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Programmable Measurements over Texas-based Research Network: LEARN

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Spiral 1 History

- Analysis project on data plane measurements for GENI control frameworks:
  - Embedded measurements in network elements of GENI substrates
  - Recommendations of external measurement instruments for GENI control frameworks

Spiral 2 Goals

- Integrate physical layer measurements from Infinera DTN in collaboration with Embedded Real-time Measurements project

- Integrate LEARN (Lonestar Education and Research Network) as a new aggregate into GENI Cluster D

- Implement ORCA control framework for the available nodes on LEARN

Integrate physical layer measurements

- Create a data exchange protocol using the TL1 interface
  - between ERM's IMF (Integrated Measurement Framework) and
  - Infinera – to be expanded to other instruments/nodes later
- Create/Integrate "measurement handler software" with IMF
  - Pending validation of the need for a measurement handler software for Infinera DTN
  - Other instruments/network elements…?
- Initial possible measurements:
  - Per channel optical power
  - Per channel BER
- Extend measurement handler software design and planning to other instruments/components on the cluster/GENI

Integrate LEARN

- Utilize national research network connections to deliver VLANs to GENI
  - Internet2
  - NLR
- Cost-effective nodes on LEARN:
  - TAMU
  - University of Houston
  - UT-Austin
  - Rice University

Implement ORCA control framework

- ORCA control of LEARN resources
- Deliver LEARN broker to ORCA clearinghouse

Questions?