

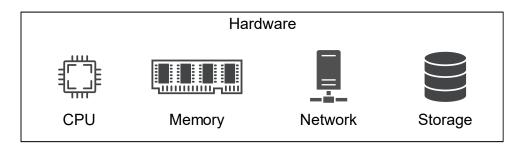
What can you do to reduce CO² emissions in your software?

Denis Angeletta **RETIT** GmbH



Software drives Hardware Consumption

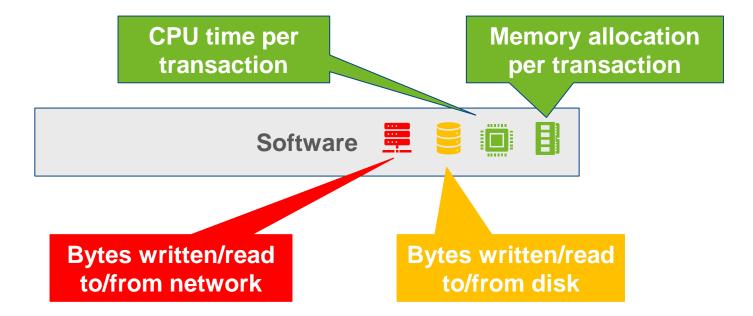














Tools

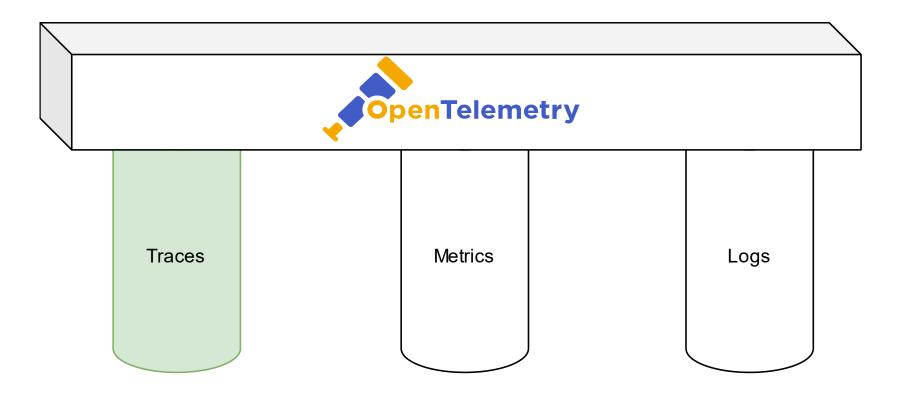
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Threads								🗸 Th	reads visualiz
Live threads: 18 Daemon threads: 15									Thread Dum
Timeline									
Show: Live Threads 🗸 Timeline: 🔍	ପ୍ ଭ୍								
Name	15:35:35	15:35:40	15:35:45	15:35:50	15:35:55	15:36:00	15:36:05	Running	Total
Active Reference Queue Daemon								0 ms (0%)	62.249 m
Attach Listener								62.249 ms (100%)	62.249 m
AWT-EventQueue-0								10.067 ms (16,2%)	62.249 m
AWT-Shutdown								0 ms (0%)	62.249 m
AWT-Windows								62.249 ms (100%)	62.249 m
CLI Requests Server								62.249 ms (100%)	62.249 m
DestroyJavaVM								62.249 ms (100%)	62.249 m
File Watcher								0 ms (0%)	62.249 m
Finalizer								0 ms (0%)	62.249 m
Inactive RequestProcessor thread								32.154 ms (51,7%)	62.249 m
Java2D Disposer								0 ms (0%)	62.249 m
Reference Handler								0 ms (0%)	62.249 m
RequestProcessor queue manager								2.021 ms (3,2%)	62.249 m
Signal Dispatcher								62.249 ms (100%)	62.249 m
Thread-3								0 ms (0%)	62.249 m
Timer-0								59.258 ms (95,2%)	62.249 m
TimerQueue								0 ms (0%)	62.249 m
VisualVM Shared RequestProcesso								30.095 ms (48,3%)	62.249 m

OpenTelemetry







OpenTelemetry Jaeger Trace

INSERT orders_db.items

∨ Tags	
db.sql.table	items
db.statement	<pre>INSERT INTO items(item_id, name, quantity, unitPrice) VALUES (?, ?, ?, ?)</pre>
db.system	postgresql
db.user	postgres
de.retit.endcputime	745591400
de.retit.enddiskreaddemand	0
de.retit.enddiskwritedemand	0
de.retit.endheapbyteallocation	192510720
de.retit.endsystemtime	0
de.retit.logquadraticcpudemand	false
de.retit.logsystemtime	1631783998866
de.retit.startcputime	745305200
de.retit.startdiskreaddemand	0
de.retit.startdiskwritedemand	0
de.retit.startheapbyteallocation	192506120
de.retit.startsvstemtime	0



java -javaagent:path/to/opentelemetry-javaagent.jar \

- -Dotel.javaagent.extensions=path/to/retit-extension.jar \
- -Dotel.traces.exporter=otlp \
- -Dotel.exporter.otlp.traces.endpoint=http://otel-collector:4317
- -Dotel.resource.attributes=service.name=cargo_application_server
- -Dotel.metrics.exporter=none \
- -jar cargo_application.jar

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		:58-a7f6-0d4d650e61a5/versions/	1/analysis		१६४ 🛛 ≻ ।
			or: /cargo-tracker/admin/selectItinerary.	khtml	
Showing analysis for: Root > car Entity Name	go_tracker > _cargo_tra	Unit(s): s Mean: 3.79213 Min: 2.06397 Max: 7.09333	Resource demand histogram	Net (Vrite(bytes)	Net Read(bytes)
/cargo- tracker/admin/selectItinerar	9836.77632	Mai: 7.09333 Median: 3.75735 Standard Dev: 0.68146 Skewness: 0.51723	225 150 75	21740034	2627_
DefaultHandlingEventService HandlingReportService	5543.757 4043		0		
/cargo- tracker/admin/registration.x /cargo-	6457.48664		Resource demand boxplot	103659.	343899
tracker/rest/handling/report DefaultCargoInspectionServ	6017.24615		2		
ExternalRoutingService	5276.12 <u>.</u> 29_		0 Distribution boxplot	55.	
tracker/admin/show.xhtml DefaultBookingService	28_		Resource demand over time	-	-
RealtimeCargoTrackingServi HandlinoEventRegistrationA:			150 mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm		
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Conclusion

- Collecting resource demand values can be easy!
- Ideally collect them on transactional level
- RETIT can provide the necessary tools to get you started fast!
- Start reducing resource consumption!
- Save money and the environment (③)







Denis Angeletta angeletta@retit.de



Resource Efficient Technologies & IT Systems



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