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Wireless communications

Avoiding the IT Upgrade Circle

For all the initial appeal of tomorrow's GPRS and 3G/UMTS networks, the availability of large amounts of bandwidth and the exciting new applications it can support raise serious financial and operational issues for mobile data customers¹.

Mobile data system customers are not easily swayed by the bells and whistles of new technology. Theirs is invariably a highly competitive business far better served by a pragmatic approach than an eye for the cosmetic. Enterprises with field service engineers, delivery fleets and similar roaming representatives know only too well that time is money and the efficiency of communications – in this case relevant data delivered in a timely fashion – has a direct bearing on performance and, therefore, on bottom line profits. So it is not surprising that,

RUSSEL RHODES

among seasoned mobile data campaigners, the promise of multimedia content across next-generation networks of unprecedented capacity is more likely to be greeted by a raised eyebrow and a wry smile than a race to the vendor's shop window.

A year or so ago, the vision of what 3G/UMTS (Universal Mobile Telecommunications System) might one day deliver drove the industry into a veritable fever, fuelled by the huge price tags put on 3G licences to run one of these futuristic networks. Initial talk was of 2 Mbit/s to the handset and the emergence of a plethora of advanced applications, each more desirable than the next, to revolutionise our working and domestic lives. The trouble begins now that GPRS (2.5G,



Figure 1. Enterprises with field service engineers know well that the efficiency of communications has a direct bearing on bottom line profits.

Three X

in effect) followed by 3G, are in danger of hi-jacking mobile data before these two high-capacity, high-profile networks-to-come have even been launched. Opinion is widespread that large amounts of bandwidth are essential – a prerequisite – if companies are to enjoy the full benefits of mobile data. Such opinion is, at best misguided and, at worst, liable to cost mobile data customers considerable amounts of money.

Lessons from the past

Surrounded by a hyperbole and fervour that at times verges on the ridiculous, the more restrained – some would say more cynical – observer does the sensible thing and remembers their history. Almost two decades ago, in the computer industry every byte counted. Memory was conserved and handled with care. As processor speeds increased with the advent of faster chips and more RAM, so the application developers found elbow room. Soon, with each succeeding release of silicon, they found they could stretch their arms wider. A computer equivalent in processing speed to one that helped man reach the moon (an Intel 80286 desktop PC) was now readily available to every business user. The cosy relationship between advanced applications and new generation chipsets was forged, and continues to drive the IT community, seemingly relentlessly. Today's new versions of operating systems take more memory and processor capacity than an entire hard drive of just a few years ago. A cornucopia of sophis-

ticated features and functions embellish the original application, driving the level of user expectation higher and, naturally, the power of the machine needed to run the software effectively. The "good housekeeping" practices, evolved in the days when computing resources were scarce, are now largely overlooked by software providers who insist on every possible colour, size and shape of bell, whistle and fog-horn, and present the results to the market under the almost Orwellian double-speak "benefit of user choice".

Even this may be fine and dandy when memory and chips are relatively cheap (as they are for the desktop user) especially as wired networks can now support gigabit speeds – but transmitting these potentially large volumes of information over a wireless network lends a wholly different perspective to the resulting balance sheet.

A modern mobile data system relies either on GSM at a current maximum transmission rate of 9.6 kbit/s or a Mobitex RF network delivering data at around 2.4 kbit/s in practice. The anticipated initial rate on offer over a 3G network is likely to be around 144 kbit/s – nowhere near 2 Mbit/s, but still far beyond what a fixed line full ISDN Basic Rate connection offers at 128 kbit/s.

The most optimistic forecasters have re-trenched in the wake of a collective reality check by the industry over the past nine months and predict mid to late 2002 for GPRS launches and 2003 for 3G. Germany's VIAG Interkom, a BT Wireless sub-

¹ This article has been written as part of a series for m-business Expo, 27–29 November 2001, Earls Court 2, London, UK. «Three X Communication» will be exhibiting at m-business Expo.

sidiary, aims to have its 3G infrastructure operational by the first quarter 2003, for example. When GPRS and 3G/UMTS networks finally appear, one feature will be an "always on" capability. So far, so good. But charging for these advanced mobile networks will be based on the amount of data sent across the airwaves – for GPRS and 3G, the potential volumes will be far higher and so far costlier.

