

THAILAND

CAT & TOT reveal plans to turn around ailing fixed network revenues

AT&T

Vietnam operation goes commercial in Ho Chi Minh

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Malaysia volunteers to help tackle 'botnet' problem

Malaysia will host one of two proposed nationwide pilot projects early next year aimed at mitigating the global spread and impact of so-called "botnets" – networks of computers that have been compromised by cybercriminals to host various forms of malware.

The pilot project is being co-ordinated by the ITU Telecommunication Development Sector's ICT Applications and Cybersecurity Division and the Malaysian Communications and Multimedia Commission but will involve a range of players including ISPs, universities and business associations, according to Suresh Ramasubramanian, a consultant for the project.

Ramasubramanian is in Malaysia this week to talk to potential participants and told CommsDay he hopes to have a roadmap for the project finalised soon. He said that the project "involves significant time and effort from the local hosts" and that Malaysia had "kindly stepped up to the plate and volunteered" to host the pilot project.

The location for the second pilot project had yet to be decided, according to Ramasubramanian, who will help co-ordinate the implementation of both projects throughout 2008. He is currently on sabbatical from his job managing the antispam operations at Outblaze, a provider of email and spam filtering services for over 40 million users.

Earlier this month the ITU-D released a draft paper on its "Botnet Toolkit" that will form the basis of the two projects. Ramasubramanian, who also authored the background paper, said it aims to bring together different groups, different sets of best practices and different existing efforts in botnet mitigation and general spam/cybersecurity work that focuses on botnet mitigation. The aim is to create a practical implementation of these focused on developing countries.

According to the background paper, the botnet problem is similar to the spam problem in that it is the same problem worldwide, but is particularly acute in emerging Internet economies, owing to resource scarcity and capacity issues. It suggested that government, industry, and civil society in emerging Internet economies are often ill equipped to deal with the catastrophic effects of botnets.

"This results in a massive loss in confidence and perception of a lack of security in the use of ICTs and is one of the primary concerns raised during the World Summit on the Information Society (WSIS) process," the paper said.

The report provides a range of proposals for reducing botnet threats around policy, technical and social measures. The full report is available at:

<http://www.itu.int/ITU-D/cyb/cybersecurity/docs/itu-botnet-mitigation-toolkit-background.pdf>



Thailand fixed carriers plot comeback plans

Thailand's two state-run carriers, the Telephone Organisation of Thailand (TOT) and Communications Authority of Thailand (CAT), have both announced plans for turning around declining voice revenues, according to local media reports.

TOT's board last week approved a four-year turnaround plan that involves increasing broadband Internet from 200,000 ports currently to 3.3 million ports as part of a 64 billion baht (around US\$2 billion) spending package, while CAT announced that five consortiums have made bids for a 2.6 billion baht (US\$83 million) ASON fibre network.

According to *The Nation*, TOT's plan will also involve increasing fixed lines from 3 million to 5 million and upgrading 80 percent of its infrastructure to a next-generation network. It also calls for a 3G network to be up and running to offer a mix of broadcasting and telecom services.

TOT and CAT jointly own Thai Mobile, currently the only operator with 3G spectrum. However, disputes regarding ownership and management have curtailed its widespread rollout.

TOT will present its rehabilitation plan to the Finance Ministry for approval next month. It also involves reducing staff from 19,000 to 17,000 through an early retirement programme, according to *The Nation*.

Meanwhile, a consortium involving Huawei and Thailand's Loxley group has been added to the approved bids list for CAT's ASON project. *The Bangkok Post* reported that five groups of companies have now met the requirements to bid for the project. Ericsson, Jasmine, Marubeni and NEC had already made the cut.

The project has been somewhat controversial, as CAT relaxed a requirement that bidders must have completed a project worth at least 390 million baht. The board later reduced the requirement to 200 million baht to allow more companies to compete.

Huawei was also involved in CAT's nationwide CDMA 2000 1x network in 51 provinces, which is the subject of a dispute over late delivery of the network.

Geoff Long

AT&T goes commercial in Vietnam

AT&T has launched commercial operations in Vietnam one year after tying up with local operator Viettel. Initial services include VPN and frame relay links for locally based multinationals using resold Viettel capacity.

The carrier said it would add an office in Ho Chi Minh to augment its current Hanoi facility to further its enterprise sales effort and eventually expects to offer other business services.

