Bay Networks Access Routers.

Internetworking Made Easy

Easy

Flexible

Affordable

Easy Does It

Easy...flexible...affordable. Three words that don't usually come to mind when you think about integrating routers into your network.

Now that's changed with the Bay Networks family of access routers.

The BayStack™ Access Node (AN®), BayStack Access Node Hub (ANH™), and the Access Stack Node (ASN™) are ideal for connecting remote sites to an enterprise network. And they are equally ideal for satisfying small to medium-sized organizations looking for efficient and reliable WAN connectivity to their own branch offices; to customers, suppliers, and partners; or to the exploding Internet. Featuring a flexible and scalable architecture, support for all major LAN and WAN protocols, powerful industry-leading performance, and Optivity® – the industry's leading network management, configuration, and monitoring system – Bay Networks access router family is the answer to your internetworking needs today and your requirements for tomorrow.

Helping you keep pace with rapid change is the routers' support of Bay Networks Switched Internetworking Services (BaySIS™). BaySIS, an open architecture built on standards, provides a framework for evolving today's internetworks to the future of switched internetworking, while preserving existing networking investments.

6
Easy Pieces

Bay Networks access routers were developed to meet customer demands and the demands of their networks.

1

Ease of use Access routers must be easy to install, configure, and manage.

Bay Networks EZ Internetwork™, part of our Optivity Workgroup™ network management solution, is specifically designed for small to midsized router-based internetworks. This easy-to-use, Windows-based application with its intuitive graphical user interface (GUI) simplifies tasks associated with managing router-based internetworks. It features the Quick2Config™ application, which allows access router configuration files to be quickly and easily created or modified, so the router is operational in minutes. What's more, all Bay Networks access routers support an embedded Ethernet Remote Monitoring (RMON) probe option, which collects data to help analyze overall network performance, topology, faults, usage, and protocol mix.

2

Affordability Access routers must be cost-effective, at the time of purchase, as well as reduce long-term network operating costs.

Reasonably priced and affordable, the AN and the ANH provide proven bandwidth optimization and management functionality associated with large, enterprise networks – Data Compression, Traffic Prioritization, Dial Back-up, Bandwidth-on-Demand, Dial-on-Demand, and Uniform Traffic Filters. Additionally, the ASN offers unique investment protection for growing internetworks by combining the price/performance of a small router to start a network with the capability to build a large, high-performance router through incremental additions based on network growth.

3

Scalability and Flexibility Access routers must have the ability to expand and grow as the need arises, and must also offer the full variety of LAN/WAN options.

Both the AN and ANH offer configuration options for LAN interfaces (Ethernet or Token Ring technology) and serial interfaces (synchronous and ISDN BRI interfaces), providing exceptional network design flexibility. In addition, both routers support standards-based RMON tools that ease problem resolution, enhance interoperability, and protect investments.

The "Pay As You Grow" ASN is Bay Networks next generation stackable routing platform based on the same innovative, highly scalable symmetric multiprocessing architecture of Bay Networks Backbone Node (BN®) routers. Offering the flexibility of modular configurations for site-to-site connectivity, the ASN provides the foundation for smaller network installations that need limited capability today, but will grow in the future.

Further, the AN, ANH, and ASN offer Bay Networks Routing Services (BayRS™), which maximizes connectivity and interoperability by providing support for a wide range of network and bridging protocols and services. BayRS supports all major LAN protocols (IP, IPX, AppleTalk, DECnet, OSI, Banyan VINES, and XNS); the broadest array of WAN protocols in the industry (PPP, Frame Relay, ISDN, X.25, SMDS, ATM, HDLC encapsulation, Dial Back-up, Bandwidth-on-Demand, and Dial-on-Demand); as well as Bridging and IBM's Data Link Switching (DLSw), Advanced Peer-to-Peer Networking (APPN), and BiSync Pass-Thru, thereby enabling the AN, ANH, and ASN to adapt to any network environment.

