ModernMaven - StyleMart

ModernMaven - StyleMart is an exciting new e-commerce platform platform designed to bring the latest fashion trends to style-conscious conscious professionals around the world. Leveraging ModernMaven's ModernMaven's strong brand reputation, this platform aims to provide provide a seamless and visually appealing shopping experience, catering experience, catering to the growing demand for online fashion retail. retail.

By Group 3

Participants – Group 3

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Project Context

StyleMart is an online platform that connects fashion enthusiasts, designers, and shoppers. The system aims to provide a seamless shopping experience while ensuring security, availability, and usability.

Users/Customers

Fashion-conscious users who browse browse and purchase clothing, accessories, and beauty products. products.

Administrators

Responsible for managing the platform, handling disputes, and and maintaining system health, maintaining inventory, provide customer support to the users.

Designers and Sellers

Individuals or brands who showcase showcase their collections on StyleMart (Future scope – drop-shipping).

Abstract & Key Aspects

ModernMaven – StyleMart is an e-commerce platform designed to provide stylish wear for the modern users globally. The project aims to leverage ModernMaven's strong brand reputation to tap into the growing online shopping market, particularly targeting the upcoming holiday sales.

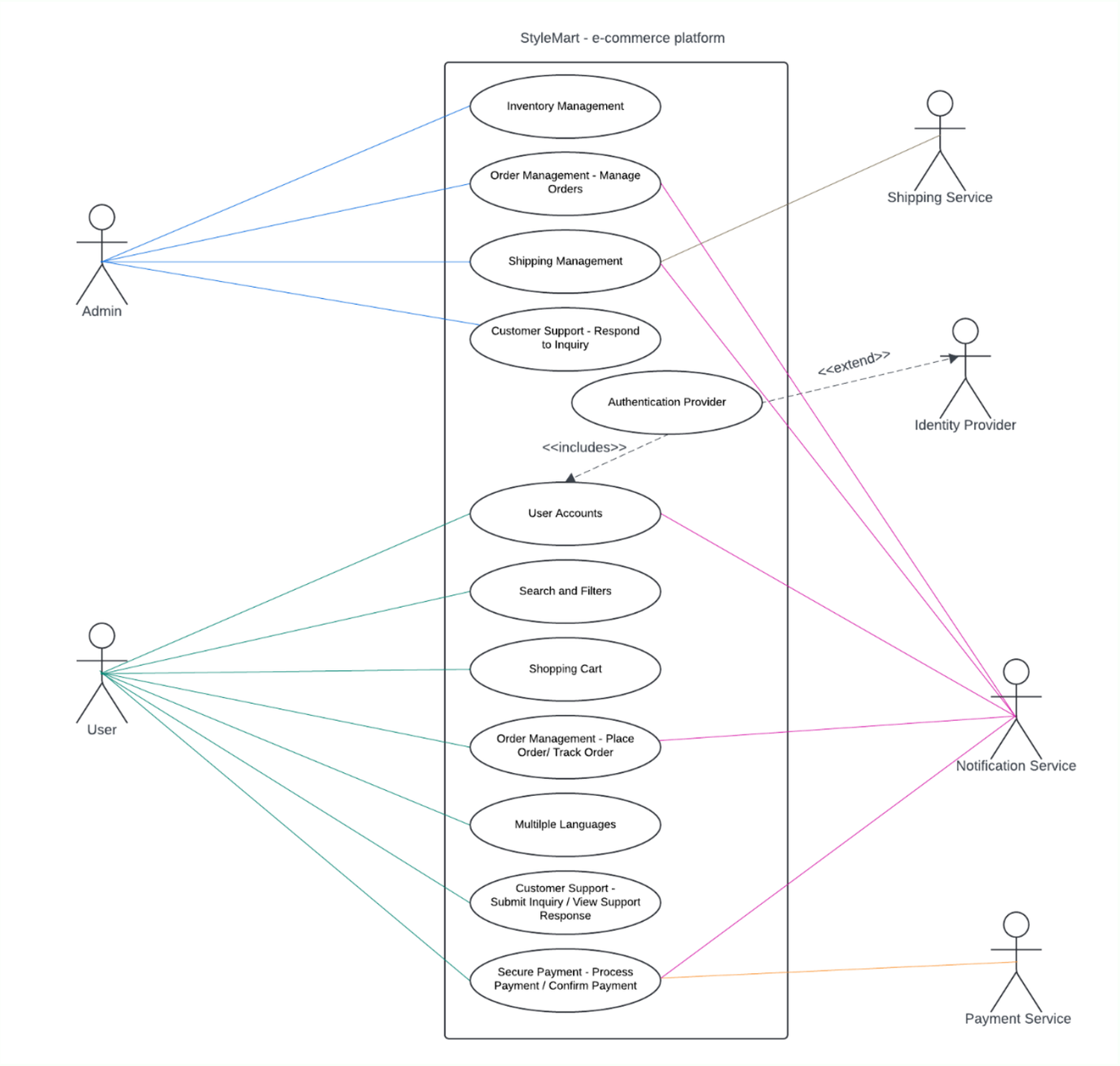
- Objective: Create a visually appealing, user-friendly platform showcasing ModernMaven's latest collections, enhancing the shopping experience.
- Functionality: Includes inventory management, search and filters, shopping cart, user accounts, multilingual support, secure payment, order management, and customer support.
- System Goals: Focus on visual appeal, performance, scalability, mobile responsiveness, and secure transactions.
- Constraints and Risks: Launch within six months, compatibility with various devices and browsers, adherence to regional regulations, and potential technical and market challenges.

