Workgroup Products

BayStack

100 Series 10BASE-T Hubs

Data Sheet

BayStack* 100 Series 10BASE-T Hubs from Nortel Networks offer simple, scalable solutions for supporting growing Ethernet networks.

Delivering industry-standard IEEE 802.3i 10BASE-T connectivity for supporting 10 megabit-per-second (Mbps) Ethernet over unshielded twisted pair (UTP) cabling, the hubs provide a robust, expandable foundation for networks anticipating future growth.

Working with other BayStack products including hubs, switches, routers, and Internet access equipment, the BayStack 100 Series 10BASE-T Hubs provide a cost-effective solution for growing the network.

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FEATURES AND BENEFITS

Scalable from 12 to 260 Nodes

Up to 10 BayStack 100 Series Hubs can be stacked to create a single repeater or collision domain supporting a maximum of 260 nodes, providing a simple, cost-effective method for expanding the network as requirements grow. The hubs are connected via simple cascade connectors using optional cascade cables.

Automatic Stack Position Resolution

The Automatic Stack Position Resolution* feature enables the BayStack 100 Series Hubs to detect the top and bottom of the stack and apply the appropriate termination to the bus, eliminating the need to manually set a switch to indicate a hub's stack position. If any hub fails or loses power, the cascade automatically bypasses that hub.

Multisegmentation within the Stack

The Multisegment Cascade feature allows the creation of up to three cascade segments within the stack to alleviate bandwidth contentions as network traffic increases. Individual hubs can be assigned to any of the three cascade segments, allowing network traffic to be logically distributed to maintain optimal performance. Integrated Parallel Repeater* technology designates all hubs in a segment as a single repeater to retain configuration simplicity.

Individual hubs can also be isolated from the stack to create an independent network segment, enabling a single stack to support a maximum of 10 segments.

Table 1 shows the six BayStack 100 Series 10BASE-T Hub options that are available.

Flexible Configuration Options

All six hubs feature two front-panel media adapter slots for supporting optional 10BASE-FL multimode or single-mode fiber, 10BASE2 coaxial, 10BASE-T UTP, and AUI adapter cards that provide additional configuration flexibility. The media adapters can be used to support direct attachments to end stations, increasing the hub's port capacity by two, or they can provide flexible media downlinks to centralized resources such as servers, routers, or other hubs.

Highly Affordable

BayStack 100 Series Hubs provide affordable connectivity solutions for any Ethernet workgroup. As the network grows, new hubs can be added for an incremental investment, providing a scalable, cost-effective solution that supports expanding network environments. A network management module installed on one hub can extend management to every hub in the stack. This helps to contain management costs.

Fully Integrated into Optivity

The BayStack 100 Series Hubs are fully integrated into Optivity* network management software, enabling complete SNMP and RMON2 support. Network administrators

Table 1: BayStack 100 Series 10BASE-T Hub Options.

BayStack 100 Series 10BASE-T Hubs	Ports	Power Supply	Two MDA Slots	Network Management Module Slot
101	12 RJ-45	AC	Yes	Yes
102	24 RJ-45	AC	Yes	Yes
104	24 port Telco	AC	Yes	Yes
105	6 ST Fiber	AC	Yes	Yes
106	12 RJ-45	DC	Yes	Yes
107	24 RJ-45	DC	Yes	Yes

can manage their entire network, including all hubs, switches, and routers, from a single management station using Optivity.

Full management capabilities can be added to any hub by installing a BayStack Network Management Module in the hub's rear-panel expansion slot. The network management module (NMM) provides full SNMP-based management, enabling the hub to be managed by Bay Networks' Optivity network management system or any other SNMP-based application.

In a stacked configuration, a single NMM extends management capabilities to all hubs, providing complete monitoring and control for up to 260 ports with a single investment. Management functionality can also be extended to remote hubs in a managed stack through standard UTP patch cables connected to Management Extension* ports on the hub's back panel.

Three BayStack NMMs are available—Standard, Advanced, and Advanced Analyzer—to deliver increasingly powerful levels of management capabilities.

Standard NMM

The Standard NMM employs Bay Networks' Standard management agent to provide high-speed core statistics gathering and reporting for all segments in a stack, including isolated hubs. Utilizing the hubs' stack management bus, the agent, supporting SNMP over both IP and IPX, collects detailed fault, configuration, and performance data throughout the network. The Standard NMM also supports the Expanded View* graphical user interface, which provides a real-time image of the hub or stack on the Optivity console for precise port-level management. In addition, the Standard NMM supports Optivity's EZ Install* feature, which enables the network management system to automatically assign an IP address to an unconfigured hub to facilitate network setup and operation.

