IAF EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Systems (2)

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DOMINO-E COVERAGE SERVICE – A FLEXIBLE, SMART AUTOMATED, TOOL FOR MULTI-MISSION FEDERATION

Abstract

Nowadays, with an increasing amount of Earth Observation (EO) space assets, the market demands a challenging level of responsiveness, and efficiency about the use of these facilities, as the needs for EO products has also greatly increased. In that context, managing large area's requests (Coverage request) is a complex though strategic problem. The Coverage Service, taking part in Domino-E products, is targeting users able to exploit several EO Systems in order to accelerate the completion of large acquisitions. It introduces a multi-mission federation layer between its user and each of the systems' Ground segment. Several strategies can be tested to dispatch Coverage requests amongst several constellation. To do so, coverage Service is also able to use services available from exploitable Missions Programming Services in order to answer various requests from the end users. The strategies defined allow to test a rough and a detailed automated dispatch. In the rough one, the coverage's area is divided into several smaller areas which are then assigned, one by one, to one EO Spatial system each. The detailed one uses the EO systems' meshing and chooses the meshes, accesses and system to use to fulfil the request. Eventually, using Missions' submitting and cancelling services, the Coverage Service is also able to update or correct its previous dispatching, taking the current state of request's completions and the deposits of new requests into account, thus sharpening efficiency of the dispatch strategies. The Coverage service also allows a manual dispatch strategy. To get that done, it provides an internal tool able to estimate the completion of a request on a scenario, in order to help the end user with his decision. The user will also be able

to correct that decision if needed, by updating the priority of resulting requests. All these strategies are driven by two main objectives: Reducing the completion delay of these requests, while reducing the waste of EO resources as much as possible. Through the strategies' comparison, the Coverage Service also aims for the improvement of our industrial products, and for the scientific progress in definitions of methods to solve the Coverage problem. It provides a complete solution to help its user manage coverage requests in simple ways, or, when the problem is too complex, in an automated way.