ARPA chose the initial computer sites based on pre-existing research relationships with the United States government. Each site had its own team of engineers responsible for connecting the site computer to the ARPANET. The four host computers in the initial ARPANET structure included:

* UCLA's university computer, which was an **SDS Sigma 7** running on the Sigma Experimental [operating system](http://computer.howstuffworks.com/operating-system.htm)
* Stanford Research Institute's **SDS-90 Computer**, which ran on the Genie operating system
* an **IBM 360/75** running on the OS/MVT operating system at the University of California's Culler-Fried Interactive Mathematics center
* a **DEC PDP-10** computer with the Tenex operating system at the University of Utah

In August 1969, the UCLA team hooked up its host computer to an IMP, a **Honeywell DDP 516** computer, making it the first of the four sites to connect into ARPANET. Within a few days, the two computers could exchange information. In October, Stanford's team added the second IMP and host to the system. At 10:30 p.m. on October 29, the Stanford and UCLA computers communicated with each other over a 50 kilobit per second (kbps) phone line.

On the first attempt, the system crashed before UCLA could send a complete command to the Stanford computer. Fortunately, everything worked on the second try. The other two host computers joined the network before the end of 1969. For the first time, scientists could harness the power of multiple computers in remote locations.

In 1973, Robert Kahn initiated an experiment with a technique he called **internetting** -- combining two or more separate networks into a larger network. He began to look into ways to integrate ARPANET with the **Defense Advanced Research Projects Agency's** (**DARPA**) **Packet Radio Network**, which was a network that used [radio](http://electronics.howstuffworks.com/radio.htm) waves to send data from one computer to another.

Other ARPANET networks began to go live, including **USENET**, **Ethernet**, **CSNET** and **BITNET**. The ARPANET Request for Comments 827 established an **External Gateway Protocol** that made it possible for separate networks to access each other, even though access to ARPANET was still restricted for official use. In 1983, the military section of ARPANET split off from the network; its only connection to the larger network was a few [e-mail](http://communication.howstuffworks.com/email.htm) gateways. The military renamed its smaller network **MILNET**, which would later become part of the Department of Defense Data Network (DDN) [source: [Living Internet](http://howstuffworks.com/framed.htm?parent=arpanet.htm&url=http://www.livinginternet.com/i/ii_arpanet.htm)].

In 1986, five supercomputer centers formed a network called **NSFNET**. Before long, NSFNET grew to include several universities in its network. Other networks began to consolidate into larger systems. People referred to this larger collection of networks and gateways as the **Internet**. While the era of the [personal computer](http://computer.howstuffworks.com/pc.htm) began in the late 1970s, the Internet still remained a resource for universities, corporations and the government.

ARPANET's infrastructure was beginning to show its age. The system's IMPs weren't as efficient or powerful as the computer nodes in other networks. Organizations on ARPANET began to transition to other networks, mainly NSFNET. In 1990, DARPA pulled the plug on the ARPANET project. The organization's goals had been met. The United States had a nationwide computer network that not only linked powerful resources together, but also could continue operating if a significant portion of the network stopped working. Even more impressive, this network now spanned the globe, connecting computers from one side of the world to the other.

As the Internet evolves, these protocols must also change. That means someone has to be in charge of the rules. There are several organizations that oversee the [Internet's infrastructure](http://computer.howstuffworks.com/internet-infrastructure.htm) and protocols. They are:

* **The Internet Society**: A nonprofit organization that develops Internet standards, policies and education.
* **The Internet Engineering Task Force** (**IETF**): An international organization with an open membership policy that has several **working groups**. Each working group concentrates on a specific topic, such as Internet security. Collectively, these working groups try to maintain the Internet's architecture and stability.
* **The Internet Architecture Board** (**IAB**): An IETF committee, the IAB's mission is to oversee the design of Internet protocols and standards.
* **The Internet Corporation for Assigned Names and Numbers** (**ICANN**): A private nonprofit corporation, ICANN manages the Internet's [**Domain Name System**](http://computer.howstuffworks.com/dns.htm) (**DNS**). ICANN is responsible for making sure that every domain name links to the correct **IP address**.

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The Internet Society and IETF are open membership organizations. Both welcome the participation and input of Internet experts. They shape the way the Internet works and evolves.

ICANN, on the other hand, is a private organization. The exclusive nature of ICANN concerns some people. They argue that ICANN holds a lot of power over anyone who wants to register a domain name. ICANN makes money by accrediting vendors called **registrars**. These registrars then sell domain names to consumers and businesses. If you want to register a specific domain name, ultimately ICANN decides if you can have it.

But the creation of the World Wide Web didn't come until decades later, with the help of a man named Tim Berners-Lee. In 1990, he developed the backbone of the World Wide Web -- the **hypertext transfer protocol** (**HTTP**). People quickly developed **browsers** which supported the use of HTTP and with that the popularity of computers skyrocketed. In the 20 years during which ARPANET ruled the Internet, the worldwide network grew from four computers to more than 300,000. By 1992, more than a million computers were connected -- only two years after HTTP was developed [source: [Computer History Museum](http://howstuffworks.com/framed.htm?parent=internet-versus-world-wide-web.htm&url=http://www.computerhistory.org/internet_history/)].

You might be wondering at this point what exactly HTTP is -- it's simply the widely used set of rules for how files and other information are transferred between computers. So what Berners-Lee did, in essence, was determine how computers would communicate with one another. For instance, HTTP would've come into play if you clicked the source link in the last paragraph or if you typed the http://www.howstuffworks.com **URL** (**uniform resource locator**) into your browser to get to our home page. But don't get this confused with Web page programming languages like **HTML** and **XHTML**. We use those to describe what's on a page, not to communicate between sites or identify a Web page's location.

Simply, the Internet is a network of networks -- and there are all kinds of networks in all kinds of sizes. You may have a [computer network](http://computer.howstuffworks.com/home-network.htm) at your work, at your school or even one at your house. These networks are often connected to each other in different configurations, which is how you get groupings such as **local area networks** ([LAN](http://computer.howstuffworks.com/lan-switch.htm)s) and **regional networks**. Your [cell phone](http://electronics.howstuffworks.com/cell-phone.htm) is also on a network that is considered part of the Internet, as are many of your other electronic devices. And all these separate networks -- added together -- are what constitute the Internet. Even satellites are connected to the Internet. To learn more about how this interwoven mega-network operates, check out [How Internet Infrastructure Works](http://computer.howstuffworks.com/internet-infrastructure.htm).

<http://computer.howstuffworks.com/internet-infrastructure.htm>