4

Reliability and Maintainability

A key component of any network, large or small, is network uptime. Redundancy, online operational servicing, and comprehensive dial-up service capabilities are essential.

The AN, ANH, and ASN all feature Bay Networks industry-leading distributed, fault-resilient system software. Features such as hardware fault isolation, software fault isolation and recovery, PCMCIA Flash Memory Partitioning, and dial-up services allow for easy maintenance. The ASN also supports online, "hot-swap" servicing and interface redundancy.

Bay Networks Routing Services (BayRS™) maximizes connectivity and interoperability by providing support for a wide range of network and bridging protocols and services.

5

Performance

Network performance must support application needs.

The AN and ANH are price/performance leaders, maintaining high forwarding and filtering rates across network interfaces. Additionally, management inquiries are processed without affecting performance. The AN/ANH support 4, 8, or 16 MB of DRAM, which is configurable to support customized partitioning between local and global memory. Router software resides in local memory, while global memory is dedicated to packet buffers. Through these reserved buffers, the AN/ANH prevents traffic overflow – and resulting networks delays – caused by large bursts of traffic.

Delivering the high-performance connectivity required for the most demanding internetworks, a 4-unit ASN supports an aggregate forwarding performance of up to 200,000 pps. The ASN's DRAM and Fast Packet Cache hardware options and Dynamic Software Builder and Loader software features help ensure network performance by optimizing individual system memory requirements.
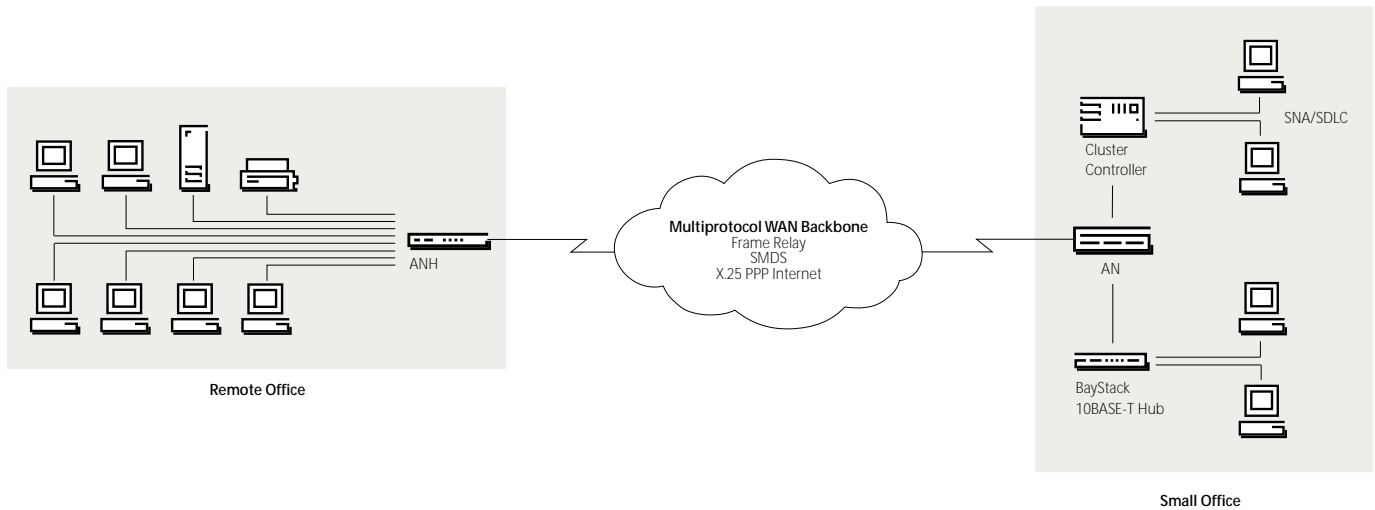
6

Service and Support

Integral to any technology purchase is knowing that the vendor backs its products.

