

# 1 Plotting all figures

## 1.1

Listing 1. Cluster and Node Placement Times

|             | cluster-placement-time | node-placement-time |
|-------------|------------------------|---------------------|
| light-cpu   | 0.00                   | 13.00               |
| medium-cpu  | 0.00                   | 5.00                |
| large-cpu   | 0.00                   | 2.00                |
| mixture-cpu | 0.00                   | 7.00                |

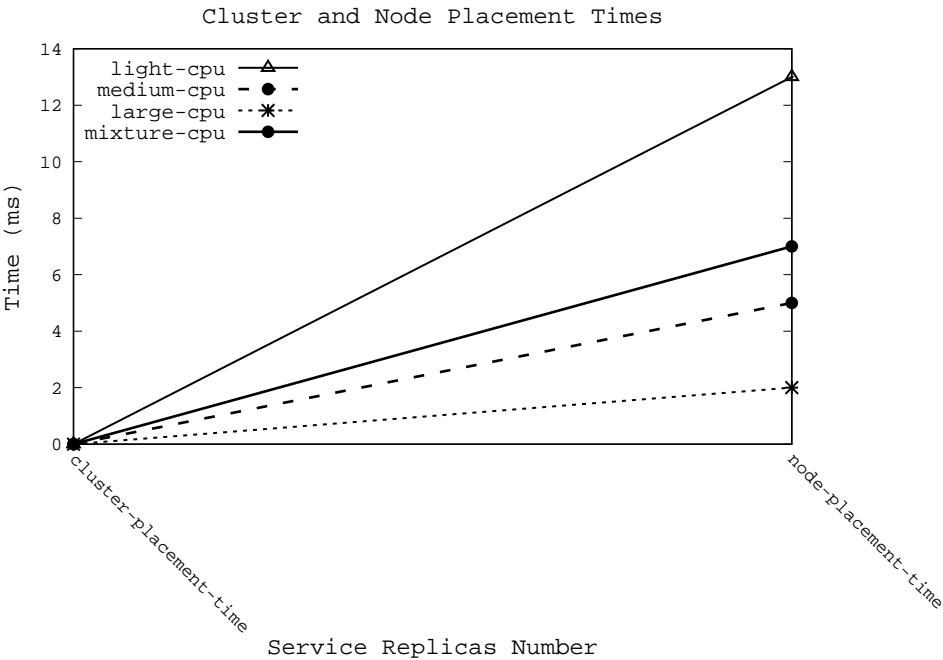


Fig. 1. Cluster and Node Placement Times

## 1.2

Listing 2. Cluster CPU Utilization

|             | cluster-1 | cluster-2 | cluster-3 |
|-------------|-----------|-----------|-----------|
| light-cpu   | 100.00    | 0.00      | 30.00     |
| medium-cpu  | 100.00    | 33.00     | 100.00    |
| large-cpu   | 100.00    | 33.00     | 100.00    |
| mixture-cpu | 81.00     | 37.00     | 100.00    |

