

An illustration on a dark blue background showing five hands holding various items. From left to right: a hand in a dark blue sleeve holds a blue credit card; a hand in a yellow sleeve holds a black credit card; a hand in a blue and white striped sleeve holds a smartphone displaying a barcode; a hand in a light blue sleeve holds a red credit card; and a hand in a brown sleeve holds a teal credit card. All credit cards feature the text 'CREDIT CARD' and the Mastercard logo. The central text is overlaid on the smartphone.

PWC G8 Gals@Technology

Going Cashless – Epay and Electronic Signature

July 20, 2020

Current Topics

- Massive Twitter Hack
 - Musk, Bezos, Gates and other high-profile targets
 - Fake Bitcoin deal
 - Looks like inside job. Employee got paid to help hackers get access to internal tools
- US, UK, and Canadian security officials present details of activity by Russian hacking group called APT29 (aka “the Dukes” or “Cozy Bear”) targeting COVID vaccine research and development organizations.




Current Topics

New Windows 10 utility – Windows File Recovery

- Command-line app that can be used to try to recover files that have been deleted and can't be restored from the Recycle Bin.
- Used “Signature Mode” to recover content such as photos, documents, spreadsheets, etc.
- Bad news is it is in Windows 10 2004 Feature Update which is still having problems

Windows Update

 You're up to date
Last checked: Today, 12:14

Check for updates

Feature update to Windows 10, version 2004

The Windows 10 May 2020 Update is on its way. We're offering this update to compatible devices, but your device isn't quite ready for it. Once your device is ready, you'll see the update available on this page. There's nothing you need to do at this time.



Learn more

 Pause updates for 7 days
Visit Advanced options to change the pause period

Current Topics

New iOS 14 features

- Tags in Messages (@personname)
- Pin a conversation to the top of Messages
- Translate app now built in
- More organized Home screen
- Widgets have a new look and home
- Picture-in-picture now convenient tool

<https://www.cnet.com/how-to/6-features-apple-ios-14-public-beta-will-make-you-love-your-iphone-more>



Current Topics

Home Router Study Shows MANY issues

- 186 routers from 14 different vendors
- 83% had firmware vulnerabilities with an average of 172 vulnerabilities per router!
- More than 30% are running 2011 system kernels





Why A Cashless Economy?



- Benefits
 - Lower crime rates because there is no tangible money to steal
 - Less money laundering because there is always a digital paper trail
 - Less time associated with handling, storing, and depositing paper money
 - Easier currency exchange while traveling internationally
- Disadvantages
 - Exposes your personal information to possible data breaches
 - If hacker drains your funds, you'll have no other source of money
 - Those without bank accounts will struggle
 - Some may find it harder to control spending without physical cash

Where in the World?

- Sweden – signs often seen. Cash accounts for just 1% of consumer transactions.
- India – 2016 the government banned 500 and 1,000 rupee notes. Cash is still heavily used.



**CASH NOT
ACCEPTED**

Why Go Cashless?

