



Figure 10. Response time of PART algorithm compared to SW.

The experiments were performed with the same 4 relations of test sets 1–3, but we varied the number of total sites available from 4 to 7. Thus, with 4 sites, PART does not perform any partitioning. The results of these experiments are summarized in figure 10. In comparison with SW, we achieved the following response time improvements: 18–33% for 4 sites, 15–42% for 5 sites, 19–52% for 6 sites, and 24–57% for 7 sites. Notice that increasing the number of sites does not guarantee a lower response time for the SW method for certain join selectivity values. The improvement of response time in PART versus PIPE\_CHQ, i.e., the gains obtained by additional sites, were as follows: 3–10% for 5 sites, 13–24% for 6 sites, and 19–37% for 7 sites. It is clear that the speed-up in the response time of PART is not optimal with respect with the number of processors, but the performance of PART is more stable than that of SW.

### 5.3. Disk-based systems

In order to assess the effectiveness of our algorithm for disk-based systems where graph partitioning needs to be performed, we repeated the experiments based on test sets 1–3

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