Database and Server Optimization

One of the challenges I had on the company I'm working for, it was to ensure scalability, as the company works with social media analytics and automation more clients = more processing, the biggest challenge was reducing the resources usage and create a multiprocessing (would be easier if we were using PHP 7 since it has MultiThreading). To ensure it we had some steps:

1. Database optimization: it included a process to examine each table and column to choose the appropriate datatype, checking all the indexes, adding new ones if needed.
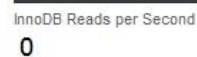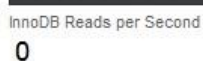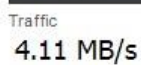
Some tables we had to split to 2 or 3 new tables to optimizing the data processing and searching.

The databases I'm talking about at that time had around 50 million rows (now it has around 230 million rows on the main project)
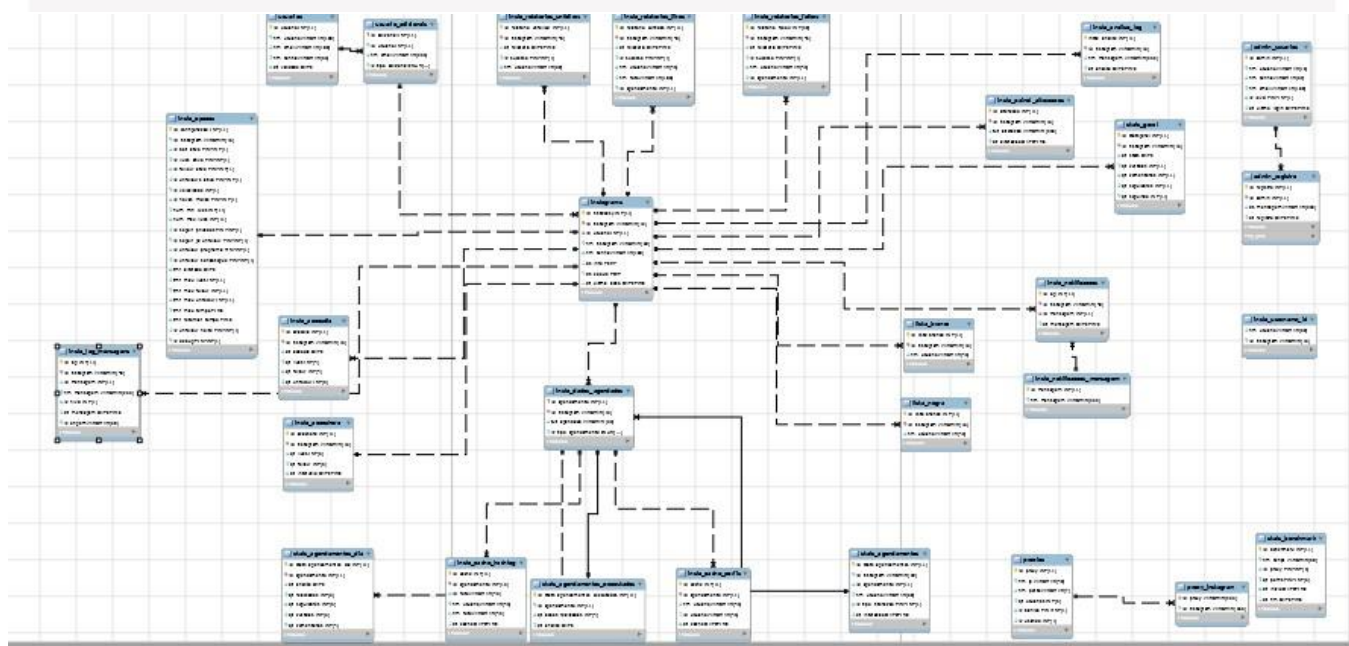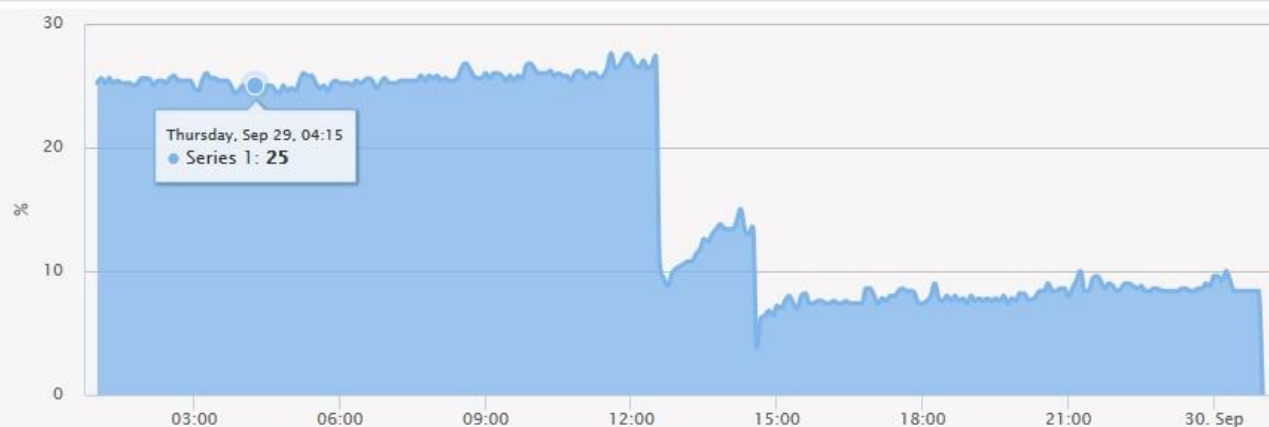
2. Apache optimization: it was out of my comfort zone, I didn't have any experience optimizing apache, so I had to learn about apache workers (MPM) and its options, after few days studying and several tests, we could finally end up with a configuration that reduced our memory usage by 40%+.

