9-1-1 and
Emerging
Technologies

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Petition for a Notice of Inquiry Regarding 9-1-1	)	PS Docket No. 08-51
Call-forwarding Requirements and Carriers'	)	
Blocking Options for Non-Initialized Phones	)	

COMMENTS OF INdigital telecom
in response to the above captioned
Notice of Inquiry

I. INTRODUCTION

INdigital Telecom respectfully submits these comments and the accompanying 'white paper' in response to the Notice of Inquiry (NOI) released April 11, 2008 in the above-captioned proceeding. The NSI – 911 abusive call issue involves balancing two difficult conditions. One, the desire to protect the public by requiring that a non-service initialized device (NSI phone) must be capable of dialing 9-1-1. Two, the desire to protect the public from the costs and degradation in emergency response due to abusive use of this capability.

INdigital wishes to contribute to the discussion by providing:

a) A whitepaper that documents in detail a method to process harassing wireless 9-1-1 calls that (i) protects PSAPs connected to the Indiana Wireless Direct Network, and (ii) is applicable to other similar networks. By this whitepaper, INdigital offers that this solution can also be adapted to other wireless networks. Please see the document *"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"* referenced by this filing.

b) A description of a situation in which we made use of this technical solution to provide relief to the Fort Wayne, Indiana PSAP authority.

c) Additional comments relevant to this proceeding.

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II. BACKGROUND

INdigital Telecom is a locally-owned company providing telecommunications services to northeast Indiana. In addition, INdigital also provides wireless enhanced 9-1-1 connectivity and network services to Indiana PSAPs under contract to the Indiana Wireless Advisory Board. Known as the IN911 Network, it delivers calls to Indiana PSAPs using a fiber-optic backbone and Voice over IP technology through a private, secure, redundant, diverse, and monitored IP network. Since the inception of service in January 2006, the IN911 network has delivered over 4,000,000 wireless enhanced 9-1-1 calls. The greatest daily traffic to date occurred on Saturday, June 7, 2008, when the network processed over 10,500 calls due to tornados and flooding in central and southern Indiana. Based on INdigital's work in large scale Emergency Service IP networking, a technology-driven solution to the NSI handset problem is a practical solution to these complex issues.

III. A CASE HISTORY of CUSTOM ANNOYANCE CALL ROUTING, May 2008, Fort Wayne, Indiana

INdigital was recently in a position to make use of the technology and operating policy outlined in the attached whitepaper which describes custom annoyance call routing (CACR). On the evening of Thursday, May 1, 2008, while monitoring traffic on the IN911 network, INdigital employee Byron Smith noticed a large number of calls of short duration being made to the Fort Wayne PSAP, all coming from the same NSI phone.

Mr. Smith contacted the PSAP and asked them about what they were experiencing. The PSAP advised that the caller was hanging up almost immediately after the calls were answered, and that Phase II position data was not available. The PSAP discussed the situation with Mr. Smith, and in about an hour had sent Mr. Smith an official request to have the calls from that particular cell phone rerouted to a fast busy signal. Mr. Smith put their request into effect and then continued to monitor the calls being made.

During the 5 pm hour, 35 calls had been made to the PSAP. During the 6 pm hour, 124 calls had been made. In the first 18 minutes of the 7 pm hour, before the custom annoyance call routing was in place, 47 calls were made to the PSAP. In the remaining minutes of the 7 pm hour, 67 calls were made that were diverted to a fast busy signal, ending at 7:51 pm.

Thereafter, the caller would make 3 attempts in quick succession, at 8:12 pm, 9:49 pm, 9:50 pm, 10:01 pm, 10:07 pm, 11:03 pm, 11:14 pm, and 11:52 pm that night, and again the three calls in quick succession the following day beginning at 8:45 am, 8:53 am, 8:58 am, 9:00 am, 1:13 pm, 5:46 pm, 5:57 pm, 6:01 pm, and 6:08 pm, for a total of 118 call attempts that were routed away from the PSAP. After this time, the caller gave up completely and did not make any additional attempts.

The dispatchers at the PSAP expressed their gratitude for having been relieved of the annoyance calls. In examining earlier call records, that uninitialized phone had made 326 calls to the PSAP between April 14 and April 30, with the heaviest call day being April 15 with 160 calls having been made between 6 and 10 in the evening.

While INdigital could provide additional case studies where we have assisted in resolving cases of annoyance calls, this single instance of the use of CACR service clearly conveys the success Indiana has had in resolving this complex public policy issue.

IV. DISCUSSION

In paragraph 6 of section II. BACKGROUND in the NOI, the text notes that carriers are required to program NSI devices with a sequential number of "911" plus the last 7 digits of the handset's unique identifier.

> *"The commission took these actions to allow PSAPs to identify the specific NSI device making a particular call, finding it 'highly probable' that a PSAP receiving fraudulent calls from an NSI device would be able to identify the phone and work with carriers and law enforcement 'to trace it and block further harassing calls from the device.'"*

While the technology is not yet in place to 'trace' the call unless (a) the device is capable of enhanced 9-1-1; and (b) the caller stays on the line long enough to establish a Phase II location, this statement is correct as it applies to INdigital's CACR service. Given the transmission of the handset indentifying number, the PSAP can work with INdigital to identify and re-route the call.

