PROMATIS

An ITG Company

How OCI halves costs compared to AWS

With double speed

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ORACLE | Partner

2023 Oracle Europe North Apps/SaaS Partner Award Innovation

PROMATIS is...

Excellence
Business, digitization and comprehensive Oracle excellence from one source

Competence
in Agile Development, DevOps, Oracle Cloud Infrastructure, Data Analytics, Integration, BPM, RPA, SOA, Content, IoT, Blockchain, AI/ML, …

Pioneer
in the process-oriented introduction of Oracle Applications – SaaS (Fusion), E-Business Suite, NetSuite, Fusion Analytics

PROMATIS GROUP – AT A GLANCE

26 million €
Revenues 2023
Plan 2024: 30 million €

Ettlingen
Headquarters
(Karlsruhe TechnologyRegion)

1994
Since foundation: economically successful (EBIT-positive) and Oracle Partner

5 Countries
DE: Ettlingen, Hamburg, Muenster/Westf
AT: Vienna
CH: Zurich
HR: Zagreb
US: Denver, CO

200+
Employees

30+ Countries
International project experience

ITG Group
Part of International Technology Group B.V. (ITG)
500+ employees worldwide
650+ customers in 15+ industries

Expert
for ERP, SCM/LOG, EPM, HCM, CX, PPM, GRC, Analytics

CONTENT

- From Solaris SPARC to AWS and into the abyss
- Core factor and Oracle license costs
- Benchmarking
  - CPU
  - Storage
- Cost comparison
- Advantages beyond costs
- Multicloud
- Conclusion

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FROM SOLARIS SPARC TO AWS AND INTO THE ABYSS

MIGRATION FROM SPARC SOLARIS TO AWS

- E-Business Suite (esp. database) ran for a long time on SPARC M7 machine (32 real cores)
  - Customized, especially ORDS/APEX for individual frontend for EBS
- Elimination of the local data center
  - Everything to be moved to AWS
  - Especially various cloud native applications “in front of & around” the E-Business Suite
- EBS Database: Migration to AWS VM x2iedn.8xlarge with 32 VCPU
- Initially significantly higher usage, but still in the green zone
  - 16 vs. 32 real cores; 32 vs. 256 virtual threads
  - Loss of parallelism more relevant than significantly higher single-thread performance
- With further growth (data volumes and customers):
  - Massive overload at peak times
  - Sometimes minutes instead of just a few seconds of waiting time for calls

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“SOLUTION“ OF THE OVERLOAD

- Tuning
  - Successful with previous overload situations
  - But now: “End of the road”
- Make machine bigger
- But:
  - Next-larger (in Frankfurt at the time) available machine is x2iedn.16xlarge
  - Doubling of infra costs (64 instead of 32 VCPU)
  - Oracle licenses?!?

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CORE FACTOR AND ORACLE LICENSE COSTS

CORE FACTOR FOR ORACLE TECH LICENSES (DB, APPS SERVER)

- The **core factor** is a number
  - for a **physical processor**,
  - which specifies the **number of licenses**
  - required for each **physical core of the server**.
- Primarily relevant for processor licensing; but also for NUP (minimum user per core)
- AWS: Amazon EC2 (or RDS) (with hyperthreading)
  - **2** vCPUs corresponds to one processor license
- OCI (x86)
  - 2 OCPU correspond to one processor license; and since 1 OCPU=2 vCPU:
  - **4** vCPUs correspond to processor license

With the licenses unchanged →
Instance in OCI may be “twice as large” as in AWS

https://www.oracle.com/a/ocom/docs/cloud-licensing-070579.pdf
https://www.oracle.com/contracts/docs/processor-core-factor-table-070634.pdf

