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SQL Server Optimization

with



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Microsoft SQL Server is the heart of your apps.

Without adequately optimized database layer, your queries are slower, yet you are using more compute resources and expensive SQL Server licenses.

Optimizing your database workload by experienced SQL professionals will **make your application more responsive** and **save your license costs**.



What to expect from SuperAdmins SQL Server Optimization?

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Assessment and implementation

Superadmins' 2-week **SQL Server Optimization**, analyzes your SQL Server workload and provides a **comprehensive report on how SQL Server can be optimized** on the operating system, SQL Server instance and database layer.

Our SQL Server experts analyze dozens of operating system parameters, as well as the SQL server parameters, and combine them with query statistics and index analytics, to provide a **detailed report with implementation steps**.

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Procedures and deliverables during assessment

During SQL Server environment discovery, we analyze various parameters of SQL Server, operating system, as well as the queries and index statistics.

After collecting all the information, we create a detailed report plan with optimization steps.

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The process includes:

- Discuss and understand concern and priorities
- SQL Server infrastructure assessment
- Providing a comprehensive report
- Implementation of recommended changes

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Deliverables:



Discuss and understand concern and priorities



SQL Server infrastructure assessment



Providing a comprehensive report



Implementation of recommended changes

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SuperAdmins SQL Server Optimization Examples

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Latch Wait Time

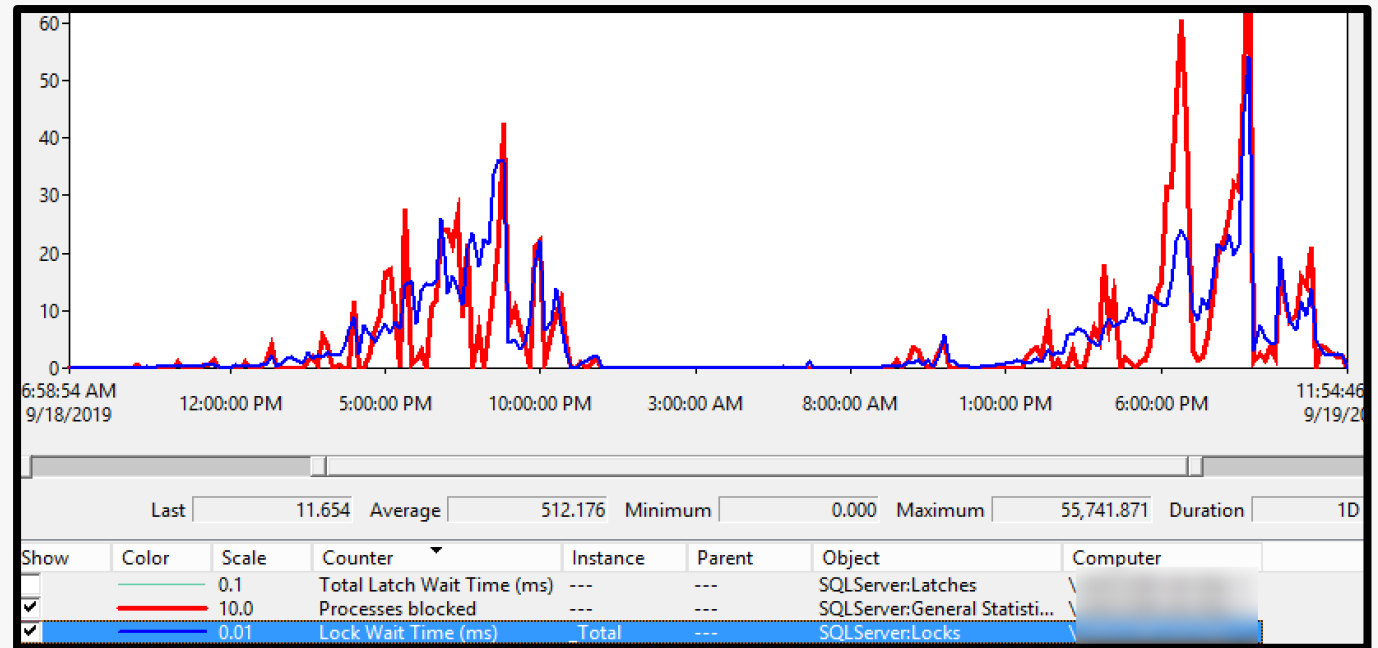
Before assessment



Lock Wait Time is how many sessions are waiting in one second to lock other sessions - blue line.

