

Section B: Building Service Providers (BSPs)

Real estate owners affiliate with BSPs for the following reasons:

- ◆ **No-Cost Technology Upgrades:** BSPs usually install, at no direct monetary cost to the real estate owner, an in-building broadband network that becomes an amenity to the building and could increase the property's value.
- ◆ **Marketing and Leasing Amenity:** An in-building broadband network represents a significant marketing and leasing amenity to attract and retain tenants and guests. Over time, we expect most commercial properties to offer broadband access; therefore, we expect marginal benefit in the long run for a property that sports broadband access.
- ◆ **Recurring Incremental Revenue:** Building access agreements often provide real estate owners with the opportunity to participate in the telecommunications and even e-commerce service revenues within their buildings. A revenue share to the owner of commercial office space can be in the range of 5%-7%.
- ◆ **Equity Consideration:** As noted earlier, it is not uncommon for real estate owners to receive warrants or other equity-related incentives in exchange for providing preferred building access to BSPs.

BSP Regulation: Building Access Rights

The telephone closets in many buildings tend to be small facilities that were constructed many years ago for a monopoly service provider. Although CLECs can gain access to these facilities through the interconnection obligations of the 1996 Telecommunications Act, there are considerable physical limitations on how much proprietary telecommunications equipment a typical building can accommodate. Under current FCC regulations, commercial real estate owners have the right to control wiring within their premises, beyond the demarcation point (typically the phone closet) at which telecommunication carriers typically terminate their facilities. These rules allow the property owners to install and maintain their own wire, or to contract these services to other companies. Currently, there is no national requirement that property owners or managers give access to competitive telecommunications providers of communication services, but some such measures have been adopted at the state level. For instance, state laws in Connecticut and Texas generally require commercial real estate owners to provide nondiscriminatory access to communication carriers who have customers within a building, and limit what the property owner may charge for such access. These laws require that a carrier be permitted to install their own in-building wiring; however, there is no requirement that property owners allow these carriers to use existing wiring.

In June 1999, the FCC announced that it was considering adopting rules on a number of issues related to riser access in multiple tenant environments and requested comments on the following issues, among others:

- ◆ the FCC's tentative conclusion that utilities must allow communications and cable service providers access to rooftops and other rights-of-way as well as riser conduit in multiple tenant environments on just, reasonable and nondiscriminatory rates, terms, and conditions;
- ◆ whether incumbent phone companies should make available unbundled access to riser cable and wiring within multiple tenant environments; and
- ◆ whether real estate owners offering access to any communications provider should be required to make comparable access available to these providers on a nondiscriminatory basis, and whether the FCC has the authority to impose such a requirement.

Section 8: Building-Centric Service Providers (BSPs)

Arguing that their facilities (specifically phone closets and risers) should be considered as private property as opposed to public rights of way, building owners have opposed most of the Commission's moves. Although it is unclear how this issue will be resolved on the regulatory front, we think it is reasonable to assume that multiple, but not an unlimited number of, carriers will ultimately be able to obtain access to telecom-relevant facilities in commercial buildings. Furthermore, we believe that most such arrangements will be negotiated on a direct, private basis rather than be reached through litigation.

BSPs' Multi-Faceted Value Proposition to Building Tenants: As do other competitive broadband providers, BSPs generally attempt to offer customized bundles that combine numerous types of services—voice, data, long distance, Internet, hosting, and so forth. Because of their concentrated infrastructure deployment within the building, it can be argued that BSPs can deploy their capital and deliver these services more efficiently. In cases where the BSP relies on third-party providers for services such as hosting or Internet peering, BSPs, due to their generally high penetration rates within served buildings, can deliver concentrated demand to their suppliers, which potentially translates into attractive pricing and premium service levels.

An even more unique aspect of many BSP models is the on-site representative, who maintains a daily presence in a particular building or group of buildings and assumes multiple roles, including customer care representative, network engineer, communications consultant, IT administrator. By providing not just basic connectivity but ongoing customized service, BSPs can enhance customer retention and realize additional revenues.

Finally, on the e-commerce front, many BSPs attempt to provide value-added, proprietary content that is specific to individual locations. The idea here is to facilitate in-building or local business communities and share in the resulting transaction revenues. By aggregating multiple tenants into a single, building-centric portal, BSPs can offer dot-com firms, application service providers, local vendors, and other entities the opportunity to target a pre-selected group of prospects. The BSP e-commerce opportunity has given impetus to numerous efforts by third-party development firms to establish building-centric portals in major markets.

