Web Server Capacity Analysis

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Web Server Capacity Analysis (Mock Up)

Web Servers	Summary	Web Server 1 (Simba)	Web Server 2 (Nala)	Web Server 3 (Timon)	Web Server 4 (Pumbaa)	Web Server 5 (Zazu)

WEB SERVERS

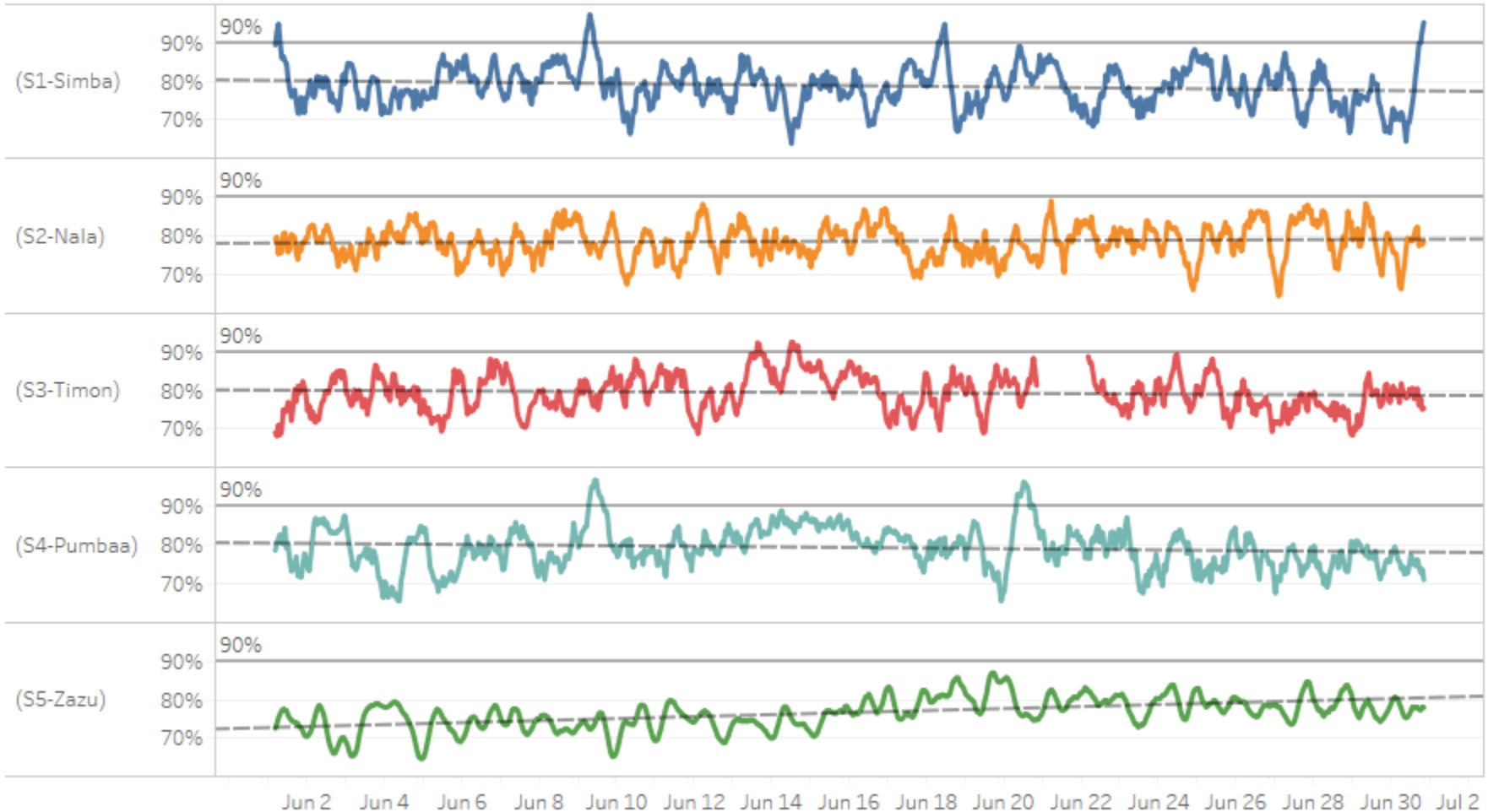
This is a simulation for assessing the requirement of increasing network bandwidth of web servers in order the deliver content reliably to users who utilize Disney streaming services in the upcoming month. The task is to find out if any of the main servers have exceeded 90% of the capacity at least one 8-hour period during June 2020 and make recommendations accordingly. Beyond 90% threshold, some users are likely to experience the dreaded buffering. We will analyze the usage of five main servers, however the idea can be applied to hundreds of servers.

