

2. 英文部份

(KEY WORDS) : Cloud computing, edge computing, microservice, event-driven processing, serverless computing, directed-acyclic-graph workflow management

A good federated cloud-edge computing platform enables simple and on-time data processing on the edge side, and complicated resource-demanding analysis on the cloud side. To develop such a federated cloud-edge computing platform, we plan to adopt the concept of serverless computing to handle heterogeneous data streams from different data sources automatically. That is, when a particular data stream has arrived at the platform, a corresponding, pre-defined Directed-Acyclic-Graph (DAG) workflow is triggered to handle the data stream. In addition, the platform also supports time-event-trigger to regularly execute a workflow with a particular data source. The tasks of the workflow are created and then deployed on the cloud side and the edge side, based on the properties of the stream-workflow pair. We also plan to develop a UI to facilitate the management of the platform. With the proposed UI, the administrators of the platform can create their own data processing workflows along with the corresponding data streams and sources. Subsequently, the administrators are able to associate a particular event with a workflow using the proposed UI, such that the workflow can be launched automatically as the pre-defined event presents.