Research on Service-Oriented Software Systems and Computer Software and Intelligent Calculation Method

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Abstract. For the existing service-oriented software single, favors business processing, cannot guarantee the software business processing into the development of software. When the operator encounters operational problems, software failure problems and other problems related to software operation and operation, software development technicians to provide technical support to ensure the software's business processing functions. This study will move away from dependence on other software and provide technical support to business software operators accurately and in a timely manner to effectively solve the problems that operators may encounter.

Keywords: Service oriented software, Service request, Software system, Software service method.

1. Introduction

Service-oriented software is a kind of software that provides business processing functions for operators. The existing software is relatively single, and it is functionally biased towards business processing, and does not incorporate how to ensure the business processing of the software into the software development. When operators encounter problems related to software operation and operation such as operational problems, software failure problems, etc., they usually report the problems to software development technicians, who will provide technical support to ensure the business processing functions of the software. [1-9] Most of the existing methods of providing technical support implement fault reporting and remote control through other software to ensure the normal operation of the software. However, this method is highly dependent on other software, and it is often unable to timely and accurately solve various problems that operators who use business software may encounter at any time.

In response to the above problems, a service-oriented software system and software service method will be studied to get rid of the dependence on other software, can accurately and timely provide technical support to the operators of the business software, and effectively solve the various problems that the operators may encounter.

2. Research on Software Service Method

The software service method includes: the service request system client obtains the service request of the software operator and turns it into the activated state; the service processing system access terminal starts and transitions to the waiting state; the service request system client obtains the
connection of the service processing system access terminal Input parameters and send the service request carrying the access parameters to the service request system server; the service request system server receives the service request carrying the access parameters and displays the access parameters; the service processing system initiator is used to communicate with the service request system according to the access parameters The access terminal of the service processing system establishes a connection to transmit technical support services to the computer of the software operator.

After the service request system server receives the service request carrying the access parameters and displays the access parameters, the initiating end of the service processing system is used to establish a connection with the access end of the service processing system according to the access parameters, so as to communicate to the computer of the software operator Before transmitting the technical support service, it also includes: the service request system server sends the service request carrying the access parameters to the service processing system initiator.

After the service request system client obtains the service request of the software operator and turns it into the activated state, before the service processing system access terminal starts and transitions to the waiting connection state, it also includes: the service request system client accesses the service processing system The terminal sends a start signal.

Therefore, in this method, after the service request is initiated, the access terminal of the service processing system immediately enters the waiting state for connection, and then the client of the service request system sends the service request with access parameters to the server of the service request system, and the technical support personnel can follow the connection The input parameter establishes a connection between the service processing system initiating end and the service processing system access end to directly provide technical support services. The service-type software system and software service method embed the technical service part into the software, thereby avoiding dependence on other software, and improving the timeliness and accuracy of technical support.

3. Service-oriented software system architecture

The service system is composed of a business software system, a service request system, and a service processing system. Among them, the service request system includes: a service request system client and a service request system server, and the service processing system includes: a service processing system access terminal and a service processing system initiator.

The business software system, the client of the service request system, and the access terminal of the service processing system are installed on the computer of the software operator; the initiating terminal of the service processing system is installed on the computer of the technical support staff; the input terminal of the server of the service request system and the service request system The output terminal of the service processing system is connected; the output terminal of the initiating terminal of the service processor system is connected with the input terminal of the access terminal of the software operator.

The service processing system access terminal is used to start when the software operator has technical support needs and enters the waiting state; the service request system client is used to start when the software operator has technical support needs and send the carrying information to the service request system server The service request for the access parameters of the service processing system access end; the service request system server is used to receive the service request and display the access parameters of the service processing system access end; the service processing system initiator is used to process the access parameters of the system access end according to the input The access parameters establish a connection with the access terminal of the service processing system to provide technical support services to the computer of the software operator.

The service processing system access terminal is used to start when the software operator has technical support needs and enters the waiting state; the service request system client is used to start when the software operator has technical support needs and send the carrying information to the service request system server The service request for the access parameters of the service processing
system access end; the service request system server is used to receive the service request and display the access parameters of the service processing system access end; the service processing system initiator is used to process the access parameters of the system access end according to the input. The access parameters establish a connection with the access terminal of the service processing system to provide technical support services to the computer of the software operator.

The service request system server and the service processing system initiator are located on the same computer. The service request also includes the content of the service request filled in by the software operator; the service request system client is also used to control the start of the service processing system access terminal and make the service processing system access terminal in a state of waiting for connection when it is started.

