

Filippetti S.p.A.

Test di database in OCI con
HammerDB



Chi sono

Daniele Bocciolini

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Su di me

- Spoleto, Italy
- System Engineer at Filippetti spa
- Oracle (From 9i to 19c)
- Oracle Fusion Middleware 12c
- Java Developer
- Blogger on Oracle Technologies (<http://www.dbocciolini.wordpress.com>)
- ITOUG Board Member
- Oracle Ace Associate

Nel tempo libero sono un pilota di kart e il presidente dell'associazione sportiva dilettantistica db3racing asd





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Agenda

Test di database in OCI con HammerDB

Di cosa parleremo

- **Oracle Cloud Infrastructure**
 - OCPU
 - Shape & Flexible Shape
 - Elastic Performance & Auto-Tune
- **Configurazione Istanze di test**
- **HammerDB**
 - Perché misurare le performance?
 - TPC-C
 - Virtual users, warehouse
- **Metodologia di test**
- **Demo**
- **Test**
- **Confronto risultati**

OCI - Oracle Cloud Infrastructure

OCI

aka Oracle Gen2 Cloud

Infrastructure as a Service

Componenti Core

Compute: Bare Metal server, VM

Storage: Block storage, Object Storage, File storage

Network: VCN, Load Balancers

ORACLE®
Cloud Infrastructure

Come provare OCI

Free Tier

Always Free

+

Prova gratuita di 30 giorni (300\$ in crediti gratuiti)

Cosa è gratuito?

2 servizi database

Ognuno fino ad **1 OCPU** e fino a **20GB** di **RAM**

2 servizi compute

Ognuno fino ad **1/8 OCPU** e fino a **20GB** di **RAM**

Shape VM.Standard.E2.1.Micro

<https://www.oracle.com/it/cloud/free/>



Compute

Compute

OCPU

OCPU: Unità di misura per OCI

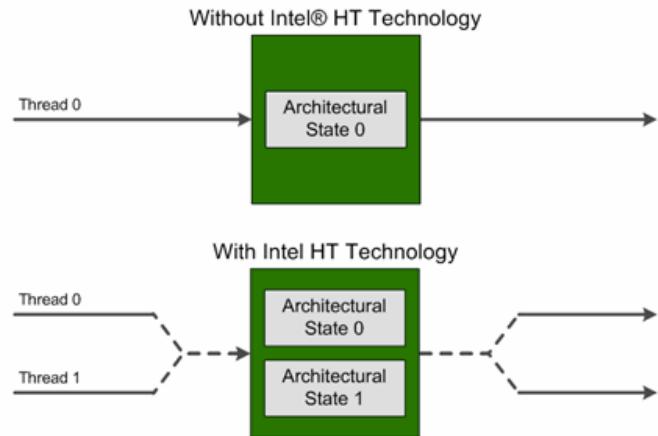
OCPU PER MONTH / OCPU PER HOUR

Definizione Originale: An OCPU provides CPU capacity equivalent of one physical **core** of an **Intel Xeon** processor with hyper threading enabled.

Each OCPU corresponds to **two** hardware execution **threads**, known as vCPUs.

Each OCPU has a **pre-defined** amount of **memory**.

Definizione Attuale: A dedicated physical core with two threads



Compute Shape

A shape is a template that determines the number of CPUs, amount of memory, and other resources that are allocated to an instance.

Bare metal Shape:

Standard Shape
Dense I/O
GPU Shape
HPC Shape

VM Shape:

Standard Shape
Dense I/O
GPU Shape

INTEL Compute - Virtual Machine Standard - **X7 (B88514)**

AMD Compute - Standard - **E2 (B90425)**

Classic Compute Shapes Available

General Purpose Shapes	OCPU/GB
OC3	1 / 7.5
OC4	2 / 15
OC5	4 / 30
OC6	8 / 60
OC7	16 / 120
OC8	24 / 180
OC9	32 / 240

Shape	Cores	Memory	Network
VM.Standard2.1	1	15 GB	1 Gbe
VM.Standard2.2	2	30 GB	2 Gbe
VM.Standard2.4	4	60 GB	4 Gbe
VM.Standard2.8	8	120 GB	8 Gbe
VM.Standard2.16	16	240 GB	16 Gbe
VM.Standard2.24	24	320 GB	25 Gbe
BM.Standard2.52	52	768 GB	2x 25 Gbe

Compute

Flexible Shape

A flexible shape is a shape that lets you customize the number of OCPUs and the amount of memory when launching or resizing your VM

AMD EPYC Flexible OCPU count:

- VM.Standard.E3.Flex

Intel Skylake Fixed OCPU count:

- VM.Standard2.1
- VM.Standard2.2
- VM.Standard2.4
- VM.Standard2.8
- VM.Standard2.16
- VM.Standard2.24

Browse All Shapes

A shape is a template that determines the number of CPUs, amount of memory, and other resources allocated to a newly created instance. See [Compute Shapes](#) for more information.

Instance type

Virtual Machine

A virtual machine is an independent computing environment that runs on top of physical bare metal hardware.

Bare Metal Machine

A bare metal compute instance gives you dedicated physical server access for highest performance and strong isolation.

Shape series

AMD

Flexible OCPU count. AMD processors.

Intel Skylake

Fixed OCPU count. Latest generation Intel Standard shapes.

Specialty and Previous Generation

Earlier generation AMD and Intel Standard shapes. Always Free. Dense I/O, GPU, and HPC shapes.

Image: Oracle Linux 7.9

Shape Name	OCPU	Memory (GB)	Network Bandwidth (Gbps)	Max. Total VNICs
<input checked="" type="checkbox"/> VM.Standard.E3.Flex	1	16	1	2

You can customize the number of OCPUs and the amount of memory allocated to a flexible shape. The other resources scale proportionately. [Learn more about flexible shapes](#).

Number of OCPUs



Amount of memory (GB)



[Select Shape](#) [Cancel](#)

Compute

VM.Standard.E3.Flex

2nd Gen AMD EPYC processors

AMD EPYC 7742 processor

base clock 2.25 GHz max boost 3.4 GHz

OCPUs: 1-64

Memory: 1-768 GB *

Network Bandwidth: 1-40 Gbps

Max Total VNICs: 2-24

* Documentation says 1024 GB with some known issue

Burstable Instance: possibilità di utilizzare una frazione di OCPU e scalare all'utilizzo full per un limitato periodo di tempo

Browse All Shapes

A shape is a template that determines the number of CPUs, amount of memory, and other resources allocated to a newly created instance. See [Compute Shapes](#) for more information.

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Image: Oracle Linux 7.9

Shape Name	OCPUs	Memory (GB)	Network Bandwidth (Gbps)	Max. Total VNICs
<input checked="" type="checkbox"/> VM.Standard.E3.Flex	1	16	1	2

You can customize the number of OCPUs and the amount of memory allocated to a flexible shape. The other resources scale proportionately. [Learn more about flexible shapes](#).

