IMF: Integrated Measurement Framework

NCSU
Rudra Dutta
George Rouskas
Anjing Wang

Columbia
Keren Bergman
Caroline Lai
Michael Wang

RENCI / UNC-CH
Ilia Baldine

Renci
Renaissance Computing Institute

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

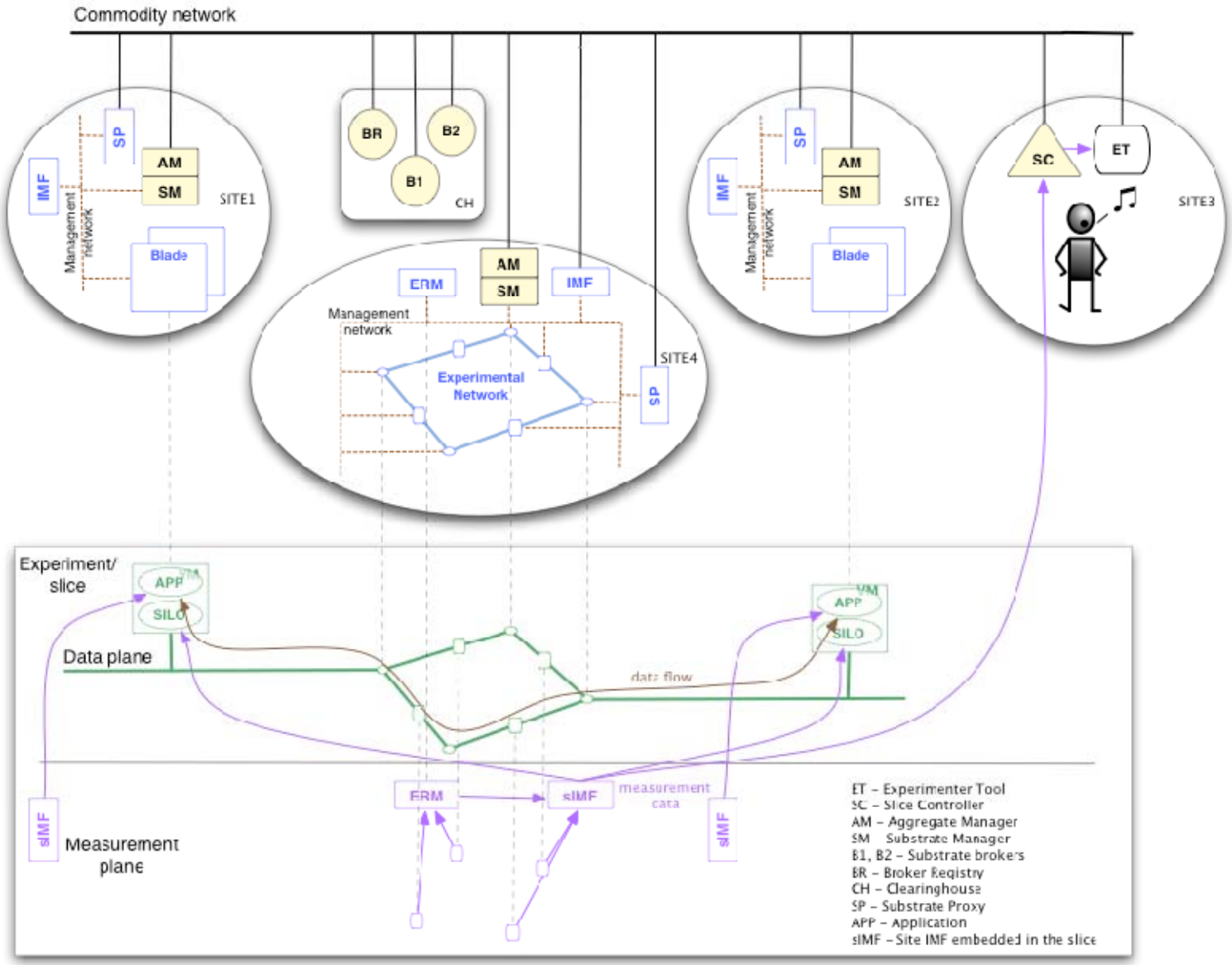
Renci
Renaissance Computing Institute

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

