

## APPENDICES

### A Evaluation Data and Query Templates

```
3 @prefix dbpr: <http://dbpedia.org/resource/>
4 @prefix dbpo: <http://dbpedia.org/ontology/>
5 @prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
6 @prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>
7 @prefix owl: <http://www.w3.org/2002/07/owl#>
8 @prefix xsd: <http://www.w3.org/2001/XMLSchema#>
9 @prefix nytr: <http://data.nytimes.com/>
10 @prefix nyto: <http://data.nytimes.com/elements/>
11 @prefix wsjr: <https://www.wsj.com/market-data/quotes/>
12 @prefix stock: <http://stockmarket.com/elements/>
13 ----- DBpedia -----
14 dbr:exDbComp
15     a                                dbpo:Company;
16     rdfs:label                       "Ex_Dbpedia_Comp"^^xsd:string;
17     dbpo:numberOfStaff               "1234"^^xsd:int;
18     owl:sameAs                     nytr:exNyTComp;
19     dbpo:industry                    dbpr:Electronics.
20 -----
21 ----- NyTimes -----
22 nytr:exNyTComp
23     a                                nyto:Company;
24     rdfs:label                       "Ex_NyTimes_Comp";
25     nyto:associated_article_count    "4321"^^xsd:int;
26     nyto:reputation                  "High"^^xsd:string;
27     owl:sameAs                     wsjr:exWsjComp.
28 -----
29 ----- Stockmarket -----
30 nytr:exNyTComp
31     a                                stock:Company;
32     stock:market                     "NYSE"^^xsd:string;
33     stock:currency                    "USD"^^xsd:string;
34     stock:stockPrice                  "345"^^xsd:float;
35     stock:companyName                 "Ex_Stock_Comp"^^xsd:string;
36     stock:trades                      "100"^^xsd:int;
37     stock:shares                      "50"^^xsd:int;
38     stock:valueChange                 "24000"^^xsd:float;
39     stock:changePercent               "7"^^xsd:float.
40 -----
```

**Listing A1.** Example Company Data from the Evaluation Datasets in Rdf-Turtle Format

We have given a brief description about the evaluation data in Listing-A1. As to elaborate firstly, DBpedia has descriptive information about companies with the properties of "label", "type", "number of staff", and "industry". For the "number of employees" property, we generated a random value from 1-10000 to 90000-100000 for each of the 500 companies. There are ten distinct ranges, each with 500 companies, for a total of 5000 companies with this property value. There are six industry property value ranges held by the first 500 and last 100 companies. These "industry" values are "Bank", "Airline", "Software", "Electronics", "Health" and "Restaurant", and each value is held by 100 companies, for a total of 600.

Second, NyTimes has news and media information, as well as company-related updates. "Associated article count" and "reputation" are two important properties. The "Associated article count" was initially set to 0 and was updated by the NyTimes Updater after each time period. Every 1000 companies have one of the reputation values "Very High", "High", "Medium", "Low" or "Very Low" for a total of 5000 companies. Furthermore, the first 500 and last 100 companies have secondary reputations as "Elite" and "Initial" respectively. There is also a linkset with the "same as" property that connects the New York Times to the Wall Street Journal, which is a virtual dataset. This linkset was created to improve query diversity in the NyTimes dataset. NyTimes also has some descriptive properties like "type" and "label".

Finally, the Stockmarket dataset has financial information and updates about companies alongside some descriptive properties such as "type" and "company name". Every 1000 companies have the same (market-currency) pair between "NYSE"- "USD", "TSE"- "JPY", "FWB"- "EUR", "LSE"- "GBP" and "BST"- "TRY" totalling 5000 companies. Special "value change" and "change percent" rates apply to the

61 first 500 and last 100 companies. There are six different ranges of these values, and each range is shared  
 62 by 100 companies, for a total of 600. For each company, a "stock price" was generated at random from 1  
 63 to 500 and was updated on a regular basis by Stockmarket Updater. Values for "trades" were generated  
 64 based on "stock price" and values for "shares" were generated based on "trades" by multiplying by a  
 65 random value ranging from 10 to 250. These two values were used to supplement the virtual data in the  
 66 Stockmarket dataset.

```

67
68
69 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
70 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
71 PREFIX dbpo: <http://dbpedia.org/ontology/>
72 PREFIX nytimes: <http://data.nytimes.com/elements/>
73 PREFIX stockmarket: <http://stockmarket.com/elements/>
74 PREFIX owl: <http://www.w3.org/2002/07/owl#>
75 Select * where {
76 {BIND(<http://155.223.25.4:8890/dbpedia/sparql> AS ?ser)}
77 UNION
78 {BIND(<http://155.223.25.1:8890/nytimes/sparql> AS ?ser)}
79 Service ?ser {
80   ?company rdf:type ?type.
81   VALUES (?type) {
82     (dbpo:Company)(nytimes:Company)(stockmarket:Company)
83   }
84   ?company rdfs:label ?label.
85   ?company owl:sameAs ?sameCompany.
86 }
87 service <http://155.223.25.2:8890/stockmarket/sparql> {
88   ?company stockmarket:market ?market.
89   ?company stockmarket:currency ?currency.
90   ?company stockmarket:stockPrice ?stockPrice.
91 }
92 }

```

**Listing A2.** Least Selective Query

```

93 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
94 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
95 PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
96 PREFIX dbo: <http://dbpedia.org/ontology/>
97 PREFIX dbpedia: <http://dbpedia.org/resource/>
98 PREFIX nytimes: <http://data.nytimes.com/elements/>
99 PREFIX stockmarket: <http://stockmarket.com/elements/>
100 PREFIX owl: <http://www.w3.org/2002/07/owl#>
101 Select * where {
102   service <http://155.223.25.4:8890/dbpedia/sparql> {
103     ?dbpediaCompany rdf:type dbo:Company.
104     ?dbpediaCompany dbo:numberOfStaff ?staffCount.
105     ?dbpediaCompany owl:sameAs ?nytCompany.
106     FILTER (?staffCount > lowerBound && ?staffCount <= upperBound)
107   }
108   service <http://155.223.25.1:8890/nytimes/sparql> {
109     ?nytCompany rdf:type nytimes:Company.
110     ?nytCompany nytimes:reputation ?reputation.
111     ?nytCompany nytimes:associated_article_count ?articleCount.
112     VALUES (?reputation) {
113       ('Very_High'^^xsd:string)('High'^^xsd:string)(...)
114     }
115   }
116   service <http://155.223.25.2:8890/stockmarket/sparql> {
117     ?nytCompany rdf:type stockmarket:Company.
118     ?nytCompany stockmarket:market ?market.
119     ?nytCompany stockmarket:currency ?currency.
120     ?nytCompany stockmarket:stockPrice ?stockPrice.
121     VALUES (?market){
122       ('NYSE'^^xsd:string)('TSE'^^xsd:string)(...)
123     }
124   }
125 }

```

**Listing A3.** Low Selective Query

```

126 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
127 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
128 PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
129 PREFIX dbo: <http://dbpedia.org/ontology/>
130 PREFIX dbpedia: <http://dbpedia.org/resource/>
131 PREFIX nytimes: <http://data.nytimes.com/elements/>
132 PREFIX stockmarket: <http://stockmarket.com/elements/>
133 PREFIX owl: <http://www.w3.org/2002/07/owl#>
134 Select * where {
135   service <http://155.223.25.4:8890/dbpedia/sparql> {
136     dbpedia:exComp dbo:numberOfStaff ?nos.
137     dbpedia:exComp owl:sameAs ?nytCompany.
138   }
139   service <http://155.223.25.1:8890/nytimes/sparql> {
140     ?nytCompany rdf:type nytimes:Company.
141     ?nytCompany nytimes:reputation ?reputation.
142     ?nytCompany nytimes:associated_article_count ?articleCount.
143     VALUES (?reputation) {
144       ('Very_High'^^xsd:string)('High'^^xsd:string)(...)
145     }
146   }
147   service <http://155.223.25.2:8890/stockmarket/sparql> {
148     ?nytCompany rdf:type stockmarket:Company.
149     ?nytCompany stockmarket:market ?market.
150     ?nytCompany stockmarket:currency ?currency.
151     ?nytCompany stockmarket:stockPrice ?stockPrice.
152     VALUES (?market) {
153       ('NYSE'^^xsd:string)('TSE'^^xsd:string)(...)
154     }
155   }
156 }

```

**Listing A4.** Middle Selective Query

```

157 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
158 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
159 PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
160 PREFIX dbo: <http://dbpedia.org/ontology/>
161 PREFIX dbpedia: <http://dbpedia.org/resource/>
162 PREFIX nytimes: <http://data.nytimes.com/elements/>
163 PREFIX stockmarket: <http://stockmarket.com/elements/>
164 PREFIX owl: <http://www.w3.org/2002/07/owl#>
165 Select * where {
166   service <http://155.223.25.4:8890/dbpedia/sparql> {
167     VALUES (?industry) {
168       (dbpedia:Bank)(dbpedia:Airline)(...)
169     }
170     ?dbpediaCompany rdf:type dbo:Company.
171     ?dbpediaCompany dbo:numberOfStaff ?staffCount.
172     ?dbpediaCompany dbo:industry ?industry.
173     ?dbpediaCompany owl:sameAs ?nytCompany.
174     FILTER (?staffCount>90000&&?staffCount<=100000)
175   }
176   service <http://155.223.25.1:8890/nytimes/sparql> {
177     ?nytCompany rdf:type nytimes:Company.
178     ?nytCompany nytimes:reputation 'Elite'^^xsd:string.
179     ?nytCompany nytimes:associated_article_count ?articleCount.
180   }
181   service <http://155.223.25.2:8890/stockmarket/sparql> {
182     ?nytCompany rdf:type stockmarket:Company.
183     ?nytCompany stockmarket:market ?market.
184     ?nytCompany stockmarket:currency ?currency.
185     ?nytCompany stockmarket:stockPrice ?stockPrice.
186     ?nytCompany stockmarket:valueChange ?valueChange.
187     FILTER (?valueChange>=lowerBound&&?valueChange<upperBound)
188   }
189 }

