Impacts of TN Validation on User Display

Cequent User Study Findings

Presentation for the ATIS IP-NNI Task Force
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Lavinia Kennedy
lkennedy@tnsi.com
Agenda

- Purpose of Study and Learnings
- Study Demographics
- Study Results
- Findings by Demographics
- Findings by Mobile Behavior
- Conclusion
Purpose of Study

Cequent has conducted a user study to gather user sentiment and the impact of;

Call Authentication on a user’s trust and behavior for incoming calls and how it applies to various service offering of in-market call identification solutions.

Cequent is a wholly owned subsidiary of TNS:
- Delivering Mobile Caller ID / Protection services since 2007 to all Tier 1 Mobile Operators
- Shipped software on over 550 Makes / Models
- 250M users have experienced our services with “tens of millions” active users per month

As a consumer service, understanding the user impact is imperative to our success
Learnings

- Ability to display the identity of the caller and the purpose of the call was a key feature users were looking for.

- Don’t show anything related to TN Validation and rely on your analytics to mark calls as “bad”.

- Be as discreet as possible when displaying the TN Validation indicator and be prepared to educate users in order to avoid care calls.

- Users find Accuracy of Analytics important; STIR/SHAKEN puts additional pressure on the Analytics providers to correctly classify/tag the caller.

TN Validation is not shown in the “sweet spot”, so as to not confuse the Consumer.
Study Participant Demographic Profile

1,000 respondents were interviewed online.

**Gender**
- Female: 51%
- Male: 49%

**US Region**
- South: 37%
- West: 22%
- Midwest: 22%
- Northeast: 19%

**Age**
- 18 to 24: 11%
- 25 to 34: 20%
- 35 to 44: 18%
- 45 to 54: 19%
- 55 to 64: 17%
- 65 and older: 16%

**Education Level**
- Bachelor's degree: 31%
- Advanced degree: 21%
- Some college or 2-year degree: 31%
- High school degree: 16%

The average age of participants is 46 years old.

**Household Income**
- Prefer not to say: 6%
- Less than $15,000: 9%
- $15,000 up to $25,000: 7%
- $25,000 up to $50,000: 21%
- $50,000 up to $75,000: 18%
- $75,000 up to $100,000: 14%
- $100,000 up to $150,000: 15%
- $150,000 up to $200,000: 5%
- $200,000 or more: 5%

The average income for participants is $64,000.
Study Participant Mobile Profile

Operating System
- iOS: 50%
- Android: 50%

Mobile Carrier
- Verizon: 31%
- AT&T: 26%
- T-Mobile: 16%
- Sprint: 9%
- US Cellular: 1%
- Other: 17%

Type of Plan
- Monthly plan: 80%
- Pre-paid plan: 16%
- Company plan: 2%
- Use WiFi only: 2%

Experience With Caller ID/Caller Protection Services
- Have never experienced those services: 39%
- Have a service that is free: 29%
- Have a subscription for it now: 16%
- Have used a free trial before: 5%
- Have used services in the past: 5%
- Don't know: 7%

45% of respondents currently have Caller ID or Caller Protection services
Background Data on Call Patterns

Callers not in contacts (unknown callers)

Unwanted Spoofed Calls

Unwanted Legitimate Calls

52/mo

Wanted
Unwanted

Wanted
Unwanted
Overview :: Baseline vs. TN Validation (Passed / Failed)

Baseline: Respondents were shown an incoming call screen (representing a call from an unknown number) with phone number only and asked about their sentiment towards the callers (e.g. trust) as well the likely actions they would take. (e.g. answer, block)

TN Validation: Respondents were shown an incoming call screen with Passed or Failed TN Validation information and asked the same questions.

Likelihood to Answer Question: When seeing this amount of information on the screen during an incoming call, how likely are you to answer the call on a scale from 1 to 5 where 1 means “not at all likely” and 5 means “very likely” to answer? (n=1,000)

Likelihood to Block Question: When seeing this amount of information on the screen during an incoming call, how likely are you to block the call on a scale from 1 to 5 where 1 means “not at all likely” and 5 means “very likely” to answer? (n=1,000)

Trust Question: What level of trust do you have in the person on the other line being who they say they are when you see this amount of information during an incoming call?

