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custom annoyance call routing (CACR)

for WE9-1-1 nuisance calls

a whitepaper guide to custom routing of 9-1-1
nuisance calls that transit the IN911 network

INdigital telecom – Indiana Wireless Direct Project

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IN911 network processing of 9-1-1 nuisance calls

Overview:

In the original FCC order establishing wireless enhanced 9-1-1 service, (specifically Section 20.18(b), "*wireless service providers are to transmit all 9-1-1 calls to a Public Safety Answering Point (PSAP)*^{i,ii}". This must occur regardless of whether the calling party subscribes to the provider's service or is using a non-activated device.

From the PSAP perspective, these not-in-service, uninitialized, or decommissioned phones (generically referred to as "non-service initialized devices"; or NSI devices) have been identified as origination sources of 9-1-1 nuisance calls. These calls may come from a child who was given an old phone as a "toy", or from an adult choosing to abuse the emergency service.

A single caller can flood a PSAP with such calls, diverting staff and resources away from true emergencies.ⁱⁱⁱ A 2008 filing by the Tennessee Emergency Board highlights these PSAP findings and concerns.^{iv}

The FCC issued a Public Notice in October 2002 declaring that:

"Section 20.18(b) of the Commission's rules does not preclude carriers from complying with a PSAP's request to block harassing calls from non-service initialized phones pursuant to applicable state and local law enforcement procedures. The Commission's determination to require the forwarding of all wireless 911 calls without regard to the caller's service subscription status was intended to enable authentic emergency calls, not fraudulent or abusive calls. Where a PSAP has identified a handset that is transmitting fraudulent 911 calls and makes a request to a wireless carrier to block 911 calls from that handset (in accordance with applicable state and local law enforcement procedures,) the carrier's compliance does not constitute a violation of Section 20.18(b)."^v

Based on this later public notice, there is clarification of the Commission's intent, which is:

- a) to require the forwarding of all wireless 9-1-1 calls without regard to the caller's service subscription status; and
- b) to allow the blocking of fraudulent or abusive calls.

INdigital telecom, the network operator of the IN911 network - upon request from a PSAP experiencing 9-1-1 nuisance calls, and with prior provisioning by the wireless carrier and/or the wireless ALI service provider - can put in place special treatment of forwarded 9-1-1 calls from a specific NSI device or wireless telephone.

This special treatment includes diversion of 9-1-1 calls that originated from a specified device to any 10-digit telephone number or to a PSAP-specified announcement.

This network service is available to any PSAP served by the IN911 network, and is called Custom Annoyance Call Routing (CACR).

Technical requirements for Custom Annoyance Call Routing (CACR)

In order for CACR to provide special treatment for wireless 9-1-1 calls, INdigital requires a specific signaling system 7 (SS7) configuration that must be put in place by the wireless carrier and/or their third party provider.

The ISUP IAM (ISDN Setup User Part – Initial Address Message) received by INdigital must be populated with a code that uniquely identifies the NSI device generating the 9-1-1 call.

INdigital suggests that this code be in the billing field of the ISUP-IAM message.

For a provisioned phone, the uniquely identifying code is typically the phone's call-back or account number.

For a non-provisioned phone, this is typically 911-xxxxxxx, where xxxxxxx represents the last 7 digits of the phone's ESN.^{vi} Some mobile switches may assign a temporary seven-digit number to this value for a certain interval of time.

Any identification value that is repeatable and uniquely associated with the originating phone will be acceptable, and will allow INdigital to provide CACR service.

In light of the FCC's regulations regarding 'free' calls to 9-1-1 from any device, the billing field of the ISUP IAM message would not be needed

for bill data tracking or bill rendering purposes, and thus INdigital suggests that the billing field can be used to hold the wireless handset identifying number.

With regard to the delivery of calls to the INdigital network, populating this field in the ISUP IAM message will not create confusion or other conflict with other 9-1-1 calls sent to the IN911 network. There is no interaction with existing services, and INdigital is ready to receive the handset specific information today.