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BENCHMARKING CPU

COMPARISON OF AWS WITH 32 VCPU (STARTING POSITION)

x2iedn.8xlarge by AWS

x2iedn.8xlarge

Search

System	Uploaded	Platform	Single-Core Score	Multi-Core Score
Amazon EC2 x2iedn.8xlarge Intel Xeon Platinum 8375C 3500 MHz (16 cores)	August 26th, 2022 cloudlookingglass	Linux	1250	17932
Amazon EC2 x2iedn.8xlarge Intel Xeon Platinum 8375C 3500 MHz (16 cores)	August 26th, 2022 cloudlookingglass	Linux	1249	18101
Amazon EC2 x2iedn.8xlarge Intel Xeon Platinum 8375C 3499 MHz (16 cores)	August 26th, 2022 cloudlookingglass	Linux	1243	17920
Amazon EC2 x2iedn.8xlarge Intel Xeon Platinum 8375C 3499 MHz (16 cores)	August 26th, 2022 cloudlookingglass	Linux	1246	18022
Amazon EC2 x2iedn.8xlarge Intel Xeon Platinum 8375C 3500 MHz (16 cores)	August 26th, 2022 cloudlookingglass	Linux	1228	17954

X2idn | X2iedn | X2iezn

Instance Size	vCPU	Memory (GiB)
x2iedn.xlarge	4	128
x2iedn.2xlarge	8	256
x2iedn.4xlarge	16	512
x2iedn.8xlarge	32	1,024
x2iedn.16xlarge	64	2,048

QEMU Standard PC (Q35 + ICH9, 2009)

Geekbench 5 Score

1497	41007
Single-Core Score	Multi-Core Score

Geekbench 5.5.1 Tryout for Linux x86 (64-bit)

Result Information

Upload Date	March 27th 2024, 3:16pm
Views	2

System Information

System Information	
Operating System	Ubuntu 22.04.4 LTS
Model	QEMU Standard PC (Q35 + ICH9, 2009)
Motherboard	N/A
CPU Information	
Name	AMD EPYC 9J14
Topology	1 Processor, 32 Cores, 64 Threads
Base Frequency	2.60 GHz
Cluster 1	0 Cores
L1 Instruction Cache	64.0 KB x 32
L1 Data Cache	64.0 KB x 32
L2 Cache	512 KB x 32
L3 Cache	2.00 MB x 8
Memory Information	
Memory	1007.48 GB

OCI with E5.Flex (32 OCPU)

OCI is 2.5x faster (with the same number of tech licenses)

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COMPARISON OF AWS WITH 64 VCPU (“SOLUTION”)

x2iedn.16xlarge by AWS

x2iedn.16xlarge | Search

System	Uploaded	Platform	Single-Core Score	Multi-Core Score
Amazon EC2 x2iedn.16xlarge Intel Xeon Platinum 8375C 2341 MHz (32 cores)	August 26th, 2022 cloudlookingglass	Linux	1243	28522
Amazon EC2 x2iedn.16xlarge Intel Xeon Platinum 8375C 2430 MHz (32 cores)	August 26th, 2022 cloudlookingglass	Linux	1251	28771
Amazon EC2 x2iedn.16xlarge Intel Xeon Platinum 8375C 2534 MHz (32 cores)	August 26th, 2022 cloudlookingglass	Linux	1249	29904
Amazon EC2 x2iedn.16xlarge Intel Xeon Platinum 8375C 2446 MHz (32 cores)	August 26th, 2022 cloudlookingglass	Linux	1242	28478
Amazon EC2 x2iedn.16xlarge Intel Xeon Platinum 8375C 2796 MHz (32 cores)	August 26th, 2022 cloudlookingglass	Linux	1258	30053

Requires 16 additional processor licenses DB EE=>
list price 760,000$

E5.Flex 32 OCPU

QEMU Standard PC (Q35 + ICH9, 2009)

Geekbench 5 Score

1497	41007
Single-Core Score	Multi-Core Score

Geekbench 5.5.1 Tryout for Linux x86 (64-bit)

Result Information

Upload Date	March 27th 2024, 3:16pm
Views	1

System Information

OCI is also 20-40% faster
(without additional DB licenses)

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BENCHMARKING STORAGE

- Benchmarked using DBMS_RESOURCE_MANAGER.CALIBRATE_IO
  - Max IOPS = 10.259
  - Max MBPS = 435

