vivit

Discover the independent Micro Focus software user community where you can share, collaborate, exchange, and grow

The Payments Ecosystem: Security Challenges in the 21st Century

January 21, 2020

Brought to You By

Vivit's Security and Privacy Special Interest Group (SIG)

Soma Ismael BOLA
IT INCEPT
Security & Privacy SIG Leader

Jameel Kusugal
Austere Technology Services
Security & Privacy SIG

Uwe Moenig
Owner SecCloud IT
Security & Privacy SIG

YOUR INDEPENDENT MICRO FOCUS SOFTWARE USER COMMUNITY

vivit

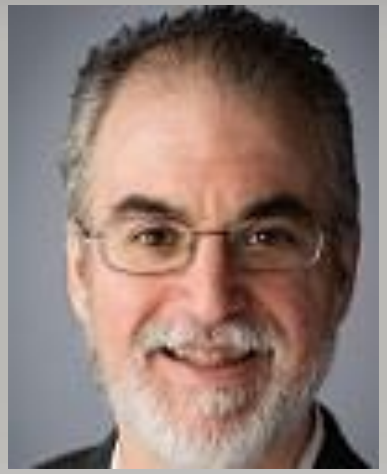
Hosted By

Rocky Pisto
Vivit Engage Coordinator
Vivit Worldwide

YOUR INDEPENDENT MICRO FOCUS SOFTWARE USER COMMUNITY

vivit

Today's Speakers



Philip H. Smith III
Distinguished Technologist and Senior Product Manager and Architect
Micro Focus

YOUR INDEPENDENT MICRO FOCUS SOFTWARE USER COMMUNITY

vivit

House Keeping

- This "LIVE" session is being recorded
  Recordings are available to all Vivit members

- Session Q&A:
  Please type questions in the Questions Pane

vivit

Webinar Control Panel

Toggle View Window between Full screen/window mode.

Questions

YOUR INDEPENDENT MICRO COMMUNITY

vivit

The Payments Ecosystem:
Security Challenges in the 21st Century

Phil Smith III

Senior Architect & Product Manager, Mainframe & Enterprise
Distinguished Technologist

Micro Focus International (formerly HPE, formerly HP, *née* Voltage Security)

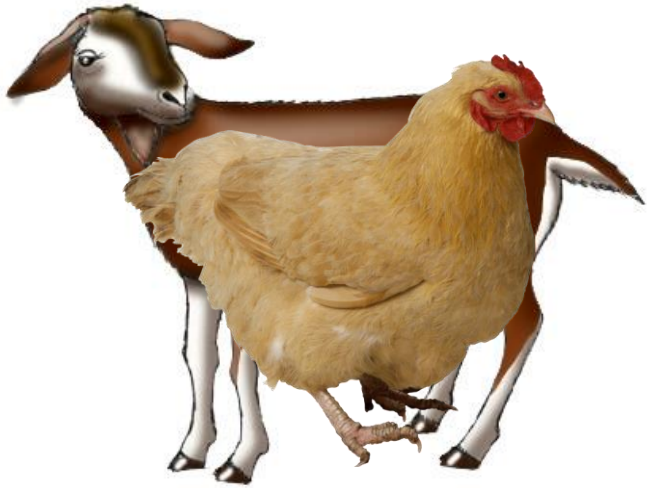
Agenda

- A Short History of Payments
- Modern Payments Systems
- Anatomy of a Card Swipe
- Card Fraud: How It Happens
- Payments Evolution (and Intelligent Design?)

MICRO FOCUS

A Short History of Payments

In the Beginning…



Large Purchases

Small Purchases

Purchases on Yap

(island of stone money)

Evolution

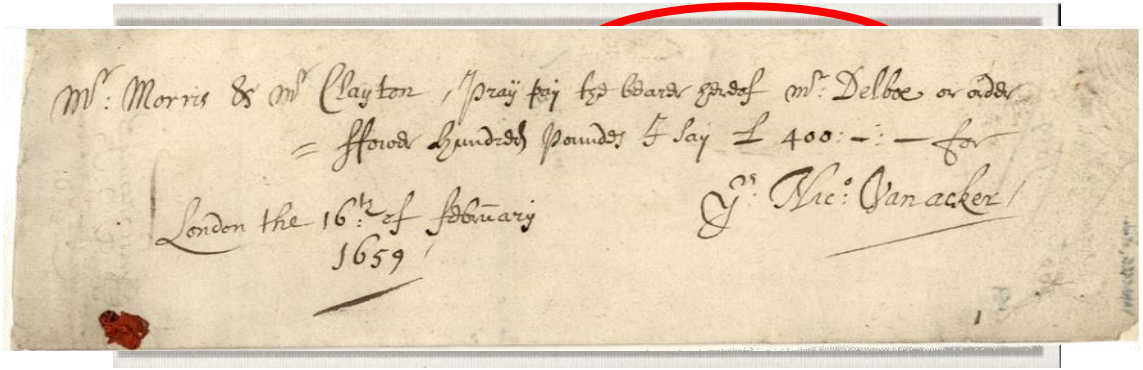
- “Lighter than goats!”

- *Chek* invented: Persia, 550–330 BC
  - Achaemenid Empire (remember them?)
  - India, Rome, Knights Templar used cheques

More Modern Uses

Google *patrick combs check*

- Cheques revived in 17th century England



- Soon after: preprinted, numbered, etc.
  - Magnetic Ink Character Recognition added in 1960s

MICR

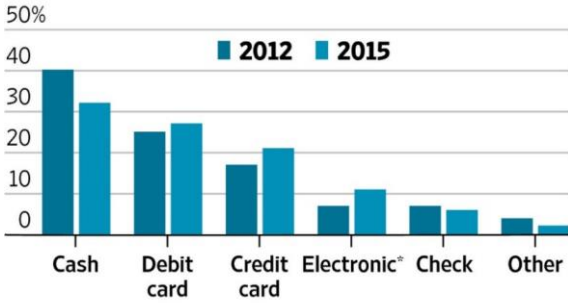
Modern Payments Systems

Many Alternatives to Checks

- Not the only game in town any more…
  - Online payment services (PayPal, Venmo, et al.…)
  - Electronic bill payments (Internet banking *et sim.*)
  - Wire transfer (local or international)
  - Direct credit, initiated by payer: ACH in U.S. giro in Europe
  - Direct debit, initiated by payee
  - Debit cards
  - **Credit cards** ← **We'll focus on these**
  - …and of course good ol' cash!

Cash Is King…for Now

Cash was the most frequently used form of payment for retail transactions in the Fed's latest report, but its share declined. Transactions by payment type:



*Such as ACH transfers and online bill pay

Where It Goes

Share of cash transactions by category

Food and personal-care supplies	52%
Auto and vehicle related	16
Gifts and transfers to people	11
General merchandise	9
Entertainment and transportation	4
Medical, education, personal services	3
Government and nonprofit	3
Housing related	1
Financial, professional, misc. services	1

Source: Federal Reserve, "The State of Cash"

THE WALL STREET JOURNAL.

