

broadbandvantage 

Always connected

Beyond Broadband – what comes next?



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The Broadband market has taken off faster than even the most optimistic market guru might have predicted. At a time when the IT and Communications industries have been imploding due to a collapse of confidence and new investment, Broadband is showing growth like no other sector. Yet the first signs of the end of the boom are already in sight; Germany is the first market in Europe to be showing signs of saturation and Korea and Taiwan grew by just 9.3% and 6% respectively in the first half of 2003 (Point Topic, World Broadband Statistics Q2 2003, September 2003). So where do we go from here? Most observers agree that the days of the fast Internet access proposition are numbered and that the rest of the population, whether business or consumer, needs something more compelling than fast downloads and email.

This paper is written for anyone operating in the Broadband marketplace, whether a network operator, Broadband Service Provider, content company, hardware or software vendor.

The central hypothesis is that, in order for the Broadband market to keep developing, and for those in it to make money, there is a requirement not only for a review of the services offered over Broadband, but moreover, a fundamental shift in user behaviour. Although widely misused throughout the nineties, the

phrase “paradigm shift” is appropriate. When explosive growth is matched with significant change in behaviour, we see the sort of discontinuity, or market dislocation, where the rules get re-written. This paper sets out to explore the differences between linear market growth and discontinuity, and the factors that can, indeed must, influence the market. In these circumstances great opportunity, and great danger, can be evident. The paper goes on to explore some of the possible strategies for ensuring maximum benefit is taken from this paradigm shift.

beyond broadband – what comes next?

Given that the market is reaching saturation it is a fair assumption that prices will fall. If the price of Broadband connectivity comes down and eventually becomes a commodity, how will Broadband operators make money?

The answer is a shift in user behaviour from “always on” to “always connected”. The theory is that it is possible to compare what is happening in Broadband to previous experiences in the mobile phone market and the evolution of handheld data devices (PDA’s), to extrapolate possible trends as

these markets converge. This new behaviour has several key characteristics:

- 1 The applications we use when always connected to content may well be significantly different from those we use when we are making a conscious effort to “connect”.
- 2 These applications are of two basic types: predictive and elective. By this it is meant that we know some of these in advance, and others we choose to use in a more haphazard way.
- 3 Because we are already connected, the data architecture may be different to what we are used to. By this it is meant that a more centralised approach becomes feasible again; the data industry has been on a cycle of centralise/decentralise since its inception. We have been in a phase where more importance has been attached to individual independence for some time, through the dominance of the PC. This construct may change.

- 4 Despite the centralisation of data and applications, the user will still exercise almost complete control over the ‘what’ and ‘how’ of his individual use.
- 5 It is unclear which device format will win out. It is suggested that users have two extremes of device orientation. One is towards an oral or video device, a phone if you like, even if potentially a videophone. The other is towards a character-based interface.

“killer app” or new “killer behaviour”?

Technology-centric and product-centric businesses perform best when a market is evolving, and the key to success is in making a fairly well understood product perform better, faster or cheaper, or even look or feel better. This product-centric view of the world feeds the illusion of the “Killer App”.

The “Killer App”, if you can find it, is the key to unlocking the next stage of market development. It is the “signature” application, the market-defining product for a particular cycle of product or

technology. The “Killer App” for Internet access was email, however facile that may seem.

Yet we have a very poor record in predicting “Killer Apps”. Who would have predicted that texting would be the “Killer App” that drove the uptake of mobile phones?

Initially the proposition for Broadband was “fast, always on Internet Access” (the “more of the same but better” argument). The problem with this is that it appeals

only to the geeky minority of the market known as early adopters. These people are the low hanging fruit of any new technology market. They know what they want and what they will use it for; they do not need it explaining to them, or much persuading. For the consumer this has translated into the MP3 phenomenon. From an economic perspective fast downloads of free (and often illegal) content is not a sustainable model, not for the Broadband industry and certainly not for the music industry. The idea that the

wide majority of the market are interested in 17 versions of instantly disposable music with all of the life compressed out of it, and are prepared to pay for the privilege is not a proposition that anyone thinks is durable. With major structural change to the industry there may be a model there, but it may wreck one, if not two industries on the way.

