Alcatel 7300 ASAM

Advanced Services Access Manager
(ETSI Version) | Release 4.3/4.4

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 capacity to meet residential needs for gaming, video streaming, VoD, and home offices. It meets business demands for business-quality access, VPNs, Internet and email hosting, video conferencing, security features, and direct connection to ATM or Ethernet networks.

DSL: DELIVERING THE POWER OF THE CORE **TO THE EDGE**

With more than 19.3 million ADSL lines shipped, Alcatel is number 1 worldwide in DSL.

Our DSL service is the most cost-effective solution for delivering value-added applications over the last mile to end customers.

Simply providing network connections is no longer enough. Service providers who started with high-speed Internet (HSI) access are now delivering value-added services that lead to fast revenue generation, such as gaming, and streaming video and audio in the residential market. Business customers are now buying IP virtual private networking (VPN), virtual office, high bandwidth legacy services over digital subscriber line (DSL), and toll-quality packetized voice services.

As DSL service providers continue to focus on broadband services, the next step will be entertainment services, such as video on demand (VoD) and high quality video broadcast. These services, combined with additional voice lines provided by voice over DSL (VoDSL), enable service providers to tailor a host of appealing new options for residential and business customers.

Alcatel, with its market and technology leadership, provides solutions that deliver high revenue services, while providing a network architecture that helps the service provider reduce operating expenses by controlling and minimizing activation and provisioning times. The ability to offer differentiated services gives DSL providers new opportunities to increase revenues.

> DSL is the most cost-effective way to offer new broadband applications to the mass market

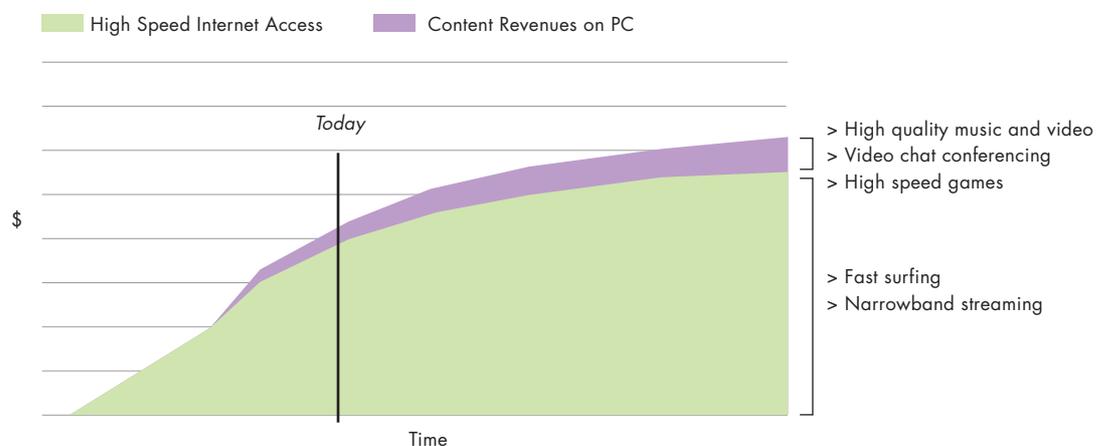A broadband platform that delivers a range of compelling services to business and residential customers

DSL enables customers to take advantage of the existing copper base in their geographic area. It is the most cost-effective way to offer new applications to the mass market. Operators can offer DSL applications as a portfolio of services, with end users choosing the service type that best matches their needs. As a result, hundreds of educational, residential, business and government applications, enhanced by DSL technology, can be marketed effectively and strategically.

An increase in bandwidth can generate a wealth of new ideas and applications. Alcatel DSL offers the biggest increase in bandwidth to date. The potential for new applications is tremendous, and many are yet to be imagined. Service providers are looking for entertainment applications, such as gaming, already in place in some countries,

video streaming and video on demand, together with the implementation of services to support the growing number of home offices. These value-added services will offer tremendous benefits to the whole family.