Number of OCPUs

Amount of memory (GB)

Select Shape Cancel

Compute

Nuove Istanze E4

3rd Gen AMD EPYC processors
base clock 2.55 GHz max boost 3.5 GHz

Disponibili al lancio su:

- US East (Ashburn)
- US West (Phoenix)
- India west (Mumbai)
- Switzerland North (Zurich)
- Brazil East (Sao Paulo)
- Canada Southeast (Montreal)
- Australia southeast (Melbourne)
- Canada Southeast (Toronto)

March 15, 2021

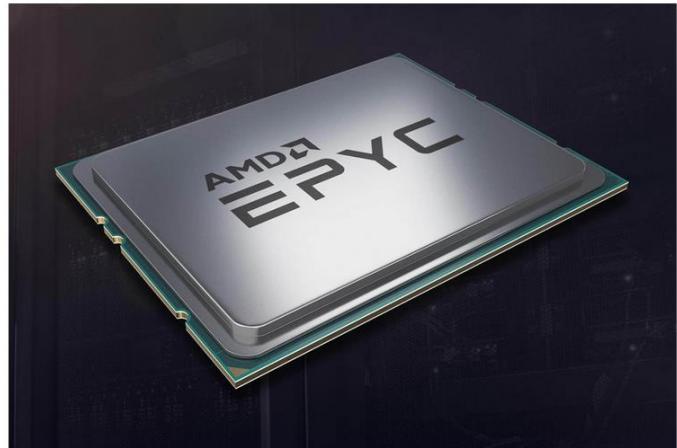


Announcing Oracle Cloud Compute E4 platform on third gen AMD EPYC processors



Rajan Panchapakesan

DIRECTOR OF PRODUCT MANAGEMENT, OCI COMPUTE



Storage

Storage

Block Volume Elastic Performance

The Block Volume service uses NVMe-based storage infrastructure, and is designed for consistency

The Oracle Cloud Infrastructure Block Volume service lets you **dynamically provision** and manage block storage volumes. You can create, attach, connect and move volumes as needed to meet your storage and application requirements

1. Volume size

2. Default Volume Performance:

- High Performance
- Balanced
- Lower Cost

Create Block Volume

Name
MyVolume

Create in Compartment
ociflippetti (root)

Availability Domain
k1Ea:UK-LONDON-1-AD-1

Volume Size and Performance

DEFAULT CUSTOM

VOLUME SIZE (IN GB)
1024

Size must be between 50 GB and 32,768 GB (32 TB). Volume performance varies with volume size.

DEFAULT VOLUME PERFORMANCE

Lower Cost Balanced Higher Performance

Balanced choice for most workloads including those that perform random I/O such as boot disks. [Learn more](#)

[Create Block Volume](#) [Cancel](#)

Default Volume Performance
IOPS: 25000 IOPS (60 IOPS/GB)
Throughput: 480 MB/s (480 KB/s/GB)

Storage

Auto Tune

Auto-tune performance changes the volume performance to lower cost when the volume is detached. When the volume is reattached, the volume performance is automatically adjusted to the previous setting

Usefull in cost saving scenario

Pay attention to Timings Limits and Consideration

Edit Volume

Volume Size and Performance

VOLUME SIZE (IN GB)

100

Size must be an integer between the current size (100 GB) and 32,768 GB (32 TB). Volume performance varies with volume size.



After the volume is provisioned, for the volume resize to take effect, you need to:
1. Run the applicable rescan commands. [Learn More](#)
2. Extend the partition manually. [Learn More](#)

DEFAULT VOLUME PERFORMANCE

Lower Cost Balanced Higher Performance

Recommended for the most IO-demanding workloads that require the best possible performance including large databases. [Learn more](#)

AUTO-TUNE PERFORMANCE



Off

Auto-tune performance changes the volume performance to lower cost when the volume is detached. When the volume is reattached, the volume performance is automatically adjusted to the previous setting. [Learn more](#)

Save Changes

Cancel

Default Volume Performance

IOPS: 7500 IOPS (75 IOPS/GB)

Throughput: 60 MB/s (600 KB/s/GB)

Current Performance

IOPS: 7500 IOPS (75 IOPS/GB)

Throughput: 60 MB/s (600 KB/s/GB)

Current performance of the volume. When auto-tune is enabled for the volume, it will automatically change to Lower Cost setting when the volume is detached.

Storage – Auto Tune

Timing Limits and Consideration

When you enable the auto-tune performance feature for a detached volume, the Block Volume service starts the performance adjustment to Lower Cost after 14 days.

When you enable the auto-tune performance feature for an attached volume, the Block Volume service starts the performance adjustment to Lower Cost 14 days after you detach the volume.

If you disable the auto-tune performance feature while a volume is detached, Block Volume service starts the performance adjustment to the Default Performance setting right away.

Attaching a volume with the auto-tune performance feature enabled may take longer than attaching a volume with it off, as the Block Volume service adjusts the performance before the volume attachment completes.

If you change the Default Performance for a detached volume with the auto-tune performance feature enabled, the Current Performance for the volume will remain Lower Cost until you reattach the volume.

If you clone a detached volume with the auto-tune performance feature enabled, the Block Volume service starts the performance adjustment to Lower Cost after 14 days.

<https://docs.oracle.com/en-us/iaas/Content/Block/Tasks/autotunevolumeperformance.htm>

Configurazione Istanze Test

Istanze di test

Intel X7 VS AMD E3

Shape VM.Standard2.1 – Intel X7

Shape VM.Standard.E3.Flex – AMD E3

Istanze con risorse simili

Stesso OCPU count

1GB di ram in più per la piattaforma AMD

1GB di bandwith network

Configurazione dello storage identica sia per dimensione che
default volume performance

Name	State	Public IP	Shape	OCPU Count	Memory (GB)
INTELX7-1-16	Running	132.145.29.43	VM.Standard2.1	1	15
AMDE3-1-16	Running	132.145.20.237	VM.Standard.E3.Flex	1	16



Shape	OCPU Count	Memory (GB)
VM.Standard2.1	1	15
VM.Standard.E3.Flex	1	16

Istanze di test - INTELX7-1-15

Storage

Attached Block Volumes

[Block volumes](#) provide high-performance network storage to support a broad range of I/O intensive workloads.

Attach Block Volume							
Name	▲	State	Volume Type	Device path	Type	Access	Size
X7-ARCH		● Attached	Block Volume	-	iscsi	Read/Write	100 GB
X7-DB-100GB		● Attached	Block Volume	-	iscsi	Read/Write	100 GB
X7-DB-1TB		● Attached	Block Volume	-	iscsi	Read/Write	1 TB

Istanze di test - AMDE3-1-16

Storage

Attached Block Volumes

[Block volumes](#) provide high-performance network storage to support a broad range of I/O intensive workloads.

Attach Block Volume							
Name	▲	State	Volume Type	Device path	Type	Access	Size
E3-ARCH		● Attached	Block Volume	-	iscsi	Read/Write	100 GB
E3-DB-100GB		● Attached	Block Volume	-	iscsi	Read/Write	100 GB
E3-DB-1TB		● Attached	Block Volume	-	iscsi	Read/Write	1 TB

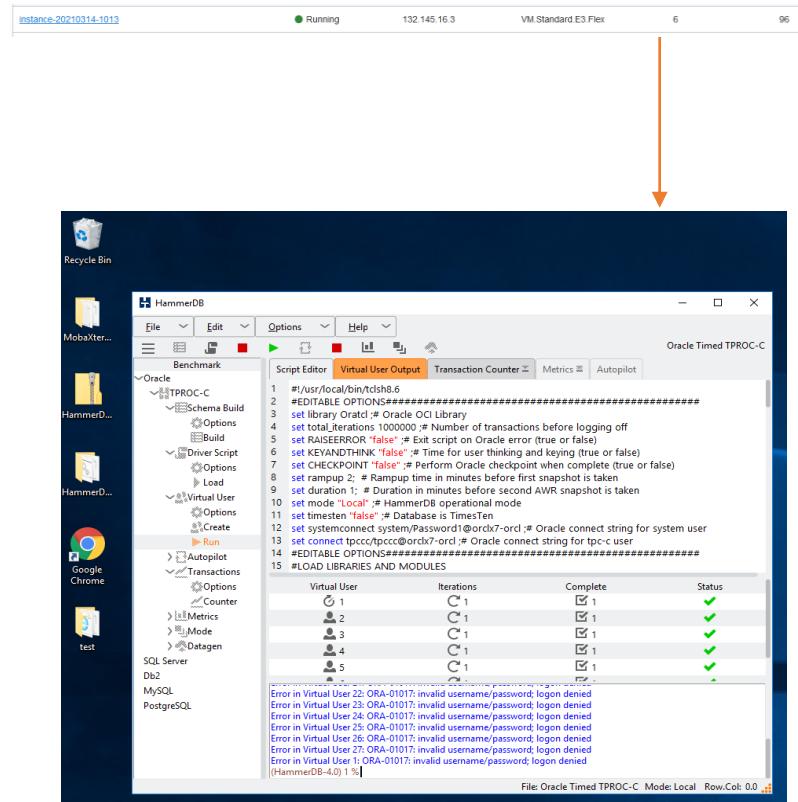
Istanze di test

Test “Manager”

