

ExchangeAsia

Volume 16 Issue 46

ISSN 1320 – 2669

30 November 2008

India

**3G spectrum auction to start soon, run by NM Rothschild
Chhattisgarh State Government to link offices with WiMAX
BSNL selects Dilithium to support mobile video streaming**

China

China to be FTTx leader

China will likely add 13–18 million subscribers in 2009, according to market research firm, Ovum.

Arbor Networks sets up China development centre

Arbor Networks has opened a regional development centre in China to develop application-protocol classifications for Chinese peer-to-peer (P2P) and file sharing services such as PPLive, Xunlei and QQ.

Japan

Mixed messages on Nokia's plans for Japan

On 22 November Japanese newspaper The Yomiuri Shimbun reported that Nokia would start its own mobile phone service in Japan as early as February under its high-end brand Vertu, as an MVNO on NTT DoCoMo's network.

Singapore

**StarHub launches first commercial 3G femtocell service
IDA picks Epiteiro for broadband Internet monitoring**

Vietnam

**Viettel to rollout cellular in Vietnam, Cambodia & Laos
Motorola installs mobile WiMAX net for Vietnam Datacomms**

Fiji

Vodafone Fiji launches 3G services

Thailand

**Kordia wins two Huawei deals in Thailand
Huawei Technologies (Thailand) has awarded Kordia Solutions (Thailand)
two frame agreement contracts for network engineering services over the
next 15 months.**

Pakistan

Telenor deploys NetAct Traffica for customer traffic analysis

Technology

**ICANN aims to open up new top level domains from mid 2009
Major breakdown of the Internet predicted
CDG completes third open handset trial**

India

3G spectrum auction to start soon, run by NM Rothschild

The Indian government has chosen NM Rothschild and Sons to oversee the coming auction of 3G mobile phone licences in the country.

The firm was chosen from a short-list of three that had met the eligibility criteria, announced on 25 September. The others were Sai Info System and mJunction Services Ltd. The spectrum sale will begin within "two to three days" and should be completed by the 15th of January, communications and information technology minister, A Raja, said.

India is now the world's second largest mobile market, after China and the world's fastest growing. Last month, the country saw 10.42 million new mobile customers sign up with the existing operators.

According to UK based mobile consultancy, BWCS, some operators had expressed concern that the auctions would be going ahead in the current financial climate. "In October of this year, Vodafone apparently wrote to the Department of Telecoms in India to say that 'mobilising financial commitments in the current economic environment is proving difficult.' The government however has pressed on regardless, despite Vodafone's warnings."

Numerous regulatory and financial delays have meant that the 3G sale in India has been held up several times already. Estimates made prior to the recent financial crisis indicated that the sale could raise as much as \$US10 billion for state coffers.

State-run telcos Mahanagar Telephone Nigam Ltd (MTNL), which offers its services in Delhi and Mumbai, and Bharat Sanchar Nigam Ltd (BSNL) which operates in the rest of the country, have already been allotted spectrum for 3G services. However, they will be forced to pay the government amounts equal to the highest qualified bidder among the private players.

Bharti has already sought bids for building its 3G network from suppliers such as Ericsson and Nokia Siemens Networks and says it may launch services as early as the fourth quarter of 2009. In August of this year, the government in India said it may allow as many as 10 operators to offer high-speed wireless services to spur competition.

Chhattisgarh State Government to link offices with WiMAX

Nortel has teamed up with the Chhattisgarh State Government to modernise its communications infrastructure through a new, state-wide hybrid network connecting all the departments of the state with a mix of wireless and wireline access supporting voice, data and video traffic.

According to Nortel, it will be one of the largest fixed WiMAX deployments in the country for e-government, providing access to 3,000 locations in the state and will serve as the backbone for various state departments to deploy IT-related applications for the public.

The various citizen-facing services under all the departments of the State are made available under one roof in such centres, providing easy access to services such as applying for birth certificates, land use records or business certification while also allowing people to track the status of their application online.

The network will provide intra-department as well as inter-department connectivity and access to all departments under the State Government.

e-Government for citizens will also be greatly improved through real-time access to information reducing the needs for multiple visits and time consuming, paper-based

approvals. "With SWAN, we will be able to connect our offices not just at the headquarters level, but right down to the local administration levels even in remote, inaccessible areas," says Aman Singh, chief executive officer, Chhattisgarh Infotech and Biotech Promotion Society (CHiPS).

