

COSMIC FRONTIER NEEDS

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ABSTRACT

Next-generation cosmology experiments are being planned in the optical, millimeter, and centimeter wavelength ranges. This presentation will focus primarily on massive galaxy spectroscopic surveys, CMB-Stage 4, and 21cm intensity mapping experiments. Although these experiments are in early conceptual stages there are already estimates for channel counts and data volumes. For many of these applications, data transport will become increasingly critical as detector elements proliferate and signals originate over wide areas. Moreover, the need for real-time communication across geographically separated elements will grow and alerts between multi-messenger detectors will become more frequent. To meet these challenges, experiments should consider how best to exploit the new hardware and software technologies that will exist in the 2025 - 2035 timeframe.

Lessons learned from LSST will also be discussed. In particular, the need for early planning for test stand DAQ will be emphasized.