Sessions place locks on what they are working on, for isolation, consistency of transactions purpose. When a session wants to set a lock, but cannot because another session already has that lock, it is called blocking and this session is waiting. Red line - number of blocked sessions at that moment. It should be zero.

On the graph we see that it often exceeds range of 20, which due to the range of 10 means that 2 sessions are blocked for very long periods, almost the whole day.



Before SQL Server optimization assessment

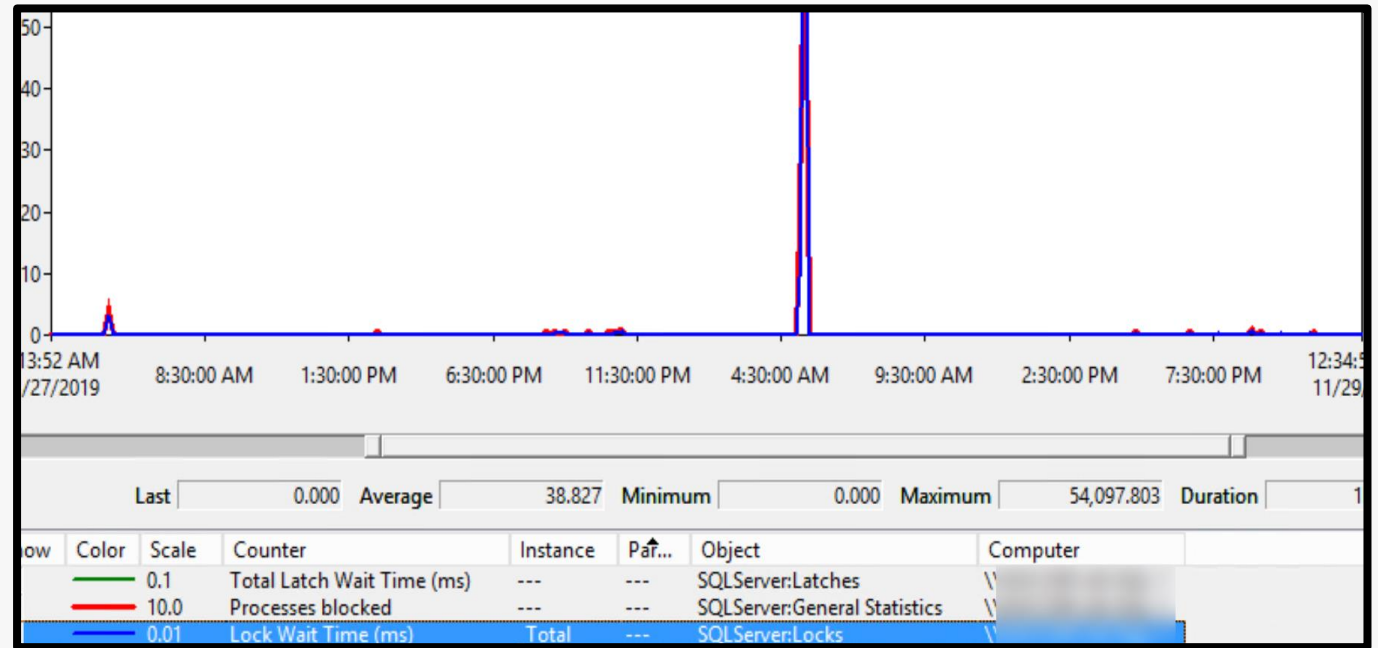
Latch Wait Time

After assessment



When it comes to blocked sessions, we solve this with the database settings. We include **RCSI** (Read Committed Snapshot Isolation) which uses versioning instead of locks for readers. It has an effect like NOLOCK hint (reduces blockages) but is better because it gives a consistent result (no dirty reads).

Second graph shows optimized activities. Blocked processes are practically hand-carried, as is Lock Wait, both at the bottom (close to zero) almost all the time. Only after 5AM we have one blockage, which probably comes from a job doing a rebuild index at that time.



