

GCI Impact

David Ferreira Quaresma (david.quaresma@ccc.ufcg.edu.br)

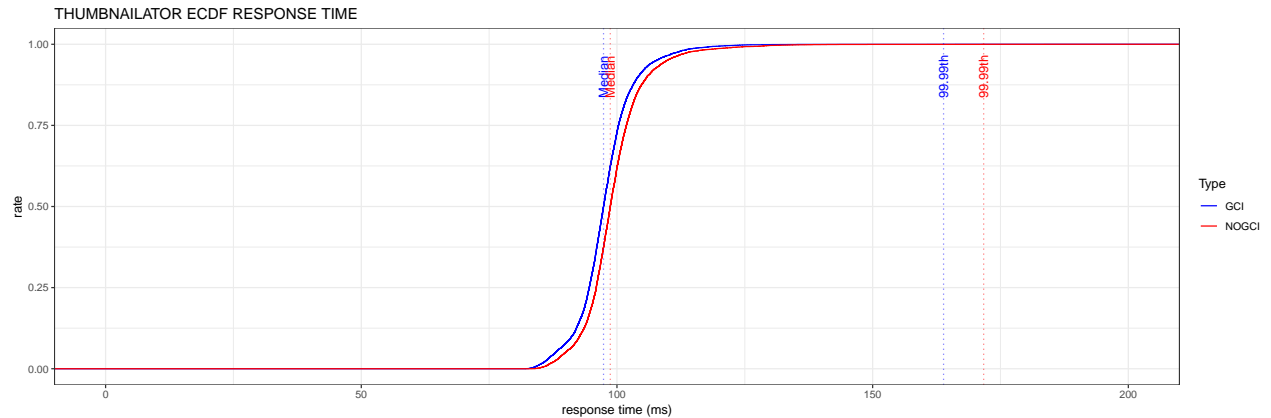
october, 2019

Runtime experiments: GCI vs NOGCI

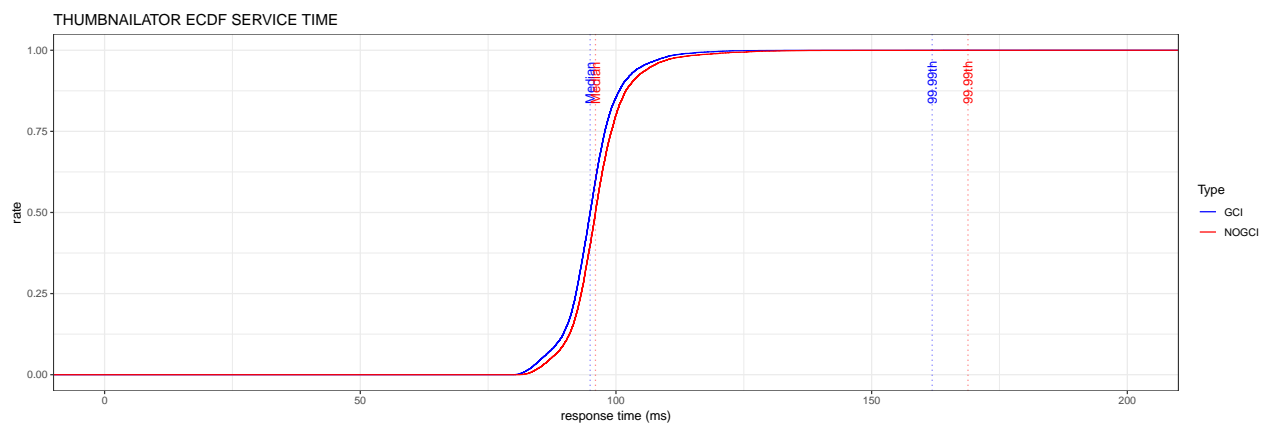
Descrição

- **script de execução dos experimentos.**
- Número de requisições: 5 mil, **código.**
- Lógica de negócio da função: **Redimensionamento de uma imagem.**
- Escala de redimensionamento: 0.1.
- Tamanho da imagem: 131kb.
- Comando executado para levantar a aplicação: `entrypoint_port=8082 scale=0.1 image_url=http://s3.amazonaws.com/wallpapers2/wallpapers/images/000/000/408/thumb/375.jpg taskset 0x1 nice -20 nohup java -server -Xms445645k -Xmx445645k -XX:MaxHeapSize=445645k -XX:MaxMetaspaceSize=52429k -XX:ReservedCodeCacheSize=26214k -Xshare:on -XX:-TieredCompilation -XX:+UseSerialGC -Djava.net.preferIPv4Stack=true -XX:NewSize=392m -XX:MaxNewSize=392m -Xloggc:/home/ubuntu/gci-faas-sim/experiment/results/gci1-thumb-gc.log -Djvmtilib=/home/ubuntu/gci-faas-sim/gci-files/libgc.so -javaagent:/home/ubuntu/gci-faas-sim/gci-files/gciagent-0.1-jar-with-dependencies.jar=8500-jar /home/ubuntu/gci-faas-sim/runtime/thumb-func/target/thumbnailator-server-maven-0.0.1-SNAPSHOT.jar >/home/ubuntu/gci-faas-sim/experiment/results/gci1-thumb-stdout.log 2>/home/ubuntu/gci-faas-sim/experiment/results/gci1-thumb-stderr.log & taskset 0x2 nice -20 /home/ubuntu/gci-faas-sim/gci-files/gci-proxy -port=8080 -target=127.0.0.1:8082 -gci_target=127.0.0.1:8500 -ygen=314572800 >/home/ubuntu/gci-faas-sim/experiment/results/gci1-proxy-stdout.log 2>/home/ubuntu/gci-faas-sim/experiment/results/gci1-proxy-stderr.log &`

