

Online Witness – How to Prevent Fake Evidence

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[Abstract]

ADR (Alternative Dispute Resolution) including arbitration and mediation procedure has been gaining in importance increasingly especially in the area of electronic commerce. On the other hand, online examination of witness procedure including video-link examination is being introduced into courts in some countries. In the near future, such online system will be used in international ADR procedures. However, digital data (photos and voice) transmitted in the online examination procedure can be intercepted, hacked and modified in real time by modern computer graphics technology and voice changing technology. It is a special characteristic of digital data whereas analog data (e.g. VHS video tape) can not be modified so quickly. Thus we have to establish good ways to prevent fake evidence which may be created through hacking or hijacking of data being transmitted at the online examination of a witness. These ways may involve a technological measure as well as the creation of new international protocols for such procedure.

[Key Words]

ADR, arbitration, court procedure, evidence, interception of data, law, litigation, mediation, video-link, witness

Introduction – Have you ever seen the movie “SIMONE”?

There is an interesting movie “SIMONE”.

In this movie, Simone is a Hollywood movie actress. However she is a virtual woman who was automatically created in the super graphics computer “Simulation One”. Her name is made from the name of this computer (‘Sim’ + ‘One’ = ‘Simone’). Also in this movie, almost every viewer of her movies really believes the existence of Simone. But her charming voice and attractive expression are synthesized in the computer system by the movie director (actor, Al Pacino).

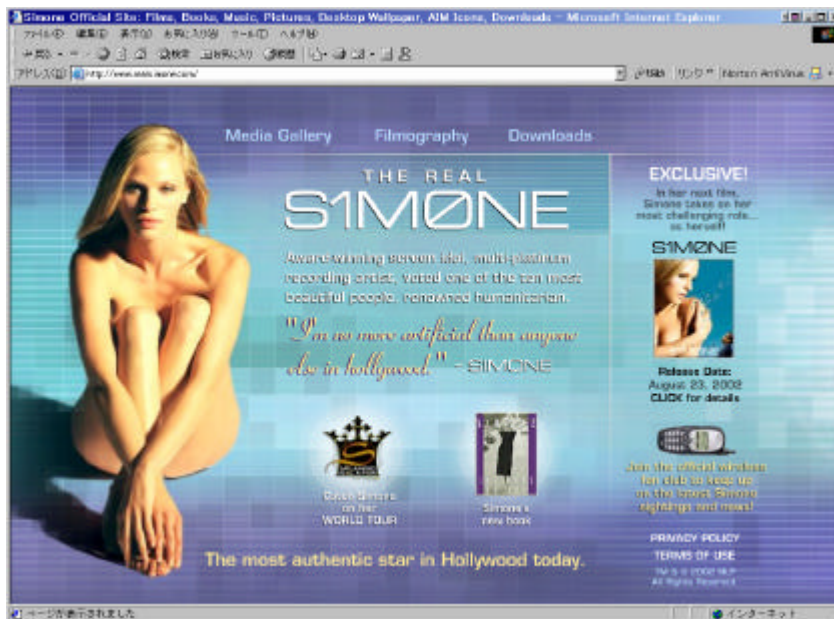


Fig 1: Virtual Site of Real Simone¹

This movie is only a fiction. We can enjoy this movie simply without any difficult thinking. However we have to learn an important thing from this movie Simone is suggesting the possibility of real time falsification of communicated data².

Is the Sender of communication really the sender or not? Is the recipient really the recipient or not? Is his/her voice really his/her voice or not? Every communication can be falsified by computer programs in real time. All types of fake evidence can be produced by computer systems in real time. This is the question.

There have been the same or similar problems in the area of physical documents, photos and video tapes. However real time falsification of current communication data has not been changed or modified so easily. This is mainly due to the evolution of electronic technology and broad band communication facilities. On the other hand, interception skill of hackers is also improving continuously.

In the near future, adoption and examination of a real time remote witness through networked computer systems may be one of the most common practices in the courts and ADR boards. At the same time, the interception of a real time online witness will be realized not only a possibility.