Sales and Marketing: BSP affiliations with the real estate companies enable them to take a different approach to providing telecommunication services to small and medium-sized tenants than traditional competitors normally take. This approach has the following unique features.

- ◆ **Preferred Marketing:** BSPs can utilize their relationships with real estate owners, building managers, and leasing representatives to market the services directly to the tenant in an on-network building.
- ◆ **Indirect Channels:** BSPs' real estate partners can feature the BSPs' broadband services in their own communications with tenants. In addition, "word of mouth" among tenants can be a powerful lead to generate interest in a BSP's services.
- ◆ **On-site Visibility:** BSPs can use lobby signage, direct mail, and in-building promotional events to create awareness of their services.
- ◆ **Efficient Marketing:** By utilizing teams whose territories consist of single buildings or small groups of buildings, BSPs can penetrate their addressable market efficiently.
- ◆ **On-site Presence:** The above-mentioned on-site representatives, who assume the role of a communications consultant and are responsible for developing and maintaining relationships with the tenants within the building, can help draw interest from tenants.

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As a result of these building-centric marketing and sales efforts, BSP penetration rates among "mature" buildings (those in service for 12 months or longer) in the 30%-40% range are not uncommon—more than double the penetration rate of other competitors that are present in commercial office buildings. Although it is arguable that BSPs' economics are not as attractive as those of CLECs, since they usually lease access and transport from third parties and deploy relatively capital-intensive in-building networks, such metrics are a promising sign of the positive trade-off: superior in-building penetration.

Exhibit 8-6 depicts a break-even scenario for a commercial MTU-focused BSP. As noted, deployment costs can vary significantly among buildings and business strategies, as can the assumptions with respect to services offered and network costs.

Exhibit 8-6 ♦ Unit Economic Analysis for a Commercial MTU-Focused BSP

Assumptions:	
Customers per building	32
Voice penetration per customer	15.0%
Fixed costs	
DSLAM, Router, Other equipment cost (one-time)	25,000
Semi-fixed costs	
Installation cost/incremental capex (per tenant)	\$5,000
Customer acquisition cost (one-time)	600
Customer premise equipment (one-time)	600
Gross semi-fixed costs (subscriber acquisition cost)	\$6,200
Revenue from customer premise equipment (one-time)	(200)
Revenue from installation fee (one-time)	(150)
Net semi-fixed costs (subscriber acquisition costs)	\$5,850
Variable costs	
Backhaul (monthly)	\$1,500
Heating, lighting and power cost per colo (monthly)	\$300
Rent (monthly)	250
Total variable costs	\$2,050
Recurring monthly voice revenue per customer (weighted average)	\$75
Recurring monthly data revenue per customer	\$500
Recurring monthly revenue per customer	\$575
Customer revenue margin	\$148
Breakeven (tenants)	4.9 *
Breakeven (penetration)	15.2% *

* fixed costs amortized over 36 months

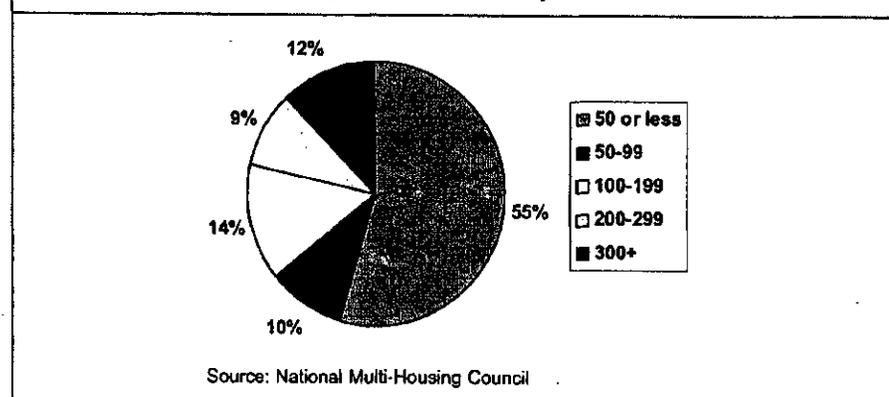
Source: Dain Rauscher Wessels

Section 8: Building-Related Service Providers (BSPs)

◆ **Multi-Tenant Dwelling (MDU)— Residential BSPS**

Many of the same trends that support growth in residential DSL and cable modem services are supporting expansion in the residential BSP sector as well. According to the U.S. Census Bureau, 81.5 million residents, or 30.7% of the U.S. population, live in renter-occupied housing. Of this amount, approximately 9.4 million people live in apartment properties that contain 50 or more units, and 7.4 million live in properties with 100 or more units, indicating a significant concentration of potential Internet users. **Exhibit 8-7** illustrates the distribution of apartment properties based on the number of rental units in each property, based on data from the National Multi-Housing Council.