Charge Cards vs Credit Cards

- Terms often interchanged, but quite different
  - ***Charge*** cards must be paid off that month
  - ***Credit*** cards offer **revolving credit**

- Credit card actually "invented" back in 1888:

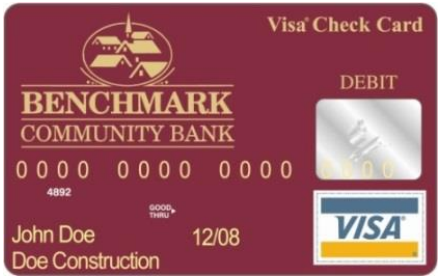
> "… a credit card issued him with which he procures at the public storehouses, found in every community, whatever he desires whenever he desires it."
>
> — Edward Bellamy, *Looking Backward*

Charge Cards vs Credit Cards

- Charge cards came first, through stores
  - Early 1900s: department stores, oil companies
  - 1936: Universal Air Travel Plan (air, rail, cruise travel)
  - 1946: First “bank card” (Charg-It, local to Brooklyn and a single bank)
  - 1950: Diner’s Club
  - 1958: American Express
  - 1958: BankAmericard, first true credit card, now Visa (CHARGEX!)
  - 1966: MasterCharge (now Mastercard)
  - 1985: Discover; was closed loop (Sears!), now independent
  - 1987: Even AmEx offers revolving credit cards

Debit vs. Credit vs. Gift Cards

- Debit cards are tied directly to a bank account
  - Many are usable for both signature and PIN debit
  - Signature debit “feels” like but is not a true credit transaction
  - Debit cards also let you get cash back when making purchases
- “Gift cards” are essentially debit cards
  - Many hourly employees are paid with prepaid debit cards
  - Your Starbuck’s card is a refillable gift card
- Credit card “rewards” try to lure folks away from debit
  - Banks see credit users who don’t carry balances as “freeloaders”
  - No-fee cards may be eliminated (we’ve heard that before…)



MICRO FOCUS

Anatomy of a Card Swipe

Anatomy of a Card Swipe

- A man walks into a bar…
  - …and eventually “swipes” a Visa card to pay the tab

- Simple, right?

➢ ***Wrong…so wrong…***

Payments Jargon

- ***Acquirers*** are the banks who the merchant deals with
  - Eventually pay the merchant the money you charge
- ***Processors*** do what it sounds like: process transactions
  - Acquirer and processor distinction unimportant to consumers
- ***Brands*** are the cards: Visa, American Express, et al.
  - The central clearing house for transactions
- ***Issuers*** are the banks the consumer deals with
  - Your credit card came from an issuer

A man making a purchase by telephone is talking to the rep.

As he's about to pay, the rep asks him,

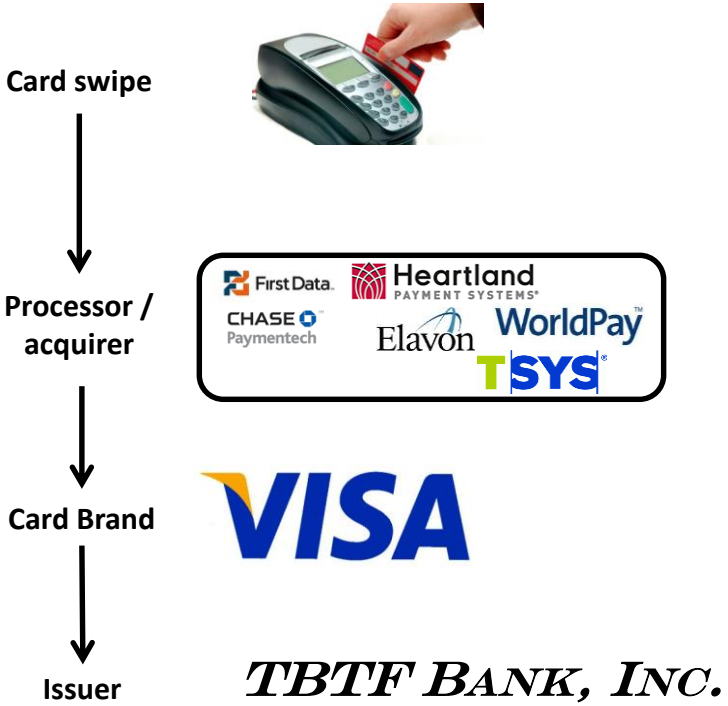
"Would you please spell the name as it appears on the card?"

The customer carefully replies:

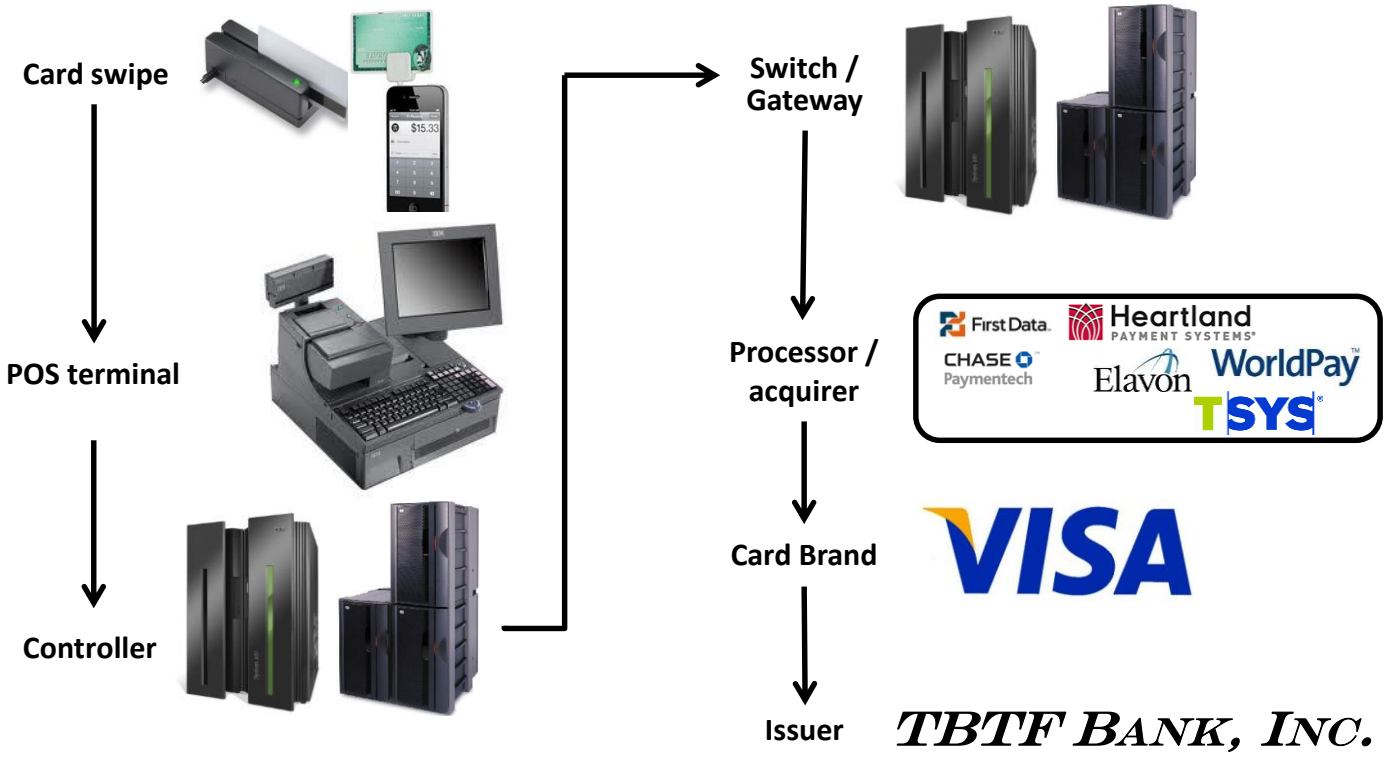
"V-I-S-A"

