# The Views for a Supercomputer State Visualization

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Supercomputer operation produces a very large amount of meaningful data, and its analysis may advance the efficiency of computations [1]. However there is a problem to visualize this data: it has no natural view and thus new synthetic views need to be created. In this paper, we introduce 4 such views found by our team as informative. The views are dedicated primarily to showing users activity.
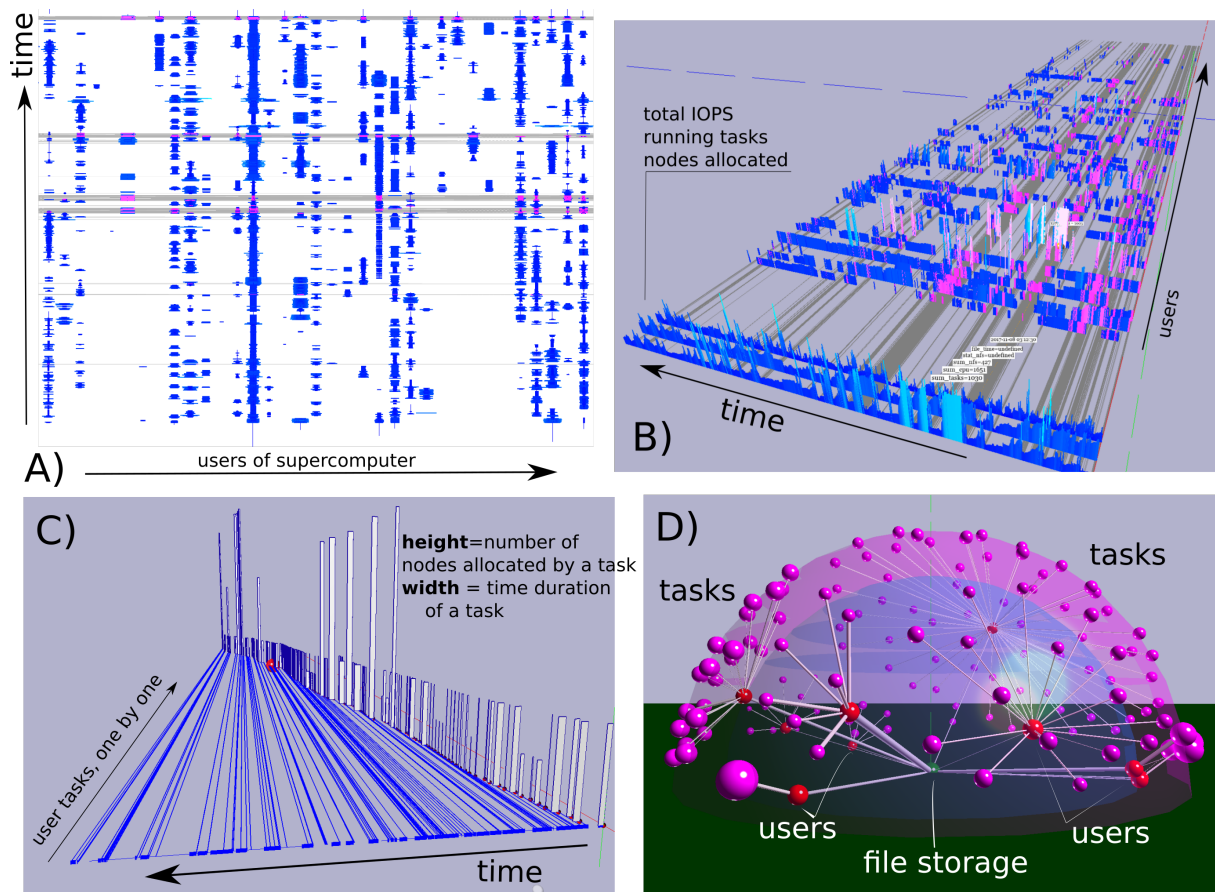
Fig. 1: A) Supercomputer's per-user storage IOPS during some period, represented by vertical columns. Horizontal lines show time moments of interest. Pink color visually emphasizes users whose IOPS were valuable at those moments. B) The same view in 3D plus summarized data on the near plane. C) Tasks of one user represented with white bars, where each bar height represents a number of compute nodes used by a task. D) Semi-sphere with several layers: storage in the middle, users in the first sphere, and their tasks in the outer sphere. The width of connections determines the storage IOPS ratio at a selected time moment. A researcher may visually locate users and tasks with highest IOPS.

References

1. Nikitenko D., Zhumatiy S., Shvets P. Making large-scale systems observable – another inescapable step towards exascale // Supercomputing Frontiers and Innovations, 2016. Vol. 3, No. 2. P. 72–79. DOI: 10.14529/jsfi160205.