Requirements

Create an intuitive, responsive and user-friendly interface available to be used globally which works during peak traffic, accommodate growth in users & products. It must safeguard user’s data and follow security & compliances.

1. **Inventory Management**
2. **Search and Filter Products**
3. **Shopping Cart**
4. **User Accounts**
5. **Multiple Languages**
6. **Secure Payment**
7. **Order Management**
8. **Customer Support**

System Context



Quality Attributes

Key Quality Attributes to be met by the system: Usability, Security and Availability.

Quality Attribute	Description	Importance
Availability	System or its component switches to a backup component or recovers from the failure within 1 minute resulting into 99.99% availability for those features.	Critical for Business Growth
Security	Implementation of secure payment systems to protect user data. Protection against potential cyberattacks and data breaches. Compliance with data protection laws and e-commerce regulations.	Customer Trust and Legal Compliance
Usability	When a website is used by different users globally across different devices, it should have a visually appealing and user-friendly interface which can support multiple languages such as English, French, Spanish.	User Experience and user-friendly interface

Availability:

Stimulus	**A system or its components dealing with critical features**
Source of stimuli	Failure
Environment	Under normal operating conditions or peak load
Artifacts stimulated	Affected system or components
Response	The system switches to a backup component or recovers from a failure
Response Measure	Overall availability of the system should be 99.99% and recover from failure within 1 minute

