



Alcatel is the world's leading supplier of telecommunications infrastructure, with a portfolio that includes a full line of the products needed to build any type of communication network. Its customers include Internet service providers, telecommunications operators and carriers, as well as businesses and consumers. The global networks that Alcatel builds enable a number of information services and products, including streaming multimedia, e-commerce, virtual private networks (VPNs), video conferencing, as well as voice and data communications. Alcatel has been an Altera customer since 1992, and today, Altera products play critical roles in all of Alcatel's leadership areas, including broadband access, optical transmission, as well as networking and mobile communications.

With over 20 million asymmetric digital subscriber line (ADSL) lines shipped, Alcatel is the number one supplier in DSL technology and the market leader in high-speed Internet access. Alcatel maintains its DSL market dominance with compelling products like the 7300 Advanced Services Access Manager, which is powered by several Altera FPGAs and CPLDs, and offers the lowest cost per ADSL line. The LiteSpan Multiservice access platform, which also uses Altera FPGAs, adds another important component to Alcatel's DSL success by offering full DSL access multiplexer (DSLAM) functionality, enabling service providers to offer DSL access via remote locations rather than being limited to the central office.

The Litespan platform also provides fully integrated ATM-based ADSL and higher-performance symmetric high-bit rate DSL (G.SHDSL), making DSL provisioning more cost effective for service providers, and addressing the growing demand for DSL services. For fiber optic networks, Alcatel's 7340 Fiber to the User platform, which utilizes Altera FPGAs and embedded processor solutions, extends optical access across the "last mile" of the communications network, providing high-speed Internet connectivity to end users at over 3,000 times the speed of traditional dial-up modems.

Alcatel's leadership in optical networks is exemplified by its installation of over 30,000 new-generation synchronous digital hierarchy (SDH) systems in 2001 and ownership of 20% of the world market in long-distance dense wave-division multiplexed (DWDM) systems. Communicating at the speed of light requires data routing and handling at multi-gigabit rates, which

is why Alcatel relies on Altera devices in several of its transmission products. For example, Alcatel's 1680 Optical Gateway Cross-Connect uses Altera FPGAs supporting high-speed I/O standards. Also, Alcatel's aggressive pursuit of advanced technologies to give them a competitive edge led them to early adoption of Altera's embedded processor solutions. These embedded processor solutions are being incorporated into several Alcatel products and currently serve in two of its major building blocks for metropolitan and regional networks: the 1660 SM STM-16 Multiservice Metro Node and the 1670 SM STM-16/64 Multiservice Core Node. The 1660 and 1670, which also use several Altera FPGAs, are ideal for large metropolitan rings, regional or national backbones, cross-border applications, and international gateways.

Telecommunications operators and service providers invested heavily to meet increased demand for new products, while at the same time maintaining and growing traditional data and voice services. In the area of data networks, the growing demand is for Internet protocol (IP) traffic. To accommodate the buildout of IP infrastructure while preserving and expanding existing services, Alcatel offers the 7770 Optical Broadband Exchange platform. The 7770, which incorpo-



*Alcatel's 7300 Advanced Services Access Manager offers the lowest cost per DSL line.*

rates both Altera FPGAs and CPLDs, is a reliable, highly scalable platform that allows service providers to offer guaranteed amounts of bandwidth and differentiated levels of support, enabling them to manage increased traffic and broaden their product offering.

In the area of mobile communications, service providers need solutions that can manage subscriber migration from second-generation (2G) to third-generation (3G) networks and products. Alcatel's 3G Core Network enables delivery of 3G services such as text, digitized voice, video, and multimedia by supporting the Universal Mobile Telecommunications Service (UMTS) standard. Altera FPGAs and CPLDs, play a vital role in Alcatel's Evolium UMTS platform, which minimizes capital expenditures by seamlessly integrating into a carrier's existing heterogeneous network environment, while offering a strategic evolution path towards all IP-based multimedia services.

Currently, Alcatel is engaged in projects using all of Altera's major programmable logic families, including Stratix™, Stratix GX, Cyclone™, APEX™ 20K, and MAX®. Alcatel is also an Altera Megafunction Partner

Program (AMPP<sup>SM</sup>) member, offering Ethernet media access controller (MAC) intellectual property optimized for use with Altera FPGAs. In Alcatel, Altera has an aggressive partner that demands excellence from its suppliers in order to lead the telecommunications field. Altera's commitment to providing Alcatel the best programmable solutions is reflected in their strong, decade-spanning relationship, which has seen both of them rise to become the foremost innovators in their industries.