Therefore we have to protect the reliability of such remote witness and to prevent any falsification of such evidence. For the purpose of this, we have to examine both technological

¹ <http://www.realsimone.com/>

² A possibility of real time falsification of transacting data via the network communication system had been indicated in *The Immortality Option* by James Patrick Hogan (1995) already.

measures and other social ways including legislation and international agreement.

Online Litigation and ADR

Today, a complete online litigation system has still not been developed and adopted by neither any courts nor any online ADR (alternative Dispute Resolution) system by any ADR boards as well. Some Bar Associations, Lawyers Acts or guidelines for lawyers prohibit any consultation using emails and similar electronic measures including mobile phones.

However in part, for instance in the testimony proceedings, preamble procedures and disclosure procedure as well as in the area of the legal forensic, such electronic proceedings have been introduced into the courts. For example, courts in Japan have been allowing such online witness as a video-link system via the telecommunication line under article 204 of the Code of Civil Procedure. Similar provision has already been added in the Code of Criminal Procedure of Japan.

However domestic litigation is taking place in only a narrow space. The most important disputes that needs examination by the network system would be located in the global space, for instance domain name disputes, international trading disputes and worldwide cybercrimes.

For instance, recent statistics in Japan by Toshiko Sawada (ECOM; Electronic Commerce Promotion Council of Japan³) suggests an increasing importance of B2C and C2C electronic commerce (especially cross-border transactions).

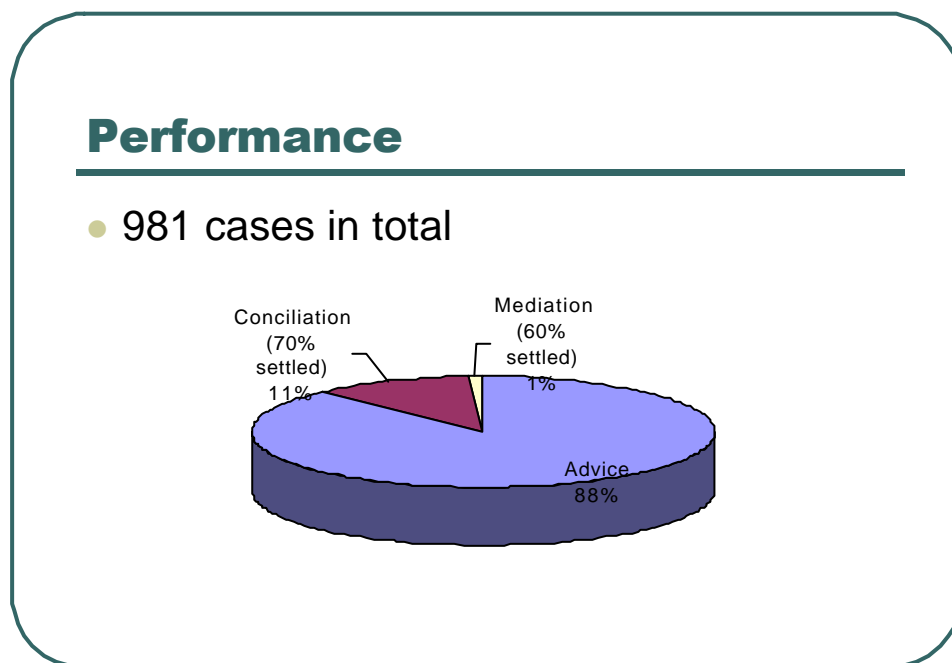


Fig 2: Statistics (January – September 2003) by Toshiko Sawada (ECOM)

³ http://www.ecom.or.jp/ecom_e/index.html

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For the purpose of settling any disputes in relation to such e-commerce, ECOM has a mediation procedure and arbitration procedure. The mediation procedure consists of an ad hoc panel comprised of an expert, a lawyer, and a representative of consumers renders a non-binding solution, and the panel is held off-line without the parties' attendance. A decision under the arbitration procedure can bind both parties. In January – September 2003, 981 cases were filed at ECOM in total. Among these cases, 88 % were settled by voluntary advices, 11 % were examined at arbitration procedure (70 % of such cases were settled) and 1 % was examined at mediation procedure (60 % of such cases were settled). This statistics may suggest a possibility of settled by non-litigation methods in the area of e-commerce which has a global characteristic in nature.