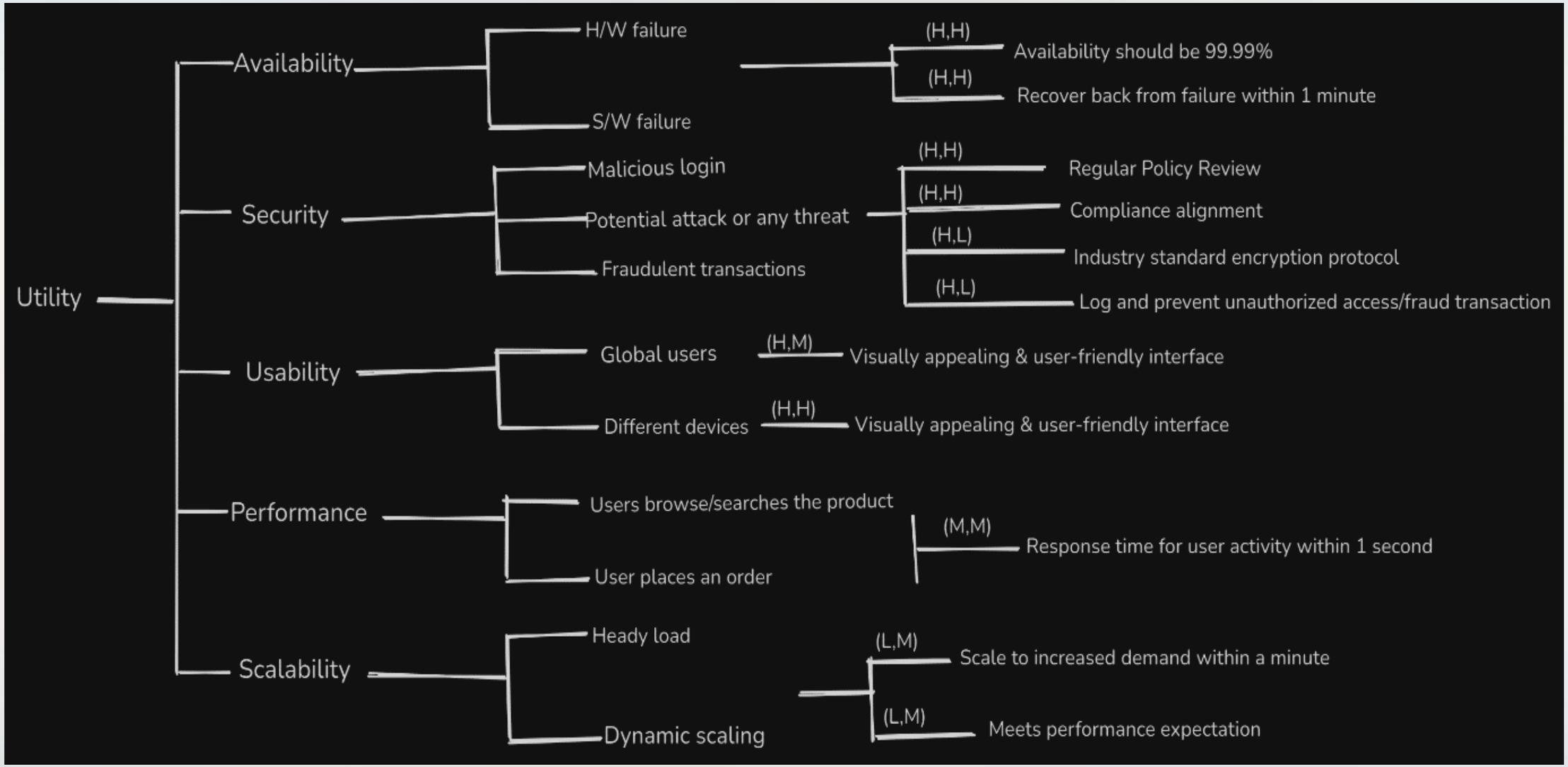
Security:

Stimulus	**When a potential attack, malicious login attempts, fraudulent transactions or any threat happens**
Source of stimuli	Security threats
Environment	During normal operations
Artifacts stimulated	Intrusion detection system
Response	Detect, prevent threats and safeguard user's data
Response Measure	Regular policy review, compliance alignment, industry standard encryption protocols, log and prevent unauthorized access or fraud transaction

Usability:

Stimulus	**A website used by different users across different devices**
Source of stimuli	Global users and different devices
Environment	Under normal operating conditions
Artifacts stimulated	The visual interface of the system
Response	Multiple language & different device support
Response Measure	User friendly interface across multiple devices & language

Utility Tree



Architecture Styles

Microservices Architecture: Provides modularity, scalability, and flexibility, allowing for independent deployment and scaling of different services.

