CHAPTER 6

TESTING

6.1. DEFINATION:

The testing of video conferencing applications is a systematic process aimed at evaluating their performance under various network conditions and hardware configurations. This ensures that organizations can make informed decisions when selecting the right tools for their communication needs.

6.2 Testing Goals and User Needs:

- **Clear Objectives**: The primary goal is to provide usable data that demonstrates how different network constraints and endpoint platforms affect call quality.

- **Complex User Requirements**: Organizations have diverse needs that go beyond simple product comparisons, necessitating a more nuanced assessment of performance across various scenarios.

6.3 Testing Environment and Equipment:

- **Hardware Used**:

  - **Dell Latitude E6420**: Wired connection, Intel i5 CPU, 8 GB RAM.

  - **Dell Latitude E7240**: Wired connection, Intel i7 CPU, 8 GB RAM.

  - **ASUS AC66U Wireless Router**: Used with a wired connection for testing.

- **Software Products Assessed**:

  - **Polycom CMA Desktop**: H.264 standard, no SVC support.

  - **Vidyo Desktop**: H.264 standard, SVC support.

  - **Zoom**: H.264 standard, SVC support.

  - **Skype**: H.264 standard, no SVC support.

6.4 Testing Process:

- **Standardized Script**: A consistent script was used for all tests to minimize variability and ensure comparability across different software products.

- **Network Emulation**: A network emulator was employed to simulate various conditions such as bandwidth limitations, latency, packet loss, and jitter. This allowed for controlled testing environments that mimic real-world scenarios.

- **Recording and Analysis**: Video and audio outputs were recorded for analysis. The recordings were synchronized for a comprehensive review of performance under different conditions.

6.5 Assumptions and Limitations:

- **Subset of Devices**: The testing did not cover every product from every manufacturer, focusing instead on a representative sample to provide meaningful data.

- **Variability in Performance**: While efforts were made to standardize testing conditions, some variability in performance was expected due to the nature of live testing.

- **Impact of Network Conditions**: The tests aimed to explore the impact of general computing hardware and network conditions rather than individual product features.

6.6 Key Findings:

- **Performance Metrics**: The tests focused on critical performance metrics such as network bandwidth, packet loss, jitter, and latency, which are essential for assessing video conferencing quality.

- **Centralized Recording**: Using a centralized device for recording allowed for better side-by-side comparisons of different software products, highlighting the effects of network delays and bandwidth limitations.

- **User Experience**: Qualitative assessments were deemed insufficient, leading to a focus on quantitative data to better illustrate user experiences across different applications.