The needs of small to medium sized enterprises (SMEs) must also be addressed. They require greater bandwidth, business-quality access, voice services, virtual private networks (VPNs), interconnection of multiple sites, intranet and extranet, Internet and email hosting, video conferencing, e-commerce, security features such as firewall management and virus checking. They will also benefit from multi-pair g.SHDSL, optional inverse multiplexing (IMA) bundling, and the new capabilities that technologies such as ADSL+ and VDSL will create.

Figure 1: Incremental Evolution of Services for PC Users

> High quality music and video
> Video chat conferencing
> High speed games

> Fast surfing
> Narrowband streaming

High Speed Internet Access Content Revenues on PC

Today

$

Time

Alcatel provides the infrastructure to deliver these new services by offering a wide range of products from DSL access multiplexers (DSLAMs) to a complete suite of products for successful network management. With Alcatel's end-to-end DSL solution, DSL connectivity has never been so easy.

Alcatel is the leading worldwide supplier of DSL technology with extensive experience in helping service providers succeed in an increasingly competitive environment. This experience was drawn upon to infuse the Alcatel 7300 Advanced Services Access Manager (ASAM) with new functionality to meet the demands of residential and business DSL customers. The Alcatel 7300 ASAM, today's industry leading DSLAM, is designed with the sophisticated functionality that service providers need to maximize their portion of the broadband access market.
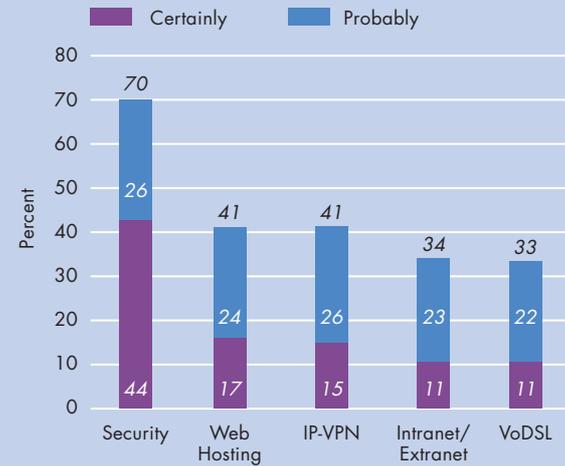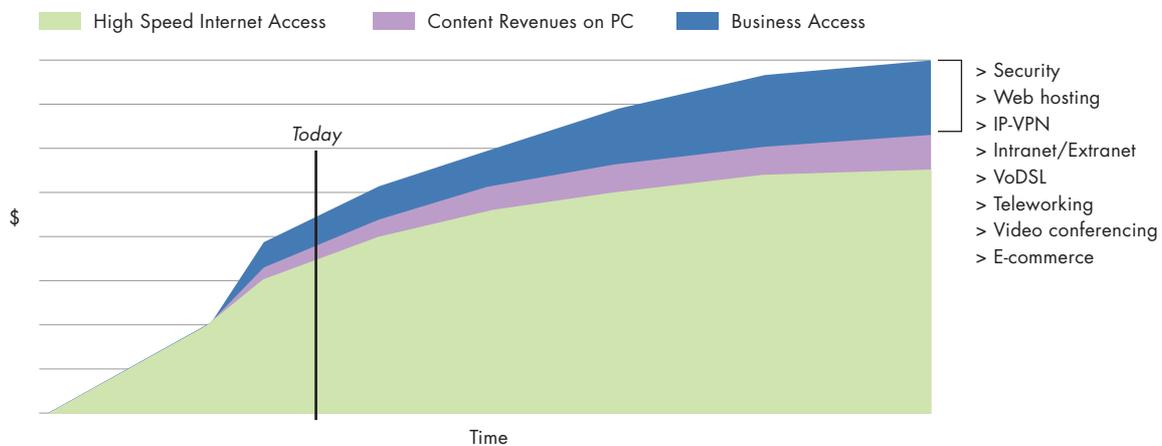
Figure 2: SME Survey Example for Value Added Services

Figure 3: Maximizing Revenues with Business Access Services

IN DSL **DEPLOYMENT**

An open broadband
platform designed to
seamlessly integrate
with existing field
deployments

From a service perspective, the unprecedented growth in DSL has largely been driven by the demand for HSI access. However HSI service alone will not adequately differentiate service providers to retain and attract new customers. To effectively compete while creating new revenue generating services, providers need a broadband platform that will enable them to offer a range of compelling services to their diverse base of business and residential customers.

