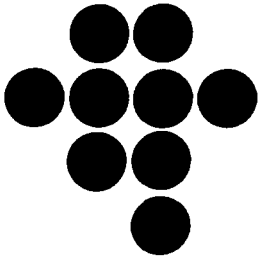


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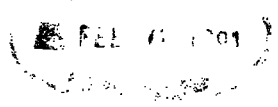


COMMUNICATIONS FORUM

"The Great Caller ID Debate"

December 6, 1990

Seminar Notes



**MASSACHUSETTS INSTITUTE OF TECHNOLOGY
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Dr. Gary T. Marx, MIT, moderator

Dr. Francis R. Collins, CCL Corporation

Dr. James Katz, Bellcore

Elizabeth H. Prodromou, M.I.T., Rapporteur

This session of the M.I.T. Communications Forum brought together two representatives to discuss questions related to the debate surrounding local telephones with "caller ID" and 800 and 900 services with A.N.I. (Automatic Number Identification). The discussion addressed questions such as whose privacy (the caller or the person receiving the call) should receive priority) and whether or not firms should that "capture" phone numbers should be able to use them in any way they want. The speakers also considered some of the positive and negative consequences of communications anonymity, as well as what laws, policy, and etiquette should govern these new communications technologies.

Dr. Gary Marx, MIT, introduced the speakers, both of whom he described as extremely involved in the discussions surrounding what has come to be known as the "caller ID" debate.

The first speaker was Dr. Francis Collins, president of the CCL Corporation. Collins remarked that his main intention was to share some of his experiences in the public switch network in North America, in order to offer a perspective on the evolution in its provision of services. He described these services as multi-faceted, with some being entirely beneficial, some being partially beneficial, and some being very doubtful in terms of the benefits to callers. Collins described himself as an engineer and a technologist, and he proposed to provide a general background on the public switch network as the point of departure for consideration of the caller ID debate.

He outlined the major building blocks of networks in use today as follows: phone sets and other equipment in residences and businesses, which basically are comprised of called customer premise equipment, exchange plant transmission equipment, and subscriber loops - this includes drop lines, connecting boxes, distribution cables, feeder cables, junction boxes, and service cables. The wire centers include the main distribution frame at the central office, and the central office switch. Collins described the subscriber loop as the most ubiquitous part of the telephone network. He noted that the subscriber loop can be provided through a variety of methods, including copper cables and electronic configurations. He also noted that people who covertly interrupt or intercept communications usually do so through the subscriber loop.

According to Collins, the choice between an all copper versus an electronic configuration subscriber loop is an economic issue. The choice is made on the basis of comparing total loop cost to total loop length; this ratio, known as the crossover point, usually determines what sort of subscriber loop is used. Collins explained that, typically, the crossover point is 12,000 feet, with anything less than this using a copper loop and anything greater than this using an electronic configuration loop.

Collins noted that, in the future, subscriber loops may be more frequently provided by using time compression multiplexing. He explained that this method takes a channel and turns it into a full duplex transmission link. He noted that the value in this technology is its ability to provide voice and data channels simultaneously; this capability is a requirement in today's environment, which is moving increasingly toward Integrated Services Digital Network (ISDN).

Collins went on to discuss the switching office. He explained that, historically, the switching office has been primarily used to provide basic service, with calls routed nationally from local office to local office. Collins explained that, due to traffic loading and economic costs, a five level hierarchy of switches developed; using a simple switching algorithm, this system kicked calls up a level whenever there was over-capacity at the previous level. He noted, however, that this sort of routing was somewhat fragile and, while allowing for redundant routing, the total survivability of the system was inferior to that of a digital, non-hierarchical system (DNHR system). Collins explained the the DNHR system uses a different switching algorithm with a higher completion rate of calls in a catastrophic situation and a self-detection system that allows for automatic rerouting and testing of problem routes. Collins noted that information about a call is collected by the local exchange office.

Collins turned to the relation of the public switched network system to the caller ID debate. He argued that, at the most basic level, they are related insofar as these are the technological platform on which the caller ID system is based. He explained that, when a call is initiated at the end office in an

HR scheme, the call is tested to see if a through connection is made and if a receiving line can take the call (this is in-band switching). He noted that the signalling rate is restricted in in-band switching. He also noted that, years ago, plans were made to switch to CCIS (common channel interoffice system). Collins described the CCIS as moving beyond the in-band limitations by using different paths than the trunk route over which the voice or voice band data ultimately are transmitted; in this way, the signalling rate is faster and allows for transmission of large amounts of data. This technology provides the basis for the local area signalling system (LASS) upon which Caller ID depends.