Clarity Question: When seeing the information shown above, how clear or confusing do you find this screen when trying to decide whether or not you should answer a call?
Respondents were randomly shown various visual displays for **TN Validation Passed** on the incoming call screen.

Respondents were then gauged on the following:
- Perceived clarity of information shown
- Accuracy in determining what the visual display means

**Accuracy Question:** Looking at the section highlighted in yellow above, what does this icon mean to you? Please choose one.

Selections (shown in random order): i) Caller is reputable, ii) Caller is safe to talk to, iii) Caller’s identity is authentic and not falsified, iv) Call connection is secure, v) other

**Clarity Question:** When seeing the icon highlighted in yellow in the image above, how clear or confusing do you find this specific icon when trying to decide whether or not you should answer a call?
Observations :: Comparing TN Validation Displays

Respondents gave similar ratings on clarity and accuracy for most of the combination text & icon and the text only display options.

Exception is any display w/ the lock icon had the lowest accuracy out of all the options.

Clarity is marginally better than Baseline (no display).

Key Points

The combination of text and icon for “Confirmed caller” received the highest clarity and accuracy scores of all TN Validation Passed display options tested.

Baseline
Observations :: Baseline vs. TN Validation Passed

8 out of 10 people don’t answer a call from an unknown number with TN Validation Passed.

Consumers are equally likely to block when TN Validation Passed is shown vs the baseline.

TN Validation Passed does not drastically change consumer’s behaviors on incoming calls when compared to the baseline.

8 out of 10 people don’t trust the caller even when they are TN Validation Passed.

Clarity does not improve with TN Validation Passed when compared to the baseline.

Key Points
Analytics does a better job informing consumers about unwanted calls by detecting all types of Spam calls not just Spoofers. Consumer sentiments are stronger with Spam ID than TN Validation. TN Validation display with Spam ID provides no added value to consumers.
User Type: Basic (Free) Services w/ TN Validation Passed

TN Validation Passed without enhanced caller identification does not add any real value to consumers. (majority of mobile consumers don’t have an enhance caller ID service)

Even with TN Validation Passed display present, most consumers do not trust the caller nor are they likely to answer the call.

Key Points

4 out of 5 wanted calls are likely to go unanswered w/ TN Validation Passed alone.
3 out of 5 wanted calls are likely to be blocked w/ TN Validation Passed alone.

TN Validation Passed doesn’t shift consumer sentiment in any significant way when compared to the baseline. (i.e. no information is shown)
53% of calls are likely to be answered when name information is provided.
Consumers are 2.5x more likely to answer calls when name information is provided.
Consumers can better determine if a call is wanted when name information is provided.

TN Validation Passed adds little value to consumers compared to displaying Name because it provides marginal value for the incoming call.

Key Points
79% of wanted calls are not likely to be answered:
- A child’s school,
- A delivery of your wine,
- A hospital or …
Respondents were randomly shown various visual displays for **TN Validation Failed** on the incoming call screen.

Respondents were then gauged on the following:
- Perceived clarity of information shown
- Accuracy in determining what the visual display means

<table>
<thead>
<tr>
<th>Icon only</th>
<th>Text only</th>
<th>Text w/ icon</th>
</tr>
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<tbody>
<tr>
<td><img src="image1.png" alt="Icon 1" /></td>
<td><img src="image2.png" alt="Text 1" /></td>
<td><img src="image3.png" alt="Text w/ Icon 1" /></td>
</tr>
<tr>
<td><img src="image4.png" alt="Icon 2" /></td>
<td><img src="image5.png" alt="Text 2" /></td>
<td><img src="image6.png" alt="Text w/ Icon 2" /></td>
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<td><img src="image9.png" alt="Text w/ Icon 3" /></td>
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<td><img src="image12.png" alt="Text w/ Icon 4" /></td>
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Selections (shown in random order): i) Caller is reputable, ii) Caller is safe to talk to, iii) Caller’s identity is authentic and not falsified, iv) Call connection is secure, v) other

**Clarity Question:** When seeing the icon highlighted in yellow in the image above, how clear or confusing do you find this specific icon when trying to decide whether or not you should answer a call?
Users find TN Validation Failed display to be less clear than TN Validation Passed.

