

Ubiquitous WiFi Mesh Network via Device and Data Proliferation

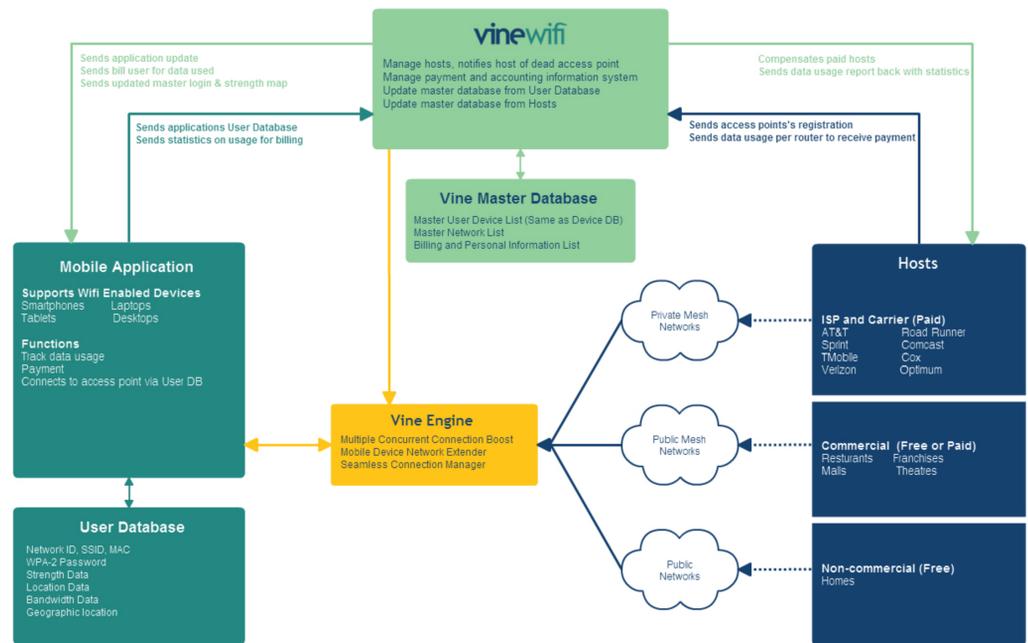


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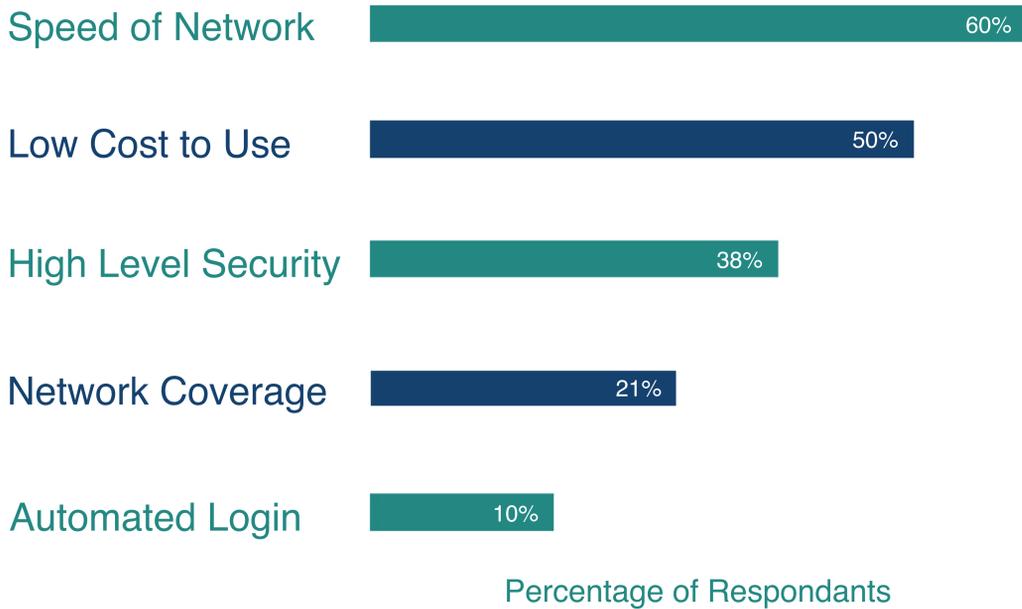
Abstract

At some point in their lives, most users of WiFi devices have experienced the annoyance of signal loss, authentication difficulties, or disjointed coverage. As wireless devices permeate homes, work environments, and all aspects of life, the ever present issue of connectivity and data price plagues many consumers. By implementing a novel combination of software techniques through a proprietary application and infrastructural considerations, Vine aims to demonstrate the utility of ubiquitous WiFi networks in any environment chosen for deployment.