INdigital cannot assess the impact to your company with regard to placing data in this field, and recommends that you study this as part of the implementation process.

Populating the billing field of the ISUP IAM message may be done by:

1. The wireless carrier, with this field originated at the originating switch.
2. The wireless carrier's third party provider, (such as TCS or Intrado).

(INdigital notes that the third party provider(s) may be able to turn this feature on or off on a case by case basis.

INdigital makes a recommendation that all wireless carriers populate this field for all 9-1-1 calls delivered to the IN911 network at all times. This will allow for a faster response to a nuisance situation that may require immediate action by a PSAP.

Action steps taken with CACR service

When a particular phone of any service type (active, inactive, or decommissioned) is deemed to be a generator of nuisance calls by the PSAP or multiple PSAPs, the PSAP informs INdigital of such conditions by way of written notice, which may be via electronic or facsimile transmission.

INdigital then adds that particular phone's unique ID to the CACR "specialized routing" list in its selective router control database.

This routing list allows INdigital to effect a unique CACR treatment for 9-1-1 calls that it receives from this, and only this, phone.

CACR call routing treatment will be as specified by the PSAP in their authorized, written instructions. Possible alternative destinations for such nuisance 9-1-1 calls from a particular phone could include:

1. a 10-digit PSTN number assigned to a detective;
2. a 10-digit PSTN number assigned to a "honey pot" number designed to entrap the caller by offering supposed rewards, with the effect of prolonging the connection to establish or refine the location of the nuisance caller;
3. an incident-specific recording such as:
"At the request of the 911 dispatch center, emergency service from this phone has been temporarily suspended. This call will be transferred as a non-emergency call to a local law enforcement agency."

The CACR treatment of 9-1-1 calls from a particular phone is determined by the PSAP in its written request.

CACR specialized routing treatment will remain in effect for the period of time specified by the ordering PSAP.

CACR operation is totally transparent to the wireless service provider.

The wireless service provider delivers the call to the IN911 network the same as any other 9-1-1 call, in full compliance with the FCC's current regulations and subsequent clarification contained in the October, 2002 Public Notice (see also documents referenced in the endnotes of this white paper).

Summary

This whitepaper suggests a manner in which PSAPs can take action to resolve problems with annoyance calls that can divert critical public safety resources. This paper is intended as a guideline to the cooperative effort that PSAPs, wireless carriers and their third party providers may take.

Thru the development of advanced network services such as CACR service and the supporting changes by the wireless carriers and/or their third party providers, INdigital can control 9-1-1 nuisance calls forwarded from the wireless carrier and transmitted over the Indiana Wireless Direct Network (IWDN).

With minimal development of the ISUP IAM Signaling System Seven (SS7) call setup and call flow process, a wireless carrier can enable PSAPs served by the IN911 network to take advantage of nuisance call control thru the CACR network service.

INdigital is committed to the development of advanced WE911 services on a competitively neutral basis. For additional information about this or any other matter, we encourage the reader to contact INdigital.

The IWDN network is administered by the Indiana Wireless Enhanced 911 Advisory Board (WE9AB).

IN911 contacts

Parties needing additional information about IN911 CACR service or other inquiries regarding 9-1-1 nuisance calls are invited to write or call:

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ⁱ http://a257.g.akamaitech.net/7/257/2422/09nov20051500/edocket.access.gpo.gov/cfr_2005/octqtr/pdf/47cfr20.18.pdf

ⁱⁱ <http://www.fcc.gov/cgb/consumerfacts/wireless911srv.html>

ⁱⁱⁱ **San Francisco Chronicle, Man suspected of calling 911 over 27,000 times**
<http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/02/15/BATLV38B8.DTL>.

^{iv} <http://www.apointl.org/new/government/documents/Petition-Non-Initialized-Devices.pdf>

^v http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-02-296A2.pdf and

http://www.911dispatch.com/db/index.php?option=com_content&task=view&id=1576

^{vi} The page labeled 19, the 4th page of reference i above, spells out the requirements for this identification.