CHiPS is a division of the Department of Information Technology and Biotechnology, Government of Chhattisgarh. CHiPS selected Nortel's WiMAX-based last-mile connectivity over competing WLAN solutions as the most cost-effective and simple to deploy high-performance solution available.

"WiMAX is a proven technology for providing reliable communications and access across rough terrains and remote areas that are difficult to serve with conventional wireless or wireline technologies. We estimate we will save close to 30 percent over five years compared to a WLAN solution," said Singh. "WiMAX is also based on open standards, which is key to the government's e-governance vision to implement platforms that offer interoperability."

"CHiPS was impressed by Nortel's successful WiMAX implementation in the north eastern states of Assam, Meghalaya and Tripura which faced some of the same problems of providing high-bandwidth access to the government offices across large and rough terrains where wired network is not an option," said Hitesh Lokhandwala, managing director, Nortel India.

The solution for CGSWAN consists of Nortel's Communication Server 1000 (CS1000) for IP Telephony, Ethernet Routing Switch (ERS) 8600s, 5500s and 2500s, Business Access Points (BAP) 120 and Base Transceiver Station (BTS) 1060 and ProST from the WiMAX portfolio.

BSNL selects Dilithium to support mobile video streaming

BSNL has selected Dilithium solutions for the deployment of new mobile video & streaming services over 2G and 3G networks.

BSNL plans to roll out Live TV services in early 2009. Dilithium has partnered with HCL Infosystems to provide end-to-end delivery solutions for BSNL's live mobile video services. The solution includes the Dilithium DTG 3021 multimedia gateways and the DCA video streaming solution, enabling two-way video calling and other advanced video services.

Dilithium claims to be the global leader in high-quality multimedia delivery over mobile and broadband networks to any device, providing "the most comprehensive and innovative mobile video solutions, with unmatched breadth of deployments in 60 countries reaching one billion subscribers."

Dilithium says it pioneered 3G video communications and its technologies are deployed by the major network operators, content owners, aggregators and equipment providers.

China

China to be FTTx leader

China will likely have more than six million subscribers connected with either FTTB or FTTH by the end of 2008 and there are plans to add 13-18 million subscribers in 2009, according to market research firm, Ovum.

Ovum analyst, Lynn Hutcheson, said: "China is getting serious with its FTTx installations." According to Hutcheson, "At the 2008 Asia Optical Fibre Communication and Optoelectronic Exposition & Conference (AOE) there were two sessions focused on broadband access. The first session focused on the existing status of FTTH and FTTB; the second session comprised presentations on key optical technologies for next-generation FTTH. Both sessions focused on what is happening

in Asia, with a special emphasis on China...Asia has more than 80 percent of worldwide FTTH/FTTB subscribers, with most of those subscribers in Japan and South Korea, while the market in China is showing rapid growth."

Hutcheson predicts that "China is poised to catch up quickly, and possibly even pass Japan and South Korea; it is aggressively issuing tenders and signing contracts...By the end of 2008 there will be approximately six million FTTH/FTTB subscribers, with China Telecom having 80 percent and China Unicom the remaining 20 percent. To date China Mobile has not participated in fixed broadband access, but following its success in the mobile market it has lots of cash and is interested in investing some of that cash in the FTTH/FTTB market.

Hutcheson said: "In private discussions with China Telecom, three Chinese system vendors and two component vendors we found that estimates range from 13 million to 18 million new subscribers in 2009, with China Telecom and China Unicom installing 70 percent and 30 percent respectively.

"FTTB will dominate installations, with approximately 90 percent, and the remaining 10 percent will be FTTH. It is expected that Japan and South Korea will have 17.5 million and 9.0 million subscribers respectively by the end of 2009. That would definitely put China in a leadership role. The only question is how the current economic crisis will affect these plans. The consensus is that it will have little or no impact on China's plans as it continues its quest for worldwide economic dominance."

