SQL Server on Linux is still relevant
(and I can prove it!)

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The Pythian Group

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Agenda

- Why Linux
- SQL Server on Linux
- Containers
- SQL Server on Docker

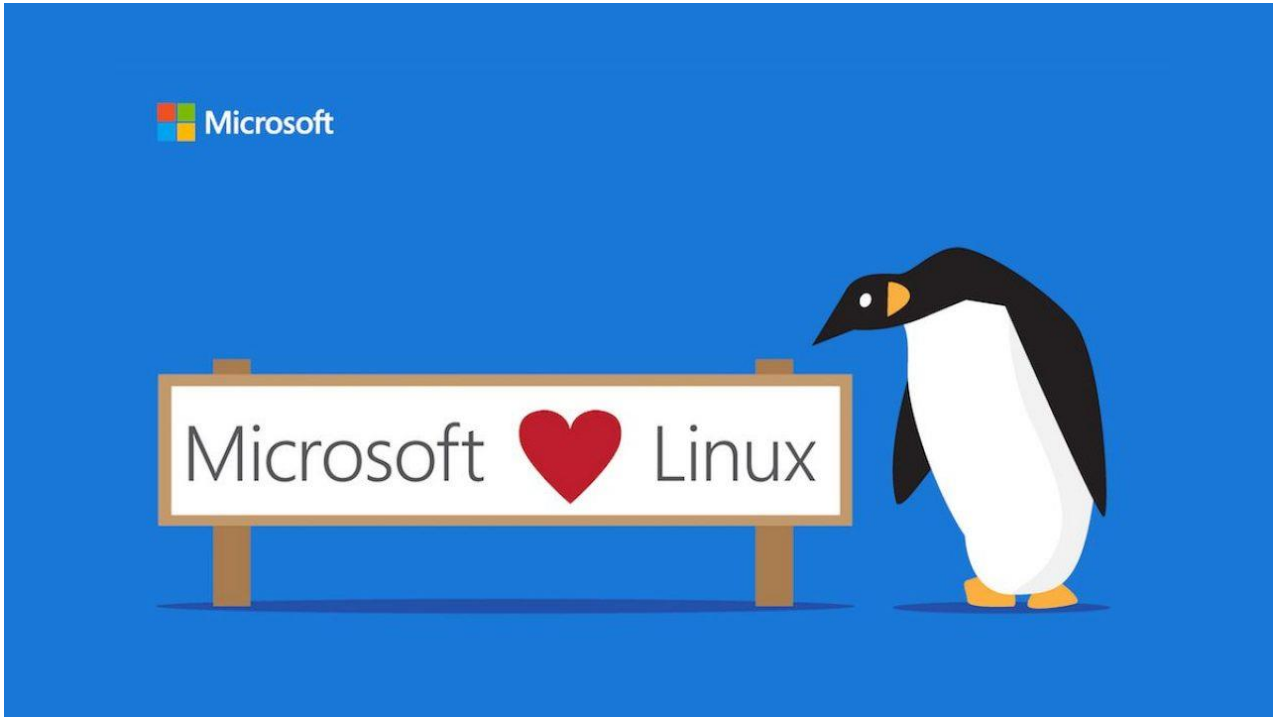
Why Linux?

- Open source
- Community driven
- Heavily used by Devs
- Hadoop, Kafka, Cassandra, Mongodb, Apache Spark, Docker…
- Knowing another O.S. means increasing your k
  (brainpower!)



- So…. Technology for technology‘s sake?

Why Linux?



Which Linux?


redhat
MEPIS
turbolinux
LUNAR
EvilEntity
debian
Vine Linux
cAos/CentOS
MiniKazit
UTUTO
archlinux
m0n0wall
Knoppix STD
gentoo linux
DeLi Linux
Hiweed
amlug
slackware
yellow dog
Fedora
LPG
PLD
SLAX
COREL LINUX
Progeny
GEEXBOX
BIGLINUX
FREEDUC
Lycoris
EnGarde
Mandrakelinux
BeatrIX
Linspire
SuSE
OPER
BearOps
ASPLINUX
kalango
Slackintosh
Frugalware
Foresight
Mint
PCLinuxOS
Haydar Linux
sabayon
ubuntu
JULEX
blag