"Vietnam is the fastest-growing market in Southeast Asia, and demand is increasing rapidly from global enterprises for world-class networking solutions to support their business operations in Vietnam," explained AT&T Asia Pacific vice president Hiko Minato. "The collaboration of AT&T and Viettel pairs AT&T's global operations strength with Viettel's Vietnam service provider strength to seamlessly connect AT&T global customers with their offices in Vietnam. Customers will experience a consistent set of reliable, high-quality services wherever they do business."

Patrick Neighly

Verizon Business wins Deltek business

Deltek, the Virginia-based global provider of enterprise applications software, said it has employed Verizon Business services to support Deltek's rapid growth and portfolio expansion.

Verizon Business will provide Managed Private IP, Managed IP PBX, Web Center, voice services, Audio, Video and Net Conferencing, and customer premises equipment, according to the agreement. Deltek will use Private IP and IP PBX to streamline voice and data and to link more than 1,200 employees across 14 business locations in the United States, Europe, Australia and the Philippines.

Pamela Perez

SingTel drops from Ghana race

Singapore Telecom has pulled out from the race to take over 51% stake in Ghana Telecoms. The

Government of Ghana selected France Telecom over remaining major runners Vodacom and Portugal Telecom. In all, twenty foreign investors expressed interest in Ghana Telecom.

In a bid to enhance efficiency and quality of service, the Government of Ghana announced early this year that 51% of GT would be sold to a strategic investor. The remaining shares would be floated on the Ghana Stock Exchange. Sources close to the Ministry of Communication said that the price is between \$500 million and \$600 million.

Pamela Perez

Philippines Smart raises 2007 CAPEX to US\$234 million

Smart Communications announced that it is raising its capital expenditure for 2007 to US\$234 million to improve network coverage. The sum accounts for roughly 40% of the group's capex budget of around \$582 million.

Smart is a subsidiary of Filipino fixed line operator Philippine Long Distance Telephone. "Under the new plan, an additional 250 cell sites will be put up for the fourth quarter alone. This will bring the number of new cell sites to over 600 for 2007," said Rolando Pena, network services division head at Smart, in a statement.

By year's end, Smart hopes to have increased its cell sites and base station to 6,700, providing coverage of 99% of the country, which will strengthen outdoor and indoor signal in the provinces, in congested and densely populated areas in metropolitan Manila and other key cities, said Pena.

Pamela Perez

Orad sells graphics system to PCCW Now TV

Orad Hi-Tec Systems Limited said it signed with PCCW Now TV Sports Channel to provide PCCW with a tailor made suite of sport graphics. The contract is valued at US\$750,000.

Orad has agreed to provide an end to end solution that has been designed to address the specific production requirement of PCCW Now TV Sport Channel and will cover the production of the English soccer Premier League, the Italian Seria A and other premium soccer leagues from all over the world.

The solution is deployed over multiple studios and includes real time statistical collection, graphic control and play out and a unique sponsorship module which manages the display of sponsors during the game.

Avi Sharir, President and CEO of Orad said, "Orad continues to expend its business in the sports market. The flexibility of our solution allows us to tailor the solution to the specific needs of our customers and provide them with a total solution that suits their specific requirements."

Pamela Perez

Futuremark joins Datang Mobile in promoting TD-SCDMA

Futuremark Corporation announced a long-term partnership with Datang Mobile Ltd in promoting TD-SCDMA terminal industry development. Datang Mobile, the core member of Datang Telecom Technology and Industry Group, is the major technology provider of TD-SCDMA.

Futuremark, a provider of performance analysis software and services, will impart its full collection of current and in-development handheld testing tools to Datang Mobile according to Futuremark's standard licensing terms, and Datang Mobile will be given access to Futuremark's Benchmark Development Program membership benefits.

The partnership with Futuremark is aimed at providing industry leading TD-SCDMA mobile solutions, reference design modules, and professional testing services for equipment manufacturers.

"We anticipate that this agreement with Datang Mobile will speed Futuremark business development in China, and enable our tools to gain traction in the booming Chinese mobile marketplace while ensuring that the TD-SCDMA devices with Chinese developed IPR offer best superior multimedia and gaming performance," said Petri Talala, Futuremark's Vice President of Mobile Business.

Pamela Perez

Nokia, Qualcomm back in court

Nokia and Qualcomm are back in court this week as the handset makers battle it out over two more cases of alleged patent infringement.