```

**Listing A5.** High Selective Query

```

190 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
191 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
192 PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
193 PREFIX dbo: <http://dbpedia.org/ontology/>
194 PREFIX dbpedia: <http://dbpedia.org/resource/>
195 PREFIX nytimes: <http://data.nytimes.com/elements/>
196 PREFIX stockmarket: <http://stockmarket.com/elements/>
197 PREFIX owl: <http://www.w3.org/2002/07/owl#>
198 Select * where {
199   service <http://155.223.25.4:8890/dbpedia/sparql> {
200     dbpedia:exComp dbo:numberOfStaff ?nos.
201     dbpedia:exComp owl:sameAs ?nytCompany.
202   }
203   service <http://155.223.25.1:8890/nytimes/sparql> {
204     ?nytCompany rdf:type nytimes:Company.
205     ?nytCompany nytimes:reputation 'Elite'^^xsd:string.
206     ?nytCompany nytimes:associated_article_count ?articleCount.
207   }
208   service <http://155.223.25.2:8890/stockmarket/sparql> {
209     ?nytCompany rdf:type stockmarket:Company.
210     ?nytCompany stockmarket:market ?market.
211     ?nytCompany stockmarket:currency ?currency.
212     ?nytCompany stockmarket:stockPrice ?stockPrice.
213     ?nytCompany stockmarket:valueChange ?valueChange.
214     FILTER (?valueChange>=lowerBound&&?valueChange<upperBound)
215   }
216 }

```

**Listing A6.** Most Selective Query

**Table B1.** Query and Monitoring Performance Results of the Least Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Query Processing Time (s) |        | Max Query Processing Time (s) |        | Avg Change Notification Time (s) |        | Max Change Notification Time (s) |        |
|-------------------------|-----------------------------|-------------------------------|--------|-------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
|                         |                             | Node-1                        | Node-2 | Node-1                        | Node-2 | Node-1                           | Node-2 | Node-1                           | Node-2 |
| -                       | 100                         | 6.42                          | 7.25   | 11.89                         | 12.18  | 2.49                             | 2.48   | 8.63                             | 8.98   |
| -                       | 200                         | 16.36                         | 14.23  | 47.04                         | 29.47  | 3.22                             | 3.23   | 14.46                            | 15.32  |
| -                       | 300                         | 25.07                         | 27.35  | 96.01                         | 95.80  | 4.09                             | 4.38   | 19.17                            | 17.02  |

**Table B2.** Query and Monitoring Performance Results of the Low Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Query Processing Time (s) |        | Max Query Processing Time (s) |        | Avg Change Notification Time (s) |        | Max Change Notification Time (s) |        |
|-------------------------|-----------------------------|-------------------------------|--------|-------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
|                         |                             | Node-1                        | Node-2 | Node-1                        | Node-2 | Node-1                           | Node-2 | Node-1                           | Node-2 |
| 0                       | 100                         | 6.90                          | 7.20   | 18.54                         | 18.14  | 3.17                             | 3.21   | 9.54                             | 9.01   |
| 0                       | 200                         | 13.19                         | 14.21  | 25.21                         | 27.81  | 6.22                             | 7.12   | 16.38                            | 16.22  |
| 0                       | 300                         | 23.23                         | 20.98  | 47.46                         | 45.86  | 11.98                            | 8.00   | 251.80                           | 265.18 |
| 20                      | 100                         | 5.80                          | 5.62   | 11.49                         | 11.87  | 2.84                             | 2.41   | 9.68                             | 7.02   |
| 20                      | 200                         | 10.12                         | 8.27   | 20.80                         | 19.54  | 4.99                             | 4.72   | 12.29                            | 11.68  |
| 20                      | 300                         | 15.29                         | 15.83  | 25.57                         | 30.39  | 6.33                             | 6.40   | 17.75                            | 18.28  |
| 20                      | 400                         | 22.49                         | 23.53  | 55.14                         | 54.84  | 9.94                             | 5.47   | 86.79                            | 16.61  |
| 40                      | 100                         | 3.81                          | 4.24   | 6.40                          | 8.72   | 1.87                             | 2.00   | 5.56                             | 5.39   |
| 40                      | 200                         | 6.63                          | 6.57   | 20.97                         | 21.21  | 3.24                             | 3.26   | 11.75                            | 9.64   |
| 40                      | 300                         | 8.90                          | 9.63   | 15.11                         | 18.17  | 4.15                             | 5.05   | 17.42                            | 12.65  |
| 40                      | 400                         | 12.89                         | 14.29  | 33.47                         | 33.25  | 4.90                             | 5.50   | 16.01                            | 17.13  |
| 40                      | 500                         | 15.78                         | 18.24  | 32.94                         | 34.58  | 5.76                             | 5.85   | 83.88                            | 28.52  |
| 60                      | 100                         | 2.12                          | 2.15   | 3.64                          | 3.80   | 1.36                             | 1.34   | 3.76                             | 3.52   |
| 60                      | 200                         | 4.60                          | 4.49   | 8.50                          | 8.23   | 2.05                             | 2.00   | 6.54                             | 6.45   |
| 60                      | 300                         | 5.76                          | 5.68   | 13.61                         | 13.80  | 2.55                             | 2.77   | 11.04                            | 11.30  |
| 60                      | 400                         | 8.03                          | 8.17   | 17.24                         | 16.61  | 3.00                             | 4.02   | 10.67                            | 12.98  |
| 60                      | 500                         | 10.75                         | 10.83  | 19.17                         | 18.14  | 3.68                             | 4.89   | 20.16                            | 18.50  |
| 60                      | 750                         | 16.87                         | 16.79  | 36.47                         | 36.59  | 8.37                             | 4.54   | 51.16                            | 47.56  |
| 80                      | 500                         | 4.58                          | 4.18   | 8.35                          | 7.72   | 2.23                             | 2.00   | 7.15                             | 6.90   |
| 80                      | 750                         | 7.72                          | 7.28   | 18.23                         | 18.01  | 3.03                             | 3.18   | 14.34                            | 12.80  |
| 80                      | 1000                        | 8.73                          | 8.29   | 17.96                         | 17.34  | 4.17                             | 3.58   | 18.93                            | 18.01  |
| 80                      | 1250                        | 12.35                         | 12.93  | 26.96                         | 27.92  | 3.75                             | 4.22   | 20.71                            | 20.39  |
| 80                      | 1500                        | 20.65                         | 21.09  | 56.57                         | 58.42  | 3.92                             | 6.79   | 47.00                            | 135.41 |

