EVDO (EVOLUTION, DATA OPTIMIZED) TECHNOLOGY

INTRODUCTION

1. Getting online and being able to connect socially and the office is more important now than ever but what happens if we're one of the millions of Indians without access to traditional broadband like cable or DSL, stuck in a hotel without WiFi. The answer is mobile broadband. Mobile broadband provides completely wireless internet access. We take the internet with us and surf the web in our car, on the train, in the airport, at a convention, on the road and we can even share the connection with multiple computers using a mobile broadband router, just like we could with our broadband connection at home.

2. "Mobile Broadband" is a generic term that describes this type of internet connectivity, but there are a few related terms that will be helpful to understand. EVDO or Evolution Data Only/Evolution Data Optimized, is a 3G mobile broadband technology that provides typical download speeds of 600-1400kbps (with bursts up to 3100kbps). HSPA is another 3G technology which is the next generation of mobile broadband technology, but it's not as widely available as 3G service.

3. Evolution-data optimized (EVDO) is next step for the code division multiple access (CDMA) networks moving towards 3G. EVDO promises data speeds up to 2.4 Mbps on the forward link and 153.6 kbps on the download link. Compare this with the shared 64 kbps, where a subscriber actually gets between 20–35 kbps over GPRS connectivity and the 140–150 kbps over EDGE networks. Even the offered speed of 300–400 kbps over EVDO is faster than any other wireless access technology.

HOW DOES EVDO WORK?

4. EVDO is part of the CDMA2000 family and hence the operators do not require any major addition or changes in the network architecture. At the user end, an EVDO enabled device (a laptop with a PC card, PDA or phone) is required. The current CDMA2000 1x supports both voice and data on the 1.25 MHz carrier. The 1x EV is optimized to carry only data traffic in single 1.25 MHz carrier.

5. EVDO works similarly to the way our cell phone operates. In that, it relies on signal from a wireless tower rather than a physical connection like a phone line or cable. An EVDO modem (often referred to as an "air card") receives the signal and allows us to connect to the internet - it's as simple as that. EVDO modems come in several formats: USB dongle, Express Card, PCMCIA card or all-in-one hotspot (like the MiFi) and we can use them either directly in our computer OR in a 3G router. Of course, like our cell phone, the modem alone doesn't provide internet access. We must subscribe to the service from an EVDO provider. MTNL, BSNL and Private Internet Service Providers offer EVDO service with a 5GB per month allowance and both charge overage fees for usage exceeding 5GB. For most people, 5GB is plenty of data for surfing the web, emailing and the occasional YouTube video. For more information on what we can do with 5GB.
WHAT IS EVDO? JUST THE BASICS

6. The list of basics of EVDO is as follows:-

(a) EVDO stands for Evolution Data Optimized

(b) EVDO is a 3G mobile broadband technology ("3G" simply stands for "third generation")

(c) EVDO Rev-A is the current version of EVDO available. EVDO Rev-0 was the original technology. Rev-A is faster than Rev-0. All of the currently available EVDO modems are Rev-A.

(d) Personal broadband wireless service for a wide range of users, from commercial people to students.

(e) Always on - just like a cell phone.

(f) Utilizes CDMA signal.

(g) Where EVDO isn’t available, 2G/1x data capability is available everywhere we have cell phone voice service.

(h) Allows the user to be connected wherever they are not only for email, but for downloads, large files, photos, spreadsheets, etc.

(i) Advantages over WiFi:

(ii) Always on with seamless roaming!

(iii) Signal can travel on same cell sites as cell phones.

(iv) You are your OWN hotspot - you're not relying on someone else’s internet connection.

(v) No 300-ft range from the cell tower or "hotspot".

(vi) Customers can access their corporate VPN (virtual private network) anywhere they can get a cellular signal via a secure, encrypted signal.

(vii) Can download and run video clips in real time.

(viii) Can provide service to customers outside of cable-modem or DSL areas.

(ix) Relatively low cost with high capacity - allows rich web browsing and application usage.

(x) EVDO Rev A provides speeds of 600Kbps-1,400Kbps Download (bursts to 3.1Mbps), 500Kbps-800Kbps Upload (bursts to 1.8Mbps) comparable to home DSL service.

WHO USES EVDO?

7. There are countless reasons to use EVDO and users set up a huge variety of applications as given below which are just a few common ways people use EVDO:

(a) **Mobile applications.** Cars, trucks, RV's, commercial service/fleet vehicles, shuttles, carpool/vanpool, transit (busses, trains, ferries), taxis/limos, private/commercial vessels.

(b) **Portable uses.** Mobile work teams, trade shows, conferences, conventions, vacations, commute access, emergency response setup.
(c) **Fixed-location customers.** Backup to cable/DSL/T-1, dial-up alternative, satellite alternative.

**HOW FAST IS EVDO?**

EVDO Rev A has a peak data rate of 3,000 kbps but realistic speeds average around 600-1,400Kbps download with bursts to 2.0Mbps and 500Kbps-800Kbps upload with bursts to 1.8Mbps.

**HOW DOES EVDO COMPARE TO OTHER TECHNOLOGIES?**

8. The best aspect of EVDO (to most users) is the mobility it offers but EVDO is also fast with a good signal, EVDO Rev A averages about 600-1400Kbps download with upload speeds averaging between 500-800Kbps. Here is how it stacks up to other common internet technologies:

   (a) **EVDO Rev A.** 600Kbps - 1,400Kbps Down (with bursts to 3.1Mbps); 500Kbps-800Kbps Up (with bursts to 1.8Mbps).

