

Server Downtime

file: serverdowntime1.Rmd

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Contents

Executive Summary	1
1 The problem	1
2 The Data	1
3 Short exploratory analysis	2
3.1 Incident types frequency and consecutive downtime	2
3.2 Total downtime by problem type	3
4 Conclusion	4

Executive Summary

In this report, we analyze the causes of server downtime for a client of EDS. Using exploratory analysis, we identify the four most impactful server downtime causes as :

- Weekly Virus scan
- Memory Errors
- Lockups
- Disk failures

These results suggests that reducing the frequency or the downtime per incident of one of these four incidents types is the most promising way to improve the downtime situation.

1 The problem

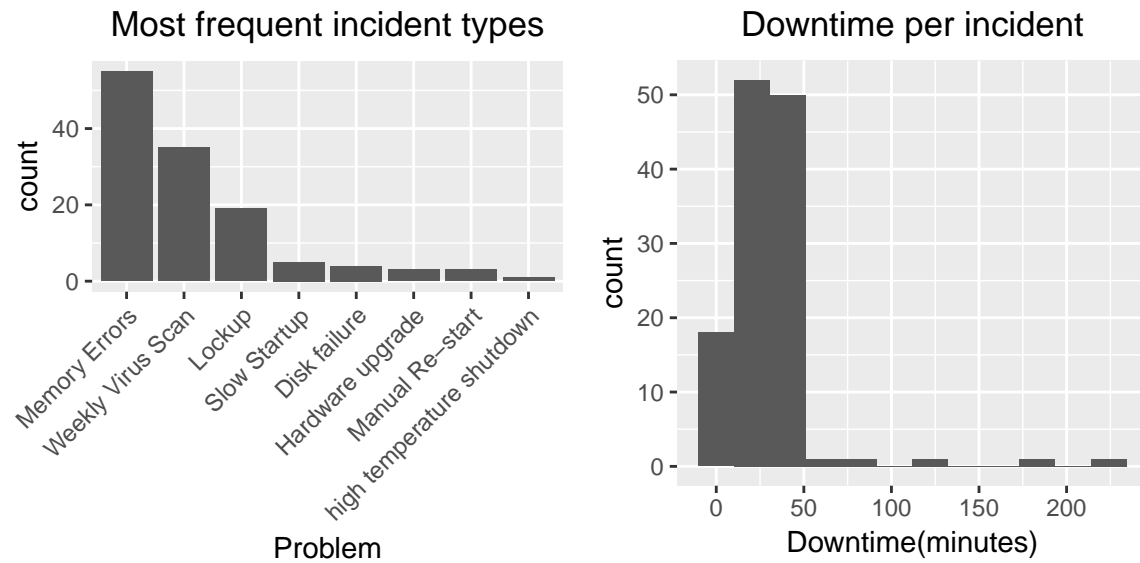
The problem consists in analyzing the downtime at servers of one of EDS's clients, and suggest approaches to improve the situation.

2 The Data

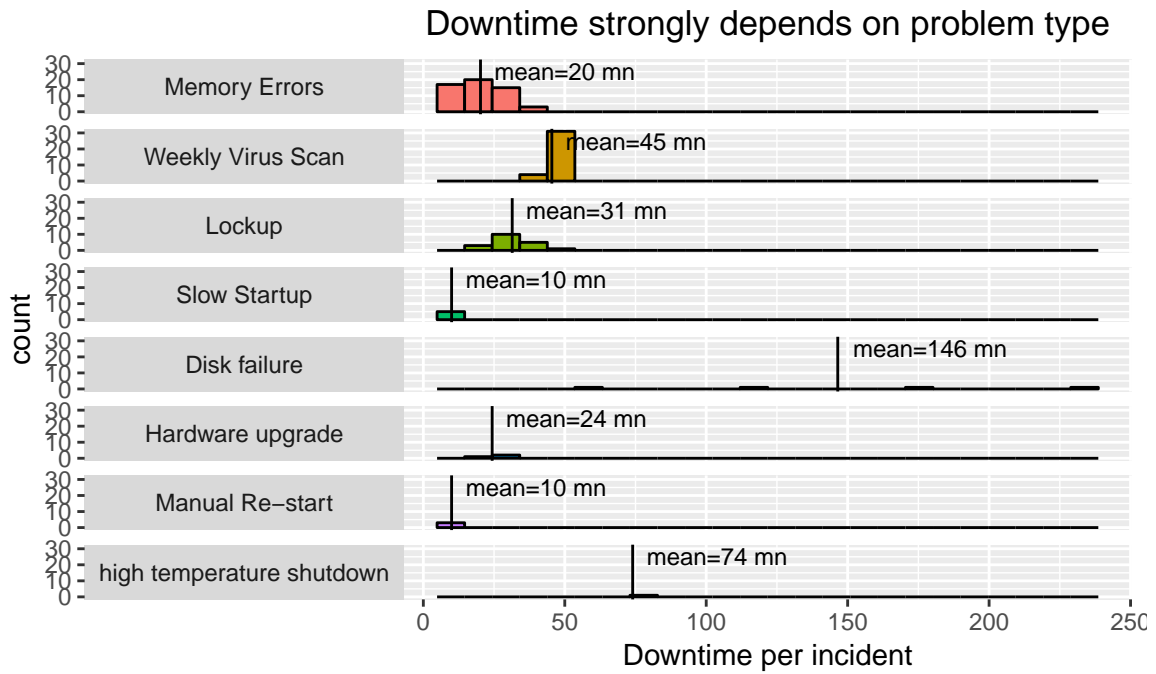
The data lists all the server incidents that occurred from January to August 2016. It has been compiled by the IT department of the client.