**Table B3.** Query and Monitoring Performance Results of the Middle Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Query Processing Time (s) |        | Max Query Processing Time (s) |        | Avg Change Notification Time (s) |        | Max Change Notification Time (s) |        |
|-------------------------|-----------------------------|-------------------------------|--------|-------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
|                         |                             | Node-1                        | Node-2 | Node-1                        | Node-2 | Node-1                           | Node-2 | Node-1                           | Node-2 |
| 0                       | 100                         | 33.82                         | 29.54  | 46.26                         | 44.73  | 8.85                             | 9.36   | 31.00                            | 26.06  |
| 0                       | 200                         | 70.85                         | 69.65  | 97.57                         | 97.41  | 14.16                            | 14.38  | 47.11                            | 60.94  |
| 0                       | 300                         | 22.13                         | 20.68  | 46.55                         | 47.30  | 8.60                             | 9.80   | 31.52                            | 27.96  |
| 0                       | 400                         | 41.02                         | 37.09  | 96.80                         | 74.46  | 8.01                             | 9.50   | 36.47                            | 34.36  |
| 0                       | 500                         | 50.58                         | 51.61  | 105.19                        | 110.25 | 15.88                            | 16.00  | 69.83                            | 64.19  |
| 20                      | 100                         | 11.14                         | 11.79  | 16.91                         | 16.49  | 4.26                             | 5.93   | 11.15                            | 13.63  |
| 20                      | 200                         | 13.96                         | 15.75  | 22.86                         | 30.04  | 4.76                             | 5.73   | 19.32                            | 17.24  |
| 20                      | 300                         | 18.91                         | 18.72  | 32.22                         | 31.91  | 5.30                             | 8.16   | 21.67                            | 23.86  |
| 20                      | 400                         | 29.27                         | 26.91  | 62.65                         | 58.80  | 7.24                             | 10.11  | 25.00                            | 28.01  |
| 20                      | 500                         | 27.64                         | 31.80  | 49.28                         | 55.64  | 9.36                             | 10.84  | 38.34                            | 40.37  |
| 20                      | 750                         | 43.18                         | 43.63  | 195.37                        | 193.27 | 4.60                             | 4.79   | 38.50                            | 15.03  |
| 40                      | 100                         | 9.95                          | 8.11   | 15.23                         | 13.74  | 3.31                             | 3.03   | 10.69                            | 9.96   |
| 40                      | 200                         | 9.60                          | 9.22   | 16.38                         | 16.79  | 3.64                             | 3.87   | 12.48                            | 12.13  |
| 40                      | 300                         | 14.04                         | 13.55  | 24.46                         | 24.36  | 3.76                             | 4.31   | 16.99                            | 16.50  |
| 40                      | 400                         | 17.71                         | 15.12  | 30.41                         | 26.13  | 4.92                             | 4.30   | 18.42                            | 18.31  |
| 40                      | 500                         | 19.91                         | 17.26  | 45.80                         | 38.05  | 6.49                             | 6.33   | 22.96                            | 24.07  |
| 40                      | 750                         | 32.42                         | 32.22  | 67.91                         | 64.17  | 8.35                             | 9.82   | 32.82                            | 39.67  |
| 40                      | 1000                        | 25.68                         | 26.11  | 64.37                         | 61.53  | 19.15                            | 8.32   | 275.83                           | 45.92  |
| 60                      | 250                         | 16.22                         | 14.62  | 21.73                         | 21.16  | 3.46                             | 3.14   | 14.61                            | 14.59  |
| 60                      | 500                         | 13.84                         | 14.18  | 25.98                         | 25.59  | 2.97                             | 4.00   | 18.44                            | 17.73  |
| 60                      | 750                         | 18.11                         | 20.91  | 36.13                         | 35.08  | 5.55                             | 7.32   | 21.11                            | 21.99  |
| 60                      | 1000                        | 16.37                         | 16.54  | 46.67                         | 46.57  | 4.14                             | 5.67   | 17.89                            | 17.99  |
| 60                      | 1250                        | 19.55                         | 19.02  | 64.47                         | 63.69  | 5.12                             | 6.87   | 38.54                            | 41.63  |
| 80                      | 500                         | 28.56                         | 29.10  | 40.53                         | 40.83  | 1.81                             | 1.80   | 9.96                             | 9.52   |
| 80                      | 750                         | 45.83                         | 44.41  | 65.85                         | 65.96  | 2.32                             | 2.52   | 14.06                            | 12.69  |
| 80                      | 1000                        | 25.33                         | 26.89  | 41.69                         | 41.93  | 4.21                             | 6.34   | 20.53                            | 28.74  |
| 80                      | 1500                        | 62.25                         | 63.20  | 152.49                        | 152.14 | 5.02                             | 11.93  | 34.41                            | 35.42  |
| 80                      | 2000                        | 14.20                         | 18.26  | 32.17                         | 42.01  | 3.89                             | 7.31   | 24.62                            | 25.88  |
| 80                      | 2500                        | 30.32                         | 23.68  | 139.20                        | 115.68 | 5.19                             | 6.43   | 71.43                            | 64.42  |

**Table B4.** Query and Monitoring Performance Results of the High Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Query Processing Time (s) |        | Max Query Processing Time (s) |        | Avg Change Notification Time (s) |        | Max Change Notification Time (s) |        |
|-------------------------|-----------------------------|-------------------------------|--------|-------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
|                         |                             | Node-1                        | Node-2 | Node-1                        | Node-2 | Node-1                           | Node-2 | Node-1                           | Node-2 |
| 0                       | 500                         | 24.63                         | 24.41  | 33.36                         | 33.13  | 2.86                             | 1.79   | 13.69                            | 8.63   |
| 0                       | 1000                        | 26.71                         | 23.28  | 43.77                         | 35.40  | 4.19                             | 3.17   | 34.57                            | 16.38  |
| 0                       | 1500                        | 16.26                         | 19.46  | 36.35                         | 36.74  | 3.87                             | 4.82   | 20.73                            | 19.29  |
| 0                       | 2000                        | 18.11                         | 23.54  | 54.43                         | 56.76  | 5.22                             | 5.92   | 29.95                            | 25.54  |
| 0                       | 2500                        | 12.92                         | 15.53  | 30.63                         | 45.25  | 3.17                             | 5.58   | 18.10                            | 28.34  |
| 20                      | 500                         | 17.67                         | 18.70  | 28.82                         | 28.99  | 1.25                             | 1.96   | 8.50                             | 9.15   |
| 20                      | 1000                        | 17.11                         | 17.28  | 26.39                         | 26.13  | 2.83                             | 4.13   | 20.05                            | 21.25  |
| 20                      | 1500                        | 20.49                         | 21.18  | 39.42                         | 40.69  | 4.40                             | 6.77   | 31.02                            | 25.59  |
| 20                      | 2000                        | 23.46                         | 25.19  | 46.75                         | 48.09  | 3.41                             | 7.89   | 18.90                            | 29.81  |
| 20                      | 2500                        | 22.94                         | 24.28  | 48.37                         | 48.80  | 4.65                             | 6.65   | 34.63                            | 34.74  |
| 20                      | 3000                        | 9.95                          | 10.98  | 21.64                         | 22.06  | 3.67                             | 5.83   | 24.96                            | 21.51  |
| 40                      | 500                         | 13.62                         | 12.22  | 23.27                         | 23.24  | 1.67                             | 0.97   | 11.84                            | 7.25   |
| 40                      | 1000                        | 12.52                         | 12.36  | 23.07                         | 22.52  | 1.99                             | 3.82   | 14.04                            | 16.66  |
| 40                      | 2000                        | 37.64                         | 33.68  | 68.08                         | 56.06  | 5.24                             | 7.77   | 32.67                            | 30.51  |
| 40                      | 3000                        | 25.82                         | 27.46  | 64.56                         | 65.02  | 4.43                             | 6.90   | 28.50                            | 26.57  |
| 40                      | 4000                        | 89.49                         | 64.00  | 221.18                        | 158.22 | 5.96                             | 8.47   | 73.28                            | 41.28  |
| 40                      | 4500                        | 38.24                         | 44.06  | 119.42                        | 123.16 | 5.07                             | 9.89   | 27.70                            | 93.35  |
| 60                      | 500                         | 11.40                         | 10.61  | 18.09                         | 17.93  | 0.79                             | 0.95   | 4.06                             | 6.10   |
| 60                      | 1000                        | 18.95                         | 20.33  | 37.82                         | 37.39  | 1.34                             | 1.40   | 9.65                             | 8.97   |
| 60                      | 2000                        | 19.50                         | 17.86  | 35.03                         | 34.72  | 3.30                             | 3.81   | 20.08                            | 28.57  |
| 60                      | 3000                        | 23.62                         | 24.02  | 58.71                         | 64.14  | 5.19                             | 7.10   | 34.86                            | 36.82  |
| 60                      | 4000                        | 35.38                         | 28.36  | 98.37                         | 90.62  | 6.25                             | 9.65   | 37.34                            | 31.13  |
| 60                      | 5000                        | 30.41                         | 31.28  | 85.20                         | 89.71  | 5.24                             | 7.23   | 32.66                            | 31.36  |
| 60                      | 6000                        | 37.72                         | 40.42  | 122.14                        | 117.28 | 5.26                             | 6.30   | 53.03                            | 204.07 |
| 80                      | 500                         | 8.37                          | 8.49   | 11.93                         | 12.09  | 0.44                             | 0.92   | 1.79                             | 4.56   |
| 80                      | 1000                        | 5.74                          | 5.79   | 12.55                         | 12.06  | 1.45                             | 1.43   | 8.64                             | 8.58   |
| 80                      | 2500                        | 5.00                          | 4.97   | 12.04                         | 12.19  | 1.55                             | 1.51   | 8.22                             | 10.69  |
| 80                      | 5000                        | 4.90                          | 4.95   | 12.00                         | 11.70  | 1.96                             | 1.75   | 11.61                            | 10.07  |
| 80                      | 7500                        | 6.78                          | 8.47   | 17.50                         | 21.94  | 2.63                             | 2.96   | 16.47                            | 16.86  |
| 80                      | 10000                       | 9.75                          | 9.39   | 21.94                         | 21.40  | 3.73                             | 3.87   | 24.28                            | 21.37  |
| 80                      | 12500                       | 8.68                          | 9.80   | 27.80                         | 30.92  | 6.60                             | 6.34   | 49.35                            | 42.03  |

