Monetizing the NBN
Strategies & Services

National Broadband Networks (NBNs) are being planned and rolling out around the world, promoted by a strong convergence of interests, with governments looking for macroeconomic benefits and telcos looking to satisfy their subscribers' demands for improved services. The problem for telcos is how to cover the costs of building these next-generation networks.

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The foundations matter

The structure of a national fiber broadband network and the regulations that govern it have a big influence on the opportunities for revenue-generating services. The broadest marketplace is always going to be based on an open-access or wholesale model supporting many service providers.

There are different structural models and the choice is usually dictated by the practical and necessary concerns of the existing operators, perhaps including a state-controlled incumbent. There is no single regulatory structure suitable for all situations, but the most important layer is that which provides wholesale network access to the retail service providers (RSPs). This is where innovation and competition drive the large-scale benefits.

Managing CAPEX

The biggest financial issue is the high capital cost of network construction, especially the civil works. Digging roads is expensive, aerial wiring less so, but last-

mile connections will still account for around 50% of the project cost; money that is spent in advance of any revenue earned. Government grants, subsidies, or loans designed to promote the project have the strongest effect here.

The other major factor affecting the return on investment is the take-up rate by subscribers; sharing the cost of the last-mile infrastructure as widely as possible lowers the per-connection costs dramatically. The competitive environment influences take-up rates but so does regulation of elements such as the decommissioning of legacy infrastructure. Once built, a passive optical network (PON) is cheaper to operate and maintain; in Japan, NTT estimates a 60% OPEX savings over DSL. PON also, crucially, offers the lowest cost-per-bit transmitted, which is ever more important each year as data volumes surge on both fixed and wireless networks.

The Internet is fixed

Fixed and wireless operators have been drifting apart for years by divestiture, but mobile operators' successes with UMTS and now LTE highlight the pressing need to get all this data onto fiber as quickly as possible. It has taken a while for operators & subscribers to realize that Internet access is the major killer app for mobile phones, but since the Internet is a wireline network with a thin wireless edge, there are pressing requirements to deploy fiber backhaul to base stations, Wi-Fi offload, and residential small cells, all of which can benefit from a national fiber infrastructure.

Telco substitution

Operators of POTS networks have seen steady declines for years; a 7% annual

revenue loss is occurring now in some markets. Globally, the number of mobile lines surpassed fixed ones in 2003 and it is now numerically dominant. It is true that for some, fixed-mobile substitution is an option, but the bigger issue is one prompted by the latest fast fiber connections providing 50Mbps and often more, as their ability to substitute all traditional telco services, including voice & video, with Internet-based alternatives heralds an era of credible telco substitution.

Shifting revenues

Fiber networks are enabling rapid and disruptive shifts in services (revenues). For a basic broadband provider, these are challenging times. Broadband was once sold by speed (1Mbps, 4Mbps) or in some markets by monthly data volume (5GB, 10GB); neither is a satisfactory way to manage NBN as both have the effect of depressing use, and yet if the service is being sold on a fixed monthly tariff, applying limits seems like a rational response.

A third way, charging for every byte transmitted, is seriously flawed as the value of each byte varies greatly depending upon the application, and consumers have become comfortable with predictable monthly bills. The challenge is granting reasonably generous access to data and gaining revenue from the value that it represents.

Less telco, more Internet

There is an industry-wide transformation currently taking place that perhaps rivals the other great industry change (where the telephone companies became ISPs) where charging for access is being replaced by the offering of value-added services (VAS), either directly or indirectly, on a wholesale access network. The end goal is much closer to that for an ICT company as opposed to a traditional telco. In a sense, this places the operator in competition with the entire Internet, a daunting prospect and one that cannot be won outright; OTT services cannot be eliminated or defeated, so how does a telco develop a successful monetization strategy for fiber access?

OTT triage

The initial approach is to triage (separate into three categories) the major services that subscribers use and decide how to offer each one. Operators can:

- Compete using an in-house version (Access Independent Services).
- Cooperate with a third-party provider.
- Leave it to the OTT market.

Clearly, this must be mapped against one's organizational capabilities & strategies such as the technology roadmap, product development capacity, and risk-revenue assessment. The pace at which an operator can challenge OTT services depends not only upon its ability to take on new skills but also its willingness to displace legacy services. Incumbent operators tend to view these risks differently from new market entrants, as even the perception of value destruction may be harmful to shareholder interests. However, market disruption is tough, and courage is required to move forward boldly and disrupt your own services before the new ones gain revenue.

Revenue capture

An operator has a core set of services, voice, data, and often video, available on the fiber

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The form of such an alliance depends on what value the telco is offering. If the value is simply the access network, then it is a form of managed wholesale. If the telco is adding further resources such as CDN or compute servers, then it is a hosted model. More intriguing are the opportunities to manage data flows using QoS, or to add ancillary functions such as billing, providing a classic two-sided business model and putting the telco firmly in the middle of the value chain.

Many major operators have developed their own products, keen to address competition in basic voice services by upgrading to VoIP services and Internet video conferencing through well-known OTT players.