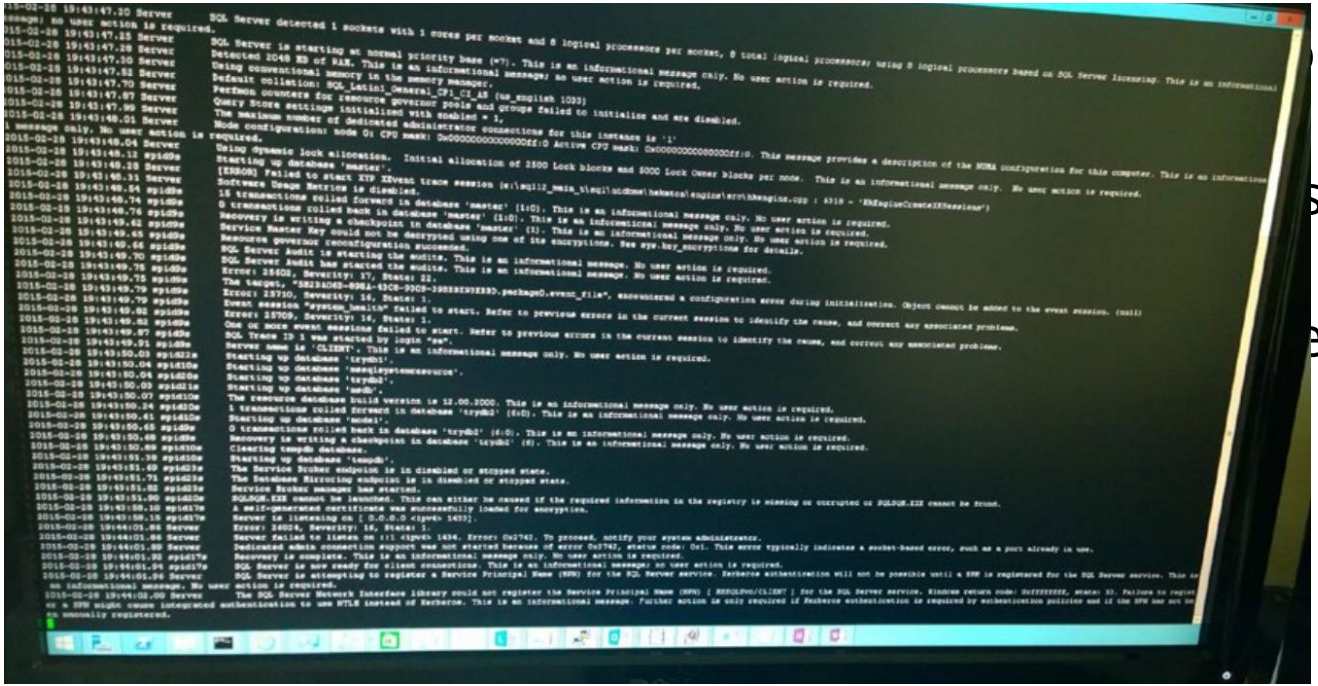
Which Linux?







SQL Server on Linux - Timeline



n Linux (PAL

sion that

er on Linux,
Big Data

2017

- Engine
- Agent
- SSIS
- HADR

2019

- Replication (Transactional and Snapshot)
- MSDTC
- Machine Learning extension
- Polybase
- CDC



https://learn.microsoft.com/en-us/sql/sql-server/what-s-new-in-sql-server-2022?view=sql-server-ver16#platform

(some) limitations

- No Configuration Manager
- No local SSMS
- Hostname limited to 15 chars
- Single Instance install only
- SSIS only supported on Ubuntu and Red Hat