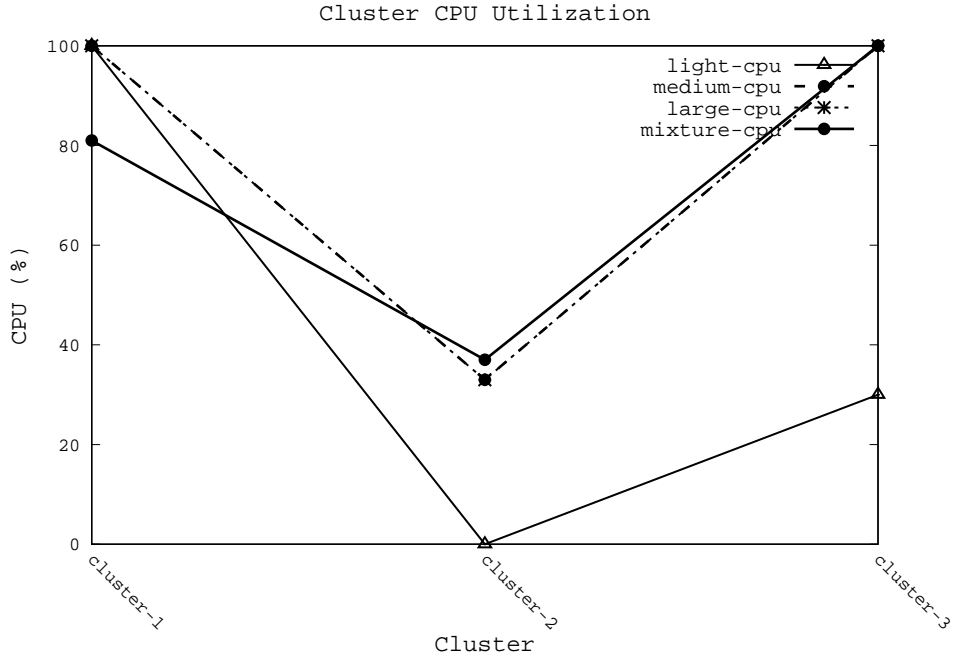


Fig. 2. Cluster CPU Utilization

1.3

Listing 3. Cluster Memory Utilization

| Cluster Memory Utilization (%) | cluster-1 | cluster-2 | cluster-3 |
|--------------------------------|-----------|-----------|-----------|
| clusters                       | cluster-1 | cluster-2 | cluster-3 |
| light-cpu                      | 12.00     | 0.00      | 3.00      |
| medium-cpu                     | 1.00      | 0.00      | 1.00      |
| large-cpu                      | 0.00      | 0.00      | 0.00      |
| mixture-cpu                    | 7.00      | 0.00      | 1.00      |

1.4

Listing 4. Cluster Node Utilization

| Cluster Node Utilization (%) | cluster-1 | cluster-2 | cluster-3 |
|------------------------------|-----------|-----------|-----------|
| clusters                     | cluster-1 | cluster-2 | cluster-3 |
| light-cpu                    | 100.00    | 0.00      | 100.00    |
| medium-cpu                   | 100.00    | 100.00    | 100.00    |
| large-cpu                    | 100.00    | 100.00    | 100.00    |
| mixture-cpu                  | 100.00    | 100.00    | 100.00    |

