COMMUNICATIONS

Note: A lot of the following protocols have been experimented with and now used over the TCP/IP amprnet RADIO (wireless) AmateurPacketRadioNETwork since the early 1990's de Paul G4APL

Successful communication requires the use of standard protocols so that programs can understand each other.

The TCP/IP protocol suite defines the basic mechanisms of communication over the Internet. IP gets the packets of data to their destination; UDP sends small packets to a defined application, but without error checking (for speed); and TCP defines a reliable channel between two applications.
Communication links defined using UDP or TCP are known as sockets. Various higher level protocols build on TCP/IP to perform particular application-level functions.

FTP (File Transfer Protocol) is used to transfer files from one machine to another. It has provision for login security and for restarting partially complete transfers. As one of the oldest TCPIP protocols, it also has some rather inconvenient features and can play badly with proxy servers.

HTTP (HyperText Transfer Protocol) is a means of fetching data from a server; the data may come from a file or be generated by the server dynamically or the server may point the application at another source. Typically HTTP is used to fetch files where data is encoded using HTML (HyperText Markup Language) and the combination of HTTP servers and HTML files accessed by programs that understand them (known as browsers) is what makes up the World-Wide Web. It has become common to use HTTP for file transfer as well, to get over the problems that can arise using FTP.

XML (extensible Markup Language) is used as a universal format for structured documents and data.

Telnet and RLogin are insecure protocols for logging on to remote computers; SSH (Secure SHell) is a secure alternative.

Mail is transferred between servers using SMTP (Simple Mail Transfer Protocol). Mail clients can get the mail from the destination server using POPS (Post Office Protocol) or IMAP4 (Internet Message Access Protocol).

SNMP (Simple Network Management Protocol) is used for network management and the monitoring of network devices and their functions. It is not necessarily limited to TCP/IP networks.

There are of course areas of communication that do not relate to the Internet and there are components that handle Novell's IPX/SPX protocols and that are for communication and file transfer across serial links.

An application that may be used over local networks, the Internet or even over serial links is Remote Control. There are a number of packages that allow the user to observe or control a remote machine from their desktop, for training, diagnosis or support.

SMS (Short Messaging Service) is a feature of mobile telephone networks. There are components that allow messages to be sent over the Internet to suitable gateways that will transmit the messages to mobile telephones.

WAP (Wireless Application Protocol is the leading standard for information services on wireless terminals like digital mobile phones. WML (Wireless Markup) Language) is used to create pages that can be

displayed in a WAP browser.
The WAP standard is based on Internet standards (HTML, XML and TCP/IP).
It consists of a WML language specification, a WMLScript specification, and a Wireless Telephony Application Interface (WTAI) specification.

WAP Micro Browsers. To fit into a small wireless terminal, WAP uses a Micro Browser. A Micro Browser is a small piece of software that makes minimal demands on hardware, memory and CPU. It can display information written in a restricted mark-up language called WML.
The Micro Browser can also interpret a reduced version of JavaScript called WMLScript.

WML (Wireless Markup Language) It is a mark-up language inherited from HTML, but WML is based on XML, so it is much stricter than HTML.
WML is used to create pages that can be displayed in a WAP browser.
Pages in WML are called DECKS. Decks are constructed as a set of CARDS.

WMLScript WML uses WMLScript to run simple code on the client. WMLScript is a light JavaScript language. However, WML scripts are not embedded in the WML pages. WML pages only contains references to script URLs. WML scripts need to be compiled into byte code on a server before they can run in a WAP browser.

GPRS (General Packet Radio Service) is a new service designed for digital cellular networks (GSM, DCS, PCS). It utilises a packet radio principle and can be used for carrying end users packet data protocol (such as IP and X.25) information from/to a GPRS terminals to/from other GPRS terminals and/or external packet data networks. GPRS is standardised in ETSI (European Telecommunications Standards Institute).
GPRS uses a packet-mode technique to transfer high-speed and low-speed data and signalling in an efficient manner over GSM radio networks. GPRS optimises the use of network resources and radio resources. Strict separation between the radio subsystem and network subsystem is maintained, allowing the network subsystem to be reused with other radio access technologies. GPRS does not mandate changes to an installed MSC base.

TETRA (Terrestrial Trunked Radio) Protocol is an open digital trunked radio standard defined by the European Telecommunications Standardisation Institute (ETSI) to meet the needs of the most demanding professional mobile radio users.
TETRA has many of the benefits of the MPT 1327 protocol, but uses digital voice channel along with the digital control channel. The digital voice channel increases voice channel capacity in areas where there is insufficient capacity and where there is a need for higher security.

Hope you find the above information useful Paul g4apl
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