Task ID: Conceptual-Design

Design Scenario

An online shop wants to modularize its Java web applications and expose selected components and services via Web APIs to external partners (e.g., marketing firms, suppliers, price comparison websites) over the internet. The lead architect has previously decided on microservices architecture. The architect tries to answer the following questions:

1) What is the right service decomposition?
2) How can loose coupling and high cohesion be achieved?
3) Should communication be synchronous or asynchronous?

The architect has already read some books and articles, which (s)he found interesting but insufficient (e.g., too abstract to be actionable on the project). The architect is looking for patterns, components design and design principles for service decomposition.

Non-functional requirements

- Data consistency.
- Versioning.
- Quality of service (API security, service level agreements, performance).

Constraints

Any conceptual component that is found and any patterns should be mature, e.g., implemented in at least two different settings. Best practices, should be either applied in Java or Microsoft technologies.

Search goal

The architect would like to search for possible *architectural principles, patterns, and components design* which would help him answer the aforementioned questions.

Search and determine the relevance and the types of architectural knowledge of the resulted web pages from Google, which could support the architect fulfilling his request.