COMP3008 Distributed Computing
Assignment 1

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Assignment 1 (Part 1)

Q1.

    i. A primary concern associated with the use of system calls to make server call backs to untrusted clients is that it can cause a denial of service attack. A legitimate request cannot be processed if an attacker sends many request to the server, since these requests causes the server to become overloaded. The consequence can be the server being unavailable for a longer time duration causing disruptions to business processes and individuals depending on the server for important services. On the other hand asynchronous and one-way calls does not encounter this problem as the client and the server do not need be synced. Also, asynchronous and one-way calls makes no attempt to block the caller while the caller processes the request. Hence, it can be identified denial of service attacks does not cause any harm to asynchronous calls.

    ii. Asynchronous communication can be described in two main approaches. The asynchronous approach and the one-way approach. For newscasting callbacks, generally the asynchronous approach is used since it allows the communication to happen in real-time. This is important to stay up to date with the latest news. The asynchronous approach is considered a very robust method compared to the one-way approach as it can more effectively control disruptions and unexpected delays.

Q2.

- Due new requirements business logics can be increased hence the database access code should be located in the data layer. However, the total number of databases will almost remain the same. If the database access code is added in the business layer it will complicate the business code which will also increase the redundancy in the code. When the data layer contains the database access code reusing the code in the business layer is much easier and effective.
  Also, the number of logins should through each database should be handled. Although if the business layer contains the access logic, then it should he handled as well, which is not wise.