UNIVERSITY of **HOUSTON** | TECHNOLOGY

PROGRAMMABLE MEASUREMENTS OVER TEXAS-BASED RESEARCH NETWORK: LEARN –
INSTRUMENTATION AND MEASUREMENT WG

Measurement Handler: Deniz Gurkan, Paul Roberts

University of Houston

Cross-layer research with IMF: Michael Wang, Caroline Lai, Keren Bergman

Columbia University

Extension to integration with ORCA: Ilia Baldine

RENCI - BEN

SPIRAL 2 OBJECTIVES   GEC6

○ Collaborate with the ERM project to *draft data file format* for transfer of measurement data between the Measurement Handler software and the IMF;

○ Complete specifications for the *Measurement Handler software*, which will utilize an existing interface (TL1 over SSH) into the Infinera Digital Transport Node (DTN) to make optical measurements. (GEC6)

  • *Measurement Handler* software/interface between instruments and IMF to deliver access to such instruments when necessary. For example, use SSH to login and provide an interface to IMF as to what measurements to provide, when, etc.

SPIRAL 2 OBJECTIVES   GEC7

- Complete specification of the data file format for transfer of measurement data to IMF;

- Implement the Measurement Handler software to make optical measurements using Infinera Digital Transport Nodes (DTNs);

- Integrate the Measurement Handler software with the IMF provided by the ERM project; demonstrate the Measurement Handler using DTNs, and dark fiber resources from LEARN. (GEC7)

  - Integrate the IMF and UMF with devices in BEN that include performance monitoring capabilities, and demonstrate gathering measurements from these devices. IMF-LEARN (GEC7)

11/18/2009   GEC6 – I. & M. WG - D. Gurkan, LEARN

SPIRAL 2 OBJECTIVES   GEC8

- Deliver release of Measurement Handler code for Infinera DTN and documentation to GPO. (May 2010)

- Based upon results of Data Plane Measurements project, collaborate with GPO and other projects in Cluster D, to establish a list of measurement handlers that are needed for commercial transport and measurement equipment that will be used in GENI. (GEC8)
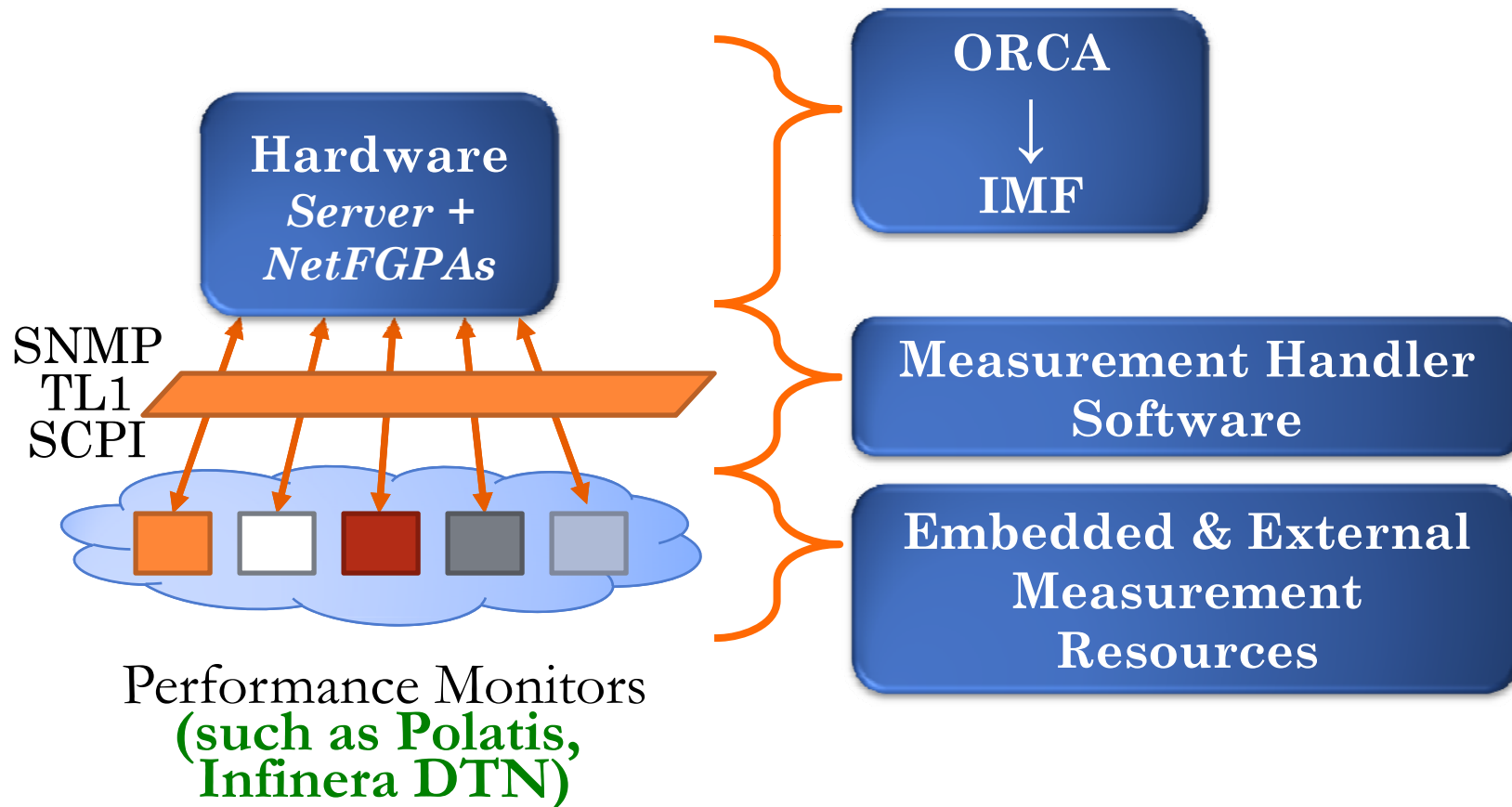
CHALLENGES

- IMF is the interface between a measurement resource hardware and the control framework functions of ORCA – *measurement handler will provide access to measurement resources with various interfaces/access mechanisms in an intelligent manner:*
  - Need to have interoperability between instrument measurements in physical layer: e.g., optical power per channel is the same entity for all instruments, however, their access mechanism and representation might vary from one vendor to another
  - Physical layer measurement representation (information model) has not been harmonized, esp. when compared to layer 3 measurements such as packet loss.

PROPOSED APPROACH: *IN PROGRESS*

SNMP
TL1
SCPI

Hardware
Server +
NetFGPAs

Performance Monitors
(such as Polatis,
Infinera DTN)

ORCA
↓
IMF

Measurement Handler Software

Embedded & External Measurement Resources

QUESTIONS?