Published on *BSC-CNS* (https://www.bsc.es)

SORS: The route towards the ultimate network topology

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Abstract: In this talk I will try to summarize our quest for a realizable network topology that optimizes performance, cost, power consumption and partitionability.

We have explored Fat Trees, Dragonflies, variations of dragonflies, Orthogonal Fat Trees, multi-layer HyperX's, Multi-layer Full Meshes and close-to Moore's (graph) bound topologies in an attempt to decide, with the best routing we could find, for a reasonable task-placement, and for a collection of workloads (synthetic and real-world), which topology to choose.

Whereas a final decision for a single 'ultimate' topology remains elusive, the route towards it took us to unexpected paths that lead to the discovery of new insights in topology design and properties and in design of routing schemes.

Biography: German Rodriguez obtained this Ph.D. at the Technical University of Catalonia in 2011 and has been working in IBM Zurich Research since 2010 in the area of networking. His main interests are the exploration of topologies and routings that are cost-efficient for HPC workloads. His work in the IBM has been to attempt to bridge the design gap between non-HPC network products and HPC.

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