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Feature

Current Condition and Future Prospect of Network in the S-MAC Plant

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1. Introduction

A new network system has been introduced into the S-MAC Plant to promote solution business and complement the key computer system. This paper gives an overview of the system.

2. Host terminal system

A computer system consisting of a host computer and terminals was mainstream until some time ago. This system is called the Electronic Data Processing (EDP) system or the Information System (IS). In response to the host computers' demands, one was forced to enter an incessant series of data from the keyboard and, as a result, the world of information processing was not very pleasant. A new system developed on the basis of soul-searching, resulting in the conclusion that ″ people were not born to become slaves to computers, ″ is the client-server system. Fig. 1 illustrates the typical traditional system and the new system. When illustrated in the diagrams they look very similar, but the major difference is that the computer and its user have reversed their positions. One can safely say that this change in values has brought about the age of IT.

3. Client-server system

The new system was first used to downsize overdeveloped computer systems, so as not to do anything bigger in scale. During the past few years, this system has brought about revolutionary changes in the world of information. The spread of personal computers, the quick growth of the Internet, and the rapid spread of the i-mode cellular phone have been due nothing less than public acceptance of this change in thinking. Also, information (data) has become accessible to anyone, at any time, and anywhere via a network, and the new system has destroyed even the borders of the industries. The term, ″ client-server system, ″ reminds people of a closed world that can be called a ″ computer system ″ or an ″ information system. ″ People needed a term

that evoked a more open image and began to use the term ″ Information Technology ″ (IT), which did not make them think of a particular genre called the computer.

4. Plant in the age of IT

With the arrival of IT, the Control Systems Division has put a new plant into operation, a plant that pays attention to the ″ flow of information. ″ It is a system integration plant for solution business. The plant is equipped with a Software Management Center (″ SMC ″), which is a server to manage software.

4.1 Image of the S-MAC Plant as viewed from the network

Fig. 2 shows the image of the S-MAC plant as viewed from the network, including future schemes.

4.2 Layout of the S-MAC plant

Fig. 3 shows the layout of a plant running in the phase 1 works.

4.3 Software Management Center (SMC)

A network system and SMC were introduced in the phase 1 works as an infrastructure for the age of IT. To set up all facilities including the final system requires phases 2 and 3 of the works (system development). Fig. 4 shows a system configuration of the SMC including a scheme for the future.

4.4 SMC functions and ″ S-MAC ″ station

After-sales service for system products is available as an important function of the SMC. This service makes a knowledge base to be required in maintenance, as early as in the manufacturing and shipment stages. Remote service and system adjustment and inspection require a real-unit simulator. A simulator is made ready for each system ordered as early as at the time of development. The area called the S-MAC station in the Plant layout shown in Fig. 3 is the location of the simulator. About 20% of the current S-MAC plant is assigned as a simulation area.

5. System integration and e-commerce of S-MAC components

To make system products, an ″ S-MAC plant ″ was launched as a plant emphasizing the processes of ″ machining, assembly, and inspection ″ following the manufacturing process. As compared to the ordinary sales of components, solution business is based on acceptance, after-sales service and other later processes as the key. To implement the later processes efficiently according to the flow of solution business (as shown in Fig. 5), a mechanism (function) was provided as described below.

① A function of installing software from a server

② A function of performing system and shipping inspections with a simulator and managing such inspections

③ A function of providing after-sales service for systems with the remote maintenance techniques on the basis of history control data for the server.

Besides the perfection of these functions, other efforts are under way. These efforts are made in a new service for skilled customers who wish to perform system integration on their own. The company launched the sale of ″ S-MAC Components ″ on the Internet. (The only country where e-commerce is performed for this business is now the USA, for which Automation Intelligence.Inc. Company gives support. Support inside Japan is under planning.)

The URL is http://www.MotionOnline.com.

Fig. 6 shows the home page of MotionOnline.com. For its contents, access the site directly on the Internet and check it.

6. Conclusion

This paper has been prepared from the viewpoint of networks, on the basis of ″ A plant Visit, Control Systems Division ″ on the Main Theme magazine, Quarterly

Regarding the implementation of the future scheme, particularly concerning application software for the SMC, the future procedure of development will be the key. Each item of operation software will be outlined every time each such item has been system-designed and proved in operation to some degree.

Glossary

- IT (Information Technology)
  How should one use personal computers, the Internet, cellular phones, and other information equipment that has become popularized quickly? It is becoming necessary to review such items systematically including the software. Also needed now is a designation that refers to this concept but beyond the borders of particular industries. Software, hardware and systems are generically referred to as IT.

