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May 13, 2019 · 4 min read · Listen



100 Days of DevOps — Day 92-Choosing Right EC2 Instance Type

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Course Link: <https://www.101daysofdevops.com/courses/101-days-of-devops/>

YouTube link: <https://www.youtube.com/user/laprashant/videos>

Welcome to Day 92 of 100 Days of DevOps, Focus for today is Choosing Right EC2 Instance Type

What is Amazon Elastic Compute Cloud(EC2)?

It's a Virtual Servers in the cloud

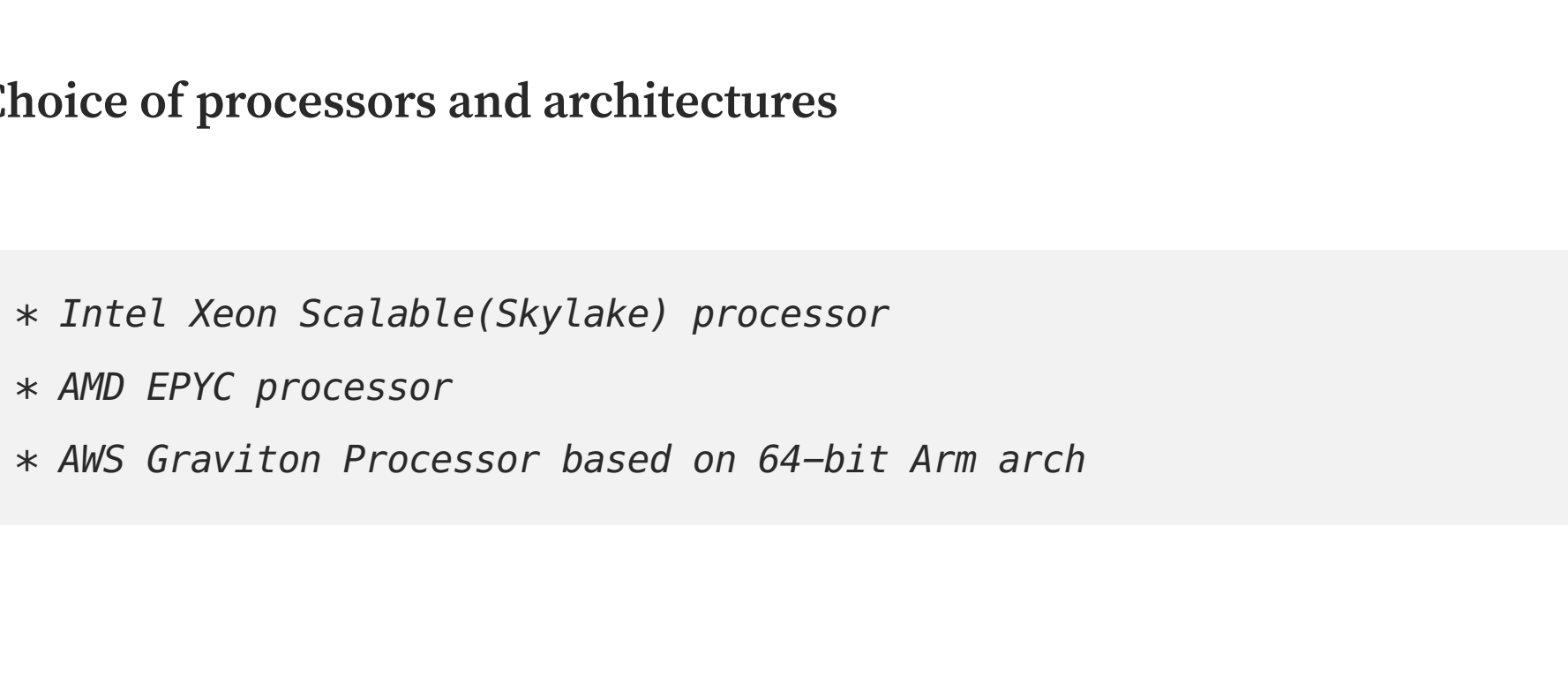
Advantage

- Scale up or down as quickly as needed
- Pay as you go, model

Instance Type: AWS Provide different instance based on workload as some instance need more memory, some needs more CPU and some needs more I/O.

