                    Hobbes' Internet Timeline
                   <draft-rfced-info-hobbes-00.txt>

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1. Status of this Memo

    This memo provides information for the Internet community. This
    memo does not specify an Internet standard of any kind.
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2. Introduction

    This document presents a history of the Internet in timeline
    fashion, highlighting some of the key events and technologies which
    helped shape the Internet as we know it today. A growth summary
    of the Internet and some associated technologies is also included.

3. Hobbes' Internet Timeline

    Excerpted from the author's work of the same name. The most
    current version of Hobbes' Internet Timeline is available at
    http://info.isoc.org/guest/zakon/Internet/History/HIT.html

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1950s

1957
     USSR launches Sputnik, first artificial earth satellite. In
     response, US forms the Advanced Research Projects Agency (ARPA)
     within the Department of Defense (DoD) to establish US lead in
     science and technology applicable to the military (:amk:)

                              1960s

1962
     Paul Baran, RAND: "On Distributed Communications Networks"
        o Packet-switching (PS) networks; no single outage point

1965
     ARPA sponsors study on "cooperative network of time-sharing
     computers"
        o TX-2 at MIT Lincoln Lab and Q-32 at System Development
          Corporation (Santa Monica, CA) are directly linked
          (without packet switches)

1967   **ACM Symposium on Operating Principles**
 o Plan presented for a packet-switching network
        o First design paper on ARPANET published by Lawrence G.
Roberts

     National Physical Laboratory (NPL) in Middlesex, England develops
     NPL Data Network under D. W. Davies

1968
     PS-network presented to the Advanced Research Projects Agency
     (ARPA)

1969
     ARPANET commissioned by DoD for research into networking
        - First node at UCLA [Network Measurements Center - SDS SIGMA
          7:SEX] and soon after at: [legend = function - system:os]
             - Stanford Research Institute (SRI) [NIC -
               SDS940/Genie]
             - UCSB [Culler-Fried Interactive Mathematics -
               IBM 360/75:OS/MVT]
             - U of Utah [Graphics (hidden line removal) -
               DEC PDP-10:Tenex]
        - use of Information Message Processors (IMP) [Honeywell 516
          mini computer with 12K of memory] developed by Bolt Beranek
          and Newman, Inc. (BBN)

     First Request for Comment (RFC): "Host Software" by Steve Crocker

     U of Michigan, Michigan State and Wayne State U establish
     X.25-based Merit network for students, faculty, alumni (:sw1:)
        o Plan presented for a packet-switching network
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-----------------------------------------------------------------------

                            1970s

   Store-and-forward networks
     - Used electronic mail technology and extended it to conferencing

1970
   ALOHAnet developed by Norman Abrahamson, U of Hawaii (:sk2:)
     - connected to the ARPANET in 1972

   ARPANET hosts start using Network Control Protocol (NCP).

1971
   15 nodes (23 hosts): UCLA, SRI, UCSB, U of Utah, BBN, MIT, RAND,
   SDC, Harvard, Lincoln Lab, Stanford, UIU(C), CWRU, CMU, NASA/Ames