Usefulness and limits of *custom annoyance call routing (CACR) for WE9-1-1 nuisance calls*

In the NOI, Paragraph 13, in the discussion of the present call-blocking solution, the text states that

> *"According to Petitioners, some carriers assert that call blocking would be ineffective because, due to the call-forwarding rules, a device blocked by one carrier network may simply roam until it finds another available network."*

and in the following paragraph this statement:

> *"Petition ... raises questions concerning whether calls would be blocked on just one tower or on multiple towers, with respect to one PSAP or all PSAPs."*

In the INdigital CACR service solution, INdigital is the 9-1-1 service provider delivering the call to the PSAP. As the network operator, INdigital is performing the custom annoyance call routing (CACR), not the wireless carrier receiving the call from the mobile device. Thus, it doesn't matter the tower or tower owner that forwards the call.

The rerouting of the call that would normally be sent to a PSAP occurs downstream of the wireless carrier. Carriers receiving the calls at the tower and transmitting them need only provide the device-identifying-number with the setup of the call. If this is done for all calls, then CACR service can be provided without coordination or any action on the part of the wireless carriers.

INdigital's CACR solution is a network-wide service. In this regard, one PSAP would request CACR, but then calls from the identified NSI device would be custom routed for all PSAPs who receive 9-1-1 calls through the INdigital network. The nuisance caller would have to physically move beyond the boundaries of the Indiana network (out-of-state) to regain the capability of initiating nuisance calls that would be delivered to a PSAP.

Putting the PSAP in control

The NOI raises questions not only about the feasibility of technical solutions, but also about policy decisions. INdigital takes the position that the PSAP is best equipped and is authorized by state and local statutes to make decisions based on their local situation and any service-affecting trade-off of their operating environment.

A PSAP that is short-staffed or single-staffed, or under duress due to a weather event or other crisis, would be less tolerant of nuisance calls, and may have an operational need to seek CACR service more quickly than a well-staffed facility during a period of low call volumes.

The NOI raises questions about "the duration of a block, and how a block would be removed," and asks "how blocked calls should be handled" in paragraph 14. The solution INdigital has developed is capable of complying with the properly documented directive of the PSAP in regard to the duration of CACR service, and the CACR service can provide great flexibility with rerouting the nuisance call, sending it to a recording, busy signal, or a designated PSTN number.

With regard to multiple persons having access to the same phone (Inquiry paragraph 16), INdigital suggests that nuisance calls be routed to an announcement explaining why the call is not being routed directly to an emergency telecommunicator.

The CACR service announcement can give instructions to use another phone to call 9-1-1, and also provide instructions on how to reinstate the handset with 9-1-1 calling privileges.

This would explain to the caller what had happened, and hopefully encourage a child to confess so that a parent could get the phone reinstated before a real emergency. While it is always possible that such routing may cause a true emergency call to be diverted away from the PSAP, it provides a temporary solution to the abuse of emergency service by limiting service for only those callers who abuse the service, and not for all others who have NSI devices and may rely on them for access to emergency services.

The Nature and Extent of Fraudulent 9-1-1 Calls Made from NSI Devices

Paragraphs 11, 12, and 20 of the NOI discuss measuring the extent of fraudulent 9-1-1 calls made from NSI devices. The data in these paragraphs and in most comments filed to date compare the number of nuisance calls made from NSI devices to the number of 'legitimate' 9-1-1 calls. This is an appropriate way to measure the impact of nuisance calls on the PSAP.

However, in order to better ascertain the value to the public of allowing NSI phones to call 9-1-1 vs. the abuse of NSI phones calling 9-1-1, we suggest also comparing, not the number of calls, but the number of phones used to call in each case. If there were only 2 callers, 1 caller originating a single call and receiving the needed help; and the second caller abusive, and making thousands of calls, then comparing only the number of calls would mask the fact that only one half of the callers was abusive. In this technical solution proposed by INdigital, abusive calls could be re-routed well before they reached such damaging levels of abuse.

INdigital submits that using technology such as CACR to limit Emergency 9-1-1 service from a limited number of abusive NSI phones represents better public policy than denying Emergency 9-1-1 service to all owners of any NSI device.

As part of the additional consideration for NSI devices, there are several recent findings of the FCC that also relate to the development of a technical solution for abusive calls from NSI devices. The 'sunset' of analog wireless service will render an untold number of older analog handsets inoperable. This change in the environment of wireless NSI handsets means that the universe of NSI handsets that can originate 9-1-1 calls will be of a later design that complies with the FCC order regarding the transmittal of unique handset ID information.

V. CONCLUSION

INdigital proposes that the Custom Annoyance Call Routing (CACR) solution, if allowed to broaden in deployment and use through an FCC order, would not only aid PSAPs in the state of Indiana, but would also contribute to public safety in our nation as a whole.

INdigital's experience as the operator of a statewide network leads to the conclusion that confusion and misunderstanding of the FCC's current set of orders and clarifications exists for many of the wireless carriers.

