http://www.tmcnet.com/viewette.aspx?u=http%3a%2f%2fwww.tmcnet.com%2ftopics%2farticles%2f2013%2f06%2f03%2f340284-ethernet-forty-years.htm&kw=

Ethernet Forty Years On

June 03, 2013

On May 22nd, 1973, Bob Metcalfe employed the term “Ethernet” in a memo he wrote at PARC (Palo Alto Research Center). Exactly 40 years later, he made the opening keynote presentation at the NetEvents Ethernet Innovation Summit**,** May 22/23, in Silicon Valley’s Computer History Museum.

Transitioning from a concept to a network technology was a tough task, but the vision was clear: move from a box-centric model to a distributed computing model that would eventually allow hundreds of PCs to be deployed on every desk, linked to shared printers and servers. It also included the ability to run over different media types, hence the use of “Ether” in the term.
The challenge included the need to provide clocking in the data stream, which was enabled using Manchester Encoding, the key breakthrough, followed by Collision Detection (CSMA/CSCD) and the 6-byte address. In addition, there was the not-insignificant 10-year challenge that came from IBM and its Token Ring technology, but Ethernet and open standards prevailed over Big Blue. David, not Goliath, won the LAN war. That was a significant achievement.

Standards are good, but open standards that adapt over time enable evolutionary progress, and that is what Ethernet has given us. It runs over all mainstream media, from coax and twisted pair through the wireless backhaul. The technology has evolved; for example, collision detection has left the scene and been replaced by network intelligence at level 3. But, and this was a key message, the packet format hasn’t changed, nor has the type field. The frame is the jewel in Ethernet’s crown; it has allowed innovation to be built on a foundation that is not only robust, but also one that provides backwards compatibility. Moreover, Ethernet is becoming a universal language, looking less like a technology and more like a service offering – with serious implications for carriers.

The technology has clearly stood the test of time. It underpins Wi-Fi and wireless backhaul in cellular networks; data rates have ramped up from 1G to 10G and 40G and there is no obvious reason why they should stop. In addition, we now have Carrier Ethernet, which brings

standardized service offers to the markets, thereby enabling end-to-end Ethernet: desktop to LAN to WAN and the cloud and back to the desktop.

In a nutshell, Ethernet equals connectivity — both in the enterprise environment and the service provider space. It’s a key enabler for tomorrow’s Connected World.