   Ray Tomlinson of BBN invents email program to send messages across
   a distributed network. The original program was derived from two
   others: an intra-machine email program (SNDMSG) and an experimental
   file transfer program (CPYNET) (:amk:irh:)
```

1972

     International Conference on Computer Communications with
     demonstration of ARPANET between 40 machines and the Terminal
     Interface Processor (TIP) organized by Bob Kahn.

     InterNetworking Working Group (INWG) created to address need for
     establishing agreed upon protocols. Chairman: Vinton Cerf.

     Telnet specification (RFC 318)

1973

     First international connections to the ARPANET: University College
     of London (England) and Royal Radar Establishment (Norway)

     Bob Metcalfe's Harvard PhD Thesis outlines idea for Ethernet(:amk:)

     Bob Kahn poses Internet problem, starts internetting research
     program at ARPA. Vinton Cerf sketches gateway architecture in March
     on back of envelope in hotel lobby in San Francisco (:vgc:)

     Cerf and Kahn present basic Internet ideas at INWG in September at
     U of Sussex, Brighton, UK (:vgc:)

     File Transfer specification (RFC 454)

1974

     Vint Cerf and Bob Kahn publish "A Protocol for Packet Network
     Intercommunication" which specified in detail the design of a
     Transmission Control Program (TCP). [IEEE Trans Comm] (:amk:)

     BBN opens Telenet, the first public packet data service (a
     commercial version of ARPANET) (:sk2:)

1975

     Operational management of Internet transferred to DCA (now DISA)

     "Jargon File", by Raphael Finkel at SAIL, first released (:esr:)

     Shockwave Rider written by John Brunner (:pds:)

1976

     Elizabeth II, Queen of the United Kingdom sends out an e-mail
     (various Net folks have e-mailed dates ranging from 1971 to 1978;
     1976 was the most submitted and the only found in print)

     UUCP (Unix-to-Unix CoPy) developed at AT&T Bell Labs and
     distributed with UNIX one year later.

1977

THEORYNET created by Larry Landweber at U of Wisconsin providing
electronic mail to over 100 researchers in computer science (using
a locally developed email system and TELENET for access to server).

Mail specification ([RFC 733](#))

Tymshare launches Tymnet

First demonstration of ARPANET/Packet Radio Net/SATNET operation of
Internet protocols with BBN-supplied gateways in July (:vgc:)

1979
Meeting between U of Wisconsin, DARPA, NSF, and computer scientists
from many universities to establish a Computer Science Department
research computer network (organized by Larry Landweber).

USENET established using UUCP between Duke and UNC by Tom Truscott,
Jim Ellis, and Steve Bellovin. All original groups were under net.*
hierarchy.

First MUD, MUD1, by Richard Bartle and Roy Trubshaw at U of Essex

ARPA establishes the Internet Configuration Control Board (ICCB)

Packet Radio Network (PRNET) experiment starts with DARPA funding.
Most communications take place between mobile vans. ARPANET
connection via SRI.

                              1980s

1981
BITNET, the "Because It's Time NETwork"
    - Started as a cooperative network at the City University of New
      York, with the first connection to Yale (:feg:)
    - Original acronym stood for 'There' instead of 'Time' in
      reference to the free NJE protocols provided with the IBM
      systems
    - Provides electronic mail and listserv servers to distribute
      information, as well as file transfers

CSNET (Computer Science NETwork) built by a collaboration of
computer scientists and U. of Delaware, Purdue U., U. of Wisconsin,
RAND Corporation and BBN through seed money granted by NSF to
provide networking services (specially email) to university
scientists with no access to ARPANET. CSNET later becomes known as
the Computer and Science Network. (:amk,lhl:)

Minitel (Teletel) is deployed across France by France Telecom.

True Names written by Vernor Vinge (:pds:)

1982

     DCA and ARPA establishes the Transmission Control Protocol (TCP)
     and Internet Protocol (IP), as the protocol suite, commonly known
     as TCP/IP, for ARPANET. (:vgc:)
          - This leads to one of the first definitions of an "internet" as
            a connected set of networks, specifically those using TCP/IP,
            and "Internet" as connected TCP/IP internets.
          - DoD declares TCP/IP suite to be standard for DoD (:vgc:)

     EUnet (European UNIX Network) is created by EUUG to provide email
     and USENET services. (:glg:)
          - original connections between the Netherlands, Denmark, Sweden,
            and UK

     External Gateway Protocol (RFC 827) specification. EGP is used for
