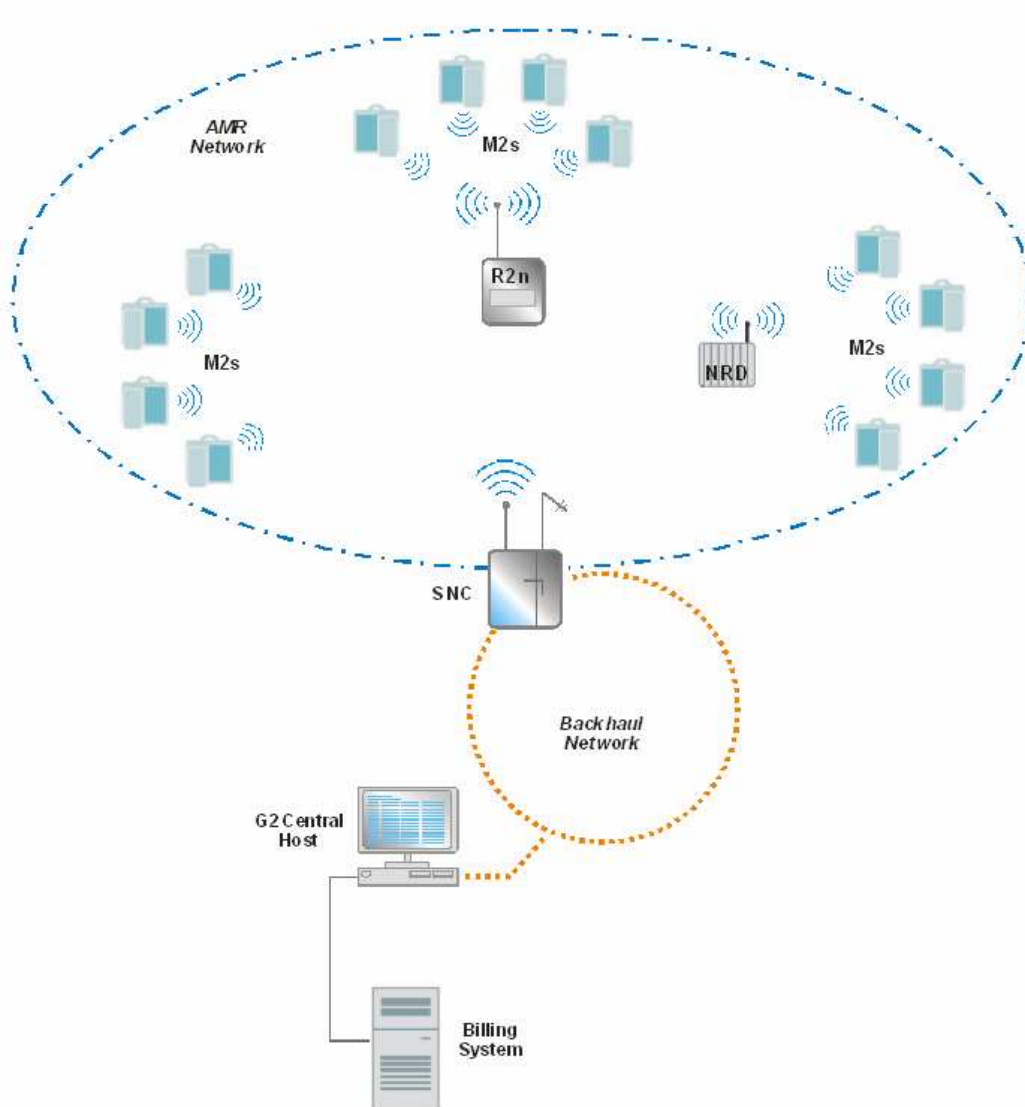


G2 Net Operations

The G2 Net AMR/AMI system from Transparent Technologies consists of the following components:

- SNC: SubNet Controller.
- R2n: Two-way Network Transceiver
- NRD: One-way Network Relay
- M2: Universal Endpoint Radio
- G2 Host: Centralized software application for data consolidation, user interface and reporting.



Network Devices

SNC SubNet Controller

The SNC consists of three internal components:

- 1) An R2n 900 MHz Spread Spectrum transceiver for AMR communications to the subnet endpoint radios.
- 2) A backhaul network device for communications to the central host
- 3) A NIM embedded computer which bridges the two networks and provides data storage for all endpoint radios associated with the subnet.

The SNC SubNet Controller serves as a data management hub for a sub-network of endpoints radios, NRD relays and R2n transceivers. The SNC controls network traffic commands to the subnet and collects and stores data from all endpoints in the subnet.

R2n Network Transceiver

The R2n is a highly sensitive 900 MHz Spread Spectrum network transceiver. It serves as a data collector for any radio endpoints in proximity and also as a router for AMR network traffic.

NRD Network Relay

The NRD is a one-way 900 MHz Spread Spectrum network relay. It serves as a data relay for any radio endpoints in proximity.