A key part of any business is network service delivery. You know the value of quick response, access to backup resources, and flexibility, and so does Bay Networks. For those who have branch locations anywhere in the world, Bay Networks offers full on-site service with 100% confidence, providing labor and parts delivery via our global network of service partners. No matter what your service requirements are – even 7 days a week, 24 hours a day – Bay Networks and its worldwide partners back you with the right offering of support and technical expertise. You can call Bay Networks directly or your local reseller. The choice is yours.

BayRS
ROUTING SERVICES
BY BAY NETWORKS

Figure 1 | **AN/ANH Network Design Options**

Multiprotocol WAN Backbone
Frame Relay
SMDS
X.25 PPP Internet

ANH

Remote Office

SNA/SDLC

Cluster
Controller

AN

BayStack
10BASE-T Hub

Small Office

Access Node/Access Node Hub

Wide Solutions for Small Businesses

Both the BayStack Access Node (AN) and Access Node Hub (ANH) provide a cost-effective solution for remote offices or for small and medium-sized organizations, ensuring network availability while minimizing network operating costs.

Typical connectivity requirements of remote sites are supported by the AN's LAN interfaces (Ethernet and Token Ring) and serial interfaces (Synchronous and ISDN BRI interface). The fully managed ANH supports either 8 or 12 10BASE-T repeater ports, as well as Ethernet, Synchronous, and ISDN BRI interfaces, reducing equipment and management complexity.

By supporting Synchronous and ISDN BRI interfaces, the

AN and ANH provide design flexibility to networks located in remote locations. For mission-critical applications, the interfaces facilitate Dial Back-up support. Also minimizing WAN service costs, Dial-on-Demand and Bandwidth-on-Demand functionality enable the AN/ANH to extend network availability on an as-needed basis to small remote sites. Further optimizing WAN bandwidth are the AN/ANH's comprehensive traffic

management capabilities, Data Compression, Traffic Prioritization, and Uniform Traffic Filters.

The MC68360 processor used in the AN and ANH's highly integrated design easily maintains high forwarding and filtering rates, regardless of the number of protocols and network interfaces used – even when processing SNMP management inquiries.

The Bay Networks Access Node ensures network availability while minimizing network operating costs.

Access Stack Node

The First and Only Stackable Router

The Bay Networks Access Stack Node (ASN) introduces an innovative stackable router architecture that provides a cost-effective, growth-oriented solution for remote, regional, and departmental locations or medium-sized organizations. By providing a solution that scales up as demand increases, this manageable and stackable solution resolves the tough choice of paying for more than is needed now, or selecting a router that may be fine today but inadequate for tomorrow.

Winner of Data Communications Hot Product Award, the ASN scales to meet higher performance requirements and offers flexible configurations to meet specific application requirements. It is the industry's first and only router that provides the seamless integration of multiple units stacked together for management as a single router. This architecture makes managing a growing internetwork easier because adding interfaces beyond a unit's capacity does not require adding more routers – and complexity – to the network. A stack of four ASNs supports up to 40 network interfaces and provides forwarding performance of up to 200,000 pps, for a superior path for growth.

The MC68040 processor in the ASN's highly integrated design easily maintains high forwarding and filtering rates, regardless of the number of protocols and network interfaces used – even when processing Simple Network Management Protocol (SNMP) management inquiries. The router also supports all major network and bridging protocols, WAN services, and IBM integration services (DLSw, APPN, BiSync Pass-Thru).

Network connectivity is provided by the ASN via a selection of net modules and adapter modules. An ASN can support up to four net modules, supporting Fast Ethernet 100BASE-T, Ethernet 10BASE-T, 4-/16-MB Token Ring, FDDI, Synchronous, and ISDN BRI to meet a wide variety of connectivity requirements. Wide area services including PPP, X.25, Frame Relay, SMDS, HDLC encapsulation, and ATM DXI are supported by the ASN's Synchronous interface.