For the Broadband industry to carry on growing, it is suggested that we can, and must, predict a way in which behaviour can be shifted in a fundamental way.

“killer app” or new “killer behaviour”?

How can Broadband deliver such a change in behaviour?

The answers are: money and fun.

Broadband changes not only the economics of how we deliver complex applications, services and content to businesses and consumers, but it also changes the technical capabilities in such a way that complete new areas of technology, originally only available to large businesses, become commonly available at the sort of price that consumers and small businesses can afford. More importantly, this coming together of economic and technical capability opens up a creative opportunity. Business applications and consumer content can be delivered anywhere at speed and with the same quality as if you were directly connected to the systems that created it in the first place. Technical and economic barriers that previously prevented the world at large from enjoying these capabilities will be torn down. You really will be able to do in your home the sorts of things the most sophisticated users previously did only at work or in the laboratory. The boundaries between work and play, between large and

small organisations, between customer and supplier and potentially between haves and have-nots will crumble. New applications and content will be developed specifically for this new opportunity, creating new industries along the way.

But this type of change is extremely disruptive. The organisations most affected by this will be incumbent Telcos and BSPs (Broadband Service Providers) but the effect ripples through every part of the IT and Telecommunications industries.

Consider the following examples of this disruptive technology in action:

(a) Video over DSL uses a simple pair of telephone wires, which are already present, to connect the user in to the network. Its nearest equivalent delivery system requires a satellite dish AND A SATELLITE. In the cable context the operator has to run his own cables ALONGSIDE the phone cables, which is expensive, disruptive and duplicative. The DSL alternative also supports interactivity, which can be difficult over satellite. So we not only have an alternative

cheap delivery system (which might be interesting in its own right) but it has new capabilities. Now we just have to figure out what to do with that capability, but it is not hard to see that the consumer just wants to see the film or programme they want, when they want it – something that satellite operators cannot always do.

(b) Private data circuits over DSL. Providing a high speed two-way service over ordinary copper is the new alternative to a model based upon, potentially, laying a specific piece of fibre to the premise and running a complex set of protocols over it (SDH and ATM). The difference in price? DSL is 80% to 90% less. That's right, private circuits over DSL may end up being available at 10% to 20% of the price of their traditional equivalents. One of the reasons will be that the transmission protocols will simplify around IP and Ethernet. They are not the most sophisticated or even the best featured. However they are simple, scale reasonably well, are well understood and are cheap to get into silicon.

The main impact is in the sorts of businesses that can use these new cheap data circuits. Any small business can now connect its branches, customers and suppliers together in real time, and the multiple retailers can afford to provide the same service to their smaller branches that they do to their larger ones. Even where products are complex, the customer can get right to the product they want, without requiring expensive in store specialists. We will see the merging of online and offline retailing, if only because people like to see and touch the things they buy “in the flesh”. An example might be buying a car. The ability to “create” a model on screen of the car you want to order, with the colour, trim and extras you want helps the selling process. Seeing the order placed, and the delivery date confirmed back to you, with the exact price, removes some of the uncertainties that slow business down. It can also be quicker and more fun. When you are trying clothes, the ability to have a body scan taken and for a screen model of you to be dressed in all colours and sizes will finally put paid to the impossible question “Does my bum look big in this?”

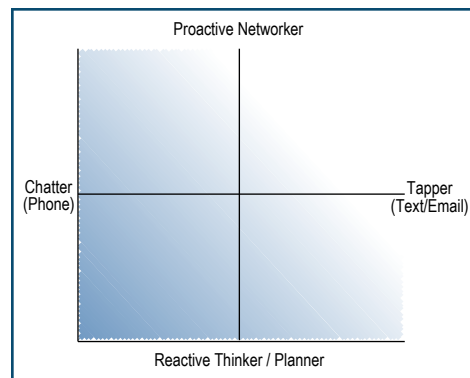
“killer app” or new “killer behaviour”?