4. Service-oriented software system implementation

Service-oriented software systems involve software services in multiple places, different networks, and different computers in the Internet environment. Service-oriented software system. System structure and operation diagram, as shown in Figure 1.

![Diagram of system structure and operation process](image)

Figure 1. Schematic diagram of system structure and operation process

The place Z where the business software system W is stored can be a stand-alone machine or a stand-alone machine on the network; the two parts of the service request system Q should be stored in different places: the service request system client Qc and the business software system W are stored together. That is, at Z, the service request system server Qs is stored in another independent place, usually the service request system server Qs is a remote server, used to receive the request information sent by the service request system client Qc at Z; service processing System F can also be divided into two parts: the initiating end Fs of the service processing system that provides or initiates the service and the access end Fc of the service processing system that receives the service. The two parts of the service processing system F should be stored in two different places, respectively. The originating end Fs of the processing system is stored in a separate place, and the access end Fc of the service processing system is stored in the Z place where the business software system W is located. The service request system server Qs and the service processing system initiator Fs can be stored in the same place, such as both at X, or in two different places, such as the service request system server Qs at X, the service processing system initiator Fs is at Y. When the service request system server Qs and the service processing system initiator Fs are not stored in the same place (for example, at X and Y respectively), the communication between the service request system server Qs and the service processing system initiator Fs must be smooth to enable the service. The information obtained by the requesting system server Qs can be passed to the service processing system initiator Fs; the service
requesting system client Qc and the service processing system access terminal Fc must be stored in the
Z location where the business software system W is located.

The set initial working state is that the service request system server Qs at X is in the monitoring
state, waiting for the service request information at Z to be delivered; the service processing system
access terminal Fc at Y may not have been activated (if the service processing system initiates the end
If Fs is also stored at X, it may not be activated yet).

Add a window or button to call the client Qc of the service request system in the working interface
of the business software system W. When the operator encounters a problem and needs to seek help
in time, you can start the client Qc of the service request system or use other windows or buttons instead
of this window or button. To start the service, request the system client Qc to ask the technician for help.

Once the client Qc of the service request system in Z place is required to run, it will first start the
service processing system access terminal Fc in the same place, and the service request system client
Qc will collect the service processing system access terminal Fc at this time. After the client Qc of the
service request system obtains the access parameters and operating parameters of the access terminal
Fc of the service processing system that has been activated, the security item parameters are set for the
access terminal Fc of the service processing system to enable the service processing system to access.
The terminal Fc enters the state of waiting for connection, and finally opens the information display
and input interface of the service request system client Qc. The service request system client Qc
prepares to send the collected relevant information and the request information filled in by the
operator to the X location. At the service request system server Qs, if the information cannot be sent
due to network problems, the information needs to be temporarily stored locally. If the information is
sent to the service request system server Qs and recorded once the network is good, the service request
system server Qs will send the message Give the service processing system initiator Fs to start the
service processing system initiator Fs, and the service request system server Qs will also return a
message to the service request system client Qc; the service processing system initiator Fs at the Y
ground (or at the X ground) After startup, it will be connected to the access terminal Fc of the service
processing system at Z without obstacles according to the received service request information, so that
technical processing services can be provided.

Software users are in City A, and technical support personnel are in City B.

In City B, a computer is used as a technical support machine. The server program of the service
request system and the initiator program of the service processing system are installed on this
computer. The server program of the service request system starts to monitor whether the remote end
sends information.

Financial software, client software of the service request system, and access software of the service
processing system are installed on a computer at the location of the business staff in City A.

When the business personnel in City A encounter problems and need timely support from the
technicians in City B, click the "Help" button in the software. At this time, the client program of the
service request system first starts the access terminal program of the service processing system and
obtains the service processing system Then open the help interface of the client program of the service
request system. You can fill in short information or not fill in any information. Finally, click the "send
request" button on the help interface, the service request system The client program sends this
information synchronously or asynchronously to the server program of the service request system of
the technical support machine in City B. The server of the service request system not only records this
group of information, but also transfers this group of information to the service processing system.
The initiating end program of the service processing system is used by the technicians to connect to
the receiving end program of the service processing system on the machine of the business personnel
in City A and then start technical processing. Finally, directly provide technical support services.
5. Conclusion
The research on the service-oriented software system and its software service methods has solved the problems of single software, partial service processing, and strong dependence. The system implementation and method expressions get rid of the dependence on other software, can accurately and timely provide technical support to the operators of the business software, effectively solve the various problems that the operators may encounter, and improve the timeliness and accuracy of technical support.

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