Programming Exercise

This exercise should be completed in 4 hours or less. The solution must be runnable, and can be written in any programming language.

The challenge is to build a HTTP-based RESTful API for managing Customers and their Certificates. Be thoughtful about the fact that the system must eventually support millions of certificates.

A Customer:

1. Has a name
2. Has an email address
3. Has a password
4. May have zero to many Certificates

A Certificate:

1. Belongs to one and only one Customer
2. Can be either active or inactive
3. Has a private key
4. Has a certificate body

Your solution must support:

1. Creating/Deleting Customers
2. Creating Certificates
3. Listing all of a Customer's Active Certificates
4. Activating/Deactivating Certificates. If a certificate is either activated or de-activated, add the ability to notify an external system (via an HTTP post) about that fact. You could use http://httpbin.org or http://requestb.in/ to exercise this.
5. Persistence (data must survive computer restarts)

Shortcuts

1. No authentication is required. Though the data model specifies a user password, you don't have to implement authentication (login) or authorization (ensuring user's can't see each other's data).
2. Though private keys in the real world are extremely sensitive, you needn't treat them as anything other than a blob of bytes for this exercise. For the password field however, you should try to treat it as you would a typical password.
3. Transport/Serialization format is your choice, but the solution should be testable via curl
4. Anything left unspecified is left to your discretion.