MICRO FOCUS

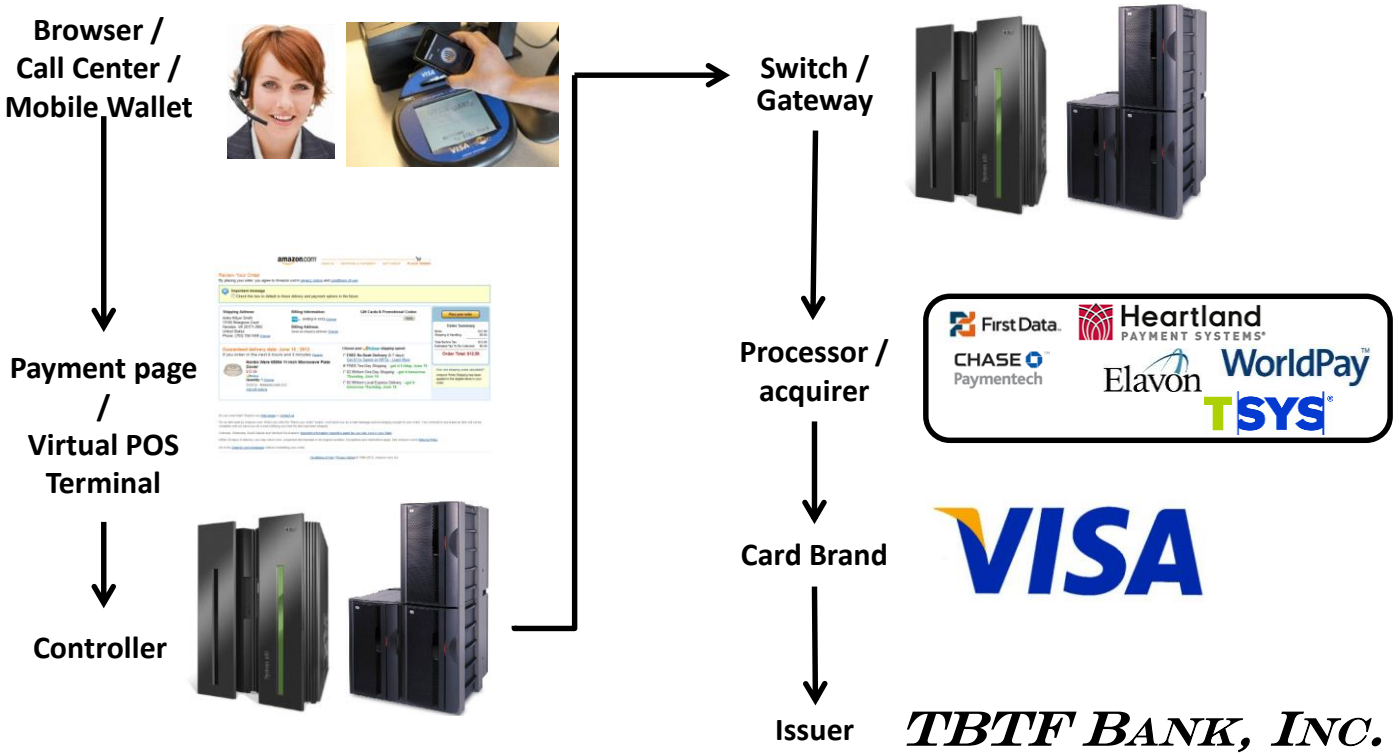
The Simple Case: Small Merchant



More Complex Case



Card Not Present



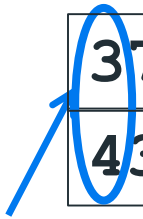
Details: Authorization vs. Settlement

- Card brand does ***authorization*** at purchase time
  - Contacts issuing bank with card and charge details
  - Checks status of account, allows or declines
- Merchant does ***settlement*** at end-of-day (or thereabouts)
  - At settlement, charges are processed, sent to issuing bank

Anatomy of a PAN (Primary Account Number)

A Costco AmEx: `371513 12345100 8`

A Chase Visa: `430587 123456789 7`



Major Industry Identifier (MII)

- MII indicates card type:
  - 1: Airlines
  - 2: Future use
  - 3: Travel & Entertainment (DC, AX)
  - 4: Visa
  - 5: MasterCard, banking
  - 6: Discover, merchandising, banking
  - 7: Gasoline cards
  - 8: Telecom
  - 9: For use by national standards bodies; digits 2–4 are ISO country code

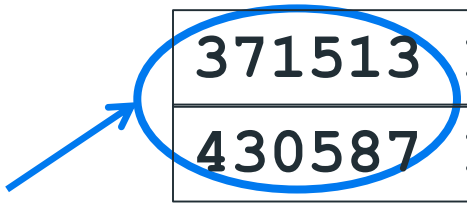
- Within those ranges:
  - AmEx: 34 or 37
  - JCB: 1800, 2131, 35
  - Diners Club: 300–305, 36, 38
  - MasterCard: 51–55
  - Discover: 6011 or 650x

MICRO FOCUS

Anatomy of a PAN

A Costco AmEx: `371513 12345100 8`

A Chase Visa: `430587 123456789 7`



Issuer Identification Number
(IIN, formerly BIN)

- First six digits are the IIN (for now, soon to be first eight!)