After SQL Server optimization assessment

CPU

Before assessment

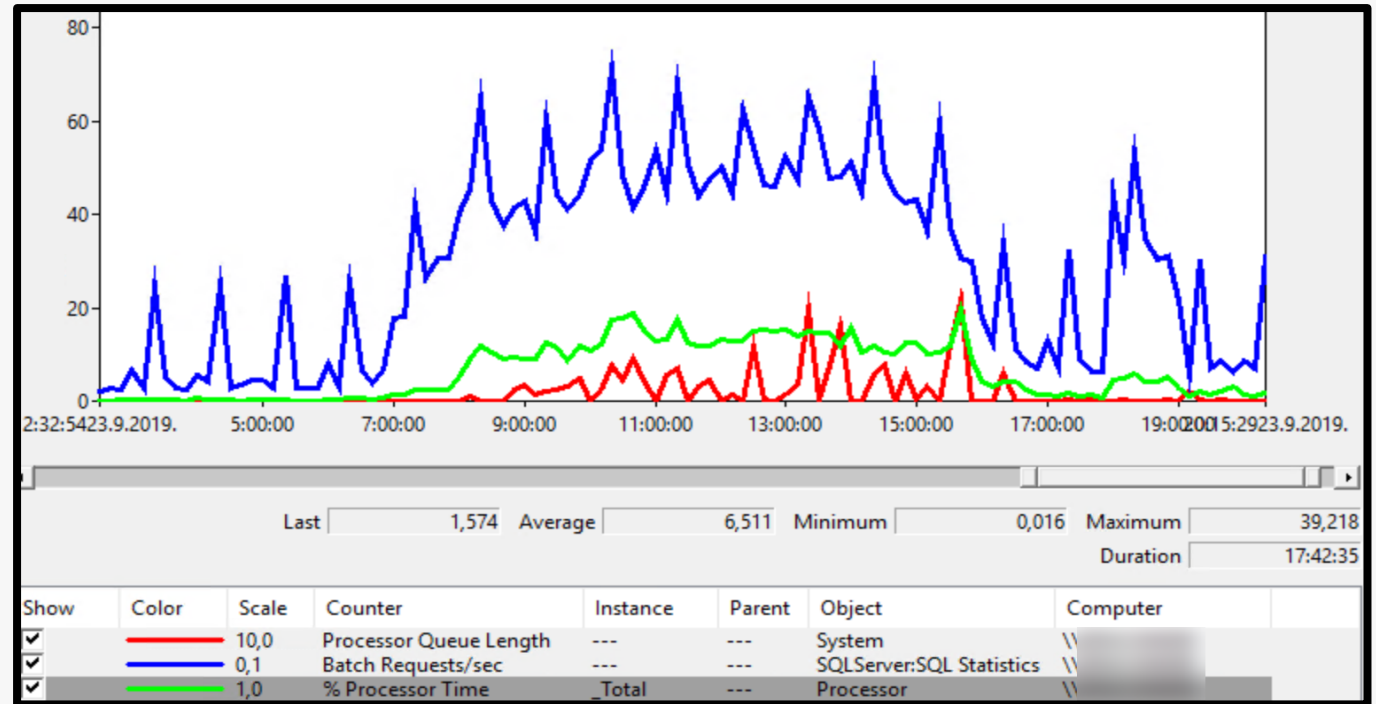
Number of user requests (queries, procedure calls) to the server – **blue line**. Graph shows bell-shaped curve as the load moves during the day from 7 (7AM) in the morning and is already lowered around 17 (5PM) in the afternoon.

On average 300 queries/s, max 1000 request/s, the graph shows about 600 requests/s for time range 8:30-15:00. Then at 18:00 some processing probably starts. The average CPU - **green line** is 6% max 39%.

BEFORE - 12 cores:

Processor Queue Length shows how many processes are waiting on the CPU (avg 0.18, max 18) – **red line**.

The average is below 1, which is good. It can save on SQL Server licenses by reducing the number of CPU cores from 12 to 6 cores.



