

BOOK REVIEWS

Intelligent Networks

by Jan Thörner

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Dana Trifanescu received the Diploma Degree in Computer Science from the Polytechnical Institute of Bucharest in 1977. Since then she has been working at the Research Institute for Informatics. At present she is a senior researcher and is working towards obtaining a doctoral degree in applied informatics. Her main current scientific interest is in computer networks (mainly in presentation and application layers protocols, theoretical models, and specific formal languages and software tools used at application level).

The concept of "*intelligent networks*" (IN) discusses a new approach to the development of improved services in worldwide telecommunication networks.

It was in the 80ies when technological advances among which SPC (stored program control) exchanges, digital transmissions, complex signalling systems were the most important, concurred in creating this concept.

The concept was produced by ETSI (European Telecommunication Standardisation Institute) and ITU-T (International Telecommunication Union). In 1993 the ITU-T Q.120x recommendation series included the model description. On implementing it, we are faced, as the author says, with "more a new way of thinking or of structuring than a new network".

Intelligent networks are viewed under multiple aspects: theoretical issues, implementation strategies and trade-offs, user related aspects. An overview could only come from an author with a prodigious professional experience, which Mr Jan Thörner certainly has (he holds a Master of Science degree from the Royal Institute of Technology in Stockholm; he is working at Telia

(formerly Swedish TeleCom) as the responsible for co-ordinating research activities for services and related areas, intelligent networks among them; he is also the Swedish project leader in the intelligent network co-operation including the Netherlands, Switzerland and Sweden).

Chapter 1 is concerned with the problem of how an existing telephone network would support the building, operating and using IN.

Chapter 2 includes the four-plane structure of the IN conceptual model (complying with the ITU-T recommendations), namely:

- the service plane (the users' view on IN: a collection of services, each of them offering specific "service features");
- the global functional plane (a fully specified set of Service- Independent Building Blocks (SIBs), that can be chained together by each service's specific global logic)
- the distributed functional plane (a collection of Functional Entities (FEs), of which thorough description and functional specification apply in physical realizations; FEs co-operate through information flows)
- the physical plane (the description of the mappings between FEs and the Physical Entities (PEs) that implement the functionality of IN in a physical communication network).

This chapter also addresses the concept applicability in several networks, its implementation steps, and the evolution of the IN.

Chapter 3 dwells upon some functionalities of present communication platforms that IN should also not dismiss. Special attention is paid to the signalling systems, mainly to the Common Channel Signalling System No. 7 (CCSS No 7); a service implementation example (for the freephone service) comes to reveal the advantages of using CCSS No. 7. The network management functions are also invoked. Telephone traffic theory specific application to the INs is accounted for.

Chapter 4 is dedicated to the INs exploitation in services today. First a list of the most representative conventional non-IN services (abbreviated dialling, automatic alarm call, call completion to busy subscriber, call forwarding - unconditional or with condition, etc.), is provided. Then the services required by the IN conceptual model, are described and some IN implementation services are added. All the above are supplemented by IN-based services featuring like: basic functionality features, value-added features, and finally features for advanced / customized services.

Chapter 5 explores hazards and threats associated with INs: an increased dependence of the users on sophisticated and eventually highly-centralized services, a too large and difficult to co-ordinate variety of services (due to their rapid deployment), a decrease in the security and reliability of the network (mainly due to the introduction of customer controlled facilities). Some solutions to these problems are suggested.

Chapter 6 introduces service demands of the future. Society way of progress, and the impact on the IN services, are considered. The most important forecasts in the services area will show to a wider range of services, possibly customized ("tailormade"), an increased mobility, non-real-time communication, more wireless terminals, increased security and reliability, enhanced identification and billing facilities,

user-friendliness of terminals, broadband access, and multimedia presentation. How all these will affect the IN evolution can hardly be ignored and the author is quite aware of this. Related service administration and management topics considered are: the development of tools for service prototyping, testing and supervision, the evolution of customer's control capabilities, the charging and billing mechanisms, the internetworking problems of different services.

Chapter 7 evaluates the communication networks optimal architecture so that the needs of all the users of the IN services should be met (three categories of users, each one with its specific requirements, are thought of: service users/subscribers, service providers and network operators). Several traffic demands patterns and corresponding network traffic solutions are presented. The weight of the network structure new tasks and the problem of "network economy" (in terms of allocation and optimisation of resources) are equally important.

Chapter 8 resumes the questions of the first chapter, attempting at answering them within the specific context of the intelligent networks.

The book is especially interesting for the specialists in the telecommunication field. The importance of a telecommunication network in several domains of activity is a matter of full agreement by large categories of readers (the community of computer networks specialists or advanced users can be paralleled).

The IN concept is well-structured and no person having general knowledge of the telecommunication field will feel handicapped when reading this book.

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