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If you go to visit your next-door neighbor, you simply go out your door and walk down the street. You don't need to know your neighbor's street address because you know physically where the house is.

If you plan to drive to visit your uncle who has just moved into a new house across the country, though, you're going to need to know the state, city, street, and house number. You'll use the city and state information to decide what highways to travel, and you'll use the city and street address to hone in on the right house. After you've seen the house, you'll be able to drive around in the local neighborhood without referring back to the house address.

Networks operate in exactly the same way. The physical address of a computer on a LAN, fixed in the network interface card by the manufacturer, works like physical knowledge of where a house is. Messages sent on the same LAN segment, corresponding to a house's neighborhood, can get to a specific physical LAN address. If you want to send a message across the country or around the world, though, you need the equivalent of a country, state, city, and street address. In network terms, the address that you need is called a logical address. The key difference between physical addresses and logical addresses is that, although physical addresses are scattered randomly around the world, logical addresses follow a pattern determined by network administrators and stored in routing tables. Routing tables (used by routers) are the equivalent of street maps, guiding messages to their destination.

Current versions of TCP/IP represent logical network addresses to humans as a sequence of four decimal numbers, each ranging from 0 to 255. The four numbers are typically written with dots separating them; a typical TCP/IP address is 64.29.208.36.

Whenever your computer needs to send a TCP/IP message to a computer not part of your LAN, it instead sends it to the computer defined as the default TCP/IP route. That computer (or router) has the responsibility of forwarding the message on a communications link leading to the destination, using routing tables to identify the correct link. In practice, the message goes out by default from your LAN through a computer or router with a link to your Internet service provider (ISP). A router at the ISP looks in the Internet core routing tables, selects the ISPs Internet link most directly connected to the end destination of the message, and sends the message down that link. The forwarding process continues until the message finally arrives on the LAN hosting the destination computer.