ALCATEL **7411**

BROADBAND ACCESS SERVER

As the number of Internet users increases and networking technology advances, the telecommunications industry has evolved to accommodate mass-market broadband users who require Internet access via a range of physical interfaces. Even more evident is the new reality that end users are demanding "high value services" — beyond simple broadband. And no one has anticipated this new market better than Alcatel, Architects of an Internet World.

The Alcatel 7411 Broadband Access Server (BAS), is a carrier class high performance platform that not only enables large-scale DSL or LMDS deployments, but also gives service providers the flexibility to offer profitable high value services.

High availability, nonstop operation

ALCATEL

ARCHITECTS OF AN INTERNET WORLD

Product highlights

- 10- or 16-slot chassis for aggregation of thousands of broadband subscribers
- Distributed forwarding architecture for scalable performance
- Priority queues for differentiated service levels
- Central office ready, full redundancy, NEBS-3 compliance
- Several hundred virtual routers for VPNs to customers or service centers
- Enables revenue-generating services, including wholesaling, service selection, and branding/advertising

Where the 7411 Broadband Access Server fits into the network

The 7411 Broadband Access Server (formerly the 7410 BAS) provides scalability and high availability for traffic concentration. The 7411 BAS can aggregate traffic from multiple LMDS base stations or DSLAMs to support tens of thousands of users. In fact, a single BAS shelf can terminate up to 50,000 permanent virtual circuits (PVCs) and up to 20,000 PPP sessions in a PPPoE or PPPoA service architecture. Built on a powerful distributed processing architecture that adds processing as hardware modules are added, its performance can scale with the addition of new ports. The 7411 provides the high availability and fault tolerance required of equipment that is deployed at a critical traffic concentration point in the network.

Something for every provider

The 7411 BAS offers benefits to every type of service provider. Carriers such as RBOCs, ILECs, PTTs, CLECs and network service providers (NSPs) can offer wholesale and retail broadband services to their customers — including Internet service providers (ISPs), corporations, and home users. ISPs can terminate many DSL connections from a diverse set of carriers to offer value-added services and Internet access. RBOCs, independent telephone operating companies (ITOCs), ILECs and PTTs can expand the range of services they provide to their large customer base by offering services centered around ADSL and PPPoE/PPPoA. CLECs, NSPs, ISPs and LECs with a strong business focus on enterprise-wide networks can support branch office, SOHO and telecommuter connectivity, as well as Internet access, by providing a service model based on symmetric DSL or on LMDS technologies.

Unmatched flexibility

Previously, DSL network architectures tied each DSL line to a specific service, but the 7411 BAS masks differences between DSL implementations. As a result:

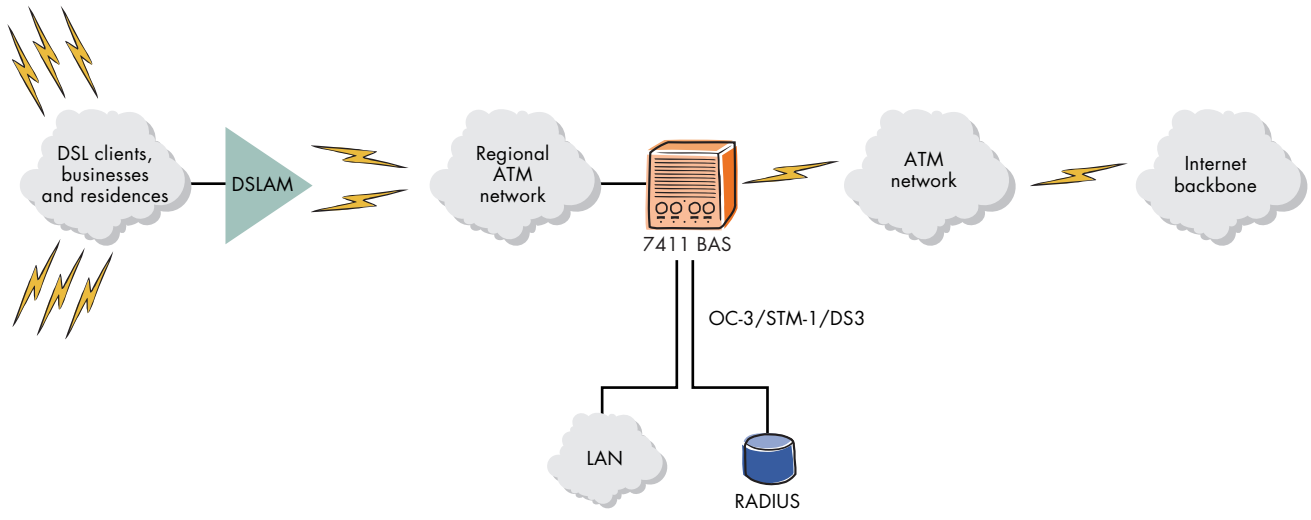
- ISPs can purchase Internet access services from multiple LECs — even if each LEC uses a different type of DSL.
- Access providers are not affected by subscribers changing NSPs.
- NSPs are not affected by subscribers changing access providers (subscriber churn). A 7411 BAS can be placed almost anywhere in a local network to process Internet sessions.