Collins moved on to a discussion of the histories and traditions with respect to subscriber information as maintained by local exchange offices and inter-exchange carriers. He noted that history and tradition says that such information has been authorized by the customers for the purposes of creating proper bills and is restricted primarily to purposes which involve the subscriber directly, as a result of his choice of carrier. The data base and services that are relevant to the discussion of privacy invasion in telephone service include Automatic Identification Number (ANI), the E-911 or 911 Enhanced System, and the CLASS services group, which includes Caller ID. According to Collins, ANI and E-911 have taken on a whole new meaning in the contemporary context. According to history and tradition, these service meant that it was proper, if someone took service from MCI for example, for New England companies to turn the information about their customer calls over to MCI. Collins claimed, however, that ANI services should not be provided to inter-exchange carriers for other than billing purposes; but that this is now occurring, and the information is being sold. Collins indicated that, although there is no evidence that E911 or 911 information is being used by other than authorized emergency service providers, legislation is needed in order to ensure that it will not be sold to others.

In terms of the CLASS services, Collins noted that at issue are services such as return call (with and without notification), selective call rejection or call block with notification, call trace, caller ID (incoming calling line identification or ICLID), and bulk caller ID.

Collins described caller ID and bulk caller ID as "the twine sisters of disaster." These services essentially provide the receiver with indication of the calling line number and in what order calls come in. He noted that, ostensibly, caller ID is meant to be a screening mechanism for the individual, while bulk caller ID offers the same service but is of more use to small businesses. Collins argued that the caller ID system, however, does not identify the calling party but, rather, the calling line. He argued that this difference is a key point in the utility and purposes of the system, and he argued that, on this basis, caller ID is not a service that is ultimately most helpful to the consumer. He maintained that existing services and customer premise equipment accomplish the purposes claimed for Caller ID, do it better, and do so without invading privacy.

Collins closed by remarking that the debate essentially can be characterized around the question "Is Big Brother Coming, or Is He Here?"

The next speaker was Dr. James Katz, sociologist at Bellcore. Katz explained that Bellcore is the research arm of the seven "Baby Bells," and is the developer of the caller ID service. Katz remarked that he was honored to serve on the panel with both Collins and Marx, that latter of whose works he has read for years.

Katz noted that the aim of his presentation was to share his research on the caller ID service and to have a dialogue on the issues surrounding the service. He also noted that his talk would reflect his personal views and not those of Bellcore, although he observed that within Bellcore there are a variety of views on the issues at hand in the caller ID debate.

Katz observed that, when it comes to being a private citizen, every individual has the right to privacy in his own home. He noted that, in his opinion, the right to privacy is the most valuable feature of the caller ID service. Katz claimed that caller ID lets the consumer know who is intruding into his privacy and that it also injects reciprocity into the calling process by achieving access control. According to Katz, in this respect caller ID rectifies the current imbalance in the calling process. Katz also claimed that caller ID gives the caller a degree of psychological preparation in receiving the call; in

support of this claim, he cited studies which have shown that, when the caller sees a phone number in context, there is a 50/50 chance that he will recognize the caller. He reiterated that, in any case, the key feature of caller ID is that it provides reciprocity. He noted that another of its benefits is the ability to help combat obscene phone calls.

Katz observed that, thus far, the caller ID debate has focused primarily on the residential sector. He noted, however, that caller ID is also relevant for the government and business sectors. Katz remarked that, while standards in these sectors are somewhat different from those in the residential sector (for example, government and business have narrower rights to deny access), government and business still do have the right to defend themselves from things like bomb threats and false fire alarms. Katz claimed that caller ID could help them with such problems.

Katz turned to a review of some of the criticisms levelled at caller ID - he noted that Collins had touched on several of these themes. First, caller ID will promote commercial redlining, or the illegal denial of services to an area (e.g. based on minority calls). Katz argued against this possibility and, instead, suggested that caller ID can be an effective means of fighting against discrimination by helping to document and reveal its existence. Second, caller ID hurts equity because it is too expensive. Katz agreed that there is some substance to this argument, since lower income groups might have more difficulty in affording the service. Third, caller ID promotes the development of personal information databases for invidious use against callers and reduces caller ability to make anonymous phone calls.