Examples of Card Sub-Formats

- American Express:
  - 3 = type (Business or Personal)
  - 4 = currency
  - 5-6 = ?
  - 7-11 = actual account number
  - 12 = replacement code (“card version”)
  - 13-14 = card # within account
  - 15 = Luhn checksum
- So account# is only five digits

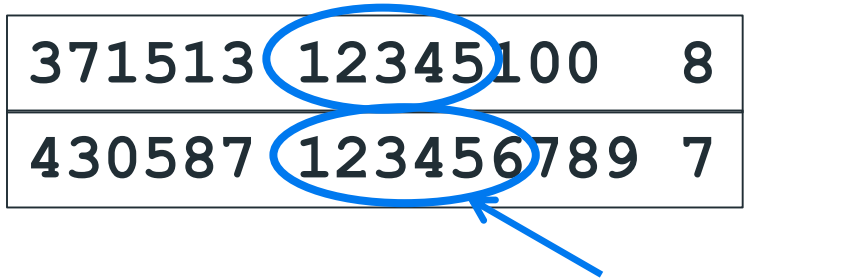
- Visa:
  - Digits 2-6 = bank
  - Digits 7-12 or 9-15 (soon) = account#
  - Six to eight account# digits

- MasterCard:
  - 2-n (n=4-6) = bank number (1x, 2xx, 3xxx, xxxxx)
  - n-15 = account number
  - Nine to 11 account# digits

Anatomy of a PAN

A Costco AmEx: `371513 12345100 8`

A Chase Visa: `430587 123456789 7`



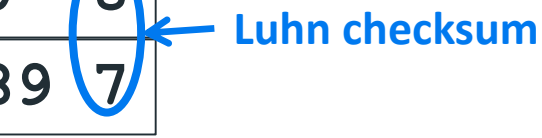
Primary Account Number
(individual account identifier)

- This is the “real” account number:
  - The part unique to your card

Anatomy of a PAN

A Costco AmEx: `371513 12345100 8`

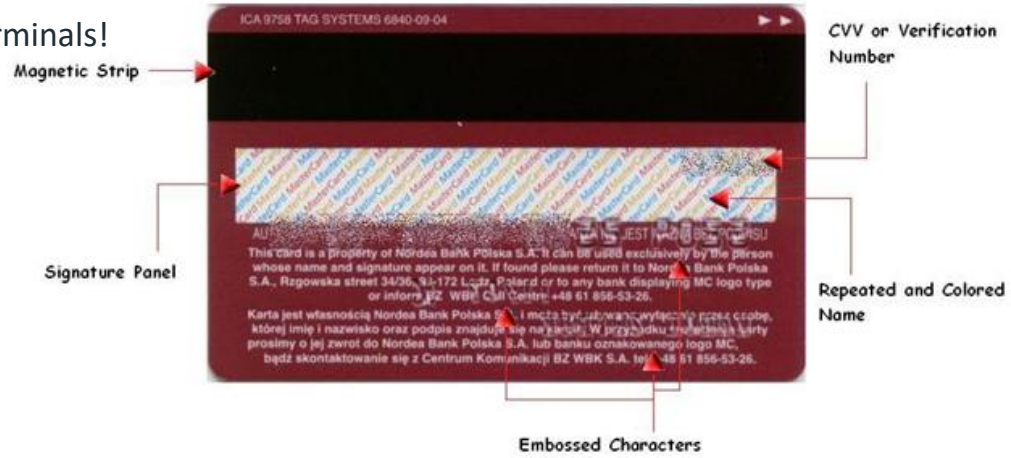
A Chase Visa: `430587 123456789 7`



- Last digit: Luhn checksum
  - To catch data entry errors, not for security!

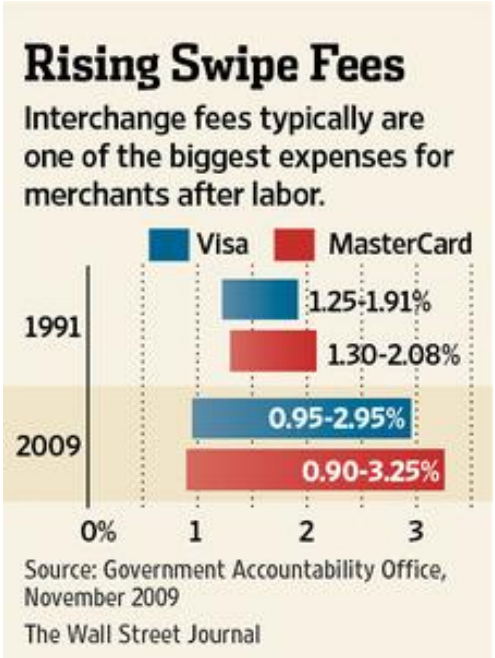
What's On the Magnetic Strip (or chip)?

- Three tracks of data
  - PAN (Primary Account Number), name, expiration, etc.
  - Data often duplicated across tracks
  - Many format variations, controlled by flag bits
- Not a lot of data storage capacity
  - Lowest common denominator: dialup POS terminals!

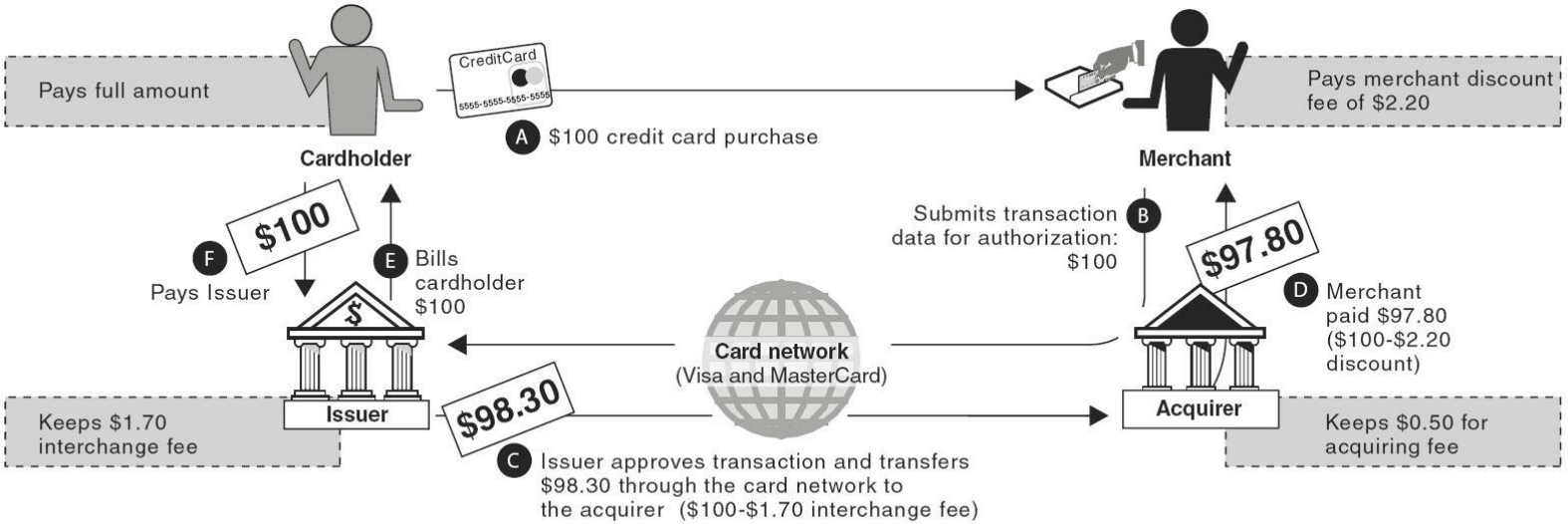


Cui bono? Who Pays For All This?

