



# **IMF: Integrated Measurement Framework**

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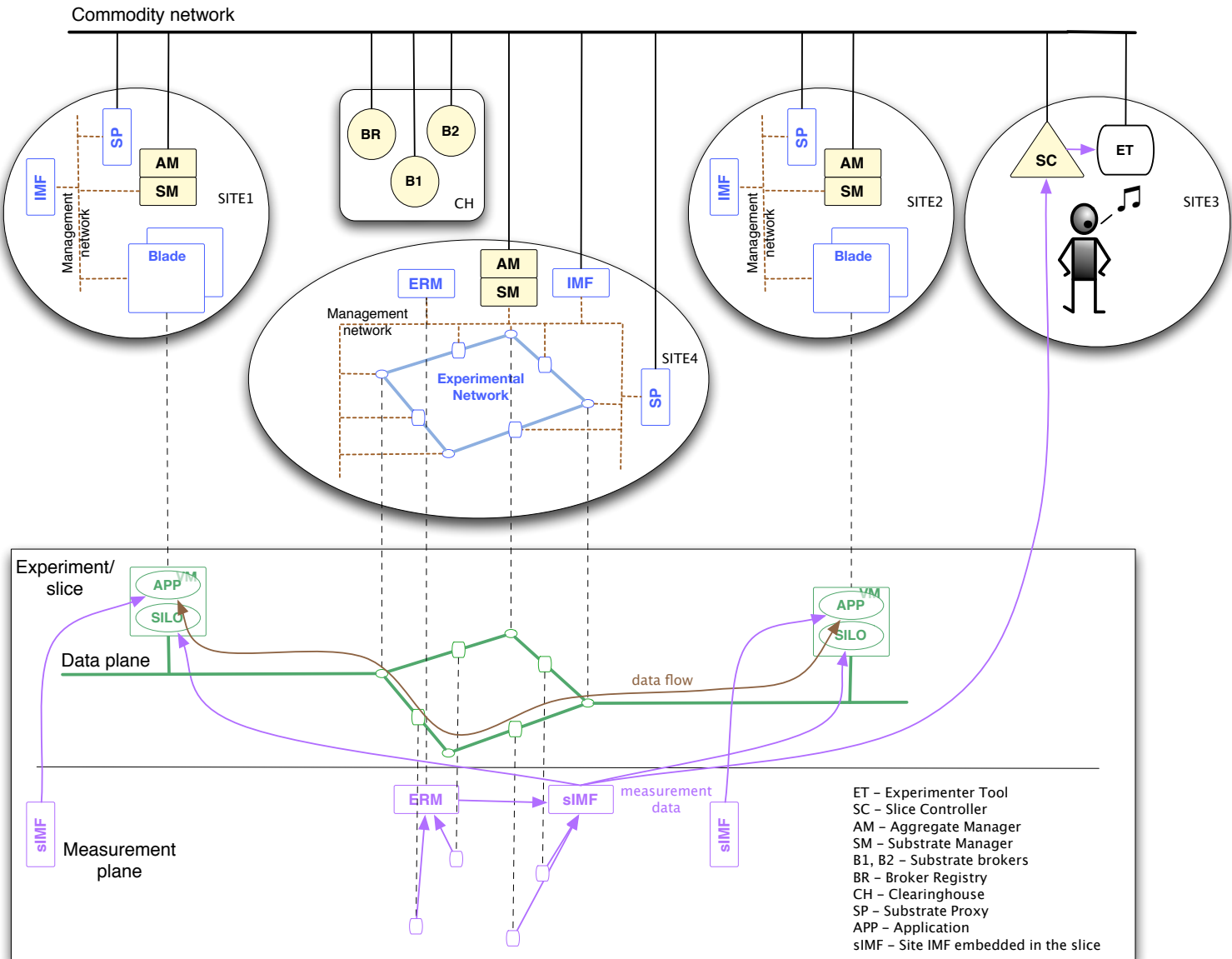
# IMF Goals

- **Create a framework for collecting real-time measurement data in a slice**
- **Usable for closed-loop experiment control**
- **Focus on physical layer measurements and cross-layer experiments**
- **Integrate with ORCA**

# IMF Partnerships

- **ERM: Columbia GENI project– source of measurement information**
- **SILO: NCSU/RENCI NSF FIND project – cross-layer experiment tool**
- **LEARN**
- **DICLOUD**
- **ORCA-BEN:**
  - **ORCA integration**
  - **Measurement substrate resource description**