Exhibit 8-7 ◆ Rental Property Distribution by Number of Units



The network architecture of an MDU-focused BSP is roughly similar to that of providers that are focused on commercial multi-tenant units. Since apartment buildings tend to have more tenants than commercial buildings, it is often more economical for the BSP to install the necessary infrastructure to all apartment units. In this manner, new service activation can be centralized rather than have a technician visit the property each time service is requested. Some BSPs partner with private cable operators, utilities, or other non-telco providers to gain access to MDUs, while others use existing on-premise infrastructure from the incumbent. In general, relationships between MDU owners and BSPs lend themselves to a greater degree of exclusivity than those between MTU owners and BSPs. In **Exhibit 8-8**, we depict some of the major players in the MDU space and their real estate partnerships.

Section 8 Building-Centric Service Provider (BSP)

Exhibit 8-8 ♦ BSP-Real Estate Partnerships in the Multi-Dwelling Unit Space

BSP	Real Estate Partners/Strategic Alliances	Company Type
Broadband Residential	The JBG Companies other undisclosed partnerships	Multi-Residential Property Owner
BROADBANDnow	Archstone Communities AvalonBay Communities Camden Property Trust Forest City Residential Home Properties of NY Summit Properties	Multi-Residential REIT Multi-Residential REIT Multi-Residential REIT Multi-Residential Property Owner Multi-Residential REIT Multi-Residential REIT
CAIS Internet	Mid-America Apartment Communities Town & Country Trust Tarragon Realty United Dominion Realty Trust	Multi-Residential REIT Multi-Residential REIT Multi-Residential REIT Multi-Residential REIT
Darwin Networks	Post Properties Southern Management Company Wolff Management Company	Multi-Residential REIT Multi-Residential Operator Multi-Residential Operator
OnePoint Communications	Apartment Investment & Management Co. AvalonBay Communities Apex Management Charles E. Smith Residential Equity Residential Properties Trust Harbor Management Kay Management Keystone Properties Lane Properties Panco Management R&B Management RIMSI Management Scott Management Southern Management Summit Properties Town & Country Trust United Dominion Realty Trust Walden Residential	Multi-Residential REIT Multi-Residential REIT Multi-Residential Operator Multi-Residential REIT Multi-Residential REIT Multi-Residential Operator Multi-Residential Operator Multi-Residential Owner Multi-Residential Owner Multi-Residential Operator Multi-Residential Operator Multi-Residential Operator Multi-Residential Operator Multi-Residential Operator Multi-Residential REIT Multi-Residential REIT Multi-Residential REIT Multi-Residential REIT
Reflex Communications	Multiple Undisclosed Alliances	
Skyway Partners	Not Available	

Source: Company reports and Dain Rauscher Wessels

Like many cable overbuilders that are focused on the residential market (see Section 7 for a discussion of cable-based broadband strategies), MDU-focused BSPs often attempt to provide a service bundle that includes a combination of high-speed Internet access, video, telephony, customized Web content, community-centric portals, and other offerings. Most BSPs focus on the more demographically attractive class A and class B properties, whose residents represent a more desirable target market in terms of discretionary income, PC ownership, and other factors. However, since the composition of Internet usage and PC ownership within many MDUs mirrors that of the general population (about 50% of households have a PC), some MDU-centric BSPs are examining ways in which to broaden their addressable market by delivering Internet services to television as well as the PC.

Section 8: Building Service Providers (BSPs)

Based on our conversations with service providers, services are typically priced in the range of \$25-\$80 per month, depending on the number of services offered. Revenue shares on the order of 10%-15% with the landlord are not uncommon. In Exhibit 8-9 we provide a breakeven analysis for broadband service in multi-dwelling units.

Exhibit 8-9 ♦ Unit Economics for MDU-Focused BSP

Assumptions:

Tenants per MDU 100

Fixed costs

DSLAM, Router, Other equipment cost (one-time) 20,000

Total fixed costs (network capex) \$20,000

Monthly network capex * \$556

Semi-fixed costs

Installation/provisioning costs \$800

Customer acquisition cost (one-time) 150

Customer premise equipment (one-time) 275

Gross semi-fixed costs (subscriber acquisition cost) \$1,225

Revenue from customer premise equipment (one-time) (200)

Revenue from installation fee (one-time) (100)