When such a case is taking place in the global circumstance, for the purpose of removing the burden of traveling to foreign court or international ADR board and reserving an equality of disputing parties, online witness systems may have more importance in the near future.

Online Examination of Witness

Online witness procedure has been introduced in some countries. In many cases, such procedure is constructed as a video-link procedure. The video-link procedure means a special procedure in the court where proceedings or examination of witness can be done by sending and receiving photos and voice using electronic communication facilities and devices.

For instance in Japanese, both civil courts and criminal courts can adopt such procedure under relevant procedure laws (see reference 1). There are no accurate statistics of such video-link procedures by Japanese courts. But my friends (practicing lawyers of Japan) said that they have some experiences of such procedure in the courts. Especially, in such special cases as testimony of exploited children or victims of rape case, remote examination of evidence by video-link procedure may be a safe, secure and useful way for all people in the courts.

Today video-link procedure is introduced into only a domestic litigation sphere in the domestic courts. However such system can be and will be adopted by international ADR boards.

Authentication and Identification of Online Witness

Authentication and Identification of witness is one of the most important elements at the examination of witness. In the real world or real courts, sometimes fake witness can present evidence at the court. In fact, there are some such cases in Japan, for instance, in some murder cases or illegal narcotic cases, a *Yakuza* (the Japanese Mafia) presented at the court or the public prosecutors as a substitute for his/her boss in fact.

Compared with an examination in the face to face real court procedure, probably it is really hard

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to confirm or test an authentication and identification of a specific witness especially only by online technological measures in the online examination of a witness.

Thus non-online confirming or testing way must be developed in the area of online examination of a witness.

Falsification of Online Evidence

Digital data (photos and the voice of a witness) transmitted in the online examination procedure can be intercepted, hacked and modified in real time. Such falsification can be done by modern computer graphics technology and voice changing technology. It is a special characteristic of the digital data whereas analog data (e.g. VHS video tape) can not be modified so quickly.

In addition, international online examination procedure needs language translation by human translators or automatic translation systems. The translated voice or message can also be falsified by hacking, intercepting such a voice or message and exchanging it for a fake voice or message.

Of course, other people concerning the specific cases (e.g. judge, ADR board member, prosecutor, lawyer, representative of the party of the case) can be falsified in the same way.

Thus not only the photos and voice of the witness but also of the translator and of all people concerning the specific case have to be protected against such falsification.

These are really serious risks for every online dispute resolution procedure.

Technological Measures to Prevent Fake Evidence

To prevent and discover any falsification of online witness data, some technological measures can be applied.

1. Encryption

Probably encryption is the most useful measure to protect the transmitting witness data. Encryption itself is a world wide well known and adopted measure for computer system security. This means encryption technology has the potential of protecting such transmitting data in the course of online examination of witness by any courts or ADR boards. In addition, in most cases, a time lag which is caused by encoding/encrypting and decoding/decrypting of such encrypted data may be a kind of obstacle for real time hijacking of such transmitting. Some seconds of delay analyzing such encrypted data may take enough time to analyze and to intercept the transmitted data and to modify or exchange such data for fake data.

2. Digital water mark

Digital water mark is a special kind of encryption technology. For example, this technology

is implemented in the copyright protection of digital contents. This technology can be implemented also in the area of online witness examination.

3. Simple comparison of data

If a relatively heavy system can not be adopted in a specific court or ADR board then other more simple technology may be applied, for instance by a comparison of the hash data of a transmitting data at the sending time with the hash data of a receiving data at the receiving time in both sending computer system and receiving computer system. Of course, it is important to hold a thoughtful recognition that the possibility of hacking of such hash data itself can not be discounted completely.

Need to develop new International Protocols or Instruments on Online Evidence

On the other hand, some new ways based on international agreement have to be developed and implemented into domestic procedure in the court and ADR boards. Such agreement can be realized as an international protocol, treaty or several agreements between one country and another country.

And if such agreement can fulfill some requirements recommended in this paper as follows, then authentication, identification, confidentiality and correctness (integrity) can be guaranteed relatively.

1. Real observation

Such examination has to be observed by relevant people (e.g. judges, lawyers, prosecutors or juries) at the real place where the witness is really present.

