

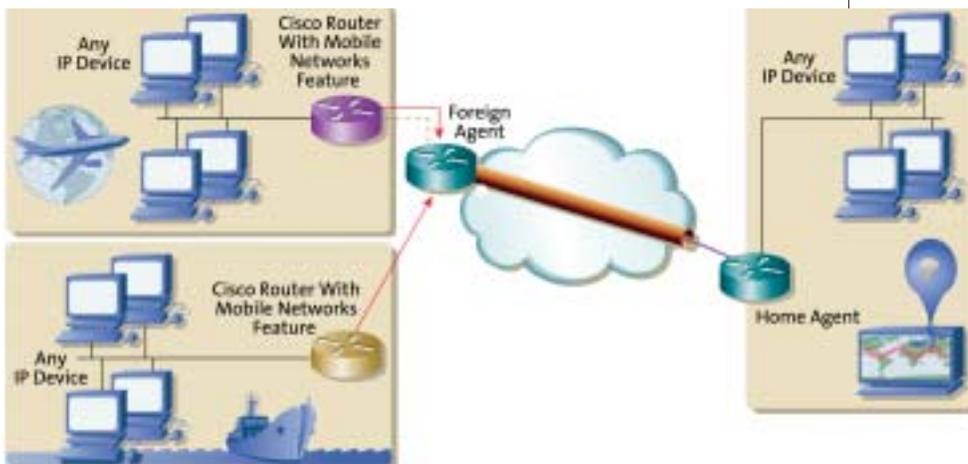
Continuously Connected With Mobile IP

With cellular phones, laptops, and personal digital assistants (PDAs) more popular than ever, wireless service providers are racing to keep up with customers' needs. Being able to access information on the Internet from a home or office computer alone is no longer sufficient, as more and more people are depending upon Internet Protocol (IP) devices in laptops and PDAs to stay connected. While cellular phones have built-in technology that picks up and carries the phone's signal as it moves from one coverage area to another, IP devices have not been as fortunate. In response to this, Cisco Systems of San Jose, California, worked with NASA's Glenn Research Center to make IP devices as mobile as their cellular counterparts.

When a computer or device communicates over the Internet, it has an assigned IP address which uniquely identifies it from other devices linked to the Internet. IP routing is based on stationary IP addresses, similar to the way that postal deliveries are made to a fixed address on an envelope. However, if a device roams away from its home network and is no longer reachable using normal IP routing, its active session is terminated. Cisco developed Cisco Mobile Networks in its internetwork operating system software (Cisco IOS® Software) to solve this problem. With this innovation, a Cisco router and its connected IP devices can roam across network boundaries and connection types. Because a mobile user is able to keep the same IP address while roaming, a live IP connection can be maintained without interruption.

According to William D. Ivancic, a senior research engineer at Glenn, "Cisco's Mobile Networks technology enables formation-flying craft to correlate information and talk with each other, even as they move across different systems." Glenn jointly tested the technology with Cisco, and is working to use it on low-earth-orbiting research craft. NASA may also utilize the technology for near-planetary observation and sensing spacecraft. Ivancic explains, "For our work, the continuous connectivity is key. Additionally, Cisco's solution does not require special software, equipment, or anything unique behind the router; any device that runs IP will work. This provides unprecedented flexibility."

With Cisco's Mobile Networks functionality now available in Cisco IOS Software release 12.2(4)T, the commercial advantages and benefits are numerous. The technology can be applied to markets such as public safety, military/homeland security, emergency management services, railroad and shipping systems, and the automotive industry. The technology will also allow ambulances, police, firemen, and the U.S. Coast Guard to stay connected to their networks while on the move. The real-time connectivity to hospitals may help to save countless lives. In the wireless battlefield, the technology will provide rapid infrastructure deployment for U.S. national defense. For those seeking convenience, airline passengers utilizing Cisco Mobile Networks can fly all around the world with a continuous Internet connection. The same holds true for train and cruise passengers. With continuous connectivity, everyone benefits. ❖



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Cisco Mobile Networks allows a Cisco router and its connected IP devices to roam across network boundaries and connection types while maintaining a live IP connection without interruption.