

**The company's location appliance works with existing Wi-Fi access points and supports PanGo's asset-locating software, as well its own.**

By Mary Catherine O'Connor

Dec. 13, 2006—Last month, Massachusetts company [Newbury Networks](#) debuted an asset-location appliance that can be deployed for locating any Wi-Fi-enabled device read by access points from any of the major wireless LAN infrastructure providers: [3Com](#), [Aruba](#), [Cisco Systems](#), [Nortel](#), [Symbol](#) and [Trapeze](#).

This week, [PanGo Networks](#), a Framingham, Mass., technology firm specializing in asset-location software, announced that its PanOS Location Management Platform can run on Newbury's aptly named Location Appliance. This means companies can now manage assets through their existing wireless networks by combining the Newbury appliance and PanGo's PanOS Location Management Platform.



*Newbury Networks' Location Appliance*

Newbury Networks president and CEO Michael Maggio says his firm's location appliance can calculate the position of any Wi-Fi-enabled device, such as a laptop, though to be tracked, the device must first be turned on and transmitting a Wi-Fi signal. The appliance can also calculate the position of any RFID tag that transmits its identity over the 2.45 GHz band following the IEEE 802.11 Wi-Fi protocol. Newbury Networks sells Wi-Fi RFID tags for tracking assets or personnel that any standard Wi-Fi access point can read, but the company says its location appliance can work with Wi-Fi tags from any other provider as long as they are set to chirp, or beacon, a signal at regular intervals (as opposed to being on a dormant setting and requiring a wake-up signal before transmitting).

In addition to supporting PanGo's location-tracking software application, the location appliance supports the company's own location software, the Newbury Presence platform. The company explains that supporting third-party software such as PanGo's is part of its strategy to expose its Wi-Fi location appliance to a large potential customer base, including companies deploying Wi-Fi-based asset-location systems in the greatest numbers, such as health-care, financial services and manufacturing firms.

In May of last year, PanGo announced a partnership with Cisco on an asset-tracking system pairing PanGo's PanOS Location Management Platform with Cisco's then-new 2700 Series Wireless Location

Appliance (see [Cisco, PanGo Unveil Tracking System](#)). In tandem with PanGo's Wi-Fi-based asset tags—which can be set to either beacon or send movement or low-battery alerts to an infrastructure of Wi-Fi access points—the solution enables firms to locate and track everything from wheelchairs and other mobile assets to Wi-Fi devices such as operating laptops. Unlike Newbury's location appliance, however, Cisco's appliance must be used with Cisco access points.

According to Newbury, the Newbury Presence platform uses a unique method for determining the location of tagged assets or Wi-Fi devices. To locate tags, some real-time locating systems (RTLSs), such as those from [AeroScout](#) and [WhereNet](#), calculate the amount of time necessary for a signal to reach an access point, as well as the angle at which that signal is received, to determine its location. This calculation requires reads from multiple access points. Newbury's software, on the other hand, collects the relative signal strength indicator (RSSI) of each Wi-Fi tag from the access point that receives it, then uses an algorithm to determine the tag or asset's location by considering the fingerprint that the RF signal reveals through its modulation pattern.

In devising its locating software, Newbury found that Wi-Fi tag signals experience interference from large, immobile objects—such as walls, desks or bookcases—by bouncing off them in a predictable way. Therefore, the company built its locating software to consider an RF signal's fingerprint—the unique pattern the signal takes while traveling from its source to the access point within a given room or zone—combine it with the strength of that signal and determine the location of a tag or asset.

This requires that each room or zone be calibrated before the software is deployed, says Maggio, and the unique pattern that signals transmitted in that location can be saved to a database. But it must only be calibrated once, or each time the room undergoes a major renovation impacting the pattern. Interference from human bodies or objects that regularly change position within a room does not impact the pattern enough to significantly throw off the calibration, he adds.

The Wi-Fi-based systems of PanGo, Finnish RTLS provider [Ekahau](#), and AeroScout (which also track the time of signal arrival) use fingerprinting and RSSI, but Newbury says its location engine can pinpoint a beaconing Wi-Fi tag or operating Wi-Fi device to within 9 feet. Other systems, the company claims, provide a precision level of only 30 feet.

The Newbury Location Appliance costs \$14,995, while the Presence platform costs \$7,995. Both are now available, as is PanGo's PanOS for the Newbury appliance.