- Benchmarked using DBMS_RESOURCE_MANAGER.CALIBRATE_IO
  - max_iops = 213.391 (theoretical max. by Storage: 225K)
  - max_mbps = 2.115 (theoretical max. by Storage 4.320; by Network 2.500 MByte/S)
- This is “only” “Balanced Performance”
- https://promatis.com/de/oci-i-o-performance-with-e-business-suite-part-3-3/

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INFRASTRUCTURE COST COMPARISON

MONTHLY COSTS – ONLY PROD DATABASE

		aws	ORACLE CLOUD
32 V/OCPU with 1024 GB Memory	Flex: 1 year fixed 3 year fixed	6.816 $ **5.039 $** 2.628 $	**2.237 $** 2.237 $ 2.237 $
4.5 TB Storage	10K IOPS, 450 MBPS 210K IOPS, 2200 MBPS	**486 $** 10.493 $	**191 $** 191 $
Fastconnect Port 1GB			**158 $**
Compute + Storage		**5.525 $**	**2.586 $**
25% Support Rewards (with „yearly flex“)			**-647 $**
Total	For „1 year fixed (AWS)“	**5.525 $**	**1.939 $**

Only 1/3 of the costs with OCI
(despite twice as large instance)

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Speicher für jede EC2-Instance

Wählen Sie EBS-Volume-Speichertyp aus.

Bereitgestellte IOPS SSD (io2)

Der gewählte Volumetyp unterstützt Speichermengen von 4 GB bis 64 TB pro Volume und IOPS von 100 bis maximal 256 000 pro Volume. Nur io2 Block Express unterstützt Volumes bis zu 64 TB und 256 000 IOPS.

Speichermenge pro Volume: 4500

Einheit: GB

Bereitstellung von IOPS pro Volume (io2)

io2 unterstützt von 100 IOPS bis 64.000 IOPS pro Volume. Nur io2 Block Express unterstützt Volumes mit bis zu 64 TB und 256 000 IOPS. Verfügbar in begrenzten Regionen.

210000

Snapshot-Häufigkeit

Kein Snapshot-Speicher

▼ Berechnungen anzeigen

1 Volumes x 730 Instance-Stunden = 730,00 Instance-Stunden gesamt
730,00 Instance-Stunden / 730 Stunden in einem Monat = 1,00 Instance-Monate
4.500 GB x 1,00 Instance-Monate x 0,149 USD = 670,50 USD (EBS-Speicherkosten)
EBS-Speicherkosten: 670,50 USD
Tiered price for: 210.000 IOPS
32.000 IOPS x 0,078 USD = 2.496,00 USD
32.000 IOPS x 0,0546 USD = 1.747,20 USD
146.000 IOPS x 0,03822 USD = 5.580,12 USD
Gesamtstufenkosten: 2.496,00 USD + 1.747,20 USD + 5.580,12 USD = 9.823,32 USD (EBS-IOPS-io2-Kosten pro Instance)
9.823,32 USD x 1,00 Instance-Monate = 9.823,32 USD IOPS-io2-Gesamtkosten
EBS-IOPS-Kosten: 9.823,32 USD
EBS-Snapshot-Preis: 0 USD
670,50 USD + 9.823,32 USD = 10.493,82 USD (EBS-Gesamtkosten)
Gesamtkosten für Amazon Elastic Block Storage (EBS) (monatlich): 10,493.82 USD