Shape VM.Standard.E3.Flex – AMD E3

Windows
Oracle client installato
Sqldeveloper

HammerDB



HammerDB

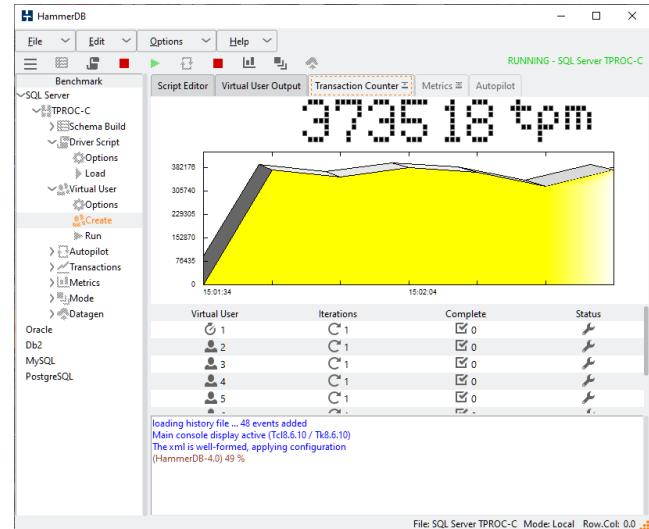
HammerDB

Perchè misurare le performance?

OpenSource leading benchmarking and load testing for most popular database

Possiamo misurare le performance per **divertimento** oppure per effettuare una misurazione oggettiva utile ad estrapolare informazioni **coerenti** e **confrontabili** riguardo le performance di un database.

Per far sì che siano coerenti e confrontabili le informazioni c'è bisogno di uno **Standard** e di una **metodologia di test**



TPC-C

HammerDB TPROC-C

TPC-C benchmark for transactional workload

HammerDB implementa **TPROC-C** come tipo di workload transazionale.

TPROC-C deriva direttamente da TPC-C e rispetta quelle che sono le policy di implementazione imposte dallo standard TPC

TPROC-C non è direttamente confrontabile con TPC-C

TPROC-C produce risultati accurati, ripetibili e consistenti le differenze rilevabili eseguendo lo stesso test sono tipicamente minori del 1%

Inoltre è intenzionalmente non ottimizzato per non favorire nessuna piattaforma DB oggetto del test.



HammerDB TPROC-C

TPM e NOPM

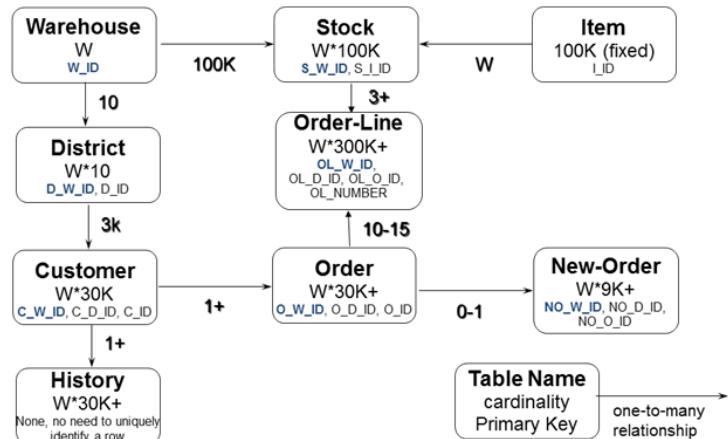
Transaction Per Minute
New Orders Per Minute

Da dove vengono fuori questi ordini?

Il conteggio degli ordini viene fatto sulla base dello schema implementato che implementa il processo di vendita di 100000 items e la gestione dello stock di magazzini Warehouse

NOPM è la metrica da utilizzare per confrontare i risultati specialmente su piattaforme diverse

Per la spiegazione completa del modello ER
<https://hammerdb.com/docs/ch03s05.html>



Database

DB EE 19.10

Configurazione database identica sulle 2 VM

- Modificata RAM di AMDE3-1-16 a 15
- Montati 3 volumi formattati con filesystem xfs NO LVM
- Installazione «standard» del database su /u01
- Configurato Archivelog con destinazione /u02/fra
- Volume /u03 non utilizzato montato successivamente in sostituzione di /u01 per test sul volume da 1TB

```
[oracle@amde3-1-16 ~]$ sqlplus / as sysdba;
SQL*Plus: Release 19.0.0.0.0 - Production on Sun Apr 11 16:16:17 2021
Version 19.10.0.0.0

Copyright (c) 1982, 2020, Oracle. All rights reserved.

Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.10.0.0.0

SQL> show parameter sga

NAME                                     TYPE        VALUE
-----
allow_group_access_to_sga                boolean     FALSE
lock_sga                                boolean     FALSE
pre_page_sga                            boolean     TRUE
sga_max_size                            big integer 10G
sga_min_size                            big integer 0
sga_target                              big integer 10G
unified_audit_sga_queue_size           integer    1048576

SQL> show parameter pga

NAME                                     TYPE        VALUE
-----
pga_aggregate_limit                     big integer 7G
pga_aggregate_target                   big integer 3584M

SQL>
```

```
[oracle@amde3-1-16 ~]$ lsblk
NAME   MAJ:MIN RM  SIZE R0 TYPE MOUNTPOINT
sdd    8:48   0   1T  0 disk
└─sdd1 8:49   0 1024G 0 part /u03
sdb    8:16   0   100G 0 disk
└─sdb1 8:17   0 100G 0 part /u01
sdc    8:32   0   100G 0 disk
└─sdc1 8:33   0 100G 0 part /u02
sda    8:0    0   46.6G 0 disk
└─sda2 8:2    0   8G  0 part [SWAP]
└─sda3 8:3    0 38.4G 0 part /
└─sda1 8:1    0 200M 0 part /boot/efi
```