This will require an open platform that:
> protects existing investments
> enables advanced revenue-generating services for business and residential customers
> ensures maximum geographic coverage
> simplifies DSL provisioning and connectivity for faster customer activation

The Alcatel 7300 ASAM is an open platform. It is the answer for broadband copper-based deployment, offering:
> support for multiple classes of DSL service, including ADSL, VoDSL, g.SHDSL, VDSL, and evolving to ADSL+, the further evolution of VDSL, and passive optical networks (PONs)
> multiple IP and asynchronous transfer mode (ATM) quality of service (QoS) capabilities
> performance monitoring for managing service level agreements (SLAs) in the business area

From a network deployment perspective, service providers need the flexibility to choose between several network connectivity options such as ATM, Ethernet, or IP. They also need to reach customers in remote areas.

The Alcatel 7300 ASAM supports a wide variety of network interfaces, such as ATM, STM-1, E3, E1 and Ethernet. This gives service providers the flexibility to choose between many options for edge and backbone networks.

Figure 4 illustrates DSL aggregation solutions.

The evolution of the Alcatel 7300 ASAM ensures backward compatibility with previously deployed Alcatel 7300 ASAM releases, creating a single network that delivers enhanced functionality while preserving past investments.

Alcatel has the largest installed base of DSLAMs in the world, with 19.3 million ADSL lines shipped — almost four times as many as the nearest competitor. The Alcatel 7300 ASAM is designed to seamlessly integrate with existing field deployments. Beyond hardware interconnectivity and software consistency, the easy migration from previous releases to new releases is provided through the Alcatel 5620 Network Manager (NM) and the Alcatel 5523 Element Manager (AWS), simplifying the integration of the Alcatel 7300 ASAM into the existing network.