While INdigital has interpreted the most recent order as allowing (even fostering) the development of advances like CACR, many of the wireless carriers interpret FCC orders in a more conservative manner.

INdigital has not had an outright refusal by a wireless carrier to provide handset identification in the initial setup of a 9-1-1 calls. At the same time, many of the carriers have also been somewhat reluctant to present handset identification information as part of the call setup signaling.

In these cases of limited cooperation, the carrier's position is a contradiction of sorts. During INdigital's traditional processing of 9-1-1 calls, the unique handset identification is presented after the call is answered.

INdigital's method of resolving the NSI abusive call issue asks for this same, identical information to be presented during the setup of the 9-1-1 call.

For various reasons, this small network protocol change has been difficult for some wireless carriers to implement given their interpretation of current FCC orders and subsequent clarifications issued by the FCC.

INdigital would recommend that the FCC can swiftly resolve the NSI / nuisance call issue by directing the wireless carriers to deliver unique handset identification as part of the call setup process.

This single network change creates a competitively neutral solution between wireless, wireline and other emerging technologies that can originate 9-1-1 calls.

This clarification in the abstract method of mechanics of call processing would allow 9-1-1 network operators such as INdigital and others to respond to PSAP directives for relief from abusive calls as exists today for wireline and other telecom sectors.

We conclude that any FCC order with broad reaching impact to public safety should not artificially limit creativity, invention and innovation as it relates to public safety.

Respectfully Submitted,

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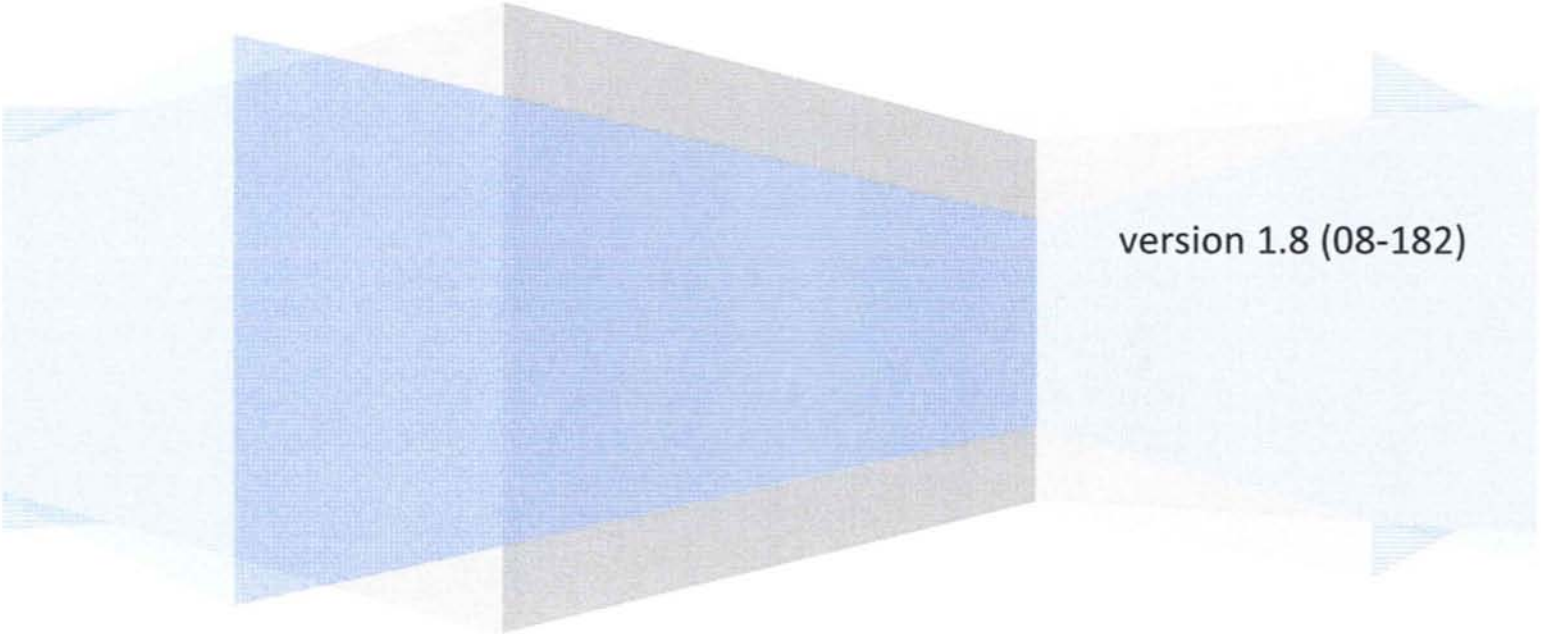
custom annoyance call routing (CACR) for WE9-1-1 nuisance calls

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

INdigital telecom – Indiana Wireless Direct Project

issued as a part of the INdigital telecom
'network notes' series



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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 recent 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

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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 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 has a requirement 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 indentifying 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.

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

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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

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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 (IWAB).

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/wireless911srvc.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.apcointl.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.

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