Metodologia di test

Warehouse e virtual user

Numero di warehouse 100

Numero di virtual user 25

Creazione Tablespace

Creazione database di test

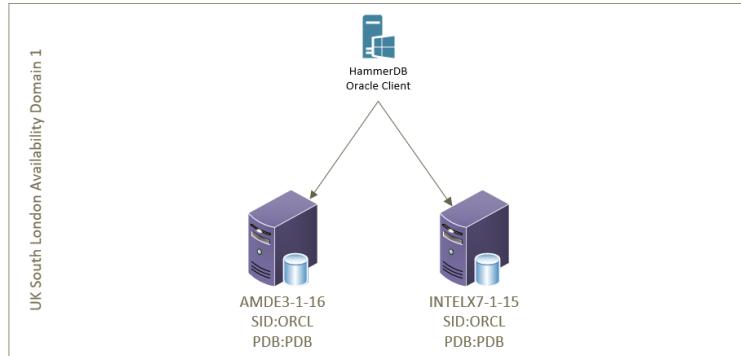
Creata restore point

Configurazione sessione di test

Avvio test

Salvataggio risultati

Ripristino restore point per esecuzione nuovo test



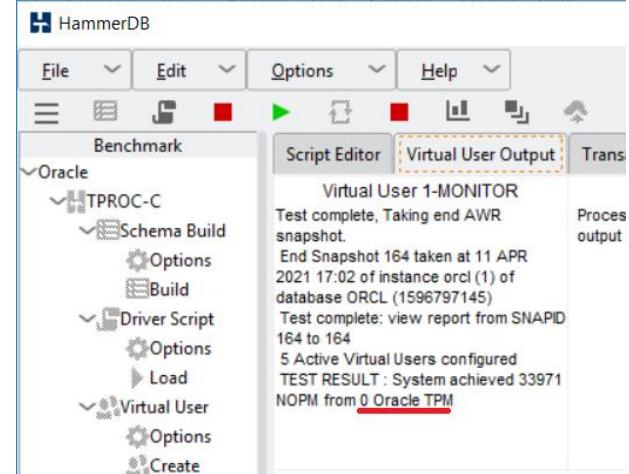
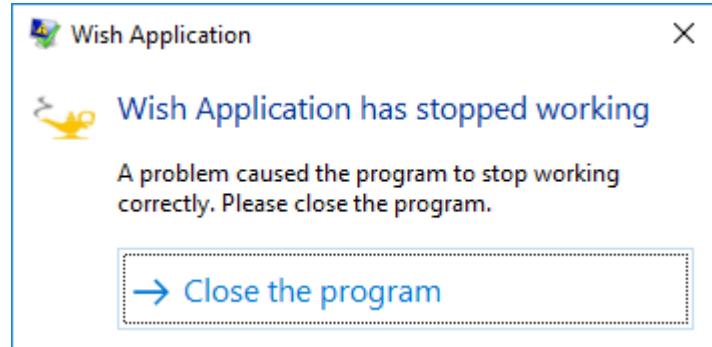
Metodologia di test

Problemi riscontrati e suggerimenti

<https://dboccilini.wordpress.com/blog/>

Wish has stopped Working
– BUG 12733000

TEST RESULT : System
achieved 0 Oracle TPM



Metodologia di test

Crezione Tablespace TPCCTABC

Crezione Utente TPCCC

```
create tablespace TPCCTABC;
```

```
alter session set "_ORACLE_SCRIPT=true;
```

```
CREATE USER tpccc IDENTIFIED BY tpccc DEFAULT  
TABLESPACE TPCCTABC QUOTA unlimited on TPCCTABC;
```

```
[oracle@amde3-1-16 ~]$ sqlplus / as sysdba;  
SQL*Plus: Release 19.0.0.0.0 - Production on Tue Apr 13 08:44:44 2021  
Version 19.10.0.0.0  
copyright (c) 1982, 2020, Oracle. All rights reserved.  
  
Connected to:  
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production  
Version 19.10.0.0.0  
  
SQL> create tablespace TPCCTABC;  
Tablespace created.  
  
SQL> alter session set "_ORACLE_SCRIPT=true";  
Session altered.  
  
SQL> CREATE USER tpccc IDENTIFIED BY tpccc DEFAULT TABLESPACE TPCCTABC QUO  
TA unlimited on TPCCTABC;  
User created.
```

Metodologia di test

Creazione database di test

ORCLE3-1-16

100W 25 VU

Elapsed Time 17'

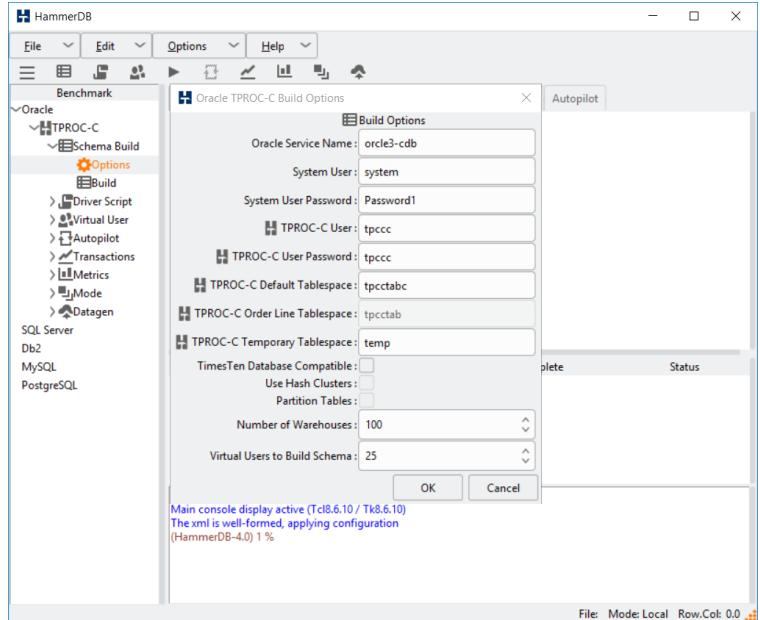
8GB

ORCLX7-1-15

100W 25 VU

Elapsed Time 23'

8GB



Metodologia di test

Creazione restore point

```
SELECT FLASHBACK_ON FROM  
V$DATABASE;
```

```
ALTER DATABASE FLASHBACK ON;
```

```
CREATE RESTORE POINT build_warehouse;
```

```
[oracle@amde3-1-16 ~]$ sqlplus / as sysdba;  
SQL*Plus: Release 19.0.0.0.0 - Production on Tue Apr 13 09:34:48 2021  
Version 19.10.0.0.0  
  
Copyright (c) 1982, 2020, Oracle. All rights reserved.  
  
Connected to:  
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production  
Version 19.10.0.0.0  
  
SQL> select flashback_on from v$database;  
  
FLASHBACK_ON  
-----  
YES  
  
SQL> create restore point build_warehouse;  
Restore point created.  
SQL> █
```

Metodologia di test

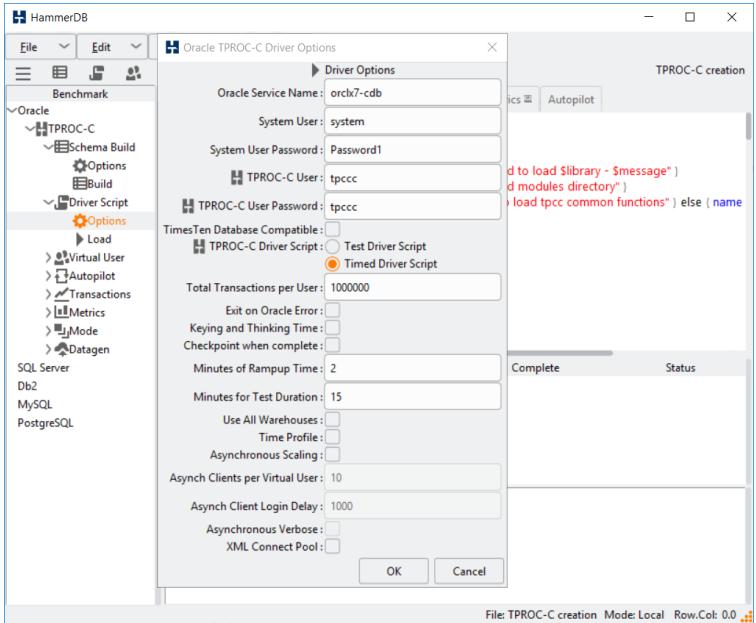
Configurazione sessione di test 1/2

Driver Script -> Options

Timed Driver Script

Minutes for Test Duration 15'

