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The test of time

Telecom innovations come and go, but others remain

by A. Michael Noll

Mon. July 7, 2008



Few innovations really last that long. The Edison cylinder was replaced by the 78 disc, which was then replaced by the 33 1/3 LP, which was replaced by the cassette, which was replaced by the CD, which was replaced by MP3 players. The lifetime of each of these innovations was only a few decades at most.

In removable digital storage, a series of floppy disks shrunk to the 3 1/2 inch floppy which then went obsolete, while Zip disks disappeared along the way. We all have boxes of obsolete storage media.

Clearly, the pace of innovation is increasing.

In telecommunications, it seems that there is another, and better, wireless technology each year. Long-distance transmission technology has progressed from coaxial cable to microwave radio and ultimately to optical fiber. Electromechanical switching was replaced with electronic switching, then digital switching, and now IP switching. About the only aspect of telecommunications that remained virtually unchanged over the last 100 years was the copper wire used in the local loop — but now that is being replaced with optical fiber.

Yet there are — and were — some innovations that have lasted for a century or more. They have stood the test of time.

The use of alternating current (AC) for power distribution, including transformers, has remained virtually unchanged since introduced by Tesla and

Westinghouse in the 1890s. Edison's incandescent light bulb has remained virtually unchanged since its invention in 1879. Edison's carbon microphone was used in telephones from 1877 to just a few years ago, when replaced by the electret microphone. Analog broadcast television goes back to 1945 and has lasted until its ultimate retirement next year with digital broadcasting.

Not only have a few innovations have stood the test of time, but so too have a few companies. One is General Electric, whose history dates all the way back to the days of Edison.

In telecommunications, the old Bell System has gone through so many transformations over the last couple of decades that only the pieces remain.

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