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Patton Electronics Seeks to Enhance China's Datacom Infrastructure
Baseband Modems a Key to Local 64 & 128 kbps DDN Communications

by Jim Fowler

Individuals in China seeking to connect to the Internet generally do so using a dial-up modem and voice grade connection. Government agencies or companies wishing to connect *dozens* of users to the Internet–usually from a local network tied into a router–typically acquire a digital data network (DDN) circuit and a 64 or 128 kbps **baseband modem** from the Ministry of Post and Telecom (see Figure 1, below). DDN circuits and baseband modems are also employed on local links of MPT circuits that might conceivably connect a main office network in Beijing to a remote office network in Nanjing. According to official sources, the MPT plans to install approximately 25,000 64 and 128 kbps baseband modem ports in the next year–half standalone and half rackmount. This rate of installation is expected to increase by 100% per year over the next few years. (64 and 128 kbps baseband modem ports will account for approximately 25% of the 100,000 total DDN ports installed by the MPT in the coming year).
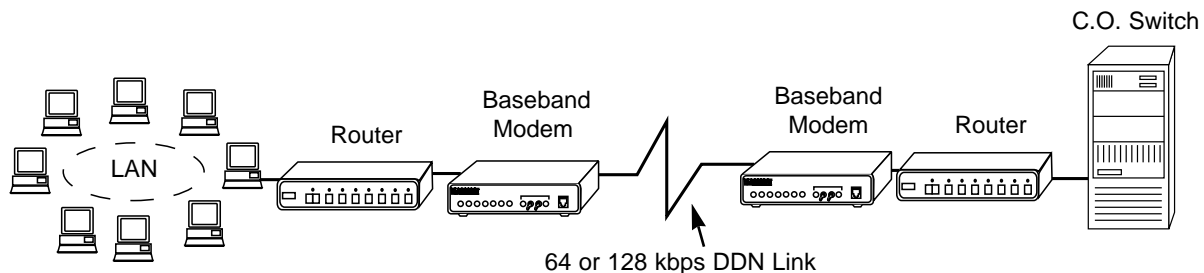

Figure 1. Typical digital data network (DDN) link supported by China's Ministry of Post and Telecom

Limited Baseband Modem Offerings
Whereas individuals (and the MPT) have dozens of dial-up modem vendors to choose from, there are currently only a handful of baseband modem suppliers in China (RAD and Ascom are notable). Patton Electronics Company–headquartered just outside of Washington, D.C.–believes there is room in China for one more baseband modem vendor, especially one with products that carry some distinct features. The Patton Model 1090 (4-wire) and 1092 (2-wire) baseband modems support 64 and 128 kbps distances between 7.5 and 8 km on a .5mm twisted pair wire, and accept interchangeable modules for connection to various router interfaces (G.703, V.35, X.21, V.24 and RS-530). These two elements–extended range and swappable interface modules–make the Patton Models 1090 & 1092 stand out when compared with other standalone baseband modems currently offered on the Chinese market

A Little Extra Distance Goes a Long Way
One key differentiating factor in baseband modems is distance. Since baseband modems are essentially short
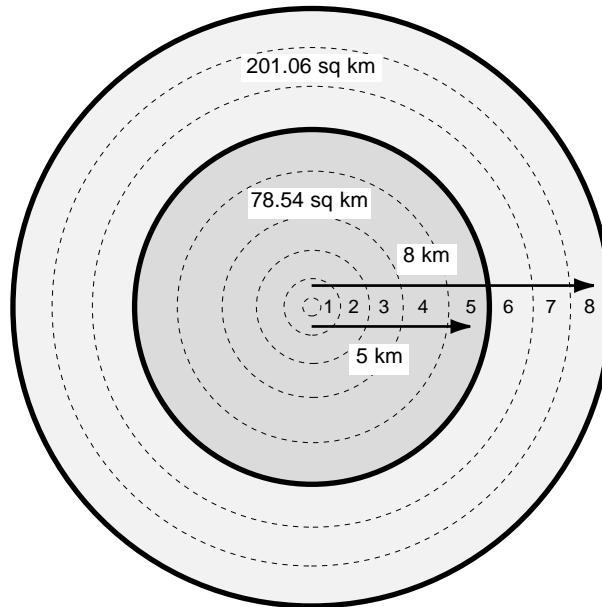
Figure 2. Modest increase in baseband modem range yields dramatic increase in end-user coverage area