Scalability

The 7411 Broadband Access Server offers scalability in both performance and ports. A single BAS shelf can terminate up to 50,000 PVCs and up to 20,000 PPP sessions.

DSLAM interoperability

The 7411 BAS provides interoperability with DSLAMs from leading manufacturers, ensuring proper performance of traffic aggregation as DSL access providers build out their networks.



Broadband technology transparency
DSLAM interoperability yields DSL technology transparency to ISPs and NSPs — allowing wide geographic coverage for DSL-based services. NSPs and ISPs can offer services based on the DSL technologies that best match their customers' applications — allowing the full range of ADSL, HDSL, IDSL, RADSL, SDSL and other DSL technologies that are available to applications in single-home user, small branch office, SOHO environments and large corporate networks.

The 7411 can also terminate traffic from other broadband networks such as LMDS, and can be used to terminate L2TP tunnels originating in other access servers. In this case, the 7411 BAS is used as an L2TP network server (LNS).

Flexibility in service architectures
The 7411 BAS features several interfaces to support service architectures based on ATM and Ethernet transport. It supports OC-3/STM-1, E3 and DS3 ATM interfaces, and UBR, CBR, nrt-VBR and rt-VBR traffic classes. For ATM transport service architectures, the 7411 BAS includes RFC 2364, PPP-over-AAL5 (ATM), and RFC 2684 multiprotocol encapsulation over ATM AAL5 for bridged and routed traffic.

For Ethernet service architectures, it includes RFC 2516 for PPPoE support.

Operation simplification
The 7411 Broadband Access Server provides a simplified operations interface between Layer 2 network functions performed by broadband access providers and Layer 3 network functions traditionally performed by ISPs.

High reliability and fault tolerance
The 7411 BAS provides the high availability, nonstop operation, and carrier grade quality (with redundancy in buses, power supplies, fans, and control modules) that are ideal for equipment deployed at a critical traffic concentration point in the network.

Ownership versatility
The 7411 BAS decreases the total cost of ownership through easy installation and cost-effectiveness, and it can be owned by an ILEC, CLEC, NSP or ISP. Even better, it can be placed anywhere in the local access network to accommodate a variety of service models and operations requirements — from placement in a carrier's central office, a CLEC's collocation site or regional center, an NSP's mega-POP, to an ISP's POP. NSPs can wholesale broadband services to customers, whether they are ISPs or corporate network users, and ISPs can terminate broadband connections to offer value-added services and Internet access.

Features

Common Equipment

- 10-slot and 16-slot shelves
- Redundant clock and alarm modules with relay contacts
- N:1 redundant power supplies
- BITS support (16-slot shelf)

Interface Options

- OC-3/STM-1 ATM, multimode and single mode (IR, LR) fiber, SC connector
- DS3 ATM, BNC connector
- E3 ATM, BNC connector
- 10/100Base-T, switched, autosensing Ethernet

ATM Interfaces

- ATM UNIv3.1 PVCs; UBR, CBR, rt-VBR, nrt-VBR traffic classes
- ILMIv4.0/3.1; RFC 2684 encapsulation (bridged and routed PDUs, LLC)
- RFC 2364 (PPP-over-AAL5, LLC and VCmux)
- RFC 2516 PPP-over-Ethernet

Routing

- RIP, RIPv2, OSPF, static routes, routing filters
- BGP-4
- MPLS (RFC 2547 bis)

Virtual Networks and Security

- RADIUS, PAP, CHAP, packet filtering, domain name-based authentication, domain name-based routing, ATMP, L2TP (LAC and LNS) virtual routers, command line identification, local authentication

System and Network Management

- Local/remote (TELNET), command line interface, SNMP, Java EMS on NT and Solaris, HP OpenView integration, syslog support, RADIUS accounting, flash upgrades via TFTP, ASCII configuration files

Physical Description

10-slot chassis
- Height: 44.45 cm (17.50 in.)
- Width: 48.26 cm (19 in.)
- Depth: 44.13 cm (17.38 in.)
- Weight: 20 kg (44 lb.) shelf only, 43.09 kg (95 lb.) fully configured

16-slot chassis
- Height: 88.9 cm (35 in.)
- Width: 44.22 cm (17.41 in.)
- Depth: 38.1 cm (15 in.)
- Standard 48.26 cm (19 in.) /58.42 cm (23 in.) rack-mountable
- Weight: 26.31 kg (58 lb.) shelf only, 54.43 kg (120 lb.) fully configured

Operating Environment

- Operating temperature range: 0 C to 40 C (32 F to 104 F)
- Storage temperature range: -20 C to 65 C (-4 F to 149 F)
- Operating humidity: 0 to 80%, noncondensing

Regulatory Compliance

- UL1950, CSA950, IEC950, CISPR 22, CE Mark
- EN60950, EN55022 Class A, EN50082-1 1997
- FCC Part 15 Class A, FCC Part 68
- NEBS Level 3

Power

- 85 V to 132 V and 170 V to 264 V AC, 50 Hz to 60 Hz or -48 V DC

For more information: www.alcatel.com

3CL 00469 0088 TQZCA Ed.03

ALCATEL

ARCHITECTS OF AN INTERNET WORLD