The SKA Telescope will use a highly accurate Synchronization and Timing (SAT) system, designed by the Signal and Data Transport (SaDT) [1] consortium to provide and distribute time and frequency information across the telescope.

The local monitor and control system for SAT (SAT.LMC) will monitor and control the working of the SAT system consisting of:
- SAT.CLICKS (CLK) timescale generation system
- SAT.STR.FQ (FRQ) frequency distribution system
- SAT.STR.UT (UTC) timing distribution system

SAT.LMC enables Telescope Manager (TM) to perform SAT maintenance and operations.

Communication
Common approach to communication for all SAT Systems. This includes the handling of:
- Alarms
- Commands and Attributes
- Events

The Communication model, Figure 3, of SAT.LMC aligns to those of other SKA monitor and control systems. This is aided through the use of TANGO.

Containerization
As part of the SAT.LMC prototype work, “containerization” was evaluated. Figure 4 highlights the use of Python and Docker containers.

Prototyping
SAT.LMC was prototyped [4] over a 1 year timeframe. During this time novel aspects of SAT.LMC were tested. TANGO was central to the work undertaken. In summary the following were covered:
- SAT.LMC to SAT simulators
- SAT.LMC to TM simulator
- SAT.LMC to Hydrogen Maser
- SAT.LMC to GNSS Receiver
- SAT.LMC to Communication Control Module
- SAT.LMC to White Rabbit Switch

References