

Analysis of Highly Available Services

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Nowadays the client-server architecture is seemed to be replaced by solutions based on the paradigm of Service Oriented Architecture (SOA), where each service is an individual unit and both the requester of the service (the client) and its provider (the server) can change.

The Service Availability Forum is an organization of industry-leading communications and computing companies aimed to improve the quality of such services. The organization worked out the AIS (Application Interface Specification) standard. The AMF (Application Management Framework), which is a specification of the AIS, aims to integrate the high availability services, thus facilitates the adoption by the industry. In my essay I used the OpenAIS open source implementation of the SA Forum's AIS specification.

The AMF guarantees the high availability of a service by multiplying its components. If a component gets out of order, the AMF – using periodic healthchecks – recognizes and relocates the service on a parallel running backup component (failover), and then – if possible – restarts the erroneous component.

The AM Framework provides highly configurable support for turning newly developed services highly available. For legacy services, when source codes are not accessible, the AMF specification proposes so-called proxy components. The function of the proxy components is to mediate between the AM Framework and the legacy services.

Typically, there is business communication between the services and clients as well. Unfortunately, the AMF, which concentrates exclusively on high availability, does not have any recommendations for the following problem. If an active component fails, a stand-by component takes the service and the client has to adapt to the changes. However, the engineer can not make the client detect the failover without the modification of its code.

In my essay I give proposal to the realization of business communication that fits to the proxy components of the AMF. The main advantage of the realization is that it requires the change of neither the service provider, nor the client components, thus it perfectly solves the previously outlined problem. Therewith it does not need the replanning of every application since an adapted implementation can be created fast and efficiently for almost any application by following the basic principles. The main point of the solution is that the proxy component acts as a mediator between the service and the client, thus extends the functionality of the proxy.

Bibliography:

1. Service Availability™ Forum: Application Interface Specification Availability Management Framework specification version A.01.01.