

**Working of The Zoom**

Zoom was built using a combination of various technologies to provide a robust, scalable, and secure video conferencing platform. Some of the key technologies used include:

Frontend:

1. WebRTC (Web Real-Time Communication): Enables real-time communication and peer-to-peer connectivity.

2. HTML5: Provides a robust framework for building web applications.

3. CSS3: Used for styling and layout.

4. JavaScript: Utilized for client-side logic and interaction.

5. React: A JavaScript library for building user interfaces.

6. AngularJS: Used for some components.

Backend:

1. Java: Primary programming language for Zoom's backend services.

2. Spring Framework: A Java framework for building enterprise-level applications.

3. Node.js: Used for certain backend services and real-time communication.

4. Redis: An in-memory data store for handling session management.

5. Apache Kafka: A messaging system for handling real-time data streams.

Video and Audio:

1. H.264/SVC (Scalable Video Coding): Video codec for efficient compression.

2. Opus: Audio codec for high-quality voice transmission.

3. WebRTC's PeerConnection: Enables real-time video and audio streaming.

4. Zoom's proprietary video encoding/decoding algorithms.

Security:

1. TLS (Transport Layer Security): Encrypts data in transit.

2. HTTPS: Secure protocol for web communication.

3. AES-256: Encrypts meeting recordings and data at rest.

4. OAuth 2.0: Handles authentication and authorization.

Infrastructure:

1. Amazon Web Services (AWS): Provides scalable infrastructure and services.

2. Google Cloud Platform: Used for additional capacity and services.

3. Zoom's global network infrastructure: Ensures low-latency connectivity.

4. Content Delivery Networks (CDNs): Enhance performance and availability.

Real-time Communication:

1. WebSockets: Enables bidirectional communication.

2. WebSocket-over-WebRTC: Enhances real-time communication.

3. TURN (Traversal Using Relays around NAT): Facilitates peer-to-peer connectivity.

Additional Technologies:

1. Elasticsearch: Handles search and analytics.

2. Apache Cassandra: A NoSQL database for handling large datasets.

3. Zoom's proprietary technologies (e.g., meeting management, screen sharing).