ASE

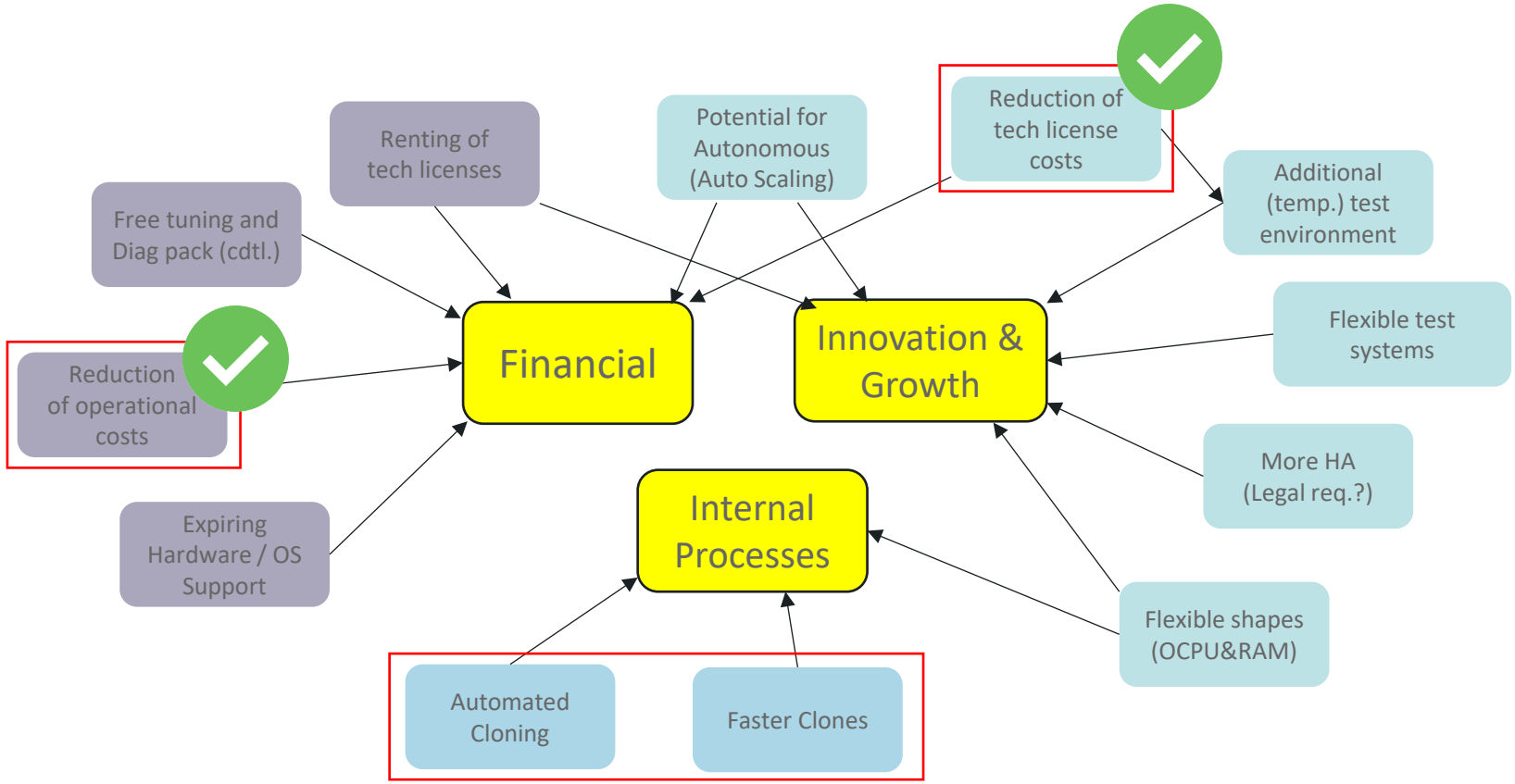
aws	ORACLE CLOUD
6.816 $	**2.237 $**
5.039 $	2.237 $
2.628 $	2.237 $
486 $	**191 $**
10.493 $	191 $
	158 $
5.525 $	**2.586 $**
	-647 $
5.525 $	**1.939 $**

Only 1/3 of the costs with OCI
(despite twice as large instance)