Nokia Siemens Networks and Fujian Mobile pilot eCommerce ***Nokia Siemens Networks and China Mobile Group Fujian Ltd (Fujian Mobile) have teamed up to deliver an eCommerce platform to provide a link between rural consumers and urban businesses.***

The service, currently running as a pilot, "allows easy and affordable access to a wide range of consumer products to villagers in Fujian province, while opening up a vast market to urban retailers and product distributors," according to Nokia Siemens.

The eCommerce solution is an integrated end-to-end service which contains an online catalogue sales platform on which urban businesses can upload their products for marketing to rural customers. The service is delivered to villagers through local entrepreneurs who provide shared Internet access to the online shopping platform tailored to the rural environment.

According to Nokia Siemens, "The online shopping model challenges traditional ways of conducting business and purchasing goods in remote locations - villagers gain access to a wider selection of reliable consumer products, and urban suppliers are provided with a new sales channel reaching the mass market in villages. Small and medium-sized retailers and distributors, in particular, can improve their business efficiency, and offer a wider product range.

"In addition, the service gives the operator the opportunity explore a potentially powerful new business model of Business to Business to Consumer (B2B2C) services that helps them to improve local presence in rural areas."

The business model has been piloted over five months at two counties in Fujian province in partnership with local retail suppliers.

Arbor Networks sets up China development centre ***Arbor Networks, a provider of secure service control solutions for global business networks, has opened a regional development centre in China to develop application-protocol classifications for Chinese peer-to-peer (P2P) and file sharing services such as PPLive, Xunlei and QQ.***

Arbor says that these protocol classifications will enable service providers to better understand and more efficiently manage traffic on their networks.

Dr Rob Malan, chief technology officer and co-founder of Arbor Networks, said: "We understand the challenges Asia's wireline and wireless network operators are facing in terms of subscriber management, network security, service creation and the rapidly changing nature of the traffic running over their networks. This Regional Development Centre demonstrates our commitment to the region and our ability to deliver relevant, customised solutions that ensure the security, availability and profitability of Asia's service provider networks."

More than 300 service providers, including China Telecom and NTT Com, have chosen Arbor Networks solutions for network protection and the means for delivering revenue-generating, differentiated secure services and service plans. Arbor claims that its customers include 90 percent of global tier-one service providers and 65 percent of tier-two providers.

Japan

Mixed messages on Nokia's plans for Japan

On 22 November Japanese newspaper The Yomiuri Shimbun reported that Nokia would start a mobile phone service in Japan as early as February under its high-end brand Vertu, as an MVNO on NTT DoCoMo's network.

"It will become the first handset manufacturer to provide cell phone services in the country, which is dominated by three carriers - NTT DoCoMo, KDDI Corp. and SoftBank Mobile. Analysts say Nokia's entry could shake up the domestic market," the paper reported. "By improving its brand image through the introduction of the high-end brand, Nokia is expected to pave the way for it to introduce cheap, mass production models and increase its market share."

The paper confidently reported that: "The first outlet to sell the Vertu handsets is to be opened in Tokyo's Ginza district early next year. Outlets in Nagoya and Osaka also are planned, according to the sources. Five days later Nokia announced that it was pulling out of the Japanese market, one of very few in the world where it does not enjoy a significant market share.

"Nokia will discontinue mobile device sales and marketing activities in Japan. Vertu, Nokia's line of luxury mobile devices will continue with strong focus on the Japanese market. Nokia substantial global R&D and sourcing operations in Japan will also continue unaffected," the company said in a statement.

Presumably this means that Vertu could still be the focus of a Nokia MVNO, but the Yomiuri Shimbun's claim that the Vertu MVNO could "pave the way for [Nokia] to introduce cheap, mass production models and increase its market share," is almost certainly wrong.

"In the current global economic climate, we have concluded that the continuation of our investment in Japan-specific product variants is no longer sustainable. Moving forward, in Japan, Nokia will concentrate on global R&D activities, focused opportunities like Vertu, as well as further development of Nokia's sourcing activities," said Timo Ihamuotila, executive vice president, Nokia.

Nokia said, euphemistically that its plans "will impact approximately 10 percent of Nokia Japan employees," presumably meaning that they will be dismissed.

Singapore

StarHub launches first commercial 3G femtocell service

StarHub has launched what it claims to be the world's first commercial 3G femtocell service, 'Home Zone'.

