U

Researched and compiled by Joe Cyr (www.joe-cyr.com)

UAV CONTROL LEVELS - Degree, or levels, of interaction between the controller and the UAV. See the table below.

UAV CONTROL LEVELS	
1	Receipt and transmission of secondary imagery or data
2	Receipt of imagery or data directly from the UAV
3	Control of the UAV payload
4	Control of the UAV, less takeoff and landing
5	Full function and control of the UAV
Source: UAV Tactical Control System (TCS) CONOPS, 13 July 1998	

ULTRACAPACITOR - See SUPERCAPACITOR

ULTRA-LIGHTWEIGHT CAMOUFLAGE NET SYSTEM (ULCANS) - A camouflage screening system intended to provide highly mobile and semi-mobile assets with protection against multispectral threat sensors. It possesses cloaking capabilities in the visual, radar, and very-near infrared (IR) spectra, including NEAR-INFRARED BACKGROUND MATCHING and enhanced concealment against thermal sensors. [10:2670] NOTE: Because of its expanded spectrum capabilities, ULCANS is to replace the Lightweight Camouflage Screening System (LCSS).

ULTRA-LOW POWER BATTLEFIELD SENSOR COMMUNICATION SYSTEM (ULPBSCS) – A DoD-funded program (*ca* 2005) which includes development of miniature electronic sensors disguised as rocks that can be dropped from an aircraft and used to help detect the sound of approaching enemy combatants. [] NOTE: The devices, each about the size of a golf ball use tiny silicon chips and radio frequency identification

(RFID) technology; and are said to be sensitive enough to detect the sound of a human footfall at 20ft to 30ft, and cheap enough to be abandoned in the field after use.

ULTRA-LOW SIDE LOBES - SIDE LOBE emissions which, because of antenna design, are more than 50% below typical values. [10:2522]

ULTRASENSITIVE FLOW CYTOMETER - A device which employs LASERS to characterize and sort biological cells to identify the DNA fingerprints of bacteria, including biological threat agents. [10:2809]

ULTRAVIOLET - The portion of the ELECTRO-OPTIC spectrum band between 0.01 and 0.4 microns. [10:27] See also INFRARED, VISIBLE LIGHT.

ULTRAVIOLET COMMUNICATIONS - Communications using ultraviolet lamps for transmission and ultraviolet detectors for receivers. [] NOTE: Because ultraviolet light scatters well in the atmosphere, communications using ultraviolet light is virtually immune to electronic jamming and is extremely difficult to detect beyond 2 kilometers of the source. [10:81]

ULTRA-WIDEBAND RADAR - See IMPULSE RADAR.

UNATTENDED GROUND SENSOR SYSTEM (UGS) - A cluster of omni-directional passive acoustic and seismic sensors along with a gateway node formed in a cluster to achieve coverage of the desired area. The gateway node collects target directional information from the sensors to determine target range, bearing, classification and feature extraction for identification. The data are sent to a command console (*e.g.*, aboard a ship or mobile command post) for monitoring and inclusion in situational displays. [10:2955]

UNATTENDED JAMMER - See HAND-EMPLACED JAMMER.

UNCONVENTIONAL WARFARE - A broad spectrum of military and paramilitary operations conduct in enemy-held, enemy-controlled or politically sensitive territory. Unconventional warfare includes, but is not limited to, the interrelated fields of guerrilla warfare, evasion and escape, subversion, sabotage, and other operations of a low visibility, covert or clandestine nature. These interrelated aspects of unconventional warfare may be prosecuted singly or collectively by predominantly indigenous personnel, usually supported and directed in varying degrees by (an) external source(s) during all conditions of war or peace. [1.1] See also LOW INTENSITY CONFLICT (LIC), CONTINGENCY AND LIMITED OBJECTIVE OPERATIONS (CALOW or CALO).

UNCOOLED THERMAL IMAGERY - Thermal imagery which uses uncooled transducers and produce thermal images without scanning. [10:125] See also THERMAL IMAGING.

UNDERSEEBOOT U212 – A modern submarine, the German **Type 212** class (also Italian **Todaro** class), is a highly advanced design of non-nuclear submarine developed by Howaldtswerke-Deutsche Werft AG (HDW) for the German and Italian Navy. It features diesel propulsion and an additional air-independent propulsion (AIP) system using Siemens polymer electrolyte membrane (PEM) hydrogen fuel cells. The submarine can operate at high speed on diesel power or switch to the AIP system for silent slow cruising, staying submerged for up to three weeks without surfacing and with no exhaust heat. The system is also said to be vibration-free, extremely quiet and virtually undetectable, [Wikipedia]

UNDERWATER SHIPS HUSBANDRY (UWSH) - The effecting of ships repairs underwater by divers, saving the time and cost of placing the ship in drydock. [10:2951]

UNDERWATER VIEWING MODULE (UVM) - An underwater visual-imaging system mounted on the sail of a submarine. Applications include underwater reconnaissance, inspection and monitoring own ship conditions and launches, and visual navigation under ice. [10:106] See also UNMANNED UNDERWATER VEHICLE (UUV).

UNIFIED COMMAND SUITE (UCS) - A fly-away truck-portable super high frequency (SHF) multiband satellite communications system designed for use by weapons-of-mass-destruction civil support teams. [10:2838]

UNIFORM CAMOUFLAGE - The use of patterns on uniforms to allow the wearer blend in with the environment, thus facilitating concealment from adversaries. [] There are various patterns for JUNGLE AND WOODLAND environments, DESERT AND URBAN environments, and new developments in DIGITAL CAMOUFLAGE.

UNINTENTIONAL FREQUENCY MODULATION ON PULSE (UFMOP) - Unintentional frequency variations of a transmitter caused by non-linearities, non-ideal transmitter tubes, modulators, high voltage components, etc. UFMOP may also

be due to production variations, aging, poor maintenance, and temperature. [10:59*]
NOTE: UFMOP is an inherent characteristic of high-powered transmitters, and is exploited by ESM for emitter identification. These modulation are due to *pushing* (frequency, phase or amplitude due to modulation variations in the modulator or power supply), *pulling* (caused by variations in the load impedance seen by the output tube, such as from a poor rotary waveguide joint), and *other effects* (shaping of intrapulse characteristics produced by tube warm-up drift, temperature drift and unadjusted high-voltage power supply variations.) [10:2584]

UNINTENTIONAL NOISE EMISSION - In underwater acoustics, noise generated by a source (e.g., a target) which can be classified as *self-noise* (i.e., noise associated with the electronic circuitry of a sonar and the mechanical operation of a ship) and *ambient noise* (i.e., all of the noises in the sea). Self-noise is produced by noisy tubes and components in the sonar circuitry, water turbulence around the housing of the TRANSDUCER, loose structural parts of the hull, machinery (i.e., power plant and the power distribution system that supplies power to the other machinery on the vehicle, such as compressors, generators, propellers, etc.), cavitation, and hydrodynamic noises caused by the motion of the ship through the water. Ambient noise is background noise in the sea due to either natural or manmade causes, and may be divided into four general categories: hydrodynamic, seismic, ocean traffic and biological. [10:2584]

UNINTENTIONAL RADIATION EXPLOITATION - Exploitation for operational purposes of non-information-bearing elements of electromagnetic energy unintentionally emanated by targets of interest. [10:2764]

UNINTENTIONAL RADIATION INTELLIGENCE (RINT) - Intelligence derived from the collection and analysis of noninformation-bearing elements extracted from the electromagnetic energy unintentionally emanated by foreign devices, equipment, and systems, excluding those generated by the detonation of nuclear weapons. [*DoD*]
NOTE: Unintentional Radiation Intelligence is encompassed under MEASUREMENT AND SIGNATURE INTELLIGENCE (MASINT).

UNIVERSAL RESOURCE LOCATOR (URL) - A web site address consisting of the following components: protocol, user, password, host, generally consisting of a three-part domain name and optional port (e.g., www.ieee.com), and a URL path. The URL is formatted as follows:

protocol://*user*:*password*@*host*:*port*/*url-path*;typecode=*typecode*.

Some or all parts of *"user:password@"*, "*:password*", "*:port*", "/*url-path*" and ";typecode=*typecode*" may be excluded from the URL. The host name is a set of domain labels separated by ".". The url-path is of the form *name1/name2/name3/...*, and resembles a standard DOS path string, except that the slashes are forward slashes

(/) rather than backslashes (\). [See http://www.cis.ohio-state.edu/htbin/rfc/rfc1738.html for a technical discussion on URLs] NOTES: (1) In the example "http://www.ieee.com", *http* is the hypertext transfer protocol, *www* is world-wide web, *ieee* is the network (or company) name, and *com* is the "top-level" domain name. Other common top-level domain names include *com*, *net*, *edu*, *mil*, *gov*, *us*, and *uk.* (2) If a URL contains a "%" symbol, the two characters following that sign are interpreted as hexadecimal; this allows the use of otherwise illegal ASCII characters (such as a space, which may be included in the URL as "%20").