3. MultiThreading: instead of using single threading to get and process the data, the solution was implementing a multi-threading processing, but PHP 5 doesn't have multithreading, for a while we were using Multi cURL to simulate the multi-threading, and after we decided to write a shell script to directly execute multiple PHP files at the same time. The solution was basically: PHP = batch processing | Bash file: Multiple processing at the same time.

I'm attaching the entity relationship diagram of the databases at that time.

Server 1

Server Status: Running
CPU: ---
Connections: 790
Traffic: 4.11 MB/s
Key Efficiency: 93.3%
Selects per Second: 16177
InnoDB Buffer Usage: 100.0%
InnoDB Reads per Second: 0
InnoDB Writes per Second: 1728

Server 2

Server Status: Running
CPU: ---
Connections: 468
Traffic: 2.09 MB/s
Key Efficiency: 93.3%
Selects per Second: 14937
InnoDB Buffer Usage: 100.0%
InnoDB Reads per Second: 0
InnoDB Writes per Second: 4265

Information: Use of the memory   **Period:** Last 24 hours

Thursday, Sep 29, 04:15
● Series 1: 25

Creative Solution

I used to be volunteer teaching wind instruments for kids (recorder, flute, saxophone), I could realize that some kids had more hard time while trying to learn the theory part (reading music sheets). I came up with the idea of creating visual instructions of how to play flute, that's when I created a website Cifras e Musicas (http://cifrasemusicas.com), I got the content from some another websites or music files, and created a simple website using Twitter BootStrap, PHP + MySQL. at the beginning, it was just saying the notes (like the text content you can see http://cifrasemusicas.com/flauta-doce/titanic-my-heart-will-go-on-celine-dion/), and then I codded a script to generate images from that instruction (using PHP + ImageGD Library) and embedded it on the website.

I used some on-page SEO techniques to be relevant on google, nowadays the website hits over 2.000 daily pageviews, and had over 2.5 million page views since July 2014.