The capacity of each server allows to transfer 4500 GB data within every hour and the servers run round the clock for 24/7 for 365 days a year.

Disclaimer: This is a mock-up assignment and all data used for this analysis is fabricated.

Web Server Capacity Analysis (Mock Up)

Web Servers	Summary	Web Server 1 (Simba)	Web Server 2 (Nala)	Web Server 3 (Timon)	Web Server 4 (Pumbaa)	Web Server 5 (Zazu)

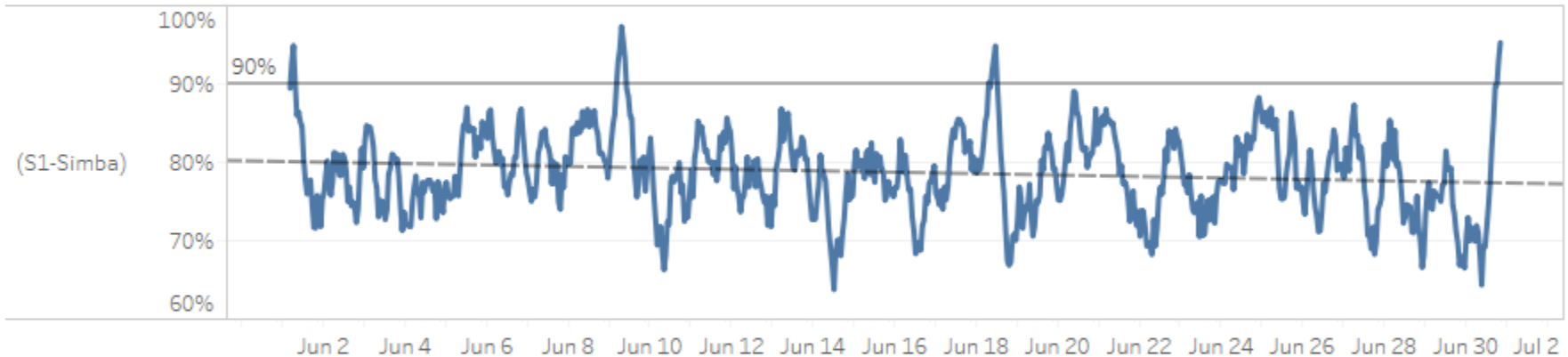


The chart shows the 8 hours moving average of bandwidth usage % for five main web servers across the 90% reference line.
Bandwidth Usage % = 100 * (Actual Usage (GB) / Capacity (GB))

Web Server Capacity Analysis (Mock Up)

WEB SERVER 1 (SIMBA)

Analysis-S1



The image above illustrates the 8-hour moving average of bandwidth usage for Server 1 (Simba), expressed as a percentage of maximum capacity.

Throughout the month Simba exceeded the allowable threshold multiple times:
6/1 - moving average peaked at 95%
6/9 - moving average peaked at 97%
6/18 - moving average peaked at 95%
6/30 - moving average peaked at 94%

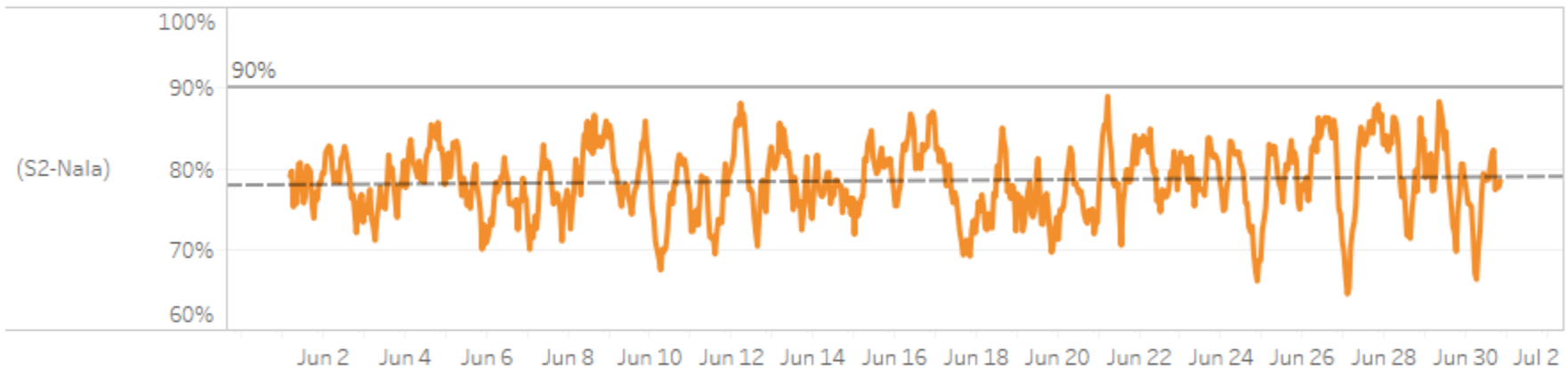
It is highly recommended to increase these servers' capacity or add a new server to distribute the web traffic to prevent users experience buffering while streaming content.