Advanced NMM

The Advanced NMM utilizes Bay Networks Advanced management agent, which includes all Standard agent functionality plus support for the following:

- Autotopology* dynamic mapping, which automatically discovers all network devices and displays them through the Optivity network management software.
- All IETF RMON MIB (RFC 1271) Alarm and Events groups.
- Up to 288 user-defined thresholds per hub for determining acceptable levels of network performance.
- Show Nodes and Find Nodes, unique Optivity features that display lists of all devices in a given view and locate objects by their alias names or MAC addresses.
- Allowed Nodes security, which maintains a list of approved users to prevent unauthorized network access.
- Hardware-based security including eavesdrop protection and intrusion control.

Advanced Analyzer NMM

The Advanced Analyzer NMM includes an onboard Data Collection Module (DCM) that provides the system with Bay Networks' powerful Advanced Analyzer management agent. The Advanced Analyzer agent, which provides all the functionality of the Advanced agent, also includes an integrated probe that supports full RMON capabilities (all nine RFC 1271 groups), providing highly sophisticated network troubleshooting and problem resolution capabilities.

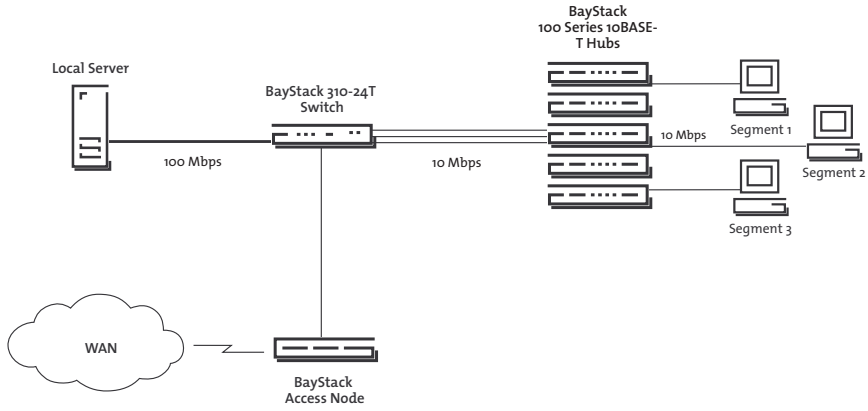
The Advanced Analyzer agent also supports RMON2 (all nine RFC 2021 groups). RMON2 provides network monitoring for Layers 3-7 of the OSI model. RMON2 assists in understanding the impact of applications on the bandwidth of the network.

All BayStack NMMs—Standard, Advanced, and Advanced Analyzer—provide full Standard agent functionality for all segments within a stack. Advanced and Advanced Analyzer agent functionality is provided only for the specific segment to which the NMM is assigned.

Proactive Network Management

The BayStack 100 Series Hubs also allow network administrators to proactively monitor the network. With Telnet support, network administrators can now perform device level management remotely using a standard Telnet application. Trap filtering can filter out the notification of unwanted traps from hubs. Access control and authentication prevents unauthorized access to the hubs, enhancing overall network security. Overall, these features make the administration of the network easier to handle.

Figure 1: Workgroup Performance Enhancement Using BayStack 100 Series 10BASE-T Hubs and BayStack 310-24T Ethernet Switch.



Real-Time Hub Status at a Glance

For wiring closet management, BayStack 100 Series Hubs offer a unique NetGauge* bar graph display, which provides real-time hub performance data for at-a-glance network monitoring. The display includes data and collision LED meters; hub and expansion slot segment assignment LEDs; port link and partition status LEDs; and power and initialization status LEDs, providing a complete summary of hub activity and configuration for rapid on-site management.

Highly Reliable

The BayStack 100 Series Hubs are designed to provide the highest level of reliability to ensure uninterrupted network operations. An optional redundant power supply unit (RPSU) provides a backup power source to guard against a potential primary power supply failure. An integrated SmartSwap feature automatically saves configuration information in nonvolatile memory and restores hub configurations following power cycles or hub replacements. And redundant clock crystals allow any hub to provide the clock for an entire stack; should a hub providing the clock fail, another hub will automatically take over the function for the stack.