     gateways between networks.

1983

     Name server developed at U of Wisconsin, no longer requiring users
     to know the exact path to other systems.

     Cutover from NCP to TCP/IP (1 January)

     CSNET / ARPANET gateway put in place

     ARPANET split into ARPANET and MILNET; the latter became integrated
     with the Defense Data Network created the previous year.

     Desktop workstations come into being, many with Berkeley UNIX which
     includes IP networking software.

     Need switches from having a single, large time sharing computer
     connected to Internet per site, to connection of an entire local
     network.

     Internet Activities Board (IAB) established, replacing ICCB

     Berkeley releases 4.2BSD incorporating TCP/IP (:mpc:)

     EARN (European Academic and Research Network) established. Very
     similar to the way BITNET works with a gateway funded by IBM.

     FidoNet developed by Tom Jennings.

1984

     Domain Name Server (DNS) introduced.

     # of hosts breaks 1,000

JUNET (Japan Unix Network) established using UUCP.

JANET (Joint Academic Network) established in the UK using the
Coloured Book protocols; previously SERCnet.

Moderated newsgroups introduced on USENET (mod.*)

Neuromancer written by William Gibson

1985
Whole Earth 'Lectronic Link (WELL) started

100 years to the day of the last spike being driven on the cross-
Canada railroad, the last Canadian university is connected to
BITNET in a one year effort to have coast-to-coast connectivity.
(:kf1:)

1986
NSFNET created (backbone speed of 56Kbps)
     - NSF establishes 5 super-computing centers to provide
       high-computing power for all (JVNC@Princeton, PSC@Pittsburgh,
       SDSC@UCSD, NCSA@UIUC, Theory Center@Cornell).
     - This allows an explosion of connections, especially from
       universities.

NSF-funded SDSCNET, JVNCNET, SURANET, and NYSERNET operational
(:sw1:)

The first Freenet (Cleveland) comes on-line 16 July under the
auspices of the Society for Public Access Computing (SoPAC). Later
Freenet program management assumed by the National Public
Telecomputing Network (NPTN) in 1989 (:sk2,rab:)

Network News Transfer Protocol (NNTP) designed to enhance Usenet
news performance over TCP/IP.

Mail Exchanger (MX) records developed by Craig Partridge allow non-
IP network hosts to have domain addresses.

The great USENET name change; moderated newsgroups changed in 1987.

BARRNET (Bay Area Regional Research Network) established using high
speed links. Operational in 1987.

1987
NSF signs a cooperative agreement to manage the NSFNET backbone
with Merit Network, Inc. (IBM and MCI involvement was through an
agreement with Merit). Merit, IBM, and MCI later founded ANS.

UUNET is founded with Usenix funds to provide commercial UUCP and
Usenet access. Originally an experiment by Rick Adams and Mike

O'Dell

Email link established between Germany and China using CSNET
protocols, with the first message from China sent on 20 September.
(:wz1:)

1000th RFC: "Request For Comments reference guide"

# of hosts breaks 10,000

# of BITNET hosts breaks 1,000

1988
    1 November - Internet worm burrows through the Net, affecting
    ~6,000 of the 60,000 hosts on the Internet (:ph1:)

    CERT (Computer Emergency Response Team) formed by DARPA in response
    to the needs exhibited during the Morris worm incident. The worm is
    the only advisory issued this year.

    DoD chooses to adopt OSI and sees use of TCP/IP as an interim. US
    Government OSI Profile (GOSIP) defines the set of protocols to be
    supported by Government purchased products (:gck:)

    Los Nettos network created with no federal funding, instead
    supported by regional members (founding: Caltech, TIS, UCLA, USC,
    ISI).

    NSFNET backbone upgraded to T1 (1.544Mbps)

    CERFnet (California Education and Research Federation network)
    founded by Susan Estrada.

    Internet Relay Chat (IRC) developed by Jarkko Oikarinen (:zby:)

    First Canadian regionals join NSFNET: ONet via Cornell, RISQ via
    Princeton, BCnet via U of Washington (:ec1:)

    FidoNet gets connected to the Net, enabling the exchange of e-mail
    and news (:tp1:)

    Countries connecting to NSFNET: Canada, Denmark, Finland, France,
    Iceland, Norway, Sweden

1989
    # of hosts breaks 100,000

    RIPE (Reseaux IP Europeens) formed (by European service providers)
    to ensure the necessary administrative and technical coordination
    to allow the operation of the pan-European IP Network. (:glg:)

First relays between a commercial electronic mail carrier and the
Internet: MCI Mail through the Corporation for the National
Research Initiative (CNRI), and Compuserve through Ohio State U