ADVANTAGES BEYOND COSTS

CLOUD MANAGER, LICENSES “FOR RENT“, AUTONOMOUS

TYPICAL MOTIVES FOR AN OCI MOVE



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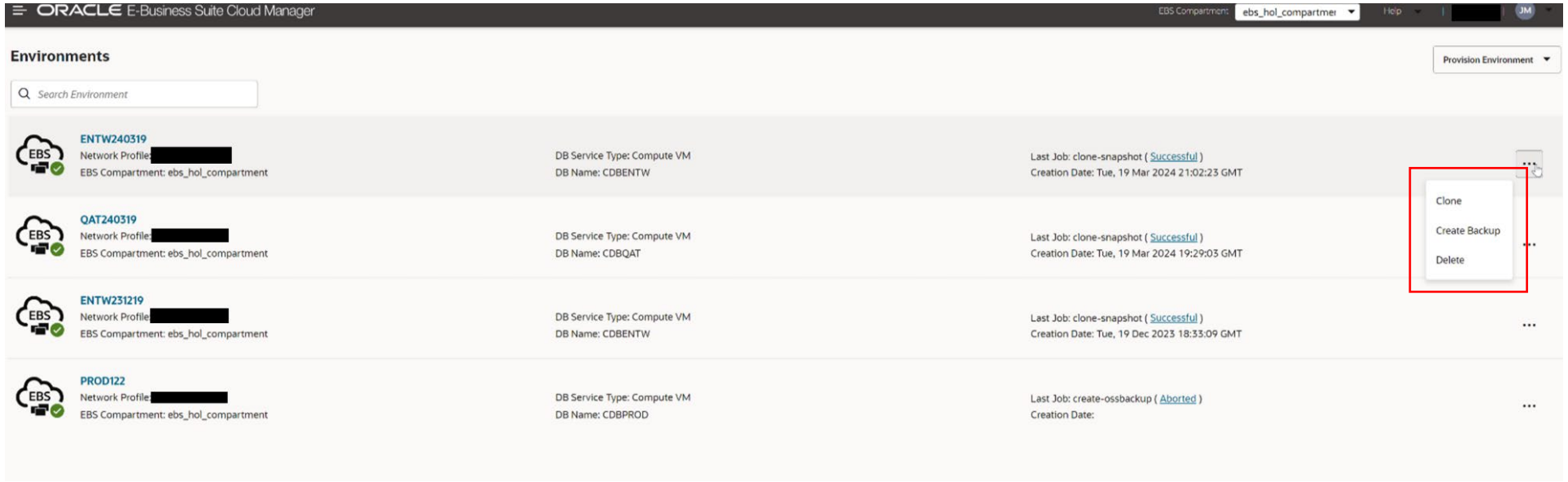
E-BUSINESS SUITE CLOUD MANAGER