**Table B5.** Query and Monitoring Performance Results of the Most Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Query Processing Time (s) |        | Max Query Processing Time (s) |        | Avg Change Notification Time (s) |        | Max Change Notification Time (s) |        |
|-------------------------|-----------------------------|-------------------------------|--------|-------------------------------|--------|----------------------------------|--------|----------------------------------|--------|
|                         |                             | Node-1                        | Node-2 | Node-1                        | Node-2 | Node-1                           | Node-2 | Node-1                           | Node-2 |
| 0                       | 500                         | 13.70                         | 14.38  | 23.03                         | 22.95  | 0.44                             | 0.52   | 3.32                             | 3.01   |
| 0                       | 1000                        | 13.16                         | 13.11  | 20.68                         | 20.79  | 3.54                             | 3.00   | 20.67                            | 13.31  |
| 0                       | 2000                        | 5.64                          | 5.71   | 12.13                         | 12.29  | 1.82                             | 2.51   | 10.50                            | 11.57  |
| 0                       | 3000                        | 6.92                          | 8.09   | 24.76                         | 25.21  | 2.96                             | 3.97   | 12.60                            | 14.43  |
| 0                       | 4000                        | 10.29                         | 11.59  | 22.94                         | 22.97  | 2.92                             | 4.67   | 18.58                            | 19.41  |
| 0                       | 5000                        | 15.13                         | 17.43  | 34.84                         | 35.71  | 5.72                             | 6.61   | 65.24                            | 246.16 |
| 20                      | 500                         | 12.11                         | 13.01  | 18.28                         | 18.38  | 0.51                             | 0.61   | 3.09                             | 2.95   |
| 20                      | 1000                        | 24.08                         | 22.38  | 37.03                         | 36.41  | 1.57                             | 1.78   | 9.00                             | 10.72  |
| 20                      | 2000                        | 25.97                         | 27.63  | 50.39                         | 51.14  | 3.15                             | 8.29   | 18.94                            | 35.66  |
| 20                      | 3000                        | 30.38                         | 29.72  | 72.52                         | 71.09  | 6.27                             | 7.56   | 34.45                            | 29.56  |
| 20                      | 4000                        | 29.61                         | 30.74  | 72.39                         | 74.93  | 4.69                             | 6.85   | 30.68                            | 39.69  |
| 20                      | 5000                        | 34.04                         | 33.53  | 74.86                         | 83.51  | 5.68                             | 6.20   | 42.75                            | 35.93  |
| 20                      | 6000                        | 25.93                         | 28.39  | 64.02                         | 65.91  | 4.31                             | 6.89   | 66.93                            | 48.10  |
| 40                      | 500                         | 10.80                         | 11.99  | 17.03                         | 16.35  | 0.98                             | 1.44   | 7.45                             | 7.90   |
| 40                      | 1000                        | 16.64                         | 17.22  | 30.09                         | 29.81  | 1.16                             | 0.87   | 8.24                             | 5.44   |
| 40                      | 2000                        | 17.13                         | 17.39  | 29.45                         | 29.10  | 3.78                             | 5.60   | 24.97                            | 25.56  |
| 40                      | 3000                        | 13.92                         | 14.61  | 33.06                         | 33.31  | 3.98                             | 4.07   | 18.24                            | 20.50  |
| 40                      | 4000                        | 20.25                         | 21.75  | 53.19                         | 55.35  | 3.61                             | 5.61   | 33.01                            | 31.89  |
| 40                      | 5000                        | 22.12                         | 21.26  | 57.84                         | 58.67  | 5.14                             | 7.34   | 27.29                            | 27.05  |
| 40                      | 6000                        | 14.81                         | 14.23  | 38.34                         | 37.36  | 3.09                             | 4.37   | 22.04                            | 22.80  |
| 40                      | 7000                        | 18.48                         | 19.97  | 52.89                         | 52.79  | 4.53                             | 6.41   | 43.58                            | 48.39  |
| 60                      | 500                         | 8.63                          | 8.26   | 12.56                         | 12.22  | 0.44                             | 0.40   | 3.32                             | 2.97   |
| 60                      | 1000                        | 12.46                         | 13.96  | 21.54                         | 22.31  | 1.39                             | 1.56   | 6.98                             | 9.19   |
| 60                      | 2000                        | 11.95                         | 12.02  | 24.86                         | 24.61  | 4.86                             | 3.38   | 20.52                            | 19.42  |
| 60                      | 3000                        | 18.22                         | 14.97  | 37.34                         | 26.20  | 3.48                             | 5.75   | 23.36                            | 24.43  |
| 60                      | 4000                        | 6.79                          | 6.45   | 17.92                         | 18.42  | 2.34                             | 2.80   | 13.82                            | 12.69  |
| 60                      | 5000                        | 6.74                          | 6.96   | 15.48                         | 14.69  | 2.88                             | 2.85   | 16.90                            | 20.54  |
| 60                      | 6000                        | 9.50                          | 9.01   | 24.03                         | 23.10  | 3.19                             | 4.21   | 20.89                            | 21.51  |
| 60                      | 7000                        | 10.52                         | 9.66   | 27.28                         | 26.28  | 3.48                             | 3.28   | 25.66                            | 23.80  |
| 60                      | 8000                        | 12.04                         | 12.29  | 41.09                         | 37.62  | 4.73                             | 5.13   | 28.24                            | 25.91  |
| 60                      | 9000                        | 17.91                         | 15.38  | 41.48                         | 39.70  | 5.72                             | 6.28   | 71.70                            | 380.94 |
| 80                      | 500                         | 6.29                          | 7.16   | 9.26                          | 10.10  | 0.29                             | 0.56   | 1.21                             | 3.20   |
| 80                      | 1000                        | 4.39                          | 5.31   | 9.27                          | 9.58   | 0.91                             | 1.62   | 5.19                             | 6.73   |
| 80                      | 2500                        | 7.10                          | 7.19   | 14.79                         | 15.37  | 2.30                             | 3.09   | 16.34                            | 18.34  |
| 80                      | 5000                        | 6.66                          | 6.16   | 14.86                         | 15.47  | 1.52                             | 1.88   | 10.47                            | 11.17  |
| 80                      | 10000                       | 6.20                          | 6.12   | 15.79                         | 16.18  | 3.46                             | 4.09   | 16.99                            | 18.24  |
| 80                      | 15000                       | 7.87                          | 7.25   | 23.34                         | 22.56  | 7.08                             | 6.73   | 48.09                            | 47.08  |
| 80                      | 20000                       | 8.91                          | 9.49   | 28.82                         | 26.87  | 9.29                             | 9.75   | 54.16                            | 35.07  |
| 80                      | 22500                       | 10.32                         | 9.50   | 39.90                         | 43.69  | 17.26                            | 13.38  | 128.29                           | 53.15  |
| 80                      | 25000                       | 12.43                         | 14.85  | 98.46                         | 74.38  | 12.06                            | 13.58  | 44.65                            | 67.25  |

**Table C1.** System Resource Usage Results of the Least Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Memory Usage (GB) |        | Max Memory Usage (GB) |        | Avg CPU Usage (Threads) |        | Max CPU Usage (Threads) |        |
|-------------------------|-----------------------------|-----------------------|--------|-----------------------|--------|-------------------------|--------|-------------------------|--------|
|                         |                             | Node-1                | Node-2 | Node-1                | Node-2 | Node-1                  | Node-2 | Node-1                  | Node-2 |
| -                       | 100                         | 8.62                  | 7.90   | 13.15                 | 13.74  | 1.36                    | 1.60   | 2.84                    | 3.94   |
| -                       | 200                         | 13.99                 | 14.28  | 19.78                 | 20.38  | 1.72                    | 1.69   | 7.02                    | 3.79   |
| -                       | 300                         | 13.16                 | 13.30  | 23.01                 | 21.19  | 4.55                    | 4.15   | 11.91                   | 8.62   |

**Table C2.** System Resource Usage Results of the Low Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Memory Usage (GB) |        | Max Memory Usage (GB) |        | Avg CPU Usage (Threads) |        | Max CPU Usage (Threads) |        |
|-------------------------|-----------------------------|-----------------------|--------|-----------------------|--------|-------------------------|--------|-------------------------|--------|
|                         |                             | Node-1                | Node-2 | Node-1                | Node-2 | Node-1                  | Node-2 | Node-1                  | Node-2 |
| 0                       | 100                         | 9.83                  | 9.36   | 14.76                 | 15.05  | 1.60                    | 1.70   | 3.34                    | 3.91   |
| 0                       | 200                         | 15.02                 | 14.16  | 21.90                 | 21.00  | 3.18                    | 3.09   | 6.68                    | 6.88   |
| 0                       | 300                         | 14.75                 | 15.44  | 22.99                 | 22.37  | 5.14                    | 2.73   | 13.26                   | 5.39   |
| 20                      | 100                         | 8.13                  | 7.12   | 12.61                 | 12.61  | 1.69                    | 1.75   | 4.09                    | 3.15   |
| 20                      | 200                         | 11.19                 | 11.71  | 18.10                 | 17.83  | 2.47                    | 2.73   | 6.15                    | 6.92   |
| 20                      | 300                         | 15.47                 | 14.76  | 23.41                 | 21.50  | 3.99                    | 3.65   | 10.18                   | 6.95   |
| 20                      | 400                         | 12.95                 | 13.51  | 22.47                 | 23.01  | 4.40                    | 4.45   | 9.48                    | 8.24   |
| 40                      | 100                         | 6.78                  | 6.62   | 12.24                 | 0.01   | 1.44                    | 1.33   | 3.63                    | 2.80   |
| 40                      | 200                         | 10.22                 | 10.56  | 15.64                 | 16.46  | 1.83                    | 2.45   | 4.35                    | 6.14   |
| 40                      | 300                         | 13.04                 | 12.63  | 18.67                 | 19.35  | 2.42                    | 3.37   | 5.74                    | 7.77   |
| 40                      | 400                         | 15.59                 | 14.95  | 22.38                 | 22.85  | 3.82                    | 3.88   | 10.76                   | 7.73   |
| 40                      | 500                         | 16.14                 | 16.19  | 25.42                 | 23.36  | 3.82                    | 4.48   | 12.16                   | 10.00  |
| 60                      | 100                         | 3.29                  | 3.07   | 5.09                  | 5.03   | 1.05                    | 1.00   | 1.85                    | 1.90   |
| 60                      | 200                         | 7.90                  | 8.36   | 14.40                 | 13.60  | 1.31                    | 1.37   | 4.10                    | 3.79   |
| 60                      | 300                         | 9.58                  | 10.19  | 16.57                 | 16.12  | 1.79                    | 1.72   | 5.07                    | 6.24   |
| 60                      | 400                         | 11.07                 | 11.97  | 18.06                 | 18.21  | 2.51                    | 3.70   | 6.69                    | 9.65   |
| 60                      | 500                         | 12.79                 | 13.81  | 20.78                 | 19.93  | 3.25                    | 4.32   | 9.34                    | 10.76  |
| 60                      | 750                         | 15.64                 | 15.48  | 25.72                 | 24.78  | 5.61                    | 4.19   | 19.62                   | 7.39   |
| 80                      | 500                         | 8.98                  | 9.11   | 15.08                 | 14.67  | 2.12                    | 2.22   | 5.85                    | 6.38   |
| 80                      | 750                         | 11.26                 | 11.25  | 17.61                 | 17.73  | 3.65                    | 3.80   | 9.93                    | 8.22   |
| 80                      | 1000                        | 13.28                 | 14.16  | 21.32                 | 20.99  | 4.07                    | 4.39   | 11.64                   | 9.25   |
| 80                      | 1250                        | 16.30                 | 14.70  | 25.10                 | 23.37  | 4.60                    | 4.59   | 11.73                   | 11.09  |
| 80                      | 1500                        | 15.85                 | 15.12  | 23.90                 | 23.51  | 4.28                    | 4.23   | 12.40                   | 9.00   |