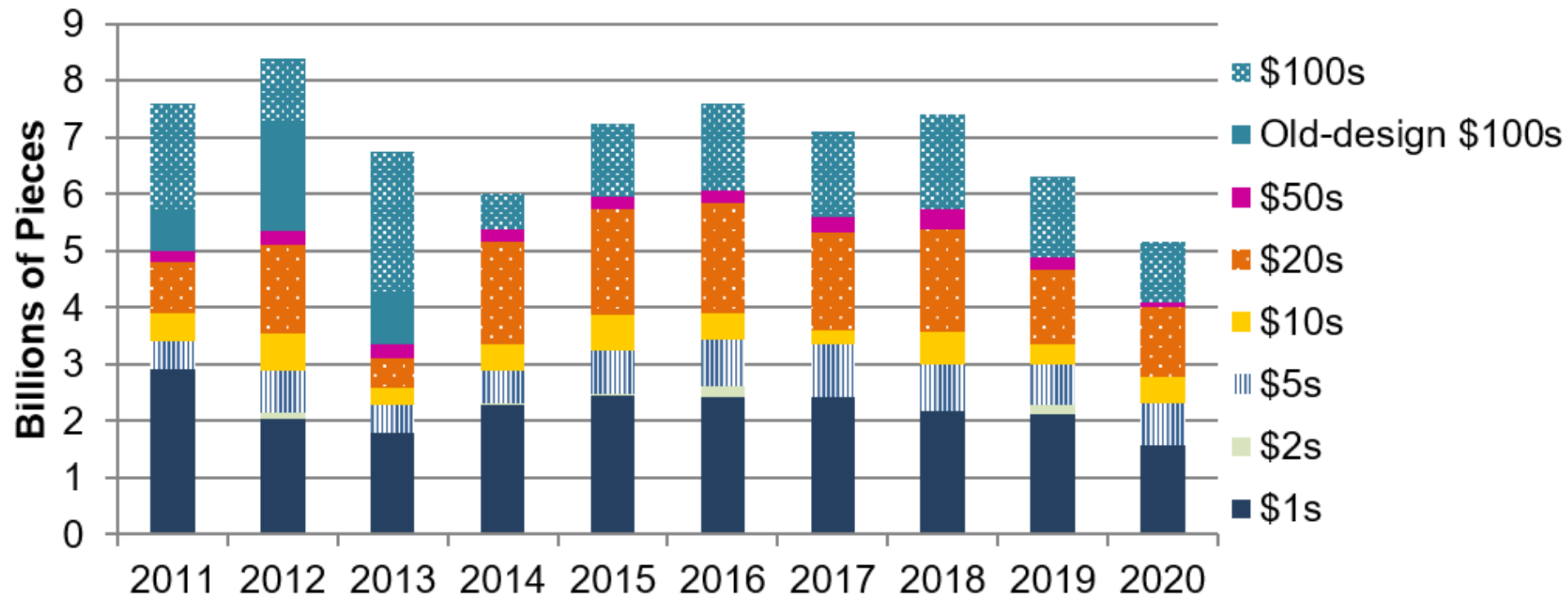



What's in it for me?

- Less expensive for all. US “cash infrastructure” costs more than \$5 Billion/yr
- It is “greener” – fewer physical resources wasted
- Cash-free payments are faster and more convenient
- Better tracking tools
- Cashless transactions can improve your credit score

Cash Isn't Going Away Any Time Soon

As of July 8, 2020 – there was \$1.93 Trillion worth of Federal Reserve notes in circulation



A large stack of gold bars, likely 1000g each, arranged in a grid. The bars are stamped with "THE BANK", "FINE GOLD", and "999.9". The text "There Has To Be Real Value Somewhere!" is overlaid in white, centered on the image.

There Has To Be Real Value
Somewhere!