Before SQL Server optimization assessment

CPU

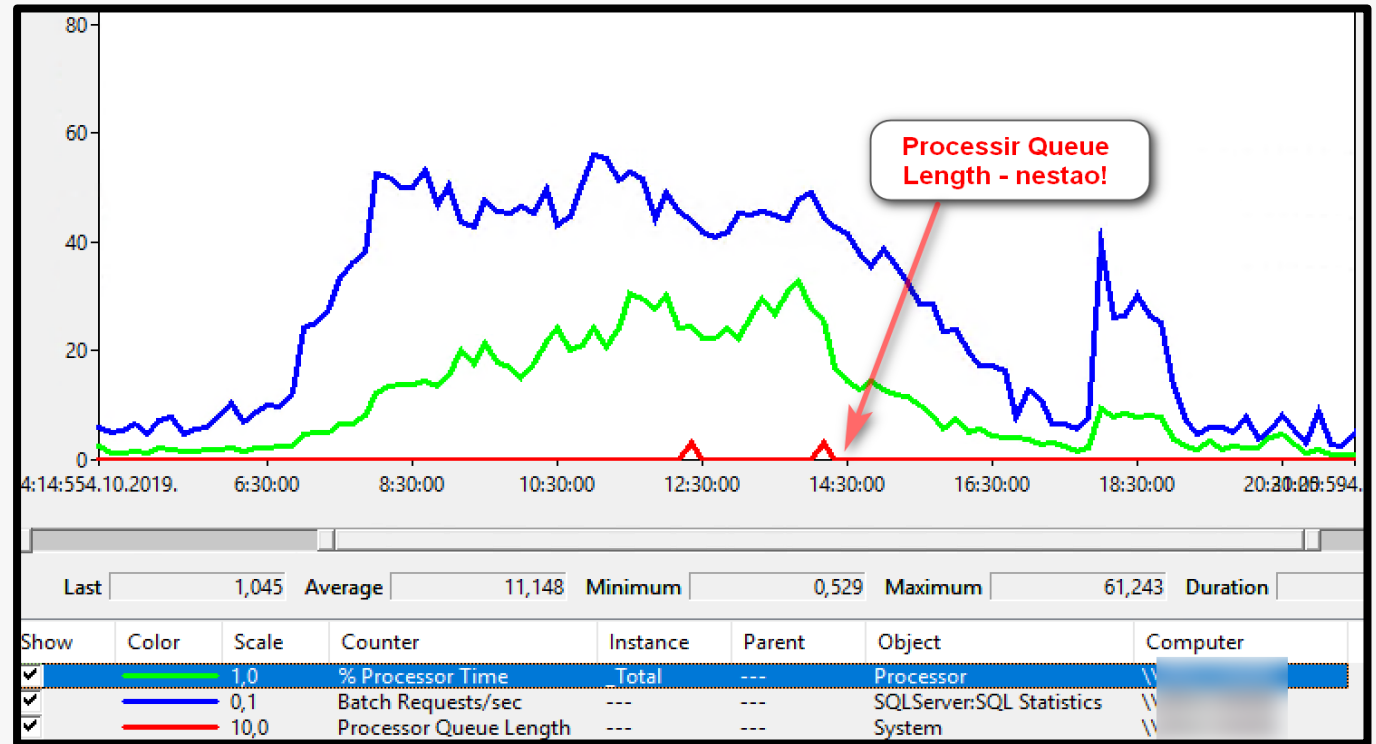
After assessment

According the previous view we can reduce the number of CPU cores from 12 to 6 cores. 5 cores should spin this workload, and 1 core is for backup.

AFTER - 8 cores:

The load is the same - **blue line**, but the number of processes waiting on the CPU is practically gone! Avg is 0.006 – **red line**. All this after we REDUCED the number of CPU cores from 12 to 8 vCpu cores!

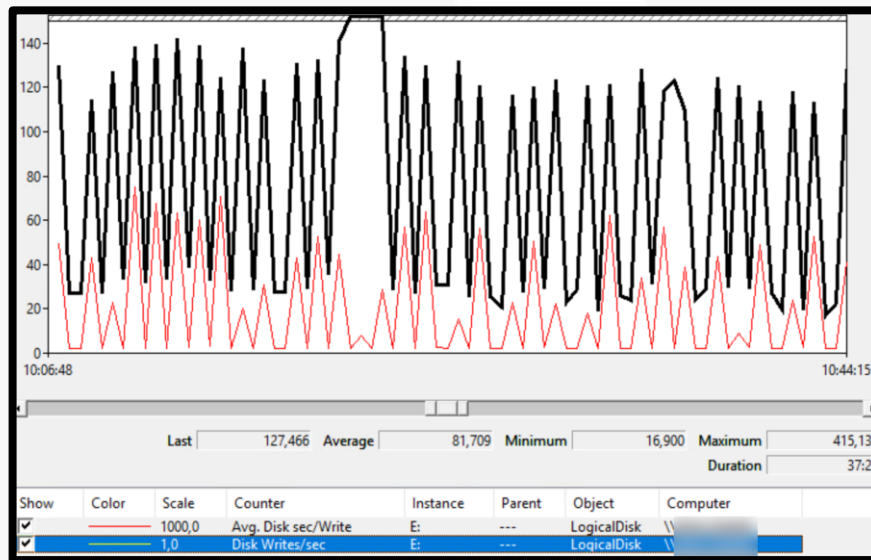
We see a slight increase in % CPU - **green line** due to the reduction of cores, but that does not mean that we are worse, we process requests faster and users wait less.



