Frictionless Member Experiences For Today's Mobile Consumer

Matt Edmunds, Executive Director, Neustar

Ken Pruett, Market Development Director, Neustar

CALLAHAN
& ASSOCIATES
the credit union company

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- We are audio broadcasting so please plug in your headphones or computer speakers to listen in.

- If your audio is choppy or slow, you may wish to dial into the teleconference:
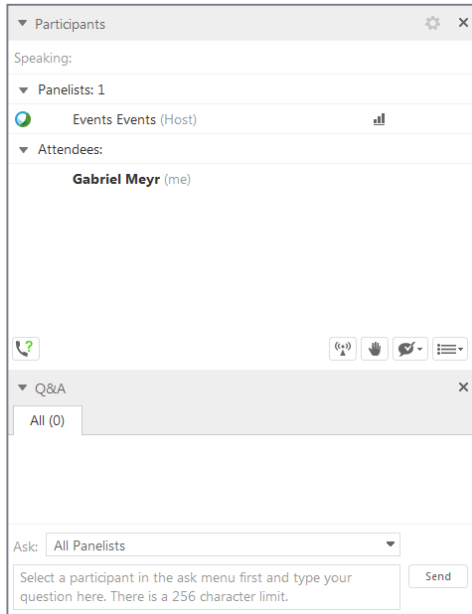
  Dial: +1 (415) 655-0003

  Enter access code: 660 331 389#

Slide Link

Today's slides can be found online at:

http://bit.ly/05-23-Neustar

We Encourage Questions

Use the

Questions Box

located on the right side of the screen, to type your comments or questions.

Frictionless Member Experiences for Today's Mobile Consumer

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SPEAKERS

Matt Edmunds
- Neustar
- Executive Director, Identity Solutions
- Matt.Edmunds@neustar.biz

Ken Pruett
- Neustar
- Executive Director, Fraud Solutions
- Ken.Pruett@neustar.biz

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Key Messages and Topics for Discussion

- Better data leads to a better understanding of today's mobile/digital members

- Identity is the foundation for better member experiences and reduced risk

- A frictionless member experience in Care, Marketing, Fraud, or Collections begins with understanding your members

POLLING QUESTION #1

HOW MUCH TIME AND EFFORT HAS YOUR ORGANIZATION PUT INTO SOLVING MEMBER IDENTITY FOR RISK-REDUCTION AND IMPROVED CX ON AN ENTERPRISE-WIDE SCALE?"
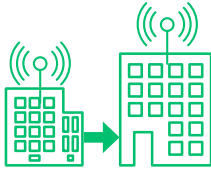
A. SIGNIFICANT

B. SOME

C. LITTLE TO NONE

D. DO NOT KNOW

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In the connected world,
the member takes center stage.
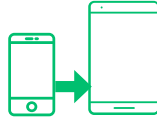
Identity is at the
heart of knowing
your member.

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MEMBER DATA IS CONSTANTLY CHANGING

Every Year…

75M
People **change**
their **phone carriers**

45M
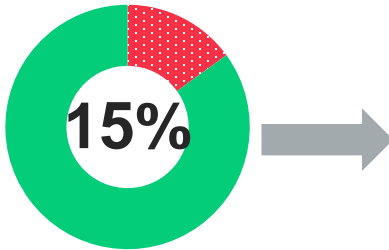People **change**
their **phone numbers**

60M
People **relocate**

2.1M
People legally
change their name

Invalid CRM Data
Per Month

15%

Rapid Data Degradation 60% out of date in two years

NUMBER OF ACCURATE IDENTITIES

100%
80%
60%
40%
20%
0%

YEAR

0 1 2 3 4 5 6 7 8 9 10

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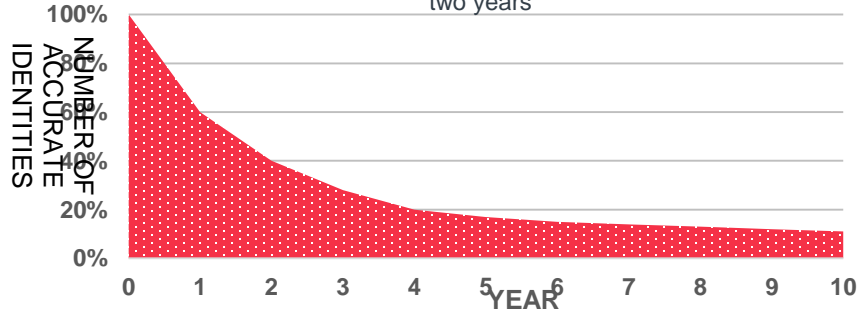
EFFECTS OF INCOMPLETE IDENTITY DATA

- **Lower engagement rates**
- **Poor member experiences**
- **Increased risk and losses**
- **Increased operational expense**
  - **~$3-$7 for returned mail costs**
  - **Wasted outbound efforts to wrong person, number, and wrong time**

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NEUSTAR IDENTITY BY THE NUMBERS

