

# **Caller Identity Spoofing**

Telecommunications Regulatory Affairs Advisory Committee 17 September 2015

#### **Purpose**

To brief Members about:

- a) Phone scams involving caller Identity ("ID") spoofing
- b) Measure to identify incoming external calls
- c) Requirements under the relevant technical specification / code of practice
- d) Implementation arrangement



#### Phone Scams involving Caller ID Spoofing

- According to the Police, in the first seven months of 2015 <sup>1</sup>,
  - ➤ a sharp rise (70%) in the number of phone scams compared with that in the same period last year
  - a total monetary loss of \$175.7 million
- Telephone scams involving scammers deliberately changing the caller ID by means of "caller ID spoofing",
  - Phone scams with caller ID spoofing as the telephone number of the Liaison Office <sup>2</sup>
  - ➤ Obtaining personal information by caller ID spoofing <sup>3</sup>
  - Phone scams by imposters posing as representatives of a logistics company 4
- The Police contacted OFCA in July 2015 for assistance
  - 1. Source: http://www.info.gov.hk/gia/general/201508/09/P201508090660.htm
  - Source: <a href="http://hk.apple.nextmedia.com/news/art/20150724/19230497">http://hk.apple.nextmedia.com/news/art/20150724/19230497</a>
     The Liaison Office Liaison Office of the Central People's Government in the Hong Kong S.A.R
  - 3. Source: <a href="http://www.hket.com/eti/article/30d35c60-1d22-44bc-aba7-78ca1b203c75-718810">http://www.hket.com/eti/article/30d35c60-1d22-44bc-aba7-78ca1b203c75-718810</a>
  - 4. Source: http://hk.apple.nextmedia.com/news/art/20150709/19213802



# Illustration of Caller ID Spoofing

According to the Police, all the fraudulent calls using caller ID 28314333 spoofing were from outside Hong Kong. Generate calls with fraud caller **Telecommunications** ID 28314333 **Networks** Internet **Network** (telephone (HK) (Overseas) number of the Liaison Office) Out of Area **Caller ID** VolP **External** ппп **Spoofing** Server **Telecommunications Services Network (HK) Application** (Overseas) 



# **Incoming External Calls**

In general, incoming external traffic could be routed in two different routes:

- Calling Line Identification ("CLI") guaranteed
  - calling numbers are displayed on end user devices, such as "+86xxxxxxxxxxxx", "+1xxxxxxxxxx" will be displayed
  - Calls with caller ID spoofing are routed along this route for display of fraud calling numbers
- CLI not guaranteed
  - calling numbers are not displayed on end user devices, information such as "Unknown", "Out of area" will be displayed (depends on end user devices)
  - Calls with caller ID spoofing are unlikely routed along this route as no calling number would be displayed



#### Measure to Identify Incoming External Calls

 OFCA has three meetings with the Police and the telecom industry on 29, 31 July and 7 August 2015

- Different measures were discussed:
  - Stop calling number display ("CND") for all incoming external calls;
  - Stop CND for all incoming external calls with calling numbers similar to Hong Kong numbers; or
  - Insert "+", "++" or "00" in CND as a prefix for all incoming external calls



# Justifications to use "+" Sign for Identification of Incoming External Calls

- Technically, showing a "+" sign for incoming external calls is part of the existing technical specification and CoP
- A "+" sign can be implemented by the industry in a short time and with minimum effort
- A "+" sign to indicate incoming external calls gives a clear message to alert the public

OFCA have to draw public attention that whether or not the "+" sign is shown on the CND of mobile phones, members of the public should stay vigilant in regard to suspicious phone calls



# **CLI** Requirement

- The regulatory requirements on CLI information are stated in:
  - Code of Practice in relation to Calling Line Identification and Other Calling Line Identification Related Services ("the CoP") 5
  - HKCA 3101 Regulatory Guide for Calling Line Identification (CLI) Format <sup>6</sup>
  - HKCA 2202 Network Connection Specification for Network-to-Network Connection of the Public Telecommunications Networks (PTNs) in Hong Kong based on ITU-T Signalling System No.7<sup>7</sup>
    - The CoP is available at <a href="http://www.ofca.gov.hk/filemanager/ofca/common/consumer/fixed\_telecom/cop20150101e.pdf">http://www.ofca.gov.hk/filemanager/ofca/common/consumer/fixed\_telecom/cop20150101e.pdf</a>
    - HKCA 3101 is available at http://www.ofca.gov.hk/filemanager/ofca/en/content\_405/HKCA3101\_en.pdf
    - 7. HKCA 2202 is available at <a href="http://www.ofca.gov.hk/filemanager/ofca/en/content\_404/hkta2202.pdf">http://www.ofca.gov.hk/filemanager/ofca/en/content\_404/hkta2202.pdf</a>



#### Requirement of NOA in HKCA 2202

HKCA 2202 Network Connection Specification for Network-to-Network Connection of the Public Telecommunications Networks (PTNs) in Hong Kong based on ITU-T Signalling System No.7

 The nature of address indicator ("NOA") is specified in item 2.54 as below:

The nature of address indicator for calling party number should be set to "0000001" (subscriber number), "0000011" (national number) or "0000100" (international number) whichever is applicable.