(:jg1,ph1:)

Corporation for Research and Education Networking (CREN) is formed by the merge of CSNET into BITNET

Internet Engineering Task Force (IETF) and Internet Research Task Force (IRTF) comes into existence under the IAB

AARNET - Australian Academic Research Network - set up by AVCC and CSIRO; introduced into service the following year (:gmc:)

Cuckoo's Egg written by Clifford Stoll tells the real-life tale of a German cracker group who infiltrated numerous US facilities

CERT advisories: 7

Countries connecting to NSFNET: Australia, Germany, Israel, Italy, Japan, Mexico, Netherlands, New Zealand, Puerto Rico, UK

1990s

1990
ARPANET ceases to exist

Electronic Frontier Foundation (EFF) is founded by Mitch Kapor

Archie released by Peter Deutsch, Alan Emtage, and Bill Heelan at McGill

Hytelnet released by Peter Scott (U of Saskatchewan)

The World comes on-line (world.std.com), becoming the first commercial provider of Internet dial-up access

ISO Development Environment (ISODE) developed to provide an approach for OSI migration for the DoD. ISODE software allows OSI application to operate over TCP/IP (:gck:)

CA*net formed by 10 regional networks as national Canadian backbone with direct connection to NSFNET (:ec1:)

The first remotely operated machine to be hooked up to the Internet, the Internet Toaster, (controlled via SNMP) makes its debut at Interop.

CERT advisories: 12, reports: 130

Countries connecting to NSFNET: Argentina, Austria, Belgium, Brazil, Chile, Greece, India, Ireland, South Korea, Spain,

Switzerland

1991

    Commercial Internet eXchange (CIX) Association, Inc. formed by
    General Atomics (CERFnet), Performance Systems International, Inc.
    (PSInet), and UUNET Technologies, Inc. (AlterNet), after NSF lifts
    restrictions on the commercial use of the Net (:glg:)

    Wide Area Information Servers (WAIS), invented by Brewster Kahle,
    released by Thinking Machines Corporation

    Gopher released by Paul Lindner and Mark P. McCahill from the U of
    Minn

    World-Wide Web (WWW) released by CERN; Tim Berners-Lee developer
    (:pb1:)

    PGP (Pretty Good Privacy) released by Philip Zimmerman (:ad1:)

    US High Performance Computing Act (Gore 1) establishes the National
    Research and Education Network (NREN)

    NSFNET backbone upgraded to T3 (44.736Mbps)

    NSFNET traffic passes 1 trillion bytes/month and 10 billion
    packets/month

    Start of JANET IP Service (JIPS) which signalled the changeover
    from Coloured Book software to TCP/IP within the UK academic
    network. IP was initially 'tunnelled' within X.25. (:gst:)

    CERT advisories: 23

    Countries connecting to NSFNET: Croatia, Czech Repulic, Hong Kong,
    Hungary, Poland, Portugal, Singapore, South Africa, Taiwan, Tunisia

1992

    Internet Society (ISOC) is chartered

    # of hosts breaks 1,000,000

    First MBONE audio multicast (March) and video multicast (November)

    IAB reconstituted as the Internet Architecture Board and becomes
    part of the Internet Society

    Veronica, a gopherspace search tool, is released by UofNevada

    World Bank comes on-line

    Japan's first ISP, Internet Initiative Japan (IIJ), is formed by

Koichi Suzuki

        The term "Surfing the Internet" is coined by Jean Armour Polly
        (:jap:)

        Internet Hunt started by Rick Gates

        CERT advisories: 21, reports: 800

        Countries connecting to NSFNET: Cameroon, Cyprus, Ecuador, Estonia,
        Kuwait, Latvia, Luxembourg, Malaysia, Slovakia, Slovenia, Thailand,
        Venezuela

1993
        InterNIC created by NSF to provide specific Internet services:
        (:sc1:)
            - directory and database services (AT&T)
            - registration services (Network Solutions Inc.)
            - information services (General Atomics/CERFnet)

        US White House comes on-line (http://www.whitehouse.gov/):
            - President Bill Clinton: president@whitehouse.gov
            - Vice-President Al Gore: vice-president@whitehouse.gov
            - First Lady Hillary Clinton: root@whitehouse.gov (-:rhz:-)

        Worms of a new kind find their way around the Net - WWW Worms (W4),
        joined by Spiders, Wanderers, Crawlers, and Snakes ...

        Internet Talk Radio begins broadcasting (:sk2:)

        United Nations (UN) come on-line (:vgc:)

        US National Information Infrastructure Act

        Businesses and media really take notice of the Internet

        Mosaic takes the Internet by storm; WWW proliferates at a 341,634%
        annual growth rate of service traffic. Gopher's growth is 997%.

        CERT advisories: 18, reports: 1300

        Countries connecting to NSFNET: Bulgaria, Costa Rica, Egypt, Fiji,