Up to four ASNs can be interconnected using the external cabling scheme, Stack Packet Exchange (SPEX™), which is available in two types – SPEX-HS and SPEX. For online operational servicing, SPEX-HS allows individual ASNs to be inserted and removed without affecting the operation of the remaining stacked units and operates the interconnect bus at 256 Mbps. A second SPEX-HS can be used for redundancy and reduced latency. The two SPEX-HS configuration operates at 512 Mbps, further reducing bus contention and data transfer time. The SPEX cable provides 160 Mbps operation and represents an entry level to stacking where economy is key and hot-swapping is not required.
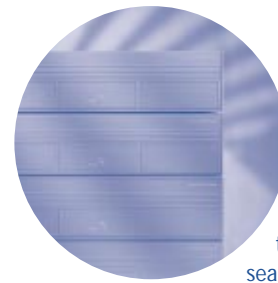
ASN is the industry's first and only router that provides the seamless integration of multiple units.

Figure 2 | **ASN Network Design Options**
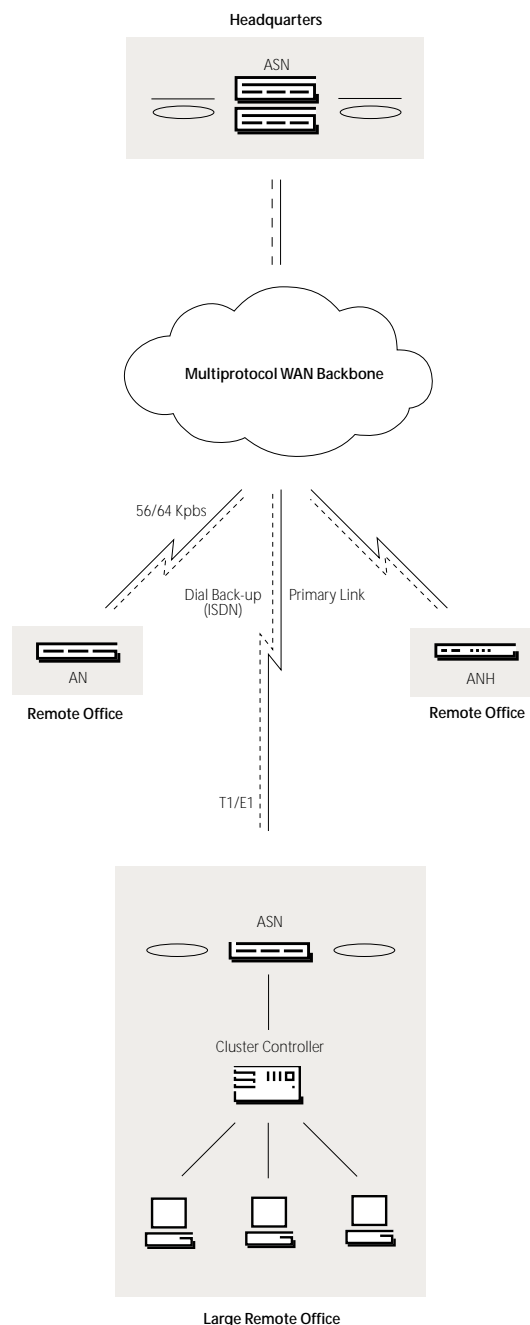
AN

↳ Cost-effectively extends network connectivity for remote offices and small organizations

↳ Supports all popular LAN and WAN protocols

↳ Provides shared WAN access to workgroups requiring the "firewall" security of operating on separate Ethernet LANs

ANH

↳ Offers integrated router-hub functionality in a single unit for a "network in a box" solution

↳ Maximizes network connectivity through remote workgroup support and multivendor hub compatibility

