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# A Comparative Study and Analysis on File Sharing Applications

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**Abstract -** *Smartphone users have a major need for sharing files and data(i.e apps, software, music, audio, text, etc.) with other person having the smartphone. These file-sharing applications widely use a wide Local Area Network(WLAN). Before this Bluetooth was majorly used for file & data but post the 3G/4G era and significant boom in smartphone users many apps such as Xender, Shareit, etc. came into the picture, but many of these apps are banned recently over security and data privacy concerns. These applications are very popular across the world. A web hard-based sharing needs to pay the expensive cost for using high-volume file servers as well. In order to overcome such problems, we propose an application for seamless file sharing for Android devices. Several studies have shown that sharing content through Device-to-Device (D2D) to offload traffic to local connections nearby can offer better performance for mobile users. This paper aims to do a comparative research of the different such apps and is to provide an effective solution for the same.*

***Key Words***: **File Sharing, Peer to Peer, Smartphones, Application, Data, Apps, Android**

## 1.INTRODUCTION

In the past 10 years, Mobile Phones(especially Smartphones) users have seen a magnificent hike and with the number of users increasing every day the need for file & data sharing among devices is also increasing. The file-sharing apps came as a solution for this and it uses WLAN(Wifi Hotspot) to share the files among the devices. In recent times, there are over 5.11 billion smartphone users worldwide as of 2019 and around 100 million people started using smartphones in the past 1 year. And around 4 Billion users are using any or other File sharing Application. These apps have made a huge market among android users. Most of these mobile sharing is done on Peer to Peer-Based systems or on the web hard-based system. Peer-to-peer-based systems suffer from reconnections and transmissions due to the mobility of users.

## 2. METHODOLOGY

### 2.1 A Comparative Demonstration and Analysis of File Sharing Applications on Android Mobile Devices

a. Shareit

SHAREit is the world's fastest cross-platform file sharing Android app for sharing files via Wi-Fi enabled devices.It was developed by Lenovo Inc. and was first launched in China in June 2012. It is an open source cross-platform file sharing application. Compatible with Windows PC, Windows Phone, Android and iOS to transfer files directly via WLAN (Wi-Fi access point). SHAREit allows users to share files with uniquely logged in users, ranging from 1MB to 10GB.

b. Zapya

With this application, files can be created in a group and shared via WLAN with multiple users (maximum 4) at the same time. By creating groups, files can be shared and all other devices can connect to this device as long as they are on the same network. When devices are connected, users can exchange messages with files and applications. Zapya was developed as the fastest cross-platform wireless file sharing. Apart from that, Zapya offers a feature that allows registered users to remotely access the content and storage of the camera and device. To receive files, users must scan the code or join the group created by the sender. The sender and receiver must be connected to the same ad-hoc WLAN and stay in range when sharing files.

c. Xender

Xender is an open source file sharing application that allows two or more devices to connect simultaneously to share files. The files like images, music files, video files can be shared through the Xender application. It was first released in 2012 and is called Flash Transfer. It is available in more than 30 different languages and has been renamed Xender. It is an easy-to-use interface that shares files of different sizes and formats between devices connected via WLAN. When sharing files, connected devices must be within range of the WLAN. With this application, files can be created in a group and shared with multiple users (maximum 5) simultaneously via WLAN.

### 2.2 Design and Implementation of a file sharing application for android.

The methodology used to develop an application can greatly affect the resulting product. A single development cycle can lead to a product not performing well or not meeting expected requirements. Conversely, too much testing time can cause an application to fail. The Waterfall method provides a clear set of requirements up front and reduces downtime, so the focus is on further development, possibly resulting in more feature generation. However, this methodology has known weaknesses, such as clients with no fixed requirements and no component integration issues.For this project, it seemed best suited for agile process development. Since the supervisor can see himself as a customer, the requirements can be controlled with him. Weekly meetings update the client on activity and progress. This weekly cycle ensures that if the project starts to go in the wrong direction, it can be caught early and corrected. In this way, the project will deliver the appropriate software according to the client's demands.

### 2.3 Measurement and analysis on large-scale offline mobile app dissemination over device-to-device sharing in mobile social networks.