range devices–unlike dial-up modems–their effectiveness is largely defined by how far they can extend a point-to-point link (ex. between two routers) at a given data rate. The Patton Models 1090 & 1092 are conservative-ly rated to support distances between 7.5 and 8 km on a standard .5 mm twisted pair. When compared with a competitive baseband modem whose distance rating is 5 km, the gains in actual coverage area are surprisingly large. Figure 2 (above) illustrates the comparative coverage area of a baseband modem whose range is 5 km and the Patton Patton Models 1090 & 1092, whose range is up to 8 km. Even though the actual radius of cov-erage increases only 3 km, the Patton Models 1090 & 1092 yield dramatic gains in coverage area. Here is how the math works out:

$$\text{coverage area} = \pi \, (\text{radius})^2$$
$$5 \text{ km coverage area} = 3.1416 \, (5 \text{ km})^2 = 3.1416 \, (25) = 78.54 \text{ square km}$$
$$8 \text{ km coverage area} = 3.1416 \, (8 \text{ km})^2 = 3.1416 \, (64) = 201.06 \text{ square km}$$
$$\text{Coverage area } \underline{\text{gained}} \text{ by adding 3 km in distance} = 122.52 \text{ square km} = \textbf{156\%}$$

Interface Modules Save on Repeated Purchases
In addition to the coverage area gains made possible by their 8 km range, the Patton Models 1090 & 1092 offer the benefit of replaceable interface modules. On competitive standalone baseband modems, the user specifies an interface type (V.35, X.21, etc) at the time of purchase. This choice is normally based upon the type of interface employed by the routing hardware to which the baseband modem must connect. Different manufacturers tend to use different interfaces. If the end-user switches routers to another manufacturer, they must either purchase an interface converter (generally expensive if it is even available) or replace the base-band modem altogether. The Patton Models 1090 & 1092 allow the end user to specify one interface type at the time of purchase (G.703, V.35, X.21, V.24 or RS-530)., and then purchase additional modules as the need arises. The same base unit may be used in all applications, and the interface modules are relatively inexpen-sive. Various power supply options are available.

Patton Actively Pursuing China Business
Although Washington, D.C.-based Patton Electronics has been doing business through local distributors in the Pan-Asia region for several years, a Hong Kong support office–Patton Electronics Asia–was opened at the

beginning of 1997. Currently, 26% of Patton's international business comes from the Pan Asia region. During the next 5 years Patton expects their international business in Asia to grow to 40%, with fully 50% of that business being done in China. In light of the rapid growth of the Chinese market, Patton has recently opened a satellite office in Nanjing, and plans to open an office in Beijing later this year.

About Patton

Patton Electronics Company is a leading US manufacturer and marketer of data communications equipment, including last mile access products, remote access products, short range modems, interface converters and network surge protectors. Patton products are available through a worldwide network of Authorized Patton Distributors, as well as through Patton's own Datacom *Direct* Catalog.

The Patton Electronics Web site (**www.patton.com**) features Patton's Online Catalog, new product information, technical documentation and articles covering many facets of data communications. Patton Electronics is an ISO 9001 certified and BABT approved manufacturer. Patton products are CE marked for sale in EC member countries. For more information or a free data communications catalog, please contact Patton Electronics Company,   7622 Rickenbacker Drive, Gaithersburg, MD, 20879, USA. Phone **(301) 975-1000**. Fax **(301) 869-9293**. Email **sales@patton.com**. World Wide Web **http://www.patton.com**.

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