UNMANNED AERIAL VEHICLE - See UNMANNED AIR VEHICLE.

UNMANNED AIR VEHICLE (UAV) - An air vehicle having no on-board pilot, capable of receiving continuous or intermittent commands from a human operator at a distance. The vehicle is normally designed to be recoverable . [10:24] Also called UNMANNED AERIAL VEHICLE. NOTE: An example of a UAV is the 100-ft wingspan Raptor/Pathfinder, a solar-powered eight-motor, unmanned flying wing designed to stay aloft for weeks or months watching for ballistic missile launches or sampling air pollution. [10:2534]

TOP US ARMY TACTICAL UAV MISSIONS (1999) [10:2903]	
Priority and Mission	*Payload Type*
1. Reconnaissance	EO / IR, Search and Rescue (SAR)
2. Mine Countermeasures	IR
3. Target Designation	Laser Target Designators
4. Battle Management	EO / IR, Search and Rescuer (SAR)
5. Chemical-Biological Warfare	Point-Source Detectors
6. Signals Intelligence (SIGINT)	COMINT / ELINT
7. Counter-Camouflage	Multi-Spectral Sensors
8. Electronic Warfare (EW)	ESM / Jammers

9. Combat Search and Rescue	EO / IR, COMINT
10. Communications Data Relay	Communications Relays
11. Information Warfare (INFOWAR)	Specialized Electronic Attack (EA)
Source: US Army, *Unmanned Systems* magazine, 1999	

UNMANNED COMBAT AIR VEHICLE (UCAV) - UNMANNED AIR VEHICLES having combat-related roles, generally in the three following categories: (1) Long-dwell standoff intelligence, surveillance and reconnaissance (ISR); (2) Penetrating surveillance, suppression of enemy air defenses (SEAD), and strike; and (3) Tactical surveillance and targeting. UCAVs have been launched from ground, sea, air, and subsurface platforms. [10:3051] Also called UNMANNED COMBAT AERIAL VEHICLES.

UNMANNED COMBAT AIR VEHICLES (ca 2003)
Source: [10:3051]

Designation	Source	Mission(s)	Remarks
Neptune	DRS Unmanned Technologies, Inc., U.S.	Tactical reconnaissance, surveillance	Weight: 80 pounds; fixed wing
MLB Bat III	MLB Company, U.S.	Short-range surveillance	Weight: 9 pounds; fixed wing
Pointer	AeroVironment Inc. U.S.	Close-range surveillance	Weight: 10 pounds; fixed wing
RMAX	Yamaha, Japan	Remote Sensing	Weight: 128 pounds; helicopter
Raven	AeroVironment, U.S.	Reconnaissance, surveillance	Weight: 4 pounds; fixed wing

Tern	BAI Aerosystems	Chemical sensing, missile simulation, reconnaissance	Weight: 39 pounds; fixed wing
Scan Eagle	Boeing/Insitu Group, U.S.	Surveillance, communications	Weight: 33 pounds; fixed-wing
SkyVu Aerostat	TCOM, U.S.	Surveillance	Weight: 300 pounds; lighter-than-air; tethered
Eagle Eye	Bell Helicopter, U.S.	Reconnaissance, observation, targeting, acquisition	Weight: 2,650 pounds; twin-engine rotorcraft
Global Hawk	Northrop Grumman/Ryan Aeronautics, U.S.	Reconnaissance, surveillance	Weight: 25,600 pounds; fixed-wing; jet
Fire Scout	Northrop Grumman/Ryan Aeronautics, U.S.	Reconnaissance, surveillance, targeting	Weight: 1,465 pounds; helicopter
Dragon Eye	BAI Aerosystems, U.S.	Surveillance	Weight: 4 pounds; twin-engine fixed-wing
Shadow 2000	AAI, U.S.	Reconnaissance, observation, targeting	Weight: 261 pounds; fixed-wing
Sentry HP	DRS Technologies, U.S.	Surveillance, radio relay	Weight: 130 pounds; fixed-wing
Hunter RQ-5A	Northrop Grumman/Israel Aircraft Industries, U.S./Israel	Reconnaissance, observation, targeting, surveillance	Weight: 1,600 pounds; fixed-wing
Predator B	General Atomics Aeronautical, U.S.	Reconnaissance, surveillance, targeting, communications relay	Weight: 2,800 pounds; fixed wing

X-45A	Boeing, U.S.	Combat demonstration vehicle	Weight: 8,000 pounds; fixed-wing
Camcopter	Schiebel, Austria/U.S.	Surveillance, target acquisition, communication relay	Weight: 95 pounds; helicopter
Altus	General Atomics Aeronautical, U.S.	Communications relay, research	Weight: 2,150 pounds; fixed-wing

UNMANNED TERRAIN DOMINATION (UTD) - The use of autonomous, unmanned capability to achieve total SITUATIONAL AWARENESS (SA), evaluate data, develop courses of action and employ lethal and non-lethal SMART WEAPONS to achieve the commander's objectives. [U.S. Army Major Initiative, *circa* 2000]

UNMANNED UNDERSEA VEHICLE (UUV) - See UNMANNED UNDERWATER VEHICLE.

UNMANNED UNDERWATER VEHICLE (UUV) - An underwater vehicle launched from a torpedo tube to perform a variety of underwater scouting missions using visual imaging. [10:106] Synonymous with UNMANNED UNDERSEA VEHICLE. See also UNDERWATER VIEWING MODULE (UVM).

URBAN HOPPER A lightweight robot that can hop 20 feet vertically or horizontally. Used for urban combat environments. [10:3121, SIGNAL, December 2011]

URBANSIM (or UrbanSim) - A University of California Institute for Creative Technologies (ICT) project (ca 2010) for a personal computer-based virtual training application for practicing the art of battle command in counterinsurgency and stability operations. UrbanSim uses an underlying socio-cultural behavior model, coupled with a story engine that interjects events and situations based on the real-world experience of former commanders. It provides guidance and after-action review capabilities. [10:3119]

USER AGENT STRING - An alphanumeric string containing the self-identification of a BROWSER, such as Netscape or Microsoft Explorer. [] See also MOZILLA.
EXAMPLE (1999): Internet Explorer 4, running on Windows 98 sends the following USER AGENT STRING: *User Agent: Mozilla/4.0 (compatible; MSIE 4.01; Windows 98)*

V

VACUSOL - A spacecraft decoy. Sprayed from the protected spacecraft, it consists of a cloud of particles which reflect light at the same wavelengths as those reflected by the spacecraft. []

VACUUM FLUORESCENT DISPLAY (VFD) - A (vacuum tube) TRIODE consisting of a thermionic CATHODE, a control GRID, and a phosphor-coated ANODE which produces the display. []

VACUUM TUBE - An electronic device in which conduction by electrons takes place in a vacuum or gaseous medium within a gas-tight envelope (tube). Vacuum tubes generally consist of a heating element (unless it is of the COLD CATHODE variety), CATHODE, zero or more control elements (or GRID), and a plate (or ANODE). Except for electronic displays, such as the CATHODE RAY TUBE, and certain high power applications, vacuum tubes have largely been replaced by solid state devices. Also called VALVE. [] NOTES: (1) One way of classifying vacuum tubes is according to the number of elements contained in the tube. Thus, a DIODE contains two elements (cathode and plate), TRIODE contains three elements (cathode, grid, and plate), TETRODE contains four elements (cathode, two grids, and plate), and PENTODE (cathode, three grids, and plate). (2) Several types of otherwise obsolete vacuum tubes are still being manufactured in Eastern Europe (1998) for use by entertainers in guitar and other instrument amplifiers, e.g., 6L6 beam power tetrode introduced by RCA in 1936, 12AT7 dual triode, and the 12AX7 dual triode. [10:2636]

VALUE ADDED NETWORK (VAN) - A private service that securely routes data from one organization to another for a fee. []

VALVE - See VACUUM TUBE.

VAN ECK ATTACK - See VAN ECK MONITORING.

VAN ECK DEVICE - A device which monitors RF radiation from computer monitors and connecting cables. []

VAN ECK MONITORING - The monitoring of the activity of a computer or other electronic equipment through detection of low levels of electromagnetic emissions form the device. Named after Dr. Wim van Eck who published on the topic in 1985. [] Also called VAN ECK ATTACK [10:2964]

VAPOR TRACING - Exploitation of the natural airflow phenomenon called "the human convection plume" to detect microscopic traces of nitroglycerin, TNT, cocaine, heroin and other explosives and narcotics. [10:2991] NOTE: Current (2003) devices used

at airports, for example, are claimed to be able to detect traces of such contraband within seconds on individuals being scanned. For example, a passenger steps inside, gets a brief blast from 16 air jets, and an overhead analyzer sucks up the human convection plume that naturally exhausts from the human body. After a few seconds, a clean passenger gets a green light to proceed; otherwise, an alarm will sound.