The measurement and analysis of mobile application (APP) spreads are gaining more and more attention. In Apple's effort to promote numerous mobile applications such as Airdrop and Xender, many studies focus on the dissemination of content with large-scale metrics in D2D communications for MSN. More recently, he focused on serving epidemic D2D content on MSN to reduce traffic load.Zhang et al.and Li et al. Provides differentiation-based models to measure the performance of popular content sharing on MSN. Some key attributes are measured (eg time series, sharing activities, etc.). However, they only show studies based on small-scale data sets. Numerous deployment strategies have been investigated to maximize the effects of mobile applications. Yang et al. shows how accessible mobile apps are and the factors that affect their usage patterns. Zhong et al. Propose a new discharge model called the cluster effect, as opposed to the commonly observed Zipf-type models. In addition, they conclude that free applications with an ad-based revenue strategy can generate greater financial benefits than paid applications. This will be useful to improve the recommendation systems of the App Store designers, in addition to the choice of appropriate pricing policies by the application developers. to generate more profit. In this article, some new observations have been obtained that may provide reliable evidence for the potential design of the content dissemination strategy (eg, logarithmic normal distribution of user encounter and maximum extension distance).

### 2.4 Seamless File Sharing for Android Devices

The SFS architecture must work dynamically so that two administrators can transfer files transparently. Figure 1 shows the SFS architecture on two Android devices. It consists of the Transparent Service Manager (SSM) and the File Manager (FM). First, SSM keeps file sharing transparent. FM manages file streams and keeps track of files sent or received. When the two devices are connected, the sender's SSM communicates with the receiver's FM and SSM. When it is necessary to send a file to the receiver, SFS chooses one of the wireless networks, Bluetooth or WIFI depending on the network connected via SSM. When the sender sends via Bluetooth, SFS finds the Bluetooth connectable devices SSID and connects via the receiver's MAC address. Meanwhile, when the sender does it through WIFI, SFS uses UDP transmission that finds devices connected to the same access point.

### 2.5 An Insight into File Sharing Artifacts using Xender Application

Overview of the structures for sharing files with the Xender application We have installed the Xender application on our mobile phone. When installing the Xender application on the home page, the user needs to set up a profile picture with the username. The name can be anything that helps users connect to the other connecting device and find it easily without any inconvenience. The username can be your own name or whatever the user wants. To examine the data analysis structures, we connected the phone to the computer with USB debugging enabled via USB. The Android Debug Bridge (ADB) application is used to connect computers and phones. Using ADB, we find the location of the Xender application data structures on phones stored in /data/data/cn.xender/folder. ADB directly extracts file sharing logs from Xender apps by extracting files (when phone is rooted) stored in above mentioned folder, or app data is backed up using ADB and then scan additional (when the phone is not rooted).

**Table:** Different methods specified in our paper are presented in the form of tables.

| Serial No. | Methodology | Year of Publication | Accuracy |
|---|---|---|---|
| 1 | A Comparative Demonstration and Analysis of File Sharing Applications on Android Mobile Devices. | 2016 | 95% |
| 2 | Design and Implementation of a file sharing application for android. | 2013 | 92.16% |
| 3 | Measurement and analysis on | 2020 | 94.68% |

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|---|---|---|---|
| | large-scale offline mobile app disseminatio n over -to-device sharing in mobile social networks. | | |
| 4 | Seamless File Sharing for Android Devices. | 2014 | 93.33% |
| 5 | An Insight into File Sharing Artifacts using Xender Application. | 2016 | 91.25% |

## 3. CONCLUSIONS

In this paper, the research has been focused on android file sharing application, running on Smartphone's specially android mobile devices.File sharing application use WLAN for sharing files faster among the connected devices. By using WLAN for sharing files on android application, it will be secure and reliable for legitimate users(device)for sharing files and by ensuring the confidentiality of the users(devices) to ensure that only authorized user to share data, and by providing the integrity of the data while they are stored in devices prior to file-sharing or while in transit by enabling Encryption Decryption algorithm and hashing algorithm to ensure that the files and data are not hampered and changed and the file received is the same as the file sent. In our paper we've selected five proposed papers about android file-sharing applications. We conclude that the Wi-Fi peer-to-peer (P2P)methodology has an accuracy of 94%.The Device to Device(D2D) methodology has the very best and precise accuracy compared to other methodologies hence it's the major promising method.

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