Web Server Capacity Analysis (Mock Up)

Web Servers | Summary | Web Server 1 (Simba) | **Web Server 2 (Nala)** | Web Server 3 (Timon) | Web Server 4 (Pumbaa) | Web Server 5 (Zazu)

WEB SERVER 2 (NALA)

Analysis-S2



The image above illustrates the 8-hour moving average of bandwidth usage for Server 2 (Nala), expressed as a percentage of maximum capacity.

Throughout the month Nala has not exceeded the allowable threshold. In addition, the trend line does not represent a statistically significant (P-value=0.08) upward trend in web traffic in the upcoming days.

It is recommended to continue monitoring the web traffic for this server in the upcoming month, however no action is necessary at this point.

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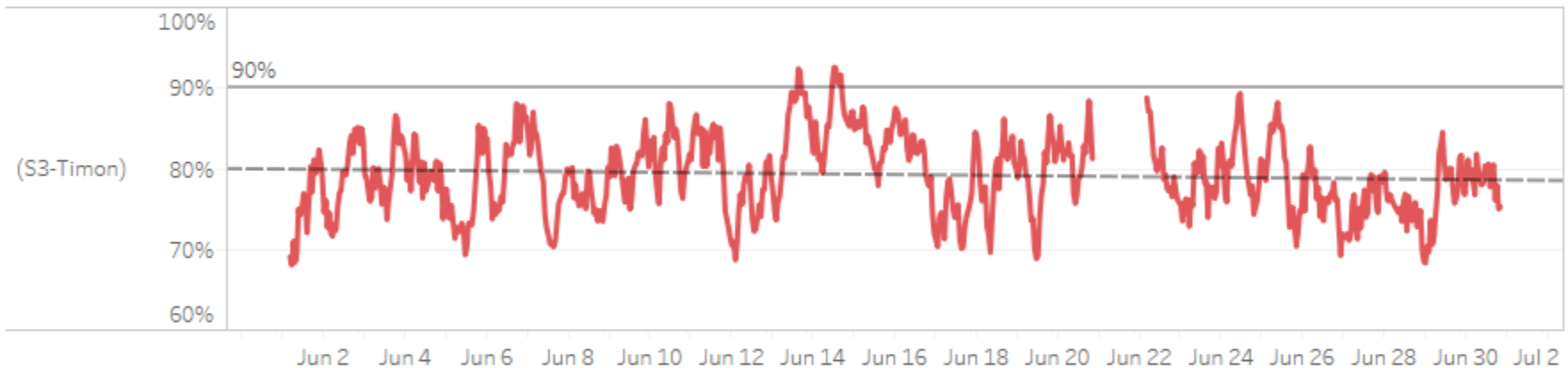
Web Servers	Summary	Web Server 1 (Simba)	Web Server 2 (Nala)	Web Server 3 (Timon)	Web Server 4 (Pumbaa)	Web Server 5 (Zazu)

WEB SERVER 3 (TIMON)

Analysis-S3



The image above illustrates the 8-hour moving average of bandwidth usage for Server 3 (Timon), expressed as a percentage of maximum capacity.

Throughout the month Nala has not exceeded the allowable threshold two times.
6/13 - moving average peaked at 92%
6/4 - moving average peaked at 93%

