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# INFRASTRUCTURE HORSE RACE: AN xDSL SHIFT

*For the past year, telephone companies have suspended deployment of xDSL data transmission technology, halting their stretch run in the "Infrastructure Horse Race." However, two recent developments suggest the telcos are resuming the race: 1) US West has become the first Regional Bell Operating Company (RBOC) to initiate commercial xDSL service; and 2) a new generation of hardware makes xDSL cheaper and easier to deploy, while also making it available to more telephone users. In addition, the new hardware does not require professional installation, thereby making the equipment marketable through local electronics stores and making the transition easier and cheaper for new customers. The telcos were leading when they suspended their stretch run, and these new developments should help them to a strong finish.*

In an old horse-race joke, a mare leading down the stretch stops to deliver a foal, resumes and then wins the race – and the foal finishes second! In "Infrastructure Horse Race: And the Winners Are..." (**IF 1719**, 7/8/96), we saw the telephone companies leading down the stretch, with their xDSL ("x" defines various speed and symmetry options) data transmission technologies about to capture the race to supply high-speed Internet connections. But, lo and behold, they paused...they held back from initiating commercial xDSL services, apparently feeling no need to rush. With the nearest competitor, the cable modem, lagging well off the pace, the telcos just did not deploy xDSL. They demonstrated it; they market-tested it; but they failed to deploy it...they did not finish the race.

Telcos cannot ignore their competition forever, though. Cable systems now offer two-way data communications to about 15 percent of their North American subscribers. Earlier this year, the big cable modem supplier Bay Networks said it had deployed 50,000 cable modems to end-users. (*InfoWorld*, 3/31/97; *Electronic News*, 11/10/97)

Two recent developments in xDSL suggest that the telcos are resuming the race: 1) the first Regional Bell Operating Company (RBOC) has

begun offering a **commercial** xDSL service...not a test, and 2) hardware improvements make xDSL service cheaper and easier to deploy, as well as available to more subscribers. Together, these two developments imply that the telcos are ready to finish their stretch dash – with new hardware as a kicker.

## US West Breaks the Mold

At least six RBOCs are testing various xDSL services, but with a late-October launch of its MegaBit Services, US West became the first RBOC to offer xDSL service on a commercial basis. The digital subscriber line offerings allow simultaneous voice service and data connections to the Internet or a corporate LAN at speeds between 192 Kbps (MegaHome service) and 704 Kbps (MegaBusiness service), in a price range from $40 to $125 a month. A MegaPack option will combine the MegaHome service with US West's own Internet access for $59.95 a month. A MegaCentral option will give corporations with large numbers of telecommuters a cheap way of aggregating individual xDSL services into higher-speed lines connected to the company LAN.

The MegaBit services will reach one-third of US West's subscribers in the Phoenix (AZ) area at launch, 85 percent of Phoenix, Tucson (AZ) and southern Utah by the end of the year, and the majority of cities in US West's territory by mid-1998. US West Communications signed a contract with NextLevel Communications (NLC) to deploy an NLC Switched Digital Access System and agreed to purchase a minimum of 450,000 broadband digital lines and residential gateways. (*Lightwave*, 10/97; *PCWeek*, 11/3/97)

## New Hardware Expands the Market

One reason telcos are reentering the race is new hardware that circumvents what once was a touchy problem. As originally envisioned, xDSL service required an xDSL computer card (or modem) at the subscriber's computer and compatible electronic hardware in the nearest telco central office. For xDSL service over existing twisted-pair phone lines, the subscriber had to be located within a certain maximum distance of the central office. In addition, xDSL required a hardware "voice splitter" at the subscriber end of the line to provide conventional voice service, or POTS (plain- old telephone service). The splitter, which separates the analog voice signal from the digital data stream to permit both services simultaneously on one phone line, required a telephone company visit to install.

In spite of the maximum-distance limitation, telco officials originally thought xDSL service would be available to most telephone users. However, field experience in RBOC tests revealed that years of undocumented telco modifications had created electrical interference that limited xDSL service to fewer subscribers, at shorter distances than planned.

New hardware developments from Pulsecom and Rockwell provide an elegant solution to this problem. Both Pulsecom's WavePacer solution for ADSL networks and Rockwell's new Consumer DSL (CDSL) technology allow the telco hardware for these services to be moved out of the central office. In each case, remote-access multiplexers plugged into digital-loop carrier (DLC) cabinets in the field at significant distances from the nearest central office extend xDSL service to many more potential users.

Moreover, Pulsecom now offers hardware that can split POTS at the central office, and Rockwell's CDSL technology does not require a POTS splitter at all. Removing the POTS splitter from the subscriber end of the service makes it possible to sell standard xDSL modems in electronics stores rather than through the telco. Not requiring a physical telephone company visit for installation could help sell xDSL services to new customers. (*Electronic Engineering Times*, 11/3/97)

US West has broken ranks and become the first RBOC to offer a commercial xDSL service. This strongly suggests that the telcos have milked their early data transmission lead *vis-à-vis* the cable companies and satellite providers for as long as they dare. The new hardware currently reaching the market allows telcos to forge ahead with xDSL and reach more customers than they previously estimated, more cheaply than they projected. Moreover, they can initiate xDSL services without supplying or

installing any customer-premises equipment – a decided advantage over their cable and satellite competitors. These changes could well push remaining RBOCs back into the race, and their actions could give a boost to suppliers of related hardware.

*"My current digital access provider has offered me a new BMW. Can you do better than that?"*