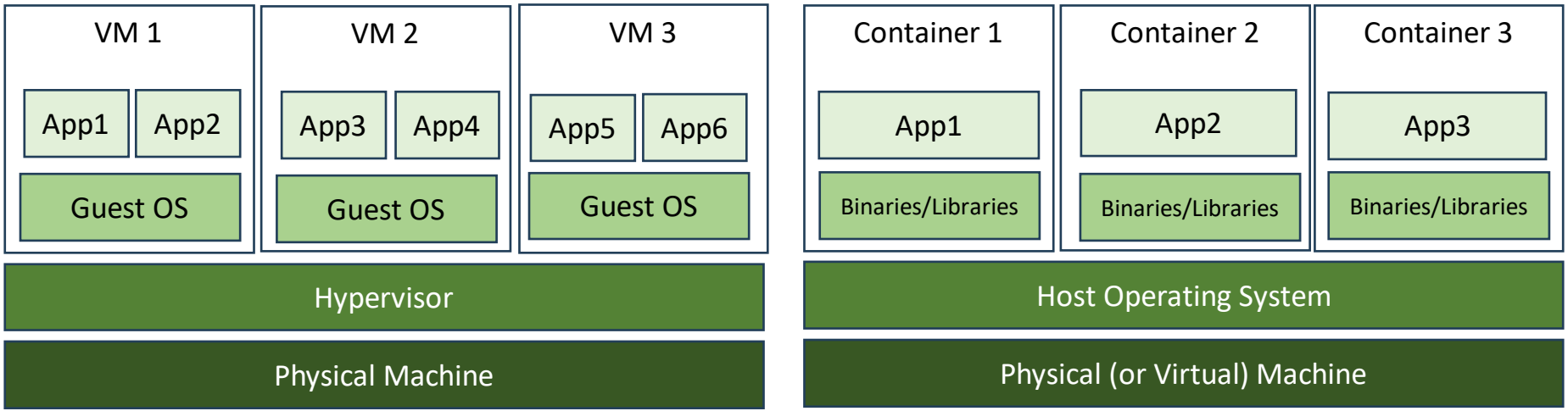
What is available?

- The engine
- Full-Text search
- High Availability
- Polybase
- SSIS
- Agent
- Machine Learning services (R, Python, Java)
- **SQL Server on Linux made the use of containers possible!** ☺

SQL Server on Linux



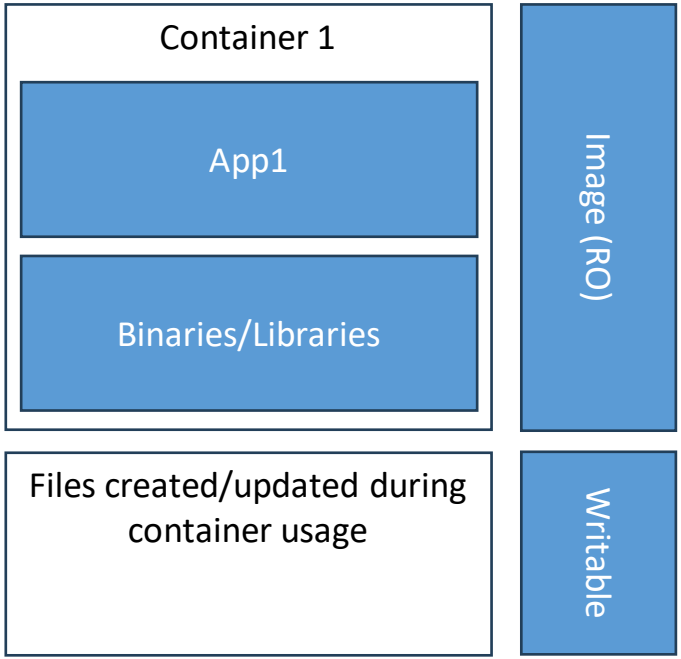
Containers - in a nutshell



From Anthony Nocentino's sessions (links in References slide)

Containers - in a nutshell

No real persistency

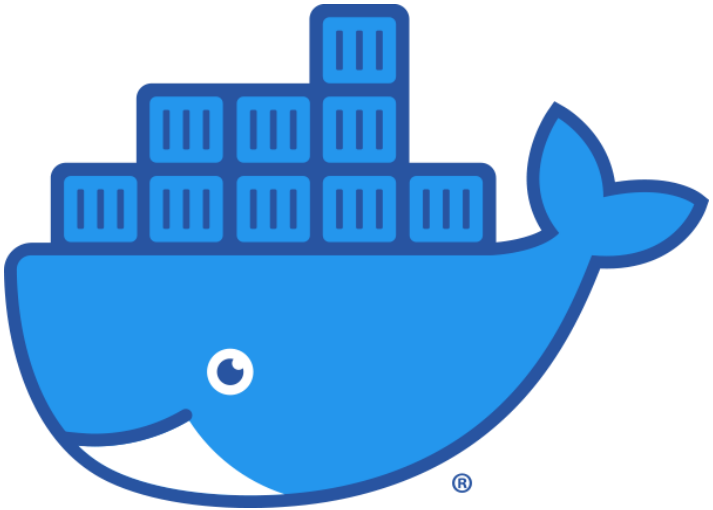


From Anthony Nocentino's sessions (links in References slide)

Why use Containers?

