

Appendice A

PRINCIPALI CODIFICHE

Questa appendice riporta alcune tabelle contenenti i principali identificativi di protocollo che è comune trovare sulle LAN. Essa è principalmente ricavata dallo standard RFC 1340 "Assigned Number". Molto spesso esistono incertezze o ambiguità su alcune assegnazioni e queste vengono evidenziate con il simbolo "?". Inoltre il simbolo "x" indica una qualsiasi cifra esadecimale.

A.1 IEEE 802.2 SAP

Sono i valori che si possono trovare contenuti nei campi DSAP e SSAP del pacchetto LLC. I SAP LLC sono grandi un byte e hanno due bit con un significato particolare, come descritto in figura 5.9. Esistono due tipi di LLC SAP, quelli definiti dall'IEEE e quelli assegnati localmente.

A.1.1 LLC SAP definiti dall'IEEE

Per ottenere l'assegnazione di un LLC SAP standard occorre contattare lo IEEE Standards Office, 345 East 47th Street, New York, N.Y. 10017, USA, Attn: Vince Condello. Phone: (212) 705-7092.

Quelli ufficialmente definiti sono elencati in tabella A.1.

| Esadecimale | Significato |
|-------------|------------------------------------|
| 00 | Null LSAP |
| 02 | Individual LLC Sublayer Management |
| x2 | Network Management Function |
| 03 | Group LLC Sublayer Management |
| x6 | National Body Standard |
| 06 | DOD IP |
| 0E | PROWAY-LAN |
| 42 | IEEE 802.1D (MAC bridge) |
| 4E | EIA-RS 511 |
| 5E | ISI IP |
| 8E | PROWAY-LAN |
| AA | SNAP |
| FE | ISO CLNS |
| FF | Global DSAP |

Tab. A.1 - LLC SAP definiti dall'IEEE.

A.1.2 LLC SAP definiti dagli utenti

La tabella A.2 riporta alcuni LLC SAP definiti da IBM.

| Esadecimale | Significato |
|-------------|---------------------------|
| 04 | SNA Path Control |
| 05 | SNA Path Control Group |
| F0 | IBM Netbios |
| F4 | LAN Management Individual |
| F5 | LAN Management Group |

Tab. A.2 - LLC SAP definiti dagli utenti.

A.2 ETHERNET PROTOCOL TYPE

Sono assegnati dalla Xerox. Se avete necessità di ottenere un Protocol Type ufficiale per un vostro protocollo proprietario contattate la Xerox Corporation, Xerox Systems Institute, 475 Oakmead Parkway, Sunnyvale, CA 94086, USA, Attn: Ms. Fonda Pallone, Phone (415) 813-7164. La tabella A.3 riporta una lista aggiornata a Luglio 1992.

| | | | |
|-----------|-----------------------------|-----------|--------------------------------|
| 0000-05DC | IEEE802.3 Length Field | 7034 | Cabletron |
| 0600 | XEROX NS IDP | 8003 | Cronus VLN |
| 0800 | DOD IP | 8004 | Cronus Direct |
| 0801 | X.75 Internet | 8005 | HP Probe |
| 0802 | NBS Internet | 8006 | Nestar |
| 0803 | ECMA Internet | 8008 | AT&T |
| 0804 | Chaosnet | 8010 | Excelan |
| 0805 | X.25 Level 3 | 8013 | SGI diagnostics |
| 0806 | ARP | 8014 | SGI network games |
| 0807 | XNS Compatability | 8015 | SGI reserved |
| 081C | Symbolics Private | 8016 | SGI bounce server |
| 0888 | Xyplex | 8019 | Apollo Computers |
| 0900 | Ungermann-Bass net debugger | 802E | Tymshare |
| 0A00 | Xerox IEEE802.3 PUP | 802F | Tigan Inc. |
| 0A01 | PUP Addr Trans | 8035 | Reverse ARP |
| 0BAD | Banyan Systems | 8036 | Aeonic Systems |
| 1000 | Berkeley Trailer nego | 8038 | DEC LANBridge |
| 1001-100F | Berkeley Trailer enca | 8039 | DEC Unassigned |
| 1600 | Valid Systems | 803D | DEC Ethernet Encryption |
| 4242 | PCS Basic Block Proto | 803E | DEC Unassigned |
| 5208 | BBN Simnet | 803F | DEC LAN Traffic Monitor |
| 6000 | DEC Unassigned (Exp.) | 8040-8042 | DEC Unassigned |
| 6001 | DEC MOP Dump/Load | 8044 | Planning Research Corp. |
| 6002 | DEC MOP Remote Consol | 8046 | AT&T |
| 6003 | DEC DECNET Phase IV R | 8047 | AT&T |
| 6004 | DEC LAT | 8049 | ExperData |
| 6005 | DEC Diagnostic Protocol | 805B | Stanford V Kernel experimental |
| 6006 | DEC Customer Protocol | 805C | Stanford V Kernel production |
| 6007 | DEC LAVC SCA | 805D | Evans & Sutherland |
| 6008-6009 | DEC Unassigned | 8060 | Little Machines |
| 6010 | 3Com Corporation | 8062 | Counterpoint Computers |
| 7000 | Ungermann-Bass download | 8065-8066 | Univ. of Mass. @ Amherst |
| 7002 | Ungermann-Bass dia/loop | 8067 | Veeco Integrated Auto |
| 7020-7029 | LRT | 8068 | General Dynamics |
| 7030 | Proteon | 8069 | AT&T |