2. Mutual confirming

Received data (photos and voice) have to be mutually confirmed at the place where sender of such data is present.

3. Education and training programs

The best way to avoid any falsification of evidence is to provide a good education and training programs not only on the electronic technology but also on legal issues in relation to litigation and ADR procedure in the information technology era.

Thank you.

Reference 1 – Current Legislation (Extract)

US; Federal Rule of Evidence

Rule 901. Requirement of Authentication or Identification

(a) General provision.

The requirement of authentication or identification as a condition precedent to admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims.

(b) Illustrations.

By way of illustration only, and not by way of limitation, the following are examples of authentication or identification conforming with the requirements of this rule:

- (1) Testimony of witness with knowledge. Testimony that a matter is what it is claimed to be.
- (2) Nonexpert opinion on handwriting. Nonexpert opinion as to the genuineness of handwriting, based upon familiarity not acquired for purposes of the litigation.
- (3) Comparison by trier or expert witness. Comparison by the trier of fact or by expert witnesses with specimens which have been authenticated.
- (4) Distinctive characteristics and the like. Appearance, contents, substance, internal patterns, or other distinctive characteristics, taken in conjunction with circumstances.
- (5) Voice identification. Identification of a voice, whether heard firsthand or through mechanical or electronic transmission or recording, by opinion based upon hearing the voice at any time under circumstances connecting it with the alleged speaker.
- (6) Telephone conversations. Telephone conversations, by evidence that a call was made to the number assigned at the time by the telephone company to a particular person or business, if (A) in the case of a person, circumstances, including self-identification, show the person answering to be the one called, or (B) in the case of a business, the call was made to a place of business and the conversation related to business reasonably transacted over the telephone.
- (7) Public records or reports. Evidence that a writing authorized by law to be recorded or filed and in fact recorded or filed in a public office, or a purported public record, report, statement, or data compilation, in any form, is from the public office where items of this nature are kept.
- (8) Ancient documents or data compilation. Evidence that a document or data compilation, in any form, (A) is in such condition as to create no suspicion concerning its authenticity, (B) was in a place where it, if authentic, would likely be, and (C) has been in existence 20 years or more at the time it is offered.
- (9) Process or system. Evidence describing a process or system used to produce a result and showing that the process or system produces an accurate result.
- (10) Methods provided by statute or rule. Any method of authentication or identification provided by Act of Congress or by other rules prescribed by the Supreme Court pursuant to

statutory authority.

Rule 1001. - Definitions

For purposes of this article the following definitions are applicable:

(1) Writings and recordings. -

"Writings" and "recordings" consist of letters, words, or numbers, or their equivalent, set down by handwriting, typewriting, printing, photostating, photographing, magnetic impulse, mechanical or electronic recording, or other form of data compilation.

(2) Photographs. -

"Photographs" include still photographs, X-ray films, video tapes, and motion pictures.

(3) Original. -

An "original" of a writing or recording is the writing or recording itself or any counterpart intended to have the same effect by a person executing or issuing it. An "original" of a photograph includes the negative or any print there from. If data are stored in a computer or similar device, any printout or other output readable by sight, shown to reflect the data accurately, is an "original".

(4) Duplicate. -

A "duplicate" is a counterpart produced by the same impression as the original, or from the same matrix, or by means of photography, including enlargements and miniatures, or by mechanical or electronic re-recording, or by chemical reproduction, or by other equivalent techniques which accurately reproduces the original.

UK; Civil Proceedings Rules

Evidence by video link or other means

32.3

The court may allow a witness to give evidence through a video link or by other means.

UK; Practice Direction of the Civil Proceedings Rules

Video Conferencing

29.1

Guidance on the use of video conferencing in the civil courts is set out at Annex 3 to this practice direction.

Annex 3. Video Conferencing Guidance

This guidance is for the use of video conferencing (VCF) in civil proceedings. It is in part based, with permission, upon the protocol of the Federal Court of Australia. It is intended to provide a guide to all persons involved in the use of VCF, although it does not attempt to cover all the practical questions which might arise.