Offline

Online

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OneID
System

1.8B
Mobile Device IDs

1.2B
Matched Cookies

1.4B
Uniquely Measured Locations

120M
US Households

220M
US Adults

1.2B
Email Addresses

Normalized Attributes
(on a slow day) **50B**

65M Addressable TV Households
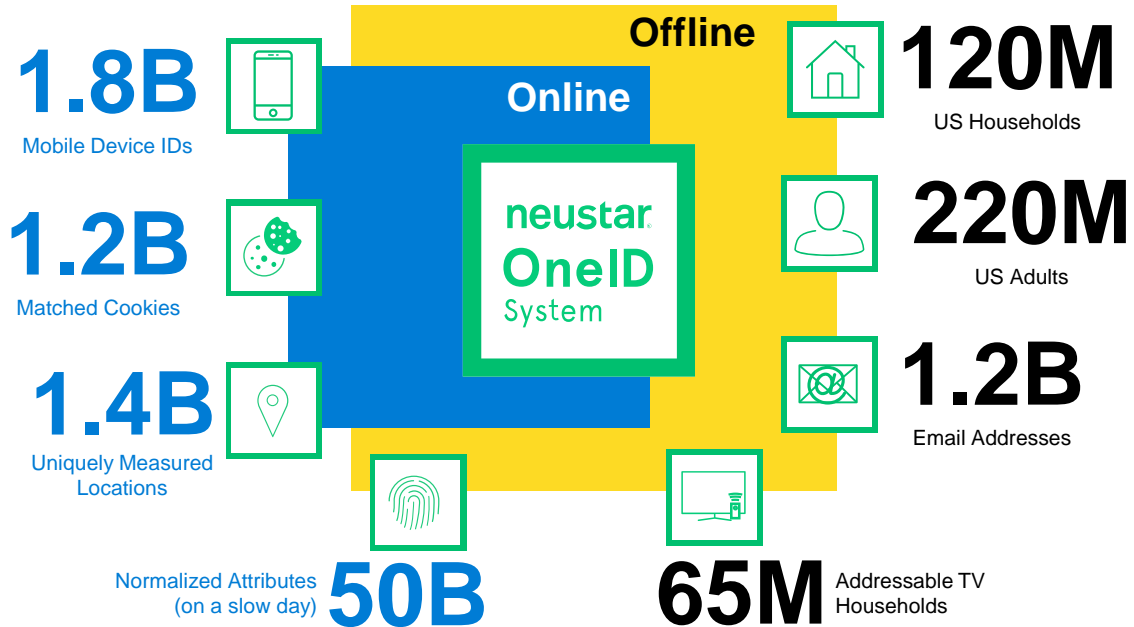
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Member Identity   **Digital Attributes**
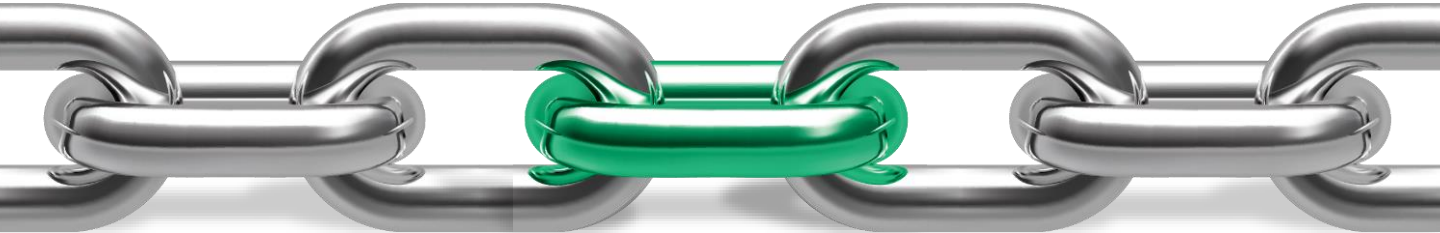
Identity Resolution

For over 20 years, a leader in the telecommunications industry:

Work with 10 of the top 10 Banks

Power 90% of U.S. Caller ID
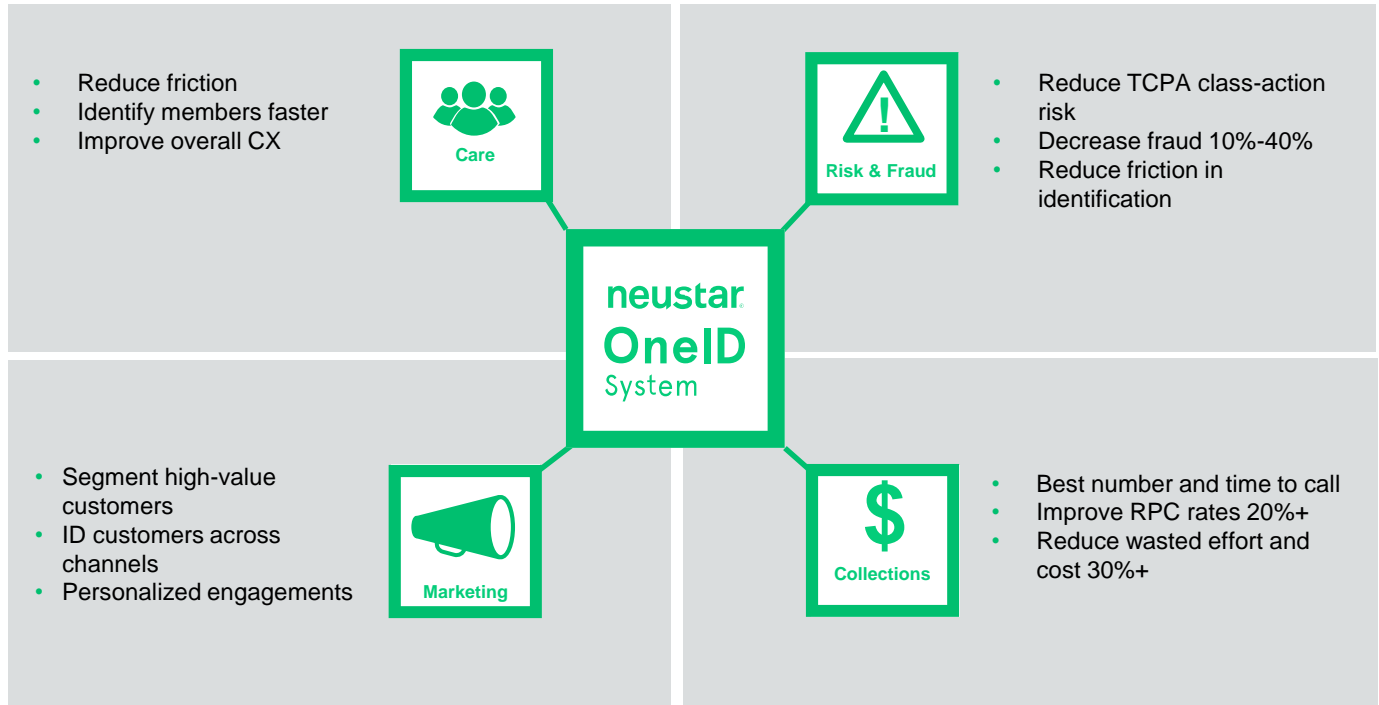
N. American Numbering Plan Administrator

