An Instrumentation and Measurement Architecture Supporting Multiple Control Monitoring Frameworks

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Abstract. Virtual and/or experimental networks capable of supporting an entire new set of applications and services (Future Internet, Grids, Cloud Computing, other) use, typically, different Control and Monitoring Frameworks (CMFs). This poster addresses the multiple federated CMFs instrumentation and measurement problems. A monitoring architecture (FIBRE-BR I&M Architecture) is briefly introduced by illustrating its basic components and services and its capability to integrate different CMF's I&M Services. FIBRE-BR will use three different control and monitoring frameworks in its nine islands: OFELIA Control Framework, cOntrol and Management Framework (OMF) and ProtoGENI. Our target is to provide monitoring services, possibly, with a maximum reuse of the available CMFs I&M services over a new integrated and federated network structure. Some of the various aspects involved include the virtualized equipment, networks and monitored data; the collected data control access; and, finally, the multiple CMFs I&M data integration. This poster presents the FIBRE-BR I&M Architecture that integrates diverse I&M services, tools and facilities from multiple CMFs, allowing FIBRE-BR users, possibly transparently to each specific CMF, to benefit from the corresponding infrastructure and experiment specific measurement data.

FIBRE-BR Instrumentation and Measurement (I&M) Architecture

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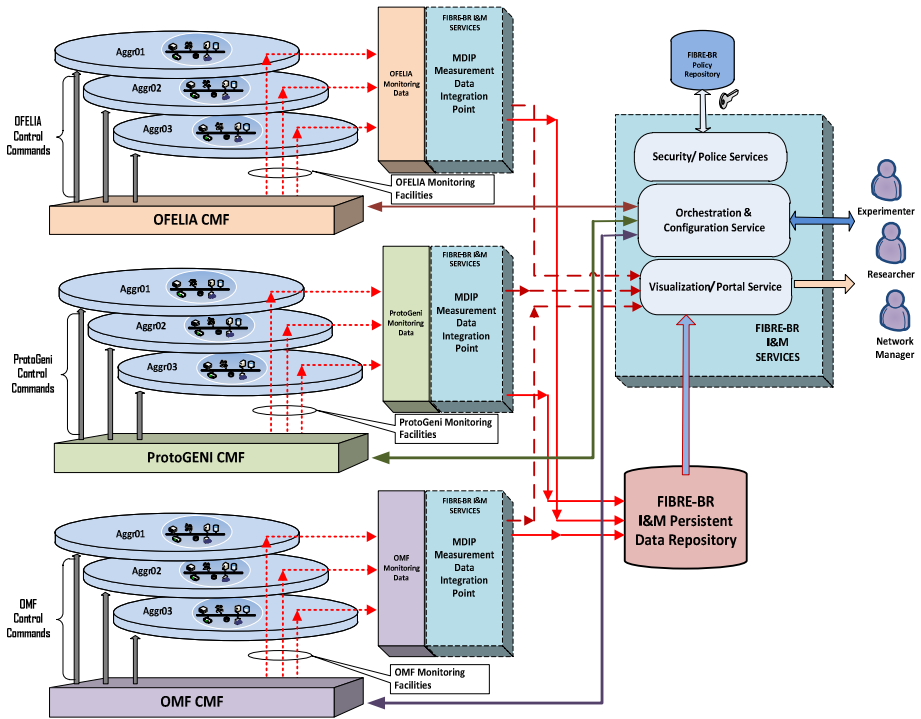
Fig. 1. FIBRE-BR I&M Architecture

The Measurement Data Integration Point (MDIP) conforms the collected data from the available CMFs to FIBRE-BR I&M standard format (NM-WG), representation and distribution (including visualization). This service includes all measurement data processing related aspects such as, message format, message transport protocol and/or service, access privileges and common data storage or on-the-fly data distribution.

The Orchestration and Configuration Services act on behalf of the users allowing them to configure, to define measurement points, and to orchestrate these measurement data collecting facilities according to each individual CMF.

The I&M Portal main functionality is to provide a user friendly interface to control and access the measured data, according to a defined policy.

The architecture has a storage strategy that allows users to retrieve data from their own or from others previous experiments, according to their access privileges. The persistent storage option is an experimenter decision that must comply with FIBRE-BR retention policy.

For additional information, please refer to: http://www.fibre-ict.eu/