UK; Admiralty & Commercial Courts Guide

H3 Evidence by video link

H3.1 In an appropriate case permission may be given for the evidence of a witness to be given by video link. If permission is given the court will give directions for the conduct of this part of the trial.

H3.2 The party seeking permission to call evidence by video link should prepare and serve on all parties and lodge with the Court a memorandum dealing with the matters outlined in the Video Conferencing Guidance contained in Annex 3 to PD 32 (see Appendix 14) and setting out precisely what arrangements are proposed. Where the proposal involves transmission from a location with no existing video-link facility, experience shows that questions of feasibility, timing and cost will require particularly close investigation.

H3.3 An application for permission to call evidence by video link should be made, if possible, at the case management conference or, at the latest, at any pre-trial review. However, an application may be made at an even later stage if necessary.

H3.4 In considering whether to give permission for evidence to be given in this way the court will be concerned in particular to balance any potential savings of costs against the inability to observe the witness at first hand when giving evidence.

Ireland; Evidence Rule

In criminal proceedings, there are few situations where TV-link evidence will be acceptable:

If a witness lives outside Ireland, in some cases, he or she may give evidence through a live television link

If the proceedings relate to a sexual or violent offence, the judge may decide that any witness (other than the accused) may give evidence through a live TV link

If the proceedings relate to a sexual or violent offence, witnesses under 17 years of age and people with mental disabilities are allowed give evidence by live TV link unless there is a good reason why they should not

When evidence is being given by a child or a person with a mental disability through a live TV link, the judge and the barristers in the court do not wear wigs or gowns. The judge may decide that the questions should be asked through an intermediary (for example a social worker) and that they should be asked in a way that is appropriate for the age and mental ability of the witness.

Video-link evidence may also be allowed in civil cases concerning the welfare of a child or a person with a mental disability. The judge must decide that it is appropriate that the child or person with a mental disability give evidence by a television link and he or she may also decide that the questions should be put through an intermediary.

Australia (Victoria State); Evidence Act 1958

37D. Video link evidence from overseas in certain proceedings

- (1) This section applies to a legal proceeding that relates (wholly or partly) to a charge for an offence against section 49A (1) of the Crimes Act 1958.
- (2) The court may, on the application of a party to the legal proceeding, direct that a witness give evidence by video link if-
 - (a) the witness will give the evidence from outside Australia; and
 - (b) the witness is not a defendant in the proceeding; and
 - (c) the facilities required by sub-section (3) are available or can reasonably be made available; and
 - (d) the court is satisfied that attendance of the witness at the court to give the evidence would-
 - (i) cause unreasonable expense or inconvenience; or
 - (ii) cause the witness psychological harm or unreasonable distress; or
 - (iii) cause the witness to become so intimidated or distressed that his or her reliability as a witness would be significantly reduced; and
 - (e) the court is satisfied that it is consistent with the interests of justice that the evidence be taken by video link.
- (3) A witness can give evidence under a direction under this section only if the courtroom or other place in Victoria where the court is sitting ("the Victorian point") and the place where the evidence is given ("the overseas point") are equipped with video facilities that-
 - (a) enable all persons at the Victorian point that the court considers appropriate, to see and hear the witness give the evidence; and
 - (b) enable all persons at the overseas point that the court considers appropriate, to see and hear appropriate persons at the Victorian point.
- (4) The place where a witness gives evidence under a direction under this section is to be taken to be part of the courtroom or other place in Victoria where the court is sitting while the witness is there for the purpose of giving evidence.
- (5) An oath or affirmation to be sworn or made by a witness who is to give evidence under a direction under this section may be administered either-
 - (a) by means of the video link, in as nearly as practicable the same way as if the witness were to give the evidence at the courtroom or other place in Victoria where the court is sitting; or
 - (b) at the direction of, and on behalf of, the court at the place where the witness is to give the evidence by a person authorised by the court.
- (6) A court may make any orders that are just for the payment of expenses incurred in connection with the giving of evidence under a direction by the court under this section.
- (7) This section does not prevent any other law, or any rule or regulation made under any other law, about taking evidence of a witness outside Australia from applying for the purposes of a proceeding

to which this section applies.

(8) Nothing in this section limits the application of section 37A, 37B or 37C to a charge for an offence against section 49A(1) of the Crimes Act 1958.

