# **Containerization of Cloud Computing**

**Abstract :**

### **Literature review :**

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| Author Name | Year of Publication | Problem (identified) | Proposed scheme | Solution | Open Issues |
| Claus Pahl,  Antonio Brogi | 2017 | Containers as a lightweight technology to virtualise applications have recently been successful, particularly to manage applications in the cloud. Often, the management of clusters of containers becomes essential and the orchestration of the construction and deployment becomes a central problem. | They aim to identify, taxonomically classify and systematically compare the existing research body on containers and their orchestration and specifically the application of this technology in the cloud | They classified and compared the selected studies based on a characterisation framework. This results in a discussion of agreed and emerging concerns in the container orchestration space, positioning it within the cloud context, but also moving it closer to current concerns in cloud platforms, microservices and continuous development. | Containers  can run on single-board devices and can be deployed on  clusters of these devices, making them suitable for edge and  IoT computing |
| Ahmed Banafa | 2015 | Virtualization ( software that separates physical infrastructures to create various dedicated resources) has swept through the data center in recent years, enabling IT transformation and serving as the secret sauce behind cloud computing. But what is next? | Cloud computing world is founded on hypervisors (A hypervisor, also called a virtual machine manager, is a program that allows multiple operating systems to share a single hardware processor) | Containers can deliver more services using the same hardware you’re now using for virtual machines” and that spells more profits for both data centers and cloud services. | As a better understanding of attributes of containerization emerges, it will be the tools to create and manage them that will take center stage. |
| Emiliano Casalicchio, Stefano Iannucci | 2020 | Container technologies are evolving at the speed of light and there are many open research challenges.From our study, it emerges that performance, orchestration and cyber-security are the main issues. | The state-of-the-art is more mature in the area of performance evaluation and run-time adaptation rather than in security solutions. | Cyber-security is about container isolation, confidentiality of containerized data, and network security. | I/O throughput optimization, performance prediction, multi-layer monitoring, isolation and data confidentiality (at rest and in transit). |
| C Pahl | 2015 | This article discusses the requirements that arise from having to facilitate applications through distributed multicloud platforms. | Containerization is widely discussed as a lightweight virtualization solution. Apart from exhibiting benefits over traditional virtual machines in the cloud, containers are especially relevant for platform-as-a-service (PaaS) clouds to manage and orchestrate applications through containers as an application packaging mechanism | Analysis of the requirements that arise from having to facilitate applications through multicloud platforms. | Container technology has a huge potential to substantially advance PaaS technology towards heterogeneous clouds through lightweightness and interoperability. |