1

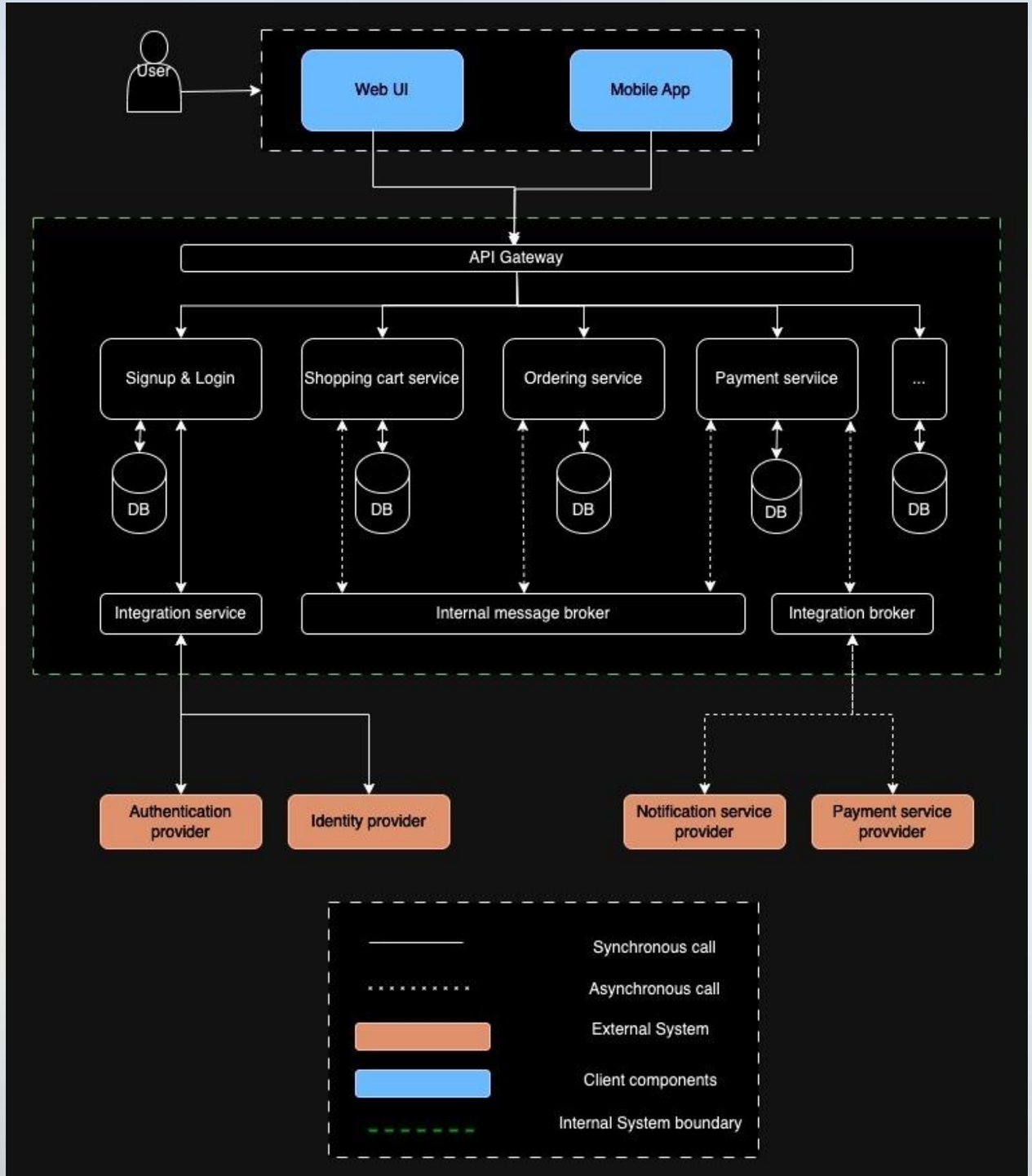
Call-Return

Microservices communicate via synchronous requests and responses.