The CDMA developer claims Nokia is using its GSM technologies without a license and hopes to win an injunction against future sales in the UK.

The lawsuit is part of a wider series of mutual international legal attacks between the pair, whose rivalry has intensified since Nokia declined to renew a key licensing deal earlier this year. Qualcomm enters the courtroom buoyed by a US decision last week to throw out a Nokia complaint that could have led to an onerous ban on chipset imports.

Nokia spokesperson Anne Eckert told reporters the world's largest handset vendor was confident of winning the case. "Nokia is confident the facts and the evidence presented at trial will clearly and definitively demonstrate that Qualcomm's alleged GSM patents are invalid and not infringed." Representatives from Qualcomm declined to comment.

Patrick Neighly

Half a million discount laptop shipments expected

Nearly half a million XO laptops are expected to ship through the end of the year under a US charity scheme that finds patrons buying two units at once.

One Laptop per Child has extended a two-week trial through the end of the year, citing requests from consumers and activist groups hoping to wrangle the "keep one, give one" scheme aimed at leveraging American pocketbooks to put computers in remote third-world classrooms.

"Because so many people have asked for more time to participate either individually or in order to organize local and national groups to which they belong, we have decided to extend Give One Get One through the end of this year. During this extended period we will solicit input and transition to a program of giving only at the beginning of 2008. We want as many people as possible to have the opportunity to act upon the giving spirit of the holiday season," explained OLPC founder Nicholas Negroponte in a blog posting over the weekend.

The extension comes as OLPC reveals its first set of sales figures. The effort claims to be clocking \$2 million per day - implying roughly 5,000 free laptops for kids in developing nations every 24 hours. That velocity would see some 70,000 units donated during the trial period and nearly a quarter million given away through the end of next month.

The numbers have analysts alternately spinning success or failure, especially with the presumed curb in donations once the holiday season expires. It remains to be seen whether OLPC achieves its \$100 per unit price goal - or indeed if the hardly XO can truly take off in distant villages without Internet connectivity, innovative hand crank or not. But some analysts believe Negroponte has already emerged victorious; the heavily criticized OLPC has forced much larger rivals to aggressively pursue their own discount laptop efforts.

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Galileo gets more funding from EU

It looks like Galileo will get off the ground after all. EU member states this weekend agreed to fund the controversial satellite navigation project by leveraging \$3.55 billion in unspent agricultural subsidies and other account overages.

The agreement reportedly occurred despite strong protest by the German delegation but will finally see work on Galileo resume after continental business interests balked at financing. "We have an agreement. All the money was taken out of unspent funds," a Portuguese diplomat told Reuters.

The deal means the total \$5.1 billion cost for the Galileo constellation will be borne by the public despite the proposed handing of operations to private players.

Terms for construction contracts are expected to be laid out at a meeting of EU transport ministers later this week, likely to include provisions to bar any single company from winning the bulk of more than two of six award tranches. Galileo will comprise 30 satellites and is projected to be more accurate and less susceptible to military interference than its US GPS rival.

Patrick Neighly

JAPANESE KIDS EXPOSED ON MOBILE NET

Japanese youth are largely left free to roam the mobile Internet, according to the Telecommunications Carriers Association. Just under a third employ filtering services on their handsets to block access to "harmful" sites such as video porn portals. The TCA said the regional use of mobile Internet filters more than tripled to 2.1 million last year and officials believe the full tally reflects child callers as adults have no need for content blocks. Japanese officials have urged the deployment of mobile filters following media coverage of related crimes.

STUDIOS SUE CHINESE BOOTLEGGERS

Several US studios have allied to attack a pair of Chinese players accused of selling bootleg downloads of top Hollywood films. Columbia Pictures, Paramount Pictures, Twentieth Century Fox, Universal Studios and Walt Disney are suing a mainland Internet cafe and video distribution technology firm Jeboo.com for \$432,000 in damages for films downloaded at the site. The quintet claims an undisclosed cafe used Jeboo technology to allow patrons to illegally download 13 titles, although Jeboo official Xie Jiangping told Xinhua its wares were "legally obtained [from] content providing partners."