- Merchants are divided into four tiers based on processing volume
  - 1 = largest/highest; higher tier=more security requirements, including annual audits
- Merchants pay per transaction, typically either
  - Transaction charge+percentage of transaction (e.g., $0.40+2.3%)
  - Fixed percentage of total transactions
  - Credit cards higher; PIN debit often cheapest
- The Big Money: interest and late fees
  - But transaction fees add up: $billions each year!



Credit Card Economics



Cardholder transaction:	$100.00
Interchange fee:	1.70
Card network pays acquirer:	$98.30
Acquirer pays merchant:	$97.80
Processing fee paid to acquirer:	$0.50

1.70% Interchange rate
2.20% Merchant discount rate

Sources: GAO (analysis); Art Explosion (images).

Fees and More Fees: Debit Cards

- Checks are rapidly dying (you knew that)
  - PIN debit most popular payment method
  - Cheapest for merchants, too
- Ironic, considering banks' fears about lost fees with debit
  - No credit card overdraft/late payment fees! We'll go broke!
  - Brainstorm: *Allow debit overdrafts!*
  - Second brainstorm: *Process signature transactions* ***largest*** *to* ***smallest***
  - Legislation, lawsuits, settlements have mostly straightened this out

And Jesus entered the temple and drove out all those who were buying and selling in the temple, and overturned the tables of the money changers...

Card Fraud: How It Happens

“Sure is a nice credit card you got there…
would be a shame if sumpin’ happened to it…”

Types of Card Fraud

- Lost/stolen cards, or new cards intercepted from mail
- Unauthorized card-not-present use (thieves, clerks)
- Counterfeit cards (stolen/skimmed card information)

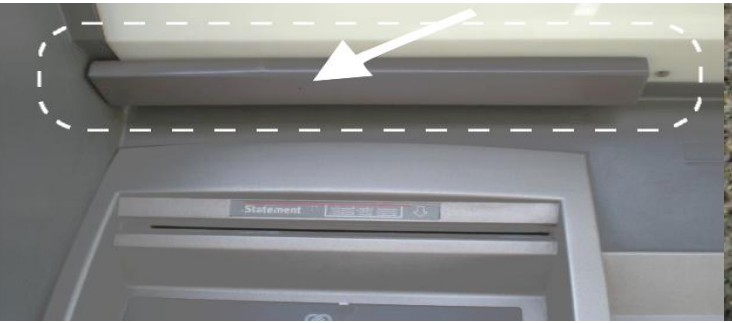
Google *american underworld credit card theft*

- Identity theft/identity creation
- “Bust Out” and “Friendly Fraud”

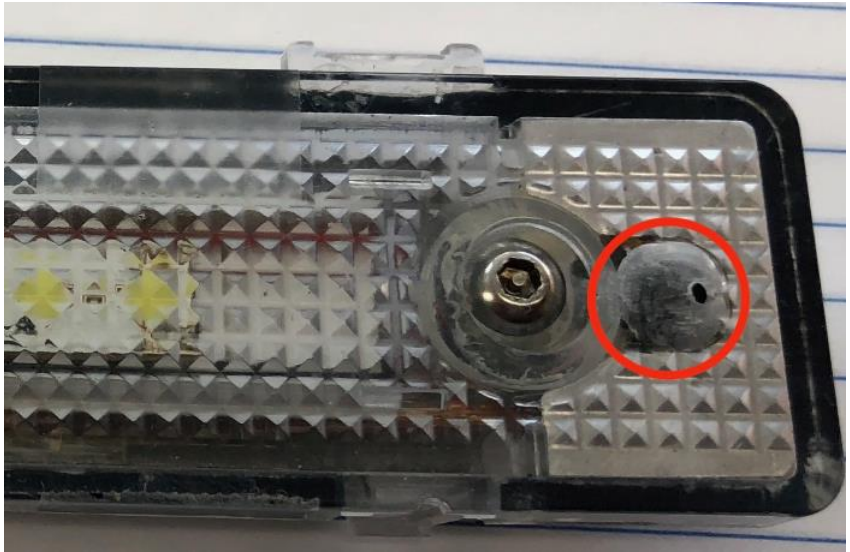

QZ 1
ABC 2
DEF 3
ENTER
GHI 4
JKL 5
MNO 6
CLEAR
PRS 7
TUV 8
WXY 9
CANCEL
0

Skimmer Cameras

Pinhole camera glued to ATM



Pinhole camera in modified light fixture



An Even Scarier Example…

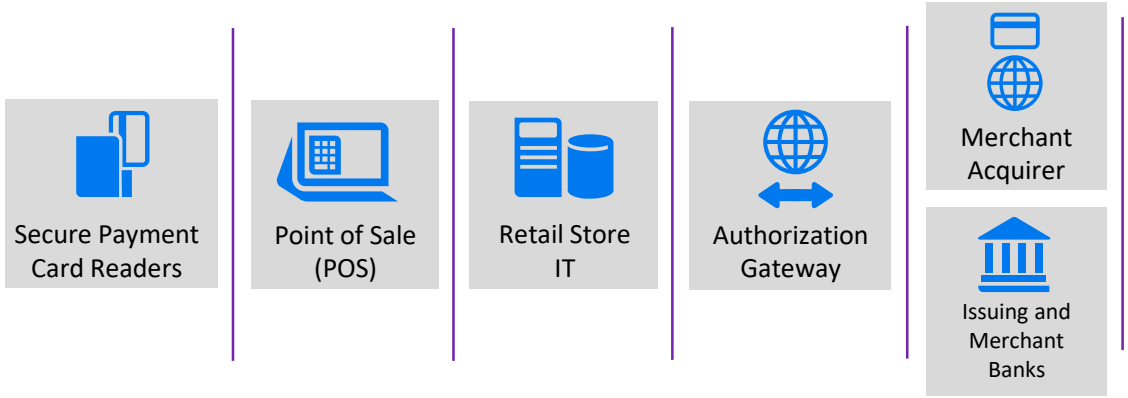
Installing a Skimmer

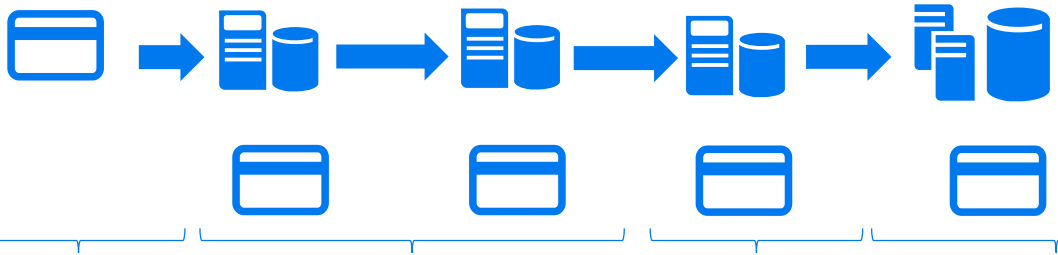
Fraud and the Payments Industry

- "The Payments industry doesn't care about fraud"
  - Total U.S. credit card charges: ~$3T (2015)
  - Industry revenues: ~$300B (2015)
  - Fraud: ~$7B (2017; rising slightly in last decade)
  - **Losses due to default/bankruptcy: $50B (estimated)**
- What they care most about are **consumer confidence** and **ease of use**
  - Fighting fraud worth their while, but for PR more than $$$
  - U.S. card fraud has typically been relatively stable (but wait…)