VARIABLE POLARIZATION - An ECCM technique for use against a main-beam on-target or STANDOFF JAMMER. It controls the POLARIZATION of the radar antenna to maximize SIGNAL-TO-JAMMING RATIO in the radar receiver. [8]

VARIABLE VELOCITY RIFLE SYSTEM (VVRS) - A rifle which vents propellant gas to vary projectile velocity for either lethal or non-lethal effects. [10:2752] See also NONLETHAL WEAPON. NOTE: Certain VVRS weapons allow the user to dial up the velocity of the bullet depending on the situation. Using a cartridge based on the standard shotgun shell, the propellant exploits the explosive interaction between aluminum and water.

VECTORED THRUST DUCTED PROPELLOR (VTDP) COMPOUND HELICOPTER - A specialized helicopter for airborne mine countermeasures (MCM) towing missions. It features a ducted propeller for forward thrust and small wings for added lift.

VECTORED THRUST DUCTED PROPELLOR COMPOUND HELICOPTER

Source: ONR
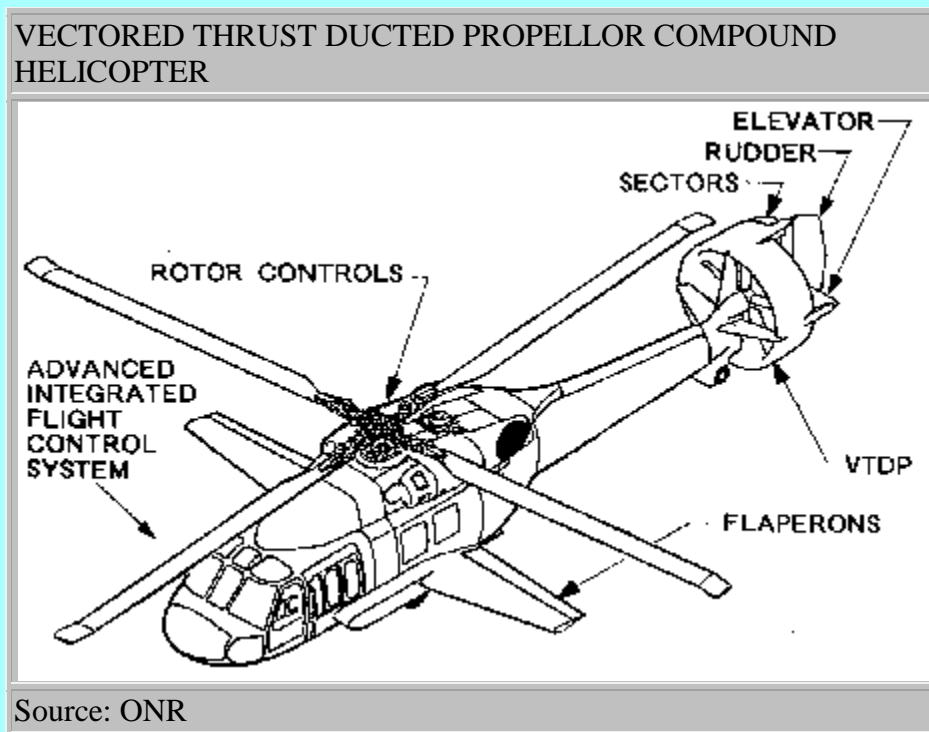
VEHICLE ACTIVE DEFENSE SYSTEM (VADS) - A NONLETHAL WEAPON system consisting of a vehicle equipped with mounted flash, bang, and smoke grenades to distract, allowing the vehicle to then evade ambushers. [10:2745]

VEHICLE-DISABLING WEAPON (VDW) - A NONLETHAL WEAPON system which employs LASER beams to directly inject radio-frequency (RF) electrical current into the electronic circuits of the target vehicle. The disabling current is transmitted through two channels of highly ionized air for a (theoretical) range of up to two kilometers. [10:2952] See also ANTI-PERSONNEL BEAM WEAPON (APBW).

VEHICLE MANAGER - An individual who manages the flight profile of several unmanned combat aerial vehicles (UCAVs) and/or unmanned reconnaissance aerial vehicles (URAVs) simultaneously, and is envisioned (1996) as part of a team consisting also of a weapons officer, and an intelligence analyst, all involved with the missions of these pilotless air vehicles. [10:2586]

VEHICLE MANAGEMENT SYSTEM (VMS) - A vehicle control system characterized by a high degree of physical and functional integration of manual and automatic flight controls, propulsion controls, and airframe utility subsystem controls. [12]

VEHICLE MOUNTED MINE DETECTOR (VMMD) - A vehicle-mounted system which is capable of detecting, within 0.25 meters, both surface and underground mines buried to a depth of 8 inches. The VMMD is equipped with a forward-looking infrared sensor, a mission control computer, and a ground-penetrating standoff mine detection radar. [10:2629]

VELA - A set of nuclear detonation (NUDET) detection satellites (Vela-5A, 5B, 6A, 6B) deployed in the period 1969-1979. Probably named after the star Vela ("The Sail") []

VELOCITY GATE PULL OFF (VGPO) - A SELF-SCREENING ECM technique used against velocity tracking radars. It captures the victim radar's velocity gate, walks it off in velocity, then turns OFF, leaving the velocity gate with no signal, causing a break in the velocity track. The process is repetitive. [8] Synonymous with VELOCITY GATE WALK-OFF.

VELOCITY GATE WALK OFF - See VELOCITY GATE PULL OFF.

VERDIN - See VLF DIGITAL INFORMATION NETWORK

VERSATILE INTELLIGENT PORTABLE elbit ROBOT (VIPeR) - A small, lightweight battlefield robot intended to support dismounted infantry. The robot can be configured for a variety of missions such as bomb disposal and reconnaissance. It can be armed with a submachine gun or a grenade launcher for combat operations.

[10:3099] NOTE: The "e" in VIPeR refers to the developer: Elbit Systems Limited, Haifa, Israel.

VERTICAL CAVITY SURFACE-EMITTING LASER (VCSEL) - A laser device constructed using ATOMIC-LEVEL MANUFACTURING. The VCSEL is composed of multiple NANOMETER-thick layers of different semiconducting materials that are sandwiched together. The specific wavelength and intensity of the emitting light can be tuned by controlling the spacing between material layers in the fabrication process. [10:2834] NOTE: VCSELs have applications in high-bandwidth, optics-based telecommunications networks.

VERTICAL COVERAGE DIAGRAM - See FADE CHART.

VERTICAL LAUNCH ASROC (VLA) - An ASROC launched from a fixed vertical launcher. []

VERTICAL SITUATION DISPLAY - An electronically generated display on which information on aircraft attitude and heading, flight director commands, weapon aiming and TERRAIN FOLLOWING can be presented, choice of presentation being under control of the pilot. [1.1] See also HEAD-UP DISPLAY, HORIZONTAL SITUATION DISPLAY.

VERY HIGH FREQUENCY OMNI-DIRECT RADIO-RANGE (VOR) - A ground-based electronic navigation aid that transmits VHF omni-directional radio signals, 360 degrees in azimuth, oriented from magnetic north. [10:2771] NOTE: The primary radio navigation aid in the National Airspace System, VOR is the internationally designated standard short-distance radio navigation aid for air carrier and general aviation Instrument Flight Rules (IFR) operations. It provides a bearing from the aircraft to the VOR transmitter. Distance to the ground station is provide by a co-located Distance Measuring Equipment (DME) or TACAN. If the VOR is co-located with a TACAN, the configuration is called VORTAC. [10:2770]

VERY LONG INSTRUCTION WORD (VLIW) - A computer instruction word which encodes four or more operations in a single instruction. []

VERY LOW FREQUENCY DIGITAL INFORMATION NETWORK - See VLF DIGITAL INFORMATION NETWORK

VESSEL STOPPER SYSTEM (VSS) - A non-lethal means to render a suspect vessel inoperable for a sufficient period of time to enable a boarding party to reach and board the vessel. [] VESSEL STOPPER SYSTEM (VSS) - A non-lethal means to render a suspect vessel inoperable for a sufficient period of time to enable a boarding party to reach and board the vessel. []

