The Interworkings of Square

Back in 2010, Jack Dorsey, who is the creator of Twitter decided to create a system called "Square" that would be able to allow anyone with a phone and his propriety piece that comes with his application, swipe charge anyone's credit card as a form of payment. We're going to dive into this application and its hardware to get a better look at how this simple system is ran from the inside.

Security

Square's security meets Level 1 PCI Date Security Standards. PCI is the security standard for card processing systems. Whenever a card is swiped during the use of Square it performs a data encryption within the card reader and when data is being transferred it only uses well-reviewed cryptographic protocols and message formats such as SSL and PGP. Square's website and API are accessible via 128-bit, extended-validation SSL certicates issued by Verisign.

Hardware

The Square card reader is just a simple plastic piece that contains a read head that if ran through with cassette tape film and a oscilloscope app it would be able to play the music because it's basically the same technology as a cassette tape reader. In March 2012 Square updated their readers to include encryption by digitizing the signal from cards with a TI 430 chip. The TI 40 chip is powered by an internal coin cell battery.

Software

Square has developed some all kinds of software to make it functional and even came up with a framework called KIF (Keep It Functional), which is a testing framework that allows for you to know if your application runs into any mistakes. Square started of using servers like Jenkins and CruiseControl.rb, but created it's own continuous integration server called Zapp that tell it's framework, KIF, what to do. Zapp polls your remote repository every minute to see if anything new has shown up. Both Zapp and KIF are open sourced and available for any developer to use.

Sources:

http://corner.squareup.com/
https://squareup.com/help/en-us