

Wireless Ethernet Bridge Technology: RadioLAN Bests The Competition

Speed and stability put vendor's BridgeLink wireless bridge in a league of its own

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Most vendors have a tendency to overstate the performance capabilities of their products, but RadioLAN's claims are justified. The company advertises its Campus BridgeLink Model 347 as a 10-Mbps product-the most modest performance rating among the devices in our tests. But imagine our surprise when the BridgeLink far and away outperformed every other unit we tested. Even without many of the features offered by some of its competitors, including the ability to do point-to-multipoint bridging or IP routing, its simple setup and impressive performance put it on top.

RadioLAN's product consistently yielded wireless transfer rates of 6.5 Mbps to 7 Mbps, second only to Western Multiplex Corp.'s Tsunami. The BridgeLink's next-closest competitor, Cisco Systems' AIR-BR340, gave us an average transfer rate of 5.5 Mbps. The BridgeLink's software also let us do some packet-filtering by protocol (IP, IPX, NetBEUI, and NetBIOS) and provided options to regulate packets that were either accepted or denied by MAC (Media Access Control) address.

The BridgeLink is unique in its design, looking nothing like any of the other products we saw. Each bridge consists of two small units: The first has an RJ-45 jack to connect to the network and an RJ-11 serial connection for configuration. The box has an interface that connects to the second unit, which has only an N-type connector to go out to the antenna. The antennas that RadioLAN ships with the device have a range of only one mile, which is on the lower end of the distance ranges we saw, especially in contrast to BreezeCom's BreezeNet. BreezeCom's product can send packets over distances of up to 15 miles without amplification. We spoke to several users who claimed the BridgeLink can go as far as 30 miles using higher-range antennas and amplification devices, but we were unable to test these assertions.

The BridgeLink's setup gave us no trouble at all. The first step is to run a utility that finds all the bridges connected on the network and lets the user assign an IP address to each.

Once this is done, the program loads the user's default Web browser and connects to the bridge. The Web interface let us configure all the options we needed on both bridges, including a Java applet that assisted with antenna aiming. The software lets the administrator monitor bridge information, including status and signal strength. The product also has Simple Network Management Protocol (SNMP) support for configuration.

The BridgeLink implements RadioLAN's 10BaseRadio technology and is unique in that Differential Pulse Position Modulation is used as the communication protocol. The bridge also uses narrow-band microwave transmission. While this partially explains the high throughput results we saw, it's also one of the reasons the BridgeLink has limited range out of the box. The only way to combat the distance issue is to use amplification devices.

The BridgeLink is also the only product to operate in the U-NII transmission band, rather than the ISM band. U-NII does not allow the use of spread-spectrum devices, and therefore can handle more capacity, which improves the bandwidth. However, distance suffers without the use of a spreading method.

Certainly, the Campus BridgeLink's lack of options is a disadvantage. However, the product's strong performance, simple yet intuitive interface, and solid design make it a good choice for many sites.

Western Multiplex, which developed the original spread-spectrum T1 product in 1992, is no stranger to the wireless market. We tested its 12-Mbps Tsunami wireless Ethernet bridge operating at 5.8 GHz in the ISM band, as well as its 45-Mbps version operating at 5.8 GHz in the U-NII band. Western Multiplex also had the only true full duplex 12-Mbps radio among our tested products, with the ability to transmit a total of 24 Mbps over the air.

Western Multiplex's 12-Mbps wireless bridge turned out great data-throughput results, but the device lacks significant management options necessary for internetworking data devices.

The product's operation is straightforward: Simply plug it in to your network port and it begins transferring everything. There's no additional software and absolutely nothing to configure. Any options, such as choosing full- or half-duplex, are set by DIP switches in the back of the unit; that's not very attractive as far as manageability is concerned. Optional SNMP support does let you make this bridge manageable by integrating it with network-management software that can handle a Telemetry Byte Oriented Serial protocol bit stream.

Tsunami bridges are plug-and-play devices, so installation is very easy. We liked the option for an order-wire interface to allow intercom capabilities between units and remote-monitoring front-end display via front-panel controls. Data throughput was by far the best of the nine products we tested. We found it to be the most consistent, without any fluctuation in the signal. The bridge also has T1 DSX-1 capability, which lets it transmit a T1 channel over the air.