It connects a user's 3G mobile phone directly to a 3G enabled router in the home so that users can make voice and video calls and send SMS over StarHub's cable network from their mobile phones.

StarHub is making all local outgoing voice, video calls and SMS free for customers using the 'Home Zone' service, enabling users who make frequent mobile calls and SMS from home to enjoy significant cost-savings on their mobile phone bills.

"The beauty of the 3G femtocell technology is that all 3G-enabled phones are supported and customers do not need to purchase special handsets to take advantage of it," said Mr Anil Nihalani, head of mobile and communications, StarHub.

While all outgoing local voice calls, video calls and SMS are free - MMS, IDD calls, mobile downloads, mobile surfing and other GPRS activities conducted over the mobile device will be charged at standard published rates. StarHub mobile customers on eligible plans can also make Free IDD 018 calls to 18 destinations using the 'Home Zone' service. Local call charges will however still apply.

Also, the subscriber can nominate up to three other StarHub mobile numbers to a white-list that will be recognised by the 'Home Zone' service. This means that up to four StarHub 3G mobile users can call out simultaneously over a single 'Home Zone' connection, each of the callers being able to enjoy the same benefits.

Mr Nihalani said, "The 'Home Zone' service demonstrates the true benefits of hubbing with StarHub. By extending the ability to use the 'Home Zone' service to immediate family members, hubbing families who are our 3G mobile and MaxOnline customers, will be able to get more out of it with better cost-savings and convenience."

IDA picks Epitiro for broadband Internet monitoring

The Infocomm Development Authority (IDA) of Singapore has selected Epitiro to supplement its broadband performance monitoring activities as part of the country's plan to create a competitive business environment.

Epitiro will supply and maintain a deployment of its ISP-I to assess the quality, including latency and throughput, of broadband services provided in Singapore.

Epitiro claims that its broadband performance analysis for governments and service providers provides up-to-the-minute competitive benchmarking reports on key service quality performance indicators.

The company captures broadband performance data through its global test and measurement network infrastructure consisting of dedicated hardware and software agents that report customer experience metrics to a common database.

Epitiro says that this network of agents replicates actual user activity across all leading ISPs to ensure statistically accurate views of true end-user experience. "The IDA is committed to growing Singapore into a dynamic global information and communications hub." said Gavin Johns, CEO, Epitiro.

The contract will commence during December 2008 with Epitiro providing regular reports on the quality of consumer and business broadband services while the IDA will also have access to broadband performance data on-demand.

Vietnam

Viettel to rollout cellular in Vietnam, Cambodia & Laos

Vietnamese mobile operator, Viettel Telecom, will use Nokia Siemens Networks' Flexi base station for part of its network expansion across Vietnam, Cambodia and Laos.

Ricky Corker, head of subregion Asia North, Nokia Siemens Networks Vietnam, claimed that: "Key to Viettel's leadership strategy in the Vietnamese telecom market

is expansion across rural areas, in line with its growth in other regions; and in a competitive market, its success will depend on how fast and cost effectively it is able to do so. Our pioneering Flexi Base Stations are ideal for rapid network expansion for any operator in such a scenario."

The Nokia Siemens Networks Flexi base station is claimed to be the industry's smallest and most efficient multi technology base station, with a unique design and architecture. "It is an innovative offering which is modular and easy to deploy in varied geographical environments, is cost effective, and can be upgraded to 3G assuring a good quality of service for consumers while also ensuring the solution's future-readiness," Nokia Siemens claims.

"Thanks to the small size of Flexi base station, operators can achieve up to 70 percent reduction in their site energy consumption, also due to the fact that the weather-proof solution doesn't require air conditioning even in hot climate. Moreover, the number of base station sites needed is minimised." The Viettel networks will be managed by the Nokia Siemens Networks network and service management solution, NetAct.

Viettel entered the market in 2000 with domestic VoIP services. Since then, its operations have expanded to include international VoIP services, ADSL-based broadband services, PSTN fixed telephony and GSM mobile services.

It became the fourth GSM operator in 2004 and is now the Vietnam market leader in terms of subscribers and network coverage. More recently it has invested in telecom assets in Cambodia, Laos and Myanmar.