Figure 4: Aggregation for HSI Service
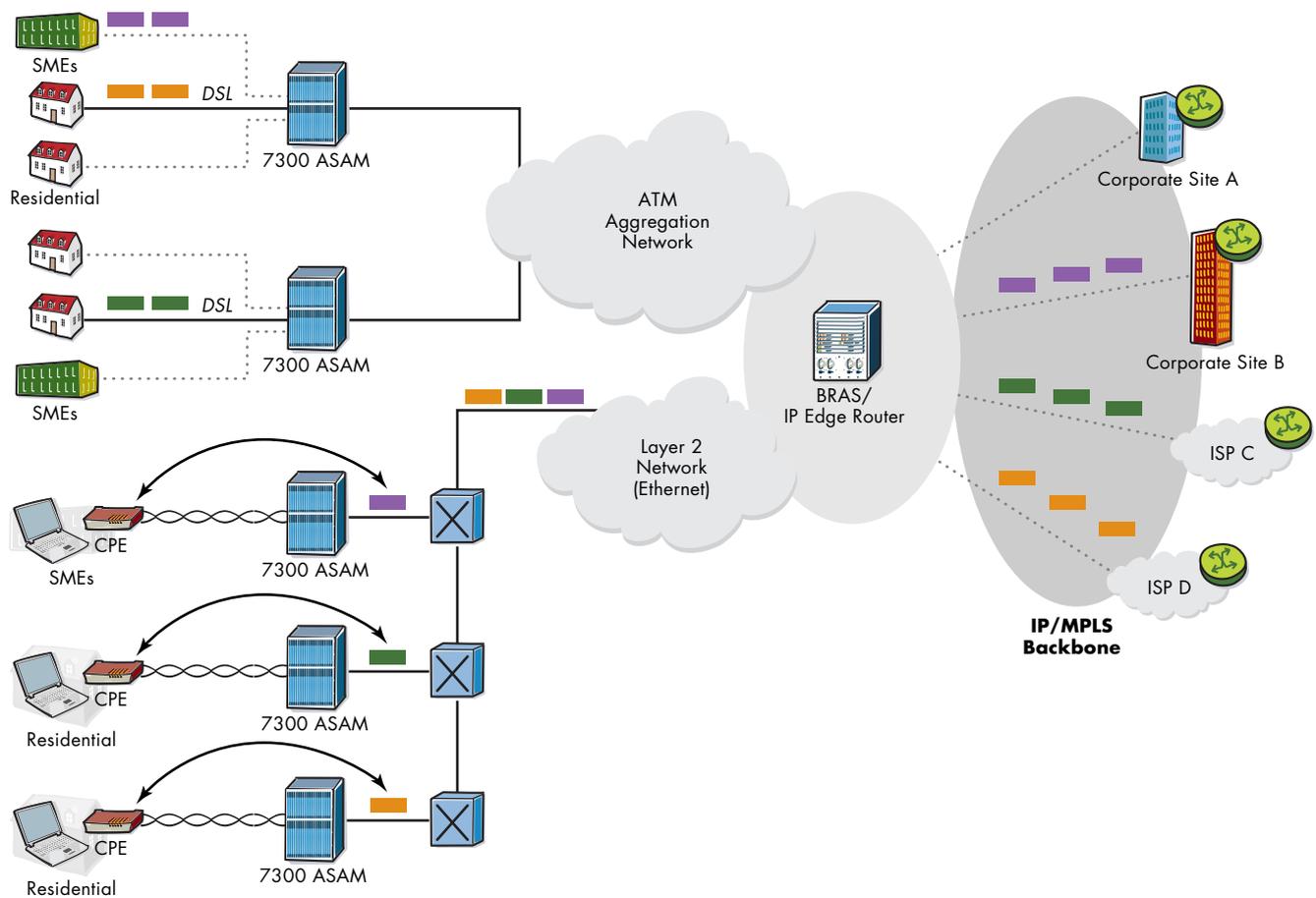
EXTENDING
NETWORK COVERAGE

The next step in DSL deployment that service
providers are putting in place is the extension
of DSL network coverage to reach all potential
DSL subscribers in low penetration areas.

The Alcatel 7300 ASAM is highly scalable. To
achieve maximum reachability in remote areas
and to economically get full ADSL coverage,
the Alcatel 7300 ASAM can be configured as a
host supporting multiple remote 7300 ASAMs
through optical and electrical subtending
interfaces (see Figure 5).

Subtending options can include:
> a local Alcatel 7300 ASAM serving customers
   directly connected to the central office

> remote Alcatel 7300 ASAM-o outdoor
   street cabinets
> Alcatel 7300 ASAM-c compact indoor
   or outdoor units
> small remote units
> micro DSLAMs