3 Short exploratory analysis

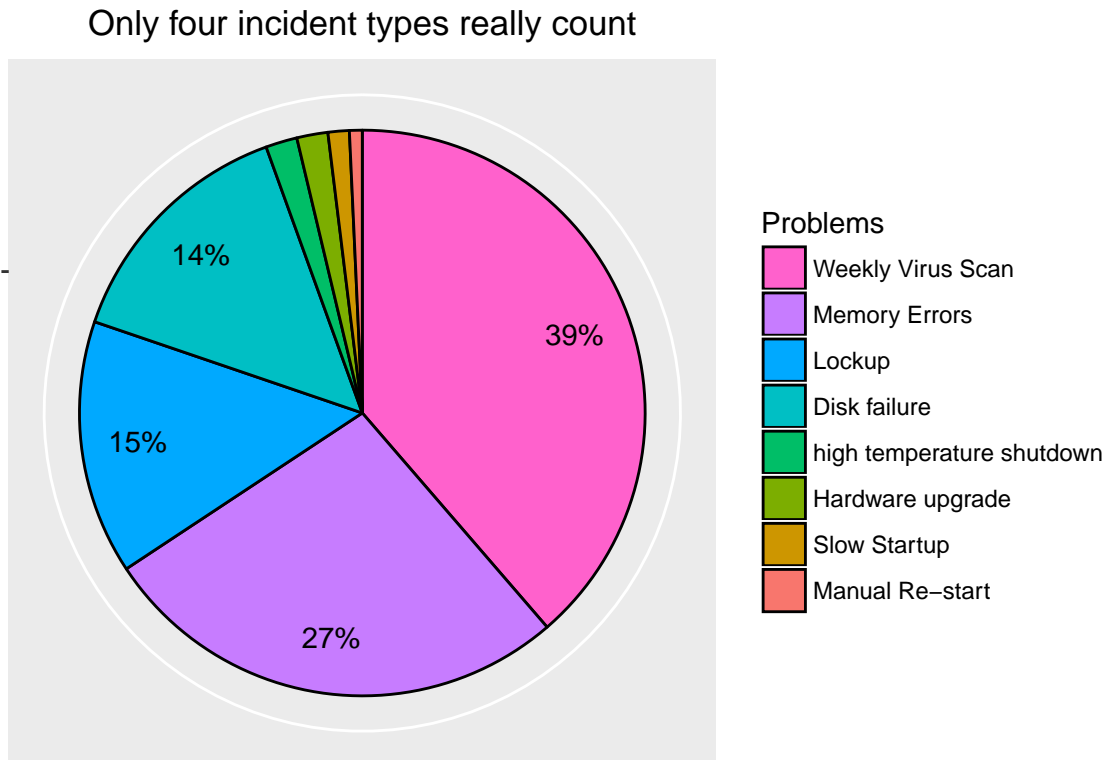
3.1 Incident types frequency and consecutive downtime



Problem	Freq	Rfreq
Memory Errors	55	44%
Weekly Virus Scan	35	28%
Lockup	19	15%
Slow Startup	5	4%
Disk failure	4	3%
Hardware upgrade	3	2%
Manual Re-start	3	2%
high temperature shutdown	1	1%



3.2 Total downtime by problem type



The most impactful problem type is the weekly viruscan (39% of the total downtime)

4 Conclusion

There are four types of events which have a sizeable impact on the total downtime:

1. Weekly Virus Scan :
 - 39% of total downtime
 - frequent problem (28% of incidents)
 - long downtime per incident (mean = 45 minutes)
2. Memory errors
 - 27% of total downtime
 - most frequent problem (44% of incidents)
 - medium-short downtime per incident (mean = 20 minutes)
3. Lockups
 - 15% of total downtime)
 - less frequent problem (15% of incidents)
 - average downtime per incident (mean = 31 minutes)
4. Disk failure
 - 14% of total downtime)
 - rare problem (3% of incidents)
 - Very long downtime per incident (mean = 146 minutes). Addionnally, one can note the high variability of the downtime per incident for this type of problem, which suggest that studying the context of the four previous incidents may yield methods to strongly reduce the mean downtimeper incident.

The other problem types are less important from the point of view of total downtime, and even a substantial improvement of the downtime of one of these other events cannot result in a sizable improvement of the total downtime.

Recommendation: These results show that shortening the average downtime per incident or reducing the frequency of the first four types of problems would be the most promising approaches to the problem of minimizing the total downtime.