Net semi-fixed costs (subscriber acquisition costs) \$925

Variable costs

Backhaul (monthly) \$800

Heating, lighting and power cost (monthly) \$150

Rent (monthly) 50

Total variable costs per sector (monthly) \$1,000

Total variable costs per customer (monthly) \$67

Recurring monthly revenue per customer \$80

Customer revenue margin \$13

Breakeven (customers) 13.7 *

Breakeven (penetration) 13.7% *

* fixed costs amortized over 36 months

Source: Dain Rauscher Wessels

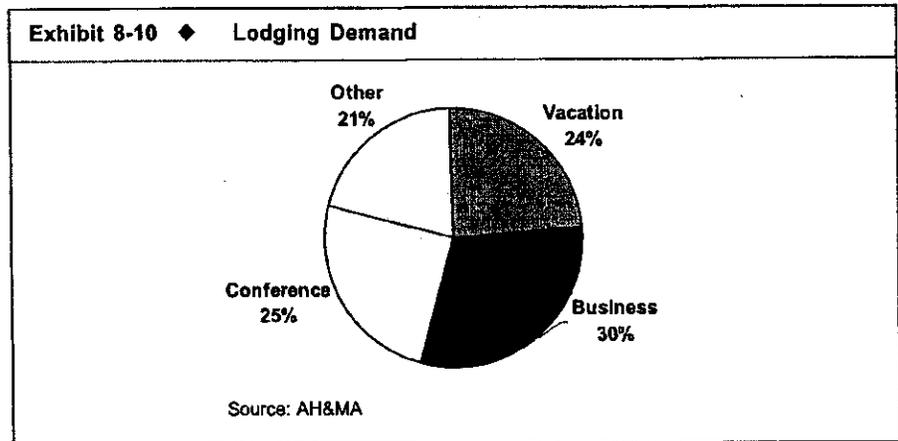
♦ Lodging

The vast majority of business travelers with laptop computers log onto the Internet or corporate networks at analog speeds when they are on the road. With the proliferation of broadband capacity in both the residential and business sectors, many businesses and employees are demanding faster access speeds while away from the office. The strong potential demand for high-speed access from business travelers, coupled with the burgeoning popularity of virtual private networks (and the ability to use Internet access as a means to gain access to one's corporate network), has created an attractive opportunity for broadband service providers to target the hospitality market.

Market Overview: According to the American Hotel & Motel Association (AH&MA), there are approximately 51,000 hotels in the United States with a total of 3.9 million rooms. The international hotel market totals approximately 250,000 properties with 8 million rooms. Based on AH&MA statistics, we estimate that approximately 55% of domestic lodging demand is from business travelers, who are the more likely users of broadband services. This is supported by an American Express report that estimates that 65% of business travelers carry laptop computers.

Section 8: Building-Competition Service Providers (BSPs)

The AH&MA profiles the typical business traveler as a male (74%), aged 35-54 (53%), employed in a professional or managerial position (52%), and earning an average annual income of \$68,000. The average amount paid per room is \$83 per night, which is 12.2% higher than that paid by a leisure traveler. Considering that business travelers are more likely to be traveling on their company's expense, we believe the higher daily rate reflects a degree of price insensitivity; thereby indicating a more receptive audience to utilizing broadband access.



Those BSPs that are currently addressing the domestic lodging market charge travelers approximately \$10 per night for high-speed access. We conservatively estimate an average of 750,000 business travelers with laptop computers stay in hotels each night. Based on today's 5% average usage rate for high-speed services, we estimate annual revenues in the domestic lodging market of approximately \$140 million. We believe the overall market could easily increase multi-fold, to \$1 billion or more, with increased usage (see following discussion of usage trends) and additional revenue opportunities that are possible from providing high-speed access from meeting rooms and conference facilities.

Section 8: Building Service Providers (BSPs)

The major players in the hospitality-focused broadband market are depicted in Exhibit 8-11. As with multi-tenant commercial buildings, this sector is in the land grab stage with most providers signing on major hotel owners and property managers as strategic partners. Although these agreements have varying degrees of exclusivity, we believe that in practice, multiple providers will rarely attempt to install infrastructure to the same set of hotel rooms.