ECDF for response time



ECDF for service time



summary table of confidence interval for response time

##	stats	gci.cii	gci.cis	nogci.cii	nogci.cis
## 1	avg	98.00	98.00	99.00	99.00
## 2	p50	97.28	97.48	98.59	98.80
## 3	p95	107.10	108.20	109.30	110.30
## 4	p99	115.40	117.80	120.90	124.50
## 5	p999	125.80	137.70	135.50	149.00
## 6	p9999	149.20	168.40	155.70	194.80
## 7	p99999	165.60	166.50	180.70	184.90
## 8	dist	68.36	68.97	82.07	86.06

GCI: comparing response time vs service time, both in milliseconds

##	stats	gci.st.cii	gci.st.cis	gci.rs.cii	gci.rs.cis
## 1	avg	95.00	95.00	98.00	98.00
## 2	p50	94.85	95.06	97.28	97.48
## 3	p95	104.60	105.50	107.10	108.20
## 4	p99	112.70	115.40	115.40	117.80
## 5	p999	122.80	135.20	125.80	137.70
## 6	p9999	146.00	166.20	149.20	168.40
## 7	p99999	163.50	164.30	165.60	166.50
## 8	dist	68.67	69.23	68.36	68.97

NOGCI: comparing response time vs service time, both in milliseconds

##	stats	nogci.st.cii	nogci.st.cis	nogci.rt.cii	nogci.rt.cis
## 1	avg	96.00	97.00	98.00	98.00
## 2	p50	95.91	96.07	97.28	97.48
## 3	p95	106.40	107.50	107.10	108.20
## 4	p99	118.30	121.50	115.40	117.80
## 5	p999	132.90	145.90	125.80	137.70
## 6	p9999	151.50	192.20	149.20	168.40
## 7	p99999	177.90	182.10	165.60	166.50
## 8	dist	81.97	86.05	68.36	68.97

checking errors

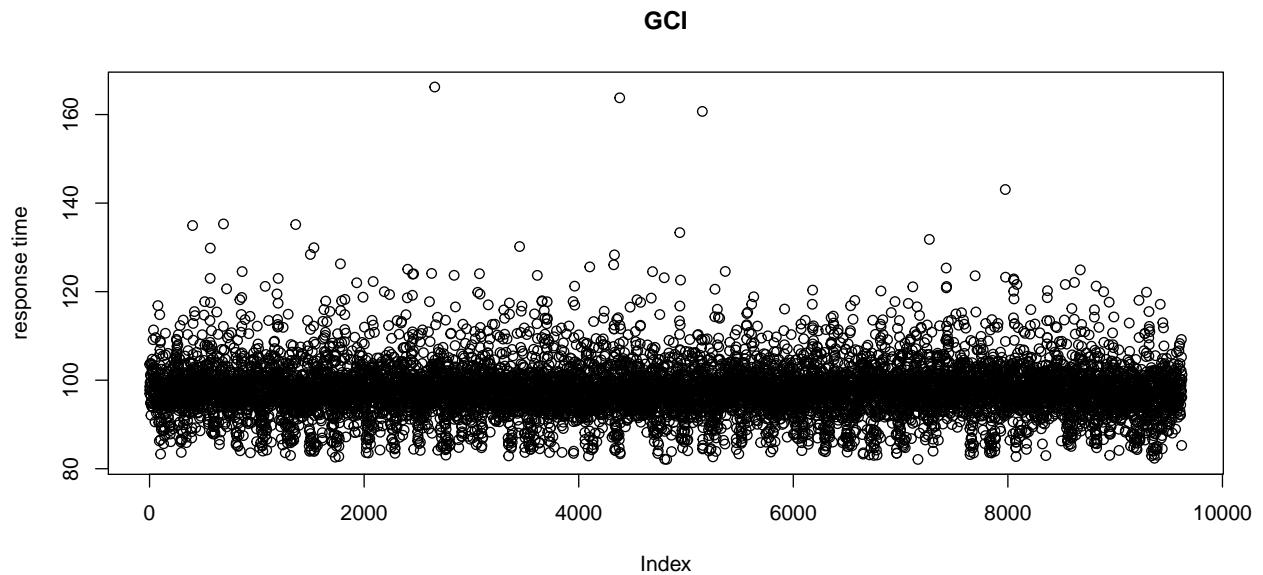
GCI - number of response time values greater then its service time values: 0

```
## NOGCI - number of response time values greater then its service time values: 0
```

comparing difference between response time and service time for GCI vs NOGCI

##	stats	gci.st.cii	gci.st.cis	nogci.rt.cii	nogci.rt.cis
## 1	avg	2.500	2.500	2.700	2.700
## 2	p50	2.295	2.313	2.567	2.591
## 3	p95	3.448	3.555	3.787	3.884
## 4	p99	4.366	4.664	4.783	5.106
## 5	p999	5.377	6.837	7.317	8.305
## 6	p9999	7.338	9.918	8.336	9.275
## 7	p99999	8.953	9.236	9.130	9.173
## 8	dist	6.659	6.922	6.563	6.582

GCI: plot response time



NOGCI: plot response time

