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Securing LINE's Mission to "Close the Distance" with Zimperium's zKeyBox

Industry
Mobile Applications and internet services spanning Advertising, AI, Communication, Content, Entertainment, and Fintech

Location
International Scope

Solution
zKeyBox

Customer Profile

LY Corporation is one of Japan's largest tech companies formed in October 2023 through the reorganization of Group companies including LINE Corporation and Yahoo Japan Corporation. LY Corporation spans diverse businesses, including search, portal website, e-commerce, communications, and advertising under its mission, "Create an amazing life platform that brings WOW! to our users."

With a workforce comprising over 10,000 individuals from approximately 40 countries and regions, LY Corporation is dedicated to continually delivering inspiring services to its users and contributing to the realization of a more enriching and convenient lifestyle through the power of the Internet.

The Challenge

Letter Sealing is integral to LINE's messaging and VoIP services, encrypting everything from text messages to audio/video calls. However, the security of the end-to-end encryption protocol in the LINE Chrome extension was threatened due to a lack of secure storage for encryption keys. Attackers could exploit an XSS vulnerability in the JavaScript environment to inject malicious code and gain access to the encryption keys, compromising end-to-end encryption security.

Challenge Highlights

- Lack of secure storage for sensitive data like cryptographic keys and secrets
- Unanticipated token leakage and API abuse risks, including Account Takeover, Spamming, Phishing, DDOS, and Fake Clients
- Vulnerable to malicious code execution via Cross-Site Scripting: encryption keys and credentials can be hijacked, and any client-side data can be maliciously modified on the JavaScript environment.

Addressing these challenges was critical to maintaining the integrity of LINE's communication platform and the trust of its millions of users.

The Solution

LINE sought a solution that could secure cryptographic keys regardless of device hardware to enhance security across Android, iOS, and web applications. They turned to Zimperium's zKeyBox, a cutting-edge solution that employs white-box cryptography to protect keys and secrets at-rest and in-motion within mobile applications. White-box cryptography transforms cryptographic algorithms and obscures their execution logic to prevent keys from being revealed, even if the device is under an attacker's control.

Key highlights of the solution included:

- Security for keys regardless of device hardware
- Support for all standard and custom encryption algorithms
- Plug-and-play replacement for standard cryptographic libraries

The Results

Implementing Zimperium's zKeyBox had a profound impact on LINE's security posture:

- **Enhanced Trust:** LINE's users can confidently communicate knowing that their private calls and messages are protected by Letter Sealing's end-to-end encryption, now further bolstered by zKeyBox. Third parties and even LINE Corporation itself cannot decrypt these private communications.
- **Unparalleled Key Security:** LINE's cryptographic keys are now impervious to extraction, even in scenarios where the device itself has been compromised. This ensures that user data remains safe and confidential.
- **Mitigation of API Abuse:** The solution effectively mitigates risks associated with API abuse, including Account Takeover, Spamming, Phishing, DDOS attacks, and the presence of Fake Clients. This strengthens LINE's defenses against malicious activities.
- **Protection Against XSS Attacks:** zKeyBox guards against malicious code execution through XSS, enhancing the overall security of LINE Chrome extensions.

"Zimperium's zKeyBox played a pivotal role in fortifying LINE's security infrastructure, ensuring the confidentiality and integrity of user data and communications," said Jongho Shin, Team Lead, Security R&D Team, LINE Corporation. "This partnership exemplifies LINE's unwavering commitment to user privacy and data protection, solidifying its reputation as a trusted messaging and VoIP service provider."