Motorola installs mobile WiMAX net for Vietnam Datacomms ***Motorola has deployed its first mobile WiMAX trial network for Vietnam Datacommunications Company (VDC), a member company of the Vietnam Posts and Telecommunications Group (VNPT), the largest Internet service provider (ISP) in Vietnam.***

According to Motorola, the network allows VDC to test next-generation wireless broadband services in major cities of Vietnam and launch of the trial follows the signing of an agreement between Motorola and VDC to commence a technical and commercial WiMAX trial in Hanoi and Ho Chi Minh City last year.

Under the agreement, Motorola will install WiMAX Diversity access points and more than 100 customer terminals in the nation's two largest cities.

Ray Owen, head of technology for Asia and general director of Motorola Vietnam, said: "The Motorola WiMAX 802.16e technology enables VDC to reach a wider subscriber base in a timely and cost-effective manner, helping it to meet the growing demand for broadband services and other IP services such as VoIP."

VDC focuses on providing Internet and data infrastructure and access services to the nation's residents and businesses, and acting as information technology consultant to other entities in the sector and other industries. It is broadening its reach to the broadband Internet world both in terms of providing wider access options to the end users and expanding its cooperation with multinational operators and suppliers.

Fiji

Vodafone Fiji launches 3G services

Vodafone Fiji has launched 3G services, shortly after the launch of 2G services by Digicel which ended Vodafone's 14 year monopoly in Fiji.

Launching the 3G service, the managing director of Vodafone Fiji, Aslam Khan said, "This will clearly give us a major competitive advantage in the market."

In the first phase mobile broadband is available in the Suva to Nausori and Suva to Lami corridor. When customers are out of the 3G coverage area, they stay connected by seamlessly switching to Vodafone's GPRS network, available across the country. The next phase of the rollout will see mobile broadband service available from the Coral Coast to Ba along the Queens Highway.

The launch is about two years behind schedule. In October 2005 Ericsson announced that it had been chosen by Vodafone Fiji to supply its mobile softswitch and to provide a network upgrade to 3G. "Under the five-year agreement, Ericsson will also provide managed services. Vodafone will invest \$US15 million to modernise its core network and introduce a new 3G-radio network, including mobile softswitch." Ericsson said it would deploy 3G/WCDMA coverage from mid-2006.

"The contract also includes turnkey project management and business consulting. Network management and support services will be provided by Ericsson's operations centre in Australia, and include local services capabilities in Fiji to support network operations and effect local knowledge transfer. The business consulting services will be focused on supporting Vodafone's 3G services launch," Ericsson said.

Thailand

Kordia wins two Huawei deals in Thailand

Huawei Technologies (Thailand) has awarded Kordia Solutions (Thailand) two frame agreement contracts for network engineering services over the next 15 months.

The first is for technical installation and commissioning of 2G, 3G and WiMax base station sites throughout Thailand. The second covers radio network performance and optimisation of a large number of sites, many of which will be 3G sites for telecommunications operators in Thailand.

Kordia says it won the contracts on the back of its solid performance in many Huawei projects over the last 12 months, covering BTS and SDH site survey, installation, commissioning and drive testing. It claims to have a growing pool of engineers trained in Huawei's WiMax and 3G/WCDMA technologies with additional training scheduled for November.

Pakistan

Telenor deploys NetAct Traffica for customer traffic analysis

Telenor Pakistan has become the 100th customer for Nokia Siemens Networks' NetAct Traffica real time customer traffic monitoring and analysis software.

Telenor Pakistan has acquired the GPRS module of the solution to improve the data service experience for its customers.

Telenor Pakistan selected Nokia Siemens Networks service assurance software to improve customer experience for its over 18 million subscribers. The customer traffic monitoring and analysis software provides a detailed, real-time view to user activity and service usage throughout the network enabling the service provider to react to problems immediately. It can also give valuable insight into users' behaviour.

The Nokia Siemens Networks service assurance software will provide diagnostic services like information on service usage by data subscribers, time and area of service usage, problem identification and troubleshooting. This information will then be used to determine areas of improvement.

"NetAct Traffica is integral for managing customer experience, an area increasingly important for service providers. The service usage analysis can help Telenor Pakistan to understand user trends and therefore maximize revenue," said Thomas Hasselman, Head of Service Management Sales, Nokia Siemens Networks.

