Three-tier architecture

While two-tier website architecture is sufficient for many businesses, you may need three-tier e-commerce website architecture if you handle many processes and require more functionality.

A three-tier architecture is a well-established software application architecture that groups applications into three logical, physical computing layers:

* The presentation layer or user interface.
* The application layer, in which data is processed.
* The data layer, where the information is related to the application.

Three-tier architecture offers greater flexibility than two-tier architecture in terms of platform configuration and deployment. This improves data integrity and provides a higher level of security, as the client lacks direct access to the database.

1. Web server: This component serves web pages to users and handles user requests. It may be a cluster of servers to handle high traffic.

2. Application server: This component runs the application code that generates dynamic content for the website. It may communicate with a database server to retrieve and store data.

3. Database server: This component stores and manages the website's data, including product information, user data, and transaction records. It may be a relational database like MySQL or PostgreSQL, or a NoSQL database like MongoDB or Cassandra.

4. Load balancer: This component distributes incoming traffic across multiple web servers to ensure that no single server is overloaded. It can also help improve website availability and scalability.

5. Content delivery network (CDN): This component caches website content on servers located around the world, allowing users to access the content more quickly and reducing the load on the web server.

6. Payment gateway: This component handles payment processing and ensures that transactions are secure and compliant with industry standards.

7. Inventory management system: This component tracks product inventory levels and updates the website in real-time to reflect product availability.

8. Customer relationship management (CRM) system: This component manages customer data, including order history, preferences, and contact information.

9. Security components: These components help protect the website from malicious attacks and unauthorized access. They may include firewalls, intrusion detection systems, and encryption tools.

10. Monitoring and logging tools: These components help track website performance, identify issues, and troubleshoot problems.