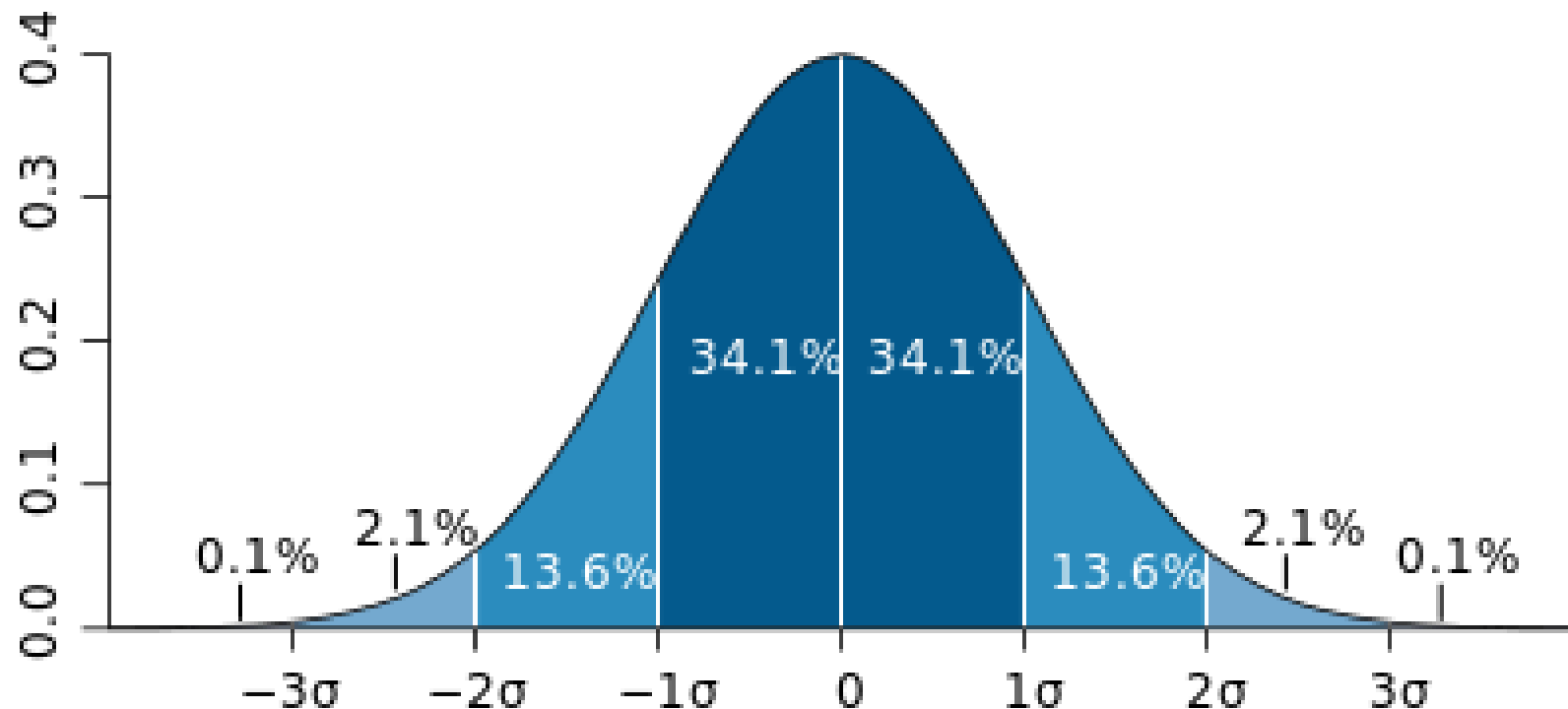
# The simplest thing...

- ...is sometimes also wrong
- Which of the following distributions has average=500? **All!**