Icon only display options had the lowest rating for clarity and accuracy.

People found the “Not Secure” text display option to be the most clear but had the worst understanding of what it means.

Display options w/ “Unauthorized” text received the overall highest ratings on clarity and accuracy.
Observations :: Baseline vs. TN Validation Failed

Key Points

Likelihood to answer doesn’t change significantly with TN Validation Failed information.

People are more likely to block when TN Validation Failed information is shown.

Trust and clarity sentiments remain the same with TN Validation Failed information when compared to the baseline.

TN Validation Failed information does not add significant value to the consumer compared to getting no information at all.
6 out of 10 calls are likely to have **TN Validation None** information at all.

**TN Validation with contact information is confusing.** Consumers generally assume they can trust calls from people in their contacts and **TN Validation adds no value.**

“If I see a call from mom, I’m most likely going to answer it whether or not the Confirmed Caller indicator is shown.”

**TN Validation Failed for calls from contacts** is very confusing to consumers. It’s not clear to the consumer who is actually calling them or if they should answer or not.
Interesting Findings by Demographics

When looking at the data based on the following groups, there were statistically significantly different behaviors based on demographics:

• Gender:
  • Males are more likely to answer calls and trust callers than females.

• Age:
  • Younger respondents (ages 18 to 35) are more likely to answer calls and trust callers than older respondents (age 55 and older)
  • Older respondents (age 55 and older) are more likely than younger respondents (age 18 to 35) to find enhanced ID information helpful

• Education:
  • Respondents with an advanced degree are more likely than other groups to trust callers are who they say they are.

• Income:
  • Those with a high household income ($100,000 per year or more) are more likely than those with an income below $100,000 per year to answer calls from unknown numbers and trust callers from unknown numbers.
Interesting Findings by Mobile Behavior

When looking at the data based on the following groups, there were statistically significantly different behaviors based on mobile behaviors:

- **Experience with Caller ID or Caller Protection Services:**
  - Those with experience with Caller ID or Caller Protection services are more likely to answer calls, block calls, and trust callers than those with no Caller ID or Caller protection services experience.

- **Receive unknown, but wanted calls:**
  - Those receiving 10 or more unknown, but wanted calls per week are more likely to answer calls and trust callers on the other line than those who receive less than 10 unknown, but wanted calls per week.

- **Receive unknown, unwanted calls:**
  - Those receiving 10 or more unknown, unwanted calls per week are more likely to be interested in blocking calls than those receiving less than 10 unknown, unwanted calls per week.
Conclusion :: Carrier Specific Display Rules

Key Points of Consideration:

- Users did not adjust behavior w/ or w/o TN Validation displayed
- Users found analytics more important than TN Validation
- Ability to display the identity of the caller and the purpose of the call was a key feature consumers were looking for
- Carriers take on greater cost when consumers are confused (i.e.; calls to care), so education is required for any new display – icon or text
- Each provider has a different Analytics Scoring approach, requiring a unique display strategy per Carrier
Ability to display the identity of the caller and the purpose of the call was a key feature users were looking for.

Don’t show anything related to TN Validation and rely on your analytics to mark calls as “bad”.

Be as discreet as possible when displaying the TN Validation indicator and be prepared to educate users in order to avoid care calls.

Users find Accuracy of Analytics important; STIR/SHAKEN puts additional pressure on the Analytics providers to correctly classify/tag the caller.

TN Validation is not shown in the “sweet spot”, so as to not confuse the Consumer.