CENTRE FOR RESEARCH AND EVIDENCE ON SECURITY THREATS

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GENERAL

INTRODUCTORY GUIDE: MESSAGING APPLICATIONS



Messaging applications offering convenient communication for individuals and groups have proliferated in recent years. This guide highlights the main characteristics of Firechat, Kik, Paltalk, Snapchat, Telegram, Twitter, WhatsApp, and YikYak.

CHARACTERISTICS

Messaging applications have become an increasingly popular means of communication for individuals and groups. The vast majority use these applications for benign social and business use. However, terrorists and criminals can also use messaging applications, including for planning and coordination of their activities, to distribute ideological and practical material, and to groom potential recruits. This guide covers messaging applications in use in 2016 which have features that may be useful for terrorists and criminals. It explains what they are, and highlights their main characteristics.

The main characteristics include:

Presence – Conveys if/when a user was last online, their location and whether they have read (or are typing) messages. This information affects a user's certainty of whether recipients have received/read messages and their expectations of receiving a reply. If recipients have control over their online presence, they can easily delay or avoid responses.

Verification – The requirements a user must follow in order to validate their identity and how strictly these are enforced. Users may be prevented from using an application unless they can prove their identity using an email address or mobile number. The extent to which identities are verified can influence whether people trust those they communicate with.

Anonymity – The extent to which a person is identifiable. Users may be able to conceal their identities by using pseudonyms or create accounts under different names that are not linked to their real contact details. A username is associated with a phone number, the real identity of the user may be revealed if the messaging application cross-references the contacts on an individual's phone.

FIRECHAT

Firechat is a real-time messaging application, which enables smartphones to connect to other smartphones through bluetooth, meaning it can operate without an Internet connection (known as a mesh network). Firechat was launched in 2014. It is unique because it is the only messaging application that works effectively when mobile and Internet connections fail. It is typically used by (ad-hoc) groups in close proximity.

FEATURES/IMPLICATIONS

Firechat can operate when wi-fi and mobile networks fail, and the more people use it, the better it works. Communication cannot be prevented, enabling groups or crowds to effectively co-ordinate activities (e.g. protests).

Users must verify their account via their email or mobile number.

Messages are sent from usernames as opposed to mobile numbers. Users are not required to use real names so can send messages anonymously.

Privacy - All chats are public.

KIK

Kik is an instant messaging application, which people use to send messages, photos, videos and webpages via wi-fi. It was launched in 2010 and currently has around 240 million registered users. Kik is typically used by young people for keeping in contact with friends. Messages can be public or private and Kik supports both individual and group messaging.

FEATURES/IMPLICATIONS

Timestamps and read receipts enable users to establish when someone was last online and whether they read a message.

Users must provide an email address when registering, however no verification is required to send messages.

All users are identifiable by a username. Users can contact any other Kik users by searching for their username.

PALTALK

Paltalk is a group chat service supporting voice and backchannel chat, available via both website and mobile applications. It was launched in 1998 and currently has around 5.5 million users. It is different from other messaging applications in that users can set-up their own chat rooms based on topics of their choice. Chat rooms are categorised by topic (e.g. Just Friends, Buddhism Chat) and are typically used to chat with strangers or disseminate/consume content through lectures and discussions.

FEATURES/IMPLICATIONS

Presence - Chats can be public (open to anyone) or locked (users are allowed to enter upon providing the associated lock-word). Users can chat via text, voice and video. The usernames of those present in the room are displayed in a list.

Verification – Users must provide an email address, but can enter chat rooms without verification. Paltalk reminds users to verify their accounts and eventually disables them if users fail to do so.

Anonymity – Users are only identifiable by a username. Displaying identities via video, voice and photos are all optional.

Status/reputation – Members acquire 'crown points', representing their status in the community. Points are earned when users issue/receive virtual gifts (digital 'presents' users can send to each other as friendly gestures). This enables users to build trust and increases the potential for users to become more influential.

SNAPCHAT

Snapchat is a video messaging application, which allows users to send 'snaps' – videos, photos, text and drawings, which disappear after viewing. It was launched in 2011 and has around 100 million users. Snapchat is distinct from other messaging applications in that users can add captions and doodles to photos and videos. Snaps can be directed privately to specific friends or to the public as a 'Story'. "Live stories" allow users present at specific events (e.g. music festivals) to contribute snaps to a collection accessible to all users. Friends, groups and strangers use Snapchat to exchange creative and playful messages. Users are typically young (aged 18-34).

FEATURES/IMPLICATIONS

Timestamps display when users were last online, and Geofilters (special overlays) indicate a user's location.

Users can verify their accounts through their email/mobile number, although it is not compulsory. Communications are not end-to-end encrypted, which means that third parties could tamper with or read messages.

Users are identifiable by a unique username, which they create when signing up. Users can also de-link their accounts from their mobile numbers.

