



DREDBOX

disaggregated Recursive Datacenter in a Box

<http://www.dredbox.eu>

1 January 2016 – 31 December 2018

OVERALL OBJECTIVES

Cloud datacenters comprise individual server units with processing, memory, accelerators and storage resources. This arrangement incurs significant waste of resources and power, due to the inherent inability to closely match user IT requirements to the resources available within a single or set of servers.

dReDBox aspires to shift from today's server-as-the-unit model to a pooled-computing model, enabling arbitrary sizings of disaggregated IT resources, deploying them where and when required, perfectly matching cloud user demands. dReDBox plans to deliver a vertically integrated datacenter-in-a-box prototype to showcase the superiority of disaggregation in terms of scalability, efficiency, reliability and energy efficiency.

MAIN RESULTS

Crossing its fifth month (start date: 1 January 2016), dReDBox is progressing smoothly towards laying out a first version of its vertical architectural blueprint, including specification of server tray and components, intra-tray and rack high performance interconnects and protocols, operating system and hypervisor amendments/extensions, platform management/orchestration tools, and interfaces among the various layers.

In parallel, the project has completed a first round on analyzing the three target use-cases (NFV, video analytics, cloud analytics) and mapping their key performance indicators and value adds to dReDBox platform requirements. The project is also progressing in building targeted, custom emulation and simulation platforms for first principles design space exploration; results of the latter are planned to feed into the platform prototyping phase.

POTENTIAL IMPACT

dReDBox aspires to address the challenges stemming from the shifts happening in how and where computing is consumed today, principally by materializing the vision of disaggregation. This can have a tremendous impact in increasing IT utilization of the 3rd Platform, making cloud/edge computing more accessible through better economies of scale and tighter fitness to application and user needs, while guaranteeing sustainability in terms of energy efficiency roadmaps. On the technical innovation side, dReDBox aspires to spearhead the compartmentalization of IT resources at the component level and through that to break interdependencies and lock-in effects in the innovation cycles and usage lifetimes of individual IT components.

COORDINATOR + CONTACT INFORMATION

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