SAUDI TELECOM BUYS INTO KUWAIT

Saudi Telecom has paid \$438 million for a stake in a forthcoming Kuwaiti mobile operator, according to an unconfirmed report by al-Watan. Although officials have not expected to announce the winner of a 26% stake in what will be the third mobile player to enter Kuwait's wireless race until sometime today, the paper said Saudi Telecom had produced the best offer. The Kuwait Investment Authority last week said nine carriers and consortia including Etisalat and Turkcell had bid for the stake, comprised of 130 million shares. Fully half the newly formed entity's shares are slated for a local float in February, with the Kuwaiti government retaining a 24% stake.

GX WINS EUROPEAN DEAL

Global Crossing has inked a \$1.8 million deal to provide collocation and Direct Internet Access services to European enterprise communications outfit CIBER. The five-year contract revolves around the creation of a new primary data center in Amsterdam designed to host all of CIBER's critical managed services gear.

ASIAINFO SIGNS CONTRACT WITH CHINA TELECOM

AsiaInfo has signed a contract with China Telecom to utilize its Telecom Web Self-Service solution for nine provinces in northern China. According to Steve Zhang, president and CEO of AsiaInfo, the company's leading CRM systems will help increase China Telecom's operational competence. "As Internet usage in China continues to grow rapidly, user-friendly and efficient online self-service centers are becoming a key component of telecom CRM systems" said Zhang.

> Telstra CEO says being green is good for shareholders

> Mobile vendors trial energy efficiency

NOVEMBER 27 2007: Green Telecom is a new fortnightly supplement with all CommsDay regional editions highlighting the move towards sustainable use of telecoms products and services. Editor: Tony Chan at tony@commsdaymail.com. More information can be found at <http://energy4technology.blogspot.com/>

Leighton's Metronode planning major green data centre push

Australian datacenter operator, Metronode, has launched plans to significantly increase its data centre capacity across the country to meet an anticipated rise in demand from the business sector.

Phase I of the project will see the expansion of Metronode's existing facilities in Sydney, Brisbane and Perth by mid-2008. Phase II includes the installation of new facilities in Sydney, Melbourne, Canberra, Brisbane, Perth and Auckland by mid-to-end-2009. The new facilities represent the first major investment initiative into data centre capacity since the burst of the dotcom bubble.

Energy efficiency and carbon emission reduction are high on the list of priorities for the design and build of the new facilities, says Malcolm Roe, group manager business development at Leighton Contractors Telecommunications Division, the owners of Metronode.

"These facilities will feature eco-friendly initiatives ranging from co-generation and tri-generation technologies, new cooling techniques; and where-ever feasible leverage Leighton's experience and technology partnerships experience with gas and renewable energy generation to produce energy with much reduced carbon costs," Roe says, adding: "The real green part of data centres is not inside the facilities, but the way power is sourced and the carbon that is produced by the power providers."

Where possible, the new Metronode facilities will rely on its own energy plant for power and use the main power grid as backup. Roe says the company has completed a study with energy consultants and elected to deploy natural gas generation plants to power the facilities. "The most practical approach is gas generation because it is viable and cost effective in Australia."

The designs offer "substantial" reductions in carbon emissions compared to current data centre designs, saving enough carbon to exceed targets set for 2020 by the Kyoto Protocol, he adds.

Ask customers before you build: The RFI is designed to seek out potential customers in advance in order to customize the final facilities build to match requirement specifications. Technology is changing rapidly, and in particular, power density for data centres is changing, Roe says.

Traditionally, data centres were built and then adapted to different customer requirements. Today, there is a wide range of power-density projections by server and mainframe vendors, which may require different designs for the overall facility, Roe adds. "Our approach to these facilities is to work with customer s and technologies partners all through the implementation process."

Data centre consolidation driving market demand: As data becomes more important to business, many are looking to more efficient and reliable ways to store the data.

"The trend we are seeing is that many companies are moving away from small data rooms and look-



ing at moving their data to bigger facilities,” Roe said. “Many companies built their own data rooms as they adopted technology. Many underestimated the power requirements, suffering power outages and even data loss. These companies, which include government departments, are looking to move their data into more sophisticated facilities with the latest technology.”

No government support yet: Despite all the green efforts, Metronode has yet to see any government support for such projects.

“The government has not show support for green initiatives up until now, and it is only with the latest election has the issue of green emerged as a major topic,” Roe points out. “We are interested to see what the government guidelines for carbon reduction and offsets in the future.”

