Welcome emails

Design a set of services that handle new user registrations to an application. Requests to register will be sent to your API by the user's browser.

Required features:

- Every new user is sent a welcome email.

- Sending email takes a few seconds, which is longer than our standards allow clients to wait for an API response.

- Users must not receive their welcome email more than once.

- Users must not be allowed to register with an email address that is already in use.

Challenges:

- Will you allow users to use the system if their email address is invalid? What will you do if the welcome email bounces?

- Ensure your design does not break any of the above requirements even when one or more of your services has to be restarted.