Traditional Banking System



1001

Routing number

Account number

DATE _____

PAY TO THE ORDER OF _____

\$ _____

DOLLARS

MEMO _____

123456789

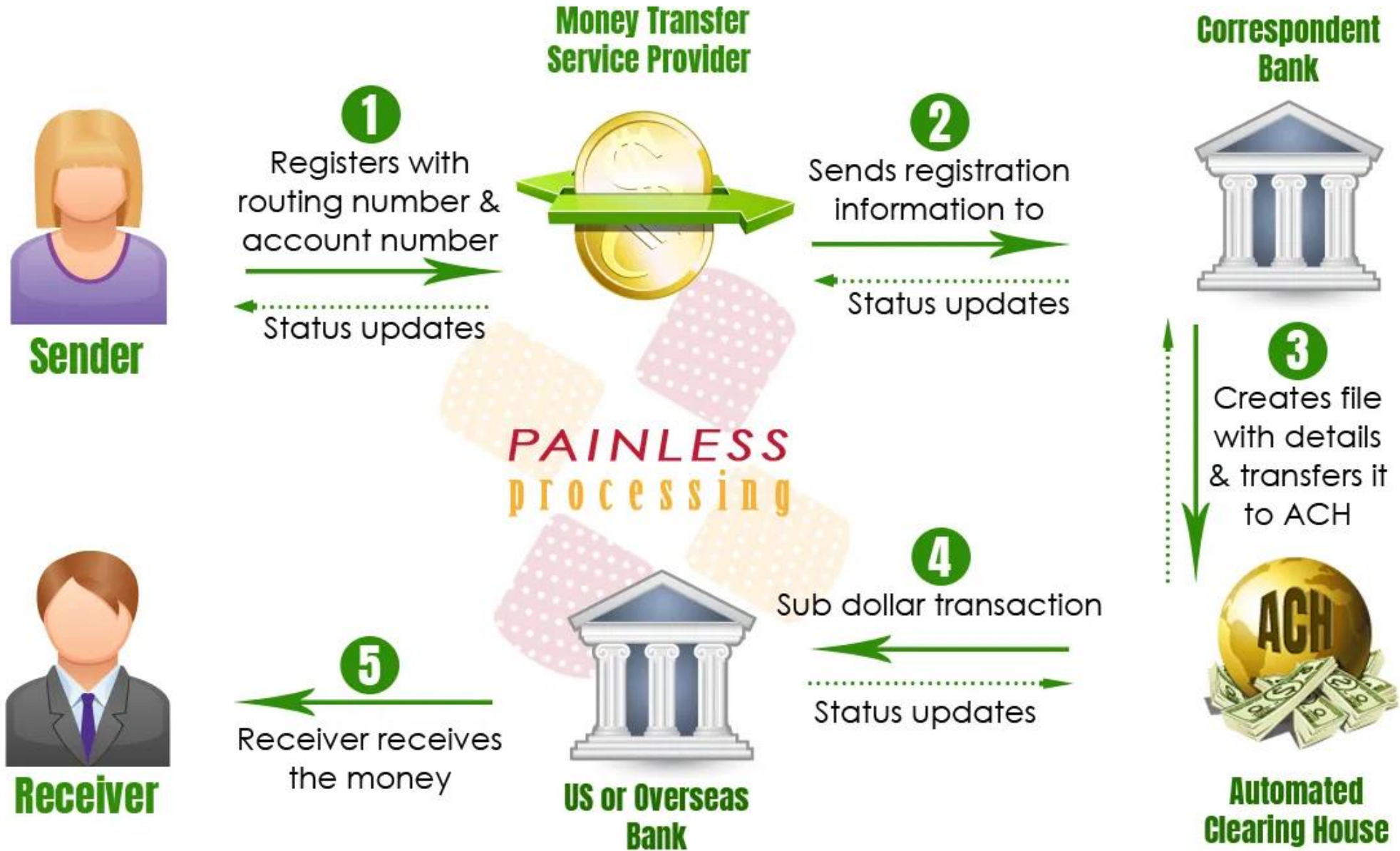
0987654321



Introduction of ACH network(ACH Debit)



ACH PAYMENT PROCESSING





Key Differences Between ACH & WIRE TRANSFERS

AUTOMATED CLEARING HOUSE

WIRE TRANSFERS



Transfer Speed

Typically takes two to three business days to complete.



Certainty and Safety

ACH transfers are also quite safe, but ACH transfers into your account can be reversed.



Cost

ACH transfers are almost always free for consumers—especially if you're receiving funds in your account.



Transfer Speed

Wire transfers move funds from one bank to another within one business day.



Certainty and Safety

Wire transfers are a relatively safe way to get paid, and unlike cashier's checks, they aren't often faked.



Cost

Banks and credit unions typically charge between \$10 to \$35 to send a wire within the United States, and international transfers cost more.

1



Customer presents the credit card. This can happen via in-store, online or mobile means.

2



Amount is transmitted to the Payment Processing Service Provider.

3



Payment Processing Service Provider forwards the information to the Card Associations (Visa/MC).

4



Association sends request to the issuing Bank.



8



The Credit Card will be approved and Merchant will receive an authorization number; or it will be declined.

7



Provider forwards the response to the Merchant.

6



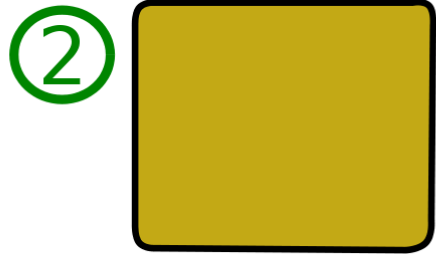
Visa/MasterCard sends the response to the Provider.