**Table C3.** System Resource Usage Results of the Middle Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Memory Usage (GB) |        | Max Memory Usage (GB) |        | Avg CPU Usage (Threads) |        | Max CPU Usage (Threads) |        |
|-------------------------|-----------------------------|-----------------------|--------|-----------------------|--------|-------------------------|--------|-------------------------|--------|
|                         |                             | Node-1                | Node-2 | Node-1                | Node-2 | Node-1                  | Node-2 | Node-1                  | Node-2 |
| 0                       | 100                         | 6.45                  | 7.58   | 8.92                  | 10.07  | 1.49                    | 1.43   | 5.95                    | 6.19   |
| 0                       | 200                         | 8.53                  | 10.91  | 11.34                 | 13.45  | 1.85                    | 2.58   | 6.91                    | 12.48  |
| 0                       | 300                         | 0.01                  | 0.01   | 0.02                  | 0.02   | 2.64                    | 3.65   | 6.47                    | 9.49   |
| 0                       | 400                         | 14.84                 | 14.61  | 21.75                 | 21.93  | 3.70                    | 3.46   | 11.58                   | 10.82  |
| 0                       | 500                         | 0.02                  | 0.02   | 0.02                  | 0.02   | 5.29                    | 4.79   | 14.19                   | 12.85  |
| 20                      | 100                         | 3.20                  | 7.93   | 0.01                  | 0.01   | 1.07                    | 1.32   | 2.72                    | 6.19   |
| 20                      | 200                         | 8.22                  | 8.44   | 0.01                  | 0.01   | 1.50                    | 1.62   | 4.22                    | 5.10   |
| 20                      | 300                         | 10.81                 | 11.95  | 0.02                  | 0.02   | 2.08                    | 2.70   | 6.47                    | 8.86   |
| 20                      | 400                         | 12.74                 | 13.12  | 17.34                 | 18.29  | 3.24                    | 3.11   | 11.39                   | 10.08  |
| 20                      | 500                         | 15.51                 | 13.69  | 19.17                 | 19.83  | 3.09                    | 3.77   | 10.33                   | 9.02   |
| 20                      | 750                         | 15.45                 | 11.05  | 24.70                 | 22.95  | 4.47                    | 6.04   | 12.80                   | 12.79  |
| 40                      | 100                         | 6.87                  | 4.76   | 11.04                 | 9.21   | 1.16                    | 1.05   | 4.42                    | 3.59   |
| 40                      | 200                         | 7.66                  | 7.90   | 11.04                 | 12.73  | 1.88                    | 1.72   | 5.62                    | 4.98   |
| 40                      | 300                         | 9.13                  | 9.44   | 14.05                 | 12.79  | 1.97                    | 2.01   | 6.06                    | 7.17   |
| 40                      | 400                         | 11.81                 | 10.14  | 14.83                 | 16.50  | 2.65                    | 2.64   | 9.80                    | 10.77  |
| 40                      | 500                         | 12.17                 | 11.31  | 16.96                 | 17.81  | 2.84                    | 3.15   | 7.96                    | 9.61   |
| 40                      | 750                         | 15.31                 | 15.12  | 21.43                 | 21.59  | 3.92                    | 4.24   | 12.03                   | 14.74  |
| 40                      | 1000                        | 13.25                 | 14.31  | 23.38                 | 23.28  | 6.24                    | 4.80   | 16.51                   | 11.85  |
| 60                      | 250                         | 8.14                  | 6.71   | 10.26                 | 9.14   | 1.58                    | 1.52   | 7.23                    | 7.15   |
| 60                      | 500                         | 9.78                  | 9.40   | 14.90                 | 16.73  | 2.49                    | 2.49   | 7.78                    | 8.54   |
| 60                      | 750                         | 12.35                 | 11.07  | 17.59                 | 14.69  | 3.30                    | 3.50   | 11.26                   | 9.98   |
| 60                      | 1000                        | 14.33                 | 15.63  | 22.36                 | 23.12  | 2.91                    | 4.11   | 8.02                    | 8.95   |
| 60                      | 1250                        | 15.31                 | 15.20  | 23.48                 | 24.29  | 3.29                    | 5.69   | 6.74                    | 20.86  |
| 80                      | 500                         | 6.61                  | 6.54   | 10.98                 | 9.11   | 1.42                    | 1.63   | 9.18                    | 10.45  |
| 80                      | 750                         | 8.03                  | 8.87   | 11.92                 | 10.65  | 1.73                    | 1.85   | 10.42                   | 13.18  |
| 80                      | 1000                        | 8.75                  | 10.71  | 15.08                 | 14.67  | 2.45                    | 3.43   | 13.51                   | 15.29  |
| 80                      | 1500                        | 11.90                 | 13.62  | 16.06                 | 17.71  | 3.33                    | 3.57   | 18.13                   | 19.39  |
| 80                      | 2000                        | 14.84                 | 14.76  | 23.58                 | 21.96  | 3.95                    | 5.37   | 10.94                   | 15.94  |
| 80                      | 2500                        | 17.54                 | 17.98  | 26.88                 | 25.47  | 4.65                    | 5.02   | 8.98                    | 12.60  |