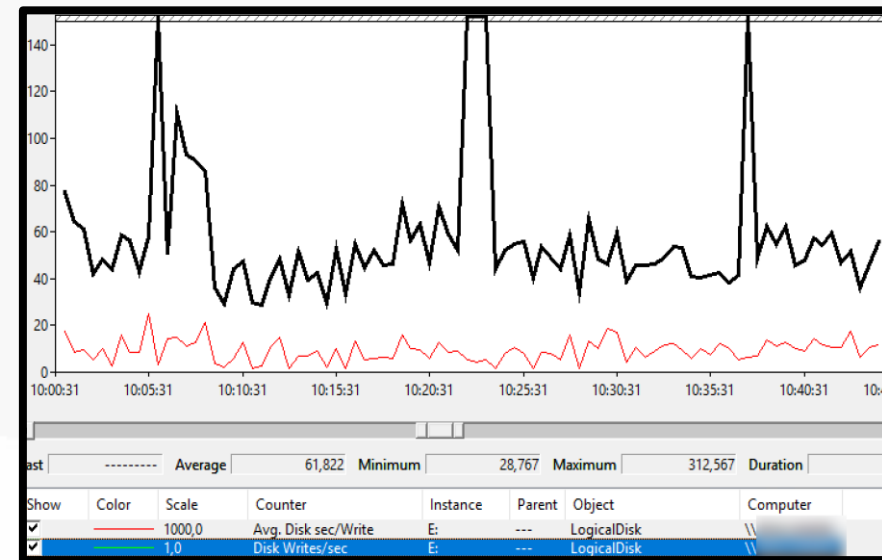
After SQL Server optimization assessment



More graphs before/ after assessment when it comes to Disks



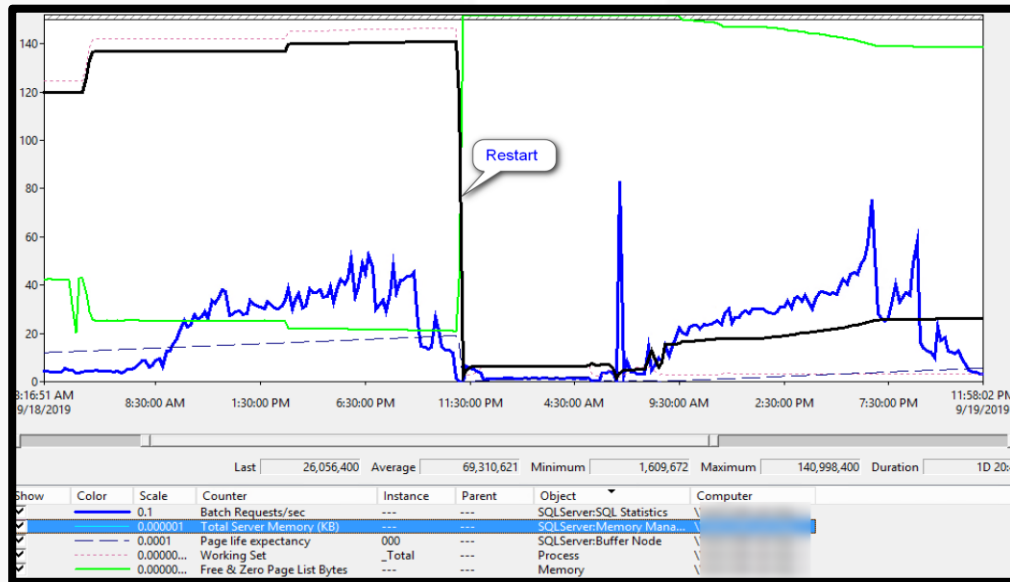
Before SQL Server optimization assessment



