

Communications & High Tech

Planning an effective high-speed broadband deployment

By Jonathan C. Restarick and Marco D'Aleo

Jonathan C. Restarick is the Australia-New Zealand lead for the Accenture Network service line, Communications & High Tech.
jonathan.c.restarick@accenture.com

Marco D'Aleo, a senior executive in Accenture Communications & High Tech, specializes in IP transformation programs and next-generation architectures and technologies.
marco.daleo@accenture.com

Computing pioneer Alan Kay called it the "next great 500-year idea" after the printing press: the development of a ubiquitous, high-speed broadband network linking people, businesses, educational institutions, services, everyday objects and appliances, and much more. Consumer demand for high-speed networks is strong, driven especially by mobile broadband connectivity.

But effectively monetizing broadband deployment will be a challenge. Competition will only intensify, especially between traditional providers and cable companies. Operators hope that higher speeds will translate into higher subscription fees, but whether consumers will be willing to pay more to get more is uncertain at best. In the end, margins will continue to be tight.

Given these challenges, it is imperative that service providers begin with a careful network planning and strategy phase, setting forth a realistic and properly phased investment plan. Providers must consider a broad range of issues, including profitable customer segments and geographies, regulatory constraints, effective business-case development and, perhaps most important, customer migration strategies that will enable a provider to shut down its expensive legacy network environment.

Evaluating profitable segments and geographies

As companies plan a high-speed broadband deployment, targeting profitable customer segments and regions is critical. Because of the size of the network investment, providers need to focus on the most profitable customers first. Those revenues can then fuel additional investments to serve a wider customer base. So at the planning stage, providers must consider the geographical target areas and then translate those plans into costs and revenue potential.

These target areas must be analyzed at a very granular level. One Italian communications service provider, for example, produced an extremely detailed analysis of target segments, street by street. Why was this important? Because a particular neighborhood in Rome or Milan may have great potential for future business, while an area just a few streets away may contain an entirely different and less profitable demographic. Armed with this detailed information, providers can then use pricing simulation tools to perform "what-if" analyses of these segments based on different levels of spending for targeted customers.

Considering national and local government impacts

National governments have a vested interest in broadband, in part because of research that has linked broadband development with better opportunities for citizens and greater economic growth. Service providers must work closely with government entities at the planning stage, especially if their legacy networks provide regulated services and service levels. Additionally, private investors must work to ensure they are protected by public investments. Cooperation with local governments is also essential, as activities such as laying fiber into buildings often require multiple layers of permissions and approvals.

Building the business case

In constructing the detailed business case for an all-IP network, several considerations are important:

- **Local capacity and demand for the access network.** For both broadband wireless access and fiber deployments, linking the rollout plan to local demand is key to establishing an adequate business case.
- **Backhaul and core capacity.** Increasing the footprint and capacity of access networks requires

detailed analysis and preparation of aggregation points in the network, specifically backhaul from regional exchanges and, generally, multiprotocol core networks.

- **Costs for a next-generation operations support system (OSS).** The OSS structure for a next-generation network is radically different from a traditional network. Provisioning requirements and new ways of managing customers and services necessitate an enhanced OSS capability if multibillion-dollar broadband investments are to deliver adequate business value.
- **Government subsidies.** As previously noted, governments see high-speed broadband networks as a key to achieving important policy objectives, so they are starting to take a variety of supportive actions. For example, the Japanese government is using tax incentives and DSL regulation to drive growth in fiber-to-the-home deployment. In general, the business case for many carriers will depend heavily on direct or indirect government subsidy and on the direct participation of local municipalities.
- **The role of utilities companies.** Utilities companies have become one of the largest drivers of fiber-to-the-home connectivity, using their existing pipes and ducts to enable faster, less expensive deployment. In Norway, for example, utilities now connect more than 6 million citizens with wireline broadband access. Service providers must therefore consider what role utilities companies might play in the overall high-speed broadband ecosystem.
- **Potential savings:** High-speed networks—at least, wireline broadband—can be less expensive to operate. A carrier's property portfolio, for example, will be substantially lower. Higher-capacity optical switching requires less floor space in exchanges and can provide greater reach from exchanges to customer premises. The lower energy costs of an all-fiber network also contribute to savings. These savings will not materialize, however, if providers must maintain both their new broadband network and their copper legacy network.

Planning the customer migration strategy

The business case for all-IP broadband deployment is highly dependent on the ability to migrate legacy services to the new network and switch off the legacy access. For example, BT's 21st-century network program is expected to deliver savings of at least \$1.8 billion (£1 billion) per year, in part by reducing spend on legacy networks. Therefore, it is imperative to have in place a well-considered, inte-

grated marketing and engineering plan for customer migrations from legacy voice systems and products.

One significant challenge is in replicating the existing capabilities and quality of voice services onto the new network. Customers have high expectations for broadband service and low tolerance for failure. Another challenge arises if custom services are linked to legacy network technology, which adds to the complexity of legacy network decommissioning.

Providers will also face internal challenges. An all-IP transformation involves a paradigm shift in organization structures, processes, technologies and the workforce skills required to be successful. A migration strategy will focus on the customers but will be enabled by migrating the entire organization to a new way of doing business.

Meeting the challenges

High-speed broadband networks represent enormous promise as the communications industry begins to emerge from the economic downturn. Realizing that promise requires meeting several distinctive challenges:

Finding experienced resources

The mix of strategy, business, technology and marketing skills needed to deploy access-based networks at this scale will be difficult to find in any single organization or within any single nation's border. A reliance on a third party—whether for temporary consulting guidance or longer-term outsourcing—may be necessary. Workforce costs will comprise a large portion of overall expense, so it is vital to get the most value and productivity from those resources, whether internal or external.

Dealing with a lengthy deployment time

The deployment of particular classes of high-speed broadband networks, especially wireline networks, is a massive undertaking. When extensive civil engineering is required, network deployments for geographically large countries will take a considerable time. For example, initial forecasts for fiber-to-the-home deployment in Spain indicate that it will take 13 years to reach 50 percent of the country. In this situation, Accenture believes that network design, topology and geographic rollout need to be driven by customer and service needs. Using an engineering-led deployment can make a long process longer.

Managing the investment

High-speed broadband networks require significant capital expenditure in what is

already a scarce capital environment. Accenture has found that a critical success factor to effective management of the network investment is the use of intelligent planning and capacity tools. These can increase the return on investment by enabling a more targeted rollout of the broadband network to the right customers, in the right geographies, at the right time and at the right capacity. These tools also enable cost-effective use and migration of the legacy networks, balancing the need to maintain minimum service quality standards while maximizing available capital for the new network.

Conclusion

Next-generation networks represent an enormous opportunity for carriers and for all companies and governments, leveraging the high speeds and compelling services that will run on those networks. Nevertheless, the risks are high. Careful planning and management, supported by experienced resources and proven tools and methods, will be essential.

Above all, it is important for traditional carriers to embed technology and business transformation mindsets at all levels of their companies. Players must also learn to embrace the new kinds of partnerships and business models needed to achieve high performance in the challenging and promising marketplace of high-speed broadband.

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