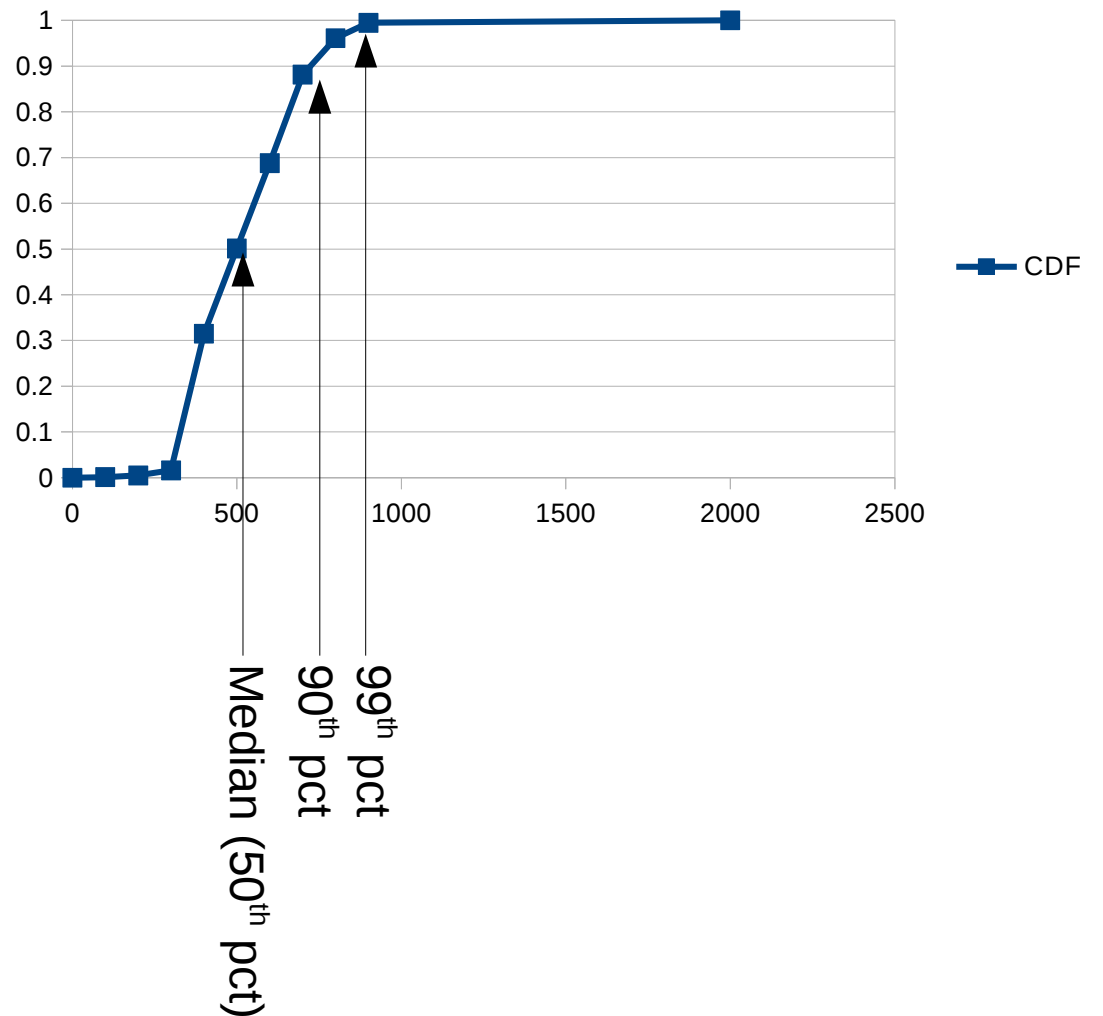
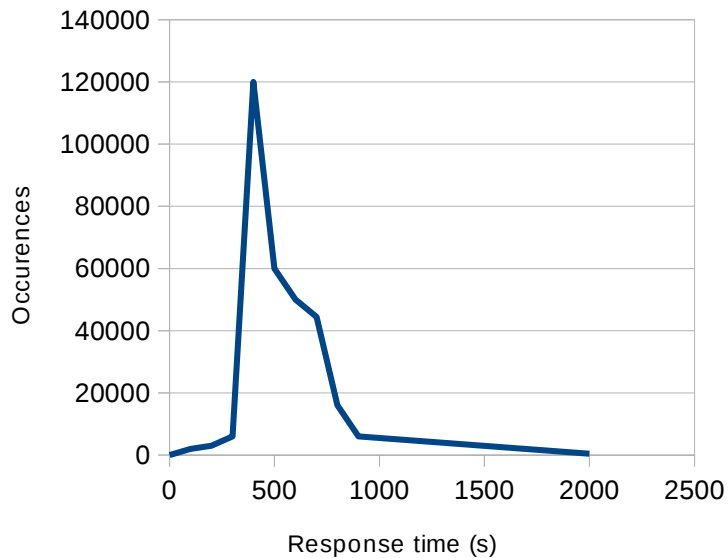
# But we can fix it by adding standard deviaton, right?