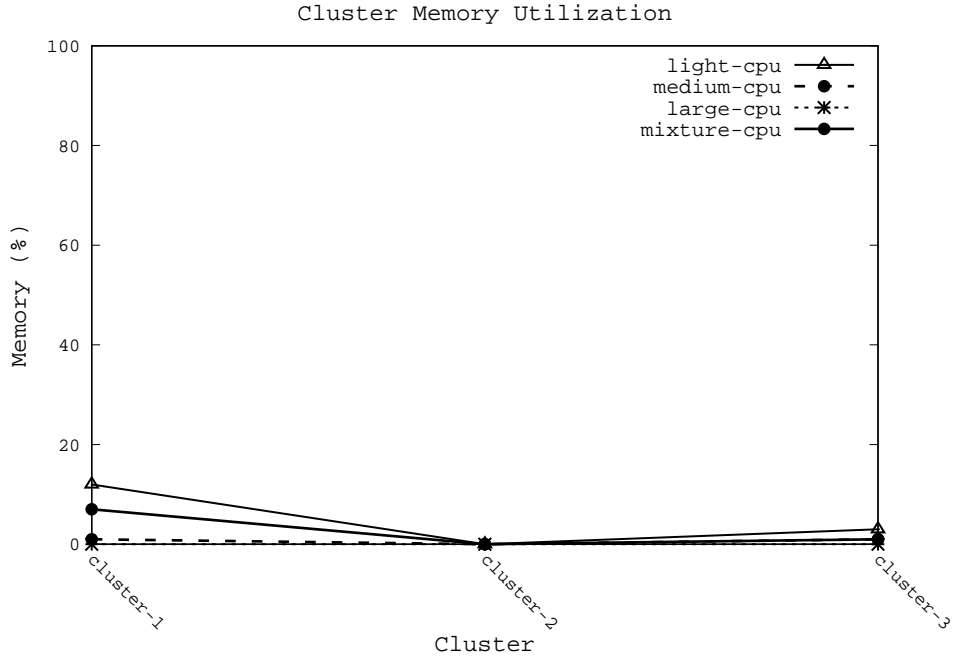


Fig. 3. Cluster Memory Utilization

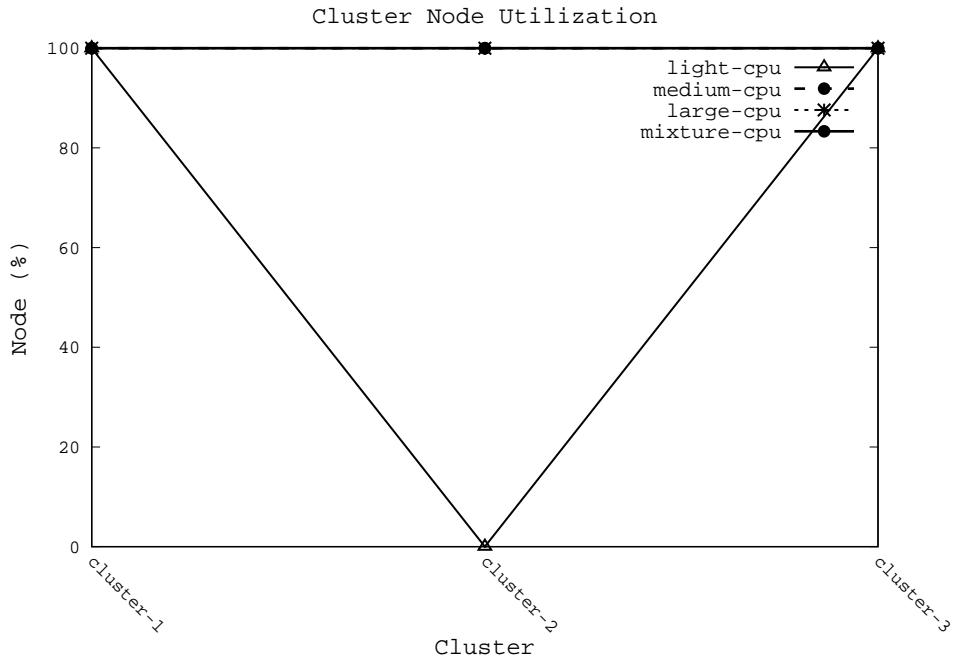


Fig. 4. Cluster Node Utilization

1.5

Listing 5. Node CPU Utilization  
Node CPU Utilization (%)

|             |                 |                 |                 |                 |                 |                 |                 |                 |                 |
|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| nodes       | cluster-1-node1 | cluster-1-node2 | cluster-2-node1 | cluster-2-node2 | cluster-2-node3 | cluster-3-node1 | cluster-3-node2 | cluster-3-node3 | cluster-3-node4 |
| light-cpu   | 12.00           | 12.00           | 0.00            | 0.00            | 0.00            | 4.00            | 10.00           | 0.00            | 0.00            |
| medium-cpu  | 1.00            | 1.00            | 1.00            | 0.00            | 0.00            | 1.00            | 1.00            | 1.00            | 1.00            |
| large-cpu   | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            |
| mixture-cpu | 6.00            | 7.00            | 0.00            | 1.00            | 0.00            | 0.00            | 1.00            | 2.00            | 0.00            |

