



Newsletter on the
Latest Technologies
Developed by RTRI

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The Information Infrastructure in RTRI

Mikio TANAKA

Director, Information Management Division

The basic service of our group, the Information Management Division, includes provision and operation of the information infrastructure in RTRI. In recent years, RTRI has restructured the in-house office automation systems to expand our support of the information system for research activities and various types of administrative work for staff members. We have specifically pursued enhancement of the ability to refer to previous research topics and published papers, to carry out searches and to reuse a variety of references for writing research papers, as well as enhancement of other functions and similar activities.

Further, RTRI has been operating computers capable of high speed and parallel calculations (supercomputers) since 1993, and these can be shared for sophisticated analyses and simulations. We update the computers with new models every three or four years to take account of the increasing computation demands and to keep pace with progress in computer technology. We upgraded the system last year to a much faster one with greater capacity. In terms of throughput, the new model has remarkably increased capacity with about sixteen times as much capacity as the former model and about 5,000 times more capacity than the system used in 1993.

As the situation surrounding the railway industry has changed, the demands placed on the railway have become more diverse. Not only are there demands for improvements in reliability, safety, convenience, and similar fields, but also for improvements in the environment along railway lines, for a contribution to global environmental issues, and more besides. Future expectations call for us to take advantage of computing power in a wide range



of applications, including the definition and assessment of aerodynamic sound and other noise generation mechanisms when a train is running, the development of measures to reduce noise, to clarify the complex dynamic movement of rolling stock, to simulate structures and the behaviour of trains during an earthquake, to calculate the forces exerted on passengers during accidents, and to analyse the flow of passengers in stations and larger areas. RTRI owns a wide variety of test facilities. We are keen to contribute to research and development work to achieve superior research outcomes by combining data obtained from experiments conducted at our facilities, data measured in the live railway environment and the results of theoretical calculation and simulation using the supercomputers.

Micky Tanaka