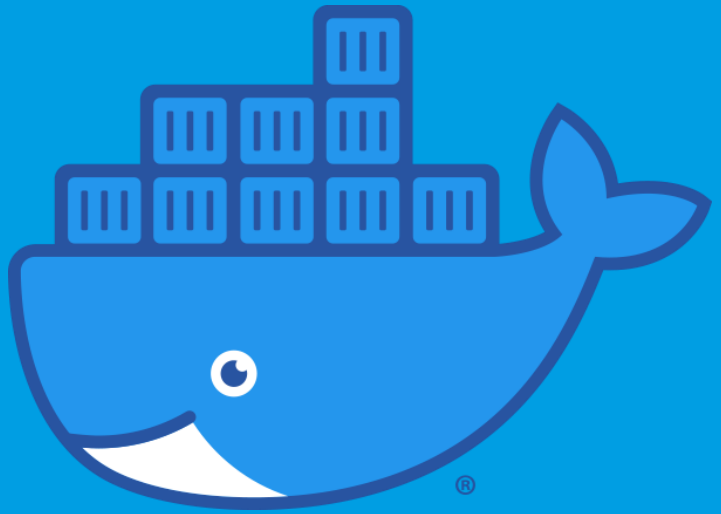
- Fast deployment
- Upgrading
- Patching
- Consistency
- Good for nonprod environment provisioning
- Needs strict resource management

Docker



- Open source
- Microsoft maintains a repo with official images:
  https://mcr.microsoft.com/v2/mssql/server/tags/list and also:
  https://hub.docker.com/_/microsoft-mssql-server

