General Frequently Asked Questions

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1   How does it work?

- The *Nano*Hub™ connects to your broadband router and sends messages to the CarbonNano Server via the Internet.

- The CarbonNano Sensors communicate to the *Nano*Hub™ via a long range secure radio link. When an alert or normal update occurs, the messages are sent to the CarbonNano Server via the *Nano*Hub™.

- The CarbonNano Server then sends these messages to your phone, tablet or computer in various forms such as voice calls, voice over internet calls, SMS messages, emails etc.

- The CarbonNano Server also stores historical information, so that trends and events can be analysed.
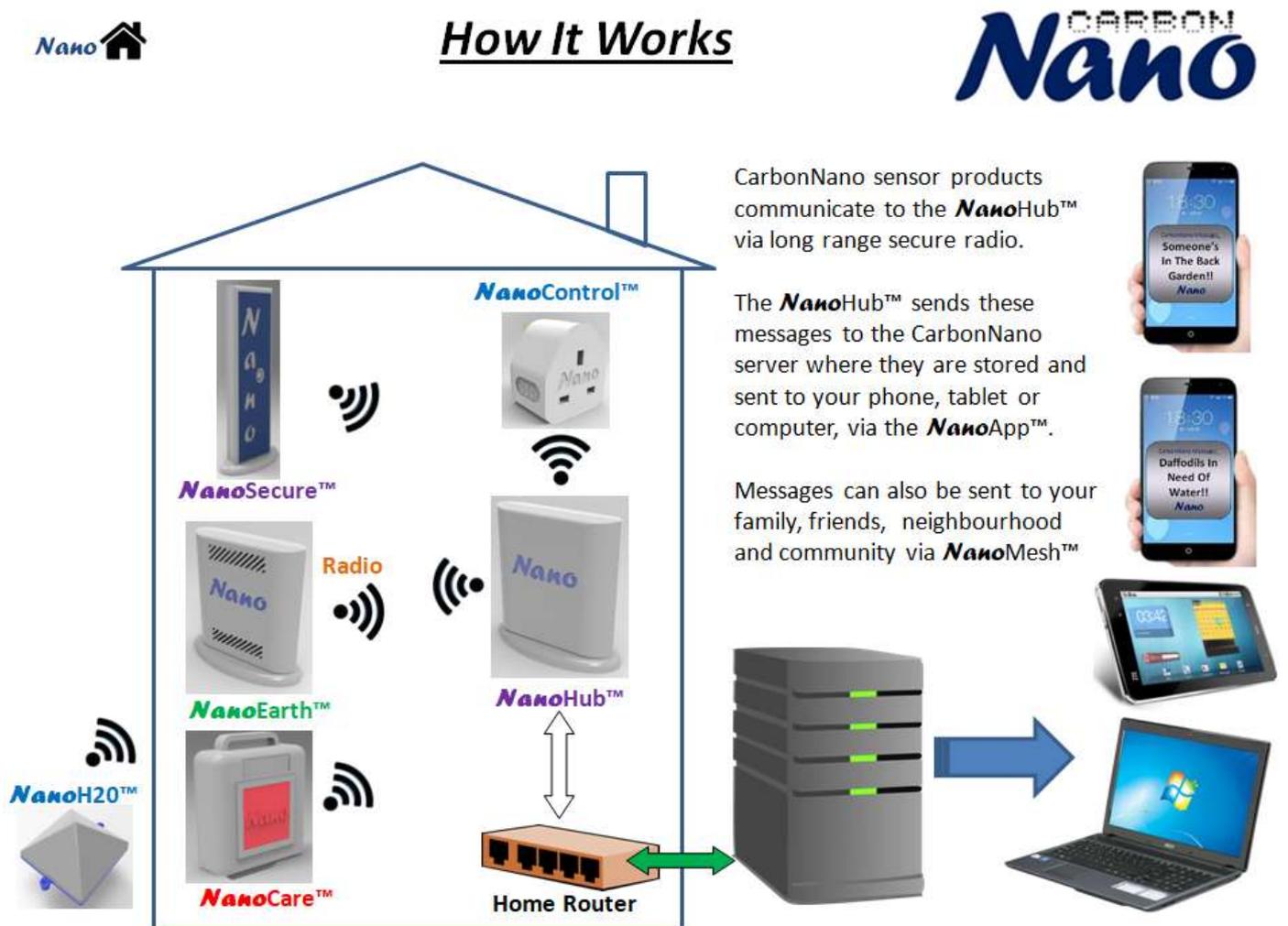
2   What is the *Nano*Mesh™ network?

- The *Nano*Mesh™ Network is a free service offered by CarbonNano so that alarms and alerts can also be sent to people other than you.

- All you need to do is to enable this option from your CarbonNano account, and set the contact details of the other people.

- When you receive the alarm / alert, everyone (if configured) in your *Nano*Mesh™ contacts list also receives the alarm / alert.