TELEGRAM

Telegram is an instant messaging service that was launched in 2013 and is thought to have over 60 million users. It claims to be faster and more secure than other messaging applications and is useful for one-to-one messaging, as well as small business teams and large groups. Telegram offers enhanced privacy with 'Secret Chats', which can self-destruct, preventing users from saving or showing content to others.

FEATURES/IMPLICATIONS

Users can control their timestamps, by disabling them or replacing 'last seen' timestamps with approximations, such as 'last seen within a week'. This enables users to manage others' expectations of their availability.

Users create and verify accounts through their mobile number.

Users are identifiable through their mobile number. Alternatively, users can set up an alias so others will only know their identity through their chosen username.

TWITTER

Twitter is an online social networking service, accessible through the internet, or mobile device application. It was launched in 2006 and is thought to have more than 332 million active users. Twitter is appealing because users can quickly send and read 'tweets', which are short, 140 character messages. Tweets are visible to the public and can become popular if other users "retweet" (forward) messages to their own followers. Protected messages can be sent to a user's followers and direct tweets can be sent privately. Twitter is typically used to connect friends, strangers, to follow events in real-time and for business marketing.

FEATURES/IMPLICATIONS

Information on whether a user is online or has read messages is not available. Follows/retweets can increase a user's popularity and spread information that may enable users to contact each other and join groups/follow others.

Users can create accounts and post tweets without verification. It is possible to formally verify accounts but only when a user meets certain criteria (e.g. a public figure).

Users can operate under any identity. Their registered username is displayed with every tweet. Bots (computer programs) can pose as humans, use fake accounts, retweet and like posts making users appear to be more popular/influential than they really are.

WHATSAPP

Whatsapp is an instant messaging application for smartphones. It was launched in 2010 and currently has around 990 million users, making it the most popular messaging application at present. Users can send private text, video, voice and picture messages to individuals and groups via the Internet using mobile numbers stored in their contacts. Whatsapp is typically used for building/ maintaining relationships between existing family and friends.

FEATURES/IMPLICATIONS

Read receipts (check marks) provide confirmation that recipients have received/read messages, and timestamps display when users were last online. For group messages, availability is more difficult to detect - check marks only appear when everyone has received/read the messages.

Accounts are linked to contact numbers providing reassurance of identities.

Users can optionally upload a profile photo and create a username. Accounts are always tied to mobile numbers.

YIK-YAK

Yikyak is a social media smartphone application, which allows people to anonymously create and view discussion threads within a 5-mile radius ("yaks"). It was launched in 2013 and is distinct from other applications in that chatting anonymously with other local users creates a sense of intimacy or relevance to discussions. Users may have more confidence when speaking to an anonymous group than they would do if they were identifiable. Typical users are young groups (e.g. students) discussing events/topics in real-time.

FEATURES/IMPLICATIONS

All posts are public, and it is not possible to tell who is online, has read or replied to messages, however all users will know that posts are all generated locally.

No verification is required to send yaks. Users can send/share yaks with their friends listed in their mobile contacts, for which verification is required (email or mobile).

Posts are anonymous, and are not identifiable by a username. If users wanted to exchange contact details they would have to do so publicly in the discussion thread. Users can 'peek' into other group discussions in different areas but are prevented from contributing.

Popularity - 'Yakarma' is a score based on the active success of a user. Users can upvote or downvote yaks, which alters their ranking on the feed. Unpopular yaks are permanently deleted (scores reaching -5).

WHY USERS CHOOSE WHICH APPLICATIONS

Apart from Paltalk, all the messaging applications discussed have been launched within the last 10 years and have gained vast user bases during this time. Whatsapp appears to be the most popular messaging application, followed by Twitter and Kik. These applications tend generally to be used for building and maintaining relationships between existing friends, or following people's updates (in the case of Twitter).

Whilst Firechat, Paltalk, Snapchat and Telegram can also be used for these types of communications, they offer more specialised features, which may make them less popular for "standard" messaging between friends. It may therefore be the case that people utilise these applications when they have more specific requirements. For instance, someone may prefer to use Snapchat when joking with friends, or they may prefer using Telegram when discussing confidential information.

It is also likely that people's preferences regarding messaging applications will change in the future. For example, Whatsapp users may migrate to Telegram if they find it is faster and more secure and Firechat may increase in popularity if users enjoy independence from mobile and Internet connections.

GLOSSARY

- Backchannel – Online conversation about a topic or speaker. For example, in a chat room, users may be able to type and send messages while a user is speaking.
- Chat room – An area where users can communicate online, typically dedicated to a particular topic.
- Geofilter – Specifically designed graphics and captions that highlight a particular location (e.g. New York). Similar to a postcard, users can insert a Geofilter over their photos to creatively enhance their appearance.
- End-to-end encryption – A method of secure communication that prevents third parties from accessing data while it is transferred from one device to another.