

Performance issue in sending bulk emails

Problem:

When we send the bulk emails it takes a lot of time to revert back the success/confirmation message. For example if we make an announcement and let's say we broadcast it to 100 employees, then it takes approximately 40s to publish that announcement and 40s for just 100 people is a huge time and as we all know an organization can have an employee count from 500 to 5000. This problem might be everywhere in the software where we send bulk emails. So according to me this is the problem that we have to definitely look into.

Technical explanation of the problem:

The problem is that we are sending emails one person at a time. That is first we send email to one person then to second and so on. Technically we are sending email in a loop (basically for loop) at backend. Therefore it takes a lot of time to get acknowledged.

Proposed solution 1 (Multithreading):

Multiple threads can be used to send emails parallelly. Multithreading might result in significant decrease in time. Probably we can send 2000 emails in less than 10 seconds.

Proposed solution 2:

If multithreading is the thing we can't implement right now then we can do one more thing that is.

We can acknowledge to the user (the person who is publishing the announcement) first, then we can start sending emails in loop. For example, after publishing an announcement we can update everything at the front end (like announcements at dashboard), then we can send acknowledgement or successful confirmation message to the user, then after that we can start sending emails to all the users in a loop.

Proposed solution 3:

As you can see in the screenshot, we can add 500 recipient's at a time. That means we can send 500 emails in parallel. Here you see we only ping the Google API once rather than 500 times. Basically here the concept of multithreading is handled by API itself. So we do not need implement multithreading ourselves.