

**POSSIBILITIES TO ADOPT THE
ANONYMOUS CALL REJECTION (ACR)
SUPPLEMENTARY SERVICE**

CONCLUSIONS

The telecommunications operators' possibilities to implement Anonymous Call Rejection (ACR) are still somewhat insufficient. The exception incorporated in the 1999 Decree on the protection of privacy and data security in telecommunications should not be abolished from the statutes.

Renewal of telecommunications networks and introduction of new technologies will in the next few years create technically and economically feasible conditions to implement the ACR according to standards. This should be taken into account in the reform of statutes, for instance by including provisions on the adoption in FICORA's regulations or by amending the "Data Security Act" with ACR provisions.

Reasons for the conclusions:

- Implementation according to the directive and standards requires that rejection only concerns the calls where the calling user has restricted his/her calling line identification presentation and that the reason for the call failure is informed to the calling user. These features are included in the quite latest standards and have not been implemented in the networks.
- Some telecommunications operators provide ACR services which do not comprise the above mentioned latest features but otherwise fulfill the requirements. Many other operators have the necessary technical preparedness for that.
- Telecommunications operators also provide various incoming call rejection services which comply with the obligations only to some extent e.g. black/white number lists. The practice between the use of mandatory ACR and other rejection services must be clarified.
- The situation on other EC countries is very similar to that of Finland with no real plans for the adoption of ACR complying with the directive and standards. There are also some interpretations that differ from the directive's requirements. These interpretations need to be conformed. Conformity is required especially for pan-European and GSM networks. Manufacturers are expecting European wide implementations. National decisions must take other countries' plans into account.
- Guidelines are needed for special cases where calling line rejection (Apri 11) is activated by the network, and this service must be in conformity in all networks.

NB: This is an unofficial translation from the original Finnish working report

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1 FOREWORD

This paper contains a report on the adoption of the ACR supplementary service in telephone and mobile networks. The service is needed to implement the obligation for protection of privacy requiring that the user must have the possibility to reject incoming calls where the presentation of the calling line identification has been restricted by the calling party.

This report investigates the statutes and standards on ACR as well as the technical possibilities for its implementation.

2 MANDATORY OBLIGATIONS

2.1 Act and decree currently in force

Act on the protection of privacy and data security in telecommunications (22 April 1999) includes provisions on anonymous call rejection as follows:

14 §

Calling line identification

A telecommunications operator offering a fixed telephone network or mobile telephone network subscription shall ensure that a subscriber receiving a call to a subscription offered by the telecommunications operator has the possibility, in the voice telephony services of his subscription:

2) to reject incoming calls where the calling-line identification has been eliminated.

17 §

Use of identification services

The functions referred to in sections 14 - 16 shall be implemented so that they can be taken into use by simple means as further provided for by Decree.

The telecommunications operators shall inform the users and subscribers of the offering and use of identification services.

Decree on the protection of privacy and data security in telecommunications (11 June 1999) completes the Act and allows an exception as follows:

3 §

Providing calling line identification rejection

Telecommunications operators providing the service referred to in section 14(2)(2) of the Act on the protection of privacy and data security in telecommunications must inform the users and subscribers about which kinds of connections can not be received when this service is activated.

Telecommunications operators do not have to provide the service referred to in section 14(2)(2) in a network where it is not technically possible to provide the service as a publicly available service on reasonable cost.

2.2 New directive

Directive 2002/58/EC of the European Parliament and of the Council concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications)

includes the requirement already incorporated in the current Act:

Article 8

Presentation and restriction of calling and connected line identification

3. Where presentation of calling line identification is offered and where the calling line identification is presented prior to the call being established, the service provider must offer the called subscriber the possibility, using a simple means, of rejecting incoming calls where the presentation of the calling line identification has been prevented by the calling user or subscriber.

5. Paragraph 1 shall also apply with regard to calls to third countries originating in the Community. Paragraphs 2, 3 and 4 shall also apply to incoming calls originating in third countries.

6. Member States shall ensure that where presentation of calling and/or connected line identification is offered, the providers of publicly available electronic communications services inform the public thereof and of the possibilities set out in paragraphs 1, 2, 3 and 4.

2.3 New national law

The directive will be implemented in the national legislation through an Act on data protection in electronic communications, which is under preparation.