VIA - A vertical plated-thru hole, usually drilled, in a multi-layered Printed Circuit Board (PCB) used to provide electrical connection between two or more layers. If the via connects two or more layers within the PCB, not including either outer layer, it is called a BURIED VIA. If the via connects two or more layers to include one of the outer layers, it is called a BLIND VIA (BLIND TOP VIA or BLIND BOTTOM VIA). If a via connects all layers it is called a THROUGH VIA; see the figure below. [10:2714]
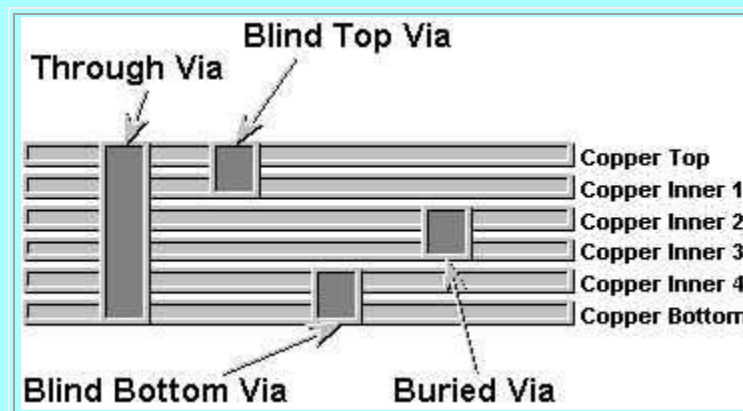
Also called FEED-THRU (FEED-THROUGH) and VIA-HOLE. See also MICROVIA.

VIBRATION SENSOR - A device used to provide vibration information. There are three basic types of vibration sensors: *displacement transducer*, which is a non-contact device measuring minute distances between the observed equipment and the sensor; *velocity sensor* (e.g. spring-held magnet moving through a coil of wire) which measures vibration as either horizontal or vertical motion; and *accelerometer*, a piezoelectric device. []

VIBRO-ACOUSTIC DEVICE - A device for mitigating vibro-acoustic stresses. It uses active isolation and acoustic mitigation to push against the air inside a payload shroud, thus counteracting the oncoming sound waves created at launch, preventing payload damage. [10:3023]

VIDEO BLANKING INTERVAL - A television (TV) broadcast area reserved for data. Internet data are delivered to the PC by using the video blanking interval in a broadcast or cable TV signal. The signal is then received by a TV tuner card, and the incoming video is displayed in a full or one-quarter screen. []

VIDEO CHALK - See TELESTRATOR.

VIDEO COMPRESSION - Techniques which allow television pictures to be transmitted over relatively narrow bands. [10:36] NOTE: Some video compression systems incorporate baseline picture frame techniques. A single frame is digitized and stored in memory. Subsequent picture frames are compared to this baseline and only the differences between the two frames are transmitted. Other techniques involve removal of alternate lines of pixels or the use of parallel processors and compression algorithms to simultaneously handle "sub-pictures".

VIRCATOR - See VIRTUAL-CATHODE OSCILLATOR.

VIRTUAL ANTENNA - A method by which a single radiating element achieves radar antenna characteristics through the use of digital processing and movement of the radiating element, target, or both. []

VIRTUAL-CATHODE OSCILLATOR (VIRCATOR) - A broadband tunable device capable of producing intense electron beams, and therefore suitable for use as a DIRECTED ENERGY WEAPON. [10:16]

VIRTUAL CIRCUIT (VC) - A PACKET SWITCHING technique in which a logical connection is established between two stations. Communications over a virtual circuit differs from connectionless communication in that all PACKETs follow the same route, may carry less header information, and arrive in the order they were sent. [10:2632]

VIRTUAL ENVIRONMENT (VR) - A computer-generated, three-dimensional representation of a setting, which unlike VIRTUAL REALITY, need only suggest a real or imagined space, and does not have photo-realism and a sense of total immersion a primary goal. [10:2595] See also DISTRIBUTED VIRTUAL ENVIRONMENT.

VIRTUAL HEIGHT - The apparent height of an ionized layer determined from the time interval between the transmitted signal and the ionospheric echo at vertical incidence, assuming that the velocity of propagation is the velocity of light over the entire path. [3] See also IONOSPHERE.

VIRTUAL PRIVATE NETWORK (VPN) - (1) A computer connection in a shared network that has the appearance of a dedicated link. [] (2) A community of users who communicate securely within a public network, (*e.g.*, the INTERNET). [] (3) The use of encryption in the lower PROTOCOL layers to provide a secure connection through an otherwise unsecure network such as the Internet. [*Free On-Line Dictionary of Computing*]

VIRTUAL REALITY (VE) - A combination of technologies whose interfaces with the human user can so dominate the senses that the person intuitively interacts with the immersive and dynamic computer-generated environment. [10:2595] Contrast with VIRTUAL ENVIRONMENT. NOTE: Virtual reality provides a full immersion of the user(s) in an interactive computer-generated environment.

VIRTUAL WORLD - A loose way of describing any DISTRIBUTED VIRTUAL ENVIRONMENT, whether separately or in combination. [10:2595] See also CYBERSPACE.

VIRUS - With respect to computers, a computer program file capable of attaching to disks or other files and replicating itself repeatedly, typically without user knowledge or permission. Some viruses attach to files so when the infected file executes, the virus also executes. Other viruses sit in a computer's memory and infect files as the computer opens, modifies or creates the files. Some viruses display symptoms, and some viruses damage files and computer systems, but neither symptoms nor damage is essential in the definition of a virus; a non-damaging virus is still a virus. [*Most of the descriptions given below are from the McAfee Virus Information Library: http://vil.nai.com/vil/*] See also MALICIOUS SOFTWARE. NOTES: (1) Viruses have been written for several operating systems including DOS, Windows, Amiga, Macintosh, Atari, and UNIX. (2) A virus may disguise itself as a legitimate program. Viruses are often rewritten and adjusted so that they will not be detected. (3) According to McAfee (see URL above), more that 81,000 viruses exist today (2004). (4) Many viruses are carried as e-mail attachments.

Some categories and types of viruses are listed below:

APPENDING VIRUS - A PARASITIC VIRUS which attaches itself to the end of the host file. Contrast with PREPENDING VIRUS.

CAVITY VIRUS - A virus that overwrites a part of its host file without increasing the length of that file while also preserving the host's functionality.

CLUSTER VIRUS - Cluster viruses modify the directory table entries so the virus starts before any other program. The virus code only exists in one location, but running any program runs the virus as well. Because they modify the directory, cluster viruses may appear to infect every program on a disk. Also called FILE SYSTEM VIRUS.

COMPANION VIRUS - A form of FILE VIRUS which uses a feature of DOS that allows software programs with the same name but different extensions to operate with different priorities. Most companion viruses create a .COM file with the same victim .EXE filename and which has a higher priority than the .EXE file; thus the virus does not modify the original file in any way. [] NOTES: (1) For example, a companion virus in the infected system may detect the file PROGRAM.EXE and create a file called PROGRAM.COM. When the computer executes PROGRAM from the command line, the virus, *i.e.*, PROGRAM.COM, runs before the actual PROGRAM.EXE (whenever a program is executed without specifying a file extension, the system will always try to find and execute the .COM program first and if it cannot be located then .EXE file will be called next). The virus may then execute the original program afterwards so the system appears to be normal.

DIRECT ACTION VIRUS - A virus which immediately loads itself into memory, infects other files, and then unloads itself.

DROPPER - A dropper is not itself a virus, but a carrier file that installs a virus on a computer system. CRACKERS often use droppers to shield their viruses from anti-virus software.

ENCRYPTED VIRUS - An virus whose code begins with a decryption algorithm and continues with scrambled or encrypted code for the remainder of the virus program. Each time it infects, it automatically re-encodes itself so that its code never remains the same.

FAST INFECTOR - A virus which, when active in memory, infects not only executed programs, but also other programs that are or may be opened. Thus running an application, such as anti-virus software, which opens many

programs but does not execute them, can result in all programs becoming infected. Compare with SLOW INFECTOR and SPARSE INFECTOR.

FILE INFECTOR - See FILE VIRUS.

FILE-INFECTING VIRUS - See FILE VIRUS.

FILE SYSTEM VIRUS - See CLUSTER VIRUS.

FILE VIRUS - File viruses usually replace or attach themselves to .COM and .EXE files. They can also infect files with the extensions .SYS, .DRV, .BIN, .OVL and .OVY. File viruses may be resident or non-resident, the most common being resident or Terminate-and-Stay-Resident (TSR) viruses. Many non-resident viruses simply infect one or more files whenever an infected file runs. A file virus is a type of virus which inserts itself into, or associates itself with a file. They only infect files that can be executed, including, but is not limited to: .EXE, .COM and .DOT files. File viruses can be further divided into PARASITIC VIRUSES; OVERWRITING VIRUSES; COMPANION VIRUSES; and LINKING VIRUSES. Also called FILE INFECTOR, FILE INFECTING VIRUS, PROGRAM VIRUS.