The Alcatel 7300 ASAM-o and 7300 ASAM-c
can also be configured as aggregation nodes for
remote Alcatel 7300 ASAMs. 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 5: Alcatel 7300 ASAM Subtending Options**
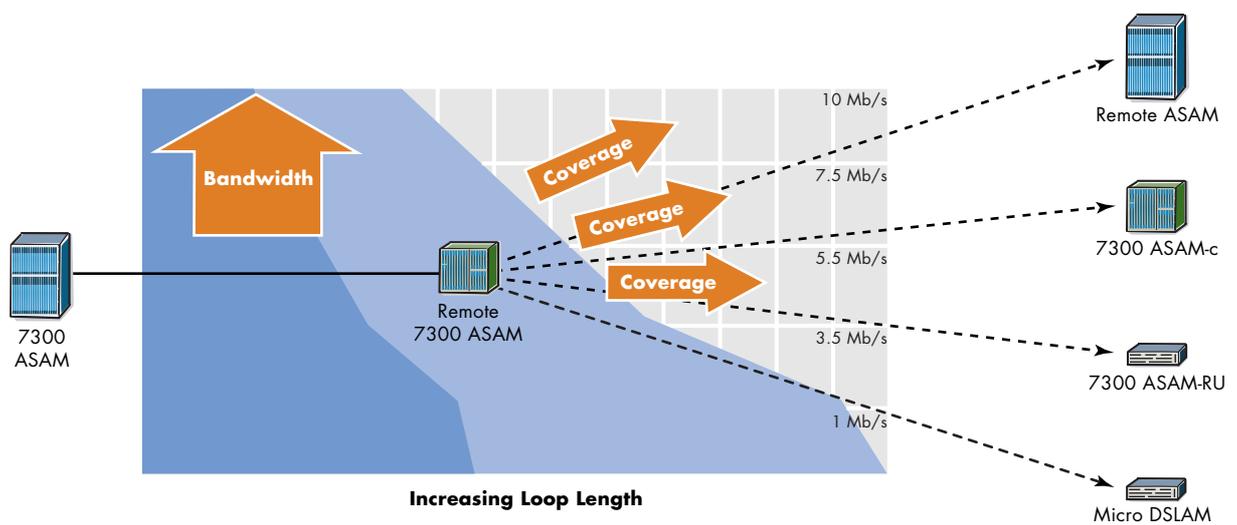
UNIVERSAL DSLAM

The Alcatel 7300 ASAM provides an evolutionary path to a next generation voice and data network. It supports legacy applications while enabling a gradual transition from circuit to packet-based networks.

Today we provide access to traditional voice switches. The Alcatel 7300 ASAM also enables voice and data on a single DSL connection through integrated Voice over DSL (VoDSL) cards, or the centralized Alcatel 7310 Loop Voice Gateway (LVG) . This enables a direct V5.2 interface accessing voice switches. In the future, we will open the voice traffic to a next generation switching platform (H.248 / Megaco).

> A solution that enables voice and data network convergence, and an evolutionary path to a next generation switching platform

Figure 6: Bundling Voice and Data Services in Centralized or Distributed Network Architecture
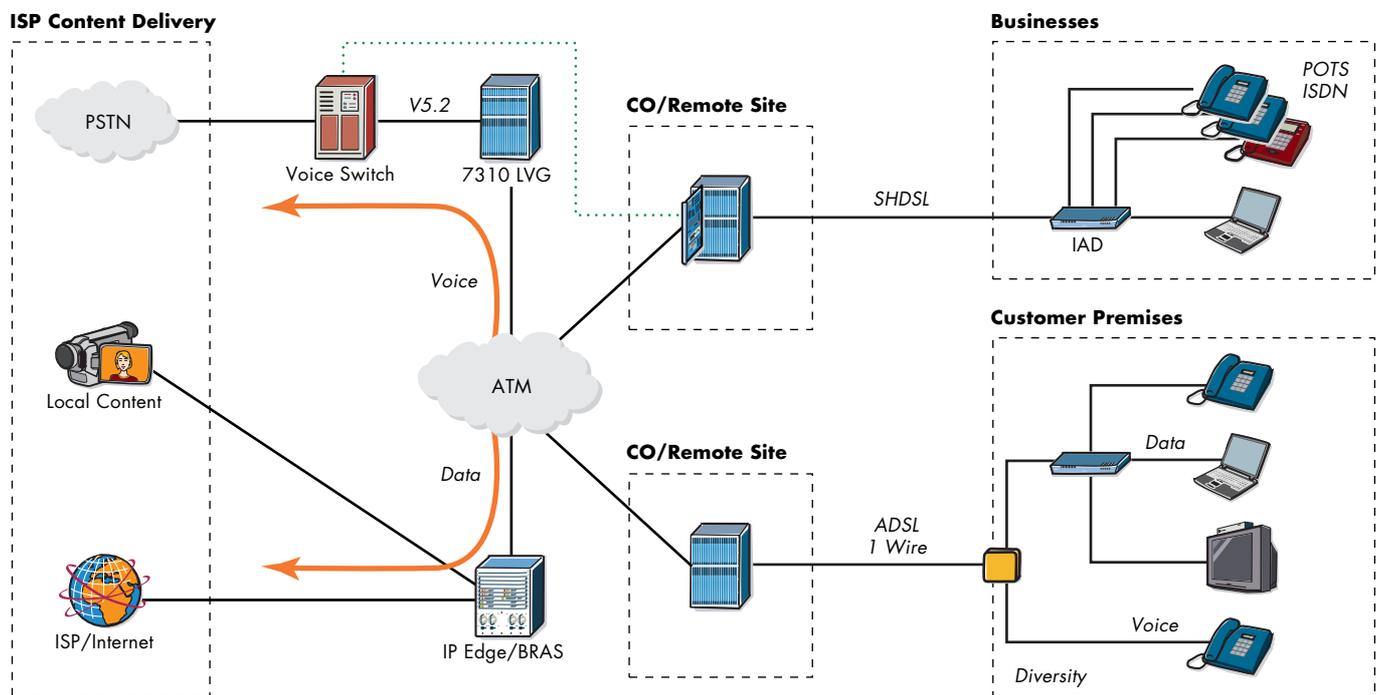
MULTIMEDIA SERVICE **DELIVERY**

