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Boxed: Docker-based service deployment in private and public clouds

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Docker containers are rapidly becoming the preferred way to distribute, deploy, and run services by developers and system administrators. Their popularity is rapidly increasing as they constitute an appealing alternative to virtual machines: Containers require a negligible amount of time to set-up, provide performance comparable to the one of the host, and are easy to manage, replicate, and scale-out. Also, Docker containers allow to ship software and deterministically run it by self-containing all the required dependencies and decoupling the execution environment from the host.

In this work, we present Boxed: A container-based version of EOS (the CERN disk/cloud storage for science), CERNBox (Cloud storage & synchronization service), and SWAN (Service for Web-based ANalysis). Boxed is available in two flavors: (i) A one-click setup for personal use where all services run on a single host; and (ii) a production-oriented deployment with the ability to scale out according to the storage and computing needs.

Boxed demonstrates how CERN core services can be deployed in diverse scenarios, ranging from desktop and laptop computers to private and public clouds. In all contexts, Boxed delivers the same fully-fledged services used daily by CERN scientists in demanding scenarios. All in all, Boxed contributes to the adoption of CERN cloud technologies by helping interested partners in deploying CERN services on their cloud infrastructure.

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