**Table C4.** System Resource Usage Results of the High Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Memory Usage (GB) |        | Max Memory Usage (GB) |        | Avg CPU Usage (Threads) |        | Max CPU Usage (Threads) |        |
|-------------------------|-----------------------------|-----------------------|--------|-----------------------|--------|-------------------------|--------|-------------------------|--------|
|                         |                             | Node-1                | Node-2 | Node-1                | Node-2 | Node-1                  | Node-2 | Node-1                  | Node-2 |
| 0                       | 500                         | 7.91                  | 8.54   | 11.38                 | 11.05  | 1.97                    | 1.82   | 12.01                   | 11.98  |
| 0                       | 1000                        | 9.39                  | 10.26  | 13.77                 | 13.63  | 2.98                    | 2.83   | 15.55                   | 16.25  |
| 0                       | 1500                        | 11.81                 | 12.74  | 18.09                 | 17.97  | 4.08                    | 4.54   | 13.19                   | 18.60  |
| 0                       | 2000                        | 13.95                 | 14.42  | 20.44                 | 22.81  | 4.53                    | 6.25   | 13.59                   | 25.47  |
| 0                       | 2500                        | 17.87                 | 18.05  | 25.09                 | 26.19  | 3.62                    | 6.33   | 14.18                   | 18.91  |
| 20                      | 500                         | 8.48                  | 8.14   | 11.55                 | 11.42  | 1.45                    | 1.63   | 9.14                    | 10.78  |
| 20                      | 1000                        | 9.25                  | 8.54   | 12.46                 | 13.32  | 2.28                    | 2.66   | 16.18                   | 14.96  |
| 20                      | 1500                        | 11.85                 | 11.15  | 15.93                 | 14.68  | 3.96                    | 4.60   | 19.53                   | 23.49  |
| 20                      | 2000                        | 12.73                 | 13.28  | 18.84                 | 19.66  | 4.61                    | 5.06   | 17.27                   | 21.92  |
| 20                      | 2500                        | 15.15                 | 15.90  | 0.02                  | 0.02   | 5.15                    | 6.93   | 16.85                   | 23.13  |
| 20                      | 3000                        | 17.51                 | 17.05  | 24.64                 | 25.76  | 5.27                    | 6.76   | 11.32                   | 17.82  |
| 40                      | 500                         | 5.04                  | 6.89   | 8.54                  | 9.89   | 1.55                    | 1.19   | 10.82                   | 8.14   |
| 40                      | 1000                        | 8.49                  | 8.76   | 12.55                 | 12.37  | 2.14                    | 2.07   | 12.25                   | 11.83  |
| 40                      | 2000                        | 11.40                 | 10.53  | 16.14                 | 15.36  | 3.96                    | 4.12   | 17.90                   | 22.82  |
| 40                      | 3000                        | 14.97                 | 14.02  | 21.27                 | 19.16  | 5.78                    | 5.98   | 22.18                   | 22.84  |
| 40                      | 4000                        | 18.92                 | 18.35  | 26.73                 | 25.43  | 8.18                    | 8.62   | 29.43                   | 25.31  |
| 40                      | 4500                        | 16.33                 | 15.79  | 24.93                 | 24.05  | 8.44                    | 7.38   | 21.74                   | 21.22  |
| 60                      | 500                         | 6.33                  | 6.41   | 8.83                  | 10.81  | 1.18                    | 1.44   | 6.33                    | 8.79   |
| 60                      | 1000                        | 8.29                  | 6.57   | 11.09                 | 9.49   | 2.07                    | 2.19   | 15.83                   | 16.35  |
| 60                      | 2000                        | 10.28                 | 11.05  | 15.01                 | 14.62  | 3.21                    | 3.33   | 15.35                   | 17.77  |
| 60                      | 3000                        | 12.06                 | 11.83  | 19.24                 | 18.01  | 4.37                    | 4.67   | 16.33                   | 22.35  |
| 60                      | 4000                        | 13.37                 | 16.04  | 21.14                 | 21.53  | 6.33                    | 6.88   | 19.05                   | 20.29  |
| 60                      | 5000                        | 17.26                 | 17.21  | 24.09                 | 24.75  | 7.71                    | 8.34   | 21.80                   | 25.10  |
| 60                      | 6000                        | 17.14                 | 19.43  | 26.04                 | 25.96  | 7.72                    | 6.98   | 19.27                   | 17.25  |
| 80                      | 500                         | 6.48                  | 6.97   | 8.82                  | 9.83   | 1.20                    | 1.16   | 7.22                    | 5.83   |
| 80                      | 1000                        | 5.16                  | 5.90   | 10.28                 | 10.41  | 1.36                    | 1.60   | 7.47                    | 8.08   |
| 80                      | 2500                        | 7.29                  | 5.89   | 13.07                 | 12.66  | 2.37                    | 2.48   | 8.48                    | 9.46   |
| 80                      | 5000                        | 10.17                 | 10.14  | 16.43                 | 16.64  | 3.85                    | 4.26   | 13.79                   | 12.06  |
| 80                      | 7500                        | 12.68                 | 12.90  | 19.18                 | 19.83  | 4.73                    | 5.52   | 11.93                   | 11.71  |
| 80                      | 10000                       | 15.19                 | 15.73  | 22.80                 | 22.87  | 6.36                    | 7.25   | 14.13                   | 14.81  |
| 80                      | 12500                       | 17.57                 | 17.87  | 26.76                 | 27.59  | 9.57                    | 10.77  | 21.32                   | 22.98  |

**Table C5.** System Resource Usage Results of the Most Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Avg Memory Usage (GB) |        | Max Memory Usage (GB) |        | Avg CPU Usage (Threads) |        | Max CPU Usage (Threads) |        |
|-------------------------|-----------------------------|-----------------------|--------|-----------------------|--------|-------------------------|--------|-------------------------|--------|
|                         |                             | Node-1                | Node-2 | Node-1                | Node-2 | Node-1                  | Node-2 | Node-1                  | Node-2 |
| 0                       | 500                         | 6.10                  | 5.60   | 8.56                  | 7.44   | 1.24                    | 1.28   | 5.61                    | 8.23   |
| 0                       | 1000                        | 7.81                  | 7.11   | 11.53                 | 11.08  | 1.96                    | 2.18   | 11.55                   | 12.47  |
| 0                       | 2000                        | 10.54                 | 10.10  | 16.66                 | 15.90  | 2.27                    | 2.90   | 7.20                    | 9.64   |
| 0                       | 3000                        | 12.62                 | 12.98  | 19.61                 | 19.10  | 4.65                    | 5.66   | 10.79                   | 14.68  |
| 0                       | 4000                        | 0.02                  | 0.02   | 0.02                  | 0.02   | 4.54                    | 5.34   | 13.31                   | 14.45  |
| 0                       | 5000                        | 18.29                 | 17.04  | 27.15                 | 25.72  | 7.94                    | 7.65   | 26.16                   | 17.39  |
| 20                      | 500                         | 4.87                  | 6.93   | 7.51                  | 11.04  | 1.22                    | 1.01   | 7.35                    | 3.55   |
| 20                      | 1000                        | 8.58                  | 6.70   | 10.69                 | 10.16  | 1.54                    | 2.09   | 10.69                   | 13.52  |
| 20                      | 2000                        | 10.23                 | 9.70   | 12.43                 | 14.74  | 3.13                    | 3.89   | 19.15                   | 19.12  |
| 20                      | 3000                        | 12.30                 | 10.89  | 16.73                 | 16.23  | 4.44                    | 4.90   | 17.67                   | 26.84  |
| 20                      | 4000                        | 14.23                 | 12.92  | 19.36                 | 17.54  | 5.90                    | 6.85   | 22.11                   | 22.90  |
| 20                      | 5000                        | 16.73                 | 15.63  | 24.07                 | 21.71  | 5.73                    | 6.32   | 18.53                   | 24.98  |
| 20                      | 6000                        | 17.54                 | 17.57  | 26.18                 | 26.65  | 7.04                    | 8.03   | 17.05                   | 18.26  |
| 40                      | 500                         | 7.49                  | 5.70   | 10.55                 | 10.51  | 1.20                    | 1.26   | 6.66                    | 11.51  |
| 40                      | 1000                        | 6.65                  | 8.43   | 10.23                 | 11.14  | 1.62                    | 1.62   | 14.67                   | 14.38  |
| 40                      | 2000                        | 8.84                  | 8.94   | 14.17                 | 13.38  | 2.66                    | 2.81   | 16.11                   | 18.24  |
| 40                      | 3000                        | 10.51                 | 10.15  | 14.46                 | 15.91  | 3.78                    | 4.51   | 16.55                   | 17.03  |
| 40                      | 4000                        | 13.15                 | 12.75  | 19.02                 | 18.97  | 4.34                    | 6.02   | 17.04                   | 23.26  |
| 40                      | 5000                        | 15.13                 | 15.23  | 22.21                 | 21.06  | 6.10                    | 6.97   | 21.69                   | 22.48  |
| 40                      | 6000                        | 17.89                 | 18.25  | 26.06                 | 25.99  | 6.78                    | 7.34   | 15.22                   | 19.23  |
| 40                      | 7000                        | 16.99                 | 17.65  | 26.25                 | 25.63  | 7.29                    | 8.93   | 13.96                   | 25.09  |
| 60                      | 500                         | 4.32                  | 4.88   | 8.42                  | 7.64   | 1.15                    | 1.34   | 7.05                    | 6.07   |
| 60                      | 1000                        | 5.42                  | 6.47   | 9.48                  | 9.37   | 1.50                    | 1.72   | 9.07                    | 9.76   |
| 60                      | 2000                        | 8.79                  | 8.19   | 11.84                 | 12.48  | 2.07                    | 2.31   | 13.73                   | 13.55  |
| 60                      | 3000                        | 8.37                  | 10.08  | 13.88                 | 14.19  | 3.20                    | 3.51   | 14.65                   | 19.09  |
| 60                      | 4000                        | 11.55                 | 11.37  | 17.52                 | 17.41  | 4.09                    | 3.43   | 10.75                   | 9.07   |
| 60                      | 5000                        | 14.72                 | 13.75  | 22.52                 | 21.52  | 4.66                    | 5.18   | 11.90                   | 16.38  |
| 60                      | 6000                        | 15.23                 | 14.98  | 22.09                 | 21.12  | 6.01                    | 7.12   | 15.15                   | 18.16  |
| 60                      | 7000                        | 15.45                 | 15.21  | 23.61                 | 22.75  | 6.85                    | 6.27   | 15.85                   | 16.21  |
| 60                      | 8000                        | 16.73                 | 16.37  | 25.31                 | 24.51  | 7.48                    | 8.59   | 17.09                   | 17.86  |
| 60                      | 9000                        | 16.83                 | 16.69  | 27.99                 | 24.01  | 8.81                    | 7.75   | 28.91                   | 16.99  |
| 80                      | 500                         | 6.62                  | 6.60   | 9.00                  | 10.32  | 1.06                    | 1.12   | 5.39                    | 6.50   |
| 80                      | 1000                        | 6.50                  | 5.71   | 10.63                 | 10.34  | 1.22                    | 1.38   | 5.36                    | 9.28   |
| 80                      | 2500                        | 7.96                  | 7.09   | 11.28                 | 11.35  | 1.90                    | 1.71   | 9.65                    | 6.61   |
| 80                      | 5000                        | 7.99                  | 6.91   | 13.33                 | 13.66  | 3.20                    | 3.51   | 14.65                   | 19.09  |
| 80                      | 10000                       | 10.56                 | 10.09  | 16.93                 | 16.81  | 5.54                    | 6.72   | 15.22                   | 13.36  |
| 80                      | 15000                       | 11.83                 | 11.55  | 20.08                 | 18.55  | 7.91                    | 8.55   | 19.12                   | 23.58  |
| 80                      | 20000                       | 14.57                 | 14.54  | 22.87                 | 25.26  | 9.40                    | 10.19  | 21.63                   | 23.81  |
| 80                      | 22500                       | 15.19                 | 14.27  | 26.21                 | 24.87  | 9.52                    | 9.52   | 30.49                   | 22.49  |
| 80                      | 25000                       | 13.38                 | 13.96  | 24.96                 | 25.89  | 8.88                    | 11.25  | 22.78                   | 28.39  |