Katz agreed somewhat with these charges; but he also argued that secret collection and exploitation of personal data is already a problem without caller ID, and he submitted that legislation and other regulatory techniques need to be developed for preventing these negative practices. He emphasized that the problem is the current practices and not caller ID, and argued that the aim should be the development of comprehensive policies to address the use of personal data, regardless of caller ID.

Katz then considered the problem of how to address the legitimate need for caller anonymity. He suggested that there is a wide range of options for dealing with this issue, including call-through lines; per-call block, which prevent the caller's number from being given to the recipient - he noted, however, that this protects the caller and not the recipient, so that the ideal solution would be caller ID; and, block-block, which allows both the caller and the recipient to block calls - the latter blocks if he sees that the caller number is blocked.

Katz stressed that he and Collins agree on the principal issue at hand, namely, the preservation of privacy and other cherished values. He observed that the disagreement is about how to sustain these rights and values. Katz remarked that, in his view, one of the main problems is the lack of good empirical data on the use of telephones in society; there hasn't been much systematic evaluation of this issue. He noted, however, that states which already have implemented caller ID offer great "laboratories" for the collection and evaluation of such information, and he suggested that we should use these states as opportunities for learning more about the real effects of caller ID technology on society. Katz encouraged the members of the audience to consider the ways in which such empirical evidence may be gathered and put to effective use.

Katz closed by noting that technology is constantly changing and that with change comes the need to consider new ideas. He emphasized that, just because something is new, it is not necessarily harmful. In response to Collins' closing question, Katz cautioned people not to panic and not to accept the criticisms levelled at caller ID without first considering the technology's positive possibilities. He commented that, while his research thus far has revealed both the pro's and the con's of caller ID, the former clearly outweigh the latter and point to the ability for managing the potentially negative effects of caller ID. Katz stated that, in his opinion, caller ID represents a technology which, if applied at all levels of society, can promote the democratic ideal of privacy and can help disenfranchised groups such as minorities and women.

Question & Answers

During the first part of the question and answer period, **Collins** responded to some of **Katz's** remarks. He commented that **Katz's** discussion of the privacy issue surrounding caller ID had failed to mention one critical and obvious point: that identification by using a phone number as a surrogate for the caller provides far more information than does identification by name, and that it may be wrong to associate it with the caller. He observed that there are moral and ethical issues involved in this, as well as in other aspects of the caller ID debate. **Collins** commented, for example, that it is inaccurate to represent the debate in terms of a strict prohibitionist stance versus strict laissez faire approach. He stated that the debate now is assumed by the Bell companies to depart from the assumption that caller ID will be delivered; the question now is about how to limit or not limit control for the possible negative effects of caller ID. **Collins** argued that this, in fact, is not the debate at all. He stated that the debate is whether or not caller ID should be mandated and should involve subscriber numbers without their consent. He also raised the question of whether or not the consumer should have to pay for the option of protecting the privacy provided for one hundred years by the telephone. He also supported the criticism that caller ID may lead to redlining.

Collins commented on the statistical information regarding caller ID in the state of New Jersey. He noted that, while **Katz** had used this information to support the positive benefits of caller ID, in fact, this same data could be seen as somewhat clouded; because caller ID was introduced at the same time as many other new telephone services, it is impossible to tell from the data if the supposed improvements were the result of caller ID or of the other technologies. He stressed that what is happening is that technology is being developed as a surrogate identifier - the technology does not identify the caller; rather, it identifies the line. This means that whatever is done with that line is attributed to the owner of the line, even in those cases where the owner was not the user. **Collins** cited this fact as an unacceptable risk associated with caller ID.

In terms of the privacy issue and legislation, **Collins** maintained that the real point should be not to have any type of caller ID at all. He cited as fallacious the notion that per call blocking is a proper mechanism for the phone company to give privacy back to the individual customer without a cost for the service. He argued that the consumer already has privacy without caller ID; blocking is simply a means for restoring a portion of that privacy which was taken away with caller ID. He argued, moreover, that all the alternatives for bypassing caller ID involve greater expense to the customer. Finally, **Collins** observed that the purveyors of caller ID are lobbying at the local, state, and federal levels for new legislation favorable to achieving their objectives through the use of caller ID technology.

Collins remarked that the operating companies want caller ID so that they can provide digital signalling down to the telephone set, an operation which they cannot do under current regulations. Currently, the operating companies can transmit information but they cannot change information.