5



Issuing Bank approves or declines the transaction.

① Bank



④ 1234 5678 9123

⑥ 01/99

⑧  Contactless



⑦ MR A B PERSON

①

A. Person

123

③

②

Mobile Payment Ecosystems

Financial Ecosystem

Issuing Bank

Payment Networks

Acquiring Bank

Mobile Ecosystem

NFC Chip Makers

Handset OEMs

Mobile Carriers

Retail Ecosystem

POS Providers

Merchants

Advertising Ecosystem

Ad Insertion

Rewards

Location-Based Offers

Contextual Awareness

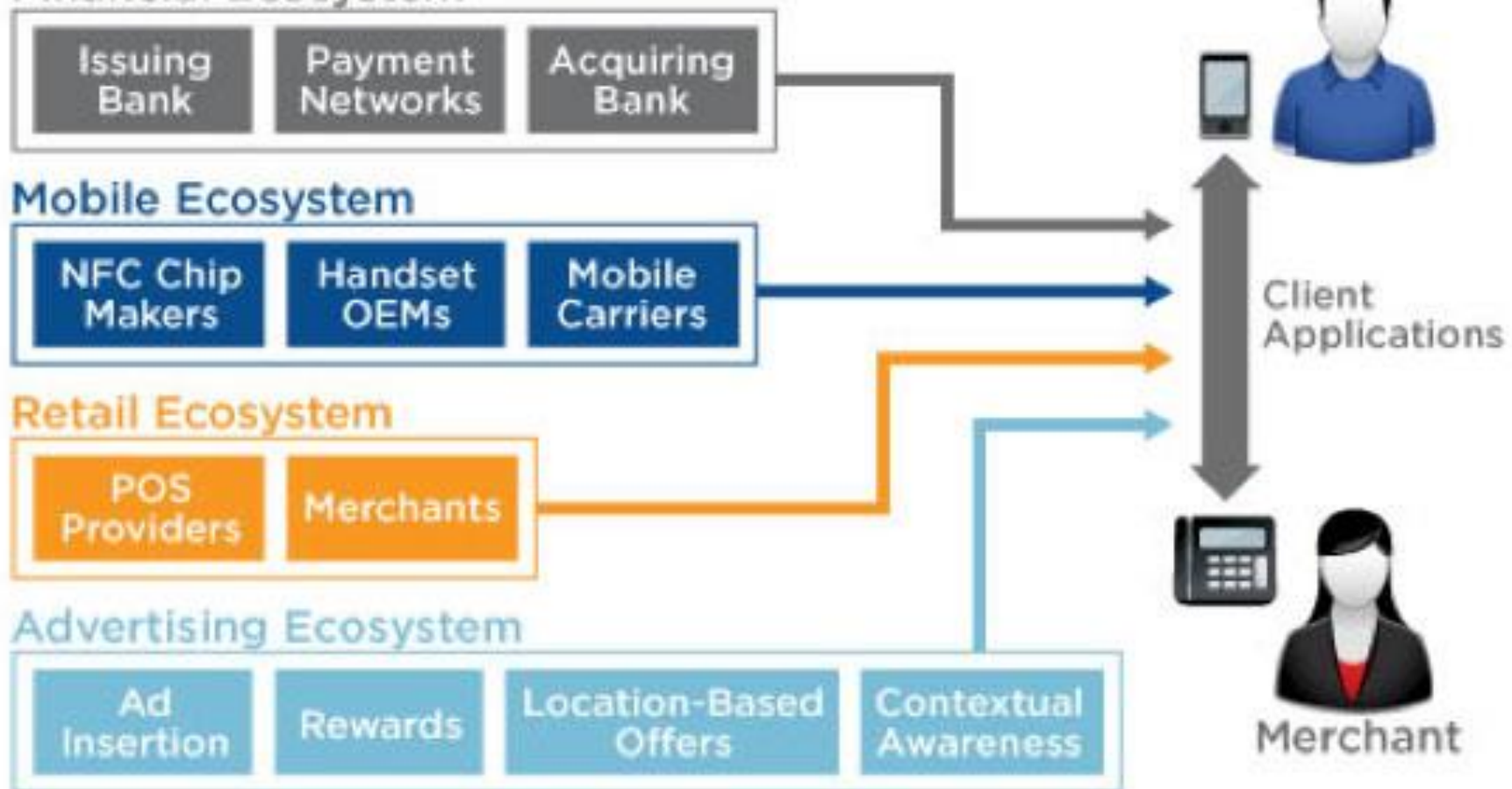
Customer



Client Applications



Merchant





FGCU
First Federal
Credit Union

VISA

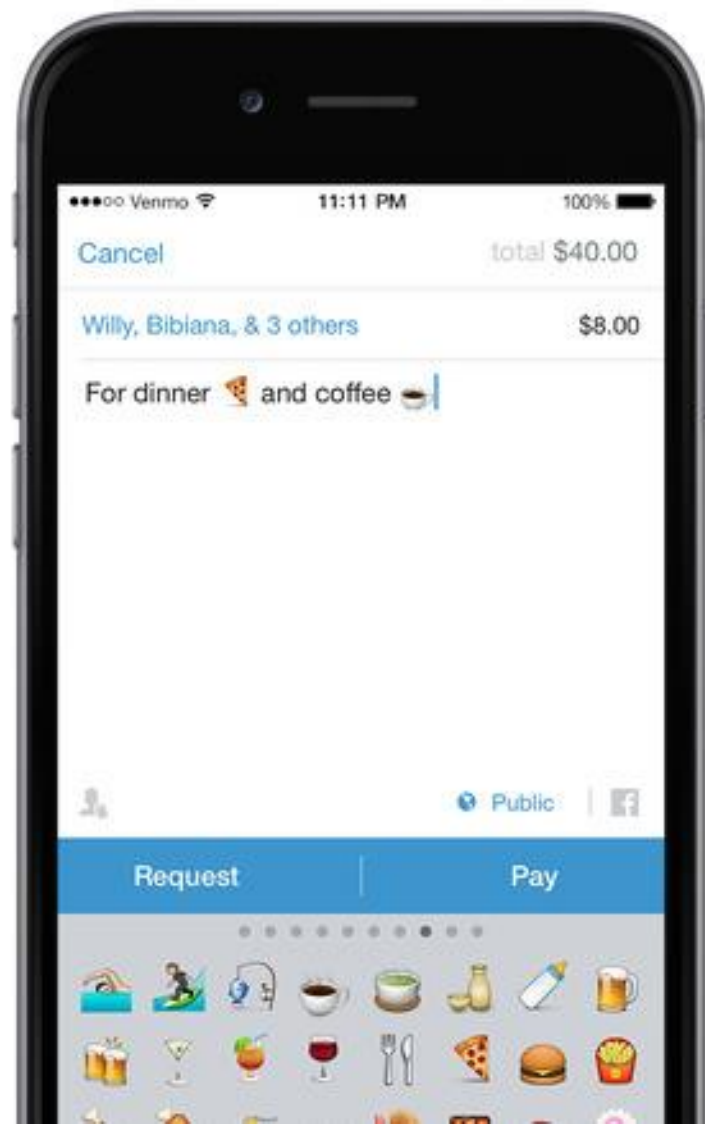
Done

We now accept
Apple Pay...
—and contactless,
good old fashioned
credit cards and
compliments
(of course).