   (b) **EVDO Rev 0.** 400 - 1000Kbps Down (with bursts to 2.0 Mbps); 50 - 100Kbps Up (with bursts to 144Kbps).

   (c) **1xRTT.** 50Kbps - 100Kbps with bursts up to 144kbs Down/Up.

   (d) **EDGE.** 50Kbps - 100Kbps Down/Up.

   (e) **HSPA.** 700-1700kbps down; 500-1200kbps upload.

   (f) **DSL.** Varies based on provider. Average approximately 1500Kbps Down; 128Kbps Up.

   (g) **Cable.** Varies based on provider. Average approximately 1000-5000Kbps Down; 200-800Kbps Up.

   (h) **Satellite.** 512Kbps - 1500Kbps Down; 128 - 256Kbps Up.

   (i) **Dial-Up.** 56Kbps Down/Up.

**1XRTT (AKA NATIONALACCESS)**

9. 1xRTT is a 2G (second generation) technology that has been available a lot longer than EVDO and is available just about anywhere cell phone coverage. 1xRTT has a maximum of 144K upload and download but the typical speeds are 50K - 80K. When EVDO is not available, our EVDO modem or phone will automatically connect to 1XRTT if available. While considerably slower than EVDO, 1xRTT is a huge boon to travelers - if we find ourselves in a remote location with no EVDO we'll still be able to remain connected.
EVDO CONNECT WITH MULTIPLE COMPUTERS/DEVICES

10. EVDO modems are made to plug directly into our computer’s USB port or card slot but what if we have two computers that need internet access? We do not need a separate device and second line of service simply plug the modem into a 3G router and share the connection 3G routers like the ones sold by 3G store work just like the average cable/DSL router we might have used in the past for a home/office DSL or cable-modem connection but 3G routers have the unique ability to support cellular modems as their source of internet connectivity. With a router that supports our cellular device, we can plug our USB modem, Express Card, PCMCIA card or even our EVDO-capable cell phone into the 3G router and instantly create our own WiFi network!

WHAT ABOUT ANTENNAS AND AMPLIFIERS?

11. Signal strength can influence our modem’s performance greatly. If we have a weak signal, an antenna and/or amplifier can improve our signal and thus our download and upload speeds. All of the currently available EVDO modems feature ports where we can attach an external antenna and a wide variety are available, from the classic super-portable Booster Antenna to larger antennas that we mount to our home or office. If we need to provide a signal boost to multiple cellular devices at once, this is possible as well with a wireless amplifier (AKA “repeater”).

EVDO PHONES

Many phones now feature EVDO capabilities, allowing for speedy web browsing and emailing on our cell phone or PDA. Additionally, many phones support “tethering”, which means that we can use our phone as a modem - rather than connecting a dedicated EVDO modem (USB, ExpressCard, or PCMCIA card) to our computer or router we can connect our tether-capable phone and connect that way. Not all phones are tether-capable (even if they have EVDO) and tethering incurs additional monthly fees. It is also important to remember that most phones only support EVDO Rev-0 (all of the currently available data devices support Rev-A).

EVDO PHONES

12. EVDO phones allow our cell phones to hook up to this high speed network. If our phone can send email or browse the web, it will be very fast. On Verizon’s network, they offer something called VCAST. VCAST allows us to play multiple 3D media games, Entertainment video clips, Sports clips, news videos, weather videos. Here is a list of phones that are EVDO:

(a) Audiovox XV6600.
(b) Samsung A890.
(c) LG VX8000.
(d) Motorola E815.
(e) Audiovox CDM8940.
EVDO BOOSTER ANTENNA

If we are in the fringe area of EVDO and coverage is spotty or we are in a weaker signal area, consider an EVDO external booster antenna. This antenna plugs into the PC 5220 Card/V620/KPC650/Sierra Air Card 580 Card and improves performance dramatically. It will increase our signal strength which will give us a much faster throughput. The external antenna is about twice the size of the PC Card. Do not get a Booster Antenna that clips on to the current antenna - get one that plugs directly into the external antenna port that is built-into the EVDO cards. When we plug in an external antenna through the antenna port, the built-in antenna is disabled and we only use the external and get much better performance.

CONCLUSION

EVDO Release 0 introduced the world to mobile broadband and established itself as a benchmark standard. Using EVDO, operators were able to better monetize their networks by providing rich multimedia content, leading to differentiated services. These services are now mainstay of wireless networks and are a fast growing revenue segment. The enhancements included in Rev. It allows improve uplink performance of EVDO and low-latency applications such as VoIP and low-delay gaming. Rev. It also provides improved performance of social networking and Web2.0 applications, the enhanced services that users are becoming accustomed to on their mobile platforms. The ability to support telco-quality VoIP, enhanced rich media applications and broadband data connectivity on the same network provides a competitive advantage over competing networks. This allows greater monetization of spectrum and is a key incentive for operators to deploy Rev. Finally, as broadband data applications continue to grow in popularity, the increase in data adoption necessitates the deployment of multiple carriers of Rev A. Rev B allows higher data rates by aggregating Rev A carriers, allowing applications such as high def video conferencing and streaming video. Rev B improves the user experience for all applications available over Rev A and provides a cost effective way to achieve high data rates while leveraging the installed base of EVDO users.

Read More:-

2. http://www.cdg.org/technology/3g_1xEV-DO.asp