Technology

ICANN aims to open up new top level domains from mid 2009

ICANN (the Internet Corporation for Assigned Names and Numbers) is entering the final stages of a four year process to open up the Internet to the creation of a (largely) unrestricted range of new top level domains (gTLDs), like .com, .net and the current 'country level gTLDs like .au.

ICANN CEO, Paul Twomey, told ExchangeAsia that "We have had three years of policy-making around this and it is now coming down to implementation. We launched a draft implementation programme and draft contracts at our meeting in Cairo last month... By mid 2009 we expect we can start the process of accepting applications."

Aside from restrictions in relation to trademarks, intellectual property rights, potentially confusing names like .kom and some character strings that will cause problems for the Internet's name servers, like .1234, Twomey said names would be allocated on a first come first served basis.

Names can be up to 64 roman characters in length, opening up the possibility of any company registering its brand as a gTLD. Twomey said he also expected generic names like .shop, and .sales to be popular, but added, "it is hard for us to know, because it has now got to the stage where people are keeping quiet about their plans."

Many second level domain names at new gTLDs (and at the established ones) have been allocated by auction to the highest bidder and highly sought after names have changed hands for millions of dollars, raising the possibility that the new gTLDs could be big money spinners

However Twomey said he did not expect a domain name like rush for the new gTLDs. "We are not expected tens of thousands - this is not like getting a domain name."

A significant deterrent is likely to be price - currently ICANN is looking for around \$US185,000. Twomey stressed that this was not intended to make profit for ICANN. "We had to make sure that [applicants for the new gTLDs] were not being subsidised by existing top level registrants. So we decided the process should be cost neutral and we put a lot of work into determining what it should be. The figure that has come forward was \$US185,000."

He added that some potential applicants were happy with this but that "those wanting domains for small niche applications or for community names are a bit disturbed by that number. So there is more discussion around it."

He said that ICANN was not going to be the arbitrator any disputes. There will be a mechanism for dealing with objections from people claiming prior rights to a name, for example if someone tried to register .maori and they were wanting to run a clothes store in the US, but, "It will largely be a case of first come first served," Twomey said. "If two people apply for the same domain we will give them three months to go and sort it out between themselves."

If that does not work, Twomey admitted that some dispute resolution mechanism would have to be put in place, but suggested it could be as simple as "flipping a coin", although he acknowledged that auctions were perhaps the soundest commercial mechanism.

However he also sought to dispel any speculation that ICANN was keen to hold auctions for popular gTLDs as a revenue generating exercise.

"There is a potential out there that we want to have auctions because we want to make money. Nothing could be further from the truth. I would be very happy if we had no auctions at all."

Twomey said that the policies and procedures, contract terms etc for the new gTLDs were still very much open to discussion and ICANN was seeking feedback from all interested parties. He pointed to the relevant section of the ICANN web site where the draft implementation programme is set out in great detail, along with a draft applicant guide book.

Major breakdown of the Internet predicted

Nemertes Research is predicting a major 'stress fracture' of the Internet within four years that will see traffic migrating to private and semi-private networks when quality of service is important.

"Demand pushing against physical and logical limitations is stressing the Internet, says Nemertes, "Internet demand continues to outpace growth in network capacity at the access layer, and IP addresses are quickly depleting."

Its study, freely available on its website, finds traffic moving off the public Internet onto paid or private overlay networks. "Content providers-such as NBC, which used Limelight Networks to stream the 2008 Olympics-are driving the trend toward a flattening, and shifting of the Internet," says Nemertes research analyst, Ted Ritter.

The work of the IPsphere Forum will greatly facilitate this interconnection of private networks by enabling service parameters to be defined and carried across network boundaries and for differential charging to be applied according to these service parameters.

Telstra is a leading participant in a major trial of the IPsphere Forum framework, as ExchangeAsia reported last week, and is already working on its own "application assured network", a network capable of dynamically dimensioning itself to support any customer application requirement, such as bandwidth, delay, jitter and QoS.

Ritter says the result for users will be improved service quality for favoured content, and predicts that, over time, the performance distinction between 'favoured' and 'general-delivery' content will increase, and that, "ultimately, access bandwidth limitations will hamper deployment of next-generation applications."