3. STANDARDS

3.1 Standards for PSTN/ISDN

Mandated and partly financed by the EC, ETSI has drawn up standards for the PSTN/ISDN complying with the directive. In addition, national guidelines for implementation (GFI documents) have been drawn up, as necessary.

Anonymous Call Rejection is dealt with in the following documents:

ETSI has drawn up the standard EN 301798 (SPAN; Anonymous Call Rejection (ACR); Supplementary Service, Service description) for ACR supplementary services implemented in the telephone network and ISDN.

GFI 9302 ed. 4 Guidelines for implementation; ISDN supplementary services; Functional protocol. The document includes national specifications for ISDN according to ETSI EN 301798.

GFI 9802-23 ed. 3 Anonymous call rejection. The document includes national specifications for telephone networks according to ETSI EN 301798.

GFI 9803 ed. 2. National supplementary services. Interaction between services. The document specifies features for interaction between the ACR and other services in the public switched telephone network.

SFS 5778 Signalling in the public switched telephone network (PSTN). ISDN User Part ISUP Version 2 of the national Signalling System No.7. Supplementary Services.

SFS 5779 Signalling in the public switched telephone network (PSTN). ISDN User Part ISUP Version 2 of the national Signalling System No.7. Application of ITU-T recommendations Q.761-Q.764 and Q.766 in Finland.

SFS 5868 Signalling in the public switched telephone network (PSTN). ISDN User Part ISUP Version 3 of the national Signalling System No. 7. Supplementary Services.

SFS 5869 Signalling in the public switched telephone network (PSTN). ISDN User Part ISUP Version 3 f the national Signalling System No. 7. Application of ITU-T recommendations Q.730 and Q.761 – Q.766 in Finland.

SFS 5901 Signalling in the public switched telephone network (PSTN). ISDN User Part ISUP Version 4 of the national Signalling System No. 7. Supplementary Services.

SFS 5902 Signalling in the public switched telephone network (PSTN). ISDN User Part ISUP Version 4 of the national Signalling System No. 7. Application of ITU-T recommendations Q.730 and Q.761 - Q.766 in Finland.

SFS 5749 Signalling in the public switched telephone network (PSTN). Handling of cause information related to call failure.

3.2 Standards for GSM network

There are no separate ACR specifications for the GSM networks, but the service could be implemented using the standards for fixed networks. Possibilities for implementation of the ACR is dealt with in item 4.2.

4. IMPLEMENTATION ALTERNATIVES

4.1 PSTN/ISDN

4.1.1 General description

ETSI has published the standard EN 301798 for ACR, required for the protection of privacy. In addition, Finland has national guidelines for implementation (GFI documents, see 3.1). According to the standard, the ACR supplementary service enables the called user to reject incoming calls from subscribers who have restricted the presentation of their calling line identity with the CLIR supplementary service. The ACR rejects all calls where CLI is marked "presentation restricted" according to CLIR. The calls are rejected regardless of whether the called subscriber is busy or free. Outgoing calls can be made normally regardless the ACR service.

The ACR supplementary service is provided on request, and the service is not comprised by a requirement for provision free of charge. The standards define procedures for the customer to activate or deactivate the service from the terminal equipment. The service can also be activated and deactivated by the operator in the exchange.

The ACR is not invoked for incoming calls that have their CLI marked "not available" or "presentation restricted by network".

The calling subscriber must be informed about call failure due to ACR service by the network.

The implementation described above is called "network based solution" allowing use of normal terminal equipment. The standard also includes the possibility that the user's terminal equipment recognizes the CLIR and rejects the call. This implementation is called "user based solution", or terminal equipment solution, which requires special terminal equipment. The network based solution, which is generally regarded to comply with the directive's requirement in many countries, is recommended for implementation in Finland (see GFI 9302 ed.4).

The ETSI EN also allows the possibility for "white/black" number lists for terminal equipment, enabling call rejection based on a telephone number.

4.1.2 Network signalling

ISUP Apri indicator values

For the time being, telecommunications networks make use of versions ISUP2 and ISUP3 of the ISUP signalling system. New ISUP4 standards specifying the ACR supplementary service have recently been published (see 3.1). However, the information necessary for the ACR can be transmitted also in ISUP2 and ISUP3 with certain restrictions:

ISUP2/ISUP3: Address presentation restricted indicator (Apri) of the Calling party number parameter may have the following values:

00	presentation allowed
01	presentation restricted
10	address not available
11	spare

ISUP4: The address presentation restricted indication (Apri) value of the Calling party number parameter may be the following:

00	presentation allowed
01	presentation restricted
10	address not available
11	presentation restricted by the network

ISUP2/ISUP3 signalling enables transmission of the presentation allowed/presentation restricted information, but ISUP4 gives the possibility to distinguish situations where presentation is restricted by the subscriber from situations where presentation is restricted by the network.