Good housekeeping

The emphasis in these data networks is on delivering precise, accurate and relevant information as quickly as possible. A GSM network operator charges for every second spent on line, not the amount of data involved in the transmission. It takes years of experience and some specialist software to optimise a data application to ensure extraneous information – or relevant information in an elaborate, therefore time-consuming format – is omitted from the system. The field force of a Three X customer, for example, may receive all kinds of data, but its nature and the way it is packaged and sent has been carefully considered and constructed.

A solution to the allure of massive bandwidth and the consequent bills lies in continuing those "good housekeeping" practices that the orthodox IT industry has sadly neglected. These skills are very much alive and well among the mobile data solutions community, where time and data volumes remain yardsticks for the operational costs of a system. The prospect of delivering complex visual data, such as maps and diagrams, to

field service engineers may appeal at first sight, but can the additional cost of transmitting that data compared to simpler text-based instructions, be justified in commercial terms?

Another aspect of optimisation concerns arrangements for a customer's new data network. They are often made with the existing voice service supplier as part of a bundled package, but it can be advantageous to explore separate options to ensure all the cost benefits are made available.

Along with the capital cost of the central communications hardware, software and chosen handheld and in-vehicle terminals, there are also the running costs through the full lifetime of the system to consider. All customers are cost-conscious, some extremely so, and many are delighted by the Return on Investment, which can often and easily be within a twelve month period. For an application that might well endure within the company for several years, this can mean substantial savings on running costs. Simply because a new transport medium becomes available – in the shape of GPRS/3G with their "always on" characteristics, it does not alter the need to find answers to the basic questions that define today's successful mobile data applications: What data is essential for the recipient? Is only a minimum amount of bandwidth involved? Is the connection time as short as possible? These application design concepts remain as valid for mobile data in a broadband environment as they do for today's extremely narrowband data networks.

Keep it predictable

By keeping in mind the value to the business of anything sent across the network, mobile data cost calculations are straightforward and the cost justifications relatively easy to make. Today's systems can be controlled, monitored and accounted for. Compare this to the anarchy of a future scenario in which each user has access to a Web-style browser with downloads that carry video streaming and other data-intensive information. The enterprise would have no idea for how long and how often users will access such applications, billed by volume. Imagine the potential adverse impact of an unnecessary software upgrade sent across the network to each terminal – one of the applications often touted by 3G data proponents – simply because the bandwidth is there to support such a transmission.

At a time when future networks suggest available capacity will explode and herald multimedia applications, "Three X Communication" believes it is possible to drive down the cost of wireless communications across a range of markets – not just the traditional sectors of logistics, transport and field service. There is a marked trend among financial services, for instance, to access information via handheld devices from a central repository across wireless communications rather than supporting individual high-performance laptops. The cost of picking up a relevant piece of information over a mobile GSM data network via an optimised mobile data solution is weighed against a conventional remote link into the corporate network.



Figure 2. When GPRS and 3G/UMTS networks appear, one feature will be an "always on" capability.

Three X



Figure 3. There is a marked trend to access information via handheld devices from a central repository across wireless communications.

Three X

The same principles should apply whatever the bandwidth and type of network: careful planning and bandwidth optimisation through intelligent software and systems holds the key to effective implementation for the mobile data network user and, ultimately, to their customers' satisfaction. 3

Russell Rhodes, Product Research and Development Manager for "Three X Communication" has worked in the computing industry for over twenty years. His sole focus, for the last five years, has been on mobile data software and solutions. Three X software enables organisations of all sizes to connect mobile and remote users to host systems over a broad range of communications media. The company is based in Skipton, North Yorkshire. Homepage: www.threex.co.uk