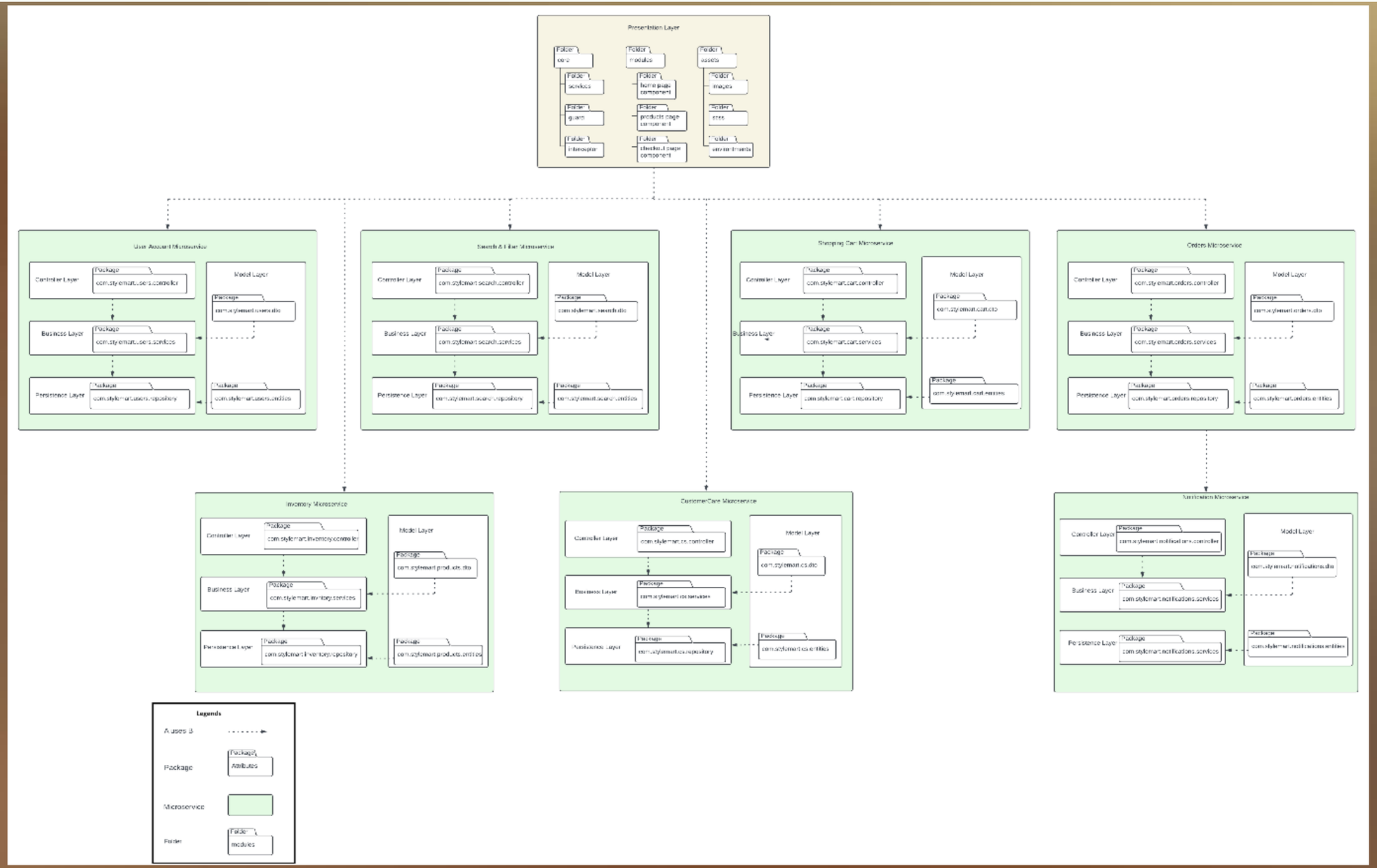
2

Event-based

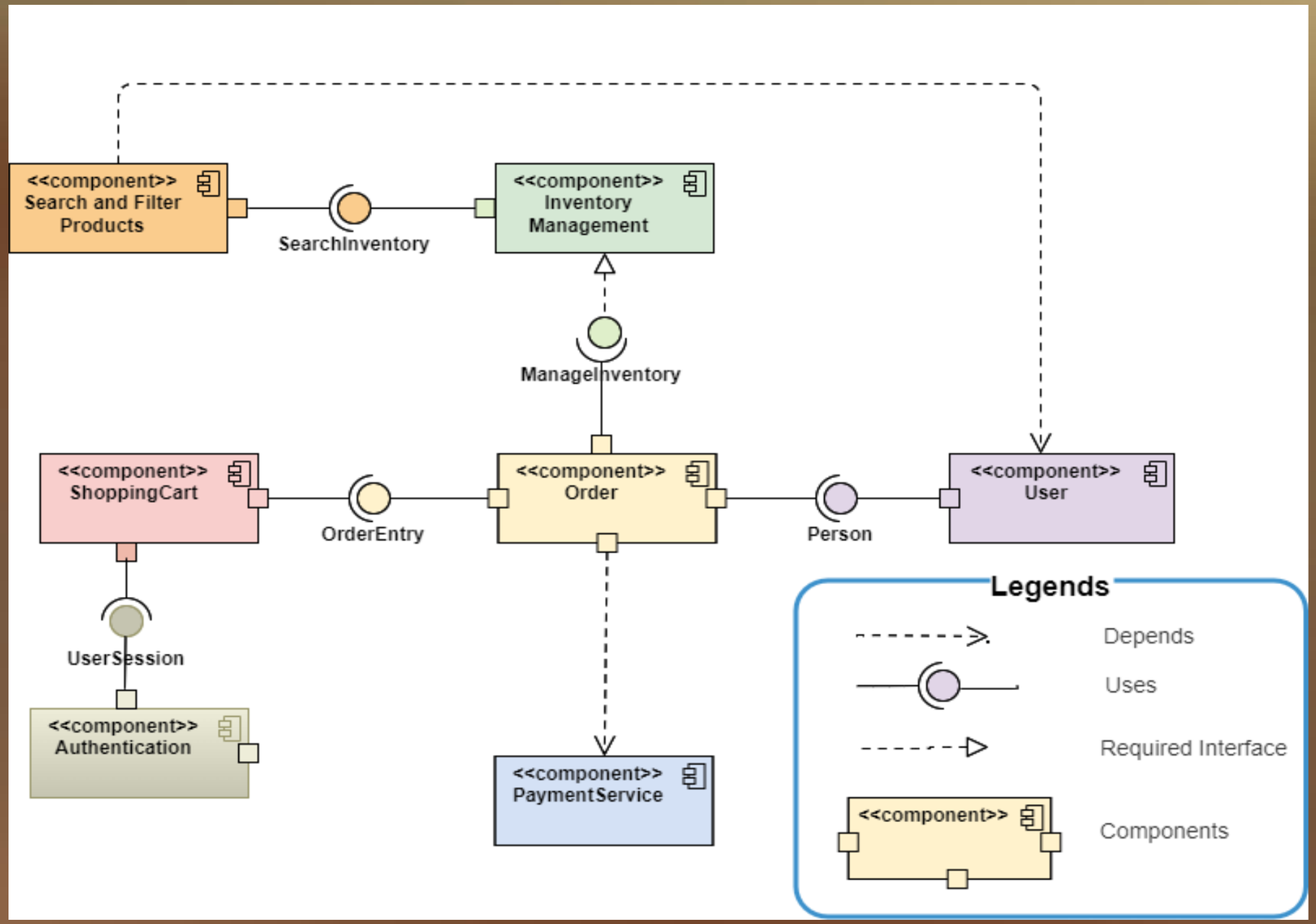
Microservices communicate asynchronously through events.