G2 Central Host

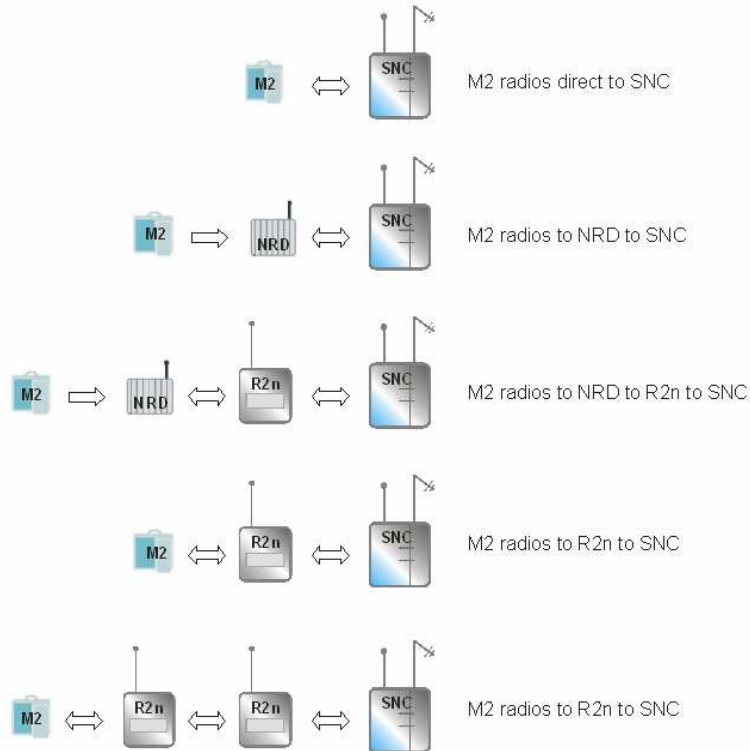
The G2 Central Host is a PC-based user interface for network control, diagnostics, data collection, billing system interface and reporting.

AMR Network

The AMR network from the M2 radio endpoints to the SubNet Controller is a 900 MHz unlicensed proprietary network developed by T2. This network is optimized for the collection of data from the ground to “tree-top” level. Basic data collection in the AMR network is performed in a simple, efficient one-way method. Network communication is performed with an optimized proprietary protocol which provides data security and redundancy.

The G2 Central Host has network configuration and diagnostic tools to aid operations during installation, maintenance and normal AMR operations.

The following diagram shows the different network configurations that can be used to collect data from M2 endpoint radios. Regardless of the network configuration, the G2 Host and SNC contain a routing table that identifies the primary and secondary data path for each M2 endpoint radio in the system.



Backhaul Network

The backhaul network is a highly developed third party network, such as cellular (EVDO/GPRS/GSM), municipal WiFi, wireless Ethernet or high power Spread Spectrum. This network is utilized specifically for efficient, high volume, high speed data transfer. T2 takes advantage of the inherent features of these networks such as existing infrastructure, flexible data plans, extensive security, etc.

T2 will recommend a backhaul solution after a review of the system site. A utility customer can also request the use of a specific network/communication method. T2 can accommodate most networks/communication methods which provide an IP addressing technique. If the network/comm method has not been previously utilized by T2, a test program must be completed prior to deployment.

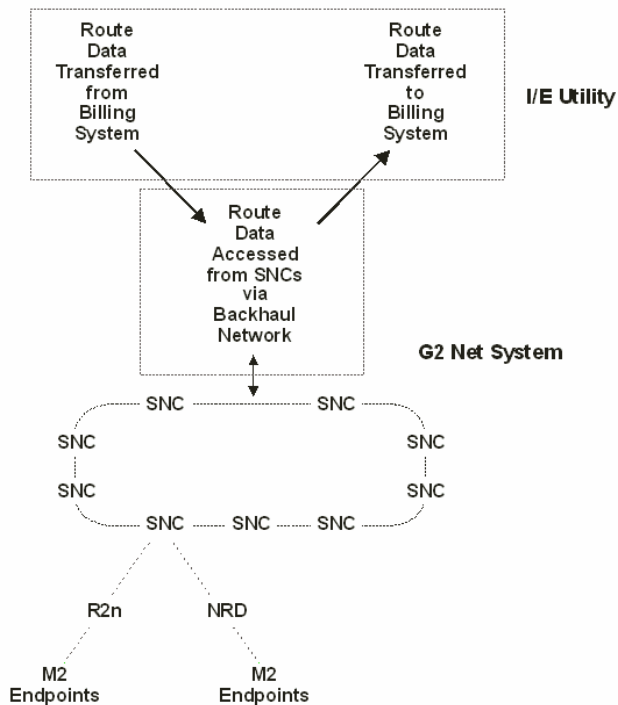
Meter Reading Operations

The M2 radio endpoints transmit their data approximately every five seconds. Each M2 radio has a real-time clock so that all account reads are coordinated (typically at the top of every hour). Each R2n/NRD device in turn relays the radio endpoint messages to the SNC when commanded by the host computer. The SNC logs account data every hour, on the hour. Each SNC will have an hourly data file for each account (endpoint radio) assigned to it.

The G2 host software can access any SNC in the system via the backhaul network. The G2 host software has a scheduler which regularly accesses reads for the billing cycle.

Since data is stored in the SNCs, this access can be scheduled on a daily, weekly or monthly basis depending upon the billing system requirements. This function is a hands-off function which automatically populates a database with the account data.

Account data is obtained from the billing system prior to each month's scheduled reading cycle. The following diagram shows the data path during meter reading operations.



Data Access Operations

The G2 Net system can also be utilized at anytime to access the data storage in the SNCs. Each SNC logs account data for each M2 endpoint radio (up to 5000 accounts, at 1 hour intervals, for up to 60 days). The following data is stored for each account:

- Account ID
- Meter Reading
- Data Flags
- Signal Strength

The data flags signify one of the following conditions:

- Leak Detected
- Conservation Violation
- High Usage
- Zero Usage
- Backflow Detected
- Communication Error
- Register Fault
- Low Battery Flag



G2 Net System Operations

The data flags provide instantaneous indication of a possible customer consumption issue which warrants additional data analysis. The G2 Net system can then be used to access a complete data storage file for analysis and customer interface.