INJECTOR - A DROPPER that installs a virus only in memory.

LINKING VIRUS - A form of FILE VIRUS that infects programs by changing information in the directory structure and modifying the file pointers, so that every infected program starts at the same location (usually the last cluster on the disk) which contains virus code. [*Ullapool & Lochbroom Community Tourism & Business Website www.ullapool.co.uk*] NOTE: Cleaning disks infected with a link virus requires a specific approach.

MACRO VIRUS - A macro virus is a malicious macro. Macro viruses are written a macro programming language and attach to a document file (such as Word or Excel). When a document or template containing the macro virus is opened in the target application, the virus runs, does its damage and copies itself into other documents. Continual use of the program results in the spread of the virus.

MUTATING VIRUS - A virus which changes, or mutates, as it progresses through its host files making disinfection more difficult. The term usually refers to viruses that intentionally mutate, though some experts also include non-intentionally mutating viruses. See Also: POLYMORPHIC VIRUS.

OVERWRITE VIRUS - See OVERWRITING VIRUS

OVERWRITING VIRUS - A form of FILE VIRUS which copies its code over its host file's data, thus destroying the original program. Disinfection is possible, although files cannot be recovered. It is usually necessary to delete the original file and replace it with a clean copy. Also called OVERWRITE VIRUS. NOTE: Most viruses are careful not to destroy the infected file, but overwriting viruses overwrite part of the infected file, so that it will no longer operate. However, this makes these viruses extremely obvious, so they are unlikely to spread far

PARASITIC VIRUS - A form of FILE VIRUS that requires a host to help it spread. Parasitic viruses attach themselves to files in order to propagate. The parasitic virus generally keeps most of the file intact and either add itself to the start (prepending viruses) or end of the file (appending viruses). NOTE: .COM and .EXE files are easiest to infect, as they are simply loaded directly into memory and execution always starts at the first instruction.

POLYMORPHIC VIRUS - A virus which creates varied (though fully functional) copies of itself as a way to avoid detection from anti-virus software. Some polymorphic virus use different encryption schemes and requires different decryption routines. Thus, the same virus may look completely different on different systems or even within different files. Other polymorphic viruses vary instruction sequences and use false commands in the attempt to thwart anti-virus software. One of the most advanced polymorphic viruses uses a mutation-engine and random-number generators to change the virus code and its decryption routine. See Also MUTATING VIRUS.

PREPENDING VIRUS - A PARASITIC VIRUS which adds itself to the start of the host file. Contrast with APPENDING VIRUS.

PROGRAM VIRUS - See FILE VIRUS.

RESIDENT VIRUS - A virus which loads itself into memory and remains inactive until a trigger event. When the event occurs the virus activates, either infecting a file or disk, or causing other consequences. All boot viruses are resident viruses and so are the most common file viruses. See also TIME BOMB PROGRAM.

SELF-ENCRYPTING VIRUS - A virus which attempts to conceal itself from anti-virus programs. Most anti-virus programs attempt to find viruses by looking for certain patterns of code (known as virus signatures) that are unique to each virus. Self-encrypting viruses encrypt these text strings differently with

each infection to avoid detection. See also SELF-GARBLING VIRUS, ENCRYPTED VIRUS.

SELF-GARBLING VIRUS - A virus which attempts to hide from anti-virus software by garbling its own code. When these viruses spread, they change the way their code is encoded to prevent anti-virus software from finding them. A small portion of the virus code decodes the garbled code when the virus is activated. See also SELF-ENCRYPTING VIRUS, POLYMORPHIC VIRUS.

SLOW INFECTOR - A virus that infects files only when the files are modified, so that it appears to checksum software that the modification was legitimate. Compare with FAST INFECTOR, SPARSE INFECTOR.

SPARSE INFECTOR - A virus that infects only on specified occasions—for example, it may infect every tenth program executed, making the virus more difficult to detect.

STEALTH VIRUS - A virus which attempts to conceal its presence from anti-virus software. Many stealth viruses intercept disk-access requests, so when an anti-virus application tries to read files or boot sectors to find the virus, the virus feeds the program a "clean" image of the requested item. Other viruses hide the actual size of an infected file and display the size of the file before infection. NOTE: Stealth viruses must be running to exhibit their stealth qualities.

TUNNELING - A virus technique designed to prevent anti-virus applications from working correctly. Anti-virus programs work by intercepting the operating system actions before the Operating System (OS) can execute a virus. Tunneling viruses try to intercept the actions before the anti-virus software can detect the malicious code. New anti-virus programs can recognize many viruses with tunneling behavior.

VISIBLE LIGHT - ELECTROMAGNETIC RADIATION which can be detected by the human eye. It is commonly used to describe wavelengths which lie in the range between 0.4 and 0.7 microns. [3] See also ELECTRO-OPTIC, INFRARED, ULTRAVIOLET.

VISUALIZATION - An image- processing technique that combines the use of image processing, graphics, multi-dimensional (volume) rendering and photo-realistic rendering. [10:113]

VLF DIGITAL INFORMATION NETWORK (VERDIN) - A very low frequency (VLF)/low frequency (LF) communications system to provide secure command and

control (C^2) to strategic and tactical submarine forces and airborne VLF relay "Take charge and move out" (TACAMO) aircraft. []

VOICE SYNTHESIS DEVICE - A NONLETHAL WEAPON which has the ability to clone a person's voice so that a synthesized message in that person's voice can be transmitted (e.g., by satellite) to a selected audience. [10:2754]

VOICE TO SKULL (V2K) DEVICE - NONLETHAL WEAPONS which include (1) A NEURO-ELECTROMAGNETIC DEVICE that employs microwave transmission of sound into the skull of persons or animals by way of pulse-modulated microwave radiation. Depending upon the frequency and power densities used, such transmissions may be perceived by humans due to the ELECTROPHONIC EFFECT, which manifests itself as a buzzing or clicking sound in the back of the head. (2) A SILENT SOUND DEVICE which can transmit sound into the skull of person or animals. [] Also called ARTIFICIAL TELEPATHY, MICROWAVE HEARING, FREY EFFECT. NOTE: The sound modulation may be voice or audio sub-liminal messages. One application of V2K is use as an electronic scarecrow to frighten birds in the vicinity of airports.

VOLATILE RAM - Computer Random Access Memory in which data cannot be retained without continuous power dissipation. [] Contrast with NON-VOLATILE RAM.

VOLCANO - A multiple mine delivery system which can deploy GATOR MINES from various vehicles and helicopters. [10:2735]

VORTEX WEAPON - A NONLETHAL WEAPON that generates an explosive charge which creates a massive shock wave traveling at hundreds of miles per hour to its target. [10:2730] NOTE: This weapon can knock down people or even aircraft, and could be used in combination with gases or chemical agents.

VORTAL - A Web site that contains news, links and other information specific to one particular industrial sector. []

VOYAGE MANAGEMENT SYSTEM (VMS) - A computerized system which includes an electronic chart display and information system. It determines the ship's position and movement by integrating input from GLOBAL POSITIONING SYSTEM (GPS) sensors, navigation radars, depth sounder, speed log, gyrocompass, and other systems. VMS can provide a display showing surface radar contacts superimposed on an electronic nautical chart display. The system includes an advanced steering function to drive the ship automatically, and allows the ship to follow the course of a programmed voyage plan. [10:2663]

VULNERABILITY - (1) The characteristics of a system which cause it to suffer a definite degradation (incapability to perform the designated mission) as a result of having been subjected to a certain level of effects in an unnatural (manmade) hostile environment. [1.1] (2) An electronic system measure expressed as a composite of ACCESSIBILITY, INTERCEPTIBILITY, SUSCEPTIBILITY. [4:13] See also GRACEFUL DEGRADATION.

