

# **CorDECT Wireless in Local Loop and connecting rural India**

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People in most developing countries can afford to spend very little on telecom. And, affordability is a crucial factor in determining, among other things, the kind of services that can be made available. We are living today in an Information Age, where access to information and dissemination of such information through effective communication, are assuming great proportions of importance. Hence the need for telecom services (the key to enabling any kind of information and communication) for all need not be emphasized.

A country like India has a billion plus people with more than 65% in rural areas, and with very low income and affordability levels. Now, if these people are to be provided telecom services, they need appropriate technology at affordable prices. The income levels of most rural households hover around \$40 to \$60 per month. The amount that they can spend on communications can be no more than \$2 to \$3 per month. To cater to subscribers paying such revenues, an operator needs technologies with very low capex. Wireless in Local Loop (WiLL) has been designed to meet this goal.

## **CorDECT Wireless in Local Loop**

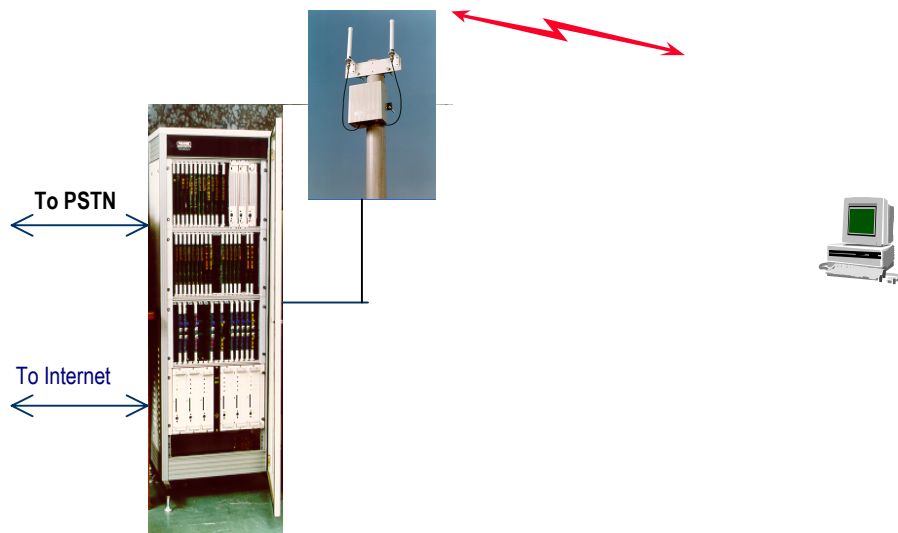
CorDECT WiLL was developed by the TeNeT Group of IIT Madras and Midas Communications in Chennai, India [<http://www.midascomm.com>] (a company incubated at IIT Madras in India). It is a DECT-based low-cost fixed wireless

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access technology aimed at connecting primarily homes and small offices in rural areas and small towns. DECT stands for "Digital Enhanced Cordless Telecommunications", a radio technology suited for voice data and networking applications. CorDECT provides two lines to each subscriber, a voice line and a 35 kbps dedicated Always-ON Internet connection ( a premium rate at 70 kbps) as shown in Fig 1.

It can be used both in urban as well as rural areas. In urban areas base stations need to be located every couple of km so as to serve a high density of subscribers. In rural areas, it needs a wide coverage and low bit rate. Using Relay Base stations in rural areas, it serves subscribers in a 25-30 km radius of base stations. The rural deployment would cost less than \$300 per line, making CorDECT the lowest cost connectivity solution.



**Fig 1 : CorDECT Wireless in Local Loop**

### **Innovative business models**

Technology alone however, would not solve the problem of connecting rural people. The developers of CorDECT have therefore incubated a company called

n-Logue Communications in Chennai, India [<http://www.n-logue.co.in>], which has combined the cost advantage of CorDECT with an innovative business model to connect rural India. n-Logue is an Indian rural Internet Service Provider (ISP), set up with the idea of providing telephone and Internet services solely to rural India. From day one, n-Logue is a business set up with a thrust on entrepreneurship.