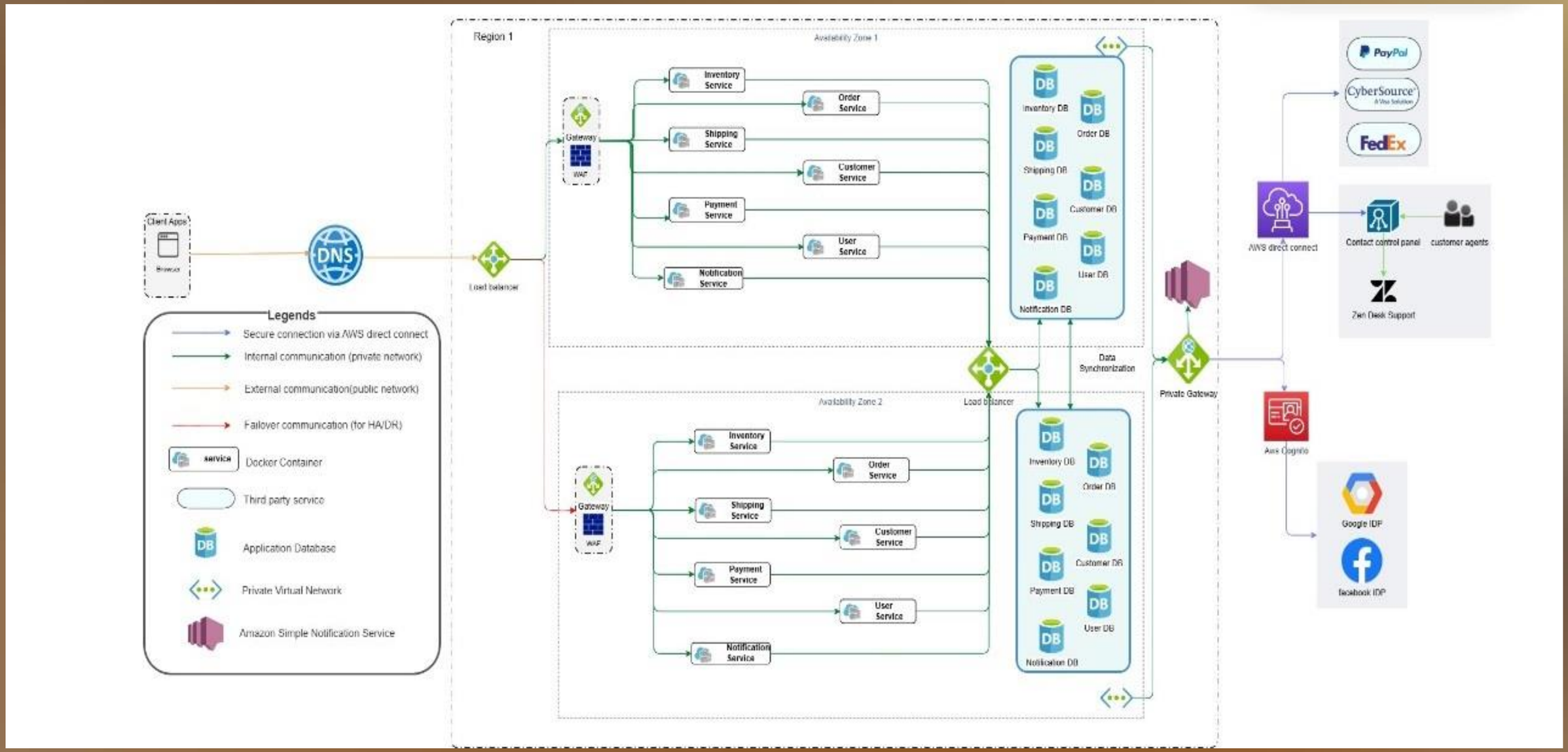
Architectural Diagrams – Module View



Architectural Diagrams – C&C View



Architectural Diagrams – Deployment View



Architecture Decision Records

The architecture for StyleMart will follow a microservices approach.

Microservices Architecture – Event Based

Microservices allow the system to be divided into smaller, manageable services that can be independently deployed and and scaled. This architecture supports scalability, maintainability, maintainability, and agility.

Cloud-based Infrastructure

There are numerous cloud infrastructure providers in the market market that have proven to be reliable and efficient. However, AWS However, AWS not only offers a comprehensive set of services to services to cater to our needs, but it also has an extensive customer customer base and a track record of successful deployments. deployments.

Future Steps

Phase 2 Expansion: Mobile App Development, AI-Driven Personalization. Phase 3: International Expansion and Expansion and Localization. Continuous Improvement: Performance Optimization. Customer Feedback Loop: Feedback Loop: Continuous Feature Development.

1

Phase 2 Expansion

- Develop a mobile app that mirrors the web platform’s functionality, with additional additional mobile-specific features (e.g., push notifications, mobile payment options). options).

- AI Driven Personalization

2

Phase 3: International Expansion and Localization

Implement additional language support, regional payment gateways, and compliance with local regulations.

3

Continuous Improvement

Conduct periodic performance audits, optimize code and database queries, and implement implement caching strategies.

4

Customer Feedback Loop

Set up a feedback loop through surveys, user testing, and analytics to identify pain points pain points and opportunities for new features.

References and Tools

- Books and Articles: "Software Architecture in Practice" by Len Bass, Paul Clements, Rick Kazman. "Documenting Software Architectures View and Beyond second edition" by Paul Clements, Felix Bachmann, Len Bass, David Garlan, James Ivers.
- "Designing Data-Intensive Applications" by Martin Kleppmann.
- "Fundamentals of Software Architecture" by Mark Richards & Neal Ford. "Architecting Software Intensive Systems" by Anthony J. Lattanze.

Documentation and Guidelines

- PCI DSS (Payment Card Industry Data Security Standard) documentation for payment processing security processing security requirements. OWASP (Open Web Application Security Project) guidelines for web guidelines for web application security best practices.
- ISO standards related to e-commerce, data protection, and internationalization.

Case Studies and Whitepapers

- Case studies from companies known for successful e-commerce platforms (e.g., Amazon, Shopify) Shopify) regarding scalability and performance optimization.
- Whitepapers from cloud service providers (e.g., AWS, Azure) on best practices for deploying scalable scalable applications.