TCPA Advisor to the FCC

Verify Consumer Identity 1.4 Billion Time Each Day

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IDENTITY MANAGEMENT: CREDIT UNIONS

Care
- Reduce friction
- Identify members faster
- Improve overall CX

Risk & Fraud
- Reduce TCPA class-action risk
- Decrease fraud 10%-40%
- Reduce friction in identification

neustar OneID System

Marketing
- Segment high-value customers
- ID customers across channels
- Personalized engagements

Collections
- Best number and time to call
- Improve RPC rates 20%+
- Reduce wasted effort and cost 30%+

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Fraud

Reduce losses and minimize member friction
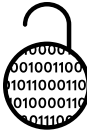
AND IT SHOWS NO SIGNS OF SLOWING DOWN

113%

Increase in new account fraud in 2017

41%

New account fraud losses will continue to climb another 41% each year

8,190

Data breaches in 2017 vs. 1,093 in 2016

1B+

Number of Records Exposed in 2017

https://www.idtheftcenter.org/Data-Breaches/data-breaches

HOW EASY IS IT TO GET TO THE DATA NEEDED TO COMMIT FRAUD?

- We updated data everyday to get new order from shop

- You can contact now to buy CVV (credit card) for carding or cash out, etc.

- I can get data from the site for get CVV

- Sell CVV random Format is: |Card Number|Exp. Date|CVV/CVV2|First Name|Last Name|Street|City|State|Zip Code|Country|Phone|Type Of Card|Bank Name|

- Sell CVV Fullz like format is: |Card Number|EXP. Date|CVV2|First Name|Last Name|Address|City|Zipcode|State| Country|Phone number|SSN|DOB|Mother's MaidenName|Social Security Number|PASS VBV|BANK ROUTING ACCOUNT|EMAIL PASS| IP.LOGIN
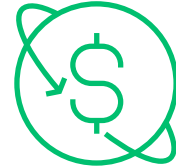
- ? Sell CVV Good Fresh(USA,UK,CA,AU,EU)/ Sell CVV Fullz information :

  <<My Price List>>
  + My Price for Sell CVV(Credit Card)Good Fresh,CVV Fullz information
  – US (vis,mas) = 12$/1cvv
  – US (dis,amex) = 20$ /1cvv
  – UK (vis,mas) = 25$ /1cvv
  – AU = 20 $/1cvv
  – CA = 20 $/1cvv
  – EU = 30 $/1cvv (with random country)
  – Japan = 20 $/1 cvv
  – HongKong = 20 $/1 cvv
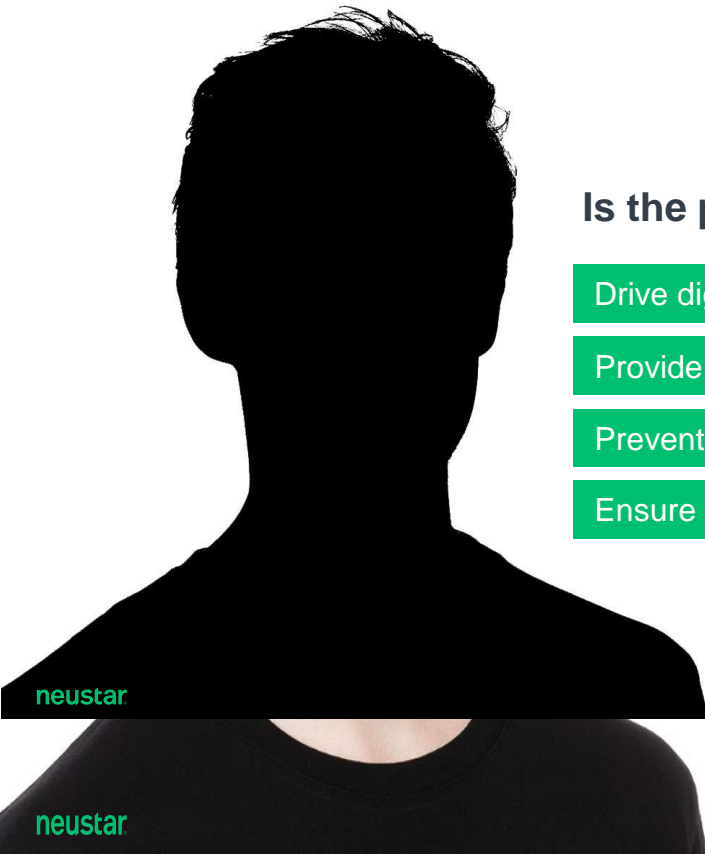
COMMON PHONE FRAUDS