With immediate goals consisting of medium-scale testing, Vine has detailed several algorithms as well as performed geographic implementability and feasibility studies that will contribute to a more powerful software solution. Furthermore, Vine is pursuing intellectual property protection on several mobile technologies developed in house, including data throttling, congestion balancing, and non-gps based location detection. It seeks to solve connectivity and price issues through the innovative combination of infrastructural considerations and proprietary software.



Most Important WiFi Features



Software Solutions

Utilizing multiple concurrent connection boosts (MCCB) allows several subpar networks to combine into one potentially powerful network, both in network speed and bandwidth available to user.

With large scale WiFi networks ISP's are currently building, along with a combination of private and public networks, Vine takes advantage of creating a seamless offload from all partner networks.

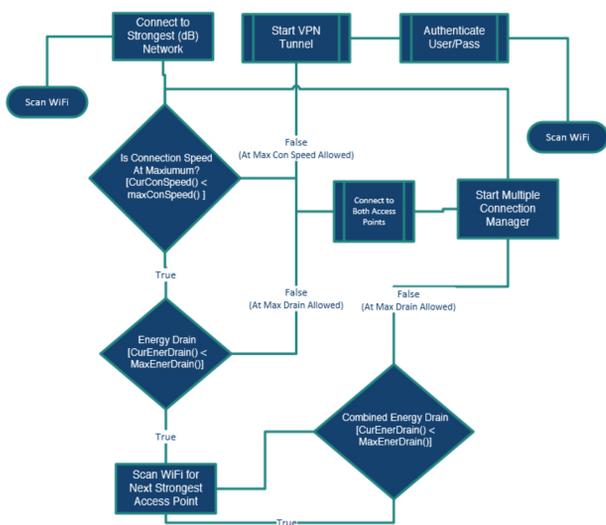
All users will be connected through a cloud hosted VPN tunnel to ensure complete security when roaming on Vine networks. Our network database has a different encryption on each push-out to mobile devices.

Vine's mobile device network extender (MDNE) allows our application to use the mobile devices own WiFi chipset to boost the receiving signal and push it to other near by Vine users. This technology is synergized with MCCB.

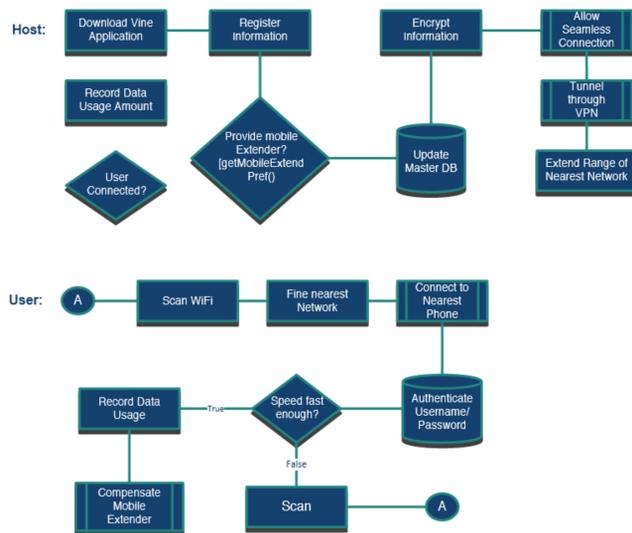
While Vine runs in the background, our servers frequently push updated master databases to all Vine mobile devices. Once a Vine user has logged a hotspot, you'll never have to manually login to that network again.

Algorithm Overview

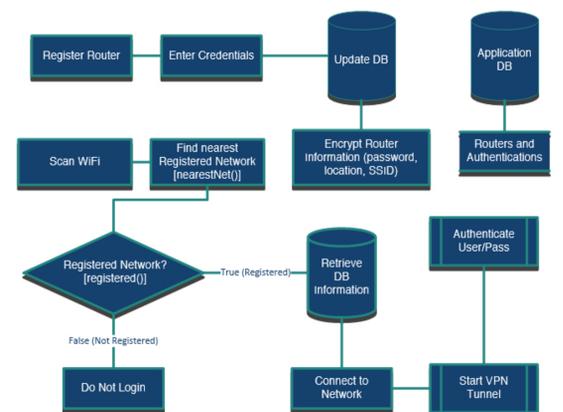
Multiple Concurrent Connection Boost (MCCB)



Mobile Device Network Extender (MDNE)



Database Encryption



Acknowledgements:

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Vine Team: Jason Gandelman and Tyler Bond
 WiFi Features Graph is based off a study conducted by Cisco in late 2012. Participants were asked to choose features in order of importance.