| | | | |
|-----------|---------------------------|-----------|--|
| 806A | Autophon | 80D5 | IBM SNA Service on Et |
| 806C | ComDesign | 80DD | Varian Associates |
| 806D | Computgraphic Corp. | 80DE-80DF | Integrated Solutions TRFS |
| 806E-8077 | Landmark Graphics Corp. | 80E0-80E3 | Allen-Bradley |
| 807A | Matra | 80E4-80F0 | Datability |
| 807B | Dansk Data Elektronik | 80F2 | Retix |
| 807C | Merit Internodal | 80F3 | AppleTalk AARP (Kinet |
| 807D-807F | Vitalink Communications | 80F4-80F5 | Kinetics |
| 8080 | Vitalink TransLAN III | 80F7 | Apollo Computer |
| 8081-8083 | Counterpoint Computers | 80FF-8103 | Wellfleet Communications |
| 809B | Appletalk | 8107-8109 | Symbolics Private |
| 809C-809E | Datability | 8130 | Waterloo Microsystems |
| 809F | Spider Systems Ltd. | 8131 | VG Laboratory Systems |
| 80A3 | Nixdorf Computers | 8137-8138 | Novell Inc. |
| 80A4-80B3 | Siemens Gammasonics Inc. | 8139-813D | KTI |
| 80C0-80C3 | DCA Data Exchange Cluster | 814C | SNMP |
| 80C6 | Pacer Software | 9000 | Loopback |
| 80C7 | Applitek Corporation | 9001 | 3Com(Bridge) XNS System Mangement |
| 80C8-80CC | Intergraph Corporation | 9002 | 3Com(Bridge) TCP-IP System Management |
| 80CD-80CE | Harris Corporation | 9003 | 3Com(Bridge) loop detetction |
| 80CF-80D2 | Taylor Instrument | FF00 | BBN VITAL-LanBridge cache |
| 80D3-80D4 | Rosemount Corporation | | |

Tab. A.3 - Ethernet Protocol Type.

A.3 OUI: ORGANIZATION UNIQUE IDENTIFIER

Gli OUI detti anche "Vendor Code" sono i lotti di indirizzi MAC 802 assegnati dalla IEEE. Il formato di un indirizzo MAC è su 48 bit di cui i primi 24 (6 cifre esadecimali) rappresentano l'OUI.

I due bit meno significativi del primo byte hanno un significato particolare (si veda il paragrafo 5.6.7).

Gli OUI si richiedono all'IEEE Standards Office, 345 East 47th Street, New York, N.Y. 10017, USA, Attn: Vince Condello. Phone: (212) 705-7092.