[Email \[tony@commsdaymail.com\]\(mailto:tony@commsdaymail.com\) for a copy of the Metronode RFI](mailto:tony@commsdaymail.com)

Mobile network vendors going green

In just two weeks, Ericsson, Nokia Siemens Networks and Motorola each made significant announcements on their efforts to combat climate change by implementing alternative energy-powered infrastructure and introducing more energy-efficient systems to cut carbon emissions.

In addition to the overwhelming evident of green awareness by the mobile equipment vendors, solutions profiled all meet real world needs and offer significant advantages to mobile operators looking to cut cost and save energy.

According to NSN, some 80% of a network’s power consumption is incurred by the radio access network. By reducing power consumption through more efficient system and installation design, improving network planning and optimization, and introducing power management tools such as virtualization, the company’s Energy Efficiency solution enables up to 70 percent savings in energy consumption of a base station site.

In a network with approximately 5000 base stations serving a large metropolitan area, the annual energy saving would be the equivalent of 73,000 tons of CO2 emissions, equivalent to the annual footprint of 21,000 cars, NSN said.

In the same week, NSN announced a contract with China Mobile Group Beijing to supply its Flexi GSM Base Stations, which features “superior network hardware and software technology that uses less energy, lowers operating costs and reduces CO2 emission.” The new equipment will expand CMBJ’s network in anticipation of the millions of visitors to the 2008 Beijing Olympics next September.

“Not only does this demonstrate how we can create an optimal way for customers like CMBJ to save costs by reducing power consumption, we can also cut CO2 emissions as a result in a way that lowers the impact on the environment,” says Zhang Zhiqiang, Head of Nokia Siemens Networks Greater China Region.

The Chinese government has pledged to make the 2008 Games a “Green” Olympics.

Alternative Energy Solutions: Meanwhile, Sweden’s Ericsson and Motorola in the US are touting wireless infrastructure that operate on alternative energy sources, including solar, wind and biofuel.

Motorola announced the completion of a six-month trial of a wind and solar-powered cellular site (pictured) conducted in conjunction with the GSMA (GSM Association) and mobile operator MTC Namibia. The trial, located in the Dordabis village in the Khomas region of Namibia, was conducted deliberately in the winter months, when both solar and wind energy would be at their lowest availability.

The trial successfully showcased how “a combination of wind and solar power can be as effective as mains power in keep-



ing cellular base stations running at peak performance. In addition, the Motorola GSM solutions used needed minimal maintenance, which helped to reduce the cost and complexity of remote-area maintenance for operators,” says Ali Amer, vice president sales, Middle East, Africa and Pakistan, Motorola Home & Networks Mobility.

In the same week, Ericsson announced the deployment of solar-powered macro base station sites for Indonesian mobile operator, Telkomsel. The new installation will be based on Ericsson’s RBS 2111 base station, which already uses 60% less energy, and rely on solar power instead of traditional solutions using diesel fuels for off-grid sites.

“This alternative-energy site solution helps Telkomsel address the challenge of bringing coverage to areas with limited access to the electricity grid. It can reduce their operational expenses and bring connectivity to untapped areas in Sumatra, and reflects Ericsson’s commitment to bringing communications to all,” says Jan Signell, President at Ericsson South East Asia.

Panduit sees huge potential as China upgrades data centres

Panduit, a provider of structured cabling and data centre infrastructures, sees a huge potential market as Chinese organizations begin their next technology upgrade cycle towards more reliable and energy efficient solutions. “In the past, many Chinese companies and even multinationals operating inside China invested in low-costs equipment and facilities,” says Ning Liu, Panduit’s product, solutions and technology group executive for Asia Pacific. “There is definitely a wave towards more sophisticated and energy-efficient data centres.”

According to Liu, many organizations underestimated the risk and operating costs of data centres when they first built their own facility, so they elected to go with the lower grade equipment. As a result, many have suffered setbacks such as systems outages and high power bills.

“These organizations are starting to realize the need to upgrade to more reliable systems and are willing to pay a premium price for infrastructure,”

Liu said, adding that China, like the rest of the world, is seeing a major trend towards consolidation of data centre facilities. Panduit was recently selected to supply equipment for one of China’s largest data centres to date, a 40,000 square metre facility.

At the same time, Panduit is working with Chinese industry organizations such as China Electronics Engineering Design Institute to help establish data centre standards in the country. According to Panduit, China currently has a set of standards for tele houses, but not data centres.