The key to n-Logue's business model is aggregation of demand in a village to be served by an entrepreneur in each village.<sup>2</sup> In each village, a small entrepreneur is assisted by n-Logue to set up a kiosk. The kiosk is equipped with a CorDECT wireless connection, a PC with Multimedia, Web camera, printer, power back-up and a suite of Local Language Applications and a low bit rate video conferencing application in addition to a telephone and is made available to the kiosk operators at a total cost of \$1,000 which includes training and maintenance for a year. The kiosk operator provides telephone and Internet service to the villagers 16 hours a day, 365 days a year. A revenue of \$60 per month serving about 1000 villagers will start seeing him / her break-even.

n-Logue provides the basic Internet backbone connectivity. For this purpose, it sets up an Access Center (consisting of a CorDECT Exchange and Base Stations) in a typical Indian town, and provides wireless connections<sup>3</sup> to the villages around the 30-km radius. This typically covers around 300 to 400 villages. n-Logue partners with a local business person termed as a Local Service Provider (LSP) to run the Access Center and serve the kiosks in the villages. The LSP is a local entrepreneur who maintains the connections and

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<sup>2</sup> This is very much akin to the late 80s effort to aggregate demand of lower middle class people in urban streets, to be served by an entrepreneur driven operator assisted PCO (what is known as STD PCO) on the street. Today there are 950,000 such STD PCO booths in India, their usage contributed to 25% of total telecom revenue in India in year 2000 and almost 300 million people who do not have telephones use these.

<sup>3</sup> Fortunately in India, such towns (taluka or county headquarters) have already been connected by fibre by the incumbent Indian operator, BSNL

equipment, provides face-to-face interaction in rural areas, and provides round-the-clock operation of services.<sup>4</sup>

The model succeeds as long as the kiosk operator provides a host of services for which, the rural people are willing to pay. It does not take much for villagers to start using telephony. Even the stand-alone computer finds large usage. While some children often use it to learn typing, some others for computer familiarity courses or even courses on word-processing, presentation and computer aided design. Still others use Internet based tutorials to prepare for school leaving examination in subjects like English and Spoken English courses.

Most kiosk operators have converted their kiosks into a photography shop, and use a webcam to take photographs, use a photo editor to edit it before printing it locally or remotely. E-mail in local language is used to some extent, but it is the voice mail and video-mail which have caught the imagination of the villagers. A significant percentage of the village population is migrant and would barely come once in a year. A video-mail from their family members makes a huge difference. However, the most powerful application is video-conferencing.

The low bit rate multi-party video-conferencing is used by the villagers to meet a doctor on the net, take their crop problems to an agricultural specialist and their sick animals to a veterinary doctor. It is also used by the government to provide services and as a grievance addressing mechanism. Combined with slides and white board, video-conferencing is used as a remote tutoring tool, with questions and answers. However this is only the beginning. An attempt is being made to drive financial (banking) and insurance services through the kiosks. Coupled with trading and training, this can become the basis of driving entrepreneurship in rural areas.

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<sup>4</sup> Over the last decade, such local operators have emerged to provide cable services in an area and have been the key to the cable TV boom in India

## **Conclusion**

TeNeT Group is currently in the process of developing a back-haul satellite system (called Sparse Area Communication Systems or SACS) for systems like CorDECT. This would be especially useful where fiber does not exist in the vicinity and where the population density is relatively sparse. CorDECT along with SACS can enable very low cost connectivity in most parts of the developing world.

Apart from India, CorDECT is already being used in over 10 other countries including Egypt, Tunisia, Brazil, Argentina, South Africa, and Iran. However the usage in these countries may be more in urban areas. Organizations similar to n-Logue are needed in these countries in order to drive rural connectivity and develop solutions, customized to its distinct needs.