Quelli attualmente assegnati sono riportati in tabella A.4.

| | | |
|----------|--------------------------------|--------------------------------|
| 00-00-0C | Cisco | |
| 00-00-0F | NeXT | |
| 00-00-10 | Sytek | |
| 00-00-1D | Cabletron | |
| 00-00-20 | DIAB (Data Intdustrier AB) | |
| 00-00-22 | Visual Technology | |
| 00-00-2A | TRW | |
| 00-00-5A | S & Koch | |
| 00-00-5E | IANA | |
| 00-00-65 | Network General | |
| 00-00-6B | MIPS | |
| 00-00-77 | MIPS | |
| 00-00-7A | Ardent | |
| 00-00-89 | Cayman Systems | Gatorbox |
| 00-00-93 | Proteon | |
| 00-00-9F | Ameristar Technology | |
| 00-00-A2 | Wellfleet | |
| 00-00-A3 | Network Application Technology | |
| 00-00-A6 | Network General | internal use |
| 00-00-A7 | NCD | X-terminals |
| 00-00-A9 | Network Systems | |
| 00-00-AA | Xerox | Xerox machines |
| 00-00-B3 | CIMLinc | |
| 00-00-B7 | Dove | Fastnet |
| 00-00-BC | Allen-Bradley | |
| 00-00-C0 | Western Digital | |
| 00-00-C6 | HP | Intelligent Networks Operation |
| 00-00-C8 | Altos | |
| 00-00-C9 | Emulex | Terminal Servers |
| 00-00-D7 | Dartmouth College | NED Router |
| 00-00-D8 | 3Com? Novell? PS/2 | |
| 00-00-DD | Gould | |
| 00-00-DE | Unigraph | |
| 00-00-E2 | Acer Counterpoint | |
| 00-00-EF | Alantec | |
| 00-00-FD | High Level Hardvare | Orion (UK) |
| 00-01-02 | BBN | internal usage |
| 00-17-00 | Kabel | |
| 00-80-2D | Xylogics Inc. | Annex terminal servers |
| 00-80-8C | Frontier Software Development | |
| 00-80-C2 | IEEE 802.1 Committee | |
| 00-80-D3 | Shiva | |
| 00-AA-00 | Intel | |

| | | |
|----------|-------------------------------------|---|
| 00-DD-00 | Ungermann-Bass | |
| 00-DD-01 | Ungermann-Bass | |
| 02-07-01 | Racal InterLan | |
| 02-04-06 | BBN | internal usage |
| 02-60-86 | Satelcom MegaPac (UK) | |
| 02-60-8C | 3Com | IBM PC; Imagen; Valid; Cisco |
| 02-CF-1F | CMC | Masscomp; Silicon Graphics; Prime EXL |
| 08-00-02 | 3Com | Formerly Bridge |
| 08-00-03 | Advanced Computer Communications | |
| 08-00-05 | Symbolics | Symbolics LISP machines |
| 08-00-07 | Apple | |
| 08-00-08 | BBN | |
| 08-00-09 | Hewlett-Packard | |
| 08-00-0A | Nestar Systems | |
| 08-00-0B | Unisys | |
| 08-00-11 | Tektronix | Inc. |
| 08-00-14 | Excelan | BBN Butterfly, Masscomp, Silicon Graphics |
| 08-00-17 | NSC | |
| 08-00-1A | Data General | |
| 08-00-1B | Data General | |
| 08-00-1E | Apollo | |
| 08-00-20 | Sun | Sun machines |
| 08-00-22 | NBI | |
| 08-00-25 | CDC | |
| 08-00-26 | Norsk Data | |
| 08-00-27 | PCS Computer Systems | |
| 08-00-28 | TI | Explorer |
| 08-00-2B | DEC | |
| 08-00-2E | Metaphor | |
| 08-00-2F | Prime Computer | Prime 50-Series |
| 08-00-36 | Intergraph | CAE stations |
| 08-00-37 | Fujitsu-Xerox | |
| 08-00-38 | Bull | |
| 08-00-39 | Spider Systems | |
| 08-00-41 | Digital Comm. Assoc. | |
| 08-00-46 | Sony | |
| 08-00-47 | Sequent | |
| 08-00-49 | Univation | |
| 08-00-4C | Encore | |
| 08-00-4E | BICC | |
| 08-00-56 | Stanford University | |
| 08-00-5A | IBM | |
| 08-00-67 | Comdesign | |
| 08-00-68 | Ridge | |