Driver Script -> Load



Metodologia di test

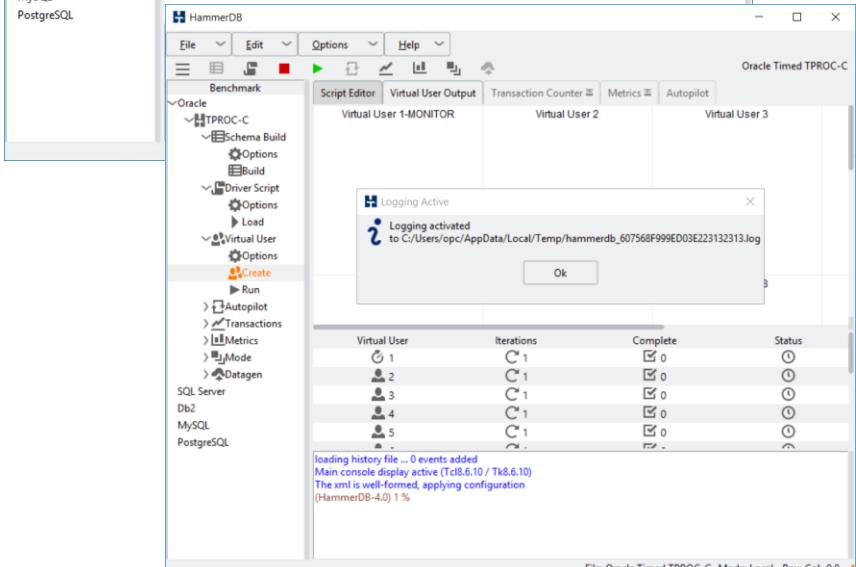
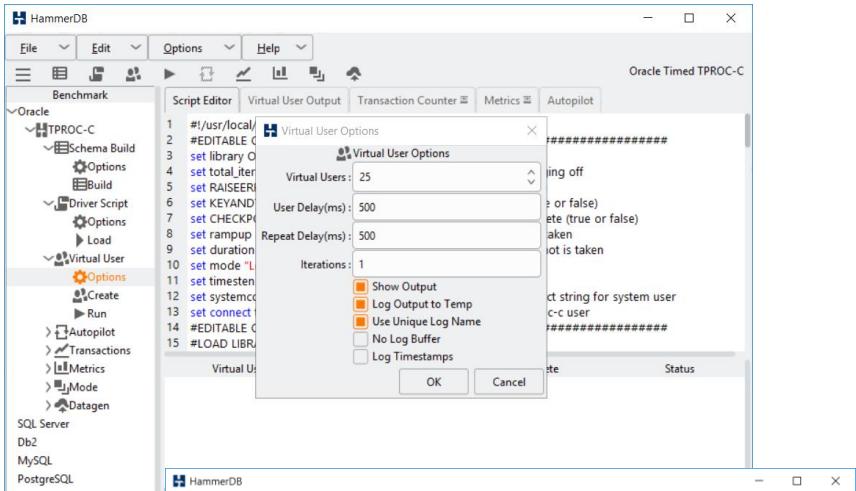
Configurazione sessione di test 2/2

Virtual User -> Options

VU = 25

Show Output & Log output to Temp & Unique Log Name

Virtual User -> Create

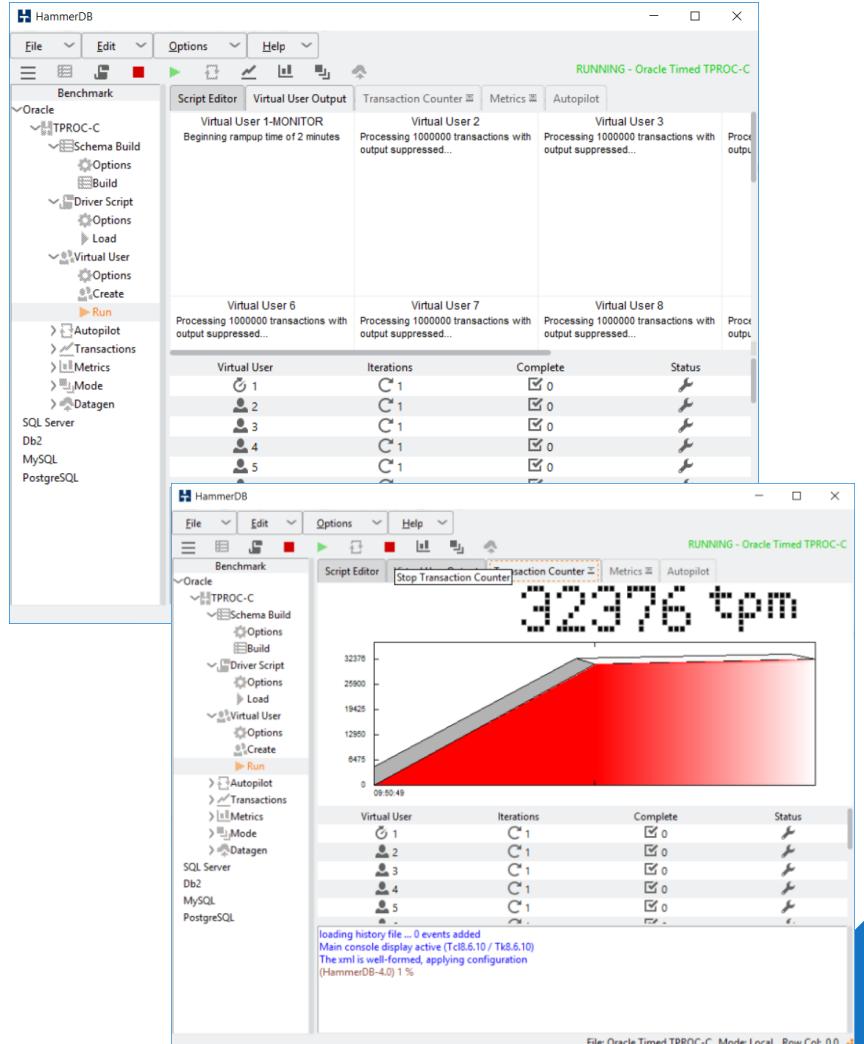


Metodologia di test

Awio Test
Transaction counter

Virtual User -> Run

Start Transaction counter

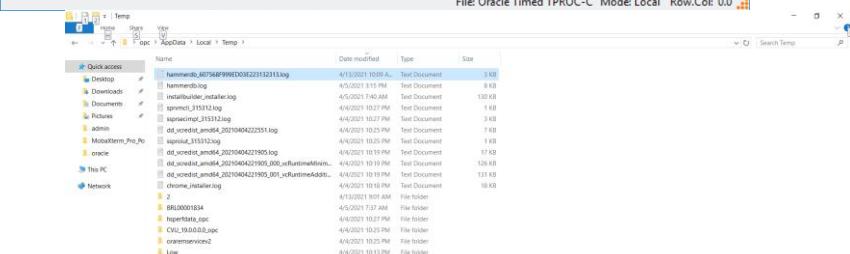
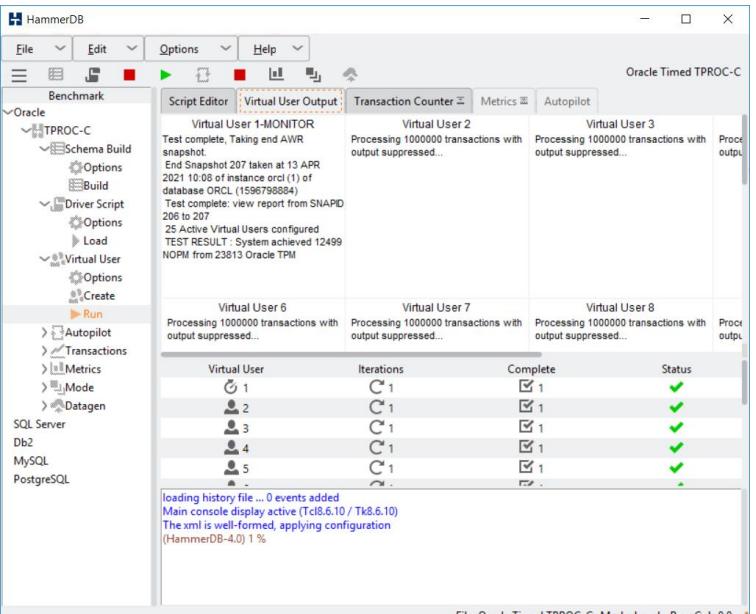


Metodologia di test

Salvataggio risultati

C:\Users\opc\AppData\Local\Temp

<https://github.com/sganderson/HammerDBResults>



Metodologia di test

Restore database

shutdown immediate;

startup mount;

flashback database to restore point build_warehouse;

alter database open resetlogs;

```
[oracle@intelx7-1-15 ~]$ sqlplus / as sysdba;
SQL*Plus: Release 19.0.0.0.0 - Production on Tue Apr 13 10:41:26 2021
Version 19.10.0.0.0

Copyright (c) 1982, 2020, Oracle. All rights reserved.

Connected to an idle instance.

SQL> startup mount;
ORACLE instance started.

Total System Global Area 1.0737E+10 bytes
Fixed Size          9147504 bytes
Variable Size       1912602624 bytes
Database Buffers   8791261184 bytes
Redo Buffers        24403968 bytes
Database mounted.
SQL> flashback database to restore point build_warehouse;
Flashback complete.

SQL> alter database open resetlogs;
Database altered.
```

Demo

Metodologia di test

OCI IAAS DB 19.10 EE TPROC-C test

Si ma quale test?