↳ Supports all popular LAN and WAN protocols

ASN

↳ First and only stackable router for "pay as you grow" cost efficiency

↳ Stack managed as a single router, simplifying management

↳ Support for up to 40 interfaces in a 4-unit stack

↳ Support for all popular LAN and WAN protocols, maximizing productivity

↳ Full suite of Dial Services for controlling WAN connectivity costs

EZ Internetwork

↳ Quick2Config simplifies router configuration

↳ RouterMan provides real-time, at-a-glance router monitoring and diagnostics

↳ Autodiscovery automatically finds all critical network devices

↳ Workgroup Command Center graphically displays the health, utilization rate, and error-rate percentages of the routers on the network from a single screen

AN
ACCESS NODE

ANH
ACCESS NODE HUB

ASN
ACCESS STACK NODE

OPTIVITY QUICK2CONFIG

Figure 3 | **Optivity Workgroup EZ-Internetwork**

Optivity Workgroup EZ Internetwork

Simple Management. Powerful Results.

Designed for small to medium-sized router-based internetworks, Optivity Workgroup's EZ Internetwork, an integrated suite of three Microsoft Windows-based router management applications, simplifies the tasks associated with managing, configuring, and trouble-shooting router-based internetworks. Composed of Quick2Config, the Workgroup Command Center, and RouterMan™, EZ Internetwork is quickly installed, easy to configure, and features color-coded icons that report device status at a glance.

Further simplifying installation is EZ Internetwork's advanced product installation program, which automatically integrates with existing WINSock-compliant TCP/IP stacks or loads and configures NetManages's Chameleon TCP/IP stack for those users not running with a TCP/IP stack. Therefore, the often complex and time-consuming task of TCP/IP configuration is hidden from the user. What's more, fully integrated, context-sensitive online Help provides new and experienced users alike with the quick reference and guidance needed to answer a variety of questions about network management or the EZ Internetwork application.

Quick2Config allows Bay Networks AN, ANH, and ASN router configuration files to be quickly and easily created or modified. Its intuitive graphical user interface hides the underlying complexities of router configuration, which means that even novice or part-time network managers can get the router configured and operational in just minutes. Additionally, with the Quick2Config Autodiscovery feature, network managers no longer need to know router model numbers or number/types of interfaces to configure a router, because that information is automatically detected and displayed in a simple, graphical format.

RouterMan is a real-time, simple-to-use graphical monitoring and diagnostic application for network routers. It allows the network manager to proactively monitor a router by automatically polling important information. When an interface goes down, the icon automatically changes color to notify the network manager that an event has taken place. By continuously monitoring the router, RouterMan provides early notification of problems before they affect LAN/WAN performance.

At the heart of EZ Internetwork is the Workgroup Command Center (WCC), which provides a consolidated view of the network's routers in a single screen, and delivers graphical and numerical reports on operational status, utilization levels, and error rates for each router.

EZ Internetwork significantly reduces router cost-of-ownership by simplifying complex router configurations, maximizing router uptime, and optimizing router resources.

**Bay Networks –
The Easy Choice**

Bay Networks has an impressive record as an internetworking market leader and innovator by combining customer requirements with engineering expertise and vision. We continue to build on this reputation with our family of access routers. Whether you need to connect remote offices or require site-to-site connectivity, Bay Networks provides the products and services that allow you to cost-effectively meet your goals. We offer the broadest protocol support, unparalleled reliability, and the most flexible and scalable configurations

available today. Add in ease of use and affordability, and Bay Networks access routers are the clear choice.

So if you're in the process of reviewing your internetworking requirements, please call your local Bay Networks representative or local reseller. They'll be happy to help you evaluate your needs and recommend solutions that specifically address those concerns. To meet all networking requirements, Bay Networks offers shared media, multiprotocol routering, high-speed switching, remote access services, and sophisticated network management solutions.

Leadership

Innovation

Expertise

Reliability

Flexibility

3 4

Bay Networks

People connect with us

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