W

WAKE SIGNATURE CONTROL - SIGNATURE CONTROL designed to reduce an adversary's ability to detect, track, and engage friendly units through analysis of surface and underwater wakes. Sensor systems that can detect wakes include visual, conventional and IR photography, IR radiometry, and microwave radiometry. [12]

WAKE VORTEX - The air turbulence generated behind an aircraft. []
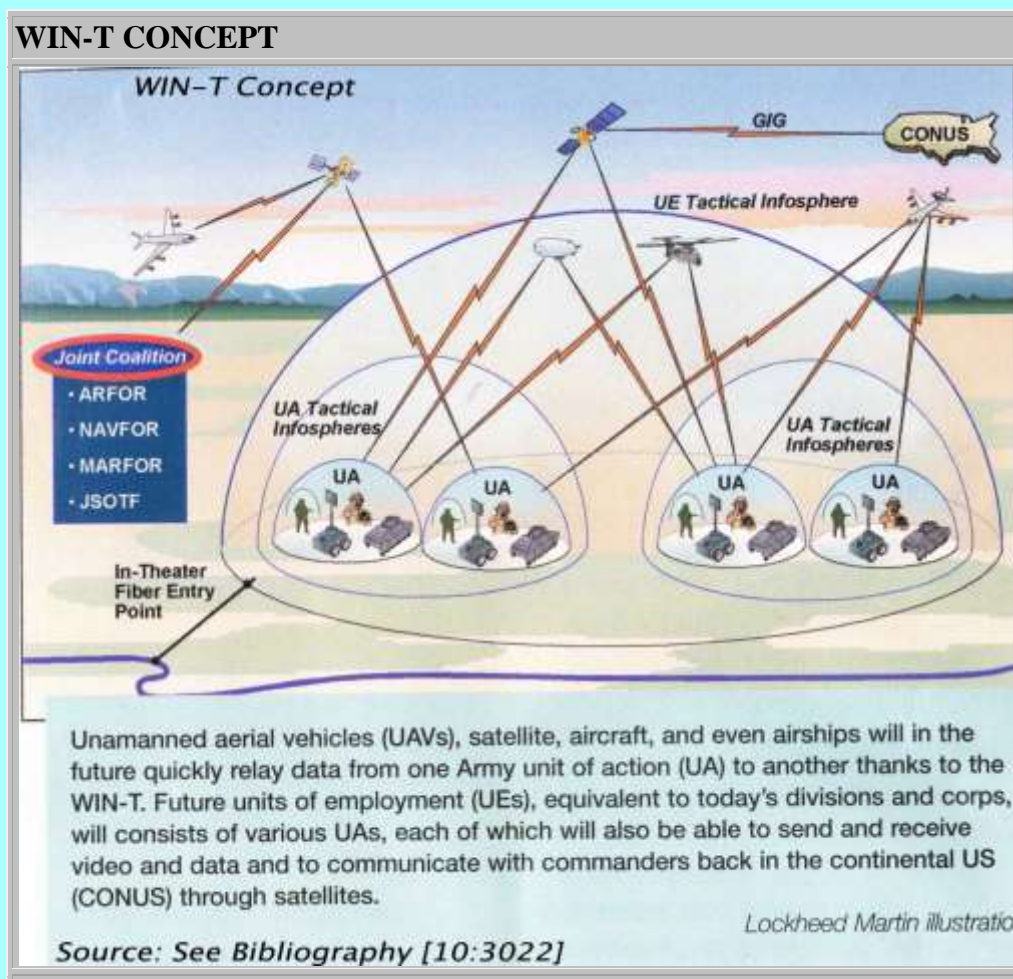
WANDERER - See SPIDER.

WAR BREAKER - A research program initiated by the Advanced Research Projects Agency (ARPA). War Breaker addresses automated surveillance, targeting, intelligence, and planning to target and destroy time-critical targets such as mobile missile systems and advanced command and control centers. [JED "Washington Report 5/93]

WARDIALER - A computer program, used by CRACKERS, which dials a specified list of telephone numbers and records those which answer with HANDSHAKE tones, distinguishing among modem, fax, and PBX tones. [] NOTE: WARDIALERS have evolved from DEMON DIALERS.

WARFIGHTER PHYSIOLOGICAL STATUS MONITORING (WPSM) -- A next-generation combat uniform featuring a configurable array of miniaturized wireless sensors to monitor heart rate, metabolic energy cost of walking or marching, core skin temperatures, and activity or inactivity. The WPSM uniform will also feature GLOBAL POSITIONING SYSTEM (GPS) geolocation data and a low-power PERSONAL AREA NETWORK (PAN). NOTE: All WPSM data will be transmitted to a central hub device the size of a pager worn on a soldier's belt to be stored or passed on to command communications networks or even the Internet. The WPSM will provide command with information about a soldier's energy expenditure, physiological stress and alertness levels. If a soldier is injured, the sensors will provide medics with the capability to perform accurate battlefield triage. [10:2920]

WARFARE SYSTEMS ARCHITECT (WSA) - (Navy) An individual responsible for designing SYSTEM ARCHITECTURE for naval forces of the future based on requirements provided by OPNAV. []

WARFIGHTER INFORMATION NETWORK-TACTICAL (WIN-T) - A tactical portion of the Army's Global Information Grid (GIG). WIN-T will connect all of the services of the military with the National Security Agency (NSA), Central Intelligence Ageny (CIA), the State department and other cooperating organizations. This will enable battlefield commanders to exchange intelligence in real time, enhancing mission achievement and intelligence collection. [10:3022] NOTE: WIN-T will employ unmanned aerial vehicles (UAVs), satellites, aircraft, and even airships for relaying data from one Army unit of Action (UA) to another.

WIN-T CONCEPT

Unamanned aerial vehicles (UAVs), satellite, aircraft, and even airships will in the future quickly relay data from one Army unit of action (UA) to another thanks to the WIN-T. Future units of employment (UEs), equivalent to today's divisions and corps, will consists of various UAs, each of which will also be able to send and receive video and data and to communicate with commanders back in the continental US (CONUS) through satellites.

Lockheed Martin illustratio

Source: See Bibliography [10:3022]

WARFIGHTER'S TACTICAL ASSOCIATE (WTA) - A server-like station mounted on a High Mobility Multipurpose Wheeled Vehicle (HMMWV -- "Hummer", or

"Humvee") used to relay and link to the Individual Warfighter Systems (IWS) on "electronically enhanced soldiers". [10:2830]

WAR GAME - A simulation, by whatever means, of a military operation involving two or more opposing forces, using rules, data, and procedures designed to depict an actual or assumed real life situation. [1.1]

WARGAMING THE ASYMMETRIC ENVIRONMENT (WAE) - A Defense Advanced Research Project Agency (DARPA) Total Information Awareness (TIA) program to develop predictive technology to better anticipate and act against terrorists. NOTE: WAE is a revolutionary approach to identify predictive indicators of attacks by and the behavior of specific terrorists by examining their behavior in the broader context of their political, cultural and ideological environment.

WARLOCK DUKE - A Counter Radio-controlled **IED** Electronic Warfare (CREW) device for jamming IED detonation signals. [JIEDDO briefing 5/8/07]
(also referred to as "DUKE").

Warlock DUKE

WARNING STATUS (WS) - Established by Combatant Commander to identify threat and support implementation of appropriate rules of engagement (ROE). Standard WS levels are:

    (1) White: Attack by hostile forces is improbable without adequate warning;
    (2) Yellow: Attack by hostile forces is probable;
    (3) Red: Attack by hostile forces is imminent or is in progress. [1-3] NOTE: WARNING STATUS (WS) is paired with WEAPONS CONTROL STATUS (WCS).

WARTIME RESERVE MODE (WARM) - Characteristics and operating procedures of sensor, communications, navigation aids, threat recognition, weapons, and countermeasures systems that a) will contribute to military effectiveness if unknown to or misunderstood by opposing commanders before they are used, but b) could be exploited or neutralized if known in advance. Wartime reserve modes are deliberately

held in reserve for war-time or emergency use and seldom, if ever, applied or intercepted prior to such use. [1.1]

WATER HAMMER - A weapon used for underwater combat or mine clearing. The device employs a phase array of shock tubes to generate and focus underwater shock waves into a pressure pulse exceeding 2,000 psi. In effect, it is an underwater attack trumpet, destroying objects hundreds of meters distant with sound. [10:2690] NOTE: The explosive wave generator for the water hammer is powered by a reactant mixture of finely granulated aluminum and seawater. A horn forms the exit vehicle for the energy waves out of the source tube. Converging waves reinforce each other in a zone away from the front of the source. This ability to focus shock waves differentiates the water hammer from conventional methods of dropping explosives in the water.

WATER HARVESTING - The efficient production of water on demand from non-traditional sources for the individual or small group by extraction from local atmospheric moisture, breath, perspiration, urine, wet earth, mud, combusted hydrocarbons, etc. [10:2955] NOTE: Water harvesting can potentially produce more than 3.5 quarts per day per person. See also CONTINUOUS ASSISTED PERFORMANCE (CAP), ENERGY HARVESTING, PERSISTENCE IN COMBAT (PIC).

WATER-JET MINE CLEARING - The destruction of land and sea mines or other unexploded ordnance (UXO) by firing high-pressure (2,000-100,000psi) water jets at the target in order to penetrate the casing and destroy the main explosive charge. [12.1] See also AIR-CHISEL MINE CLEARING.

