WHEN YOU SEND AN EMAIL: WHAT'S HAPPENING?

Data travels across the internet in packets. Each packet can carry a maximum of 1,500 bytes. Around these packets is a wrapper with a header and a footer. The information contained in the wrapper tells computers what kind of data is in the packet, how it fits together with other data, where the data came from and the data's final destination.

When you send an e-mail to someone, the message breaks up into packets that travel across the network. Different packets from the same message don't have to follow the same path. That's part of what makes the Internet so robust and fast. Packets will travel from one machine to another until they reach their destination. As the packets arrive, the computer receiving the data assembles the packets like a puzzle, recreating the message.

All data transfers across the Internet work on this principle. It helps networks manage traffic -- if one pathway becomes clogged with traffic, packets can go through a different route. This is different from the traditional phone system, which creates a dedicated circuit through a series of switches. All information through the old analog phone system would pass back and forth between a dedicated connection. If something happened to that connection, the call would end.

That's not the case with traffic across IP networks. If one connection should fail, data can travel across an alternate route. This works for individual networks and the Internet as a whole. For instance, even if a packet doesn't make it to the destination, the machine receiving the data can determine which packet is missing by referencing the other packets. It can send a message to the machine sending the data to send it again, creating redundancy. This all happens in the span of just a few milliseconds.