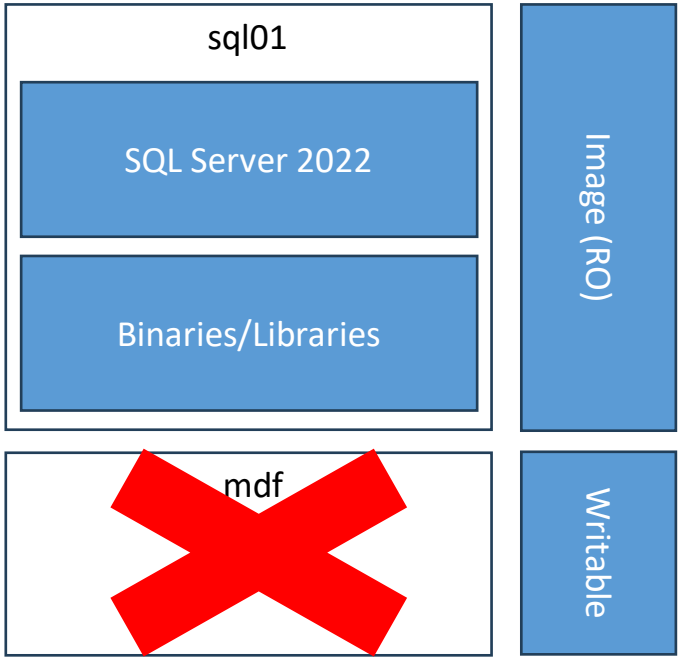
SQL Server on Docker



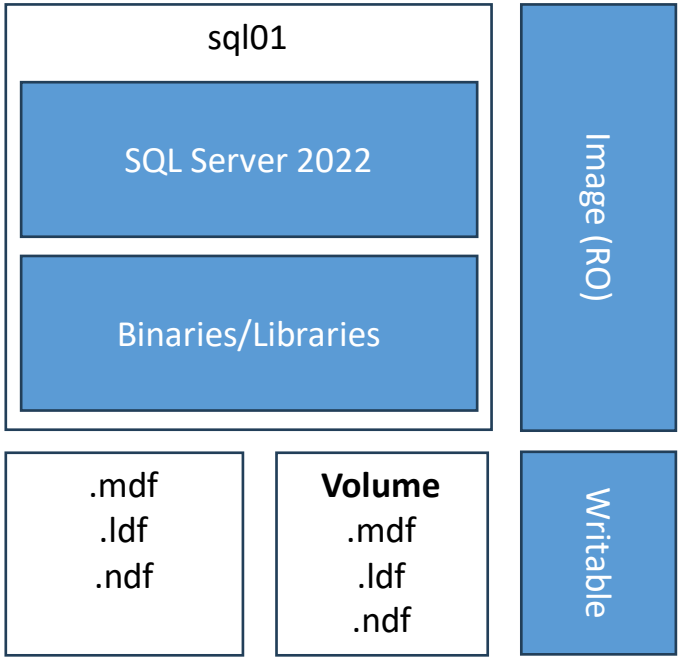


Containers lifecycle - in a nutshell

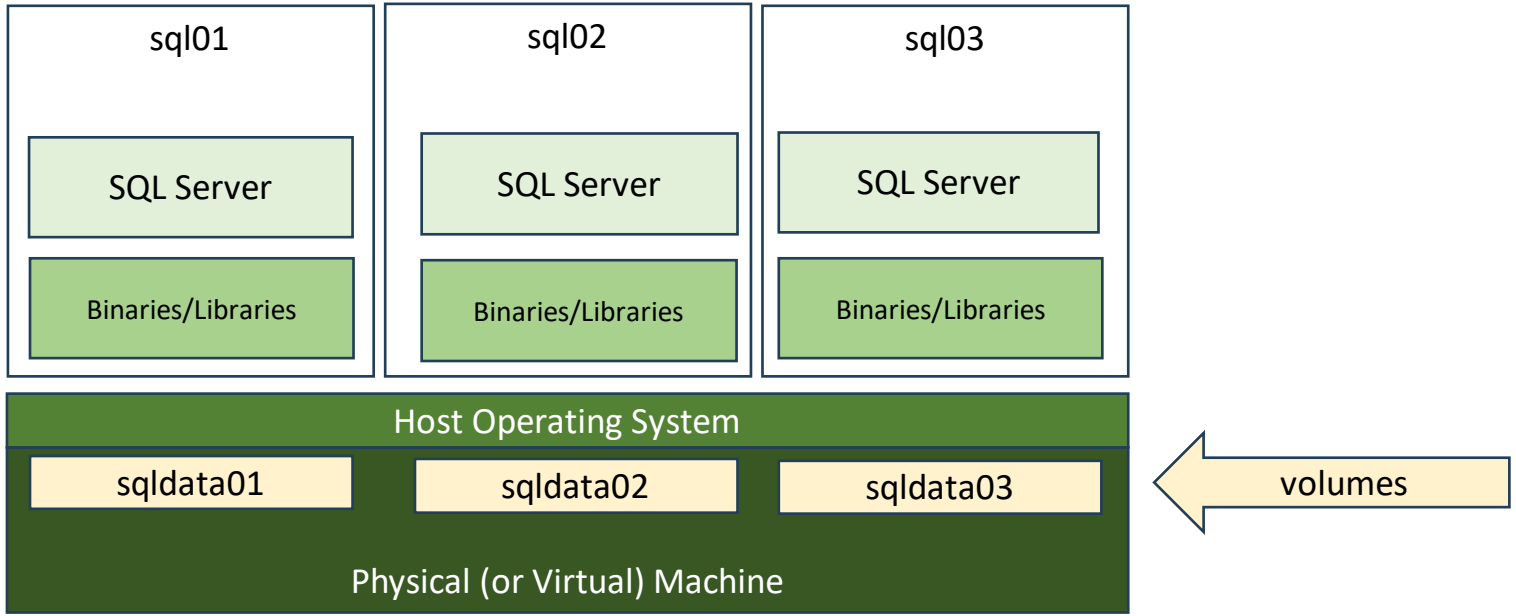
docker rm sql01



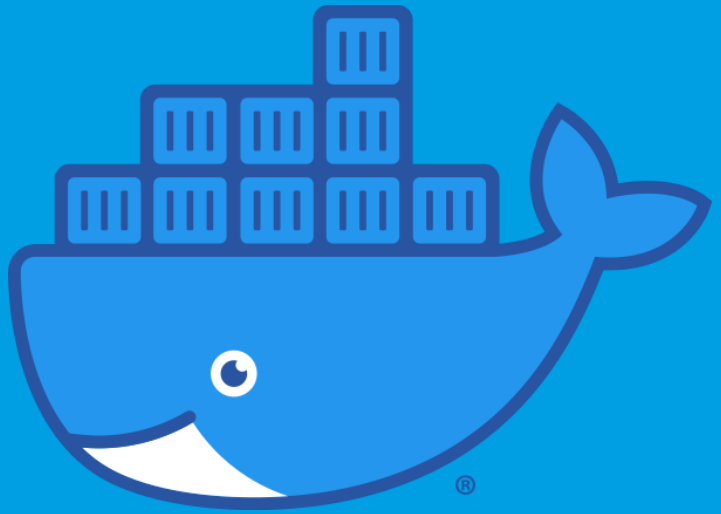
Containers lifecycle - in a nutshell



Containers lifecycle - in a nutshell



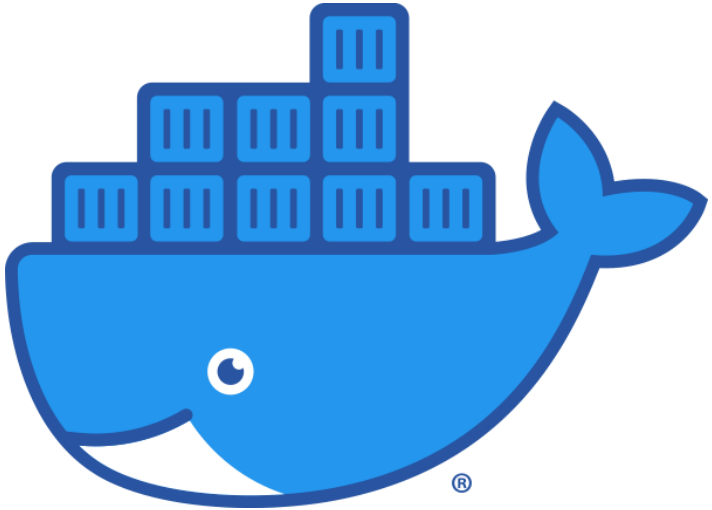
SQL Server on Docker with Volumes





Next steps for Docker

- Creating your own images
- Limiting resources to each container
- Deploying clusters of containers



Consider SQL Server on Linux (and Docker) for…

- Installation experience/automation/ease of management
- Non prod tests and environment creation (Docker)
- Choice: which O.S. does your team prefer?
- Choice: Windows licensing costs?
- Geeking out! ☺

Performance Best Practices

- Use XFS for Data and Log files
- Separation of files is still valid
- Increase Open File limit
- Kernel options
- THP enabled
- Limit your resources on containers!

https://learn.microsoft.com/en-us/sql/linux/sql-server-linux-performance-best-practices?view=sql-server-ver16
https://www.redhat.com/en/blog/testing-sql-server-2019-performance-rhel-8
https://learn.microsoft.com/en-us/archive/blogs/bobsql/sql-server-on-linux-forced-unit-access-fua-internals

References

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- https://www.nocentino.com/posts/2021-07-25-container-limits-and-sql-server/
- https://learn.microsoft.com/en-us/sql/linux/quickstart-install-connect-docker?view=sql-server-ver16&pivots=cs1-bash
- https://learn.microsoft.com/en-us/sql/linux/sql-server-linux-release-notes-2022?view=sql-server-ver16&tabs=rhel9
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- https://learn.microsoft.com/en-us/sql/linux/sql-server-linux-kubernetes-best-practices-statefulsets?view=sql-server-linux-ver16
- Book: SQL Server on Kubernetes (A. Nocentino)
- Book: Pro SQL Server on Linux (Bob Ward)
- Book: The SQL Server DBA's Guide to Docker Containers (Edwin Sarmiento)



Thank you very much for your attention.

Vielen Dank für Eure Aufmerksamkeit.

Feedback

Social Networks