WATTENBERG PLOW (WP) - A strongback with vertical cutting knives at 4-inch spacings, behind a blanket of cross-linked chains. It is towed from a distance of about 600 feet by a helicopter at speeds up to 20 knots to clear land mines. [10:2791] See also CLAUSEN POWER BLADE.

WAVE - A disturbance propagated through a medium or through space. [3] NOTE: Disturbance, in this definition, is used as a generic term indicating not only mechanical displacement but also voltage, current, electric field strength, temperature, etc.

WAVE CLUTTER - CLUTTER caused by waves from the sea. [3]

WAVE DETECTION - The sensing of sub-audible atmospheric waves. An example is the detection of clandestine nuclear explosions and rocket plume products that roll across the atmosphere and produce waves and vertical undulations as well. Such waves travel a long way, and provide potential for detection by suitable detection devices. [10:2655]

WAVE DISTURBER - JAMMING transmitter. [10:61]

WAVE FILTER - A TRANSDUCER for separating WAVES on the basis of their frequency. [3]

WAVE PIERCING TUMBLEHOME (WPTH) - A hull design (*e.g.*, for the DDX) intended to meet low RADAR CROSS SECTION (RCS) SIGNATURE while maintaining seakeeping, damage stability, maneuvering, propulsion, and resistance capabilities. [Navy's DD(X) Web site http://peoships.crane.navy.mil/ddx/ .]

WAVEFORM - A manifestation or representation or a visualization of a WAVE, pulse, or transition. [3] EXAMPLE: The geometrical shape obtained by displaying a characteristic of the wave as a function of some variable, usually time, plotted over one primitive period (e.g., one cycle).

WAVEFORM DIVERSITY - A radar ECCM technique wherein the transmitted waveform characteristics are changed periodically or randomly to make it difficult for an ECM operator to receive, determine the lethality of, and/or effectively jam the radar. [8]

WAVELENGTH DECORRELATION - A high-resolution imaging technique for measuring target shape and estimating surface-scattering properties. [10:2504]

WAVELET - (1) Families of basic mathematical functions in terms of which other arbitrary functions can be represented with far greater accuracy and efficiency than the Fast Fourier Transform. [10:116] (2) An oscillating waveform that persists for only one or a few cycles. A given wavelet has both a location (position) and a scale (duration). [10:2588] NOTE: Wavelets were initially developed for performing multi-resolution analysis on digital imagery. There appear to be many additional applications, including audio and video compression and covert communications. Wavelets are most useful for representing signals and images with discontinuities.

WEAK PASSWORD - A password that can be guessed easily by an intruder, especially one who knows something about the target's background. [] Also called INEFFECTIVE PASSWORD. NOTE: The following guidelines are provided by one agency of the Department of Energy:
"Here are some simple guidelines for a strong password:

- It should contain at least eight characters.
- It should contain a mix of four different types of characters . upper case letters, lower case letters, numbers, and special characters such as !@#$%^&*,;". If there is only one letter or special character, it should not be either the first or last character in the password.
- It should not be a name, a slang word, nor any word in the dictionary. It should not include any part of your name or your e-mail address.

- You should be able to type it quickly, so that someone looking over your shoulder cannot readily see what you have typed.
- It should be changed at least every 90 days to keep undetected intruders from continuing to use it."

WEAPON BACKTRACKING - Determining the location of a firing platform by analyzing weapon observables and trajectory. []

WEAPONS CONTROL STATUS (WCS) - The degree of fire control imposed by appropriate command authorities upon units with assigned, attached, or organic weapons. WCS is established and adjusted based on friendly and enemy dispositions, and may be modified for specific operations to prevent unintended effects or fratricide, or to facilitate rapid target engagement. The three WCS in descending order of restriction are:

> (1) WEAPONS HOLD/SAFE: A weapons control order imposing a status whereby weapon systems may only be engaged in self defense or in response to a formal order;
> (2) WEAPONS TIGHT: A weapons control order imposing a status whereby weapon systems may engage onlyt targets recognized under the rules of engagement in effect as hostile;
> (3) WEAPONS FREE: A weapons control order imposing a status whereby weapon systems may engage any target not positively recognized as friendly. [1-3]

NOTE: WEAPONS CONTROL STATUS (WCS) is paired with WARNING STATUS (WS)

WEAPONS SYSTEMS TECHNOLOGIES (WST) - Technologies whose technical performance parameters are at or above the minimum level necessary to ensure continuing superior performance of U.S. military systems. [*www.dtic.mil/mctl*] See also DEVELOPING CRITICAL TECHNOLOGIES (DCT), MILITARILY CRITICAL TECHNOLOGIES LIST (MCTL). The WST comprises the following (*circa* 1999):

WEAPONS SYSTEMS TECHNOLOGIES (WST)
Aeronautics Systems
Armaments & Energetic Materials
Chemical and Biological Systems
Electronics
Ground Systems
Guidance, Navigation, and Vehicle Control
Information Systems
Information Warfare (IW)
Manufacturing and Fabrications
Materials
Marine Systems
Nuclear Systems
Power Systems
Sensors and Lasers
Signature Control
Space Systems
Weapons Effects and Countermeasures
Source: DTIC

WEARABLE COMPUTER - A garment (cotton t-shirt) composed of continuously woven optical fiber to detect bullet or shrapnel wounds under battlefield conditions. Additional fibers in the shirt are attached to a personal medical monitor attached to the soldier's belt to monitor vital signs. The shirt actually functions like a computer, with sensors attached to the soldier's body. When the continuous optical fiber is broken, a remotely located medical unit can accurately assess the soldier's condition before dispatching medical units to the battlefield. [10:2675]

WEB BROWSER - A software application used to locate and display Web pages. Most modern web browsers can display graphics as well as text, and some can present multimedia information, including sound and video. [10:2755] Also called BROWSER.

WEB SPIDER - See SPIDER.

WEBTAS (or WebTAS) - Acronym for *Web-enabled Temporal Analysis System*, a sophisticated software package that facilitates the manipulation and analysis of huge data sets, both historical and in REAL TIME. WebTAS detects patterns of interest and can notify analysts that an event of interest may be occurring. Historical research tools provide a research capability facilitating the discovery of patterns of interest. Web-based, real-time portals provide up-to-date views of situations to other users of the relevant INTRANET. [] NOTES: (1) WebTAS is used to analyze the many unfolding events in a crisis situation and compares them against known or historical conditions. *Ad hoc* queries allow analysts who are not database experts to construct complex historical questions relating to the databases. External database connectivity allows users to tap into existing intelligence databases and fuse the results into common visual displays and web pages. (2) In Law enforcement, WebTAS can be used to organize and analyze the myriad of events, such as phone calls, credit card transactions, emails, interview statements, etc, which might be entailed in a complex case. The results of such an analysis could be used to present circumstantial evidence in a court of law. (3) Fraud Analysts can use WebTAS to comb through large data sets ferreting out interesting patterns of potential fraud. Once a pattern has been detected it can be applied against the entire database to identify possible previously undiscovered crimes. WebTAS can be used to bring together several disparate databases and combine the results in an investigation or analysis effort. Other applications of WebTAS include:

• Counter Narcotics • Counter Terrorism • C^{3}I Analysis
• C^{4}I Analysis • Criminal Investigation • Law Enforcement
• Money Laundering • Medical Trend Analysis • INFORMATION WARFARE (IW)
• Performance & Measurement Analysis • Intelligence Analysis • DECEPTION & DENIAL
• Market Analysis • CLICKSTREAM ANALYSIS.

WELTANSCHAUUNG - A SPACE AND ELECTRONIC WARFARE (SEW) concept under SONATA that prescribes a "world view" or "global perspective" for SEW. [10:2505] See also COPERNICUS ARCHITECTURE, CROESUS STRATEGIES.

WHITE ALICE - White (for snow) ALaskan Integrated Communications and Electronics. A 900 MHz tropospheric communications system (circa 1956 - 1979) consisting of 49 communication sites throughout Alaska. They were characterized by their 50-foot "drive-in-movie-screen" antenna reflectors. White ALICE was subsequently replaced by satellite systems. [10:2777]

WHITE HAT HACKER - See HACKER.

WHITE NOISE - RANDOM NOISE or IMPULSE NOISE that has a flat frequency spectrum at the frequency range of interest. [3] (LISTEN to **white noise**. LISTEN to **white noise with modulation**.) NOTE: Contrast this with PINK NOISE, which has the same distribution of power for each octave (2 to 1), *e.g.*, the power between 5 Hz and 10 Hz is the same as between 500 Hz and 1,000 Hz.

WHITE-PHOSPHOROUS GRENADE - A grenade which spews phosphorous over an area from 35 to 50 meters; it is used for signaling, screening, and incendiary purposes, or to inflict casualties. [10:2780] See also INCENDIARY GRENADE.