Zusammenfassung

Schluss mit den ständigen IT-Upgrades

Die Versprechungen der GPRS- und 3G/UMTS-Netze von morgen, die grossen Bandbreiten und die vielen neuen Anwendungen, die sie unterstützen, vermögen nichts daran zu ändern, dass sich für den Kunden mobiler Datendienste zahlreiche finanzielle und betriebliche Fragen stellen. Kunden mobiler Datensysteme lassen sich von den Schmeißenklängen der New Technology nicht so bald beirren. Ihrem einem heftigen Wettbewerb ausgesetzten Geschäft ist mit einer pragmatischen Lösung weit besser gedient als mit ein bisschen Kosmetik. Unternehmen mit Aussendiensttechnikern, Lieferflotten und Vertretern wissen nur zu gut, dass Zeit Geld ist und dass sich eine effiziente Kommunikation unmittelbar auf die Leistung und damit auf den Gewinn auswirkt. Was es hier gegeneinander abzuwägen gilt, sind die Kosten, die anfallen, wenn man mit Hilfe einer optimierten mobilen Datenlösung über ein GSM-Datennetz Informationen abrufen, und die Kosten der herkömmlichen Anbindung ans Firmennetz. Wer es versteht, mit intelligenter Software und intelligenten Systemen zu planen und die Bandbreite zu optimieren, hält den Schlüssel zu einem Produkt in der Hand, das den Nutzer mobiler Datennetze ebenso zufriedenstellt wie seine Kunden.

FORSCHUNG UND ENTWICKLUNG

E-Mail-Virus bringt Handys zum Absturz

Der grösste japanische Mobilfunkanbieter NTT DoCoMo warnt die 24 Mio. User seines mobilen Internet-Services i-Mode auf der Homepage vor einem bösartigen E-Mail. Wird die Nachricht geöffnet, wählt das Handy eine Notfallnummer an oder stürzt ab. Die Gesellschaft warnt ihre Kunden davor, Nachrichten von unbekannten Sendern zu öffnen. Nach Angaben der Telefongesellschaft wurden bisher keine Schäden gemeldet. Trotzdem will das Unternehmen den Vorfall untersuchen und entsprechende Massnahmen ergreifen. Betroffenen Kunden rät NTT DoCoMo im Fall eines Systemabsturzes, die Batterie kurz zu entfernen und das Gerät neu zu starten. Sollte das Mobiltelefon selbstständig eine Nummer wählen oder eine E-Mail versenden, so können diese Abläufe mit Drücken der «Stop-» oder «Clear»-Taste beendet werden.

Mit der zunehmend besseren Ausstattung der Mobiltelefone und der Möglichkeit, Programme auf die Geräte herunterzuladen, werden diese auch im-

mer anfälliger gegen Virenangriffe. Bisher ist allerdings keine Software zum Schutz für Mobiltelefone vor Viren auf dem Markt verfügbar. Der erste Virenangriff gegen Handys wurde vergangenen Juni gemeldet, als Timofonica Mobilkunden des spanischen SMS-Gateway Moviestar mit einer Flut von SMS-Nachrichten quälte.

NTT DoCoMo, Homepage:
www.nttdocomo.com
www.nttdocomo.com/new/contents/01/whatnew0613.html

Nanodrähte als Sensoren

An der Harvard-Universität hat ein Team um Prof. Dr. Charles Lieber Nanodrähte aus dotiertem Silizium hergestellt, die wie chemische Sensoren arbeiten. Darüber berichtet der EDTN-Newsletter in einer seiner jüngsten Ausgaben. Man verspricht sich von Nanodrähten völlig neue Anwendungen im Bereich der Medizin und des Umweltschutzes. Damit lassen sich nicht nur einzelne Moleküle in der Umwelt untersuchen. Man könnte sol-

che Nanodrähte auch implantieren und so Proteine oder andere biologische Bausteine wie beispielsweise DNA im Körper untersuchen.

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China bleibt PC-Wachstumsmarkt

Die staatlichen Planer in der Volksrepublik China gehen davon aus, dass im Jahr 2005 rund 70 Millionen PC-Besitzer im Land verzeichnet werden. Ausgehend von den rund 19 Millionen für das laufende Jahr wäre das eine Steigerung von etwa 40% im Jahr. Ein unverändertes Problem dürften dabei die illegal gezogenen Raubkopien der (Microsoft)-Betriebssysteme und -Anwendersoftware sein. Hardware ist schon viel schwieriger zu «klonen».