The Alcatel 7300 Advanced Services Access Manager (ASAM) uses DSL technology to deliver high-bandwidth access and new revenue-generating broadband services over existing telephone wiring. It combines high density with the lowest power consumption per ADSL line on the market. It provides the capacity to meet residential needs for gaming, video streaming, VoD, and home office support. It also meets the demand for business-quality access, VPNs, Internet and email hosting, video conferencing, and security features.
With 20 million ADSL lines shipped, Alcatel is number 1 worldwide in digital subscriber line (DSL) technology. Our DSL service is the most cost-effective solution for delivering value-added applications over the last mile to customers.

Simply providing network connections is no longer enough. Service providers must also deliver value-added services to satisfy changing customer needs and expand revenue generating opportunities.

There is a growing demand for services beyond voice and basic Internet access. Bandwidth-hungry applications like high-speed Internet (HSI), audio and video streaming, video on demand (VoD), gaming, and services to support businesses and telecommuters are becoming increasingly important.

Customers expect these services not just in urban centers, but also in remote, even isolated locations. With this shift in the expectations of residential consumers, and small- and medium-sized enterprises (SMEs), come new opportunities for service providers.

To ensure success, providers need efficient, reliable service activation and provisioning, billing, quality of service (QoS), and performance monitoring for managing service level agreements (SLAs) and maximizing bandwidth utilization.

Alcatel, with its market leadership position in DSL, provides creative solutions tailored to deliver these new, high demand services. Our experience and ability to offer a vast range of differentiated services gives our customers a host of opportunities to maximize the revenue generating potential of their capital and operational investments.
High-speed Internet access is the foundation of broadband networks. It takes more than access, however, to attract and retain new customers. Service providers need an access management platform that:

> Enables advanced revenue-generating services for business and residential customers
> Protects existing investments
> Provides guaranteed bandwidth

The Alcatel 7300 Advanced Services Access Manager (ASAM) is the answer for broadband copper-based deployment, offering:

> Multiple classes of DSL service
> Interoperability with legacy equipment
> Multiple ATM QoS capabilities
> IP functionality

With the largest installed base of DSL access multiplexers (DSLAMs) in the world, Alcatel designed the Alcatel 7300 ASAM to seamlessly integrate with existing systems. Service providers can mix the Alcatel 7300 ASAM shelves with installed shelves like the Alcatel 1000 ASAM. This creates a single system that delivers enhanced functionality while preserving past investments.

Beyond hardware interconnectivity and software consistency, these integrated systems share a single management system, simplifying the integration of the Alcatel 7300 ASAM into their network.
The Alcatel 7300 ASAM features a wide variety of interfaces. They include DSL interfaces (asymmetric DSL (ADSL), G.lite and g.SHDSL), network interfaces (DS3, OC-3, and 10/100Base-T), and subtending interfaces (DS1 inverse multiplexing over ATM (IMA), DS3 and OC-3).

This highly deployable platform offers a port density of up to 24 lines per card. The Alcatel 7300 ASAM scales to 5,000 lines per network interface. It features the lowest power consumption levels on the market, at just 1 Watt per ADSL line.

The advanced features of the Alcatel 7300 ASAM include support of virtual circuit (VC) aggregation, switched virtual circuits (SVCs), IP multicast, virtual private networks (VPNs), multiprotocol label switching (MPLS), and multiple levels of ATM QoS.

The Alcatel 7300 ASAM is a true carrier class device, offering integrated test access and redundancy. It can operate in extreme temperatures and is listed with Underwriters Laboratories (UL).