WIDE AREA NETWORK (WAN) - A data or computer NETWORK which covers a large geographical area. [] Contrast with LOCAL AREA NETWORK (LAN).

WIDEBAND OPERATIONS - A fuze counter-countermeasure consisting of fuze operation over a wide band of frequencies from VHF up, thus increasing the difficulty in jamming the fuzes. [4:2] See also FUZE JAMMING.

WIDEBAND RADAR - A radar that utilizes a wide bandwidth for very short pulse and/or multiple frequency operation. [8]

WIDEBAND SHORT-PULSE - A radar ECCM technique where a very narrow transmitted pulse and a wide bandwidth receiver are used. [8]

WIDE OPEN RECEIVER - A receiver that provides a wide BAND PASS by means of broadly tuned circuits. [10:2]

WIKI - (1) A website (or other hypertext document collection) that gives users the ability to add content, as on an Internet forum, but also allows that content to be edited by other users. (2) Collaborative software (*i.e.*, an online database) that allows users to freely create and edit Web page content using any Web browser. [] NOTE: Wiki supports HYPERLINKS and has a simple text syntax for creating new pages and cross-links between internal pages on the fly.

WILD SIDE - The public, or uncontrolled, side of a FIREWALL. []

WILD WEASEL - (1) An aircraft specially modified to identify, locate, and physically suppress or destroy ground based enemy air defense systems that employ sensors radiating electromagnetic energy. [1.1] (2) An aircraft designed to engage in SUPPRESSION OF ENEMY AIR DEFENSE (SEAD). It precedes or accompanies a strike group into a target area protected by surface-to-air missile sites and uses a combination of threat identification and targeting systems to automatically detect, identify, locate and destroy missile sites with anti-radiation missiles, stand-off guided weapons and iron bombs. [] Synonymous with IRON HAND.

WIND-CORRECTED MUNITIONS DISPENSER (WCMD) - A bomb tail-kit used to improve accuracy of dropped munitions such as cluster munitions, COMBINED EFFECTS MUNITIONS (CEM), anti-material mines and SENSOR-FUZED

WEAPONS (SFW). WCMD enhances accuracy by correcting for launch transients, ballistic errors, and winds aloft. [10:2936]

WINDOW - See CHAFF.

WINDOWING - See Y2K WINDOWING.

WIRELESS POWER TRANSMISSION (WPT) - The beaming of microwave energy to a vehicle which then converts it to DC power that can drive a motor, thus eliminating the need for a battery on board. WPT is presently (1999) being used on prototype UNMANNED AIR VEHICLE (UAV) devices called MINIATURE (MICRO) AIR VEHICLEs (MAVs). [10:2671]

WOBBLIN' GOBLIN - A nickname for the F-117 stealth aircraft. []

WOLFPACK - A Defense Advanced Research Projects Agency (DARPA) program (2001) to enable tactical battlespace RF spectrum dominance in the 20 MHz to 15+ GHz range. [DARPA]

WOODEN BOMB - A concept which pictures a weapon as being completely reliable and having an infinite shelf life while at the same time requiring no special handling, storage or surveillance. See also WOODEN ROUND. [1.1]

WOODEN ROUND - An ordnance round (shell, missile, etc.) requiring no maintenance or preparation time prior to loading for firing. See also WOODEN BOMB. [9]

WORLD WIDE WEB (WWW) - A HYPERTEXT-based, distributed information system created by researchers at the CERN European Laboratory for Particle Physics in Switzerland. [10:2736]

WORM - A parasitic computer program that replicates, but unlike VIRUSES, does not infect other computer program files. Worms can create copies on the same computer, or can send the copies to other computers via a network. [] NOTE: Worms often spread via Internet Relay Chat (IRC).

WORMHOLE - See BACK DOOR.

WRITE ONCE READ MANY (WORM) - An optical disk used for archiving computer data. []

X

X-BAND - That part of the ELECTROMAGNETIC SPECTRUM between 8.0 and 12.0 GHz. []

X-RATING [for compact disks (CDs)] - The speed of a CD as compared to first-generation CD-ROM drives; For example a 48X CD-ROM is forty eight times faster than a first generation CD-ROM drive. [] NOTES: (1) There are (2004) a large number of CD-ROM drive speeds in use, ranging from 2X through 58X. (2) At ratings beyond 24X the difference in speeds between slower drives and the faster ones diminish due to the physical limitations of the media.

X-RAY LASER - A DIRECTED ENERGY WEAPON consisting of a nuclear bomb surrounded by metal rods, presumably a space-based device. When activated, the bomb causes the rods to emit x-rays radiation which can be directed at a target. The powerful x-ray beam produces a powerful shock wave in the target, destroying it. []

Y

Y2K WINDOWING - A computer program patch that allows one to continue to use 2-digit years for both the 20th and 21st century in data input so that the system converts the number to a properly prefixed year. This is accomplished through the use of a "pivot", where years prior to a pivot point are assumed to be of the 21st century, and dates after the pivot are from the 20th century. [10:2728] NOTE: Y2K windowing is not a Y2K solution, it merely moves the Y2K problem to another year, depending on the value of the pivot. In addition, windowing will likely not work on PCs used in mainframe environments.

YEHUDI - An optical jamming technique whereby a number of lights are placed on an aircraft to provide the aircraft with a luminance close to that of its background. The lights are pointed in the general direction of the threat observer, making the aircraft difficult to be seen. [1984 USAF briefing handout] See also ISOLUMINESCENCE.

YELLOW CAKE - Uranium ore purified into a uranium oxide concentrate (U_3O_8). Yellow cake may be sintered (formed into a fused mass by heating without melting) and made into fuel pellets. Yellow cake may be further refined to produce enriched uranium. [].

YOTTABYTE - (1) 280 BYTES. (2) 1,024 ZETTABYTES. []

YTTRIUM ALUMINUM GARNET (YAG) - A crystal used in lasers. []

YTTRIUM IRON GARNET (YIG) - A crystal used in modern receivers. When used in a frequency oscillator, the YIG crystal's frequency can be changed by varying a surrounding magnetic field. []

Z

"Z" ELECTRO-OPTICAL PAYLOAD (ZEOP) - A light-weight, all-weather, day and night image intelligence sensor for close- and short-range UNMANNED AIR VEHICLEs. The ZEOP weighs less than 50 lbs. and used a simple modular design incorporating second-generation IR technology. It is housed in a stabilized gimbaled turret, and contains an integral autotracker. [10:2528]

ZAPPER - See LASER ZAPPER

ZENER DIODE - A class of silicon DIODES which permit a highly stable reference voltage to be maintained across the diode despite a relatively wide range of current through the diode. [3*]

ZERO-INTERACTION AUTHENTICATION (ZIA) - A security system for mobile electronics that automatically encrypts stored data when a device's owner leave it unattended, and automatically unlocks when the owner returns. The identification process is conducted automatically by an authentication token worn by the device's

owner. The token, which can be installed in a wristwatch, is in continuous contact with the device via a wireless link. [10:2961]

ZETTABYTE - (1) 10^{21} BYTES. (2) 1,024 EXABYTES. []

ZIG-ZAG COURSE - A series of relatively short varying course segments superimposed over a desired base course. [] See also SINUOUS COURSE CLOCK. NOTE: Zigzag courses are used to make it difficult for a tracking submarine to compute a torpedo fire-control solution, since the ship will seem to be making a series of random unexpected course changes. Tactical publications exist which contain a number of zigzag courses to achieve various percentages of base speeds (*e.g.*, one zigzag course at a speed of 15 knots may result in advancing along the desired base course at an effective speed of, say, 80%, or 12 knots). The trade-off, therefore, is between zigzag effectiveness, and base speed.

ZIG-ZAG LASER AMPLIFIER - A solid state laser amplifier architecture in which multiple zigzag slab laser amplifiers are stacked together, side-pumped using a common pump source, and cooled with a common cooling system. The stack of zigzag slabs produces an array of sub-beams that can be combined coherently into a single composite output beam. Variations in pump power absorption through the stack are mitigated by selection of doping levels for the slabs . The composite output beam is sufficiently symmetrical to be directed through conventional optics of circular cross section. NOTE: Multiple stacks may be arranged in a two-dimensional array to obtain even higher output powers. [Source: Abstract of United States Patent 7280571 assigned in October 2007] Also ZIGZAG LASER.

ZONAL ELECTRIC DISTRIBUTION - A ship architecture technique that reduces the amount of electrical cabling needed on ships and minimizes electric cable penetration of watertight bulkheads. []

ZONE OF SILENCE - A local region in which the signals of a given radio transmitter cannot be received satisfactorily. [1.1]