Pre-Built clone, backup and restore functions

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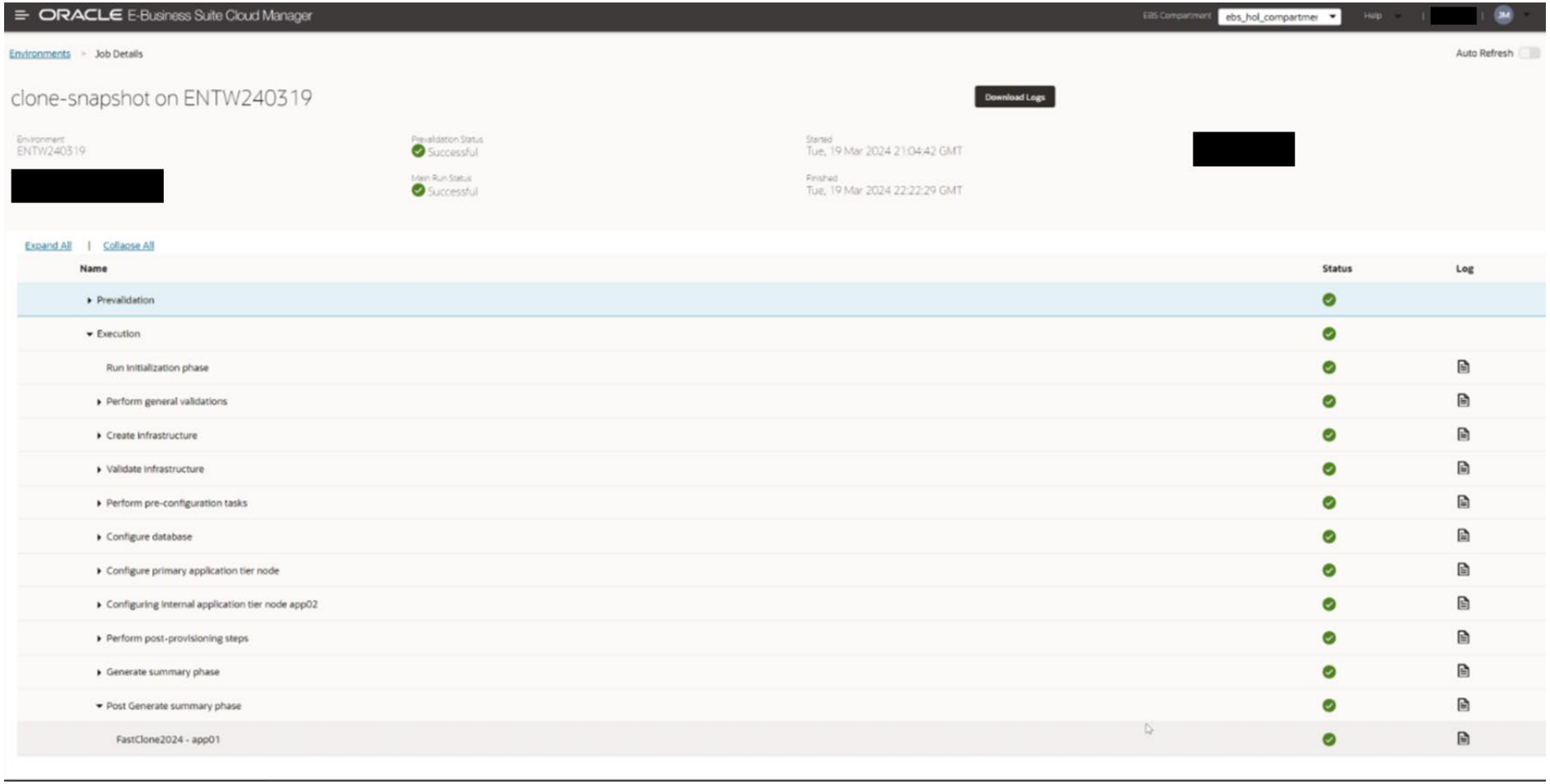
AUTOMATED CLONE



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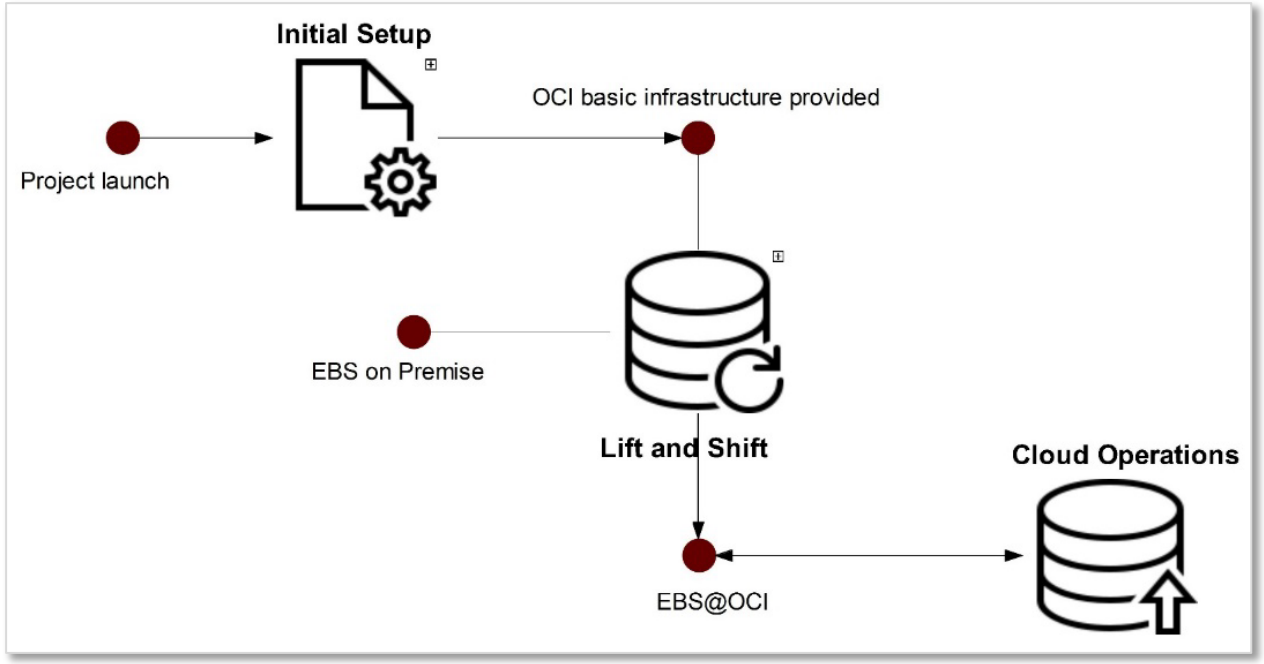
MOVE TO OCI