| | | |
|----------|------------------------|--|
| 08-00-69 | Silicon Graphics | |
| 08-00-6E | Excelan | |
| 08-00-75 | Danish Data Elektronik | |
| 08-00-7C | Vitalink | TransLAN III |
| 08-00-80 | XIOS | |
| 08-00-86 | Imagen/QMS | |
| 08-00-87 | Xyplex | terminal servers |
| 08-00-89 | Kinetics | AppleTalk-Ethernet interface |
| 08-00-8B | Pyramid | |
| 08-00-8D | XyVision | XyVision machines |
| 08-00-90 | Retix Inc | Bridges |
| 48-44-53 | HDS ??? | |
| 80-00-10 | AT&T | |
| AA-00-00 | DEC | obsolete |
| AA-00-01 | DEC | obsolete |
| AA-00-02 | DEC | obsolete |
| AA-00-03 | DEC | Global physical address for some DEC machines |
| AA-00-04 | DEC | Local logical address for systems running DECNET |

Tab. A.4 - Organization Unique Identifier.

A.4 INDIRIZZI MAC MULTICAST

La tabella A.5 contiene indirizzi di multicast assegnati a vari enti. La seconda colonna identifica, se esiste, il protocol type che utilizza il multicast.

| | | |
|--------------------|-------|---------------------------------------|
| 01-00-5E-00-00-00 | 0800 | Internet Multicast (RFC-1112), sino a |
| 01-00-5E-7F-FF-FF | 0800 | |
| 01-00-5E-80-00-00 | | Internet reserved by IANA, sino a |
| 01-00-5E-FF-FF-FF | | |
| 01-80-C2-00-00-00 | | 802 Spanning tree for bridges |
| 09-00-02-04-00-01? | 8080? | Vitalink printer |
| 09-00-02-04-00-02? | 8080? | Vitalink management |
| 09-00-09-00-00-01 | 8005 | HP Probe |
| 09-00-09-00-00-01 | | HP Probe |
| 09-00-09-00-00-04 | 8005? | HP DTC |
| 09-00-1E-00-00-00 | 8019? | Apollo DOMAIN |

| | | |
|-------------------|-------|---|
| 09-00-2B-00-00-00 | 6009? | DEC MUMPS? |
| 09-00-2B-00-00-01 | 8039? | DEC DSM/DTP? |
| 09-00-2B-00-00-02 | 803B? | DEC VAXELN? |
| 09-00-2B-00-00-03 | 8038 | DEC Lanbridge Traffic Monitor (LTM) |
| 09-00-2B-00-00-04 | | DEC MAP End System Hello |
| 09-00-2B-00-00-05 | | DEC MAP Intermediate System Hello |
| 09-00-2B-00-00-06 | 803D? | DEC CSMA/CD Encryption? |
| 09-00-2B-00-00-07 | 8040? | DEC NetBios Emulator? |
| 09-00-2B-00-00-0F | 6004 | DEC Local Area Transport (LAT) |
| 09-00-2B-00-00-1x | | DEC Experimental |
| 09-00-2B-01-00-00 | 8038 | DEC LanBridge Copy packets (All bridges) |
| 09-00-2B-01-00-01 | 8038 | DEC LanBridge Hello packets (All local bridges) |
| 09-00-2B-02-00-00 | | DEC DNA Lev. 2 Routing Layer routers? |
| 09-00-2B-02-01-00 | 803C? | DEC DNA Naming Service Advertisement? |
| 09-00-2B-02-01-01 | 803C? | DEC DNA Naming Service Solicitation? |
| 09-00-2B-02-01-02 | 803E? | DEC DNA Time Service? |
| 09-00-2B-03-xx-xx | | DEC default filtering by bridges? |
| 09-00-2B-04-00-00 | 8041? | DEC Local Area Sys. Transport (LAST)? |
| 09-00-2B-23-00-00 | 803A? | DEC Argonaut Console? |
| 09-00-4E-00-00-02 | 8137? | Novell IPX |
| 09-00-56-00-00-00 | | Stanford reserved, sino a |
| 09-00-56-FE-FF-FF | | |
| 09-00-56-FF-00-00 | 805C | Stanford V Kernel, version 6.0, sino a |
| 09-00-56-FF-FF-FF | | |
| 09-00-77-00-00-01 | | Retix spanning tree bridges |
| 09-00-7C-02-00-05 | 8080? | Vitalink diagnostics |
| 09-00-7C-05-00-01 | 8080? | Vitalink gateway? |
| 0D-1E-15-BA-DD-06 | | HP |
| AB-00-00-01-00-00 | 6001 | DEC Maintenance Operation Protocol (MOP) |
| 09-00-09-00-00-01 | | HP Probe |
| 09-00-09-00-00-04 | 8005? | HP DTC |
| 09-00-1E-00-00-00 | 8019? | Apollo DOMAIN |
| 09-00-2B-00-00-00 | 6009? | DEC MUMPS? |
| 09-00-2B-00-00-01 | 8039? | DEC DSM/DTP? |
| 09-00-2B-00-00-02 | 803B? | DEC VAXELN? |
| 09-00-2B-00-00-03 | 8038 | DEC Lanbridge Traffic Monitor (LTM) |