Katz reiterated his view that caller ID, if properly utilized and regulated, will only serve to empower the user.

The first questioner identified himself as a sociologist, and on that ground took issue with **Katz's** use of etiquette as offering an appropriate model for considering issues associated with caller ID. He noted that etiquette has to do with social discourse, not with commercial communication, and observed that justifications for caller ID seem to be just another case of finding a market for an already developed new technology. He suggested that Bellcore labs might be interested in caller ID because it offers a mechanism (through telemarketing) with enormous potential financial rewards.

Katz responded that, in fact, no one has asked him to research caller ID. He has chosen to consider the debate because of his own interests, not because of the marketing and financial mandates of Bellcore. In terms of using etiquette as an appropriate model for framing the debate, he suggested that a phone call is a form of reciprocal relationship and, as such, it is valuable to consider other social norms which relate to reciprocal relationships.

The next questioner agreed with **Katz's** concern regarding obscene phone calls. However, he suggested that the issue of privacy was only selectively considered in **Katz's** presentation since, after

all, freely made phone calls into the home are also a form of unfettered invasion of privacy.

Collins agreed, and commented that caller ID is not the only means for protecting privacy. He suggested that there is a variety of other mechanisms, including answering machines.

The next questioner remarked on the fact that none of the caller ID proposals offered any possibilities for helping the receiver to identify business or telemarketing calls. He suggested that this raises serious questions about the genuine concern of the operating companies in trying to help consumers protect their privacy. He also raised the issue of patient privacy rights and the associated risks of with caller ID.

Katz responded to the first point by noting that caller ID is simply a first step in the process. He claimed that there are options under consideration for revealing the caller and not simply the phone number.

The next questioner observed that the caller ID debate must be viewed in its institutional context. He noted that, in his opinion, the caller ID debate represents a ragged-edged violation of trust by the telephone companies recently unleashed in deregulated markets and responding to the enormous pressures of economic entities (e.g. American Express). He opined that the public is not ready for caller ID and that the operating companies, in unleashing a potentially dangerous technology, are acting in a fashion somewhat between naivete and malice. He suggested that the operating companies were acting in response to pressures from amoral, powerful economic entities which have shown their willingness to manipulate personal and private information for economic gain.

Katz responded that there is a difference between ANI, which works with 800 and 900 numbers, and caller ID, which is mainly designed for consumers. He reiterated his agreement with the statement that there is an enormous problem with the use of personal data in this country.

The next questioner remarked that, in terms of the possible benefits of caller ID as a means for reducing the number of obscene phone calls and bomb threats, this benefit of the technology can be undermined in those cases where such calls are made from public telephones. He also noted that, once people are knowledgeable about how to circumvent caller ID protection, they will be able to manipulate the system. He summarized by noting that, given these qualifications, he views these justifications of caller ID as a marketing device by the operating companies who want to sell a new service.

Collins agreed with these observations and noted that, already, Bell Atlantic itself has recommended no less than six technologies for bypassing caller ID, all at extra cost to the consumers. He described caller ID as ill-designed like most of the CLASS services, and he cited it as an example of the operating companies abrogating their social responsibilities.

Katz restated his view that, while caller ID will not solve all the world's problems, it does offer some assistance to the consumer in his attempts to protect his privacy.

CALLER-ID & INFORMATION CONTROL

New IT changes balance of knowledge in phone call

Does it violate Constitutional rights?

Who should control caller's identification?

RIGHT TO PRIVACY: ACCESS CONTROL

RESIDENTIAL SETTING

We have a right to know who is entering our home

ACCESS CONTROL: RESIDENTIAL

“ A person who wishes to be admitted to another’s home, even electronically, should be expected to identify himself...”

Judith Martin (“Miss Manners”)

ACCESS CONTROL: RESIDENTIAL

“ **Y***ears ago* common courtesy clearly defined as one of the unwritten laws on telephone etiquette that the caller shall explain to the person answering the telephone call that ‘This is John Doe talking.’ ”

RIGHT TO PRIVACY: ACCESS CONTROL

BUSINESS AND GOVERNMENT

Rights to control access weaker

Provisions necessary for caller anonymity to hotlines, etc.