Standards-based
end-to-end solution
for multimedia
services

In order to maintain and expand their customer base, and increase revenues, service providers can take advantage of the installed ADSL base to offer broadband services such as streaming video, VoD, PC TV, and other value-added services.

Alcatel has created an end-to-end standards-based solution for video services, such as personal video, broadcast TV, VoD, and e-commerce. The Alcatel 7300 ASAM is ready for video applications on various end-user platforms, such as personal computers and televisions. It has been deployed in various places to provide advanced VoD services, but also can be used for cost-optimized video broadcast because of the built-in multicasting functionality. This eliminates replicated traffic in the network. Services can be delivered closer to the end users with optimal network performance ensured, and users can selectively join or leave real-time audio or video multicasts.

Figure 7: Multicast Video Streams with the Alcatel 7300 ASAM for High Bandwidth IP Video Applications
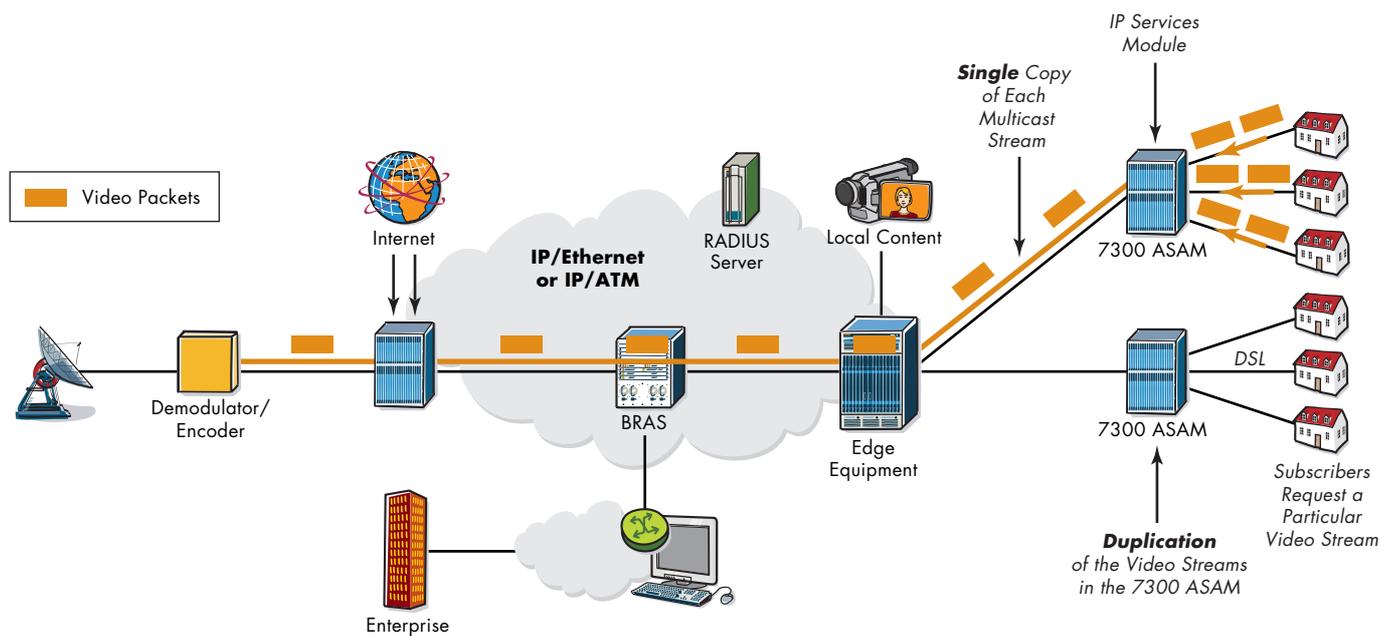
OPTIMIZED
DEPLOYMENT AND TESTING