| | | |
|-------------------|-------|---|
| 09-00-2B-00-00-04 | | DEC MAP End System Hello |
| 09-00-2B-00-00-05 | | DEC MAP Intermediate System Hello |
| 09-00-2B-00-00-06 | 803D? | DEC CSMA/CD Encryption? |
| 09-00-2B-00-00-07 | 8040? | DEC NetBios Emulator? |
| 09-00-2B-00-00-0F | 6004 | DEC Local Area Transport (LAT) |
| 09-00-2B-00-00-1x | | DEC Experimental |
| 09-00-2B-01-00-00 | 8038 | DEC LanBridge Copy packets (All bridges) |
| 09-00-2B-01-00-01 | 8038 | DEC LanBridge Hello packets (All local bridges) |
| 09-00-2B-02-00-00 | | DEC DNA Lev. 2 Routing Layer routers? |
| 09-00-2B-02-01-00 | 803C? | DEC DNA Naming Service Advertisement? |
| 09-00-2B-02-01-01 | 803C? | DEC DNA Naming Service Solicitation? |
| 09-00-2B-02-01-02 | 803E? | DEC DNA Time Service? |
| 09-00-2B-03-xx-xx | | DEC default filtering by bridges? |
| 09-00-2B-04-00-00 | 8041? | DEC Local Area Sys. Transport (LAST)? |
| 09-00-2B-23-00-00 | 803A? | DEC Argonaut Console? |
| 09-00-4E-00-00-02 | 8137? | Novell IPX |
| 09-00-56-00-00-00 | | Stanford reserved, sino a |
| 09-00-56-FE-FF-FF | | |
| 09-00-56-FF-00-00 | 805C | Stanford V Kernel, version 6.0, sino a |
| 09-00-56-FF-FF-FF | | |
| 09-00-77-00-00-01 | | Retix spanning tree bridges |
| 09-00-7C-02-00-05 | 8080? | Vitalink diagnostics |
| 09-00-7C-05-00-01 | 8080? | Vitalink gateway? |
| 0D-1E-15-BA-DD-06 | | HP |
| AB-00-00-01-00-00 | 6001 | DEC Maintenance Operation Protocol (MOP) |
| AB-00-00-02-00-00 | 6002 | DEC MOP Remote Console |
| AB-00-00-03-00-00 | 6003 | DECNET Phase IV end node Hello |
| AB-00-00-04-00-00 | 6003 | DECNET Phase IV Router Hello packets |
| AB-00-00-05-00-00 | | Reserved DEC sino a |
| AB-00-03-FF-FF-FF | | |
| AB-00-03-00-00-00 | 6004 | DEC Local Area Transport (LAT) - old |
| AB-00-04-00-xx-xx | | Reserved DEC customer private use |
| AB-00-04-01-xx-yy | 6007 | DEC Local Area VAX Cluster groups |
| CF-00-00-00-00-00 | 9000 | Ethernet Configuration Test protocol (Loopback) |

Tab. A.5 - MAC Multicast.