Test AMDE3-1-16 100GB HP

Test INTELX7-1-15 100GB HP

Test AMDE3-1-16 100GB LC

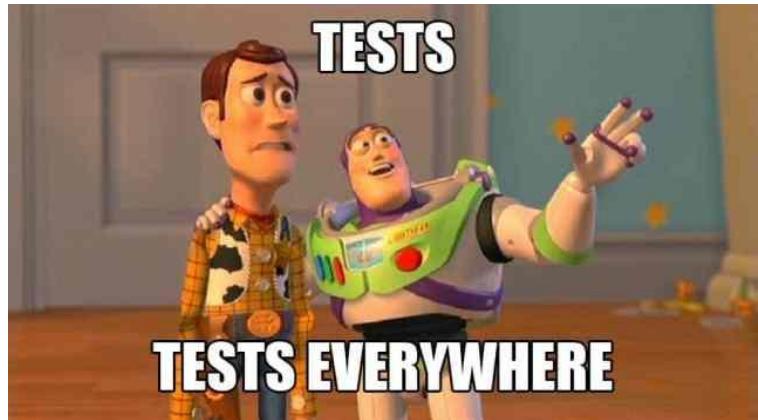
Test INTELX7-1-15 100GB LC

Test AMDE3-1-16 1000GB HP 100GB HP

Test INTELX7-1-15 1000GB HP 100GB HP

Test AMDE3-1-16 1000GB HP

Test AMDE3-1-16 10 OCPU 1000GB HP



Risultati

Test AMDE3-1-16

ORCL EE 19.10 ARCHIVELOG MODE

SGA: 10240

PGA: 3584

PROCESSES: 1000

CPU: AMD EPYC 7742

OCPUs: 1

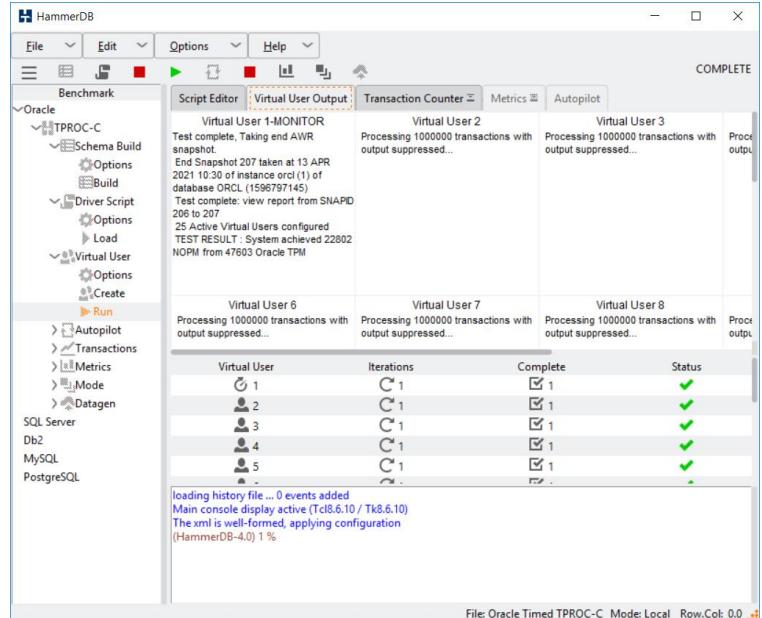
RAM: 15GB

/U01 100GB HP (DB + DATA) **High Perform.**

/U02 100GB HP (FRA) **High Perform.**

TEST RESULT:

22802 NOPM - 47603 TPM



Risultati

Test INTELX7-1-15

ORCL EE 19.10 ARCHIVELOG MODE

SGA: 10240

PGA: 3584

PROCESSES: 1000

CPU: Intel Xeon Platinum 8167M

OCPUs: 1

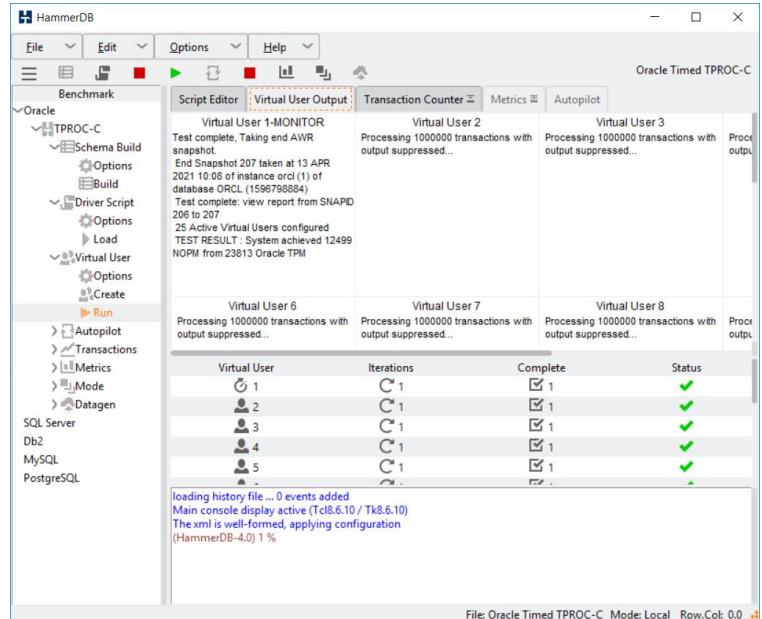
RAM: 15GB

/U01 100GB HP (DB + DATA) **High Perform.**

/U02 100GB HP (FRA) **High Perform.**

TEST RESULT:

12499 NOPM - 23813 TPM



Risultati

Test AMDE3-1-16

ORCL EE 19.10 ARCHIVELOG MODE

SGA: 10240

PGA: 3584

PROCESSES: 1000

CPU: AMD EPYC 7742

OCPUs: 1

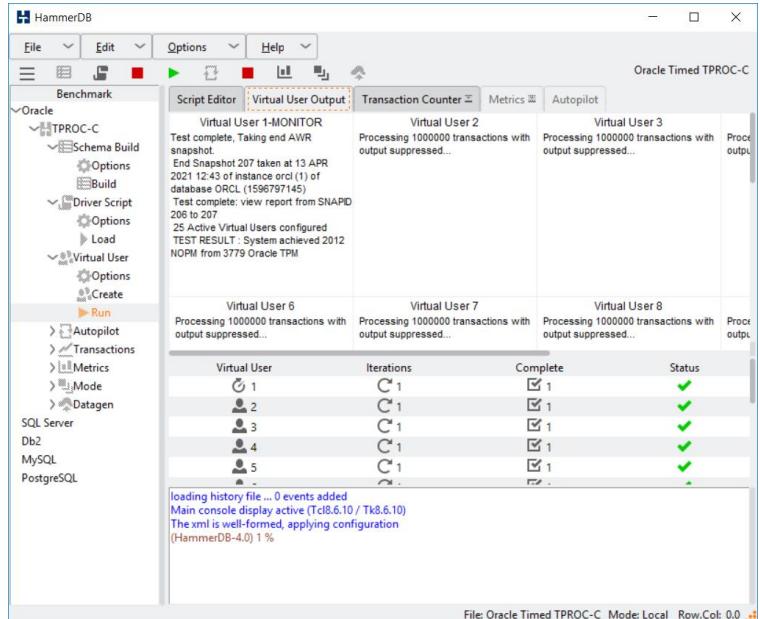
RAM: 15GB

/U01 100GB HP (DB + DATA) **Lower Cost**

/U02 100GB HP (FRA) **Lower Cost**

TEST RESULT:

