

# Distributed Calendar

CS271 – Fall 2008  
Introduction to Distributed Systems  
Workload Specification for Project

## Description of Workload

Assuming a day in the calendar with no prior entries in it, insert the following events in the calendars of the nodes in the system. Example, Insert on  $Node_1$ , Meeting involving  $User_1$  and  $User_2$ , Monday 9 – 10 am, means you are inserting in the calendar of  $User_1$  at  $Node_1$  a meeting with  $User_2$  at the specified time. Since we are only looking at a specific day in the calendar – for groups that will implement only a day-long calendar, Monday is redundant information. For groups that will implement a realistic calendar allowing multiple days, they will insert the events on Monday. Insert the events in the order in which they have been specified.

1. Insert on  $Node_1$ , Meeting involving  $User_1$ , Monday 9 – 10 am.
2. Insert on  $Node_2$ , Meeting involving  $User_2$ , Monday 10:15 – 10:30 am.
3. Insert on  $Node_3$ , Meeting involving  $User_3$ , Monday 11 – 11:30 am.
4. Insert on  $Node_4$ , Meeting involving  $User_4$ , Monday 9 – 9:30 am.
5. Insert on  $Node_5$ , Meeting involving  $User_5$ , Monday 11:30 am – 12:30 pm.
6. Insert on  $Node_5$ , Meeting involving  $User_5$ , Monday 3:30 – 4:30 pm.
7. Insert on  $Node_4$ , Meeting involving  $User_4$ , Monday 11 – 11:30 am.
8. Insert on  $Node_4$ , Meeting involving  $User_4$ , Monday 2 – 4 pm.
9. Insert on  $Node_4$ , Meeting involving  $User_4$ , Monday 4:30 – 5 pm.
10. Insert on  $Node_2$ , Meeting involving  $User_2$ , Monday 11 am – 1 pm.
11. Insert on  $Node_2$ , Meeting involving  $User_2$ , Monday 1:30 – 2:30 pm.
12. Insert on  $Node_1$ , Meeting involving  $User_1$ , Monday 11 – 11:30 am.
13. Insert on  $Node_3$ , Meeting involving  $User_3$ , Monday 9 – 9:30 am.
14. Insert on  $Node_1$ , Meeting involving  $User_1$ , Monday 2:30 – 3:30 pm.
15. Insert on  $Node_3$ , Meeting involving  $User_3$ , Monday 12:15 – 12:30 pm.
16. Insert on  $Node_3$ , Meeting involving  $User_3$ , Monday 3 – 3:30 pm.
17. Insert on  $Node_5$ , Meeting involving  $User_5$ , Monday 8:30 – 10:30 am.
18. Insert on  $Node_1$ , Meeting involving  $User_1$  and  $User_2$ , Monday 7:30 – 8:30 am.
19. Insert on  $Node_2$ , Meeting involving  $User_2$  and  $User_3$ , Monday 3:45 – 4:30 pm.
20. Insert on  $Node_1$ , Meeting involving  $User_1$  and  $User_3$ , Monday 12:00 noon – 12:30 pm.

21. Insert on  $Node_5$ , Meeting involving  $User_5$  and  $User_1$ , Monday 2:15 – 3:00 pm.
22. Insert on  $Node_5$ , Meeting involving  $User_5$  and  $User_3$ , Monday 12:45 – 1:30 pm.
23. Insert on  $Node_4$ , Meeting involving  $User_4$  and  $User_1$ , Monday 12:15 – 1:30 pm.
24. Insert on  $Node_4$ , Meeting involving  $User_4$  and  $User_2$ , Monday 10 – 11 am.
25. Insert on  $Node_1$ , Meeting involving  $User_1$ ,  $User_3$ , and  $User_4$ , Monday 5:15 – 6:30 pm.
26. Insert on  $Node_2$ , Meeting involving  $User_2$  and  $User_5$ , Monday 5 – 6 pm.
27. Delete on  $Node_5$ , Meeting involving  $User_5$ , Monday 8:30 – 10:30 am.
28. Modify on  $Node_3$ , Meeting involving  $User_3$ , from Monday 9 – 9:30 am to Monday 9:30 – 10 am.
29. Delete on  $Node_1$ , Meeting involving  $User_1$ , Monday 9 – 10 am.
30. Delete on  $Node_2$ , Meeting involving  $User_2$  and  $User_1$ , Monday 7:30 – 8:30 am.
31. Insert on  $Node_1$ , Meeting involving  $User_1$ , Monday 4 – 4:30 pm.
32. Delete on  $Node_2$ , Meeting involving  $User_2$  and  $User_3$ , Monday 3:45 – 4:30 pm.
33. Insert on  $Node_2$ , Meeting involving  $User_1$  and  $User_2$ , Monday 3:45 – 4:30 pm.
34. Delete on  $Node_5$ , Meeting involving  $User_5$ , Monday 3:30 – 4:30 pm.
35. Insert on  $Node_5$ , Meeting involving  $User_5$  and  $User_2$ , Monday 3:30 – 4:30 pm.

## Bandwidth Report

You should report the per node bandwidth consumed as a result of the above workload. Recall that according to the Wu and Bernstein paper, messages are exchanged between nodes only when required by the application. Your bandwidth estimate should include the number of messages sent from a node, and the size of each message particularly specifying the number of log-entries shipped. Also note that every message exchanged should have the truncated log and the timetable. Report the bandwidth (number of messages and size of messages) of each node after events 10, 20, 30, and 35. Please note that these values should be obtained experimentally, and since there are no node failures in this workload, your bandwidth estimation should be repeatable during the demo as well.