        Ghana, Guam, Indonesia, Kazakhstan, Kenya, Liechtenstein, Peru,
        Romania, Russian Federation, Turkey, Ukraine, UAE, Virgin Islands

1994
        ARPANET/Internet celebrates 25th anniversary

        Communities begin to be wired up directly to the Internet
        (Lexington and Cambridge, Mass., USA)

US Senate and House provide information servers

Shopping malls arrive on the Internet

First cyberstation, RT-FM, broadcasts from Interop in Las Vegas

The National Institute for Standards and Technology (NIST) suggests
that GOSIP should incorporate TCP/IP and drop the "OSI-only"
requirement (:gck:)

Arizona law firm of Canter & Siegel "spams" the Internet with email
advertising green card lottery services; Net citizens flame back

NSFNET traffic passes 10 trillion bytes/month

Yes, it's true - you can now order pizza from the Hut online

WWW edges out telnet to become 2nd most popular service on the Net
(behind ftp-data) based on % of packets and bytes traffic
distribution on NSFNET

Japanese Prime Minister on-line

UK's HM Treasury on-line

New Zealand's Info Tech Prime Minister on-line

First Virtual, the first cyberbank, open up for business

Radio stations start rockin' (rebroadcasting) round the clock on
the Net: WXYC at UofNC, WJHK at UofKS-Lawrence, KUGS at Western
Washington U

Trans-European Research and Education Network Association (TERENA)
is formed by the merge of RARE and EARN, with representatives from
38 countries as well as CERN and ECMWF. TERERNA's aim is to
"promote and participate in the development of a high quality
international information and telecommunications infrastructure for
the benefit of research and education"

CERT advisories: 15, reports: 2300

Countries connecting to NSFNET: Algeria, Armenia, Bermuda, Burkina
Faso, China, Colombia, French Polynesia, Jamaica, Lebanon,
Lithuania, Macau, Morocco, New Caledonia, Nicaragua, Niger, Panama,
Philippines, Senegal, Sri Lanka, Swaziland, Uruguay, Uzbekistan

1995
    NSFNET reverts back to a research network. Main US backbone traffic
    now routed through interconnected network providers

    The new NSFNET is born as NSF establishes the very high speed
    Backbone Network Service (vBNS) linking super-computing centers:

NCAR, NCSA, SDSC, CTC, PSC

Hong Kong police disconnect all but 1 of the colony's Internet
providers in search of a hacker. 10,000 people are left without Net
access. (:api:)

RealAudio, an audio streaming technology, lets the Net hear in near
real-time

Radio HK, the first 24 hr., Internet-only radio station starts
broadcasting

WWW surpasses ftp-data in March as the service with greatest
traffic on NSFNet based on packet count, and in April based on byte
count

Traditional online dial-up systems (Compuserve, America Online,
Prodigy) begin to provide Internet access

A number of Net related companies go public, with Netscape leading
the pack with the 3rd largest ever NASDAQ IPO share value (9
August)

Thousands in Minneapolis-St. Paul (USA) lose Net access after
transients start a bonfire under a bridge at the U of Minn. causing
fiber-optic cables to melt (30 July)

Registration of domain names is no longer free. Beginning 14
September, a $50 annual fee has been imposed, which up until now
was subsidized by NSF. NSF continues to pay for .edu registration,
and on an interim basis for .gov

The Vatican comes on-line

The Canadian Government comes on-line

The first official Internet wiretap was successful in helping the
Secret Service and Drug Enforcement Agency (DEA) aprehend three
individuals who were illegally manufacturing and selling cell phone
cloning equipment and electronic devices

Operation Home Front connects, for the first time, soldiers in the
field with their families back home via the Internet.

Richard White becomes the first person to be declared a munition,
under the USA's arms export control laws, because of an RSA file
security encryption program emblazoned on his arm (:wired496:)

CERT advisories: 18, reports: 2412

Country domains registered: Ethiopia (ET), Cote d'Ivoire (CI), Cook
Islands (CK) Cayman Islands (KY), Anguilla (AI), Gibraltar (GI),
Vatican (VA), Kiribati (KI), Kyrgyzstan (KG), Madagascar (MG),
Mauritius (MU), Micronesia (FM), Monaco (MC), Mongolia (MN), Nepal
(NP), Nigeria (NG), Western Samoa (WS), San Marino (SM), Tanzania
(TZ), Tonga (TO), Uganda (UG), Vanuatu (VU)

Technologies of the Year: WWW, Search engines
Emerging Technologies: Mobile code (JAVA, JAVAscript), Virtual
environments (VRML), Collaborative tools

1996

Internet phones catch the attention of US telecommunication
companies who ask the US Congress to ban the technology (which has
been around for years)