2012 NOPM - 3779 TPM



Risultati

Test INTELX7-1-15

ORCL EE 19.10 ARCHIVELOG MODE

SGA: 10240

PGA: 3584

PROCESSES: 1000

CPU: Intel Xeon Platinum 8167M

OCPUs: 1

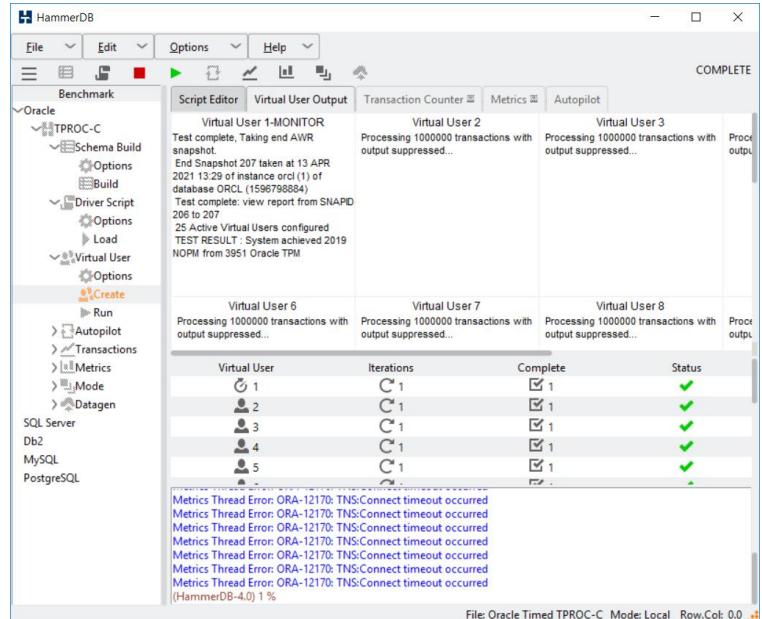
RAM: 15GB

/U01 100GB HP (DB + DATA) **Lower Cost**

/U02 100GB HP (FRA) **Lower Cost**

TEST RESULT:

2019 NOPM - 3951 TPM



Risultati

Test AMDE3-1-16

ORCL EE 19.10 ARCHIVELOG MODE

SGA: 10240

PGA: 3584

PROCESSES: 1000

CPU: AMD EPYC 7742

OCPUs: 1

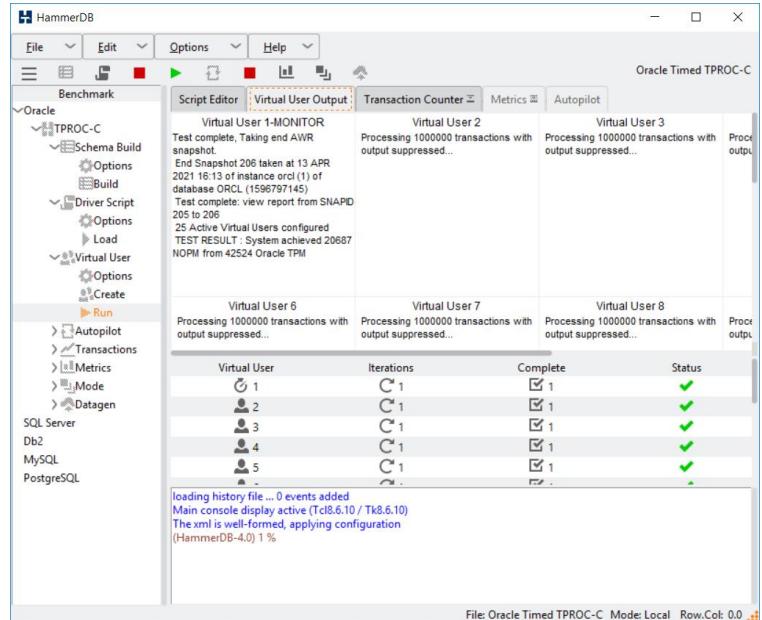
RAM: 15GB

/U01 **1000GB** HP (DB + DATA) High Perform.

/U02 100GB HP (FRA) High Perform.

TEST RESULT:

20687 NOPM - 42524 TPM



Risultati

Test INTELX7-1-15

ORCL EE 19.10 ARCHIVELOG MODE

SGA: 10240

PGA: 3584

PROCESSES: 1000

CPU: Intel Xeon Platinum 8167M

OCPUs: 1

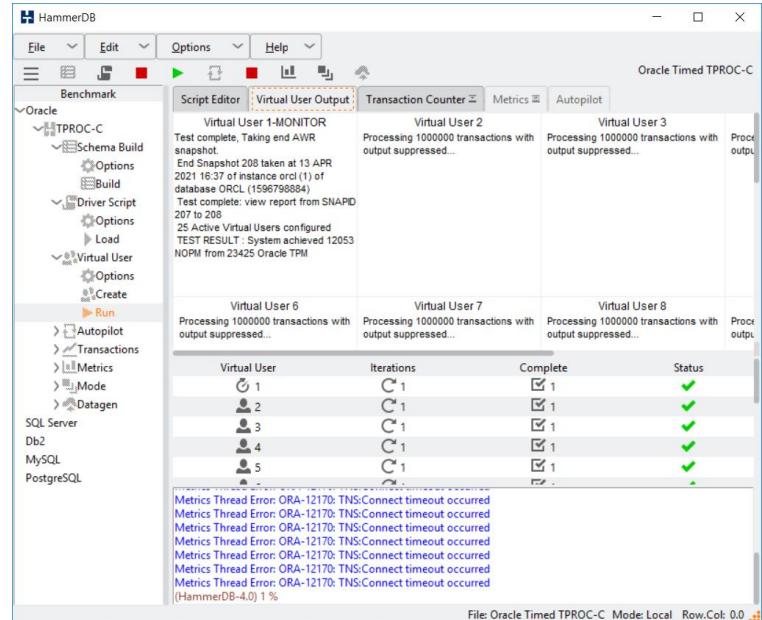
RAM: 15GB

/U01 **1000GB** HP (DB + DATA) High Perform.

/U02 100GB HP (FRA) High Perform.