**Table D1.** Network Cost Results of the Least Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Query Count per Minute | Max Message Size per Query (MB) | Total Message Size per Query (MB) | Total Message Size per Second (MB) | Total Message Size (GB) | Query Count per Second |
|-------------------------|-----------------------------|------------------------|---------------------------------|-----------------------------------|------------------------------------|-------------------------|------------------------|
| -                       | 100                         | 10                     | 21.46                           | 81.49                             | 13.58                              | 7.96                    | 0.17                   |
| -                       | 200                         | 20                     | 21.46                           | 81.49                             | 27.17                              | 15.92                   | 0.33                   |
| -                       | 300                         | 30                     | 21.46                           | 81.49                             | 40.75                              | 23.88                   | 0.50                   |

**Table D2.** Network Cost Results of the Low Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Query Count per Minute | Max Message Size per Query (MB) | Total Message Size per Query (MB) | Total Message Size per Second (MB) | Total Message Size (GB) | Query Count per Second |
|-------------------------|-----------------------------|------------------------|---------------------------------|-----------------------------------|------------------------------------|-------------------------|------------------------|
| 0                       | 100                         | 10                     | 24.29                           | 81.90                             | 13.65                              | 8.00                    | 0.17                   |
| 0                       | 200                         | 20                     | 24.29                           | 81.90                             | 27.30                              | 16.00                   | 0.33                   |
| 0                       | 300                         | 30                     | 24.29                           | 81.90                             | 40.95                              | 23.99                   | 0.50                   |
| 20                      | 100                         | 10                     | 16.67                           | 59.35                             | 9.89                               | 5.80                    | 0.17                   |
| 20                      | 200                         | 20                     | 16.67                           | 59.35                             | 19.78                              | 11.59                   | 0.33                   |
| 20                      | 300                         | 30                     | 16.67                           | 59.35                             | 29.68                              | 17.39                   | 0.50                   |
| 20                      | 400                         | 40                     | 16.67                           | 59.35                             | 39.57                              | 23.28                   | 0.67                   |
| 40                      | 100                         | 10                     | 12.68                           | 44.87                             | 7.48                               | 4.38                    | 0.17                   |
| 40                      | 200                         | 20                     | 12.68                           | 44.87                             | 14.96                              | 8.76                    | 0.33                   |
| 40                      | 300                         | 30                     | 12.68                           | 44.87                             | 22.44                              | 13.15                   | 0.50                   |
| 40                      | 400                         | 40                     | 12.68                           | 44.87                             | 29.92                              | 17.53                   | 0.67                   |
| 40                      | 500                         | 50                     | 12.68                           | 44.87                             | 37.39                              | 21.91                   | 0.83                   |
| 60                      | 100                         | 10                     | 8.34                            | 29.66                             | 4.94                               | 2.90                    | 0.17                   |
| 60                      | 200                         | 20                     | 8.34                            | 29.66                             | 9.89                               | 5.79                    | 0.33                   |
| 60                      | 300                         | 30                     | 8.34                            | 29.66                             | 14.83                              | 8.69                    | 0.50                   |
| 60                      | 400                         | 40                     | 8.34                            | 29.66                             | 19.77                              | 11.59                   | 0.67                   |
| 60                      | 500                         | 50                     | 8.34                            | 29.66                             | 24.71                              | 14.48                   | 0.83                   |
| 60                      | 750                         | 75                     | 8.34                            | 29.66                             | 37.07                              | 21.72                   | 1.25                   |
| 80                      | 500                         | 50                     | 4.23                            | 14.99                             | 12.49                              | 7.32                    | 0.83                   |
| 80                      | 750                         | 75                     | 4.23                            | 14.99                             | 18.74                              | 10.98                   | 1.25                   |
| 80                      | 1000                        | 100                    | 4.23                            | 14.99                             | 24.99                              | 14.64                   | 1.67                   |
| 80                      | 1250                        | 125                    | 4.23                            | 14.99                             | 31.23                              | 18.30                   | 2.08                   |
| 80                      | 1500                        | 150                    | 4.23                            | 14.99                             | 37.48                              | 21.96                   | 2.50                   |

**Table D3.** Network Cost Results of the Middle Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Query Count per Minute | Max Message Size per Query (MB) | Total Message Size per Query (MB) | Total Message Size per Second (MB) | Total Message Size (GB) | Query Count per Second |
|-------------------------|-----------------------------|------------------------|---------------------------------|-----------------------------------|------------------------------------|-------------------------|------------------------|
| 0                       | 100                         | 100                    | 10.73                           | 40.43                             | 67.39                              | 3.95                    | 1.67                   |
| 0                       | 200                         | 200                    | 10.73                           | 40.43                             | 134.78                             | 7.90                    | 3.33                   |
| 0                       | 300                         | 60                     | 10.73                           | 40.43                             | 40.43                              | 11.85                   | 1.00                   |
| 0                       | 400                         | 80                     | 10.73                           | 40.43                             | 53.91                              | 15.79                   | 1.33                   |
| 0                       | 500                         | 100                    | 10.73                           | 40.43                             | 67.39                              | 19.74                   | 1.67                   |
| 20                      | 100                         | 50                     | 8.61                            | 30.21                             | 25.18                              | 2.95                    | 0.83                   |
| 20                      | 200                         | 50                     | 8.61                            | 30.21                             | 25.18                              | 5.90                    | 0.83                   |
| 20                      | 300                         | 75                     | 8.61                            | 30.21                             | 37.76                              | 8.85                    | 1.25                   |
| 20                      | 400                         | 100                    | 8.61                            | 30.21                             | 50.35                              | 11.80                   | 1.67                   |
| 20                      | 500                         | 100                    | 8.61                            | 30.21                             | 50.35                              | 14.75                   | 1.67                   |
| 20                      | 750                         | 75                     | 8.61                            | 30.21                             | 37.76                              | 22.13                   | 1.25                   |
| 40                      | 100                         | 50                     | 6.55                            | 22.99                             | 19.16                              | 2.25                    | 0.83                   |
| 40                      | 200                         | 50                     | 6.55                            | 22.99                             | 19.16                              | 4.49                    | 0.83                   |
| 40                      | 300                         | 75                     | 6.55                            | 22.99                             | 28.74                              | 6.74                    | 1.25                   |
| 40                      | 400                         | 100                    | 6.55                            | 22.99                             | 38.32                              | 8.98                    | 1.67                   |
| 40                      | 500                         | 100                    | 6.55                            | 22.99                             | 38.32                              | 11.23                   | 1.67                   |
| 40                      | 750                         | 150                    | 6.55                            | 22.99                             | 57.48                              | 16.84                   | 2.50                   |
| 40                      | 1000                        | 100                    | 6.55                            | 22.99                             | 38.32                              | 22.45                   | 1.67                   |
| 60                      | 250                         | 125                    | 4.31                            | 15.14                             | 31.55                              | 3.70                    | 2.08                   |
| 60                      | 500                         | 100                    | 4.31                            | 15.14                             | 25.24                              | 7.39                    | 1.67                   |
| 60                      | 750                         | 150                    | 4.31                            | 15.14                             | 37.86                              | 11.09                   | 2.50                   |
| 60                      | 1000                        | 100                    | 4.31                            | 15.14                             | 25.24                              | 14.79                   | 1.67                   |
| 60                      | 1250                        | 125                    | 4.31                            | 15.14                             | 31.55                              | 18.49                   | 2.08                   |
| 80                      | 500                         | 500                    | 2.18                            | 7.68                              | 64.02                              | 3.75                    | 8.33                   |
| 80                      | 750                         | 750                    | 2.18                            | 7.68                              | 96.03                              | 5.63                    | 12.50                  |
| 80                      | 1000                        | 500                    | 2.18                            | 7.68                              | 64.02                              | 7.50                    | 8.33                   |
| 80                      | 1500                        | 750                    | 2.18                            | 7.68                              | 96.03                              | 11.25                   | 12.50                  |
| 80                      | 2000                        | 250                    | 2.18                            | 7.68                              | 32.01                              | 15.00                   | 4.17                   |
| 80                      | 2500                        | 250                    | 2.18                            | 7.68                              | 32.01                              | 18.76                   | 4.17                   |