Free choice desirable:

- businesses protect selves
- callers get convenience

CALLER ANONYMITY AND DATABASE BUILDING

Secret collection/exploitation of personal data undesirable

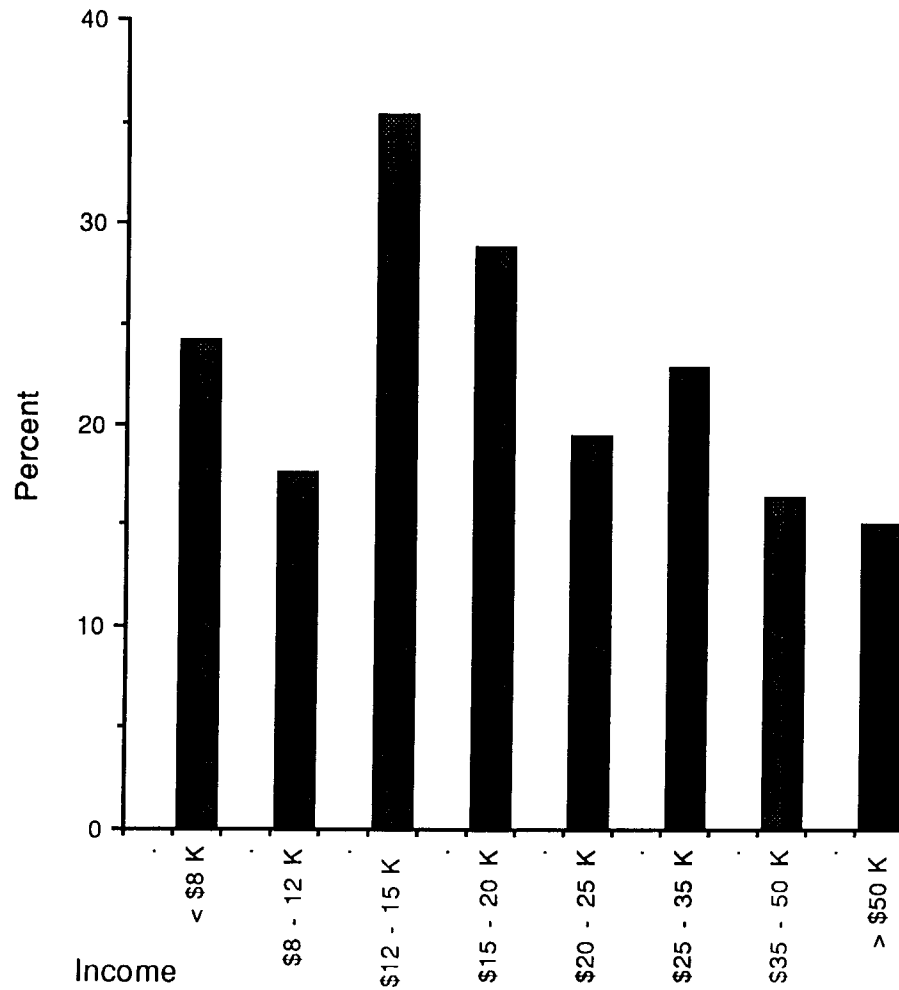
- It's occurring now
- Topic needs attention
- Current practices, not Caller-ID, are the problem

CALLER—ID RED HERRINGS

Critics say Caller-ID:

- hurts equity

Unlisted Number Subscription by Income



CALLER—ID RED HERRINGS

Critics say Caller-ID:

- promotes red-lining

PLETHORA OF DEPLOYMENT OPTIONS

Call-through lines

Prefixes without Caller-ID

Two-number options

Per-call block

Block-block

Name or alias announcement

Credit card or operator assists

NEEDED: VALID EMPIRICAL EVIDENCE

Issue has not received systematic evaluation

States provide ideal laboratories for comparison

Cheap, easy to measure

Results would help us pick the best policy

CONCLUSION

We have successfully faced a variety of technologies before

Service can offer major benefits with minimal risks

Caller-ID readily manageable

Empirical evaluation would yield important data

“I cannot emphasize strongly enough how helpful and courteous it is to give one’s name as soon as the person at the other end answers your call . . . When a woman or a child is alone in the house, [learning the caller’s identity] is not a matter of courtesy—it is a matter of safety.”

Emily Post’s Etiquette:

UNDERSTANDING NEW TECHNOLOGY

Rule # 1: Don't Panic

UNDERSTANDING NEW TECHNOLOGY

“
assembled all mankind upon one great plane, where they can see
everything that is done, and hear everything that is said...”

Crime Victimization by Income

