Dorothy Elizabeth Denning

Born: Aug. 12, 1945;

Michigan ??, USA

In the mid 1980s, Denning and Peter G. Neumann developed the Intrusion Detection Expert System (IDES) that went on to become the basis for many cyber-security applications. It employed a rule-based system to detect problems, along with a statistical anomaly component based on profiles of users and systems.

Denning was one of several academics asked to review the Skipjack encryption algorithm for the Clipper chip [April 16]. They found no problems with the algorithm itself, but were less than enthusiastic about the government ownership of the cryptographic key.

Denning is married to Peter J. [Jan 6].

Echo 1
Aug. 12, 1960

Echo 1, the world's first communication satellite, was launched on this day. It was essentially a large metalized balloon (some 30 meters in diameter) in low Earth orbit so it was easily visible to the unaided eye. Microwave signals were bounced off it rather than being retransmitted as in modern satellites. It was nicknamed the 'satelloon' by project members, a portmanteau of satellite and balloon.

On August 15, it was used to make a long-distance phone call between William Victor in the Jet Propulsion Lab [Nov 16] in California and William C. Jakes Jr. at Bell Labs [Jan 1] in New Jersey.

IBM PC (5150)
Aug. 12, 1981

At the NYC Waldorf-Astoria, and in Boca Raton, Florida, IBM released the IBM PC (aka the IBM 5150). It had been developed in under a year by the "Project Chess" [Oct 20] team led by Don Estridge [June 23].

It featured an Intel 8088 CPU [July 1], 16 KB of RAM, and a mono display. It used a tape cassette drive for external memory, but this was later replaced by (a rather costly) 5.25-inch floppy disk drive.

IBM PC 5150 running MS-DOS 5.0. Photo by Boffy b. CC BY-SA 3.0.

The general consensus after the release was that the machine was expensive and underpowered. For instance, it had no graphics capabilities out of the box, no hard drive, and no sound chip. Compared to the much cheaper, and more colorful, Commodore 64 [Jan 7], it hardly seemed a contender.

Despite these reservations, the system became an instant hit, with over 65,000 units sold in the first four months. One reason was the IBM brand, but the machine's long term success was probably due to its simple, fully documented, hardware. It utilized no custom chips, just a standard Intel 8088 hooked to RAM and a simple 8-bit bus (later called the ISA bus [March 2]). This made it easy for third parties to create add-on cards, which sold well precisely because the basic PC was lacking in functionality.

The only proprietary part was the BIOS (Basic Input/Output System), but IBM published enough of its technical details that other manufacturers could eventually create PC compatibles; the so-called "clones".

In 1982, the MPC 1600-1 [June 00] and the Compaq Portable [Nov 4] were announced, and in 1984, Phoenix Technology's released a legal copy of the BIOS [July 10]. The clone market helped solved the PC's price problem, through competition.

The PC's popularity did have one major drawback – any non-clones aimed at the home or small business markets quickly dropped from favor, and disappeared.

The IBM PC could run several different OSes, but Microsoft's MS-DOS [next entry] (renamed PC-DOS) was the least expensive (at $40) and therefore the most popular.

Crucially for Microsoft, IBM allowed it to license MS-DOS [Sept 30] to other companies, and so the PC-compatible manufacturers naturally went to Microsoft for their OS needs. Ultimately Microsoft gained almost complete control of the OS market.

MS-DOS is PC DOS
Aug. 12, 1981

Prev: [July 27]

Microsoft had licensed MS-DOS 1.1 to IBM, who installed it as PC DOS 1.0 on their new IBM PC [previous entry].

MS-DOS was based on 86-DOS (aka QDOS), which was derived from CP/M [June 22]. Microsoft had licensed 86-DOS from Seattle Computer Products (SCP) on [Sept 22] 1980, and Tim Paterson [June 1], who had developed 86-DOS at SCP, joined Microsoft in May.

It's somewhat unfair to say these three OSes were the "same". For instance, they ran on different processors: CP/M was for the Intel 8080/ Zilog Z80, 86-DOS

for the 8086, and MS-DOS was aimed at the IBM PC's 8088. MS-DOS also had two other notable differences from CP/M: improved disk sector buffering and the FAT file system.

Another difference was the dropping of the ":" in MS-DOS to identify device names (e.g. CON for the console, PRN for the printer, AUX for auxillary). This forced DOS to disallow the creation of ordinary files with those names, making it impossible to create a file called "aux.txt" for instance. Amazingly, this restriction still exists, even in MS Windows 10.