The hubs include a number of other features to ensure trouble-free operation. A per-port polarity detection and correction feature automatically compensates for wire-pair inversions on 10BASE-T receive data lines to maintain data flow. A per-port autopartitioning feature disconnects any port that experiences excessive consecutive or particularly long collisions, or a single packet of excessive length.

BAYSTACK 100 SERIES HUB APPLICATIONS

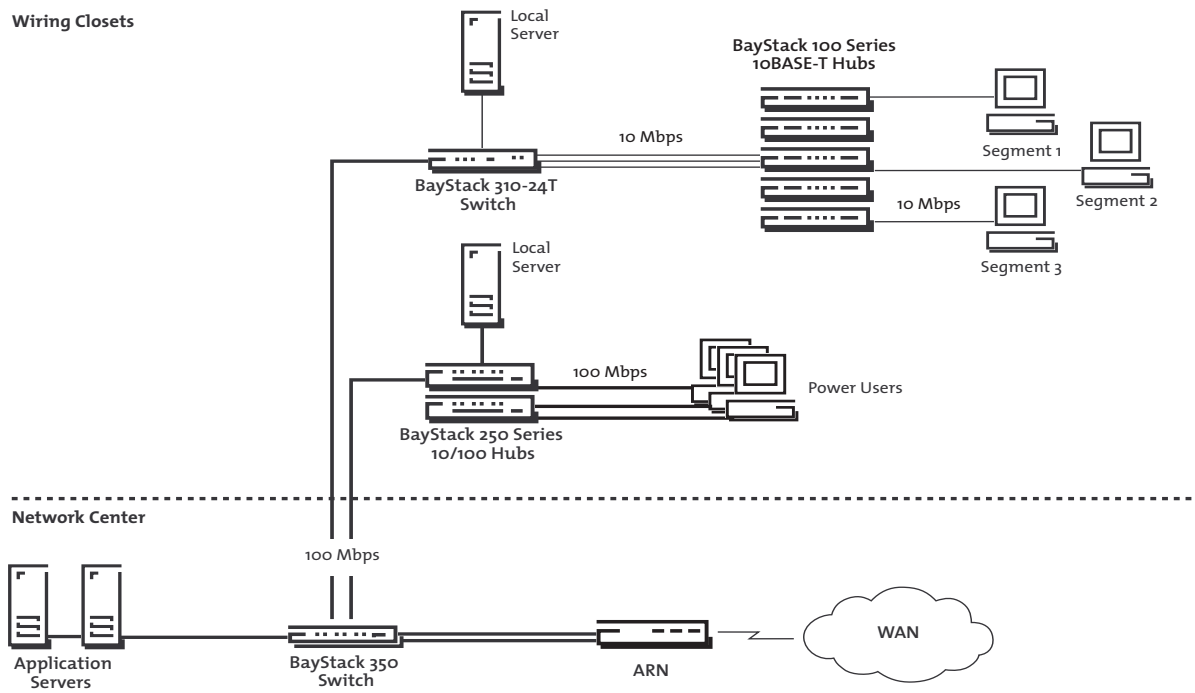
BayStack 100 Series Hubs offer a simple, scalable plug-and-play wiring closet solution for small and growing Ethernet networks. Working with other BayStack products, the hubs provide a solid foundation for future expansion.

As the network grows and segmentation is required to alleviate bandwidth congestion, the addition of a BayStack 310-24T Switch provides high-performance links between segments to enhance network performance. The 100 Mbps Fast Ethernet port on the switch provides the 10BASE-T workgroup with an ideal "big pipe" connection to high-utilization devices such as departmental servers (see Figure 1, Page 4).

Where more high-performance host connections are required, BayStack 250 Series 10/100 Hubs can be added to the network to support high-bandwidth power users with shared 100 Mbps links. The BayStack 100 Series Hubs continue to support segmented workgroups, while the BayStack 310-24T Switch provides a big pipe connection to the data center.

In the data center, the BayStack 250 Series Hubs or the BayStack 350 Switches provide high-performance access to centralized resources such as servers and routers (see Figure 2).

Figure 2: BayStack 100 Series 10BASE-T Hubs in a High-Performance Network Environment.



TECHNICAL SPECIFICATIONS

Table 2: BayStack 100 Series 10BASE-T Hubs Technical Specifications.