TEST RESULT:

12053 NOPM - 23425 TPM



Risultati

Test AMDE3-1-16

ORCL EE 19.10 ARCHIVELOG MODE

SGA: 10240

PGA: 3584

PROCESSES: 1000

CPU: AMD EPYC 7742

OCPUs: 1

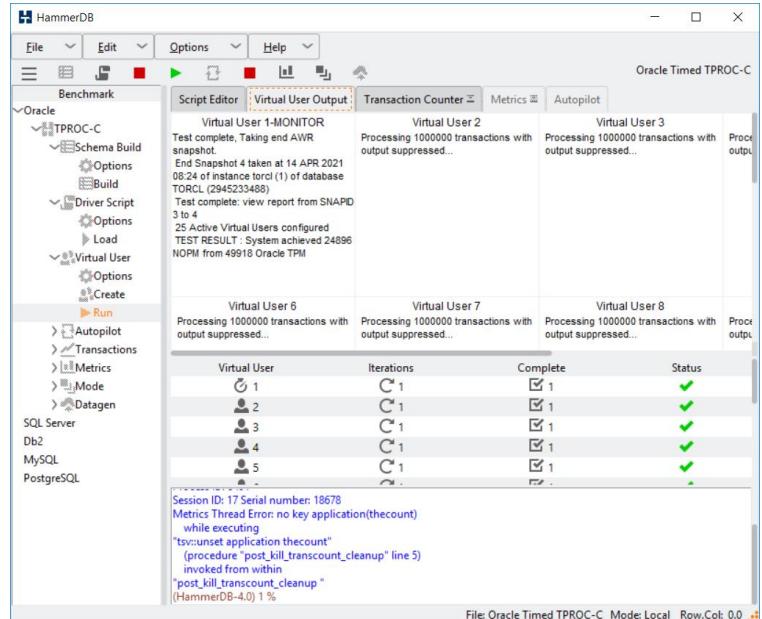
RAM: 15GB

/U01 1000GB HP (**DB + DATA + FRA**) High

Perform.

TEST RESULT:

24896 NOPM - 49918 TPM



Risultati

Test AMDE3-1-16

ORCL EE 19.10 ARCHIVELOG MODE

SGA: 10240

PGA: 3584

PROCESSES: 1000

CPU: AMD EPYC 7742

OCPUs: 10

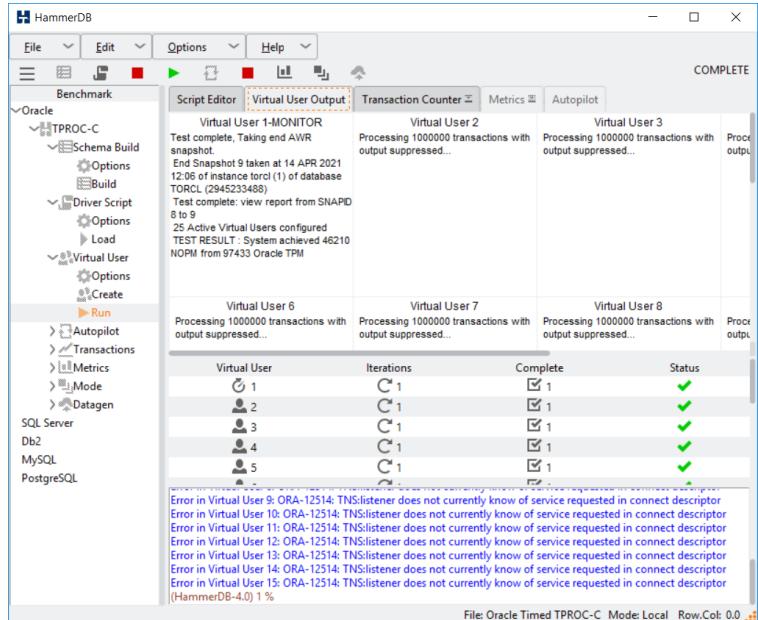
RAM: 15GB

/U01 1000GB HP (DB + DATA+ FRA) High

Perform.

TEST RESULT:

46210 NOPM - 97433 TPM



Risultati

Confronto grafico

Repo github

<https://github.com/sganderson/HammerDBResults>

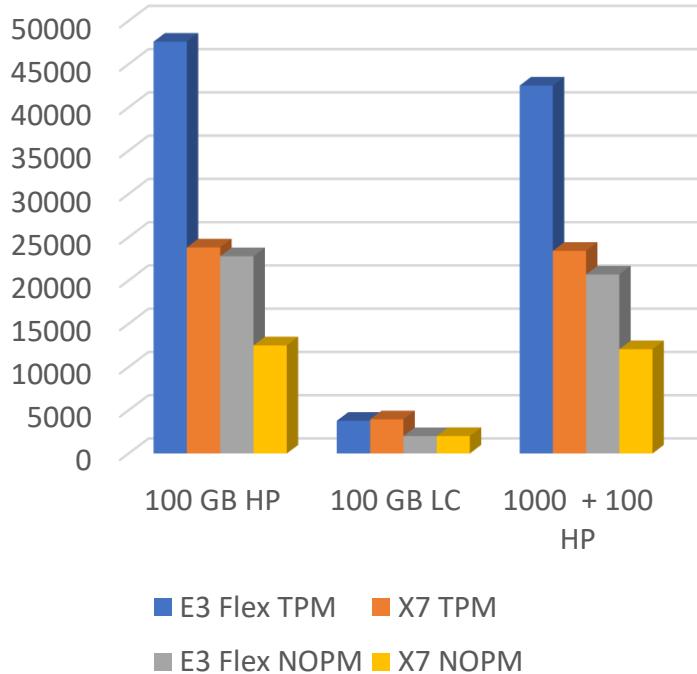
A parità di OCPU e disco sia 100 GB che 1 TB

E3 Flex > X7 Intel su volume High Performance

E3 Flex = X7 Intel su volume Lower Cost

I test con solo i datafile su volume da 1 TB
hanno dato risultati simili ???

NB. Test volutamente su installazioni standard
e non ottimizzate



Risultati

Confronto grafico

Repo github

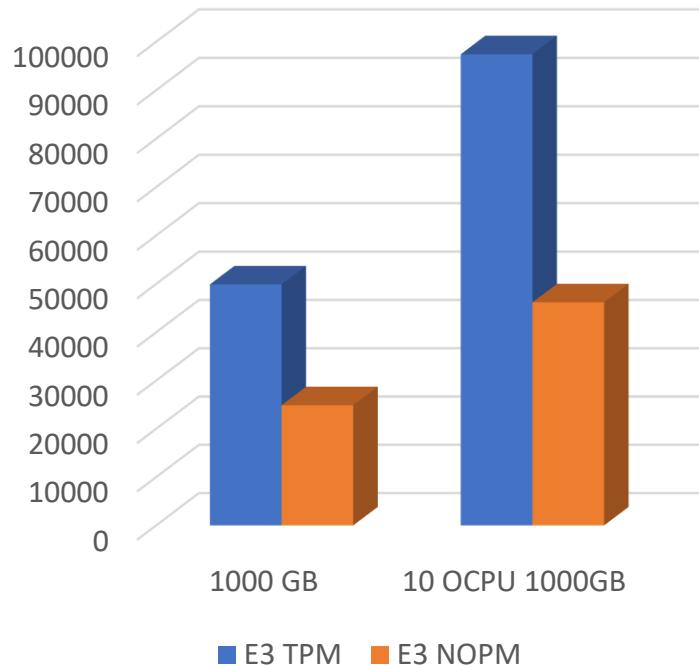
<https://github.com/sganderson/HammerDBResults>

Intero DB (Datafile + FRA) su volume di 1 TB HP

24896 NOPM > 22802 NOPM volume 100GB

Scalando a 10 OCPU

46210 NOPM > 24896 1 OCPU



Conclusioni

I test sono una cosa seria

Cloud oggi estremamente performante

Performance affette dal design
dell'infrastruttura e dalla configurazione scelta
prima ancora delle ottimizzazioni del codice
SQL.

AMD E3 più performanti di Intel X7

Necessità performance superiori per singola VM?
AMD E4
Shape Dense IO



Grazie per l'attenzione

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COLLABORA CON NOI

Partecipare alla community di utenti Oracle è importante, stimolante, appagante. Si fanno buone conoscenze, si trovano nuovi amici, si imparano cose nuove e soprattutto si aumenta il proprio network.

Avere conoscenze all'esterno della propria azienda permette di vedere i problemi di tutti i giorni da una prospettiva diversa.

Quanto tempo hai da dedicare alla user community? Che siano giorni, ore o pochi minuti, puoi già fare molto! Scopri qui sotto le possibilità di collaborazione che offre l'ITOUG!



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