Pay TV

Streaming video is a major revenue opportunity but it is also costly to transport. Pay TV is a little different from many OTT services as it already has a natural two-sided business model, with operators providing the hosting, distribution, and marketing for content providers. Operators have been following a model closer to that used by cable TV providers through partnering with either content owners directly or with an Internet-based distributor. Either way, by improving service quality over OTT through less buffering, assured bandwidth, and perhaps a sophisticated home terminal, operators can add significant value.

The latest hybrid home terminals that present multiple video sources in a single, consistent user experience are an opportunity for telcos to become the common platform for home video.

Expanded market reach

As operators develop VAS services beyond simple access, they have the opportunity to offer them across the entire NBN, and even to Internet subscribers. It only seems fair that, in developing services to compete with the Internet, one can expand the addressable market and become a reverse OTT service provider.

Competitive voice

POTS voice is in slow decline in terms of both penetration and revenue, but it is still a core telco service and one with plenty of innovation left in it. Voice revenues are not going to collapse due to OTT VoIP providers as they find it difficult to compete with the telcos due to issues of numbering, call quality, and ease of use.

Operators are responding by maintaining legacy voice services and enhancing them with Unified Communications (UC). By focusing on legacy strengths and certain OTT weaknesses, voice can be transformed into a competitive offering through initiatives such as Rich Communication Suite (RCS), marketed as *joyn*. Building on an IMS platform, RCS is a telecom-based UC solution, offering multiplatform clients, presence, and media sharing, backed up by carrier-grade implementation and familiar numbering. The enterprise market places great emphasis on call quality and such an in-house solution can meet their expectations, but it faces strong competition from Internet services; so for incumbent operators, this helps to reduce churn.

Quality of experience

It is common practice to tier Internet access plans by speed and/or data cap. Next-gen fiber access permits further differentiation to monetize the experience using quality of experience (QoE) to control traffic speed & priority, not just statically but on demand (Turbo Button). This capability is not unique to fiber, but GPON's very high line speed and fully-configurable traffic

shaping make this an attractive and achievable proposition. This opens up a world of possibilities for optimizing user experience to immediate needs, and hence a new set of chargeable features.

Advantage: Operator

Competing effectively against new services is a challenge but operators have significant advantages over OTT providers. Firstly, operators have an existing subscriber relationship, supported by their brand. This should make marketing, service activation, and billing a smoother process.

Secondly, GPON provides excellent bandwidth and traffic control functions and the ability to differentiate based on QoE, which an OTT provider cannot equal. Thirdly, operators often have internal assets such as caching, storage, computing, and billing, that they may leverage to develop new services either by themselves or in collaboration. Because market disruption favors first-mover advantage, partnering to compete with OTT is a feasible and, indeed, recommended way to reduce the time to market.

Telco cloud

Moving computing resources and their applications onto the network is a defining transformation of our age that has been accelerated by widespread availability of broadband access. Telcos are very well placed to offer cloud services, but this is a medium to long-term development project, best taken in phases since it involves a lot of technology; building the skills and competencies takes time.

Successful cloud deployments need to acquire scale to be cost-effective and a typical approach is to start by virtualizing existing services and growing from there. Some of this infrastructure may exist already, often from CDN and enterprise products. Offering a full stack of software products can be approached by beginning with an infrastructure product (IaaS) and then partnering to provide applications (SaaS). Operators can compete effectively against the major global SaaS offerings by providing local support or training to local SMEs who are quick to appreciate their benefits.

Bring it all together

The strategic challenge for operators is to choose how far to go in addressing the OTT value chain; while the opportunities are considerable, so are the risks. If an operator focuses on their traditional revenue stream and tries to grow organically, there may be less internal & financial risk but competitive pressures from disruptive competitors may prevail. As operators balance these issues, the deployment of an NBN acts as a catalyst to market change. Thus, a wait-and see approach is unwise as it risks a dangerous convergence of exploding costs and revenue stagnation.

Broadband access is becoming a commodity and fiber networks promote and accelerate this trend, expanding the full potential of the Internet directly into homes. Fortunately, NBNs also offer the solution to the disruptions they introduce through a platform for innovative, next-gen services and finely-tuned user experience. Their speed, latency and bandwidth permit even more exciting solutions and business propositions.

Telcos must steer a course through these uncertainties. According to an Ovum study, globally, new telco products are expected to grow at 9% annually compared to only 3% for traditional telecom services. This revenue opportunity should act as a lighthouse when crafting business and technology strategies, drawing the operator towards a brighter future.

QoE is a subjective concept that covers the following attributes at the minimum:

Speed – This encompasses not just the allocated network bandwidth (pipe size) but the perception of speed (response time). The usage pattern of an individual user is often very bursty and the challenge for the network designer is to engineer an end-to-end capability that meets this expectation.

Quality – Media quality for high-definition (HD) video & voice, augmented reality, and other aspects of the user experience are readily perceived and appreciated by consumers.

Equivalence – This means having the same content or capability in different places or on different devices. Whether we are in a post-PC world or not, consumers are already using a variety of fixed and mobile devices to suit their needs and tastes.

Simplicity – Consumers want to communicate in simple and natural ways and the user interface (UI) should reflect this desire. Fortunately, effective touch and voice interfaces are available.