A.5 INDIRIZZI IP

Ci sono cinque classi di indirizzi IP: dalla classe A alla classe E. La classe E è riservata ad usi sperimentali. Ci sono alcuni casi particolari per gli indirizzi IP che sono discussi nel seguito. La notazione usata è:

IP-address ::= { <Network-number>, <Host-number> }
oppure
IP-address ::= { <Network-number>, <Subnet-number>, <Host-number> }.

Inoltre il valore "-1" indica un campo di tutti uno.
I casi speciali sono riportati nella tabella A.6.

| | |
|-------------------------------------|--|
| {0,0} | Questo calcolatore su questa Net |
| {0, <Host-num>} | Questo calcolatore su questa Net |
| { -1, -1 } | Broadcast limitato alla (Sub-)Net mittente |
| { <Network-num>, -1 } | Broadcast verso una data Net |
| { <Network-num>, <Subnet-num>, -1 } | Broadcast verso una data Subnet |
| { <Network-num>, -1, -1 } | Broadcast verso tutte le subnet di una net |
| { 127, <any> } | Internal host loopback address. |

Tab. A.6 - Indirizzi IP speciali.

A.6 INTERNET MULTICAST ADDRESSES

Lo standard RFC 1112 descrive le estensioni per l'implementazione del multicasting su IP.
Questi indirizzi sono elencati nel Domain Name Service sotto MCAST.NET and 224.IN-ADDR.ARPA.
Gli indirizzi considerati sono riportati nella tabella A.7.

| | |
|-------------------------|----------------------------------|
| 224.0.0.0 | Reserved |
| 224.0.0.1 | All Systems on this Subnet |
| 224.0.0.2 | All Routers on this Subnet |
| 224.0.0.3 | Unassigned |
| 224.0.0.4 | DVMRP Routers |
| 224.0.0.5 | OSPF IG All Routers |
| 224.0.0.6 | OSPF IG Designated Routers |
| 224.0.0.7 | ST Routers |
| 224.0.0.8 | ST Hosts |
| 224.0.0.9 | RIP2 Routers |
| 224.0.0.10-224.0.0.255 | Unassigned |
| 224.0.1.0 | VMTP Managers Group |
| 224.0.1.1 | NTP Network Time Protocol |
| 224.0.1.2 | SGI-Dogfight |
| 224.0.1.3 | Rwhod |
| 224.0.1.4 | VNP |
| 224.0.1.5 | Artificial Horizons - Aviator |
| 224.0.1.6 | NSS - Name Service Server |
| 224.0.1.7 | AUDIONews - Audio News Multicast |
| 224.0.1.8 | SUN NIS+ Information Service |
| 224.0.1.9 | MTP Multicast Transport Protocol |
| 224.0.1.10-224.0.1.255 | Unassigned |
| 224.0.2.1 | "rwho" Group (BSD) (unofficial) |
| 224.0.2.2 | SUN RPC PMAPPROC_CALLIT |
| 224.0.3.0-224.0.3.255 | RFE Generic Service |
| 224.0.4.0-224.0.4.255 | RFE Individual Conferences |
| 224.1.0.0-224.1.255.255 | ST Multicast Groups |
| 224.2.0.0-224.2.255.255 | Multimedia Conference Calls |
| 232.x.x.x | VMTP transient groups |

Tab. A.7 - Indirizzi Internet Multicast.

A.7 IP PROTOCOL NUMBERS

Nel protocollo IP esiste un campo detto "Protocol" per identificare quale protocollo è contenuto nel campo INFO del pacchetto IP.