SIM SWAP

CALL FORWARD

PORTING

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FRAUD VS. FRICTION: ROCK AND A HARD PLACE

83% of consumers experienced friction logging into their account

- 10% said this gave them a negative view of their bank
- 3% switched banks as a result

Source: First Annapolis, "Controlling Friction While Tackling Cybercrime in Financial Services," 2016

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Is the person truly who they say they are?

Drive digital adoption to lower acquisition cost

Provide frictionless experience to prevent abandonment

Prevent loss from fraud

Ensure compliance

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Fraud:

Reduce risk via "Unspoofable Behavior"

UN-SPOOFABLE INSIGHTS

Mitch Young

1234 Street Rd
Anytown, ST, 12345

703-555-2342

Mitch.young@team.neustar

WIRELESS PHONE

BURNER PHONE

COMCAST TRIPLE-PLAY PHONE

SKYPE PHONE

HOME PHONE

✓	**Verification**
✓	**Phone Type**
✓	**Activity**
✓	**Usage**
✓	**Pre-pay flag**
✓	**Port history**
✓	**MNO Data**

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DIGITAL VERIFICATION: HOW IT WORKS

INPUT

Mark Moser

1613 Cambridge Ave.

Wichita Falls, TX 76301

940-761-2615

dustiroads@earthlink.net

OUTPUT

IDENTITY VERIFICATION

Phone Linked to Name ✔

Phone Linked to Address ✔

Phone Linked to Email ✔

Address Linked to Name ✔

Address Linked to Email ✔

Email Linked to Name ✔

PHONE ATTRIBUTES
- **Phone Type:** Mobile or Wireless or OTT VOIP
- **Phone Activity:** Active or Inactive for 12+ months
- **Phone Usage:** Heavy, Medium, Light, None
- **Last Port Date:** 5/11/2016
- **Prepaid:** Yes or No

ADDRESS & EMAIL ATTRIBUTES AVAILABLE IF NEEDED

SAMPLE PREDICTIVE MODEL ATTRIBUTES USED FOR FRAUD PREVENTION

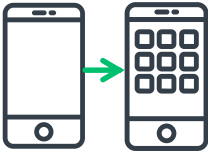| VARIABLE	VARIABLE IMPORTANCE
PHONE IN SERVICE INDICATOR	100
1ST PHONE SCORE	81.76
PHONE USAGE PAST 12 MONTHS	81.35
1ST ADDRESS SCORE	77.93
1ST EMAIL SCORE	76.99
2ND PHONE SCORE	69.43
2ND PHONE IN SERVICE INDICATOR	67.42

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Identify High-risk Phone Numbers in Real-time
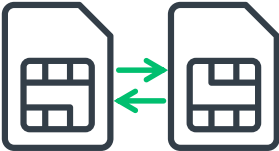
SIM SWAP

CALL FORWARD

PORTING

Reduce Fraud and Lower Operational Costs

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PHONE DIVERSION – HOW IT WORKS

OUTBOUND CALL VIA MOBILE PHONE

Joe Smith
222-555-9999

Neustar Phone Diversion

Sim Swap?

Real-time query Has IMEI and/or IMSI has changed?

OUTPUT

No = **Lower Risk**

Yes = **Higher Risk**

Recently Ported?

Neustar monitors for porting events every 30 seconds

OUTPUT

Neustar filters porting event against client's CRM

Neustar sends notification if phone is in client's CRM database within two minutes of detecting port

Call Forward?

OUTPUT

Less Likely = **More Trustworthy**

More Likely = **More Risk**

Low Risk · High Risk

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CASE STUDY – ACCOUNT TAKEOVER

Problem: Top U.S. bank struggled to prevent account takeovers via sophisticated call spoofing techniques. As a result, all callers were subjected to a more rigorous (and frustrating) authentication process.

Our Solution

Neustar verified identities and validated phone numbers to protect against phone fraud facilitated by call (ANI) spoofing. Using carrier-level metadata, our technology diagnosed the fingerprint of a call in milliseconds, providing threat-level analysis in real-time. This enabled the bank business to take action when suspicious calls were detected, and allowed real consumers to have the effortless call experience they deserved.

The Results

Neustar analyzed over 10 million calls, and was able to detect **94% of all attempts** to commit phone fraud using ANI spoofing techniques.