- Most useful if your data is close to a normal distribution



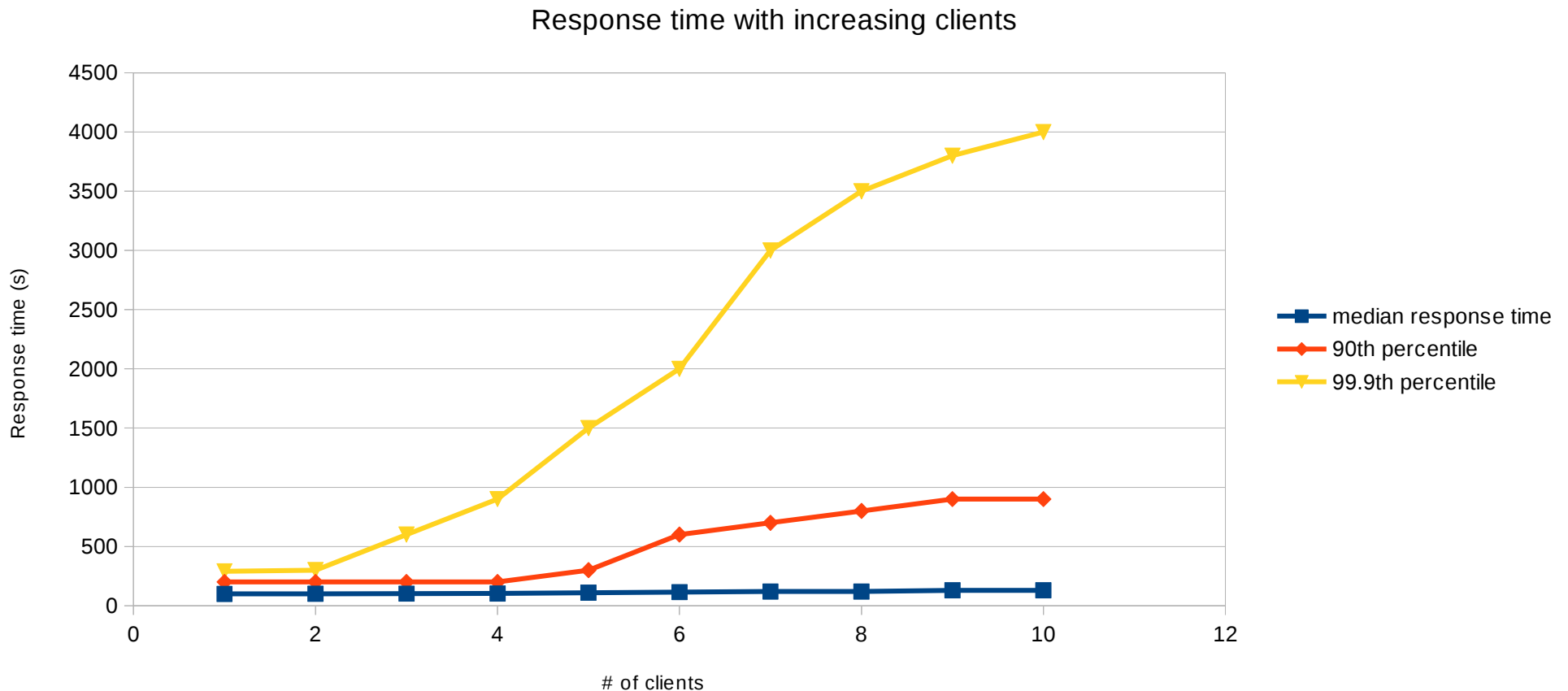
# What if my data looks different?

- Long tail? Use median and percentiles!



# Example of plot with median

- Plotting an average with stdev might be meaningless in this case...



# How do I get data to compute percentiles?

- In the middleware: process the logs by creating “buckets” for the different response times
- Memaslap: this information is already given to you\*

Total Statistics (3656 events)

Min: 128

Max: 19450

Avg: 1366

Geo: 834.20

Std: 2058.84

Log2 Dist:

4:	0	0	0	1
8:	72	932	1675	599
12:	75	236	62	4

< 16us ( $2^4$ )

< 1024us ( $2^{10}$ )

\*an approximation, but good enough