Are you a phone person or an email person?

So what do we mean when we talk about behaviour?

Think about this: are you a phone person or an email person? Are you an active or a passive communicator? Have a look at the matrix below and try and position yourself on it.

Phone / Text Behaviour



Now try and position your main contacts. Are they easier to reach by email or phone? And do they respond better with a verbal or written approach? The point is that we are all different, and our own behaviour may vary dependent on context. Handling bad news may be best

done face to face. But if urgency is the issue then a telephone call might be best. Imparting bad news in writing might variously be viewed as cold, cowardly or, conversely, sensitive and modest. What is more, we may change our mind depending on who we are communicating with and our knowledge of their preferences. A good example of how this can go wrong is email wars. You say something in a rush and it's misinterpreted. The next thing you know everyone gets dragged into an email battle. Would this have happened if you had talked to the individual face to face and not copied half a dozen other people? So when we are talking about the future of Broadband it's not just about Internet Access, or IP Data it's also about voice and video communications and mobility. For the change to be fundamental it has to cover most, if not all contexts all the time – hence always connected. The wider the usability the more likely and the more far reaching the change will be.

It's all over for access technology

Will DSL win over Cable? Will it be 3G mobile or Wi-Fi? It is suggested that in fixed networks Broadband will drive fibre

closer to the home and business premise so that ultimately the cost of the last few metres is low enough that we will get fibre everywhere, to every home and business premise. This makes sense when you consider that the ability to aggregate large numbers of different services for different audiences within the home and for multiple users in a business is still going to drive a high bandwidth requirement. Consequently many Broadband technologies are transitional rather than permanent. In wireless networks, it is suggested that we will see the network become intelligent enough to know the best way of connecting the user, dependent on his requirements, his applications and how he uses them, but also the cost of that connectivity. The device will sense the best connection available and use that dependent on roaming arrangements and the ability to support more than one technology. The proof for this is in the market for multi-band phones. The user doesn't really care which network he uses (until he sees the bill and sometimes not even then). Mixed data and phone devices will support multiple types of connectivity, and the customer will receive one bill.

always on, everywhere. always connected.

What we learn from mobile

The big behaviour change with mobile phones was the ability to be permanently in touch. Non-office workers were no longer disenfranchised. The pace of business speeded up for mobile workers. Our children could enjoy themselves sending each other millions of messages. So the convergence of mobile and fixed telephony could give us some pointers as to how the “new” Broadband will work. If we can be permanently connected to our information and to the things we use all the time, how might this change our behaviour? And what sorts of applications and content will we be connected to?

Using data

The actual amount of data we use in our daily lives and the quantity of material we like to listen to or watch is fairly small in comparison with the complete universe of what we might use, watch or listen to. At a personal level the idea that you would listen to two audio streams, or two video feeds, simultaneously is blatantly ridiculous. Think of radio. For years the model barely changed because we stuck with a station that played the sort of programming we wanted. Sometimes it wasn't right so we changed channels and often we were introduced to new material,

which is valuable to us in its own right. Having hundreds of channels does not change us into remote control demons overnight. We are inherently too lazy for that and tend to stick with what we know.

So, in a way, we don't actually need “much” Broadband, even if we seem to need more than we have now. This is one of the reasons why the boundary between mobile and fixed networks is breaking down. When the price differential is small enough people use whatever is more convenient at the time. Pervasiveness (or rather its lack) may be a bigger barrier to mass uptake than price. A good example is in-office use of a corporate mobile. The user isn't paying the bill so is happy to use a mobile while sitting at the desk, simply because it hasn't got a cord, or because the number they want is stored on it.