Network Protocol	10 Mbps Ethernet
Standards Support	IEEE 802.3 CSMA/CD IEEE 802.3i 10BASE-T, 10BASE-F (FL/FOIRL), ISO 8802-3
Electrical Specifications	
Input Power	80 W
Thermal Rating	275 Btu/hr max
AC Line Frequency	47 to 63 Hz (BayStack 101, 102, 104, 105 only)
Input Voltage	
BayStack 101, 102, 104, 105	90 to 264 V ac
BayStack 106, 107	39 to 56 V dc
Volt Amperes Rating	
BayStack 101, 102, 104, 105	140 A
BayStack 106, 107	2.75 A
Physical Specifications	
Weight (fully configured)	9.8 lbs (4.5 kg)
Physical Dimensions	
BayStack 101, 102, 104, 105	(H) 1.75 in. x (W) 17.25 in. x (D) 11.40 in. [(H) 4.4 cm x (W) 43.8 cm x (D) 29.0 cm]
BayStack 106, 107	(H) 1.75 in. x (W) 17.25 in. x (D) 12.1 in. [(H) 4.4 cm x (W) 43.8 cm x (D) 30.74 cm]
Rack Space	One rack unit per hub

Table 2: BayStack 100 Series 10BASE-T Hubs Technical Specifications (continued).

Environmental Specifications	
Operating Temperature	5° to 40°C
Storage Temperature	-25° to 70°C
Operating Humidity	85% maximum relative humidity, noncondensing
Storage Humidity	95% maximum relative humidity, noncondensing
Operating Altitude	10,000 ft (3,000 m) maximum
Ventilation Clearance	Minimum 2 in. (5.08 cm) on all sides (stacking OK)
Operating Conditions	At least 6 ft (1.83 m) to nearest source of electromagnetic noise
Power Source Availability	Adequate power source within 6 ft (1.83 m)
Recommended Wiring Closet Service Clearance	(Front) 5 in; (Rear) AC hubs 7 in; (Rear) DC hubs 8 in
Safety Agency Approvals	UL-listed
	TUV-licensed
ANSI/NFPA 70 National electrical code	Article 110-16, Article 110-17, Article 110-18
Electromagnetic Emissions Summary	
Meets Requirements of	FCC Part 15, Class A Digital Devices
	VCCI Class 1 ITE
	EN 55 022 (CISPR 22, Class B)
	General License Vfg 243 (Class B)
	Compliance with the VCCI regulation is dependent upon the use of shielded ac power cables. The user is responsible for procuring the appropriate cables.
	Compliance with Class B regulations is dependent upon the use of shielded cables. The user is responsible for procuring the appropriate cables.
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ORDERING INFORMATION

Table 3: BayStack 100 Series 10BASE-T Hubs Ordering Information.

Order Number	Description
CG1001?01*	BayStack 101 10BASE-T Hub with 12 RJ-45 ports
CG1001?02*	BayStack 102 10BASE-T Hub with 24 RJ-45 ports
CG1001?04*	BayStack 104 10BASE-T Hub with two Telco connectors (24 ports)
CG1001?05*	BayStack 105 10BASE-T Hub with 6 ST fiber ports
CG1001A06	BayStack 106 10BASE-T Hub with 12 RJ-45 ports and -48-Volt DC Power Supply
CG1001A07	BayStack 107 10BASE-T Hub with 24 RJ-45 ports and -48-Volt DC Power Supply
CG1019001	BayStack AUI Media Adapter
CG1019002	BayStack 10BASE2 Media Adapter
CG1019003	BayStack 10BASE-FL Fiber Media Adapter
CG1019004	BayStack 10BASE-FL RDN Redundant Fiber Media Adapter
CG1019005	BayStack 10BASE-T MDI Media Adapter

Table 3: BayStack 100 Series 10BASE-T Hubs Ordering Information (continued).

Order Number	Description
CG1019007	BayStack Single Mode Fiber Media Adapter
CG1007001	BayStack Ethernet Standard Network Management Module
CG1007002	BayStack Ethernet Advanced Network Management Module
CG1007004	BayStack Ethernet Advanced Analyzer Network Management Module
CG0018001	Cascade Cable for BayStack 100 Series 10BASE-T Hubs
AA0005?05*	Redundant Power Supply Unit

* The seventh character (?) of the hub order number must be replaced with the proper code to indicate desired product nationalization, as indicated below:
"A" No power cord included.
"B" Includes European "Schuko" power cord common in Austria, Belgium, Finland, France, Germany, The Netherlands, Norway, and Sweden.
"C" Includes power cord commonly used in the United Kingdom and Ireland.
"D" Includes power cord commonly used in Japan.
"E" Includes North American power cord.
"F" Includes Australian power cord, also commonly used in New Zealand and the People's Republic of China.

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