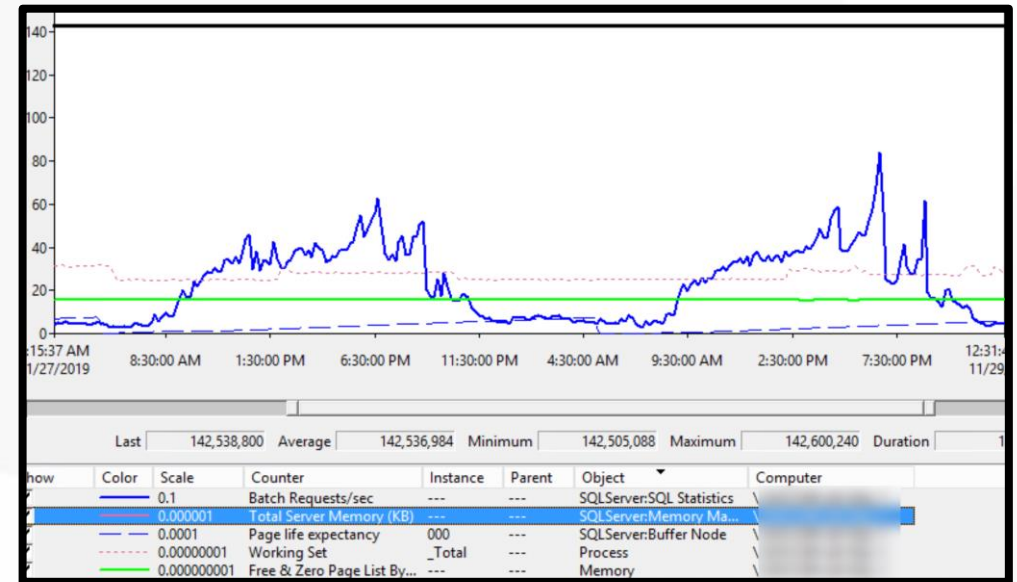
After SQL Server optimization assessment



More graphs before/ after assessment when it comes to RAM



Before SQL Server optimization assessment



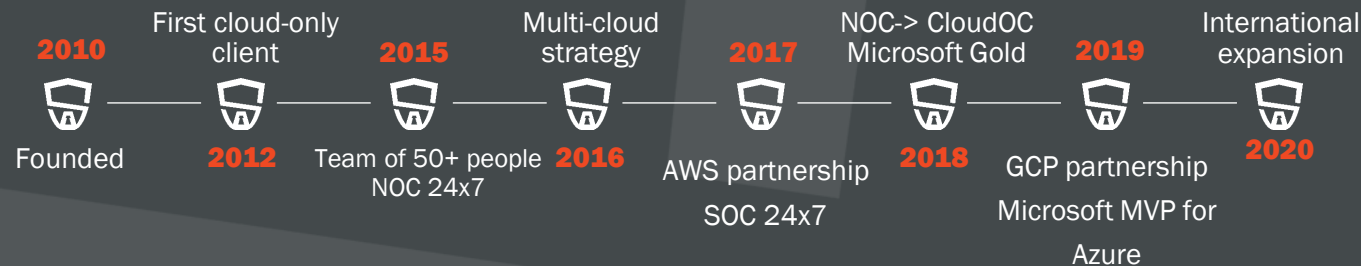
After SQL Server optimization assessment



Why choose SuperAdmins?



SuperAdmins is an international company dedicated to high competence in public cloud technologies **and top-level client service.**



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We focus on:



End-to-end solutions

We work with clients from strategy to execution further into managing their cloud with 24/7 support



Cloud native

Our 50+ engineers are certified, informed, experienced, communicative and focused on cloud technologies



Cost optimization

TCO friendly service with cost predictiveness



Partnerships and certificates

With leading vendors in the industry



Experience & Expertize

More than 50 satisfied clients worldwide



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People certifications



Certified solutions architect

4 certified people

Level - Expert



Certified cloud practitioner

10 certified people

Level - Associate



MSCE

4 certified people

Level - Expert



MCT

2 certified people

Level - Expert



MVP AZURE

1 certified person

Level - Expert



MSCA

6 certified people

Level - Professional



AZ-900

8 certified people

Level - Associate



Server+

8 certified people

Level - Professional



Security+

4 certified people

Level - Professional



LPIC-1

2 certified people

Level - Professional



RHCE

1 certified person

Level - Expert



Professional cloud architect

2 certified people

Level - Expert



ITILv3 Foundation

2 certified people

Level - Associate



ITILv3 Service Operation

1 certified person

Level - Expert



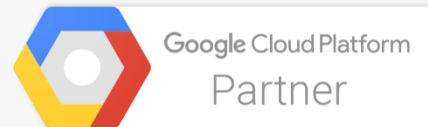
CCNP

3 certified people

Level - Expert



Our certificates and partnerships





Get in touch

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