In addition, **75% of all calls were verified as "Very Low" or "Low" fraud**, allowing those callers to pass through the authentication system effortlessly. Of all calls verified as Very Low or Low, there were **zero false negatives**.
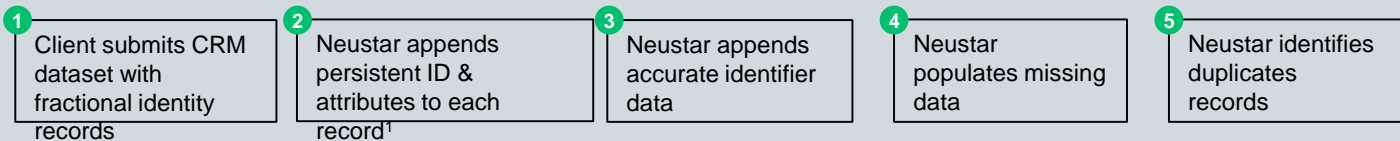
Member Care:

Reduce friction and improve CX with OneID

CONSOLIDATE AND COMPLETE MEMBER RECORDS

Name	Address	Mobile Phone	Landline Phone	Email	E-key	HH key	Match Strength*	Attributes*
John Smith III	123 Main St. Vienna, VA 22102	(571) 545-6789	(325) 212-8255	J.smith@gmail.com	123	90876	EEYYYY	Income: $175K Age 33
Mary Clark	234 Forest Hills Rd. Ashburn, VA 23456	(703) 213-3456 (703) 313-3456	(847) 348-2121	Mary.clark@msn.com	456	98765	EEbNbb	E1 Segment:16
Trey Smith John Smith	123 Main St. Vienna, VA 22102	(773) 348-2953 (571) 545-6789	(325) 212-8255	jsmith@univ.edu	123	90876	EIbNbY	Income: $175K Age 33
Greg Sander Greg Sanders	456 Center St. Fairfax, VA 22030	(442) 332-9090	(442) 987-1023	gregs@yahoo.com	789	98767	IEYYbY	Custom Model: High LTV

1. Client submits CRM dataset with fractional identity records

2. Neustar appends persistent ID & attributes to each record[1]

3. Neustar appends accurate identifier data

4. Neustar populates missing data
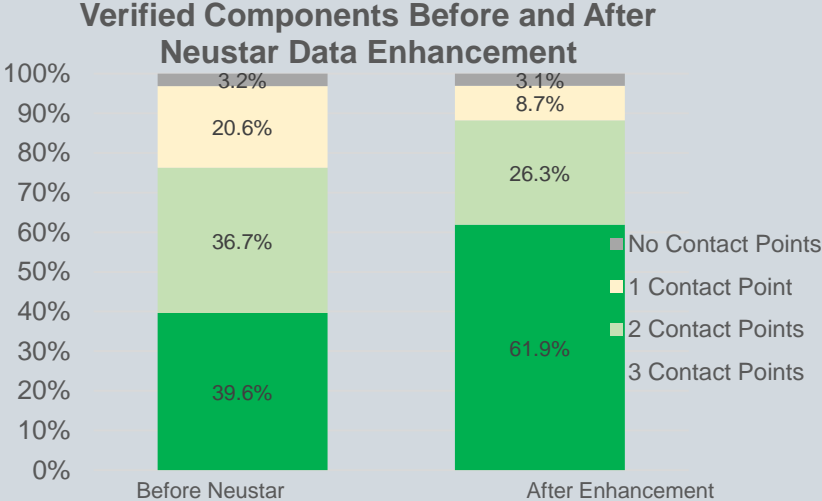
5. Neustar identifies duplicates records

Client CRM database example – 5 fractional identity records: Name, Address, Mobile, Landline, Email

*Match strength and Attribute responses in CRM Complete are distinct fields and additional attributes are available; response condensed here for illustrative purposes

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OVERALL DATA ENHANCEMENT LIFT WITH NEUSTAR

- Member records move from 40% to 62% with all contact information verified or corrected
- Two or more verified contact points now available on 88% of members

Verified Components Before and After Neustar Data Enhancement

	Before Neustar	After Enhancement
No Contact Points	3.2%	3.1%
1 Contact Point	20.6%	8.7%
2 Contact Points	36.7%	26.3%
3 Contact Points	39.6%	61.9%

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Member Care:

Reduce friction and lower cost per call with Account Link

ACCOUNTLINK: HOW IT WORKS

908-575-7585
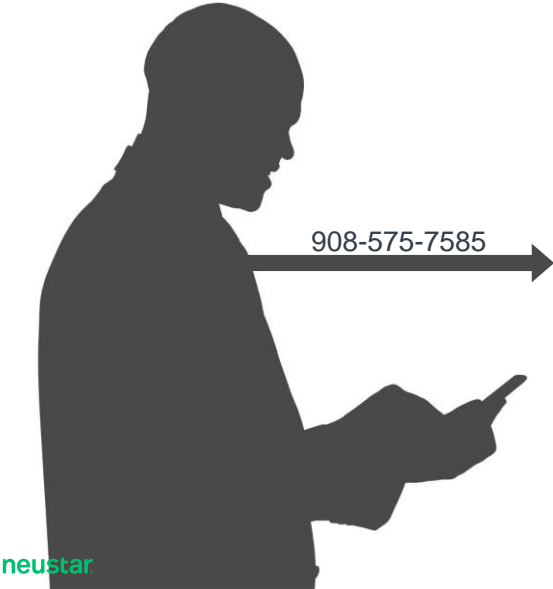
Company CRM

3375079478	Jim	Grosh	PO BOX 121	FRAZIER PA CA
2391830686	A	undefined	600 ARCH S	PHILADELPH PA
3498813512	SUSAN	MINCH	3601 GLENN	LATONIA KY
3370764150	LaYanna	Jenkins	5008 CARME	HOUSTON TX
5254144943	JOHN	WILKERSON	12222 DOVE	DENHAM SPR LA
5917941758	Lea	Her	2140 BARCL	SAINT PAUL MN
8291125506	MARVIN	ROE	16507 WILL	OMAHA NE
3034728236	Luznayda	Ramos	162 SLATER	OKATIE SC
2233807546	Ellen	Ball	463 BURNT	BRICK NJ
6468450615	SCOTT	BERDAN	6405 DEERI	PEACHTREE GA
6910935767	Tracy	Spandler-D	2224 ELMCR	BARDSTOWN KY
9363235595	Sesilia	Conchola	308 DATELE	CAPITOL HE MD
9533430038	Tammy	Westcott	8508 EDWAR	HOLLAND PA NY
8789535657	STEPHEN	POLITANO	115 WYMAN	ABINGTON MA
4780586432	CAMERON	FAWKES	8807 DEARB	NOTTINGHAM MD
9367542301	Anne	Bender	12312 OLD	UNION HALL VA
7374857141	Jeanne	Risnet	2910 JONAT	UNIONTOWN OH
2573412933	Carolyn	Johnson	803 GARDEN	HARTFORD CT
3017054369	Marianne	Pencak	4986 PUEST	MALIBU CA
7000972897	May	Chang	901 BOULDE	SAN JOSE CA
4529681208	D	GROVE	511 E WATE	FAYETTE IA
4966738421	Teresa	Wingo	134 LAKE S	JASPER AL
9747878819	LISA	HANKS	5813 DIANA	LAKE VIEW NY
5682230270	JOHN	BRAMLETT	1248 PRADO	REDLANDS CA
9464742934	Kandi	VanderPloe	245 HARDIN	PLAINVILLE GA
6674964705	Joseph	Galietti	155 W 10TH	BAYONNE NJ
7932435959	RANDALL	JOHNSON	28542 WEST	GRAND RAPI MN
9452164677	Syl	Sims	1085 JASMI	ATLANTIC B FL
5075931943	kumiko	warf	1561 PENSA	HONOLULU HI
7253309779	Jade	Chang	2549 ROOKE	HONOLULU HI
2895953048	Joseph	Isola	4545 W BEA	GLENDALE AZ
5754333623	PATSY	MONTEFUSCO	8 LAUREL D	PARSIPPANY NJ
3656662774	Denise	Rodriguez	PO BOX 124	RICHMOND TX

ANI NOT FOUND
Query Neustar

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ACCOUNTLINK: HOW IT WORKS

NEUSTAR ACCOUNTLINK

NEUSTAR REPOSITORY

908-578-7585 (Wireless)

Patrick Smith
32 Schindler Place
New Brunswick, NJ
patrick.smith@verizon.net
908-505-9164 (Landline)

Also in Household:

Camille Smith
973-490-6344
camsmith13@verizon.net

Lauren Smith
laurensmith@hotmail.com

Company CRM

MATCH FOUND:

Patrick Smith
Camille Smith
32 Schindler Place
New Brunswick, NJ
Phone: 908-505-9164
Status: Active
Account: 1264587
Balance: $279.00

908-578-7585

IMPACT
- 76% increase in ANI to ANI match
- 26% increase in IVR containment
- Reduce live agent costs + improve member experience

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Member Engagement:

Increase revenue, reduce waste and risk using outbound contact intelligence data

POLLING QUESTION #3

AS MEMBERS INCREASINGLY DEMAND MESSAGES TO MOBILE PHONES, DO YOU HAVE A PROCESS IN PLACE TO IDENTIFY TN'S THAT ARE NO LONGER LINKED TO YOUR MEMBER?

A. YES

B. NO

C. DO NOT KNOW

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CONTACT CENTERS CHALLENGED BY OUTDATED DATA

- Wasted time and operational costs dialing wrong numbers

- TCPA risk of contacting wrong member

- 80% of outbound calls unanswered or ringing to wrong party

- 3% average right-party contact rates across industries

UNIQUE MEMBER DATA INSIGHTS

Who to contact

What number to use

When to contact them

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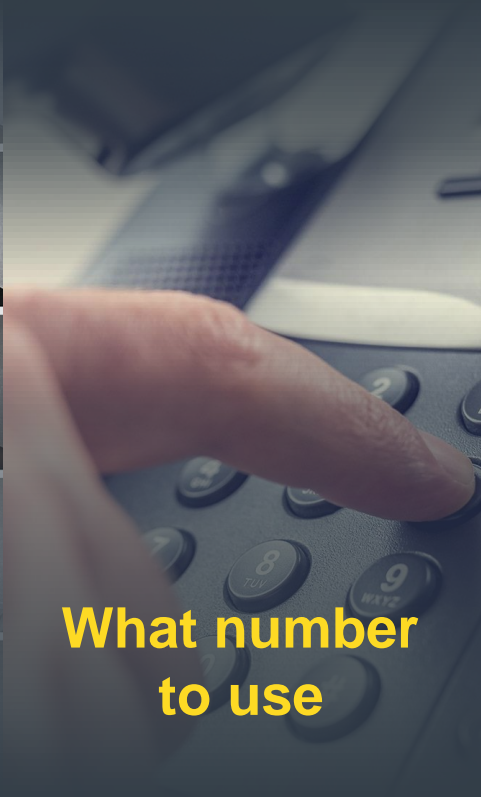
FCC 2015 DECLARATORY RULING ON TCPA