# Calling Party Number Parameter Field

	8	7	6	5	4	3	2	1
1	O/E Nature of address indicator							
2	NI	Numbering plan indicator			Address presentation restricted indicator		Screening indicator	
3	2nd address signal				1st address signal			
:								
m	Filler (if necessary)				nth address signal			



# **NOA Indicating International Number**

- Most mobile handsets will display a "+" sign in the CND when the NOA is set to indicate International number (under 3GPP specifications)
- With proper setting of NOA for incoming external calls from the External Telecommunications Service Provider and delivery of it through the transit network and the mobile network to the mobile handset, a "+" sign will be displayed
- Fixed phones do not have the same capability and cannot display "+" sign



#### Responsibilities of the Transit Networks

Code of Practice in relation to Calling Line Identification and Other Calling Line Identification Related Services

 Section 29 of the CoP stated the responsibilities of the transit network as below:

The Operator of a transit network shall ensure that the caller's CLI data, CNAMD data and the call classification do not alter from the point of entry into its network to the point of exit from its network. In exceptional circumstances where the transit network is not capable of maintaining the integrity of the CLI data and/or classification, the exit classification of a call should be "P" if the "P" indicator can be maintained, and "O" if otherwise. In circumstances where the transit network



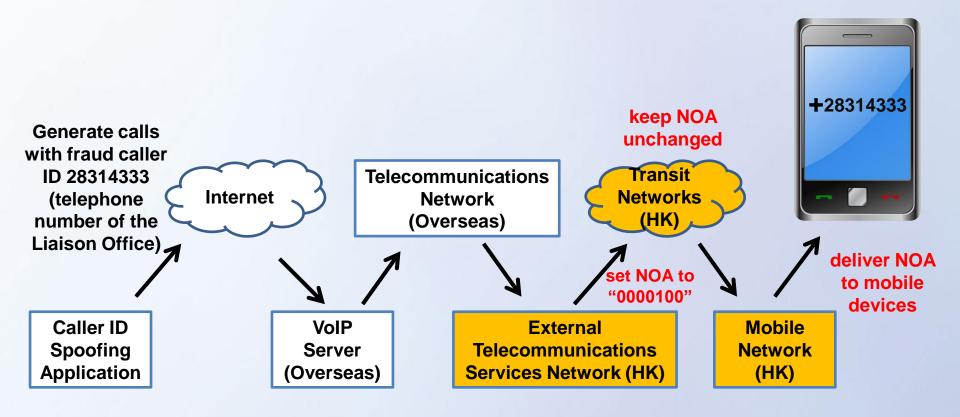
# Implementation Arrangement (1)

To ensure that the NOA indicator will be set properly for all incoming external calls and will be delivered properly to mobile phone users, the following decisions were made in the meeting on 7 August 2015:

- All external telecom service licensees are required to comply with HKCA 2202 by setting the NOA for all incoming external calls to "0000100" on or before 20 August 2015
- All transit licensees are required to comply with the CoP on the handling of NOA on or before 20 August 2015
- All MNOs & MVNOs licensees are required to comply with HKCA 2202 for the delivery of the NOA for all incoming external calls on or before 20 August 2015



# **Implementation Arrangement (2)**





# Implementation Arrangement (3)

- Some operators need more time (within September 2015) to reset the "+852 truncated" arrangement - when Hong Kong mobile users making roaming calls to Hong Kong, the "+852" will be truncated and hence no "+" sign displayed
- The implementation will be divided into two phases :
  - Phase 1 All concerned operators implemented the new measure on 21 August 2015, that covered incoming external calls other than roaming calls made by Hong Kong mobile phone users
  - Phase 2 All incoming external calls will be covered by the new measure in September 2015



# **Press Release & Consumer Alert (1)**

- On 20 August 2015, OFCA issued the press release <sup>8</sup> and consumer alert <sup>9</sup> on the implementation of the "+" sign as a prefix of the CND for all incoming external calls to mobile phone users in phases
  - Phase 1 All concerned operators implemented the new measure on 21 August 2015, that covered incoming external calls other than roaming calls made by Hong Kong mobile phone users
  - Phase 2 All incoming external calls will be covered by the new measure in September 2015
    - Press Release available at http://www.ofca.gov.hk/en/media\_focus/press\_releases/index\_id\_1062.html
    - Consumer Alert available at <a href="http://www.ofca.gov.hk/en/consumer\_focus/education\_corner/alerts/general\_m">http://www.ofca.gov.hk/en/consumer\_focus/education\_corner/alerts/general\_m</a>
       <a href="mailto:obile/telephone\_scams/index.html">obile/telephone\_scams/index.html</a>



# Press Release & Consumer Alert (2)

- The consumer alert provided the public with information about the new measure and on precautions to guard against possible caller ID spoofing and phone scams
- Positive feedback is received from the media and the general public regarding the implementation of the new measure



# **Way Forward**

- The new measure has been implemented with the cooperation of more than 300 telecommunications operators
- OFCA will monitor the implementation of the new measure and, if necessary, consider the need of further revise the CoP and the relevant CLI specification





# Thank You