Cases where the exchange sets the Apri value 11 can, according to standards, be the following:

- Special call-back arrangements
- A special originating access (e.g. emergency centre, pay phone, operator-assisted call etc.)
- Certain special services, as "wake-up call".

According to signalling standards, an exchange that does not recognize the Apri value 11, will interpret it for 01, which means that the call is not connected in case of the ACR service. As presentation restricted by the network must not lead to call failure, the requirement must be re-evaluated when the ACR is adopted.

The following recommendations are included in the CEPT/TRIS working group document: ETP European Telecommunications Platform: Guidelines for Calling Line Identification (Annex III):

The current ETSI ISUP standards do not cater for the distinction between "presentation restricted by network" and "caller withheld" to be carried forward in the network, with the result that such calls may be rejected by anonymous call rejection services and render the caller incapable of completing the call.

The ETP therefore urges caution in the use of anonymous call rejection services within member states until the ability to distinguish between these two types of CLI withheld are catered for in the signaling systems. As a minimum it is recommended that where no CLI is received at all these calls should not be treated as anonymous and should be allowed to complete to customers with anonymous call rejection. Failure to do this could result in the vast majority of international calls failing to complete to these users as well as calls from analogue exchanges and any other lines where CLI transmission or blocking is not possible.

Transmission of cause code and information

Cause codes and the corresponding announcements and tones are defined in standard SFS 5749. The third edition (2001) of the standard includes the ACR cause code 24 "Call rejected due to ACR supplementary service" and handling of this information. Cause code 24 leads to announcement 13 to the calling subscriber "Dialled number takes no incoming calls where presentation of calling line identification is restricted."

When network signalling is implemented it must be taken into account that the cause code and the corresponding announcement are needed in the ACR service regardless whether or not the new Apri value 11 is in use.

4.1.3 Local exchange

The called subscriber's local exchange must be able to implement restriction of incoming calls and activation/deactivation of the service unless done permanently by the operator. The relevant cause code for the failure of the call must be sent to the calling party from the local exchange.

The exchange must enable interaction between the ACR and other supplementary services. The interaction requirements with other PSTN facilities are given in GFI 9803 ed.2 and interaction with other ISDN supplementary services is included in EN 301798. As regards restriction of the call the local exchange operates as follows on the basis of CLI information from the network:

Operation when Apri 11 is not in use

Information from the network to called subscriber	ACR decision	Called subscriber's terminal equipment
"address not available"	ACR not invoked	call delivered, no Calling Identity displayed
"presentation allowed"	ACR not invoked	call delivered, Calling Identity displayed
"presentation restricted"	ACR invoked	no call delivered, no Calling Identity displayed

If CLIP supplementary service is in use, the following shall apply:

At incoming call it is controlled whether or not the calling line number is available and:

- 1) if presentation is allowed, the exchange sends the subscriber in the "calling party number information element" of the SETUP-message the subscriber number of the calling party with possible subaddress and presentation indicator in a transparent way.
- 2) if the presentation is restricted, the exchange sends the subscriber a "presentation" indicator information "presentation restricted" without the calling subscriber's number information and possible subaddress.

If CLIP supplementary service is not in use, the following shall apply:

Information element including the number information is not added to the SETUP message sent to the subscriber.

Operation when Apri 11 is in use

Information from the network to called subscriber	ACR decision	Called subscriber's terminal equipment
"address not available"	ACR not invoked	call delivered, no Calling Identity displayed
"presentation allowed"	ACR not invoked	call delivered, Calling Identity displayed
"presentation restricted"	ACR invoked	no call delivered, no Calling Identity displayed
"presentation restricted by network"	ACR not invoked	call delivered, no Calling Identity displayed

If CLIP supplementary service is in use, the following shall apply:

The exchange operates as above except when:

- Apri value from the network is 11 "number presentation restricted by the network" meaning that the calling party has not used CLIR. In this case the "presentation" indicator will have the information "number not available due to interworking" in the "calling party number information element" which is sent to the subscriber in the SETUP message. Number information is not sent although they were received from the network.