Continued rapid pace of innovation

Instance growth



M5d.xlarge(API Name of EC2 Instance)

- * Intel Xeon Scalable(Skylake) processor
- * AMD EPYC processor
- * AWS Graviton Processor based on 64-bit Arm arch

General Purpose Instance Workload

- Web/App servers
- Enterprise apps
- Gaming servers
- Caching fleets
- Analytics applications
- Dev/test environments

M5: General purpose instances

	General purpose	m5.xlarge	2	8	EBS only	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	m5.xlarge	4	16	EBS only	Yes	Up to 10 EBS gp3	Yes
	General purpose	m5.xlarge	8	32	EBS only	Yes	Up to 10 EBS gp3	Yes
	General purpose	m5.xlarge	16	64	EBS only	Yes	Up to 10 EBS gp3	Yes
	General purpose	m5.xlarge	48	192	EBS only	Yes	10 EBS gp3	Yes
	General purpose	m5.xlarge	96	384	EBS only	Yes	20 EBS gp3	Yes

- Balance of compute, memory and networking resources
- Powered by 2.5GHz Intel Xeon Scalable Processors(Skylake)
- As shown in the figure above, m5.24x large has 96vCPU and 384GiB of memory
- 4:1 GiB to vCPU

M5a: Comes with AMD processor for 10% lower cost

	General purpose	m5a.xlarge	2	8	EBS only	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	m5a.xlarge	4	16	EBS only	Yes	Up to 10 EBS gp3	Yes
	General purpose	m5a.xlarge	8	32	EBS only	Yes	Up to 10 EBS gp3	Yes
	General purpose	m5a.xlarge	16	64	EBS only	Yes	Up to 10 EBS gp3	Yes
	General purpose	m5a.xlarge	48	192	EBS only	Yes	10 EBS gp3	Yes
	General purpose	m5a.xlarge	96	384	EBS only	Yes	20 EBS gp3	Yes

M5d: Comes with high-performance local NVMe SSD storage

	General purpose	m5d.xlarge	2	8	1 x 175 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	m5d.xlarge	4	16	1 x 175 (SSD)	Yes	Up to 10 EBS gp3	Yes
	General purpose	m5d.xlarge	8	32	1 x 350 (SSD)	Yes	Up to 10 EBS gp3	Yes
	General purpose	m5d.xlarge	16	64	2 x 350 (SSD)	Yes	Up to 10 EBS gp3	Yes
	General purpose	m5d.xlarge	48	192	2 x 700 (SSD)	Yes	10 EBS gp3	Yes
	General purpose	m5d.xlarge	96	384	4 x 700 (SSD)	Yes	20 EBS gp3	Yes

Memory Optimized Instances Workloads

- In-memory caches
- High-Performance databases
- Big data analytics

	Memory optimized	r5.xlarge	2	16	EBS only	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	r5.xlarge	4	32	EBS only	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	r5.xlarge	8	64	EBS only	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	r5.xlarge	16	128	EBS only	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	r5.xlarge	48	384	EBS only	Yes	10 EBS gp3	Yes
	Memory optimized	r5.xlarge	96	768	EBS only	Yes	20 EBS gp3	Yes

R5: Memory Optimized Instances

- Memory-optimized instances with 8:1 GiB to vCPU

Similar to M5, R5 comes with R5d(local NVMe SSD storage) and R5a(AMD processor)

X1 and X1e: Large Scale Memory Optimized Instances

	Memory optimized	x1.xlarge	64	512	1 x 175 (SSD)	Yes	10 EBS gp3	Yes
	Memory optimized	x1.xlarge	128	1024	1 x 350 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	x1.xlarge	256	2048	1 x 700 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	x1.xlarge	512	4096	1 x 1400 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	x1.xlarge	1024	8192	2 x 1400 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Memory optimized	x1.xlarge	2048	16384	4 x 1400 (SSD)	Yes	20 EBS gp3	Yes

- For large in-memory workloads
- X1(16:1 GiB to vCPU ratio) and X1e(32:1 GiB to vCPU ratio)
- Suitable for in-memory database eg: SAP HANA, big data processing engines(Apache Spark) and DB Workloads(Oracle)

I/O optimized instances workloads

- High-Performance Database
- Real-Time Analytics
- Transactional Workloads
- No SQL database

I3: I/O Optimized Instances

- Offers very high Random I/O(up to 3.3 million IOPS) and disk throughput(up to 16GB/s)

