TELECOMMUNICATIONS AND NUMBERING

SOME FUTURE REGULATORY ASPECTS

For regulatory purposes, a distinction is often made between voice and data services; but most networks are transparent to the information that they carry, provided that it is present in the correct format. In practice, telephony networks often carry data (e.g. fax), but data networks are usually confined to data alone[1].

The introduction of competition creates some important numbering issues, including:

– The need for independent administration or control of numbering allocations to ensure that numbering is not used in an anticompetitive manner.

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– The need to introduce methods by which subscribers can select particular trunk or international carriers. When there is no local competition and the local operator is independent of the trunk and international operators, selection can be left to the local operator; but when this is not the case, the subscriber will need either to instruct the local operator permanently about his choice of carrier or to indicate his selection on a call-bycall basis, using a prefix. This issue is further complicated by access security, if the subscriber is billed by networks to which he is not connected directly: either a secret access code has to be used to prevent fraudulent access, or the local network has to pass on the calling line identity of the caller. Questions of equal or fair access arise, if the numbering arrangements favour any particular trunk or international operator.

– The need to provide portability[2] of numbers between competing operators in a local area so that subscribers can change from one operator to another without having to change their number. This portability requires the competing local operators to have access to common data bases for routing. If this portability is not provided, subscribers who wish to change operator but need to keep their existing numbers have to retain lines from the former operator for the delivery of incoming calls.

Data networks and competition

The competition issues for data networks are slightly different from those of voice networks, because the numbering or naming is structured more in terms of the identity of the service provider rather than the location of the subscriber. Portability is again a major issue, but the solutions are different; portability between service operators in X.121 could be provided only by allocating Data Network Identification Code (DNIC) to subscriber networks, but there are not enough DNICs to do this. In message handling services a 'space' convention has been introduced, whereby the Administration Management Domain (ADMD) name is replaced by a single space in countries that operate the convention. To date only the UK has decided to operate the space convention[3] – in a manner that is defined in BS 7521. Because the space convention absolves users from having to specify the ADMD, their records do not have to be changed when the ADMD is changed; this gives flexibility in making temporary or permanent changes to the service provider.

Personal numbering and universal personal telephony

A radical new approach is to consider numbering people. This would mean that all the members of a household would have their own number instead of sharing the exchange line number. Both ITUT and ETSI (NA7) are studying the development of a 'personal' numbering service known as Universal Personal Telephony (UPT). Customers will be allocated their own personal UPT number. Wherever the subscriber travels within the area in which UPT is provided, he can register his presence with a fixed or mobile terminal and have incoming calls directed to that terminal. He can also make outgoing calls and have these calls charged to his account. This recommendation specifies that the UPT number should

AND THE FUTURE?

♦ In some respects it is particularly difficult to predict the future of numbering, but in other respects it is easy. One can at least predict with confidence that there will be no reorganization that will change every aspect of everyone – as number: even radical changes will have to be introduced with the minimum immediate disruption.

♦ Numbering is increasingly being recognized as a very important issue both for the convenience of the subscriber and the development of competition between service providers. Thus numering[4] is likely to become a major subject for debate within Europe and within ITUT.

conform to E.164 and outline three scenarios: local, national and international allocation and registration of the subscriber – as number.

Calling line identity (CLI)

ISDN offers the supplementary service of providing to the called party the number (CLI) of the caller. This information is potentially of considerable use, especially in a business context, where the number can be used to trigger the display of information about the caller, e.g. the state of his account, in order to facilitate the handling of queries or the placing of orders. However, the availability of CLI is of major concern as a civil rights issue and is likely to be the subject of privacy or data protection legislation in many countries. There is a growing consensus that callers should be able to suppress the presentation of CLI.

Numbering schemes administration

Because of the development of competition, the administration of numbering schemes has become a major issue. In the past, numbering schemes have been administered by the monopolistic PTT, but where competition is introduced, there is a need to ensure that numbering schemes are structured to facilitate competition and that the allocation of numbers is fair and unbiased.

Regional and global numbering schemes

A Pan-European numbering scheme (proposed by the European Commission) would use a new country code for Europe as a whole. This would be an optional alternative to national country codes. Such a scheme could

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be attractive for organizations or services which are Pan-European and require numbers that are independent of any particular country. A prime example is a Pan-European freephone service. However, although the concept is superficially attractive, the demand and prospective benefits of a Pan-European scheme do not appear to be as great as might be expected; and where there is a clear demand, the real requirement is for a global rather than a European scheme, although a European scheme would be a good stepping stone towards a global scheme.

ZUSAMMENFASSUNG

Telekommunikation und Numerierung

Für regulatorische Zwecke wird oft zwischen Sprach- und Datendiensten unterschieden, aber die meisten Netze sind für die übertragene Information transparent, vorausgesetzt, das diese im richtigen Format vorhanden ist. In der Praxis übertragen Telefonienetze oft Daten (z. B. Fax), während Datennetze gewöhnlich einzig für Daten bestimmt sind. In gewisser Hinsicht ist es ausgesprochen schwierig, die Zukunft der Numerierung vorauszusagen, in anderer Hinsicht ist es einfach. Man kann zumindest zuverlässig voraussagen, dass es keine Reorganisation geben wird, die alle Nummern in jeder Hinsicht ändern wird: Auch radikale Umstellungen werden mit möglichst wenig direkter Unterbrechung einzuführen sein. Es wird zunehmend erkannt, das die Numerierung sowohl für den Komfort des Benützers als auch für die Entwicklung des Wettbewerbs zwischen Dienstanbietern einen wichtigen Faktor darstellt. Deshalb ist anzunehmen, dass die Numerierung zu einem der Hauptgegenstände künftiger Diskussionen in Europa und in der internationalen Fernmeldeunion ITU wird.

[1] Competition in voice networks has existed in the USA for trunk and international services, but not for local services, for over a decade. Competition was introduced in the UK in the early 1980s and is being introduced in Japan, Sweden, Australia and New Zealand.
[2] Ironically, although portability is a solution to the problem of competition between networks, portable numbers would normally have to contain some information on the location or identity of the data base on which the subscriber's information is held. Thus the subscriber is tied through his number to the operator of the data base, and the problem of competition between network operators has been exchanged for the one between data base operators.
[3] A number of countries consider it unworkable until problems relating to billing and nondelivery messages are solved.
[4] Personal numbering is expected to be introduced in several countries during 1995 through the UPT service based on intelligent networks (IN). In the long term, IN should provide a very flexible framework for numbering, but the problems of the administration and updating of data bases will be the main constraint.