DSL deployments can require in-depth trouble-shooting. 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 deploy-ments and the expertise of senior technicians. This may result in delays of several weeks, dissatisfied customers, lost revenues, and higher operational costs.

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 for accurate line qualification.

Better tools can help providers qualify, test, and troubleshoot DSL services more efficiently. Tools that can be used proactively help service providers to identify potential customers and eligible services, and 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.

Advanced plug-and-play functionality and automated CPE configuration

REDUCING OPERATING COSTS

End-to-end manage-
ment solution that
achieves maximum
flowthrough provision-
ing and activation
rates, optimizing the
operational processes
involved in customer
activation

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 (see Figure 8). Floor space and power
consumption have a significant impact on service
providers' expenses. The Alcatel 7300 ASAM
minimizes these costs with very high line density
per board and the lowest power consumption
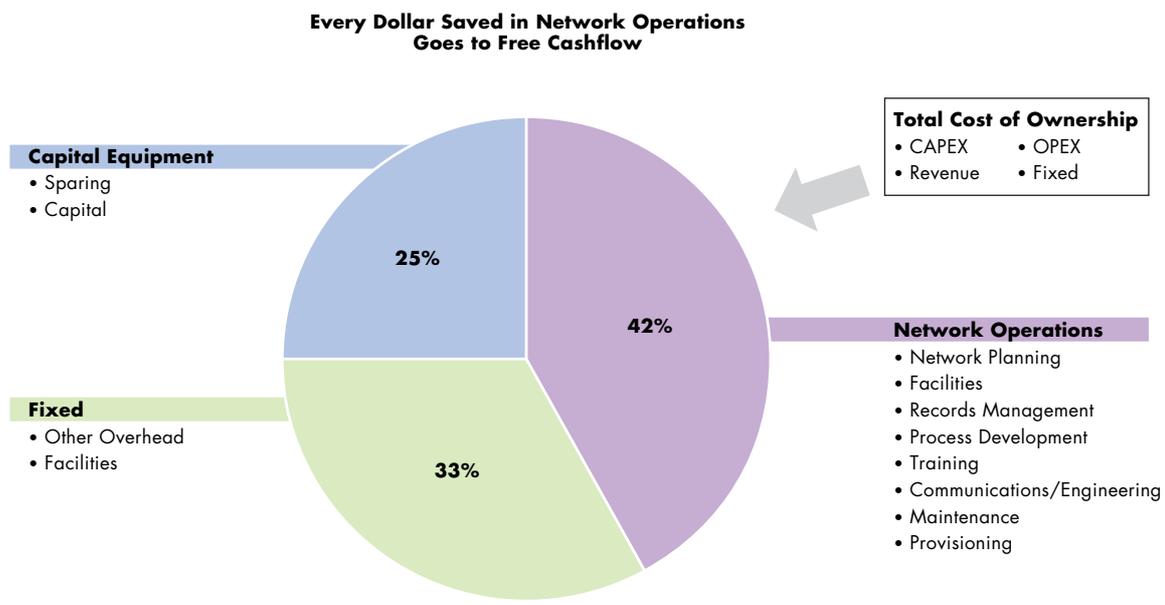per ADSL line on the market.