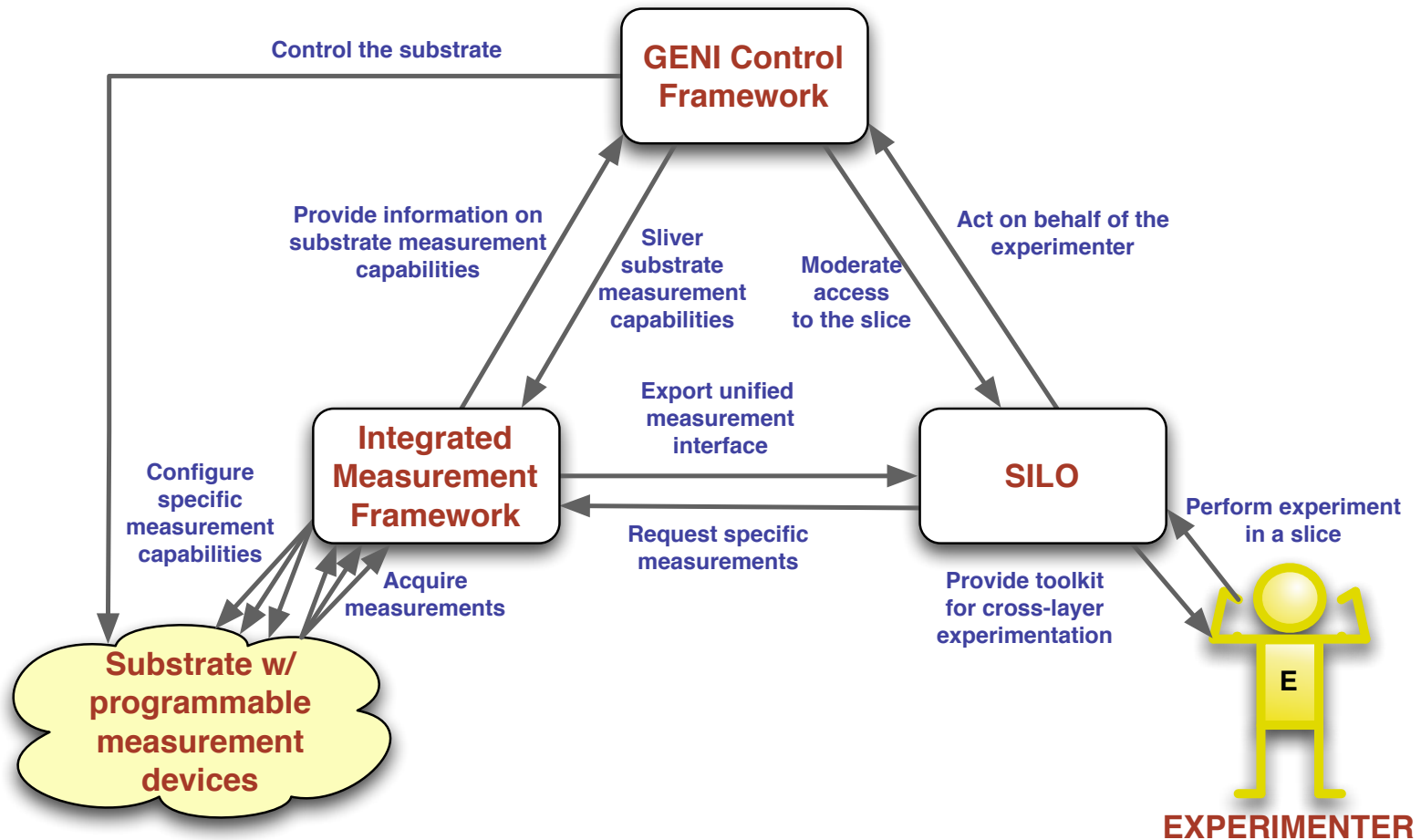
# IMF Approach



# IMF Challenges

- **Integration of outcomes from several projects**
- **Using data to drive the experiment**
- **Looking from outside of the slice into it**
- **Storage of experimental data (intermediate and permanent)**
- **Normalization of data**
- **Mediating access to collected data**

# IMF Vision



# IMF Spiral 2 objectives

- **Architecture document**
- **Initial integration between ERM and SILO and IMF**
- **Initial integration between IMF and ORCA**
- **Showcase a cross-layer experiment in July 2010**
  - **Real-time optical substrate data from ERM**
  - **SILO user-facing experimental protocol framework**
  - **BEN substrate**