CP/M is often blamed for giving MS-DOS the backslash as a path separator when the rest of the world preferred the forward slash, but that isn't the case. The backslash was chosen since the forward slash was already utilized for switches on the command line, a feature inherited from DEC's TOPS-10 OS for the PDP-10 (a machine quite familiar to Bill Gates and Paul Allen [Nov 18]).

Within a year, Microsoft had licensed MS-DOS to over 70 other companies. This was only possible because the system utilized CP/M's clever BIOS idea; Gary Kildall [May 19] had come up with BIOS as a way to separate out all the low-level hardware dependent functions, such as character and disk I/O, which made it easier to port the higher-level MS-DOS functionality across to different hardware. For example, Microsoft sold a development kit that would (fairly easily) compile a version of MS-DOS with a manufacturer's own I/O drivers.

Another reason for MS-DOS' popularity was that Microsoft put considerable effort into improving it. For instance, version 1.25, released in 1982, added support for double-sided disks, thereby eliminating the need to manually turn the disks over to access the reverse side.

Version 2.0 (1983) added directories, supported IBM's huge 10 MB hard disk drive [March 8] and could handle 5.25-inch floppies. This was quickly followed by version 2.11 later the same year which added support for foreign and extended characters. By this time, the OS's source code was five times bigger than in version 1.0, at around 20,000 lines.

As MS Windows [Nov 20] became more reliable [May 22], and less like "sugarcoating", MS-DOS began to fade from view. Windows ME removed the capability to boot MS-DOS 8.0, but retained the ability to make a separate bootable DOS floppy.

The MS Windows 32-bit OSes [July 27] (Windows NT, 2000, XP and newer) dropped MS-DOS, but provided an emulator to run DOS applications and provide a DOS command prompt window. Starting with Windows 10 [July 29], the ability to create a DOS startup disk was removed.

Gates' Donkey
Aug. 12, 1981

Donkey, often known by its file name DONKEY.BAS, was included with early versions of MS- DOS [previous entry].

The game requires the player to move a car between traffic lanes to avoid a series of donkeys. It was written by Bill Gates [Oct 28] and Neil Konzen, primarily to demonstrate BASIC's gasp-inducing color graphics and sound.

Donkeys on a road. Photo by Porto Neto. CC BY-SA 4.0.

According to Gates: "It was myself and Neil at four in the morning with this prototype IBM PC sitting in this small room. IBM insisted that we had to have a lock on the door and we only had this closet that had a lock on it, so we had to do all our development in there and it was always over 100 degrees."

Apple's Andy Hertzfeld [April 6] wasn't that impressed with the game: "The player was supposed to be driving a car down a slowly scrolling, poorly rendered "road", and could hit the space bar to toggle the jerky motion. Every once in a while, a brown blob would fill the screen, which was supposed to be a donkey manifesting in the middle of the road."

Incidentally, Neil Konzen would later become Microsoft's technical lead for its involvement with the Apple Mac [Jan 24].

Also of note was that "Donkey' sported similar gameplay to Mattel Auto Race [?? 1976], the first handheld, fully digital, LED game device.

Abort, Retry, Fail?
Aug. 12, 1981

MS-DOS [previous entries!!] introduced the error message: "Abort, Retry, Fail?" (often called the ARF).

A missing disk (or an open disk drive door) was defined by MS-DOS as a critical error, which caused the ARF to appear and the OS to wait for user input.

Several other problems were deemed critical (e.g. a disk read error), and so, rather puzzlingly, the same ARF appeared. Also, many people were confused by the wording, seeing no difference between aborting and failing.

As of 2020, Windows 10 [July 29] still generates a similar error message, but the dialog box is much prettier, and the wording has been finessed. Now you can choose between "Cancel", "Try Again", and "Continue".

ARF is probably the most famous error message in

computing. Other contenders are:

- "The Blue Screen of Death" (BSoD) [July 27];

- "HTTP 404 Page Not Found": the rumor that 404 refers to a room at CERN [Sept 29] is false. The CERN office numbering system allocates the first digit to a building (i.e. building 4), and the second two to the office number. There is no room "04" in building "4", the numbering starts at "410";

- "PC LOAD LETTER": a 1990s error message, seen on early versions of HP's LaserJet [May 5]. "PC" didn't mean "personal computer" but "paper cassette," better known as the paper tray;

- "The Spinning Beach Ball of Death" (SBBOD), which was actually Apple's "spinning wait cursor". If it didn't revert to a mouse pointer fairly quickly, it was a strong indicator of a problem. It first appeared in OS X [March 24], having been inherited from NeXTSTEP [Sept 18].