Japan; Code of Civil Procedure

Article 204 Examination by Video-link

The court which examines a witness residing in distant place may, as prescribed by the Rules of Supreme Court, examine him/her by such media as a person in the distance place, mutually recognizing the situation of the other party, may speak by transmitting or receiving picture and voice.

Japan; Criminal Proceedings Law

Article 157quater Examination by Video-link

The court may, when it examines persons mentioned in the following, if it deems reasonable, hearing the opinions of the public prosecutor, and the accused, or the counsel, let the witness be seated in a place (limited to a place located in the same premises as the place where these persons are present) other than the place where the judge and persons concerned with the case they are present for the examination of the witness, and examine him/her that the witness is able to talk mutually recognizing the state of the other party through transmission and receiving of pictures and voices.

(1) An injured person of the crimes or attempted crimes thereof under Article 176 to Article 178 inclusive, Article 181, Article 225 (limited to the part pertaining to the purposes of indecency or marriage; hereinafter the same in this item), Article 227 paragraph 1 (limited to the part pertaining to the purposes of assisting a person who commits a crime under Article 225) or paragraph 3 (limited to the part pertaining to the purposes of indecency) or the former part of Article 241 of the Penal Code⁴.

(2) An injured person of the crime under Article 60 paragraph 1 of Child Welfare Law (Law No. 164, 1947) or the crime under Article 60 paragraph 2 of the said Law pertaining to Article 34 paragraph 1 item (9) of the said Law or the crimes under Article 4 through Article 8 inclusive of the Law concerning Punishment of Acts etc. pertaining to Child Prostitution and Child Pornography and Protection of Children, etc. (Law No. 52, 1999)

(3) In addition to persons mentioned in the preceding two items, persons who are deemed to be

⁴ Under the Penal Code of Japan, Article 176 shall be applied to an obscenity by compulsion; Article 177 shall be applied to a rape; Article 178 shall be applied to a constructive compulsory indecency and quasi-rape; Article 181 shall be applied to a compulsory indecency, etc. resulting in death or injury; Article 225 shall be applied to a kidnapping or abduction for profit-making, obscenity or marriage; Article 227 shall be applied to receiving or concealing of kidnapped person; and Article 241 shall be applied to rape on occasion of robbery and the same resulting in death.

in danger of extreme pressure and obstruction of their mental peace when they make a statement at a place where judges and persons concerned with the case they are present to examine a witness depending upon the nature of crime, age, state of mind and body of the witness, relationship with an accused, and any other circumstances.

2. When the examination of a witness is conducted by the method prescribed in the preceding paragraph, the court may, in case of if it considers that such witness shall be requested to make a statement as a witness again in respect of the same fact in subsequent criminal procedures, and if it obtains the consent of the witness, hearing the opinion of the public prosecutor and the accused, or the counsel, record the examination and statement of the witness as well as the state thereof on recording media (that is, media which are able to simultaneously record pictures and voices; hereinafter the same).
3. The recording media which record the examination and statement of a witness as well as the state thereof under the provisions of the preceding paragraph shall be made a part of the written statement attaching the record of trial⁵.

Article 321bis Evidence by Video-link

In the preparation of trial of a case or a criminal procedure other than the procedure on the date of trial or a criminal procedure of other cases, a written statement a part of which constitutes a recording medium which records the examination and statement of a witness and the state which are made by the method as prescribed in Article 157-4 paragraph 1, notwithstanding the provisions of preceding Article, may be used as evidence. In this case, court must, after investigating such written statement, give the persons concerned with the case an opportunity of questioning such person as made statement as a witness.

2. When the written statement is investigated under the provisions of the proceeding paragraph, the provision of Article 305 paragraph 3 proviso shall not be applied.
3. The statement of a witness recorded on a written statement investigated under the provisions of paragraph 1 as well as paragraph 1 item (1) and item (2) of the preceding Article, be deemed to have been made on the date of trial of the case.

⁵ Such recording medium shall be replayed instead of reading around under Article 305 paragraph 3 of the Code of Criminal Procedure.

Reference 2 - Books

Alan M. Gahtan, *Electronic Evidence*, 1999, Carswell, Canada

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