MICRO FOCUS

Credit Card Threat and Risk View





- Pre-card read skimming
- Fake readers

- POS & server malware
- Memory scrapers
- Insiders
- Outsourced operations

- Server malware
- Insiders

- Server malware
- Insiders

Industry Anti-Fraud Measures

- Artificial intelligence/heuristics
  - (Try to) detect buying patterns that look fraudulent
  - Used by data thieves, too!
- Restrictions on high-risk items
  - E.g., electronics shipped to addresses other than cardholder's
- AVS (Address Verification Service)
  - Validates parts of address with card brand
- Manually entering "last four"
  - Matches physical numbers to magstripe values

MICRO FOCUS

Industry Anti-Fraud Measures

- Physical card features to reduce card-present fraud
  - CSC/CVD/CVV/CVVC/CVC/CCV/V-Code
  - Cardholder's photo on card
  - Holograms
- Encryption at point-of-sale—in POS and browser
  - PCI DSS requires encryption at various levels for some tiers

Visa Card Security Features

The **Signature Panel** must appear on the back of the card and contain an ultraviolet element that repeats the word "Visa®." The panel will look like this one, or have a custom design. It may vary in length.

The words "Authorized Signature" and "Not Valid Unless Signed" must appear above, below, or beside the signature panel.

If someone has tried to erase the signature panel, the word 'VOID" will be displayed.

The **Magnetic Stripe** is encoded with the card's identifying information.

Card Verification Value (CVV) is a unique three-digit code that is encoded on the magnetic stripe of all valid cards. CVV is used to detect a counterfeit card.

Card Verification Value 2 (CVV2)* is a three-digit code that appears either in a white box to the right of the signature panel, or in a white box within the signature panel. Portions of the account number may also be present on the signature panel. CVV2 is used primarily in card-absent transactions to verify that customer is in possession of a valid Visa card at the time of the sale.

The **Mini-Dove Design Hologram** may appear on the back anywhere within the outlined areas shown here. The three-dimensional dove hologram should appear to move as you tilt the card.

Embossed/Unembossed or Printed Account Number on valid cards begins with "4." All digits must be even, straight, and the same size.

Four-Digit Bank Identification Number (BIN) must be printed directly below the account number. This number must match exactly with the first four digits of the account number.

Expiration or **"Good Thru"** date should appear below the account number.

Visa Brand Mark must appear in blue and gold on a white background in either the bottom right, top left, or top right corner.

Cardholder Name or a Generic Title may be embossed or printed on the card. This field may be blank on some Visa cards.

Ultraviolet "V" is visible over the Visa Brand Mark when placed under an ultraviolet light.

If you do not see a mini-dove on the back of the card, check for the traditional dove hologram above the Visa Brand Mark on the front of the card.

Flying Dove Hologram

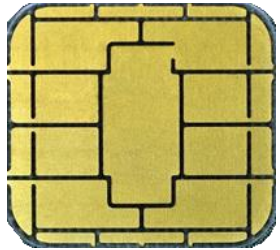
Visa says:

If the card has "See ID" in place of a signature…

Request a signature.
Check the signature.

More Industry Anti-Fraud Measures: EMV

- EMV: cross-brand "smart" card standard (aka "Chip" cards)
  - Computer on card stores keys, data
- U.S. was slow to adopt EMV
  - Expensive (replace all cards, all terminals), **"PINs are inconvenient"**
- U.S. "liability shift" happened October 1, 2015 (except gas pumps, ~~2017~~ 2020):
  - If more than 75% of transactions use EMV-enabled terminals, issuer absorbs fraud
  - Also means some merchants can apply for relief from PCI audits
- Note that EMV helps only for card-present
  - Card-not-present unchanged; fraud moves to e-commerce
  - U.S. CNP fraud went up with EMV; predicted to double from 2015 to 2020
- And most U.S. issuers only did chip & signature, not chip & PIN
  - Prevents card cloning, but useless against lost/stolen card use (or CNP)



What About RFID and NFC Cards?

- RFID and NFC (Near-Field Communications) spreading
  - Allow waving card, touching smartphone instead of swiping, for small transactions
  - Visa payWave, Mastercard PayPass, AmEx ExpressPay, ~~SoftCard (formerly ISIS)~~
- In theory, black hats can read these from afar
  - Clone the card info, use it (perhaps only once)
- In fact, very few reported cases of this kind of fraud
  - Can also wrap card in foil, or use sleeves sold/given as swag

bizarro.com/2015/04/30/

Protecting Yourself: Common Sense

1. Don’t give card numbers out casually
2. Avoid writing down card numbers
3. Consider virtual credit card numbers for CNP
4. Consider Apple Pay, Google Pay, et al.
5. Keep your card in sight as much as possible
6. Keep a list of the numbers in a secure place
7. Check your statements carefully
8. If suspicious activity, place fraud alert
9. Don’t send money to Nigerian courtiers

Protecting Yourself: International Travel

1. Get chip & PIN cards (Americans!) and sign all cards
2. Enable PIN for cash advances, and memorize it
3. Print card contact numbers, including non-toll-free
4. Record “first six” and “last four” of card numbers
5. Set up cell phone for international call/text use
6. Notify card company of overseas travel, authorize cards for international use
7. Enable alerts for purchases—all amounts, or some reasonable threshold
8. Check account spend online frequently (***from a secure device!***)
9. Install card provider's mobile app for checking spend and receiving alerts
10. Avoid allowing card out of your sight—follow waiter if necessary/possible
11. If called about alleged fraud, hang up and call contact number on the card

Risk to Your Business

- Data theft = big business, big businesses = targets
  - 630 million++ computer records containing sensitive personal information breached in U.S. since 2005
- James Clapper, Director of National Intelligence, told Congress in 2015:

"Cyber attack is now a greater threat than terrorism"