	Storage optimized	i3.xlarge	2	16	1 x 175 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Storage optimized	i3.xlarge	4	32	1 x 350 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Storage optimized	i3.xlarge	8	64	1 x 700 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Storage optimized	i3.xlarge	16	128	2 x 700 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Storage optimized	i3.xlarge	32	256	4 x 700 (SSD)	Yes	10 EBS gp3	Yes
	Storage optimized	i3.xlarge	64	512	8 x 700 (SSD)	Yes	20 EBS gp3	Yes

Compute-optimized instances workloads

- Batch processing
- Distributed analytics
- High-perf computing(HPC)
- Ad serving
- Multiplayer Gaming
- Video encoding

C5: Compute Optimized Instances

- Custom 3.0GHz Intel Xeon Scalable Processor(Skylake)
- 72vCPU and 144GiB of memory (2:1 Memory:vCPU ratio)
- 25Gbps network bandwidth

	Compute optimized	c5.xlarge	2	4	EBS only	Yes	Up to 10 EBS gp3	Yes
	Compute optimized	c5.xlarge	4	8	EBS only	Yes	Up to 10 EBS gp3	Yes
	Compute optimized	c5.xlarge	8	16	EBS only	Yes	Up to 10 EBS gp3	Yes
	Compute optimized	c5.xlarge	16	32	EBS only	Yes	Up to 10 EBS gp3	Yes
	Compute optimized	c5.xlarge	32	64	EBS only	Yes	10 EBS gp3	Yes
	Compute optimized	c5.xlarge	72	144	EBS only	Yes	20 EBS gp3	Yes

C5d with local NVMe-based SSD storage

	Compute optimized	c5d.xlarge	2	4	1 x 175 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Compute optimized	c5d.xlarge	4	8	1 x 350 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Compute optimized	c5d.xlarge	8	16	1 x 700 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Compute optimized	c5d.xlarge	16	32	1 x 1400 (SSD)	Yes	Up to 10 EBS gp3	Yes
	Compute optimized	c5d.xlarge	32	64	1 x 2800 (SSD)	Yes	10 EBS gp3	Yes
	Compute optimized	c5d.xlarge	72	144	2 x 2800 (SSD)	Yes	20 EBS gp3	Yes

References

AWS Calculator

Amazon Web Services Simple Monthly Calculator

The AWS Simple Monthly Calculator helps customers and prospects estimate their monthly AWS bill more efficiently. Using...

calculator.s3.amazonaws.com

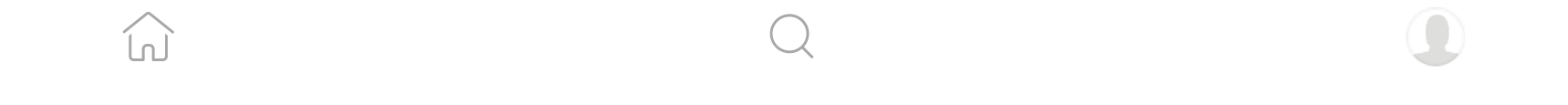
AWS Instance Price Comparision

Amazon EC2 Instance Comparison

Edit description

www.ec2instances.info

Just to summarize, in choosing the right instance type. In case if you are not sure about workload start with General workload.



Looking forward from you guys to join this journey and spend a minimum an hour every day for the next 100 days on DevOps work and post your progress using any of the below medium.

- Twitter: [@100daysofdevops](https://twitter.com/100daysofdevops) OR [@lakhera2015](https://twitter.com/lakhera2015)
- Facebook: <https://www.facebook.com/groups/795382630808645/>
- Medium: <https://medium.com/@devopslearning>
- Slack: <https://devops-myworld.slack.com/messages/CF41EFG49/>
- GitHub Link:<https://github.com/100daysofdevops>

Reference

100 Days of DevOps — Day 0

D-day is just one day away and finally, this is a continuation of the post(I posted a month earlier)

medium.com

100 Days of DevOps — Day 91-How to check if the file exists (Bash/Python)

Welcome to Day 91 of 100 Days of DevOps, Focus for today is How to check if the file exists (Bash/Python)

medium.com

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100 Days of DevOps — Day 91-How to check if the file exists (Bash/Python)

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100 Days of DevOps — Day 90- Try and Except Statement Python

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100 Days of DevOps — Day 89-Python Files I/O

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100 Days of DevOps — Day 88-Lists in Python

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