Two Key Issues for Credit Unions

1. **Knowing Phone Type**
   - Landline, Wireless, VOIP, OTT

2. **Definition of "Called Party"**
   - Consent not valid if **phone reassigned** ('Intended recipient' irrelevant)

VERIFICATION DISTRIBUTION OF PHONES

Code	Definition	Count
10	Name and Phone Authoritatively linked	2,545,220
7	Name and Phone linked	1,123,128
6	Phone and Address linked	457,633
5	No Positive or Negative linkages	1,349,521
3	Name and phone negatively linked, name associated with phone is business	399,736
1	Name and phone negatively linked, phone associated with different consumer	2,303,156
0	Invalid or blank input phone or name	1,4460
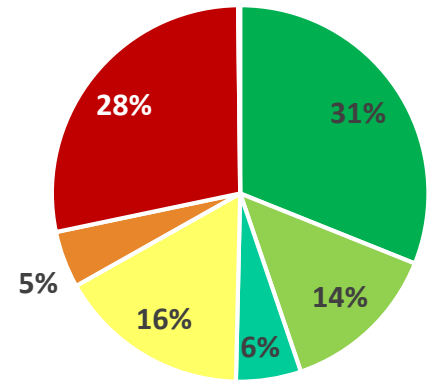
- **51%** of phone numbers are linked to the subscriber name or address **(10,7,6)**
- **28%** of phones don't match the subscriber name, and have a different consumer linked to the phone **(1)**

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QUALITY GROUP OVERVIEW

- Quality groups created based on phone verification, phone usage (12 months), and phone usage (2 Month)

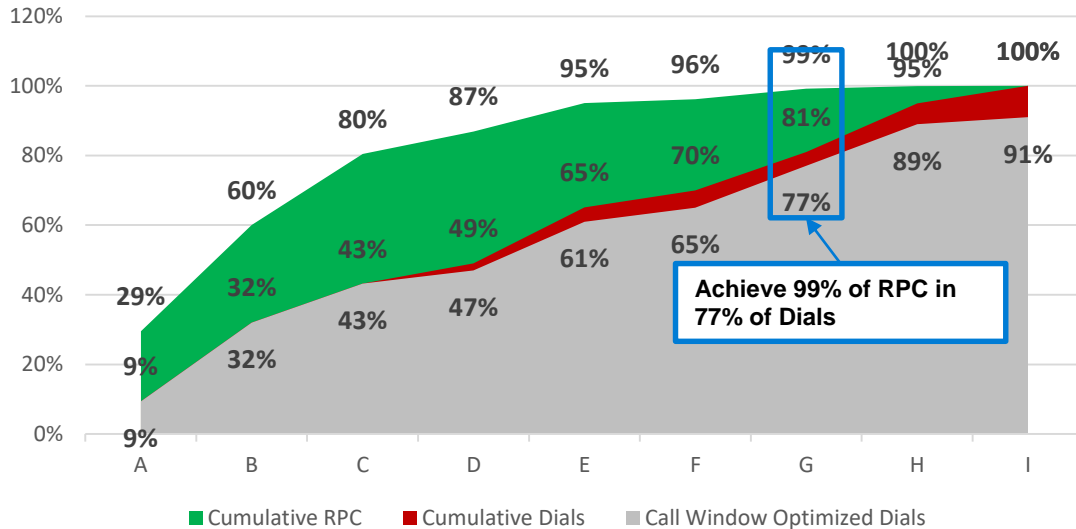| Quality Group	Verification	Phone Usage	% of RPC	RPC Rate
A	Yes	Moderate to Heavy	29.5%	1.6%
B	No	Moderate to Heavy	30.6%	1.3%
C	Yes	Moderate to Heavy	20.3%	0.9%
D	Any	Moderate to Heavy	6.5%	0.6%
E	Any	Any	8.2%	0.3%
F	Any	Moderate to Heavy	1.1%	0.1%
G	Any	Light	3.0%	0.1%
H	Any	Minimal	0.7%	0.0%
I	Any	None	0.1%	0.0%
			100.0%	0.5%

CALL WINDOW – ALL PHONE TYPES

- Neustar has identified the most active time per the day each dial was made
- The amount of differentiation between the most active time for the phone number and the time the call was made is defined below:

Difference between Call Time and Most Active Time	Count	% of Attempts	% of RPC	RPC Rate
Dialed in Optimal Call Window	927,568	11.3%	15.9%	0.71%
Dialed within 2 Hours	1,732,850	21.2%	28.6%	0.68%
Dialed within 4 Hours	1,387,285	17.0%	22.0%	0.65%
Dialed More Than 6 Hours Outside	2,360,523	28.8%	32.6%	0.57%
No Call Window Available	1,784,628	21.8%	0.8%	0.02%
Total	**8,192,854**	**100.0%**	**100.0%**	**0.50%**

RPC EFFICIENCY IMPROVEMENT

- The green area below represents the path to achieving 100% of the Right Party Contacts in the file while the grey area represents total dials.