Access Network Provisioning

The Alcatel 7300 ASAM, Alcatel 5620 NM and
Alcatel 5523 AWS simplify operational processes
in DSL deployment.

> Without OSS automation and using the Alcatel
  5523 AWS for element management, only 2
  minutes and 47 seconds are needed for end-to-
  end service provisioning. Up to 172 customers
  can be activated in 8 hours.

> With OSS automation, using the Alcatel 5620
  NM, provisioning is 100 percent accurate on
  the first pass, and only 38 seconds are needed
  for end-to-end service. Established service
  providers have achieved flowthrough provi-
  sioning and activation rates of 35,000 DSL
  subscribers provisioned in less than one week,
  and 20 end-to-end paths configured per minute.

> The Alcatel 5620 NM has the ability to manage
  CPE, reducing site visits and cutting service
  time to 5 minutes vs 2 hours for services to
  business customers.

> The Alcatel 7300 ASAM also features advanced
  plug-and-play functionality and automated
  CPE configuration on the DSL and ATM layers.

Figure 8: Division of Networking Costs

**Every Dollar Saved in Network Operations
Goes to Free Cashflow**

Capital Equipment
• Sparing
• Capital

25%

Fixed
• Other Overhead
• Facilities

33%

42%

Total Cost of Ownership
• CAPEX   • OPEX
• Revenue   • Fixed

Network Operations
• Network Planning
• Facilities
• Records Management
• Process Development
• Training
• Communications/Engineering
• Maintenance
• Provisioning

Source: Ernst & Young and Yankee Group Studies

TODAY AND TOMORROW

The Alcatel 7300
ASAM is the next
step in the evolution
of DSL deployment

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
> a very high density and the lowest power consumption per ADSL line on the market
> connectivity to a variety of network services, such as ATM, EMAN, IP, local video content and voice
> 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 (Alcatel 7300 ASAM-c, Alcatel 7300 ASAM-o, micro DSLAMs and remote units)
> 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
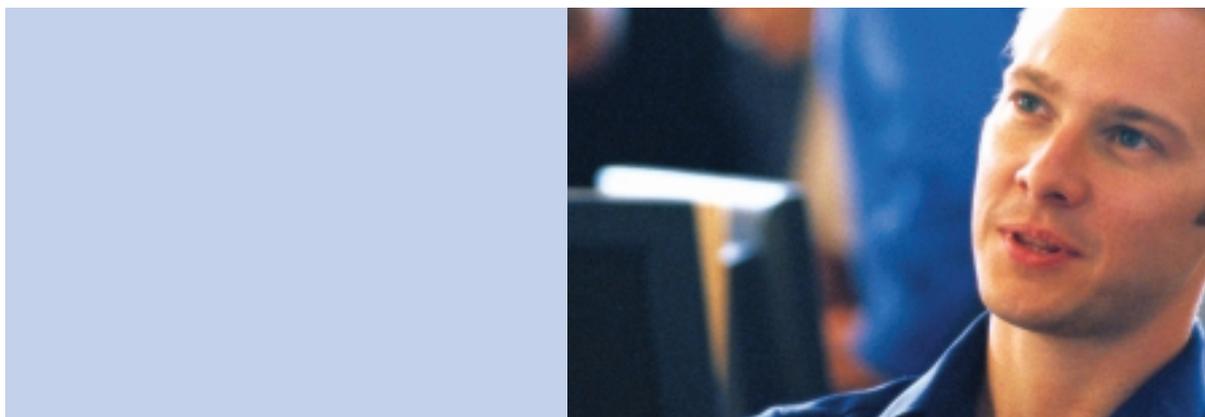
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