The controversial US Communications Decency Act (CDA) becomes law
in the US in order to prohibit distribution of indecent materials
over the Net. A few months later a three-judge panel imposes an
injunction against its enforcement. Supreme Court rules it
unconstitutional in 1997.

9,272 organizations find themselves unlisted after the InterNIC
drops their name service as a result of not having paid their
domain name fee

Various ISPs suffer extended service outages, bringing into
question whether they will be able to handle the growing number of
users. AOL (19 hours), Netcom (13 hours), AT&T WorldNet (28 hours -
email only)

New Yorks' Public Access Networks Corp (PANIX) is shut down after
repeated attacks by a cracker using methods outlined in a hacker
magazine, 2600

Various US Government sites are hacked into and their content
changed, including CIA, Department of Justice, Air Force

MCI upgrades Internet backbone adding ~13,000 ports, bringing the
effective speed from 155Mbps to 622Mbps.

The Internet Ad Hoc Committee announces plans to add 7 new generic
Top Level Domains (gTLD): .firm, .store, .web, .arts, .rec, .info,
.nom. The IAHC plan also calls for a competing group of domain
registrars worldwide.

A cancelbot is released on USENET wiping out more than 25,000
messages.

The WWW browser war, fought primarily between Netscape and
Microsoft, has rushed in a new age in software development, whereby
new releases are made quarterly with the help of Internet users
eager to test upcoming (beta) versions.

Restrictions on Internet use around the world:
- China: requires users and ISPs to register with the police
- Germany: cuts off access to some newsgroups carried on
    Compuserve
- Saudi Arabia: confines Internet access to universities and
    hospitals
- Singapore: requires political and religious content providers
    to register with the state
- New Zealand: classifies computer disks as "publications" that
    can be censored and seized
- source: Human Rights Watch

vBNS additions: Baylor College of Medicine, Georgia Tech, Iowa
State U, Ohio State U, Old Dominion U, UoCA, UoCO, UoChicago, UoIL,
UoMN, UoPA, UoTX, Rice U

CERT advisories: 27, reports: 2573

Country domains registered: Qatar (QA), Vientiane (LA), Djibouti
(DJ), Niger (NE), Central African Republic (CF), Mauretania (MF),
Oman (OM), Norfolk Island (NF), Tuvalu (TV), French Polynesia (PF),
Syria (SY), Aruba (AW), Cambodia (KH), French Guiana (GF), Eritrea
(ER), Cape Verde (CV), Burundi (BI), Benin (BJ) Bosnia-Hercegovina
(BA), Andorra (AD), Guadeloupe (GP), Guernsey (GG), Isle of Man
(IM), Jersey (JE), Lao (LA), Maldives (MV), Marshall Islands (MH),
Mauritania (MR), Northern Mariana Islands (MP), Rwanda (RW), Togo
(TG), Yemen (YE), Zaire (ZR)

Technologies of the Year: Search engines, JAVA, Internet Phone
Emerging Technologies: Virtual environments (VRML), Collaborative
tools, Internet appliance (Network Computer)

1997
2000th RFC: "Internet Official Protocol Standards"

71,618 mailing lists registered at Liszt

The American Registry for Internet Numbers (ARIN) is established to
handle administration and registration of IP numbers to the
geographical areas currently handled by Network Solutions
(InterNIC), starting March 1998.

CERT advisories thus far: 18

Country domains registered: Falkland Islands (FK), East Timor (TP),
Congo (CG), Christmas Island (CX), Gambia (GM), Guinea-Bissau (GW),
Haiti (HT), Iraq (IQ), Lybia (LY), Malawi (MW), Martinique (MQ),
Montserrat (MS), Myanmar (MM), French Reunion Island (RE),
Seychelles (SC), Sierra Leone (SL), Sudan (SD), Turkmenistan (TM),

Turks and Caicos Islands (TC)

Emerging Technologies: Push, Streaming Media [:twc:]
Technologies of the Year: Push, Multicasting

Growth

Internet growth:

Date	Hosts		Date	Hosts	Networks	Domains
-----	---------	+	-----	---------	--------	-------
1969	4		07/89	130,000	650	3,900
04/71	23		10/89	159,000	837	
06/74	62		10/90	313,000	2,063	9,300
03/77	111		01/91	376,000	2,338	
08/81	213		07/91	535,000	3,086	16,000
05/82	235		10/91	617,000	3,556	18,000
08/83	562		01/92	727,000	4,526	
10/84	1,024		04/92	890,000	5,291	20,000
10/85	1,961		07/92	992,000	6,569	16,300
02/86	2,308		10/92	1,136,000	7,505	18,100
11/86	5,089		01/93	1,313,000	8,258	21,000
12/87	28,174		04/93	1,486,000	9,722	22,000
07/88	33,000		07/93	1,776,000	13,767	26,000
10/88	56,000		10/93	2,056,000	16,533	28,000
01/89	80,000		01/94	2,217,000	20,539	30,000
			07/94	3,212,000	25,210	46,000
			10/94	3,864,000	37,022	56,000
			01/95	4,852,000	39,410	71,000
			07/95	6,642,000	61,538	120,000
			01/96	9,472,000	93,671	240,000
			07/96	12,881,000	134,365	488,000
			01/97	16,146,000		828,000

Worldwide Networks Growth: (I)nternet (B)ITNET (U)UCP (F)IDONET (O)SI

