



Architecting Prodiguer: the next generation French climate modelling data management platform

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The Pierre Simon Laplace Institute (IPSL), like many other climate modeling groups, is involved in the international development of a comprehensive Earth System Model (ESM) to study the interactions between chemical, physical, and biological processes. This work entails the coupling of different components (land, ocean, atmosphere, chemistry...etc) and requires an execution environment platform that can tackle the entire range of interdependent model configurations. Furthermore, the ever-increasing number of simulations, executed against model configurations within scientific computing centres, is generating a huge volume of data and meta-data that must be made available to the international community of researchers, modelers, students and general users.

IPSL is in the process of implementing a French national project called Prodiguer whose objective is to ensure that the data and meta-data can be delivered to the French & international communities in a timely and appropriate fashion, hence achieving the strategic goals outlined above. Prodiguer aims to leverage, extend and build upon the work of international projects such as Earth System Grid, METAFOR and IS-ENES. Thus Prodiguer is to be seen as one actor amongst many attempting the difficult task of information integration within a complex enterprise space.

We will present the technical architecture being put in place to achieve the goals of Prodiguer. Such an architecture necessarily encompasses many aspects of Service / Resource Orientated Architectural practice. From security to messaging patterns, from message queues to failover strategies, we will illustrate how pragmatism is inevitably the main driver behind such an architecture. We will also illustrate that as the number of actors increases so does workflow complexity, and as a consequence simplicity becomes an important guiding factor in itself.