Top 10 countries hacked 2013

http://hackmageddon.com/category/security/cyber-attacks-statistics/

U.S. 39%

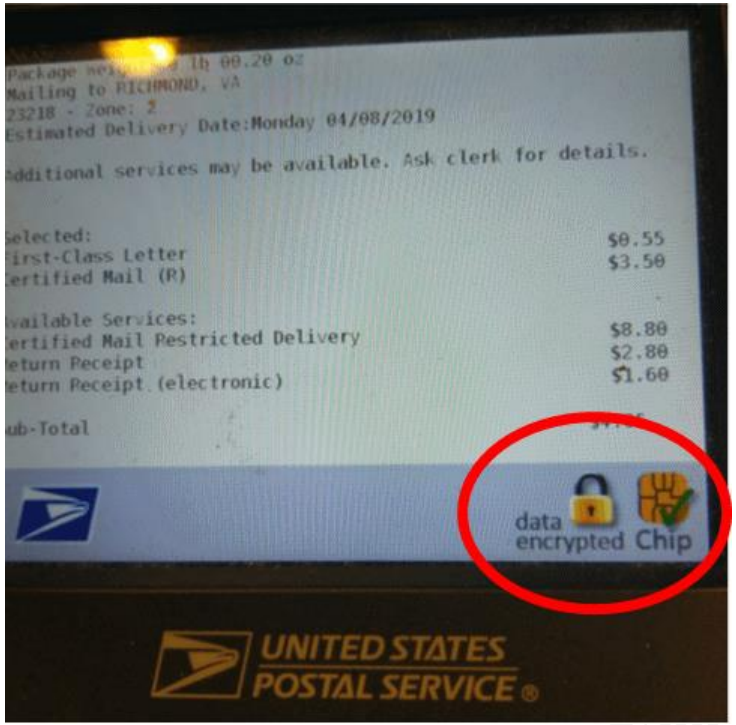
U.K. 5%
India 3%
Turkey 2%
Pakistan 2%
Australia 2%
Czech Republic 2%
Japan 2%
France 2%
other 40%

Significant Corporate Breach Impact

- Direct costs are significant
  - Fines/penalties, legal fees, reissuing costs
  - Termination of ability to accept payment cards
  - Higher subsequent compliance costs
- The public is aware there's a problem, is worried
  - Hold companies liable for security breaches
  - Lost confidence means business lost to competitors

Protecting Your Company's Systems

- Encrypt/tokenize stored credit card numbers, per PCI DSS
  - Lots of options; I happen to think SecureData is best ☺
- POS end-to-end encryption
  - Merchant or processor: encrypt ***in the payment terminal***
  - Leading payments processors use SecureData for this purpose
- Web end-to-end encryption
  - Encrypt in the browser, using FPE in JavaScript
  - Even with TLS, waypoints may be insecure, are in PCI DSS scope
  - Surprise, Voltage has a solution for that too
- Unified protection strategy must include SOC, SIEM, etc.
  - Target ignored warnings—results were suboptimal



Why Do Breaches Continue To Occur?

- Many breaches are “normal accidents”*, like plane crashes: a unique cascade of events

1. AF447: Flying at night, over ocean—no visual frame of reference (normal, but exacerbates subsequent errors)
2. Turbulence/icing cause autopilot disengagement, increase control sensitivity, disable stall protection
3. Pilot overcorrects slight roll, spends 30 seconds correcting; pulls up on stick in process, causing climb
4. Meanwhile, pitot tubes ice up, resulting in incorrect (high) airspeed readings
5. Stall warnings sound, pilot continues fight for control
6. Due to incorrect instrument readings, nose-up attitude continues—plane is stalling, crew confused
7. Plane stays in stall until it hits the water

Change any one of these and 228 people live

1. HVAC contractor given credentials to logon to part of Target network
2. Hackers somehow (?) breach those credentials
3. Network not properly segmented, so those credentials enable inappropriate access to other areas
4. POS terminal software load infected with malware, not validated sufficiently
5. All POS terminals pick up infected load
6. Thousands of security monitor warnings are ignored
7. Card data not encrypted at swipe, tens of millions of cards breached

Change any one of these and breach is avoided

* *Normal Accidents: Living with High-Risk Technologies* by Bruce Perrow 1984, ISBN 978-0691004129

MICRO FOCUS

Beyond System Security

- Think beyond the mundane—don't assume!
  - Recent story: "Crypto weakness in smart LED lightbulbs exposes Wi-Fi passwords"
- Talk to local police, RCMP, FBI, National Guard, Secret Service ***now***
  - Learn contacts, build trust
  - Get legalities under control
- Build response team ***now***
  - Do desktop exercises
  - Expect it to happen!

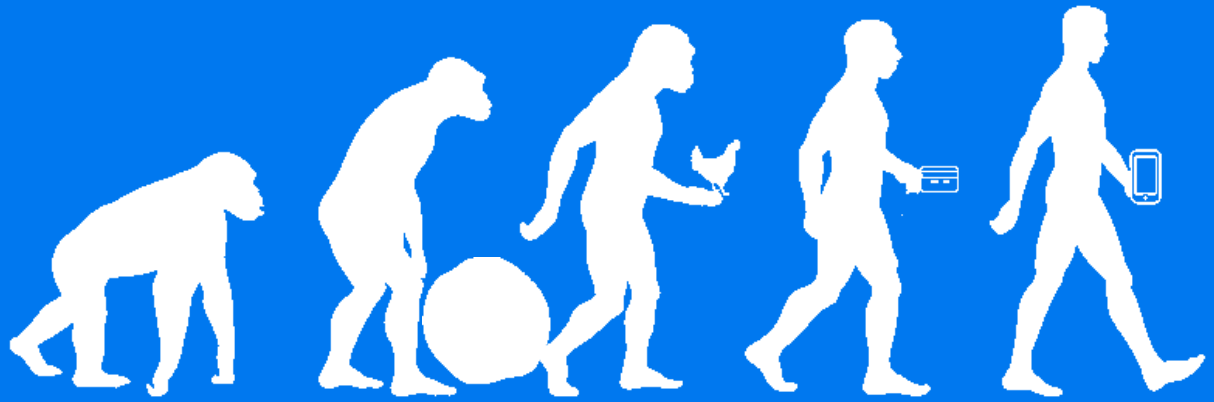
What About Target? (OPM, Marriott, Sony, Equifax …)

- Target: 19-day breach, 40M++ cards exposed by POS malware
  - Credit, debit (including CVV1); Red Cards ***not*** at risk (PIN protected by TDES in POS)
- More: OPM, eBay, THD, Marriott…
  - OPM: Big, bad, and possibly from China; enough content for a whole presentation!
  - eBay: ***Salted and hashed*** customer passwords stolen—no real risk!
  - The Home Depot: very similar to Target
  - Marriott: 5M records over four years
- Sony: Hacked by “Guardians of Peace” (#GOP), may be from North Korea
  - Email, employee data, etc. stolen—12+ months, 100TB, 33K files, 5K directories!
- Equifax: Classic poor systems management plus big-company errors
  - Apache Struts vulnerability, weak admin password, AWS password stored on pages…

Fallout from Target et al.

- With every high-profile breach, public goes nuts
  - Man-on-the-street interviews with panicked consumers
  - Vows to “never shop at Target again”, etc.
- Note: Not everything is the victim’s fault
  - Poor timing/wording of disclosure doesn’t help
  - But sometimes not up to victim (eBay, for example)
  - Business usually rebounds ***if managed appropriately***
- Good news: public started saying “We need chip cards”
  - Not that EMV would have helped (SecureData would!)

