1. **Solution background**
   1. **Architectural Approaches**

**Sử dụng mô hình client-server dùng mạng LAN.**

The main benefits of the client/server architectural style are:

* **Higher security**. All data is stored on the server, which generally offers a greater control of security than client machines.
* **Centralized data access**. Because data is stored only on the server, access and updates to the data are far easier to administer than in other architectural styles.
* **Ease of maintenance**. Roles and responsibilities of a computing system are distributed among several servers that are known to each other through a network. This ensures that a client remains unaware and unaffected by a server repair, upgrade, or relocation.
* **Dễ dàng thêm mới client vào hệ thống**

**Đảm bảo tính availability:**

Khi máy chủ bị sụp, máy ở POS vẫn có thể tiếp tục thực hiện tiến trình mà không cần phải có thời gian chờ.

* Passive redundancy: Phân chia database phụ ở POS, khi thực hiện giao dịch sẽ đồng thời lưu dữ liệu vào database ở cả POS và head office. Khi database ở Head office bị sụp, dữ liệu vẫn có thể

Khi sảy ra sự cố trong quá trình thanh toán ở POS, những tiến trình đang được thực hiện dở dang sẽ được hủy bỏ

* Transactions: Khi sảy ra sự cố trong một bước bất kì của quá trình thanh toán, toàn bộ giao dịch sẽ được hủy!

**Đảm bảo tính Performance:**

**Đảm bảo các thao tác ở POS phải được thực hiện nhanh chóng**

* Reduce computational overhead: Để đảm bảo tính nhanh chóng trong các thao tác xử lý, hệ thống sẽ giảm thiểu sự trao đổi thông tin giữa các tầng. Tuy nhiên thì khả năng dễ dàng thay đổi của hệ thống sẽ giảm đi
* Increase available resources: tăng thêm phần cứng (tốc độ xử lý, bộ nhớ, đường truyền..). Tuy nhiên chi phí sẽ tăng lên