"None of this means the Internet will abruptly stop working. Instead, the slowdown will be in the area of innovation," Ritter says.

Nemertes' report sees capacity problems being exacerbated by address limitations, and holds out little hope of IPv6 solving the problem any time soon, branding IPv6 "too little too late".

"Address exhaustion will occur before 2012 in the face of the accelerating growth of the number of Internet-enabled devices and of machine-machine communications," it says. Only one percent of IT decision-makers participating in Nemertes benchmark, Advanced Communications Services 2008, are deploying IPv6.

"Requirements for multi-homing- - providing multiple, separate routes to a given address - and ever-increasing mobility are placing added stress on the current Internet logical infrastructure," according to Nemertes senior analyst, Mike Jude. "In effect, the Internet could fracture back into groups of networks."

The report finds ample evidence that the trend of traffic moving off the public Internet is already well advanced. Taking Limelight as one example it notes that "Limelight Networks has been building a content delivery network that combines

high-speed private links with interconnects directly to regional ISPs and aggregation points...If Limelight Networks is typical of other CDN activities, then this is indication that there is a flattening of the Internet happening. Content providers are bypassing the traditional multiple-interconnected Internet architecture by connecting directly with access providers."

Nemertes says also that it has found much evidence that "the gorillas of content," Google, Yahoo! and Microsoft are increasingly bypassing the Internet. "There is much speculation on the extent of their private networks since the companies rarely disclose details. We've found strong indications that they are investing in direct network connectivity, and interconnecting these networks themselves."

And Nemertes warns that this trend could increasingly tilt the playing field in favour of large larger and more established content providers, who have the market muscle to procure proprietary networks to ensure their content receives priority delivery.

"If Google can purchase (or build) its own backbone fibre-optic network and use its market power to negotiate favourable terms from access providers, it can ensure that future Google competitors - those without the wherewithal to purchase or negotiate massive amounts of bandwidth - can be nipped in the bud. The barrier to entry goes up. No longer is it enough to have an attractive site. Potential content providers also must supply the bandwidth to ensure users can reach their sites effectively."

CDG completes third open handset trial

The CDMA Development Group (CDG) has announced completion of its third set of Open Market Handset (OMH) trials, with CityCell in Bangladesh, PT Telekomunikasi and PT Indosat in Indonesia, and HutchCAT in Thailand.

The OMH program is part of the CDG's Global Handset Requirements for CDMA (GHRC) initiative and specifies a common set of requirements based on standards to procure CDMA2000 devices in an open-network and open-device environment.

The completed trials in Bangladesh, Indonesia, and Thailand now complement previously-announced trials with Reliance Communications and TATA Indicom in India and with Bakrie Telecom and Mobile-8 Telecom in Indonesia.

Open Market Handsets enable operator-specific network configuration and service provisioning information, as well as subscriber-specific device provisioning information to be moved from the CDMA handset's onboard memory into a next-generation Removable User Identity Module (R-UIM) card. By doing so, the handset becomes a generic device that can be sold on the "open market" and used in multiple operator networks.

"In rapidly growing markets such as Bangladesh, Indonesia and Thailand, 3G will thrive in large part because of the availability of extremely affordable CDMA2000 handsets," said Perry LaForge, executive director of the CDG. "The OMH initiative provides device procurement and distribution flexibility in a network-independent, open-market environment. OMH will serve as a model for CDMA markets with rapidly-growing subscriber growth."

The trials in Bangladesh, Indonesia, and Thailand included OMH-enabled R-UIM cards provided by Eastcompeace, Gemalto, KSI, Oberthur or Watchdata and prototype devices developed by Huawei or ZTE. During the trials, Open Market Handsets were provisioned for full-fledged 3G data capabilities across the participating operators. Tested features included backward compatibility, CDMA2000 1X packet data (SIP with CHAP and PAP), BREW, SMS, voice (with authentication), WAP/browser capabilities and R-UIM-based carrier customisation. To support customer demand, many device manufacturers plan to introduce CDMA OMH devices. An OMH Enabler Package consisting of several reference documents on how to implement OMH is available on the CDG Web site (www.cdg.org).