The Alcatel 7300 ASAM can contain as few as 12 DSL lines, or as many as 2,592 lines sharing a common network interface. This number can go up to 5,000 by subtending shelves. An Alcatel 7300 ASAM can manage the Alcatel Remote Access Multiplexer (RAM), other Alcatel 7300 ASAMs, and the Alcatel 1000 Mini-Remote Access Multiplexer (Mini-RAM). This extends the reach and capabilities of DSL to remote customers and increases the number of customers served by a single network interface.
<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
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<tr>
<td>Best performance</td>
<td>The industry’s best performance for speed and distance.</td>
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<tr>
<td>High port density</td>
<td>More users can be served from a single network interface, lowering operating cost per customer.</td>
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<td>Highly scalable</td>
<td>From one network interface, scalable from 12 or 24 lines, to 5,000 including all splitters. Reaches more potential customers.</td>
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<td>Lowest power consumption (1 Watt per ADSL line)</td>
<td>Reduced costs and improved bottom line.</td>
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<td>Multiple ATM QoS classes</td>
<td>Gives providers exceptional flexibility in service offerings.</td>
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<td>Multiple DSL types (CBR, UBR and UBR+, rt-VBR, nrt-VBR, and GFR)</td>
<td>Enables providers to deliver the right service to a diverse customer base.</td>
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<tr>
<td>Multiple network interfaces (OC-3, DS3, 10/100Base-T, 100Base-T)</td>
<td>Gives service providers the flexibility to choose between several options for network termination.</td>
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<td>ATM-based point-to-multipoint</td>
<td>Enables the efficient use of bandwidth to support applications, such as VoD and distance learning, that require streaming video or audio.</td>
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<td>PVC and SVC support</td>
<td>Improves traffic efficiency and simplifies provisioning.</td>
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<td>ISM — BRAS functionality</td>
<td>Provides IP routing, VC aggregation, high-speed LAN interfaces, IP multicast support, dynamic service selection, and value-added services such as VPN support. The ISM is equipped with 4 x 10/100Base-T ports for network termination.</td>
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<td>Carrier class ANSI/NEBS equipment</td>
<td>Temperature hardened, true carrier class device provides the highest industry safety and operational standards, as evidenced by its NEBS certification.</td>
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<td>Integrated test access</td>
<td>Streamlines and accelerates deployment, improves customer satisfaction, and reduces operational costs.</td>
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<td>Multiple levels of redundancy</td>
<td>Avoids single points of failure.</td>
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<tr>
<td>Interoperability</td>
<td>Compatibility with a wide range of customer premises equipment (CPE) ensures continued successful deployment for service providers and consumers.</td>
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<tr>
<td>Local Ethernet management</td>
<td>Front-access Ethernet port allows an out-of-band management connection from an Ethernet LAN and serves as a second operations, administration and maintenance path.</td>
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<tr>
<td>Solutions for remote deployments</td>
<td>The compact Alcatel 7300 LP UD and HD share the enhanced functionality of the Alcatel 7300 ASAM. They make it possible to reach 100 percent geographic coverage and deliver ADSL and SHDSL to less densely populated areas located far from the central office (CO).</td>
</tr>
<tr>
<td>Backward compatibility</td>
<td>Preserves the customer’s investment.</td>
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The Alcatel 7300 ASAM may be configured in a network as a host supporting multiple remote Alcatel 7300 ASAMs using the subtending interfaces. Figure 2 illustrates a network configuration where the host Alcatel 7300 ASAM serves the following functions:

- A local DSLAM serving customers directly connected to the CO
- An aggregation and service node for remote Alcatel 7300 ASAM LP HD or UD, Alcatel 1000s and Alcatel Mini-RAMs

The Alcatel 7300 ASAM is highly scalable, allowing service providers to reach more potential DSL customers for small to large system deployments. The capacity of small systems can be extended easily to meet growing demand.

The IP Services Module (ISM) expands the power of the Alcatel 7300 ASAM. It is the first of this line of products to offer IP and broadband remote access server (BRAS) functions and features like IP multicast, VC aggregation, and local Ethernet connectivity in the access network. The ISM is a two-slot line termination card that slides into the front of the Alcatel 7300 ASAM.

The ISM enables video multicast services with Internet group management protocol (IGMP) at the edge. This significantly increases delivery capabilities and reduces network congestion. The growth of broadband services like video is driving the requirement for more intelligent IP-based devices that provide differentiated access services.

Figure 2: Network Configuration
As more ADSL technology is deployed, scalability and efficiency become critical issues. The ISM is a multiservice access concentrator platform that provides termination of ATM encapsulation, session management, and IP layer filtering and forwarding. The adapter optimizes provisioning and network management with VC aggregation while it opens Ethernet connectivity to the Alcatel 7300 ASAM, providing open access to both ATM and IP networks for distributed content servers.