What also becomes clear is that this small amount of information, or content, is important to us and can be made even more valuable by having permanent access to it, wherever we are and in whatever context we are connected to the network. So “always connected” becomes the “killer” behaviour and our appetite for, and dependence on, this content creates the value that the market needs to grow profitably. When this affects our

productivity in a business context it becomes an issue of competitiveness. For the private user, our ability to enjoy our particular content whenever and wherever we want, and share it, becomes vital.

Predictive vs. elective content

If we look at content more closely some other interesting factors become apparent. There are fundamentally two types of content. The stuff we use all the time (predictive) and the stuff we use which is event driven or occasional (elective). In fact, if we profile ourselves we can predict the stuff we are going to use (see identity and personalisation p.8).

Let's take a business example. The information I need to do my job is largely defined by the job I do. Seems obvious. So if I am a salesperson, for instance, I might want to have access to my customer contact records (CRM if you like) and the orders those customers have placed (including the order I want to place when I am with them) and that sits on the company ERP system. So my company gives me a profile, which includes those things. I then elect to have other company news or maybe the HR system available to me as part of my standard set of information because I like to track my

expenses. I might also elect to have traffic and weather information or maps available to me. These are not necessarily on company systems, but that doesn't matter because my information system delivers them to me. Even allowing for all these variables the actual amount of traffic across this network is not that great, but my productivity is higher. The Sales Director, Field Service Engineer or the Chairman might have different predictive usage (but actually from a fairly small palette of information sources) and choose some other secondary applications.

Now we have another issue. Security. What happens if the sales person leaves the company and tries to take his address book with him? Well, with an “always connected” system, the data sits centrally and the user merely views it. This saves the problem of having multiple copies of data out there in different states and removes the nightmare called synchronisation. The network and the services we access become inextricably linked and I get used to being always connected. It almost goes without saying, that for this model to work always connected also means always available and this will put pressure on reliability as a key predictor of success.

entertainment vs services and applications

The consumer/business divide

Another issue that fascinates people obsessed by the idea of the “Killer App” is the difference between consumer and business behaviour. The contention is that, at a basic level it doesn’t matter, especially if you are a network operator. Different services have different requirements and attributes but at the network level they are just packets and streams. If the idea that the customer decides on the content and services that

he wants (and that his primary relationship is with the person who creates the content or service) offends you, get over it. It was ever thus. Voice telephony is about communicating between two end points. Your network enables that and you may even tell the two parties how to find each other but that’s it. You no more control the “content” of their conversation than you do what they eat for dinner. Of course, you may choose to get into the content business if this is not already your line,

but there are already others who will have other ideas, perhaps more skilled and experienced in those fields than you, with existing brands and customer relationships. The value for the network operator is in the physical and virtual connectivity (think directory services) and this is where you should concentrate. People will be happy (mostly) for you to provide this service.

The second reason for this to become less important is that when everything is

always available, businesses will start behaving something like consumers and vice versa. It’s already difficult enough for a phone company to tell if a customer is a genuine domestic subscriber or is running a business at home. With the breaking down of these barriers, which this new generation of Broadband enables (think teleworker), it will become impossible.

devices and networks

Phones, laptops, PDAs, set top boxes, tablets? Fixed, wireless or mobile?

Because the technology industry is very product-centric, and not necessarily thinking about how and why people do things, we have a deep fascination with the device that provides the connectivity. One potential outcome is that the ultimate device might look a bit like any or all of these existing products. What is essential though is that our personality is transportable and accessible from anywhere, and that, if we use one device which transitions across different

networks, these transitions are invisible to us and do not require our intervention. Because we are different, and will use these services in different ways and in different circumstances, we might use them from a variety of devices. In an office or at home a larger more permanent device might be practical. It might have more sophisticated audiovisual capability and be designed for sharing. It is probably connected over a high-bandwidth, fixed-wire network. When in a hotel or someone else’s office we may want to access the service from someone else’s device. The network here might be a

