

CASE STUDY

Building more efficient and
dense infrastructure to support
virtualisation using
AMD EPYC PROCESSORS

AMD
EPYC



BUSINESS CHALLENGE

“With the increasing dependency of almost every small to large scale business on the internet, the demand for servers has also been mushrooming.”



However, extending the number of physical servers for the enterprise can be onerous, both spatially and financially. If a business is unable to scale its resources, it may put a strain on its existing resources, thereby lowering the overall performance. Additionally, using the existing resources for increased number of tasks can lead to burnouts as they consume more power to yield extra output.

This suggests that scaling up a business using an increasing number of physical servers may not be the most sustainable and feasible option. The rapid rate at which energy is being consumed by electrical devices is becoming a huge cause of concern for the environment which makes it vital to adopt energy efficient servers.

For this purpose, cloud service providers use Kernel-based Virtual Machines or KVMs as a tool for the virtualization of the servers to provide additional Virtual Machines to their customers to support their enhancing business processes. To support the business operations of companies within Europe, cloud service providers aim to provide them with virtual servers which help in maximum utilization of resources, enhanced cost savings, and security.

Yet, this may not seem to be the best available option for some of the cloud service providers who do not have access to large capital.

Without a huge budget, generally CSPs are unable to support a big infrastructure for themselves making it difficult for them to gain new customers, let alone maintain them. The main challenge then becomes on how a business by leveraging its existing resources in the most optimal and sustainable manner.

A SOLUTION

“To support the rapidly increasing demands of organizations, Circle B provides Bare Metal as a Service (BMaaS) to the cloud service providers looking to provide services within Europe.”



To maximize the utilization of the physical servers and reduce their associated power consumption, the CSPs make use of Bare Metal as a service which helps in providing a dedicated Virtual server to its customers (the cloud service providers).

Using this virtual machine, the CSPs can further offer Virtual Private Servers (VPS) to the end users or the enterprises. This has been made possible as Circle B is based on Open Compute Project technology which allows the cloud service providers to rent only the required hardware by the rack to suit their business size and need.

The company allows its customers to select the hardware according to their specifications.

The bare metal servers provided by Circle B Eclipse are built on the AMD EPYC 7003 CPU family, which offers up to 64 cores making virtualization an easy process.

This way, a greater number of CSPs can offer an increased number of VPS to their customers.

AMD IS THE WAY FORWARD

AMD 7713P Processor

Cores	64
Threads	128
Base Clock	2 GHz
Max Boost Clock	Up to 6.675 GHz
Memory Type	8 Channel DDR4

“As AMD processors have a revolutionary architecture, they are designed to support significant numbers of virtual machines given the high core count, impressive performance, and support for 8 memory channels per CPU”

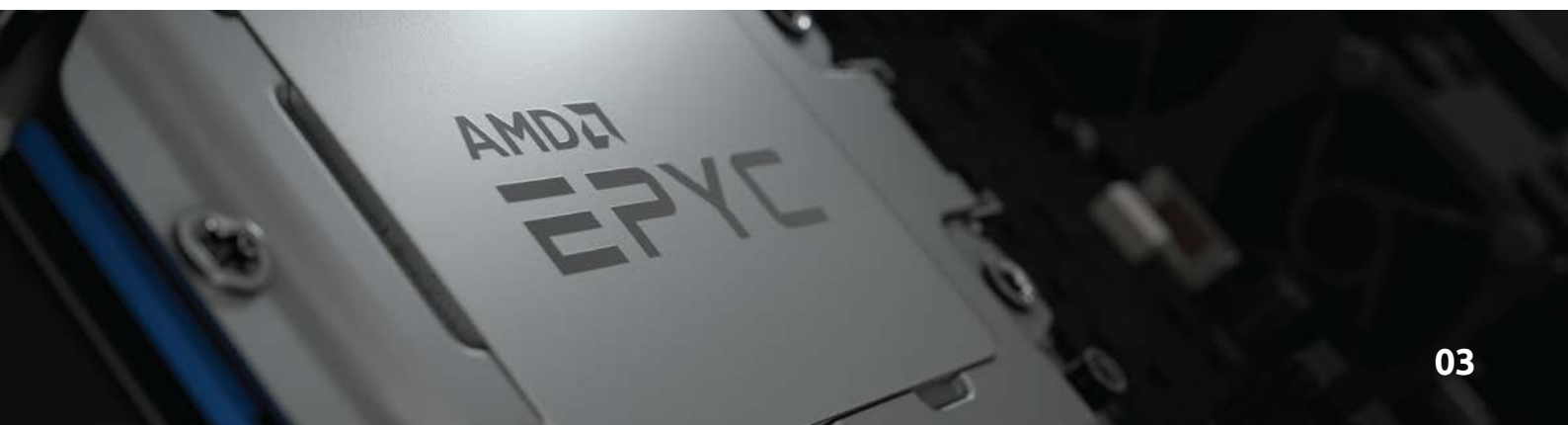
The processor is built using the AMD-V or AMD Virtualization technology in which the on-chip features are integrated on it, enabling it to be making efficient utilization of virtualization resources and enhancing the performance.

The dense infrastructure comprising of single socket servers containing 64 core CPUs provides a virtualized environment that reduces the total operational expense, server acquisition costs, data center floor space, and ultimately reduced energy consumption.

As the AMD CPU is a single socket server, it has a greater number of cores when compared to a dual socket system.

With the availability of high number of cores on the same server attached to a single socket, the consumption of power is also reduced.

Clearly, AMD provides as a strong foundation for virtualization of the cores and providing a sustainable alternative to scaling a business.



ADVANTAGES

“Various cloud service providers both within Europe and outside have augmented their business by extending their services to various enterprises in the region.”



This has been possible as they can now offer Virtual Private Servers to their end users, acquiring server resources from Circle B as an operating expenditure (OPEX) rather than CAPEX. This matches the same model that CSPs use to further offer services to their end user customers.

In other words, Circle B enables service providers to lease the hardware according to their requirements which helps them in reducing the strain on their cash flows. Unlike the contractual services where the CSPs pay for server infrastructure upfront, Circle B Eclipse's rental services prevent them from making big investments into building a huge server infrastructure.

The main benefit of leasing OCP Bare-Metal servers based on AMD architecture is the scalability of the platform as well as the cost benefits associated with a more energy efficient power usage. The leased Bare Metal server built with the AMD EPYC 7713P processor, with 64 cores and 128 threads allows the users access to increased number of cores through the virtualization process which helps in downsizing the users' actual physical resources.

Using IaaS from Circle B Eclipse promotes long term energy efficiencies and brings down the total cost of ownership for the service providers as they lease out the servers as and when needed.

Being a European organization, Circle B, a company that provides wholesale OCP hardware infrastructure, enjoys a strong advantage in terms of its server infrastructure as it complies with the stringent European privacy regulations (GDPR) which addresses where data should reside.

The company's infrastructure is based out of Amsterdam, Europe, which also has a strong Internet Exchange, allowing fast fiber connectivity within Europe, as well as to the United States. These benefits are gained at the merit of the core component of the servers, that is, the AMD CPUs that render high performance and smooth virtualization for the businesses.

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