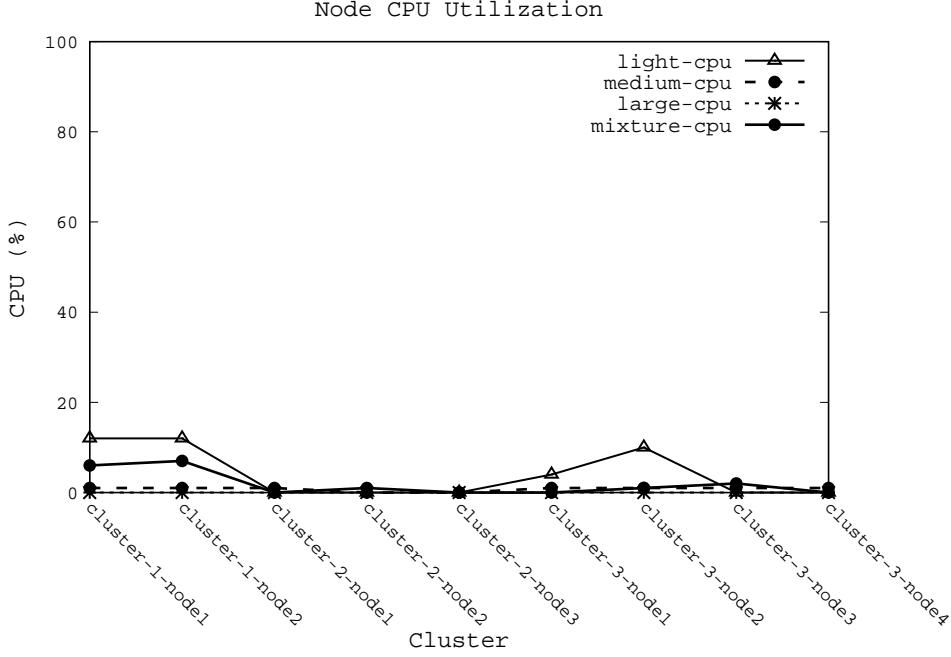


Fig. 5. Node CPU Utilization

1.6

Listing 6. Node Memory Utilization

|                             |                 |                 |                 |                 |                 |                 |                 |                 |                 |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Node Memory Utilization (%) |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| nodes                       | cluster-1-node1 | cluster-1-node2 | cluster-2-node1 | cluster-2-node2 | cluster-2-node3 | cluster-3-node1 | cluster-3-node2 | cluster-3-node3 | cluster-3-node4 |
| light-cpu                   | 12.00           | 12.00           | 0.00            | 0.00            | 0.00            | 4.00            | 10.00           | 0.00            | 0.00            |
| medium-cpu                  | 1.00            | 1.00            | 1.00            | 0.00            | 0.00            | 1.00            | 1.00            | 1.00            | 1.00            |
| large-cpu                   | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            | 0.00            |
| mixture-cpu                 | 6.00            | 7.00            | 0.00            | 1.00            | 0.00            | 0.00            | 1.00            | 2.00            | 0.00            |

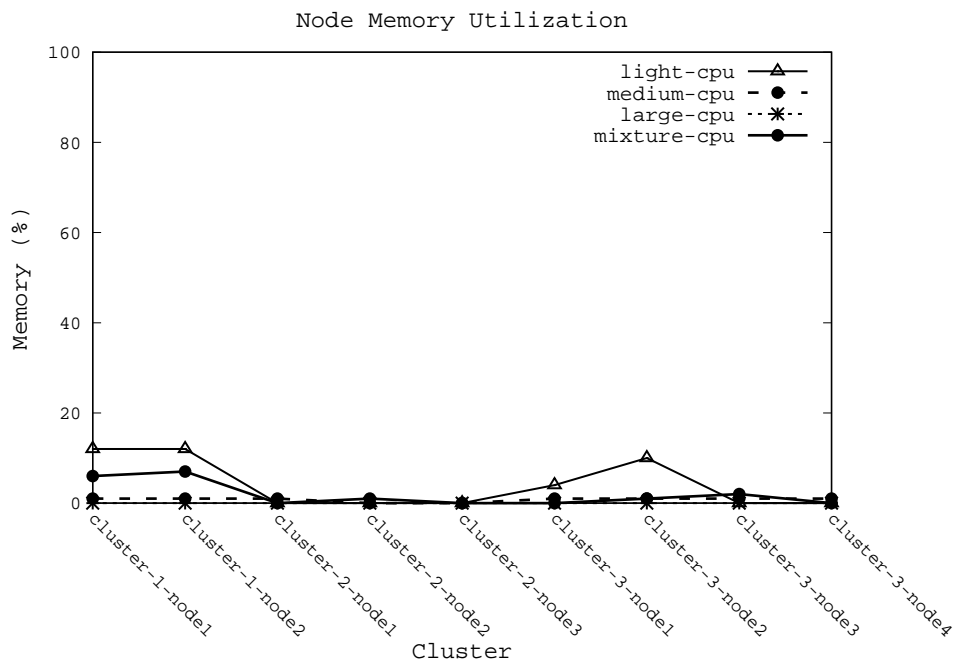


Fig. 6. Node Memory Utilization