- Relatively easy move from AWS (or Azure or OnPrem) to OCI
- Predefined tooling as part of the E-Business Suite Cloud Manager
- Automation incl. Dataguard
  - Downtime very manageable
  - Reduced Downtime Lift and Shift
- Caution:
  - For SPARC or Windows at the “source”
    - Replatform more necessary
    - More effort
    - SPARC: Endian conversion necessary
    - Reduced Downtime: Incremental XTTS



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MULTICLOUD

MULTI CLOUD THE NEW NORMAL?

Gartner Insights Expert Guidance Tools Connect with Peers

Insights / Tech and Service Providers / Article

Why Organizations
Multicloud Strategy

May 07, 2019 Contributor: Laurence Goasduff

Most organizations choose to work with multiple cloud p
a host of different reasons.

For an enterprise using cloud services across multiple geographies, finding just or
infrastructure provider to meet its needs is a struggle. In organizations like this, th
a **multicloud strategy** is clear.

Gartner Insights Expert Guidance Tools Connect with Peers

Know the decision drivers

Multicloud computing decisions usually rest on three considerations:

1. **Sourcing:** The desire to **increase agility** and avoid or minimize vendor lock-in. The decision may be driven by a variety of factors, including availability, performance, data sovereignty, regulatory requirements and labor costs.
2. **Architecture:** Modern applications are, by design, created in a more modular style. They can span multiple cloud providers or consume services from multiple clouds.
3. **Governance:** To ensure operational control, enterprises want to unify administration and **monitoring of their IT systems.** They want to standardize policies, procedures and processes and share some tools — especially those that enable cost governance and optimization — across multiple cloud providers.

Benefits of multicloud cited by customers include better **disaster recovery** and easier migration for some data and applications.