I valori assegnati a tale campo sono riportati nella tabella A.8.

| | | |
|-------|-----------|---------------------------------------|
| 0 | | Reserved |
| 1 | ICMP | Internet Control Message |
| 2 | IGMP | Internet Group Management |
| 3 | GGP | Gateway-to-Gateway |
| 4 | IP | IP in IP (encapsulation) |
| 5 | ST | Stream |
| 6 | TCP | Transmission Control |
| 7 | UCL | UCL |
| 8 | EGP | Exterior Gateway Protocol |
| 9 | IGP | any private interior gateway |
| 10 | RCC-MON | BBN RCC Monitoring |
| 11 | NVP-II | Network Voice Protocol |
| 12 | PUP | PUP |
| 13 | ARGUS | ARGUS |
| 14 | EMCON | EMCON |
| 15 | XNET | Cross Net Debugger |
| 16 | CHAOS | Chaos |
| 17 | UDP | User Datagram Protocol |
| 18 | MUX | Multiplexing |
| 19 | DCN-MEAS | DCN Measurement Subsystems |
| 20 | HMP | Host Monitoring |
| 21 | PRM | Packet Radio Measurement |
| 22 | XNS-IDP | XEROX NS IDP |
| 23 | TRUNK-1 | Trunk-1 |
| 24 | TRUNK-2 | Trunk-2 |
| 25 | LEAF-1 | Leaf-1 |
| 26 | LEAF-2 | Leaf-2 |
| 27 | RDP | Reliable Data Protocol |
| 28 | IRTP | Internet Reliable Transaction |
| 29 | ISO-TP4 | ISO Transport Protocol Class 4 |
| 30 | NETBLT | Bulk Data Transfer Protocol |
| 31 | MFE-NSP | MFE Network Services Protocol |
| 32 | MERIT-INP | MERIT Internodal Protocol |
| 33 | SEP | Sequential Exchange Protocol |
| 34 | 3PC | Third Party Connect Protocol |
| 35 | IDPR | Inter-Domain Policy Routing Protocol |
| 36 | XTP | XTP |
| 37 | DDP | Datagram Delivery Protocol |
| 38 | IDPR-CMTP | IDPR Control Message Transport Protol |
| 39 | TP++ | TP++ Transport Protocol |
| 40 | IL | IL Transport Protocol |
| 41-60 | | Unassigned |
| 61 | | any host internal protocol |

| | | |
|--------|-------------|-------------------------------------|
| 62 | CFTP | CFTP |
| 63 | | any local network |
| 64 | SAT-EXPAK | SATNET and Backroom EXPAK |
| 65 | KRYPTOLAN | Kryptolan |
| 66 | RVD | MIT Remote Virtual Disk Protocol |
| 67 | IPPC | Internet Pluribus Packet Core |
| 68 | | any distributed file system |
| 69 | SAT-MON | SATNET Monitoring |
| 70 | VISA | VISA Protocol |
| 71 | IPCV | Internet Packet Core Utility |
| 72 | CPNX | Computer Protocol Network Executive |
| 73 | CPHB | Computer Protocol Heart Beat |
| 74 | WSN | Wang Span Network |
| 75 | PVP | Packet Video Protocol |
| 76 | BR-SAT-MON | Backroom SATNET Monitoring |
| 77 | SUN-ND | SUN ND PROTOCOL-Temporary |
| 78 | WB-MON | WIDEBAND Monitoring |
| 79 | WB-EXPAK | WIDEBAND EXPAK |
| 80 | ISO-IP | ISO Internet Protocol |
| 81 | VMTP | VMTP |
| 82 | SECURE-VMTP | SECURE-VMTP |
| 83 | VINES | VINES |
| 84 | TTP | TTP |
| 85 | NSFNET-IGP | NSFNET-IGP |
| 86 | DGP | Dissimilar Gateway Protocol |
| 87 | TCF | TCF |
| 88 | IGRP | IGRP |
| 89 | OSPF | OSPF |
| 90 | Sprite-RPC | Sprite RPC Protocol |
| 91 | LARP | Locus Address Resolution Protocol |
| 92 | MTP | Multicast Transport Protocol |
| 93 | AX.25 | AX.25 Frames |
| 94 | IPIP | IP-within-IP Encapsulation Protocol |
| 95 | MICP | Mobile Internetworking Control Pro. |
| 96 | AES-SP3-D | AES Security Protocol 3-D |
| 97 | ETHERIP | Ethernet-within-IP Encapsulation |
| 98 | ENCAP | Encapsulation Header |
| 99-254 | | Unassigned |
| 255 | | Reserved |

Tab. A.8 - Possibili valori del campo IP Protocol.