**Table D4.** Network Cost Results of the High Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Query Count per Minute | Max Message Size per Query (MB) | Total Message Size per Query (MB) | Total Message Size per Second (MB) | Total Message Size (GB) | Query Count per Second |
|-------------------------|-----------------------------|------------------------|---------------------------------|-----------------------------------|------------------------------------|-------------------------|------------------------|
| 0                       | 500                         | 500                    | 2.32                            | 8.16                              | 67.98                              | 3.98                    | 8.33                   |
| 0                       | 1000                        | 500                    | 2.32                            | 8.16                              | 67.98                              | 7.97                    | 8.33                   |
| 0                       | 1500                        | 300                    | 2.32                            | 8.16                              | 40.79                              | 11.95                   | 5.00                   |
| 0                       | 2000                        | 400                    | 2.32                            | 8.16                              | 54.39                              | 15.93                   | 6.67                   |
| 0                       | 2500                        | 250                    | 2.32                            | 8.16                              | 33.99                              | 19.92                   | 4.17                   |
| 20                      | 500                         | 500                    | 1.80                            | 6.56                              | 54.67                              | 3.20                    | 8.33                   |
| 20                      | 1000                        | 500                    | 1.80                            | 6.56                              | 54.67                              | 6.41                    | 8.33                   |
| 20                      | 1500                        | 600                    | 1.80                            | 6.56                              | 65.61                              | 9.61                    | 10.00                  |
| 20                      | 2000                        | 500                    | 1.80                            | 6.56                              | 54.67                              | 12.81                   | 8.33                   |
| 20                      | 2500                        | 500                    | 1.80                            | 6.56                              | 54.67                              | 16.02                   | 8.33                   |
| 20                      | 3000                        | 300                    | 1.80                            | 6.56                              | 32.80                              | 19.22                   | 5.00                   |
| 40                      | 500                         | 500                    | 1.28                            | 4.97                              | 41.38                              | 2.42                    | 8.33                   |
| 40                      | 1000                        | 500                    | 1.28                            | 4.97                              | 41.38                              | 4.85                    | 8.33                   |
| 40                      | 2000                        | 1000                   | 1.28                            | 4.97                              | 82.77                              | 9.70                    | 16.67                  |
| 40                      | 3000                        | 750                    | 1.28                            | 4.97                              | 62.07                              | 14.55                   | 12.50                  |
| 40                      | 4000                        | 1000                   | 1.28                            | 4.97                              | 82.77                              | 19.40                   | 16.67                  |
| 40                      | 4500                        | 900                    | 1.28                            | 4.97                              | 74.49                              | 21.82                   | 15.00                  |
| 60                      | 500                         | 500                    | 0.96                            | 4.00                              | 33.33                              | 1.95                    | 8.33                   |
| 60                      | 1000                        | 1000                   | 0.96                            | 4.00                              | 66.66                              | 3.91                    | 16.67                  |
| 60                      | 2000                        | 1000                   | 0.96                            | 4.00                              | 66.66                              | 7.81                    | 16.67                  |
| 60                      | 3000                        | 1000                   | 0.96                            | 4.00                              | 66.66                              | 11.72                   | 16.67                  |
| 60                      | 4000                        | 1000                   | 0.96                            | 4.00                              | 66.66                              | 15.62                   | 16.67                  |
| 60                      | 5000                        | 1000                   | 0.96                            | 4.00                              | 66.66                              | 19.53                   | 16.67                  |
| 60                      | 6000                        | 1000                   | 0.96                            | 4.00                              | 66.66                              | 23.44                   | 16.67                  |
| 80                      | 500                         | 500                    | 0.48                            | 1.70                              | 14.13                              | 0.83                    | 8.33                   |
| 80                      | 1000                        | 500                    | 0.48                            | 1.70                              | 14.13                              | 1.66                    | 8.33                   |
| 80                      | 2500                        | 500                    | 0.48                            | 1.70                              | 14.13                              | 4.14                    | 8.33                   |
| 80                      | 5000                        | 500                    | 0.48                            | 1.70                              | 14.13                              | 8.28                    | 8.33                   |
| 80                      | 7500                        | 750                    | 0.48                            | 1.70                              | 21.20                              | 12.42                   | 12.50                  |
| 80                      | 10000                       | 1000                   | 0.48                            | 1.70                              | 28.27                              | 16.56                   | 16.67                  |
| 80                      | 12500                       | 1000                   | 0.48                            | 1.70                              | 28.27                              | 20.70                   | 16.67                  |

**Table D5.** Network Cost Results of the Most Selective Query

| SC Result Filtering (%) | Number of Monitored Queries | Query Count per Minute | Max Message Size per Query (MB) | Total Message Size per Query (MB) | Total Message Size per Second (MB) | Total Message Size (GB) | Query Count per Second |
|-------------------------|-----------------------------|------------------------|---------------------------------|-----------------------------------|------------------------------------|-------------------------|------------------------|
| 0                       | 500                         | 500                    | 1.36                            | 3.86                              | 32.13                              | 1.88                    | 8.33                   |
| 0                       | 1000                        | 500                    | 1.36                            | 3.86                              | 32.13                              | 3.77                    | 8.33                   |
| 0                       | 2000                        | 200                    | 1.36                            | 3.86                              | 12.85                              | 7.53                    | 3.33                   |
| 0                       | 3000                        | 300                    | 1.36                            | 3.86                              | 19.28                              | 11.30                   | 5.00                   |
| 0                       | 4000                        | 400                    | 1.36                            | 3.86                              | 25.71                              | 15.06                   | 6.67                   |
| 0                       | 5000                        | 500                    | 1.36                            | 3.86                              | 32.13                              | 18.83                   | 8.33                   |
| 20                      | 500                         | 500                    | 1.06                            | 3.25                              | 27.06                              | 1.59                    | 8.33                   |
| 20                      | 1000                        | 1000                   | 1.06                            | 3.25                              | 54.12                              | 3.17                    | 16.67                  |
| 20                      | 2000                        | 1000                   | 1.06                            | 3.25                              | 54.12                              | 6.34                    | 16.67                  |
| 20                      | 3000                        | 1000                   | 1.06                            | 3.25                              | 54.12                              | 9.51                    | 16.67                  |
| 20                      | 4000                        | 1000                   | 1.06                            | 3.25                              | 54.12                              | 12.68                   | 16.67                  |
| 20                      | 5000                        | 1000                   | 1.06                            | 3.25                              | 54.12                              | 15.86                   | 16.67                  |
| 20                      | 6000                        | 600                    | 1.06                            | 3.25                              | 32.47                              | 19.03                   | 10.00                  |
| 40                      | 500                         | 500                    | 0.75                            | 2.63                              | 21.89                              | 1.28                    | 8.33                   |
| 40                      | 1000                        | 1000                   | 0.75                            | 2.63                              | 43.79                              | 2.57                    | 16.67                  |
| 40                      | 2000                        | 1000                   | 0.75                            | 2.63                              | 43.79                              | 5.13                    | 16.67                  |
| 40                      | 3000                        | 750                    | 0.75                            | 2.63                              | 32.84                              | 7.70                    | 12.50                  |
| 40                      | 4000                        | 1000                   | 0.75                            | 2.63                              | 43.79                              | 10.26                   | 16.67                  |
| 40                      | 5000                        | 1000                   | 0.75                            | 2.63                              | 43.79                              | 12.83                   | 16.67                  |
| 40                      | 6000                        | 600                    | 0.75                            | 2.63                              | 26.27                              | 15.39                   | 10.00                  |
| 40                      | 7000                        | 700                    | 0.75                            | 2.63                              | 30.65                              | 17.96                   | 11.67                  |
| 60                      | 500                         | 500                    | 0.56                            | 2.25                              | 18.76                              | 1.10                    | 8.33                   |
| 60                      | 1000                        | 1000                   | 0.56                            | 2.25                              | 37.52                              | 2.20                    | 16.67                  |
| 60                      | 2000                        | 1000                   | 0.56                            | 2.25                              | 37.52                              | 4.40                    | 16.67                  |
| 60                      | 3000                        | 1000                   | 0.56                            | 2.25                              | 37.52                              | 6.60                    | 16.67                  |
| 60                      | 4000                        | 400                    | 0.56                            | 2.25                              | 15.01                              | 8.79                    | 6.67                   |
| 60                      | 5000                        | 500                    | 0.56                            | 2.25                              | 18.76                              | 10.99                   | 8.33                   |
| 60                      | 6000                        | 600                    | 0.56                            | 2.25                              | 22.51                              | 13.19                   | 10.00                  |
| 60                      | 7000                        | 700                    | 0.56                            | 2.25                              | 26.26                              | 15.39                   | 11.67                  |
| 60                      | 8000                        | 800                    | 0.56                            | 2.25                              | 30.01                              | 17.59                   | 13.33                  |
| 60                      | 9000                        | 900                    | 0.56                            | 2.25                              | 33.77                              | 19.79                   | 15.00                  |
| 80                      | 500                         | 500                    | 0.28                            | 0.81                              | 6.79                               | 0.40                    | 8.33                   |
| 80                      | 1000                        | 500                    | 0.28                            | 0.81                              | 6.79                               | 0.80                    | 8.33                   |
| 80                      | 2500                        | 1000                   | 0.28                            | 0.81                              | 13.58                              | 1.99                    | 16.67                  |
| 80                      | 5000                        | 1000                   | 0.28                            | 0.81                              | 13.58                              | 3.98                    | 16.67                  |
| 80                      | 10000                       | 1000                   | 0.28                            | 0.81                              | 13.58                              | 7.96                    | 16.67                  |
| 80                      | 15000                       | 1000                   | 0.28                            | 0.81                              | 13.58                              | 11.94                   | 16.67                  |
| 80                      | 20000                       | 1000                   | 0.28                            | 0.81                              | 13.58                              | 15.91                   | 16.67                  |
| 80                      | 22500                       | 1000                   | 0.28                            | 0.81                              | 13.58                              | 17.90                   | 16.67                  |
| 80                      | 25000                       | 1000                   | 0.28                            | 0.81                              | 13.58                              | 19.89                   | 16.67                  |