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NComm TMS™ SONET/SDH Trunk Management Software

Trunk Management

The NComm SONET/SDH Trunk Management Software provides a complete software solution for the implementation of a range of SONET/SDH systems. It consists of a set of software modules that perform span configuration, alarming, performance monitoring. The SONET/SDH software is completely data driven, allowing operating mode, alarm timers, and thresholds to be configurable on a static or run time basis. Additionally, NComm's SONET/SDH TMS device driver mapping methodology permits potentially *many* device drivers to appear as *one virtual device* to the SONET/SDH software. The suite includes 2 levels of ANSI-C Application Programming Interfaces (APIs), encapsulating the details of SONET/SDH operation and the underlying hardware elements, and provides a clean integration to the target system's operating environment.

Target Applications

- High Bandwidth Data Transport
- VT-n - OC-n Multiplexing & De-multiplexing

Main Features

- "Off-the-shelf" SONET/SDH interface software providing multiple levels of functionality based on product application
- Supports 1 to N STS-1 spans. Scaling upwards, several STS-1 spans can be multiplexed together to form OC-N's. Scaling downwards, an STS-1 can be demuxed to up to 7 VT Groups with each group containing either VT1.5's, VT2's, VT3's, or VT6's.
- Polymorphic Device Driver Mapping (PDDM) Methodology allows support for many device drivers.
- Provides full SONET/SDH span maintenance and alarming support, with configurable timers and thresholds for alarm detection, loopback activation, and other span conditions.
- Full support for SONET Performance Monitoring per T1.231.
- Supports user choice of framer, currently supports generic SONET/SDH framer, as well as driver support for Agere Systems Super Mapper and PMC-Sierra's Spectra-2488 & TUPP+622. Call for others.
- Runs with or without Real Time Operating System (RTOS) on virtually any processor and host environment. Currently ported to pSOS, VxWorks, and Nucleus Plus.
- Simple Application Programming Interfaces (APIs)
- Processor independent ANSI-C source code
- Fully customizable



Trunk Management

NComm TMS™ SONET Software Architecture

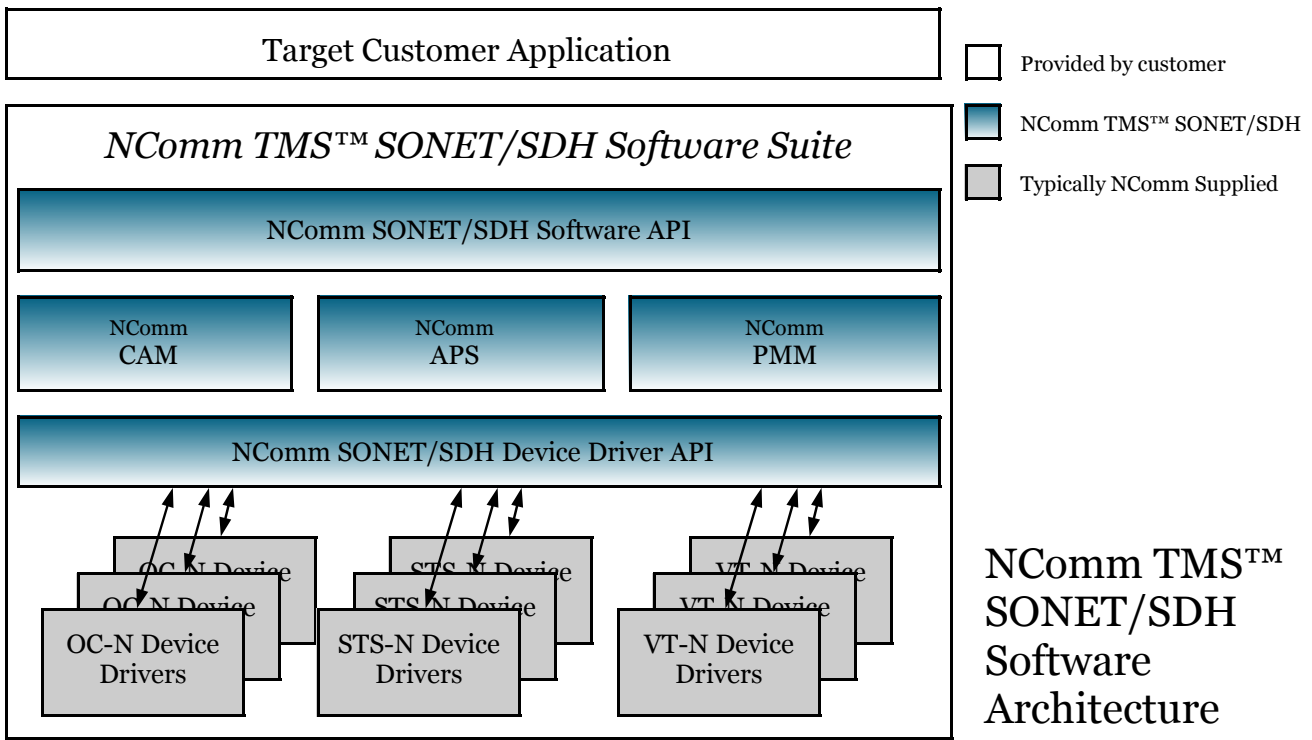
The figure below illustrates the TMS software module architecture. Each software component performs specific functions that represent a part of the total SONET /SDH software solution. The SONET Software API is comprised of a set of ANSI C functions and macros that encapsulate all functionality and data of the SONET Software. The API provides a clean interface to the SONET Software simplifying the integration of the SONET Software to the target application. The target application is implemented on top of the SONET Software API layer, using the API to access all functionality provided by the SONET Software.

The SONET/SDH Manager Module (CAM) provide the interface points for administering and configuring any of the STS-1/OC-n spans being controlled by the SONET Software. The CAM defines the line interface rate - OC-1 thru OC-192, structure of the interface—line, path, section & virtual tributaries and alarm conditions definable per type of alarm and per structure of the interface. The CAM also communicates with the PMM for processing performance reports.

The SONET/SDH Performance Monitoring Manager Module (PMM) will collect performance data as specified

in ANSI T1.231. The PMM will collect performance statistics for both the near end and far end of the SONET/SDH Interface. Performance data is collected for the past 24 hours in 15 minute buckets plus summary information. In addition, the PMM supports collections of data locked to the time of day. The PMM supports threshold-crossing alerts, when enabled, the alerts will inform the application when a threshold has been exceeded and take the appropriate action. The application can retrieve performance information upon request to the PMM.

The **Device Driver** and its associated API provides the interface between the SONET/SDH Software and the driver device. Hardware implementations of OC-n systems and VT-n systems may involve various & mixed devices that access different sub-levels of an OC or STS/STM signal. To accommodate this potential, the SONET/SDH Software has a Polymorphic Device Driver Mapping Methodology that permits many device drivers to appear as one virtual device to the SONET/SDH Software; this methodology maintains a commonality in general device driver development. The SONET/SDH Driver API is comprised of a set of ANSI C functions and macros that handle the interaction with the device driver.



NComm TMS™
SONET/SDH
Software
Architecture