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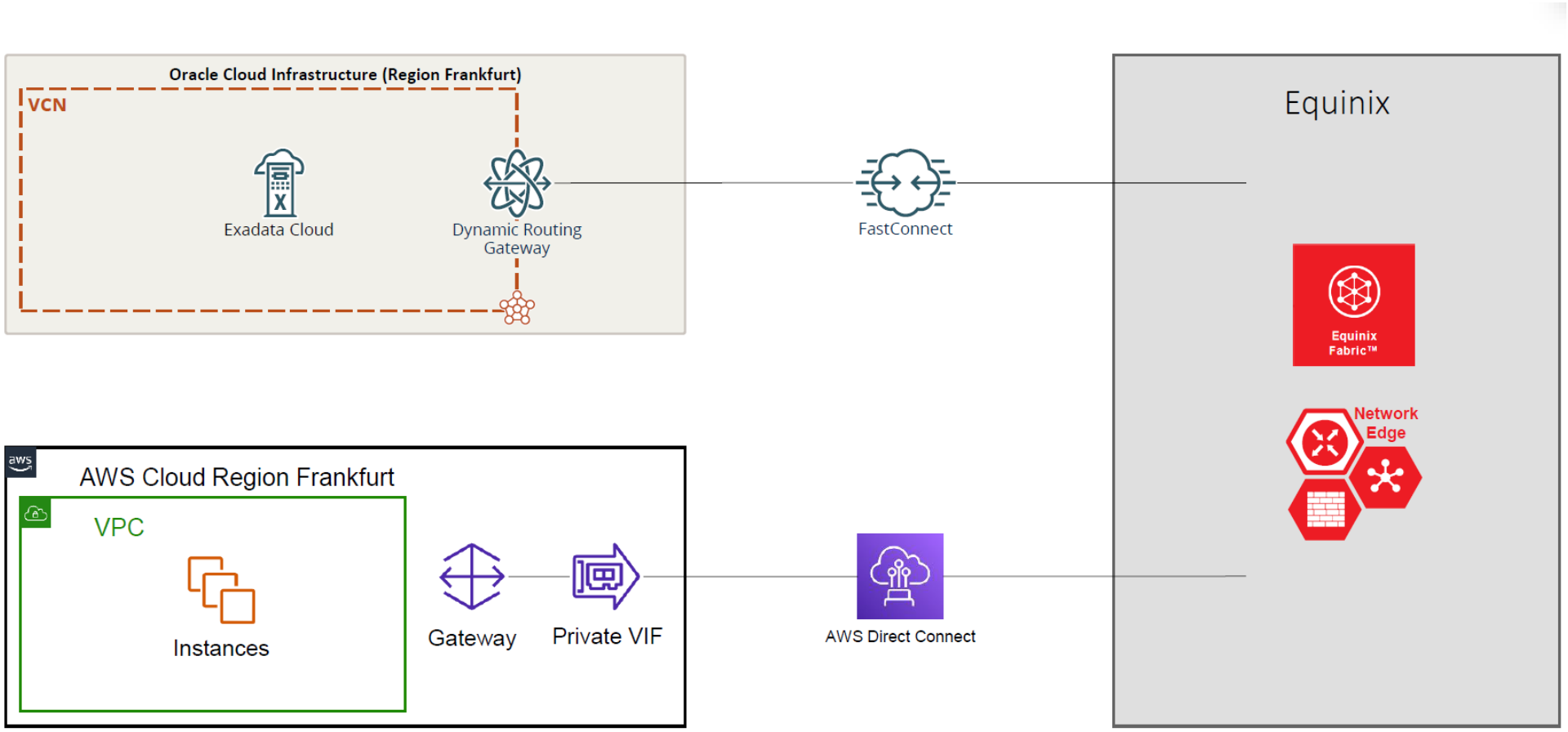
https://www.gartner.com/smarterwithgartner/why-organizations-choose-a-multicloud-strategy.html

NETWORKING – AZURE, AWS & OCI ALL IN THE SAME DATACENTER



- Latency Fastconnect: ~2 ms (chose matching AD/AZ)
- Latency IPSEC Tunnel: ~8 ms

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CONCLUSION

BREAKING NEWS

Austin, Texas and Seattle, Wash.—Sep 9, 2024

Oracle and Amazon Web Services, Inc. (AWS) today announced the launch of Oracle Database@AWS, a new offering that allows customers to access Oracle Autonomous Database on dedicated infrastructure and Oracle Exadata Database Service within AWS. Oracle Database@AWS will provide customers with a unified experience between Oracle Cloud Infrastructure (OCI) and AWS, offering simplified database administration, billing, and unified customer

- Usually does not help in the EBS context
- As of now no prefabricated Direct/Fast Connect as with Azure

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CONCLUSION

- For the same tech licenses approx. ~~double~~ 2,5 times the performance
- Costs cut ~~in half~~ to a third
- Better automation for the E-Business Suite
- Possibility to “rent” additional Oracle licenses (DB, apps server, ...) by the hour
- Further potential for tech license reduction through “flexible shapes” (a lot of memory with few CPUs)

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