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(54) Title (EN): METHOD FOR LOADING USING DISTRIBUTED SYSTEM  
STARTUPLOADER IN PRIVATE BRANCH EXCHANGE

(54) Title (KR): 교환기에서 분산 시스템 시작 로더를 이용한 로딩 처리

20 방법

**【Abstract】**

The present invention relates to a loading processing method using a distributed system startup loader in an exchanger. The loading processing method is

5 characterized by including the steps of: (a) transmitting, by a booter of a device in the exchanger, a loading request message to a system startup loader built in a system management processor; (b) determining, by the system startup loader, whether the device that has transmitted the loading request message is a device processor or a data control device when the loading request message in step (a) is received; (c)

10 determining, by the system startup loader, whether an SSP to which the device processor or the data control device belongs is either operating or starting up when the device that has transmitted the loading request message is the device processor or the data control device in step (b); (d) delivering, by the system startup loader, the loading request message to a distributed system startup loader in the SSP when the

15 SSP is either operating or starting up in step (c), and transmitting, by the distributed system startup loader, a response message responding to the loading request in step (a) to the booter; (e) transmitting, by the distributed system startup loader, program block header information to the booter when a message for requesting the program block header information is received from the booter; and (f) transmitting, by the

20 distributed system startup loader, a program block to the booter when a message for requesting the program block is received from the booter, and transmitting, by the distributed system startup loader, a loading end message for one block. With the method according to the present invention, it is possible to prevent an overloading of a system management processor and block a loss of IPC by distributively processing

a loading for a device processor and a loading for a data control device by using the distributed system startup loader, thereby securing enhancement of the entire exchanger loading speed and stable execution of application program blocks

**【Representative Drawing】**

5 FIG. 5

**【Keywords】**

Keywords: distribution, system startup loader, exchanger

**【Disclosure】**

**【Brief Description of Drawings】**

10 FIG. 1 shows a loading system configuration of a conventional exchanger.

FIG. 2 shows a configuration of a loading system using a distributed system startup loader according to a preferred embodiment of the present invention.

FIG. 3 is a flowchart showing a loading procedure of each of a system startup loader and a booter in a conventional exchange system.

15 FIG. 4 shows a flowchart of operations of a system startup loader and a booter according to a preferred embodiment of the present invention.

FIG. 5 is a flowchart showing operations of a distributed system startup loader and a system startup loader according to a preferred embodiment of the present invention.

**【Detailed Description of the Invention】**

20 **【Objective of the Invention】**

**【The art to which the present invention pertains and related art thereof】**

The present invention relates to a loading processing method using a distributed system startup loader in an exchanger, and more particularly, to a loading processing method capable of solving a problem in which a system management processor assigns loads to all associated devices during loadings by installing a distributed system startup loader in a switching subsystem (hereinafter referred to as "SSP").

FIG. 1 shows a loading system configuration of a conventional exchanger.

As shown in FIG. 1, the loading system configuration of the conventional exchanger includes a system management processor 11, a hard disk drive 17, a plurality of port management assemblies 12, a plurality of main processors 13, a plurality of SSPs 14, a plurality of device processors 15, and a plurality of data control devices.

Only the system management processor 11 is directly connected to the hard disk drive 17, which stores blocks needed to be loaded. The other devices may be connected to the hard disk drive 17 through inter-processor communications (hereinafter referred to as "IPC"). In FIG. 1, solid lines indicate paths for loading requests. As shown in FIG. 1, conventionally, all loading devices request blocks needed to be loaded through the system management processor. A system startup loader, which is a loading server, is built in the system management processor to transmit the needed blocks to a loading device that has requested the blocks. A loading process will be described in detail below.

First, a booter of each of the SSPs 14 or the main processors 13 requests a block needed for a processor startup from the system startup loader of the system management processor. When the request is received, the system startup loader

determines from which device the request is transmitted and transmits an appropriate block to the device. In this case, each of the main processors 13 or the SSPs 14 receives a program loader, program loading data, an operating system (OS), and a shell, which are blocks suitable for the processors, from the system startup loader.

5 When the main processors and the SSPs start up through the above method, each of the data processors 15, the port management blocks 12, and the data control devices 16 transmits a loading request to the system startup loader and receives needed firmware and OS application program blocks from the system startup loader.

FIG. 3 is a flowchart showing a loading procedure of each of a system startup loader and a booter in a conventional exchange system. The loading procedure will be described in detail below with reference to FIG. 3.

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A booter in a device transmits a loading startup notification message to the system startup loader in the system management processor (S300). When the loading startup notification message is received (S301), the system startup loader transmits a response message responding to the loading startup notification to the booter that has transmitted the loading startup notification (S302). When the response message responding to the loading startup notification is received (S303), the booter transmits a message for requesting program block header information needed for the loading to the system startup loader (S304). When the message is received, the system startup loader transmits the program block header information to the booter (S305). When the header information is received, the booter requests a program block corresponding to actual program content from the system startup loader (S307). The system startup loader receives the request from the booter (S308). The system startup loader transmits the program block to the booter (S309),

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