A.8 PPP DLL PROTOCOL NUMBER

Il protocollo PPP (Point-to-Point Protocol) contiene un Protocol Field lungo 16 bit utilizzato per identificare a quale protocollo appartiene il pacchetto incapsulato.

I valori nell'intervallo da 0xxx a 3xxx identificano il protocollo di livello network, mentre i valori da 8xxx a Bxxx identificano i datagram appartenenti al Network Control Protocol (NCP) associato, se esistente.

La tabella A.9 riporta i valori attualmente assegnati.

| | |
|--------------|---|
| 0001 to 001f | reserved (transparency inefficient) |
| 0021 | Internet Protocol |
| 0023 | OSI Network Layer |
| 0025 | Xerox NS IDP |
| 0027 | DECnet Phase IV |
| 0029 | Appletalk |
| 002b | Novell IPX |
| 002d | Van Jacobson Compressed TCP/IP |
| 002f | Van Jacobson Uncompressed TCP/IP |
| 0031 | Bridging PDU |
| 0033 | Stream Protocol (ST-II) |
| 0035 | Banyan Vines |
| 0037 | reserved (until 1993) |
| 00ff | reserved (compression inefficient) |
| 0201 | 802.1d Hello Packets |
| 0231 | Luxcom |
| 0233 | Sigma Network Systems |
| 8021 | Internet Protocol Control Protocol |
| 8023 | OSI Network Layer Control Protocol |
| 8025 | Xerox NS IDP Control Protocol |
| 8027 | DECnet Phase IV Control Protocol |
| 8029 | Appletalk Control Protocol |
| 802b | Novell IPX Control Protocol |
| 802d | Reserved |
| 802f | Reserved |
| 8031 | Bridging NCP |
| 8033 | Stream Protocol Control Protocol |
| 8035 | Banyan Vines Control Protocol |
| 8037 | reserved till 1993 |
| 80ff | reserved (compression inefficient) |
| c021 | Link Control Protocol |
| c023 | Password Authentication Protocol |
| c025 | Link Quality Report |
| c223 | Challenge Handshake Authentication Protocol |

Tab. A.9 - PPP DLL Protocol Number.

A.9 ADDRESS RESOLUTION PROTOCOL

Il protocollo ARP ha diversi parametri di cui i due principali sono: Operation Code (tab. A.10) e l'Hardware Type (tab. A.11).

| | |
|---|---------|
| 1 | REQUEST |
| 2 | REPLY |

Tab. A.10 - ARP Operation Code.

| | |
|----|--|
| 1 | Ethernet (10Mb) |
| 2 | Experimental Ethernet (3Mb) |
| 3 | Amateur Radio AX.25 |
| 4 | Proteon ProNET Token Ring |
| 5 | Chaos |
| 6 | IEEE 802 Networks |
| 7 | ARCNET |
| 8 | Hyperchannel |
| 9 | Lanstar |
| 10 | Autonet Short Address |
| 11 | LocalTalk |
| 12 | LocalNet (IBM PCNet or SYTEK LocalNET) |
| 13 | Ultra link |
| 14 | SMDs |
| 15 | Frame Relay |
| 16 | Asynchronous Transmission Mode (ATM) |

Tab. A.11 - ARP Hardware Type.

A.10 X.25 TYPE NUMBERS

IL CCITT ha definito i due bit più significativi del campo "Call User Data" nel modo descritto in tabella A.12.

| | |
|----|--|
| 00 | Used for other CCITT recommendations (such as X.29) |
| 01 | Reserved for use by "national" administrative authorities |
| 10 | Reserved for use by international administrative authorities |
| 11 | Reserved for arbitrary use between consenting DTEs |

Tab. A.12 - Bit MSB di CUD.

Ha inoltre definito i valori di CUD riportati in tabella A.13.

| | |
|----|-----------------------------|
| 01 | PAD |
| C5 | Blacker front-end descr dev |
| CC | IP |
| CD | ISO-IP |
| DD | Network Monitoring |

Tab. A.13 - Valori di CUD.

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- [1] J. Reynolds, J. Postel, "RFC 1340: Assigned Nuber", July 1992.
- [2] IBM, "Token-Ring Network: Architechure Reference", Pub. No. SC30-3374-01, second edition, August 1987.