ANIC COFFEE
PRET
REAL FOOD

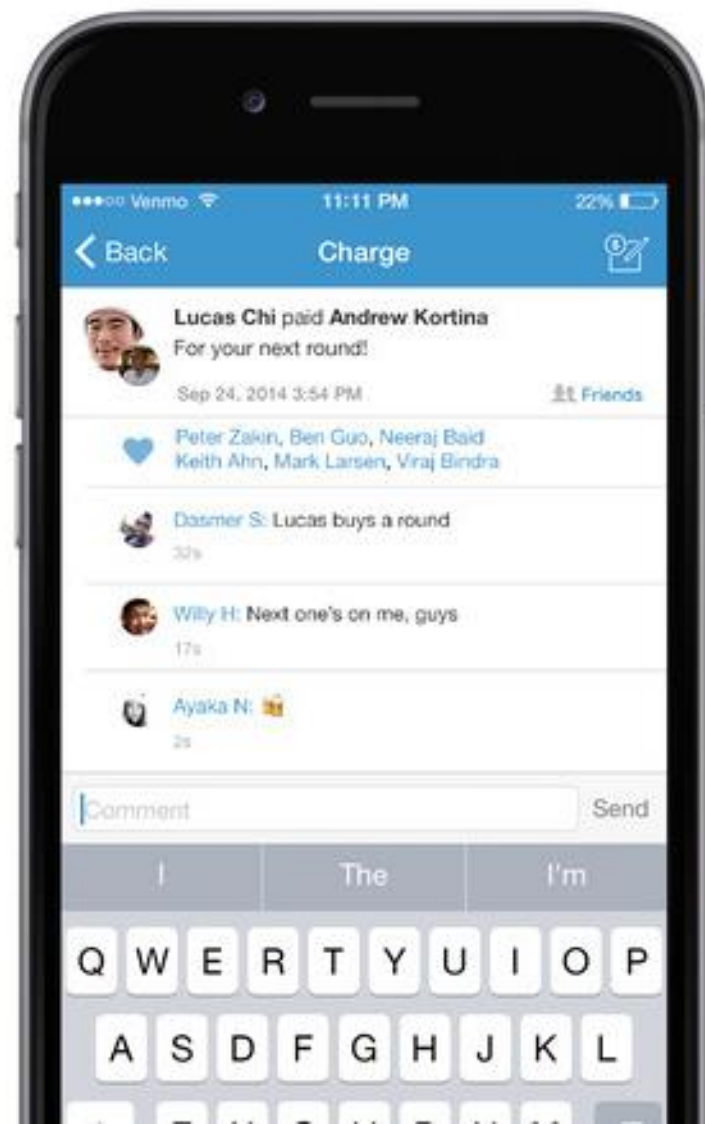
Request money from multiple people at once



See payments your friends share



Have fun with friends on Venmo



MOBILE PAYMENTS COMPARISON TABLE

	PEER-TO-PEER PAYMENTS?	IN-STORE PURCHASES?	ONLINE PURCHASES?	LOYALTY PROGRAM?
Square Cash	✓	✗	✗	✓
Apple Pay	✓ (via Apple Pay Cash)	✓	✓	✓
Google Pay	✓ (via Google Pay Send)	✓	✓	✓
Venmo	✓	✗	✓	✓
Samsung Pay	✓	✓	✗	✓
PayPal One- Touch	✓	✗	✓	✓
Xoom	✓ (International)	✗	✗	✗
Zelle	✓	✗	✗	✗
Circle	✓ (International)	✗	✗	✗

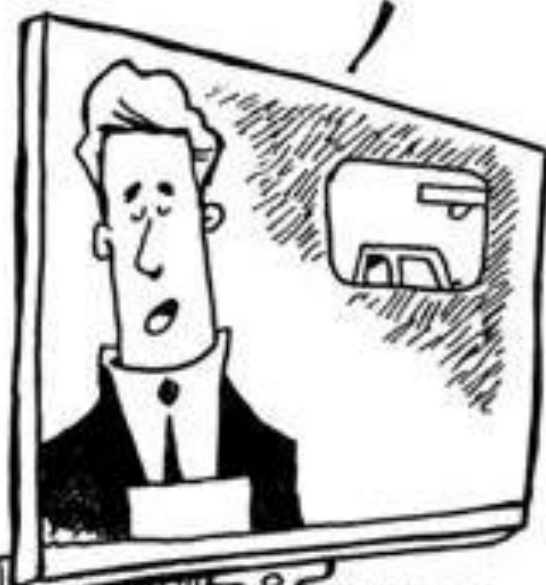


A Moment About Electronic vs Digital Signatures



- Identity verification
- Positive acknowledgement by both parties
- International body of law

THE PENNSYLVANIA
TURNPIKE HAS
ANNOUNCED THAT
IT IS GOING
CASHLESS



BIG DEAL...
I'VE BEEN
GOING CASHLESS
FOR A COUPLE
OF MONTHS
NOW