If CLIP supplementary service is not in use, the following shall apply:

Information element containing the number information is not added to the SETUP message sent to the subscriber.

4.2 GSM networks

Although there are no special ACR standards for GSM networks, a solution similar to the PSTN/ISDN network can be used. Differences in the subscriber connection do not affect the solution implemented in the network.

In the GSM access signalling the "calling line identity" includes the "calling party BCD number" information and possibly the subaddress. "Calling party BCD number" comprises not only the calling subscriber's number information but also the "presentation/screening" indicators.

If the incoming call does not have the "calling line identity" information, the SETUP message sent to the subscriber has the "presentation" indicator value "number not available".

If the called subscriber is using the CLIP supplementary service and the incoming call has CLIR to indicate the identification restriction, the exchange sends the subscriber in the "calling party BCD" element of the SETUP message the "presentation" indicator value "presentation restricted" without the calling subscriber's number.

In the GSM networks, network signalling commonly makes use of ISUP2 and ISUP3 versions, meaning that adoption is similar to fixed networks. A complete adoption provides that ISUP4 version is used.

In the GSM networks it is also required that the home location register (HLR) is aware of the use of ACR and transmits the information at call establishment to the mobile switching centre (MSC). For these parts, international standardisation is still incomplete.

5. SITUATION IN FINLAND AND IN SOME OTHER COUNTRIES

5.1 Situation in Finland

In September 2002 FICORA sent telecommunications operators a questionnaire on matters concerning information security and protection of privacy and also on the implementation situation of ACR. Below is a summary of the replies:

Fixed PSTN/ISDN:

Some operators already provide service complying with standards but without the ISUP4 addition regarding distinction of rejection by the network (Apri 11) and announcement to the calling subscriber. Several other operators can have it in the network as an option, but they must agree on the commercial adoption with the manufacturer. Operators' possibilities also depend on the used technology (AXE, DX, EWSD). Several operators already have services for incoming call rejection but they deviate a great deal from the directive's requirements.

GSM network:

Telecommunications operators do not provide the service. Reasons for this are that the GSM customers generally have the CLIP service and calling number can easily be seen on the terminal display as the "unknown number" information. This way it is easy to reject the call by pressing "end call". The call can be routed to voice mail. This solution can be seen as a "simplified" terminal equipment solution not complying with the directive's requirements.

Prices

Some replies also estimated costs of ACR. Variation between the estimates was great due to cost shares allocated to ACR in different ways. Therefore a common cost estimation was not possible.

Hämeen Puhelin Oy where ACR has been implemented according to the ETSI standard but without the ISUP4 additional features charges EUR 8.21 for the activation of the service.

5.2 Situation in some other countries

According to information from the Independent Regulators' Group (IRG) the ACR has been implemented in some European countries as follows:

BT of Great Britain provides the ACR service in fixed telephone networks. The price is EUR 5/month. Service is not available for mobile networks.

Ireland has not adopted ACR either in fixed or mobile networks.

In Italy, Telecom Italia offers a special telephone terminal which is not ringing when CLI is not received.

In Switzerland Swisscom provides the ACR service in the fixed network.

Norway has not adopted ACR either in fixed or mobile networks.

On the basis of information from IRG operators are generally not very interested in adopting the service although it is not supposed to be free of charge. Some countries have interpreted that terminal equipment solution fulfills the directive's requirements but most countries see that the directive requires a feature provided by the network. For the GSM network it is regarded important that the implementation is common for all European countries, because GSM is a pan-European network. This would restrict many national methods of implementation.

5.3 CEPT/TRIS

The TRIS working group under the CEPT has drawn up and updated the document "ETP (European Telecommunications Platform) Guidelines for Calling Line Identification". These guidelines see the network based solution with features complying with standards as the best alternative. Here is an extract from chapter 5 "The called user":

5.6 Anonymous call rejection service

Where a network operator provides an anonymous call rejection service, this service is not comprised by a requirement for provision free-of-charge. The service should only reject a call where the caller has blocked their CLI. Calls where CLI may not be presented for reasons other than blocking by the calling user, should not be rejected. When an anonymous incoming call is rejected by the network, the caller should receive an announcement indicating that their call has been rejected because they have not released their CLI. The announcement should inform the caller that if they wish to complete the call, they should dial again this time unblocking their CLI, or call from another line. When suitable standards become available the announcement should be provided by the originating telephone network and also inform the caller of the unblocking code.