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HPC Cluster. The Modern Paradigm.

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The modern science has a class of problems related to theoretical
research, computer simulation and big data analysis.
The classical method of solution is based on usage of serial
(single threaded) algorithms having a long run time.
The modern method of solution offers high-performance parallel
(many threaded) algorithms.
They reduce the run time greatly but have specific requirements for
computer systems.

The article is described the architecture and system software
of a high-performance cluster by the example of heterogeneous cluster
HybriLIT.
The modern paradigm of high performance cluster was formulated.
The construction principles of such computer systems were given.

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