- It is also possible to enable the "Re-transmit Alerts" option. Then your alarm / alert will be sent to everyone in your *Nano*Mesh™ contacts list, and also everyone in their *Nano*Mesh™ contacts list, and so on.
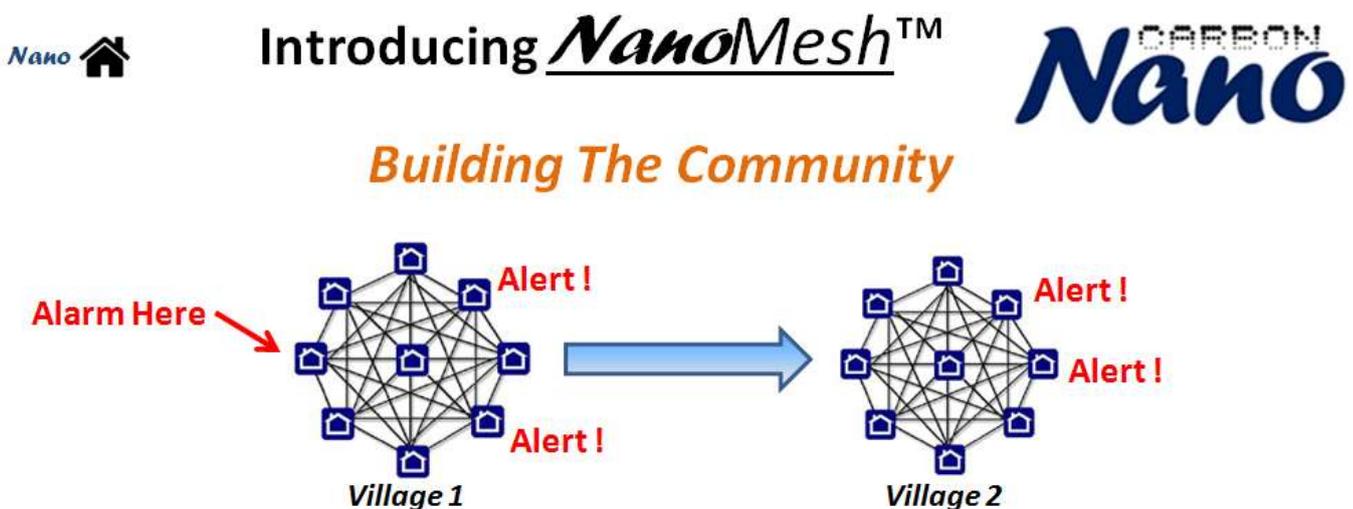
- When alarms are raised from **one person's** home or garden, **everyone** in the *Nano*Mesh™ network receives the alert.

- For early **warning of flooding**, the home that is closest to the rising water level can alert the whole village, and the next village , and so on etc.

- For early **warning of intruders**, the home that is affected can alert their neighbourhood watch, friends, family or sheltered accommodation schemes, and so on etc.

3   What happens if I don't have a broadband router?

- In this case it is possible to use a mobile broadband router that has a SIM card fitted and uses the mobile phone network to send the data to the CarbonNano Server. You just require good mobile phone signal strength.

- Simply plug your *Nano*Hub™ into the mobile broadband router as you would do with a broadband router.

4   How much data is sent?

- The data that is sent is very low but depends upon the number of alerts that are sent.

- This depends upon how many CarbonNano sensors you have. If you had 1 sensor and 1 alert per hour, the total amount of data would be less than 0.5Mb for the whole month.

5   How secure are the products and the data?

- Every product has its own unique encryption key and uses the AES128 encryption algorithm.

- Any product does not know any other product's encryption key.

- All messages are encrypted, from sensor to the *Nano*Hub™ and to the CarbonNano Server.

- In the very unlikely event that a Hacker did manage to discover an encryption key, only that one particular product would be affected.

- CarbonNano does not use easily "hackable" systems such as WiFi, Zigbee, Z Wave and Bluetooth. We have designed our own unique communications protocol.

- Unlike many competitors' products, the *Nano*Hub™ that is connected to your router does not contain a software operating system such as Windows, MAC or Linux. This means that a hacker cannot take advantage of any weaknesses in those operating systems to gain control of your *Nano*Hub™.

- The *Nano*Hub™ also does not use software to respond to internet messages. This means that if a hacker attempted to perform a DoS or DDoS attack onto your *Nano*Hub™, it might slow the *Nano*Hub™ down a little, but otherwise it would not be affected.

6   How much does the CarbonNano Server cost?

- The CarbonNano Server online service is free to all customers and there are no subscription fees.

- In your CarbonNano account you can choose which type of alert messages you wish to receive:-

  o   Voice Over Internet calls (such as WhatsAp) are free of charge.

  o   Emails are free of charge.

  o   The *Nano*App™ is free of charge.

  o   Actual voice calls are chargeable. *It is not necessary to use actual voice calls as the Nano App™ and Voice Over Internet calls will normally be sufficient for your use.*

  o   Actual SMS messages are chargeable. *It is not necessary to use actual SMS messages as the Nano App™ and Voice Over Internet calls will normally be sufficient for your use.*

- Voice calls to your phone:-

  o   If you require high priority immediate alerts to be sent to your phone, then actual voice phone calls are made which have priority over all mobile phone traffic. These are chargeable as the calls are charged to CarbonNano by the mobile phone companies. CarbonNano uses a computer generated system to make voice calls.

- SMS messages to your phone:-

  o   CarbonNano uses a computer generated messaging system to write messages.

  o   If you require true SMS message alerts and alarms to be sent to your phone, then SMS messages are sent. These are chargeable as the SMS messages are charged to CarbonNano by the mobile phone companies. CarbonNano uses a computer generated messaging system to write SMS messages.

7   How much does the *Nano*Hub™ cost to run?

- The *Nano*Hub™ gateway is powered from the mains supply using a USB Charge type power supply.

- The *Nano*Hub™ gateway uses approximately 2.5 watts, therefore over the period of a year this equates to approximately 22kWh. At a cost of £0.275 per kWh, the *Nano*Hub™ would cost approximately £6 for the whole year.