```
          ____# Countries____                    ____# Countries____
   Date    I   B   U   F   O         Date    I   B   U   F   O
   -----   --- --- --- --- ---       -----   --- --- --- --- ---
   09/91   31  47  79  49            02/94   62  51 125  88  31
   12/91   33  46  78  53            07/94   75  52 129  89  31
   02/92   38  46  92  63            11/94   81  51 133  95  --
   04/92   40  47  90  66  25        02/95   86  48 141  98  --
   08/92   49  46  89  67  26        06/95   96  47 144  99  --
   01/93   50  50 101  72  31        06/96  134  -- 146 108  --
   04/93   56  51 107  79  31        07/97  171  -- 147 108  --
   08/93   59  51 117  84  31
```

WWW Growth:

```
   Date      Sites    |   Date      Sites    |   Date      Sites
   -----  ----------  +   -----  ----------  +   -----  ----------
   06/93         130  |   08/96     342,081  |   04/97   1,002,612
   12/93         623  |   09/96     397,281  |   05/97   1,044,163
   06/94       2,738  |   10/96     462,047  |   06/97   1,117,255
   12/94      10,022  |   11/96     525,906  |   07/97   1,203,096
   06/95      23,500  |   12/96     603,367  |   08/98   1,269,800
   01/96     100,000  |   01/97     646,162  |
   06/96     252,000  |   02/97     739,688  |
   07/96     299,403  |   03/97     883,149  |
```

USENET Growth:

```
Date  Sites  ~MB  ~Posts  Groups  |  Date   Sites    ~MB   ~Posts  Groups
----  -----  ---  ------  ------  +  ----  -------   ---   ------  ------
1979      3            2       3  |  1987    5,200     2      957     259
1980     15           10          |  1988    7,800     4     1933     381
1981    150  .05      20          |  1990   33,000    10    4,500   1,300
1982    400           35          |  1991   40,000    25   10,000   1,851
1983    600          120          |  1992   63,000    42   17,556   4,302
1984    900          225          |  1993  110,000    70   32,325   8,279
1985  1,300  1.0     375          |  1994  180,000   157   72,755  10,696
1986  2,200  2.0     946     241  |  1995  330,000   586  131,614
```

      ~ approximate: MB - megabytes per day, Posts - articles per day

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Zakon

[4](#). **Sources**

    Hobbes' Internet Timeline was compiled from a number of sources,
    with some of the stand-outs being:

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    Bernard Aboba. Addison-Wesley, 1993.

    Hardy, Henry. "The History of the Net." Master's Thesis, School of
    Communications, Grand Valley State University.
    http://www.ocean.ic.net/ftp/doc/nethist.html

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    Berkeley.
    http://server.berkeley.edu/virtual-berkeley/email_history

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    http://www.columbia.edu/~hauben/netbook/

    Kulikowski, Stan II. "A Timeline of Network History." (author's
    email below)

    Quarterman, John. "The Matrix: Computer Networks and Conferencing
    Systems Worldwide." Bedford, MA: Digital Press. 1990

    "ARPANET, the Defense Data Network, and Internet". Encyclopedia of
    Communications, Volume 1. Editors: Fritz Froehlich, Allen Kent.
    New York: Marcel Dekker, Inc. 1991

    Internet growth summary compiled from:
      - zone program reports maintained by Mark Lottor at:
            ftp://ftp.nw.com/pub/zone/
      - connectivity table maintained by Larry Landweber at:
            ftp://ftp.cs.wisc.edu/connectivity_table/

    WWW growth summary compiled from:
      - Web Growth Summary page by Matthew Gray of MIT:
            http://www.mit.edu/people/mkgray/net/web-growth-summary.html
      - Netcraft at http://www.netcraft.com/survey/

    USENET growth summary compiled from Quarterman and Hauben sources
    above, and news.lists postings. Lots of historical USENET postings
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5. Acknowledgements

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6. Security Considerations

Security issues are not discussed in this document.

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