static wireless network. When we are mobile we might want to access the service from a third type of device, using a fully mobile network connection. It is likely that this third device will be the lowest common denominator. Our network access is most likely to be constricted and provided at the highest cost. We are most likely to be using the device in a very personal way. So it might be like a phone with PDA capability, or like a PDA with phone capability. We may even use two separate devices if we can’t make the form factor work properly and simply enough. What will need to

happen though is that the context in which we use these devices will need to adapt itself invisibly, without our intervention. If we do use multiple devices, this argues even more strongly for a centrally managed service, probably with a common set of simple visual (or voice activated) controls via an adaptation of a browser.

Whichever of these elements come to the fore, the winner will be the operator who can transport the user’s identity seamlessly, supporting all contexts, simply, with tariffs that are easy to understand.

moving up the value chain

If we accept that the current Broadband market is limited in its financial potential, operators clearly need to be able to address and support a more complex value chain where large parts of the service are not under their control.

If we fundamentally change the way we do things, rather than just do the same things cheaper and faster, it seems increasingly likely that the big opportunities will move even further away from the “comfort zone” of most network operators and BSP’s. With new models and new competitors we return to one of our original questions: how can operators make money?

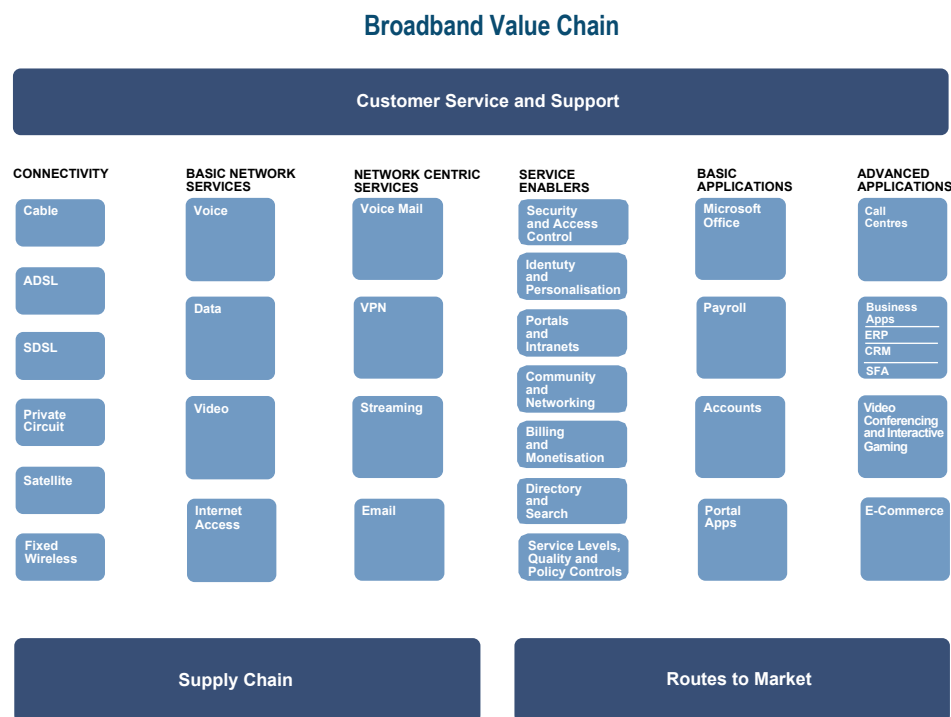
The answer lies not in the services themselves but in the elements that the customers and service providers need to make them work.

If we look at the value chain for added value services over Broadband, it becomes clear that network operators are best placed to control (and derive value from) those elements which are closer to the network. It is possible that they can move all of the way to the top of the value chain, but this involves both

financial and market risk. The reason for this is lack of expertise and the battle for customer ownership. It is often said that we only have a customers trust for certain things and this trust can be inelastic. There are very few brand relationships that can truly be stretched.

