What did the others, techniques and methodologies used, evaluation methods, results

I have chosen to talk about Wire. Wire is an encrypted communication and collaboration app created by Wire Swiss. It is available for iOS, Android, Windows, macOS, Linux, and web browsers. Wire offers a collaboration suite featuring messenger, voice calls, video calls, conference calls, file-sharing, and external collaboration –all protected by a secure end-to-end-encryption. Wire offers three solutions built on its security technology: Wire Pro–which offers Wire's collaboration feature for businesses, Wire Enterprise – includes Wire Pro capabilities with added features for large-scale or regulated organizations, and Wire Red – the on-demand crisis collaboration suite. They also offer Wire Personal, which is a secure messaging app for personal use. Wire offers end-to-end encrypted messaging, file-sharing, video and voice calls, and guest rooms for external communication.

The app allows group calling with up to ten participants and video conferences support up to four users. A stereo feature places participants in "virtual space" so that users can differentiate voice directionality. The application adapts to varying network conditions. The application supports the exchange of animated GIFs up to 5MB through a media integration with a company called Giphy. The iOS and Android versions also include a sketch feature that allows users to draw a sketch into a conversation or over a photo. Wire is available on mobile, desktop and web. The web service is called Wire for Web. Wire activity is synced on iOS, Android and web apps. The desktop version supports screen sharing. Wire’s technology solution can be deployed either in the cloud, private cloud or on-premises. One of the latest features rolled out by Wire is a secure external collaboration capability called 'guest room'. Wire’s secure guest rooms feature extends end-to-end encryption to conversations with external parties without requiring them to register, or even download anything. Wire also includes a function for ephemeral messaging in 1:1 and group conversations.

Wire provides end-to-end encryption for all features. Wire's instant messages are encrypted with Proteus, a protocol that Wire Swiss developed based on the Signal Protocol. Wire's voice calls are encrypted with DTLS and SRTP. In addition to this, client-server communication is protected by Transport Layer Security. Wire is currently in the midst of working to develop Messaging Layer Security (MLS), a new protocol designed to facilitate more secure enterprise messaging platforms under The Internet Engineering Task Force (IETF). In 2016, during the IETF meeting in Berlin, Wire proposed a standard that was protected by modern security properties and could be used by companies large and small. During an interview with Dark Reading, Raphael Robert, Head of Security at Wire, mentioned that Messaging Layer Security (MLS) should be ready to integrate into messaging platforms by 2021.

The application was written with C++ programming language.

Important names in the field, research teams

In the early 1920s, George O. Squier was granted patents for a system for the transmission and distribution of signals over electrical lines, which was the technical basis for what later became Muzak, a technology streaming continuous music to commercial customers without the use of radio.

Microsoft Research developed Microsoft TV application compiled under Microsoft Windows Studio Suite and tested in conjunction with Connectix QuickCam. RealNetworks pioneered the broadcast of a baseball game between the New York Yankees and the Seattle Mariners over the Internet in 1995. The first symphonic concert on the Internet — a collaboration between the Seattle Symphony and guest musicians Slash, Matt Cameron, and Barrett Martin — took place at the Paramount Theater in Seattle, Washington, on November 10, 1995. Word Magazine featured the first ever streaming soundtracks on the Internet when it launched in 1995.

The first commercial streaming product appeared in late 1992 and was named StarWorks. StarWorks enabled on-demand MPEG-1 full-motion videos to be randomly accessed on corporate Ethernet networks. Starworks was from Starlight Networks, who also pioneered live video streaming on Ethernet and via Internet Protocol over satellites with Hughes Network Systems. Other early companies who created streaming media technology include RealNetworks (then known as Progressive Networks) and Protocomm both prior to wide spread World Wide Web usage and once the web became popular in the late 90s, streaming video on the internet blossomed from startups such as VDOnet, acquired by RealNetworks, and Precept, acquired by Cisco. Microsoft developed a media player known as ActiveMovie in 1995 that allowed streaming media and included a proprietary streaming format, which was the precursor to the streaming feature later in Windows Media Player 6.4 in 1999. In June 1999 Apple also introduced a streaming media format in its QuickTime 4 application. It was later also widely adopted on websites along with RealPlayer and Windows Media streaming formats. The competing formats on websites required each user to download the respective applications for streaming and resulted in many users having to have all three applications on their computer for general compatibility.

Related Articles and books

* Hartsell, Taralynn, and Steve Chi-Yin Yuen. "Video streaming in online learning." *AACE Journal* 14.1 (2006): 31-43.
* Apostolopoulos, John G., Wai-tian Tan, and Susie J. Wee. "Video streaming: Concepts, algorithms, and systems." *HP Laboratories, report HPL-2002-260* (2002).
* Joint Information Systems Committee. (2002). Videostreaming: A guide for educational development. Manchester, UK: JISC Click and Go Video Project.

Relevant links

* <https://matrix.org/>
* <https://element.io/>
* <https://wire.com/en/>
* <https://www.pacetechnical.com/brief-history-streaming-media/>

Resources and tools available

* <https://matrix.org/>
* Facebook Live
* Instagram Live
* Netflix
* YouTube Live
* LinkedIn Live