Renci
Renaissance Computing Institute

IMF Approach



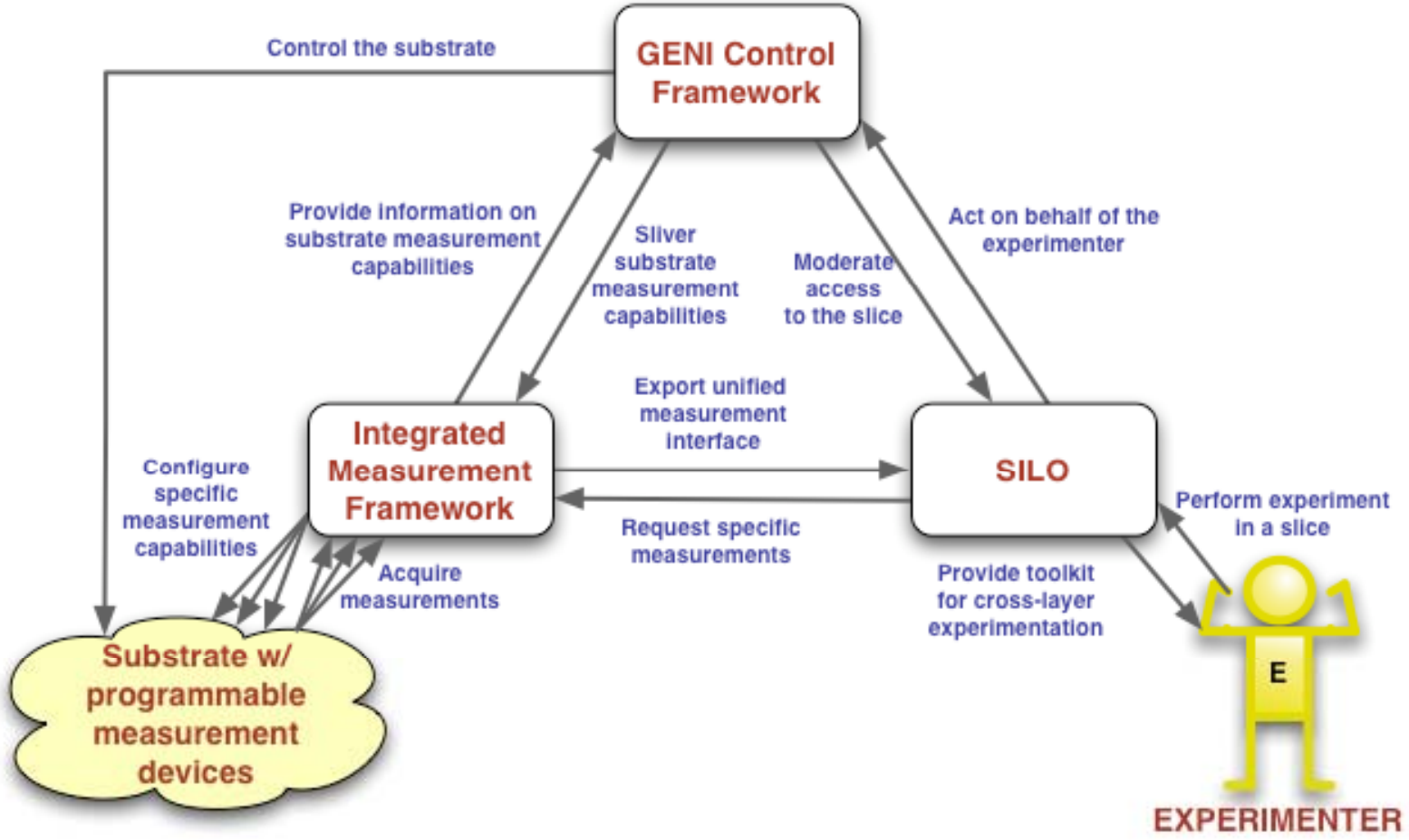
IMF Challenges

- 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

Renci
Renaissance Computing Institute


Renci
Renaissance Computing Institute

IMF Vision



Renci
Renaissance Computing Institute

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**

Renci
Renaissance Computing Institute