The faster simpler way to address such a complex set of value propositions for an operator is to take a bottom up approach, using partnerships and revenue sharing models to offer the complete service. The risk of not taking this approach is to lose control of the value chain completely. Think of it like this: with satellite TV who is your loyalty to? The operator of the satellite, or the person who offers you the film and sport package? Do you even know how satellite works or which technology is being used? Does the operator originate all of the material available over his “network”?

Looking at this simplified model the key level for the operator to add value is the “Service Enabling” layer. Lets take a look at some of the services that exist at this layer and how they give control and value to the operator.



Security and Access Control

Who gets on the network, what they can access and what they can do is critical. Also who they can communicate with, whose data they can change and how safe their own data is.

Identity and personalisation

Once on the network who you are and how that drives your preferences is key.

The ability to personalise the service very simply, and “on the fly”, will differentiate services and is a key success factor. This is the key enabler to sell new services and increase value. A useful way to think of this is the way in which our mobile phones have become a very personal possession, as our desk or house phone never does. It stays with us and we personalise it with our contacts, the

ring tone and even its appearance. Being always connected to your content has the power to have the same influence.

The Portal/Intranet Model

To some extent, the only difference between portals and Intranets is that one is designed for consumers and the other for businesses. They are the key management interface for the user. They are also the means by which new services become visible to the user and how they navigate between services. One of the key challenges will be to make this work for the voice driven user. It is likely to be a combination of IVR and Directory driven services. The Directory mentality is not only critical it is essential for survival. Helping people find things they want quickly and easily unlocks value. Look at Google.

Community and networking

If more and more of what we do is accessed by a single unifying service, that service will become a more significant part of our ability to connect with others. This includes the ability to establish affinities, to parlay identity into identification and recognition, and to create durable business or personal

relationships. In the personal context this includes things that will be evolutions of clubs and chat rooms. In the business context it will include networks by which we can find customers and suppliers or can explore partnerships and other business development activities. For the Broadband user it will become a way of transacting business and connecting for fun.

Billing and monetisation

One of the key levers that the operator has is the billing relationship he has with his customers. This is not just a medium by which he can charge for his own services but also he can charge for the services of his partners and others. But perhaps more significantly, subject to critical mass, is the ability to enable transactions between his customers, and share in the profits of those transactions. Having a single bill, which covers all services, whether connectivity or added value, delivers real value to the customer, saving money for the business and making life easier for the consumer.

Directory and search

In the same way that Directory Services is a key added value for voice services,

so directory and search are key enablers for Broadband services. Apart from online directories and the usual range of search capabilities, operators will need to activate the network of their own subscribers, for their subscribers and their own benefit. Their ability to create personal and business connectivity between customers and suppliers, and between individuals and communities, will enable them to differentiate their services, create value and retain customers.

Service levels, quality and policy controls

The ability to set contextual conditions for traffic and usage will be a key part of the operator's toolset. These will underpin many of the more complex services, and the ability to manage them on behalf of other service providers in a transparent manner will be crucial.

the way forward

How do we make this new vision a reality? How can we bring about the shift in behaviour, which unlocks this new market opportunity?

Firstly we have to educate and evangelise, we need to explain how this will all work and where the benefit, financial and fun, can be found.

The change necessary is no less than a fundamental shift in how we conduct our daily lives. This will not happen on the basis of “cool”.

Broadband market players need to think more about what people do and why, and not go too far beyond where they can genuinely add value.

They need to partner with new types of businesses to complete their offerings. These new services need to be simple to use before they are sophisticated. We have to enable users to break down their own barriers. It's not about what the operators think is a “Killer App”, but about what the users think is.

The message has to be “Look at what you can do by being always connected. Is that going to enable you to have a more profitable, productive and enjoyable life?”

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