Payments Evolution



Payments is a Competitive Space …

1SDK	2ergo	@Pay	About-Payments	Admeris	Aerapay
AlligatoMobile	Apriva	ArcMobile	Arkalogic Systems	ATLASInteractive	AvilaPay
Balanced	Baskt	BenefitMobile	BilltoMobile	BOKU	boxPAY
Buzzoek	CARDFREE	CardMobili	CartaWorldwide	Centili	CHARGEAnywhere
ClairMail	Clipp	CodaMation	Coin	CorFire	CreditCall
CUneXusSolutions	DAOTEC	DashPlatform	DeteconUSA	Digimo.co.in	Dnote.me
DominoResearch	Dotassure	DoubleBeam	Droplet	Dropost.it	Dwolla
Eferio	equateplatforms	Evenly	EVRGR	FriendsVow	GeexLab
GibCode	GiftRocket	Gimme!	GlobalCharge	GoCoin	GoodClic
Gymdeck	hyperWALLET	iKoruna	ImpulsePay	Infobip	InvoiceASAP
Iyzico	JamPay	Kuapay	Leapset	LinQPay	LoanTraq
Locqus	maviance	mCASH.com.ng	mFoundry	Mobacomm	MobiAdvanced
MobiKwik	MobilePayUSA	mobilPay	Moblized	ModoPayments	Mogley
Moneylib	Mpayy	mPowaFin.co.za	MyHouseTab	MyOmne	NextPayments
Nickler.biz	Nooch	NorthAmerican	OpMoSys	Orugga	Paga
PagoMobile	ParkingSurfer	PayAnywhere	PayApp.io	Paybubble	payByMobile
Payfirma	PaylineData	Paymentwall	Paymo	PayPalHere	PayPhoneAPP
Paytagz	PayTango	payvia	PayVM.com	payworks	PeachPayments
PencePay	PocketSuite	POMS	Prompt.ly	PushPoint	RBKMoneyWallet
Recurly	RewardSummit	RiskPointer	Shopify	SimplyTapp	SmsCoin

Physical Evolution: Beyond the POS

- Various new ways to take payments through smart phones
  - There are phones with built-in cardswipe slots
- Smartphone + hardware = easy mobile payments
  - Square, GoPayment, PayPal Here, PayAnywhere, et al.; mPowa, iZettle also do EMV
- Apple Pay, Google Pay, Samsung Pay, et al. are increasingly popular
  - Offer improved security over physical cards
- Most banks now let you deposit checks using your smartphone
  - Huge time-saver!

iZettle

MPOWA
inventors of the sell phone

Apple Pay

pay

SAMSUNG
pay

Walmart Pay

Physical Evolution: Beyond the Card

- LevelUp boku Pay by Mobile
  - Payments through your phone without an add-on device, using QR code
- DipJar
  - Simplify tipping for credit card transactions (Starbucks, charities)
- DWOLLA Venmo Pay. Charge. Trust.
  - Person-to-person payments—“Debit card PayPal” (sorta)
- SWYP plastc™ coin
  - Replace all your cards and cash (?!) with device/smartphone app

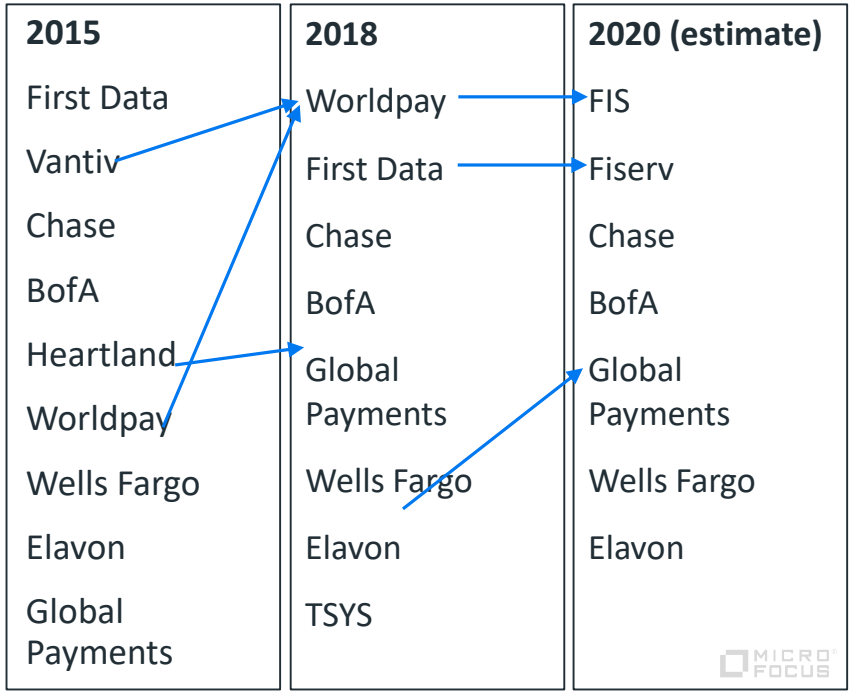
CLINKLE

MICRO FOCUS

Infrastructure Evolution

- Payments landscape is constantly evolving
  - Layers (processors, networks) are sold or spun off
  - Mergers, consolidations, partnerships
  - Threat landscape also evolving
  - “Carder sites”, international fraud rings growing
- Protection (via encryption) is spreading
  - Can make data breaches (almost) meaningless
  - SecureData helps a lot here

Top U.S. Acquirers



Innovation Is Good, Right?

- Why all these payments innovations and startups? (Beyond just profit!)
  - Benefit is simplicity through reduced **friction**, making it easier to spend money!
- Simpler ***is*** good:
  - I used to carry: keys, change, wallet
  - Then: keys, change, wallet, ~~pager,~~ phone
  - Now: key, wallet, phone
  - But should I really need more than phone?
- Things to remember
  - You're the product here
  - **As always, *cui bono*?**

MICRO FOCUS

Summary

- Credit cards are most-used payments technology

  …though ACH and wire transfer are far larger $$$-wise

- For safety, pay attention, but don't panic!
  - Encourage your company to run breach exercises, just like disaster recovery drills
  - Spend some time with Google: you'll learn a ton more
  - Read *RISKS* list, Krebs on Security, Schneier
- Watch the news…things will keep evolving
  - We've barely scratched the surface here!

Questions/Discussion

Phil Smith III
703.476.4511
phsiii@microfocus.com

Upcoming Vivit Events

February 18, 2020
Meeting: User Group Treffen "Testen & Test-Management mit Produkten von Micro Focus" in Gütersloh
From 1:00 PM to 5:00 PM EST
https://www.vivit-worldwide.org/events/EventDetails.aspx?id=1312272&group=

vivit

Thank you

- Complete the short survey so your Vivit leaders can better serve you in the future

https://www.vivit-worldwide.org/

vivit

vivit

Thank You

vivit-worldwide.org