Figure 3 illustrates a network configuration where the Alcatel 7300 ASAM equipped with an ISM provides VC aggregation. This eliminates the burden of large-scale VC management for the ATM and BRAS nodes. Note that a single VC is provisioned per ASAM (not per customer).

With the Alcatel 7300 ASAM, the capacity of small systems can be extended easily to meet growing demand. The systems can be deployed in office buildings, and they are temperature hardened to be reliably deployed in extreme environments.

Figure 3: Alcatel 7300 ASAM Subtending Options
For service providers, process optimization is of the utmost importance. Every dollar saved in network operations is directly converted to cash flow. More than 42 percent of service providers’ DSL deployment costs are from network operations. Floor space and power consumption have a significant impact on service providers’ expenses. The Alcatel 7300 ASAM minimizes these costs with very high density and the lowest power consumption per ADSL line on the market.

**Access Network Provisioning**

The Alcatel 7300 ASAM, Alcatel 5620 Network Manager (NM) and Alcatel 5526 AMS Element Manager simplify operational processes. The Alcatel 5620 NM has the ability to manage CPE, reducing site visits and service time. The Alcatel 7300 ASAM also features advanced plug-and-play functionality and automated CPE configuration on the DSL and ATM layers.

DSL deployments can require in-depth troubleshooting. If subscriber loops are too long, they may be unsuitable for DSL service. Load coils, bridge taps, or wideband noise on the line can cripple DSL service performance. Diagnosing such problems may require costly truck deployments and the expertise of senior technicians. This may result in delays of several weeks, dissatisfied customers, lost revenues, and higher operational costs.

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**Figure 4: Multicast Video Streams with the Alcatel 7300 ASAM for High Bandwidth IP Video Applications**

![Diagram of Multicast Video Streams with the Alcatel 7300 ASAM](image.png)
To overcome these issues, service providers need a streamlined deployment process. Alcatel’s integrated test capabilities provide visibility of the entire network before lines are put in service. This allows line qualification without false positive or false negative results.

Better tools can help providers qualify, test, and troubleshoot DSL services more efficiently. Tools that can be used proactively help service providers identify potential customers and eligible services and to pinpoint problems early. As a result, installations proceed smoothly and quickly, with minimal deployment delays and lower operating costs.

The Alcatel 7300 ASAM is part of a complete Alcatel test solution that includes market-leading, state-of-the-art broadband test systems.

**Unsurpassed QoS**

The Alcatel 7300 ASAM supports permanent virtual circuit (PVC) connections provisioned by network operators, and SVC connections set up and managed by the user application when needed. Users gain greater flexibility in accessing multiple applications offered by various content providers. Network operators gain traffic capacity and simplified provisioning.

The Alcatel 7300 ASAM is built around an ATM architecture that supports a variety of ATM service classes including constant bit rate (CBR), unspecified bit rate (UBR and UBR+), real time and non-real time variable bit rate (rt-VBR and nrt-VBR), and guaranteed frame rate (GFR). This gives service providers exceptional flexibility in service offerings. These offerings can range from low-cost, low-priority residential services to premium business access with large bandwidth requirements, such as LAN-to-LAN, VPNs, streaming video, and audio. All of these service offerings have guaranteed performance.
The Alcatel 7300 ASAM is the next step in the evolution of DSL deployment. With its flexible interfaces, ease of deployment, carrier class service capabilities, and advanced networking features, it meets the many challenges of DSL networking today and for the future.

The Alcatel 7300 ASAM family provides:

- An open platform that supports a variety of DSL services
- Very high density and the lowest power consumption per ADSL line on the market
- Connectivity to a variety of network services, such as voice, IP, ATM, video and more
- Protection of existing investments with easy migration from previous releases simplifying the integration of the Alcatel 7300 ASAM into the existing network

- Maximum geographic coverage delivering bandwidth and services economically to remote areas with a comprehensive range of remote solutions
- DSL CPE autoprovisioning and simplified end-to-end provisioning and connectivity through the Alcatel 5620 NM, for faster customer activation
- Integrated test capabilities that provide visibility of the entire network and accurate line qualification before lines are put in service