# JNET1 Operational Description

General description

Juganu's Medium bandwidth Network-on-lights, the JNET1©, provides an easy to deploy, highly reliable, secure, flexible, dynamic and intelligent connectivity infrastructure.

The GPS Card fills two roles: to provide location of the node, and provide an accurate time.

The JNET1 Card acts as JNET1© network components that together with other JNET-1 Luminaries Wireless Controlles create an autonomous self-management scalable Luminaries network. The network is designed to control and manage up to hundreds of thousands of lights in the modern city complicated environment.

The JNET1© network use a proprietary network protocol, using 902-928 MHz sub-Giga unlicensed spectrum.

The Figure below depicts the basic JNET1© network architecture.
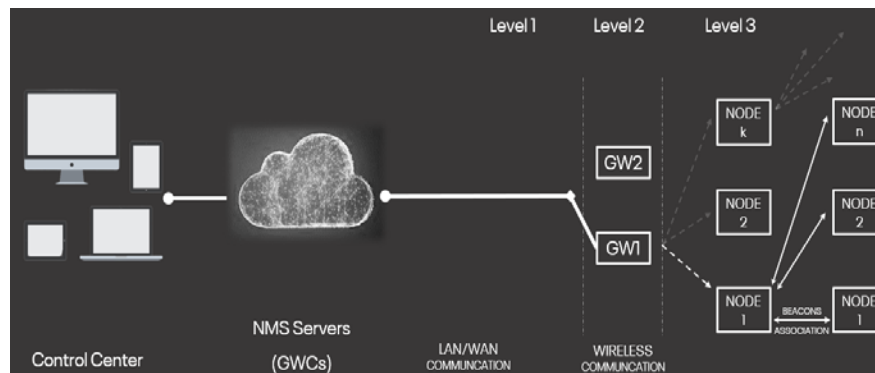
Network Creation

Each JNET1 Node is a network member. By using the JNET1 Card resources (software, CPU and its transceivers) a JNET1© network is automatically created.

The network demonstrates two significant capabilities:

- Self-Healing for finding the fastest and most reliable paths to send data.
- Self-Improvement for detecting poor inter Node radio links (noisy or busy channels) and selects alternative nodes/ Channels to keep communication integrity.

Specification Highlights

- Frequency Range 903-927 MHz
- 500 kbps
- Effective Data Throughput 200 kbps
- Transmitter Output Up to 14 dBm
- Receiver Sensitivity -95 dBm for 1% PER (data rate of 200 kbps)
- Spreading Technique Frequency agility 2GFSK
- Inter Node Communication- Juganu proprietary
- Addressing Paradigm JNET is a source-routing tree solution employs a proprietary MAC address paradigm
- Wireless Network Security Counter Mode Cipher Block Chaining Message Authentication Code Protocol over AES128, Pre-Shared Key.
- Operating Temperature -40°C to +55°C
- Humidity 95% non-condensing
- Power Connection 12V DC through Connector on board J6.