- SMC (Software Management Center)
  This is a Linux server reserved for the S-MAC plant . Not only does it play the role of a database for the software required in the manufacturing process, but it is also a knowledge base for a remote service.

- Simulator
  This is indispensable for adjusting systems incorporating software. The simulator incorporates software for functional inspection and performs a functional check of a controller without connecting it to real machinery.

- Remote service
  With the spread of the Internet, maintenance techniques using a PC have become popular. This can now be made a reality as part of an IT system by installing a small server such as the SMS-10 at the site.

- E-commerce
  This refers to business-to-business trading and consumer-oriented online business based on the Internet. E-commerce is also known as electronic commerce.

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Control Systems DivisionWorked on development of “S-MAC” systems

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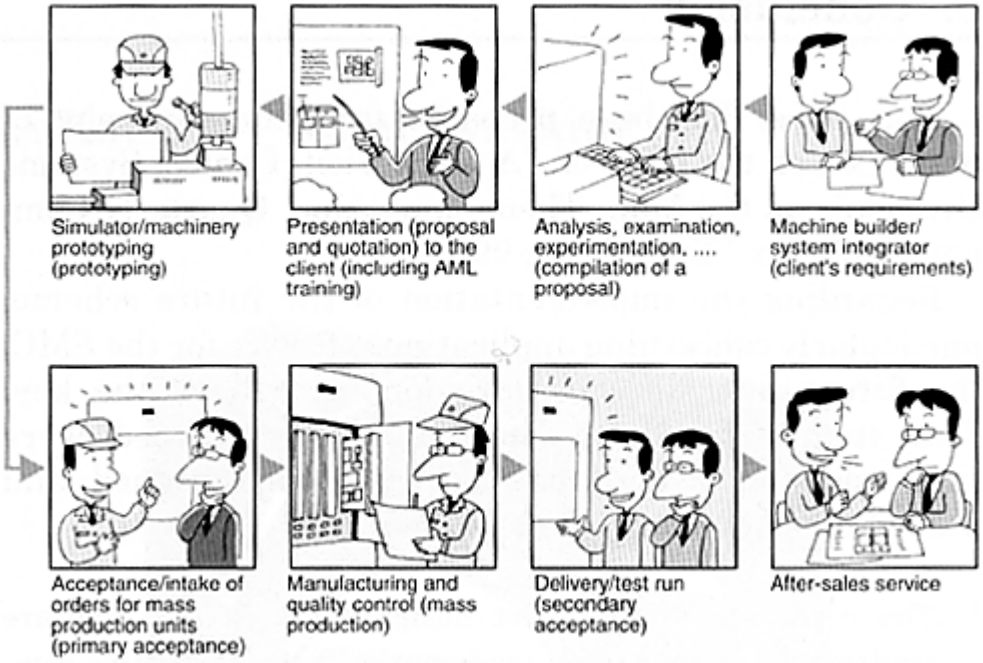

Fig. 5 Flow of solution business

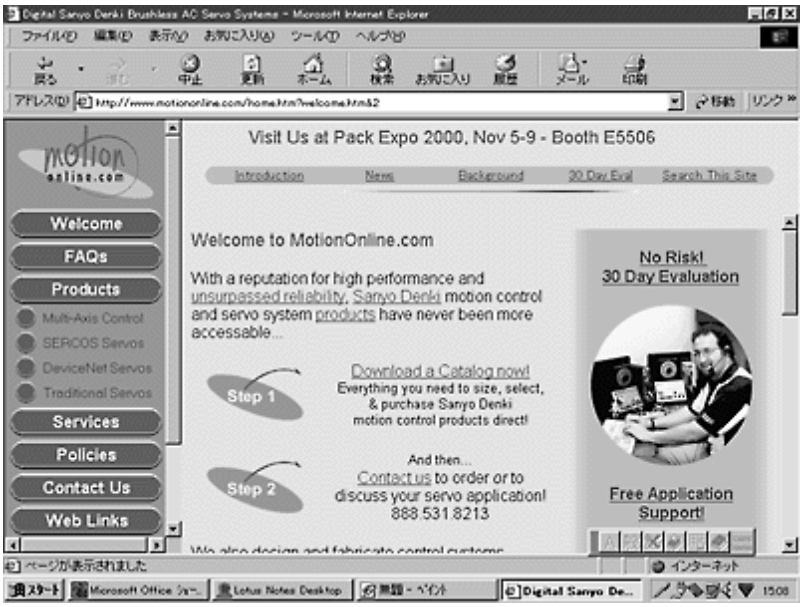

Fig. 6 Home page of MotionOnline.com