Meanwhile, Panduit has embarked on a major “green” marketing push for its energy-efficient technologies.

“Green technology is fast gaining traction among our customers, especially here in Hong Kong. As a result, Panduit is significantly expanding our SAR operations - increasing our sales and support staff, notably technical support, to better service our fast-growing business in financial and other sectors,” said Michael D. Smith, regional director of Panduit Greater China.

Through its structured cabling systems and server cabinets with optimized cooling, Panduit is working with partners such as Cisco and IBM to develop energy efficient data centre solutions.



Indian mobile networks outstrip power grid

India’s booming wireless industry is stretching the country’s power supply, especially as mobile operators continue to expand their networks to more remote and less developed parts of the country.

According to Jacob Mathew, general manager – projects for Idea Cellular, one of the biggest challenges of rolling out network infrastructure in the country is finding enough power to run new installations. “In some places, there is only two, three hours of electricity each day, so we can’t rely on it as the

Sol says carbon abatement is good for profits

Telstra CEO Sol Trujillo is no muddle-headed greenie. He has been an aggressive critic of government regulation and is a former campaign adviser for US Republican presidential candidate Senator John McCain.

Yet Telstra has emerged as one of the most prominent advocates of green technology and practices in world telecommunications. And it's no PR act, according to Trujillo.

"I am not a phoney, I don't like standing and pretending to be somebody that I'm not," Trujillo told CommsDay publisher Grahame Lynch in Macau this month.

"I am a business guy. The great news about the way that we think about carbon abatement, not shifting trading schemes and things like that, but real abatement is that we are now totally aligned in terms of our cost structures. When we use a lot of carbon, we spend a lot of costs, both direct and indirect. For example, with GPS and people routing, we use a lot less carbon because our trucks are traveling shorter distances. That's carbon abatement and it's absolutely good business."

"Look at the cost of fuel and the fact we are the largest solar-power generator in Australia today. It reduces cost of business and reduces carbon abatement. You won't see me say we're a green outfit, I'm not that kind of guy—but we have an aligned view of our shareholders, the community & the environment".



main power supply for our network," Mathew told Green Telecom. "That's why we are now building our own generators alongside the network infrastructure to use as the primary power source."

The Idea systems are powered by a regular diesel generator but is fueled using B20 biodiesel – a mixed of 20% biodiesel and 80% petroleum diesel.

According to Mathew, thousands of base stations are being installed by India's cellular operators to support the 8-9 million new subscribers signing up every month.

While Idea is also trialing wind and solar power systems, Mathew points out government regulations that allow 100% depreciation of the biodiesel generators after the first year makes it an attractive choice. "The ROI for these base stations is effectively two and a half years," he said, adding that the diesel generators may also allow the operator to apply for carbon credits, but declined to give further details.

He revealed that the Indian government has set up a committee to study and formulate climate change policy for the country's telecommunications industry.

Global study to evaluate ICT's climate change impact: The Climate Group launched a study to evaluate the impact of the ICT sector on global climate change. The study will quantify the direct and indirect impacts of computing, telecoms, software and services and assess business opportunities going forward to 2020. The study is expected to delivery its results by March 2008. The ICT sector currently accounts for less than 2% of global greenhouse gas emissions, says the Climate Group, an independent, non-profit organization dedicated to advancing business and government leadership on climate change. Climate Group is based in the UK, US and Australia.

Green PC solution for Australia/NZ: GreenInnovation will distribute Verdiem's SURVEYOR energy efficient software in Australia and New Zealand. SURVEYOR is an energy management solution for PC networks and allows businesses to managed the sleep, shut down and wake cycles of PCs to eliminate power wastage. According to Verdiem, more than 450,000 PCs worldwide will be using SURVEYOR in 2008, resulting in cumulative savings of 482 million kWh (kilowatt hour) of electricity, equivalent to about 114 million litres of petrol consumed.

Orange trials sustainable city system: France Telecom's Orange Labs has installed a test system in the French town of Cagnes-sur-Mer that will enable the municipality to leverage machine-to-machine communications to gather environmental information such as sea and air temperature, sound levels, atmospheric pressure and ultraviolet radiation. The system will use a variety of networks and technologies, including radio, GPRS, and the Internet to improve monitoring and environment controls in within the town.