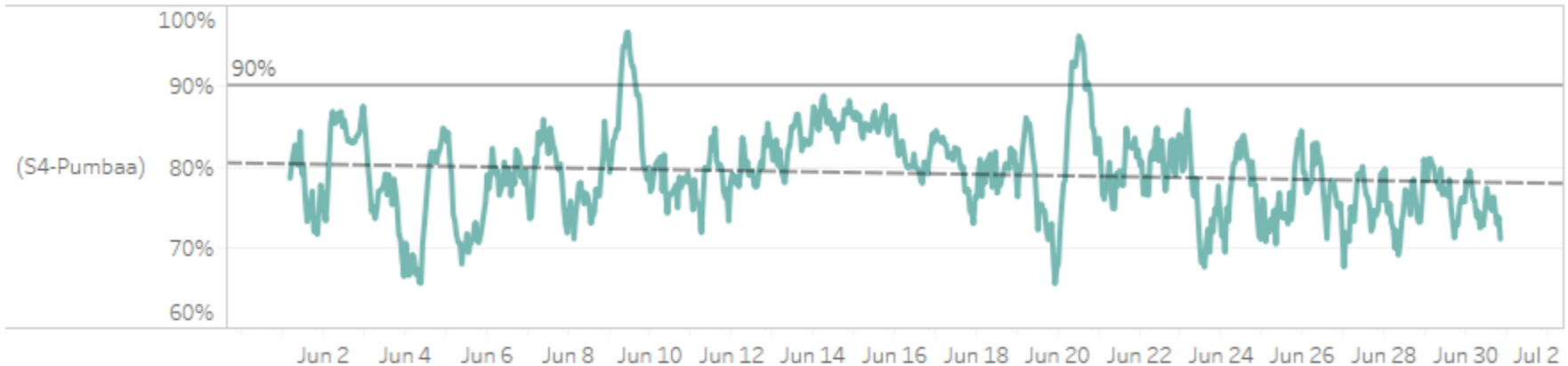
In addition, there is a 24 hours period of missing data in June 21th that may require further investigation why the server was unresponsive during that time. It is evident that this server requires attention in the upcoming month.

Web Server Capacity Analysis (Mock Up)

Web Servers	Summary	Web Server 1 (Simba)	Web Server 2 (Nala)	Web Server 3 (Timon)	Web Server 4 (Pumbaa)	Web Server 5 (Zazu)

WEB SERVER 4 (PUMBAA)

Analysis-S4



The image above illustrates the 8-hour moving average of bandwidth usage for Server 4 (Pumbaa), expressed as a percentage of maximum capacity.

Throughout the month Nala has not exceeded the allowable threshold two times.
6/9 - moving average peaked at 97%
6/20 - moving average peaked at 96%

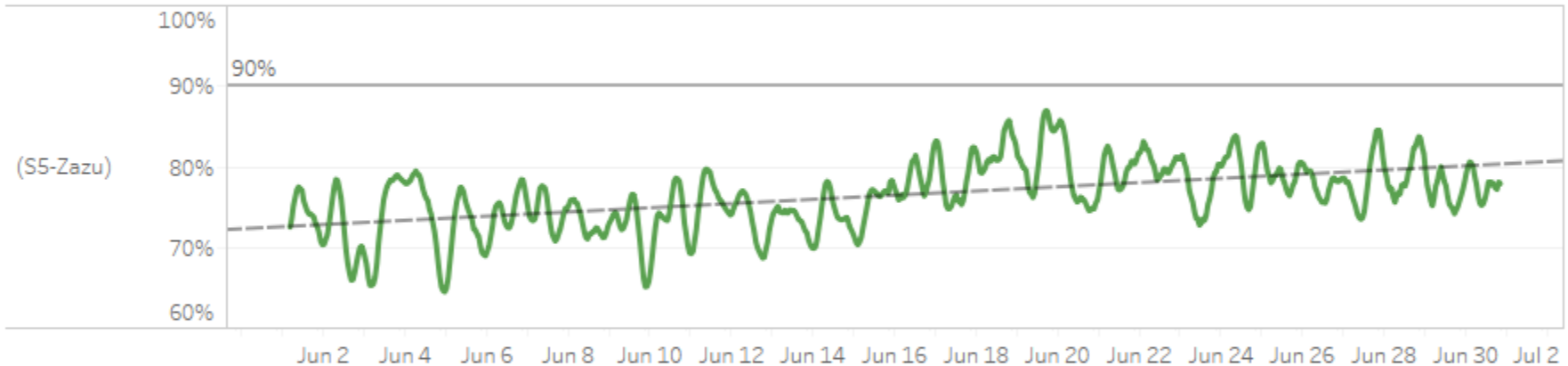
However the other days are of the month way below the threshold besides those two sharp spikes. It is recommended to research thr cause of spikes before deciding to make an investment.

Web Server Capacity Analysis (Mock Up)

Web Servers	Summary	Web Server 1 (Simba)	Web Server 2 (Nala)	Web Server 3 (Timon)	Web Server 4 (Pumbaa)	Web Server 5 (Zazu)

WEB SERVER 4 (PUMBAA)

Analysis-S5



The image above illustrates the 8-hour moving average of bandwidth usage for Server 5 (Zazu), expressed as a percentage of maximum capacity.

Throughout the month Zazu has not exceeded the allowable threshold.

However the trend line shows a statistically significant (P-value < 0.05) upward trend the web traffic. If the trend continues, every hour there will be 0.03% increase in the traffic so that 90% mark may be reached in the long run. This may be due to an increasing demand or popularity for the content that this server streams and it is a good idea to take precautionary efforts.