

An Interface Modeling Method Applied In Cloud Platform Of Remote Sensing Products Based On Small Satellite Constellation

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Abstract: A cloud platform of remote sensing products based on small satellite constellation will be consisted of three heterogeneous big systems which are data networking system, product production system and product service system. Because the complexity of task scheduling between systems, therefore interface technology is a key to ensure product quality of service in future cloud platform. This paper parses user requirements to determine service mode and then decomposes service process to determine interface location. Based on loosely coupled principle between interface and function, an input interface, operations and an output interface are split. On this basis, a UML (unified modeling language) sequence diagram is used to describe a scenario, the request and response parameters, communication performances of a service-side interface and timing constraint between interfaces. As an instance of observation service of satellite networking, this paper defines method, XML (extensible markup language) format and transmission protocols for every interface. Finally, interfaces are discovered through UDDI (universal description, discovery and integration) and remote sensing products are transmitted securely using VPN technology. In conclusion, this study will promote the change of service mode from single star programming to multi-satellites collaborative observation and to some extent improve products quality of service.

Keyword: small satellite constellation, remote sensing products, cloud platform, interface modeling