- Dialing certain phones in the optimal call window can increase overall RPC rate and further decrease the amount of dials needed to achieve RPC amounts.

Achieve 99% of RPC in 77% of Dials

Legend: Cumulative RPC, Cumulative Dials, Call Window Optimized Dials

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Member Engagement:

Improve contact rates with better caller ID branding and fighting call blocking

THE RESULT

88%

Business calls go unanswered

Source: Boston Consulting Group, 2017

20%

Decrease in answer
rates for outbound
contact centers

Source: PACE, 2018

$150

Expense for missed
appointment with
another truck roll

Source: Neustar Customer, 2017

88%

Customers surveyed are
more likely to answer if
they can be certain who's
calling

Source: Neustar Customer Survey, 2016

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ENTERPRISES DON'T CONTROL THEIR BRAND

On average for an enterprise with 5,000 telephone numbers dialed:

750
Caller IDs will be BLANK
No caller ID shows up

1,500
Caller IDs are NOT STANDARDIZED

INCONSISTENT: Similar to one of these?

ABC Solutions
ABC Company
ABC Ltd
ABC Services Ltd
ABC Solutions LTD

**INACCURATE:** Or is it completely wrong?

123 Solutions Ltd.
1974U DBA User
T & T Express
Spark Tax services
KM Mart

Source: Neustar, 2017

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GUARD YOUR BRAND ACROSS EVERY CALL

Protect Your Numbers from Call Blocking, Spoofing & Spam Tagging
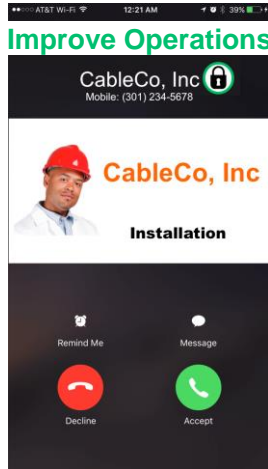
- **Verify** legitimate business numbers (improve blocking, labeling analytics)

- **Blacklist** verified inbound-only numbers (prevent spoofing)

- Neustar updates partner service providers and mobile apps
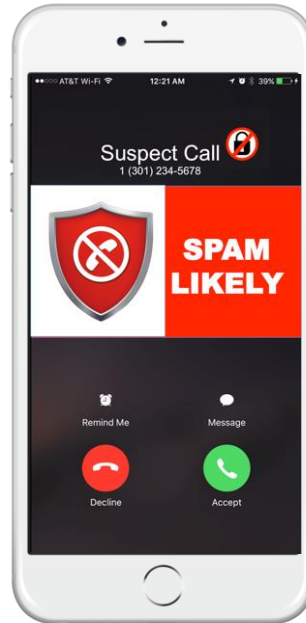
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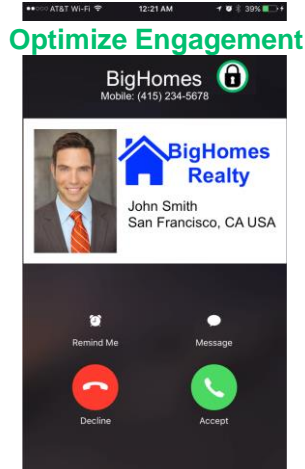# BRANDED CALL DISPLAY - PERSONALIZED MOBILE EXPERIENCE FOR EVERY CONTEXT

Improve Operations

Identify your field team

Reach a live customer to reduce truck rolls, gas costs, delivery attempts, and customer frustration.
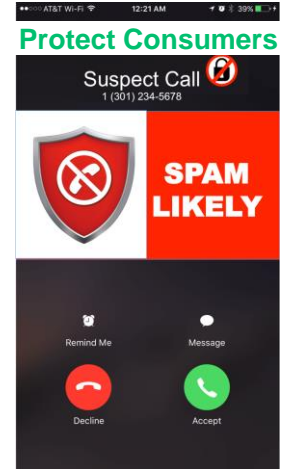
Optimize Engagement

Personalize each call

E-business cards appear with each call or text, so users can identify the caller at a glance, to improve engagement.
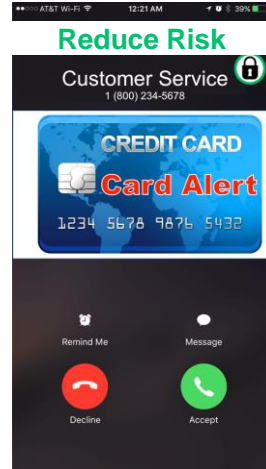
Reduce Risk

Grab Attention FAST

Establish authenticated context for critical situations. Grab attention to reduce risk & liability for you and your customer.

Protect Consumers

Stop Suspicious Callers

Flag suspicious numbers so users can easily block annoying and potentially dangerous callers.

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FINAL THOUGHTS AND CONSIDERATIONS

- **Today's mobile consumer demands frictionless interactions**

- **Identity is the foundation for better experiences and less risk**

- **Neustar can help bridge the gap**

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QUESTIONS?

Matt Edmunds
- Neustar
- Executive Director, Identity Solutions
- Matt.Edmunds@neustar.biz

Ken Pruett
- Neustar
- Executive Director, Fraud Solutions
- Ken.Pruett@neustar.biz

Thank You

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