Exhibit 8-11 ♦ Strategic Alliances Between BSPs and Real Estate Partner in the Hospitality Segment

BSP	Real Estate Partners/Strategic Alliances	Company type
CAIS Internet	Hilton Hotels	Hotel Owner/Operator
	Carison Worldwide Properties	Hotel Owner/Operator
	John Q. Hammons Hotels	Hotel Owner/Operator
	Haverford Hotels	Hotel Owner/Operator
	Staybridge Suites by Holiday Inn	Hotel Owner/Operator
	Prime Hospitality Corp.	Hotel Owner/Operator
	Bass Hotels & Resorts	Hotel Owner/Operator
Darwin Networks	Bass Hotels & Resorts	Hotel Owner/Operator
	Cavanaughs Hospitality Corp.	Hotel Owner/Operator
	Choice Hotels	Hotel Owner/Operator
	Focus Enterprises Hotels	Hotel Owner/Operator
Mobilestar	Pacifica Host Hotels	Hotel Owner/Operator
	Bass Hotels & Resorts	Hotel Owner/Operator
	Hilton Hotels	Hotel Owner/Operator
	MeriStar Hotels	Hotel Owner/Operator
STSN	Starwood Hotels & Resorts Worldwide	Hotel Owner/Operator
	Interstate Hotels	Hotel Operator
	Marriott International	Hotel Owner/Operator
Wayport	Sunstone Hotels	Hotel Owner/Operator
	JMH Hotels	Hotel Owner/Operator
	LodgeNet	Entertainment and
	Marshall Management	Hotel Operator
	Shoney's Inn & Suites	Hotel Owner/Operator
	Stanford Hotels	Hotel Owner/Operator
	Wyndham International	Hotel Owner/Operator

Source: Company reports and Dain Rauscher Wessels

Usage Trends: Current usage rates for high-speed service is in the 3%-7% range; however, we believe this penetration level reflects only the "early adopters," as high-speed in-room access has only been available in small portion of hotels and has not achieved a high degree of public visibility. Further, Ethernet card-equipped laptops, which are generally required for high-speed access, are not yet standard fare for business travelers.

As marketing and network deployments increase, we expect usage rates to increase dramatically. Considering that today's analog modem usage penetration in hotel rooms is on the order of 60% and that the percentage of laptops equipped with high-speed compatible Ethernet cards is increasing rapidly, we believe overall penetration could increase many times over. In addition, we believe that the likelihood that a guest will abandon high-speed service and return to dial-up is remote.

Section 8 Building Owner Service Providers (BSPs)

Network Deployment: In the United States, deployment of broadband infrastructure in hotels is proceeding at a rapid pace—many BSPs have told us they are able to complete installation of the necessary equipment throughout a single property within a few days. As with MTUs and MDUs, hotel-focused broadband providers typically establish a local point of presence in each hotel, with the BSP usually footing the cost of deployment at no direct expense to the building owner. However, depending on the buildout plan, there could be a modest indirect cost to the building owner if the network deployment requires rooms to be taken temporarily out of service. The hotel POP contains the equipment that facilitates high-speed links to guest rooms, frequently using existing in-building wiring and employing a copper-enhancing technology such as DSL. In each equipped room, operators typically install Ethernet jacks, which business travelers can use to connect their laptop computers. As the use of wireless LAN technology becomes more common, many installations may forego the jack and utilize high-speed wireless alternatives. Installation costs per room average \$200-\$400, depending on the operator and the complexity of the build-out.

Depicted in Exhibit 8-12 is a rough breakeven analysis for hotel-based broadband access. Although pricing is fairly standardized at \$10/night (approximately double that amount overseas), revenue shares with the hotel operator range from 20%-50%, depending on the specific arrangement.

Exhibit 8-12 ♦ Breakeven Scenario for Hotel Broadband Access

Assumptions:	
Rooms	200
Occupancy	65.0%
Rate per night	\$10.00
Revenue share	25.0%
Net revenue per night	\$7.50
Expenses	
Equipment cost	\$45,000
Capex (* annualized)	15,000
Network operations per year	18,000
Total annual expenses	\$33,000
Revenues	
Annual guest room revenue (at break-even penetration)	\$18,857
Annual meeting room revenues	14,143
Total annual revenues	\$33,000
Breakeven (penetration)	5.3%
* capital expenditures amortized over 36 months	
Source: Dain Rauscher Wessels	

Additional Revenue Opportunities from Advertising and E-Commerce: Given the attractive economic demographic profile of business travelers (high education, high income), many BSPs are attempting to mine additional revenue opportunities by adding specialized content onto the room start-up screen. This has the potential to generate advertising and e-commerce revenues.

Section 8: Building-Centric Services Provided (BSPs)

◆ Public Access— High-Speed Access for the Business Traveler

Demand for high-speed access to the Internet as well as corporate networks is contributing to the installation of broadband services in public venues that are frequented by business travelers, such as airport gate areas, frequent flyer lounges, conference facilities, and convention centers. With limited time on the go and a high degree of urgency, the nation's 12 million frequent business travelers represent a user base that is likely to place a premium on speed and be relatively insensitive to price.

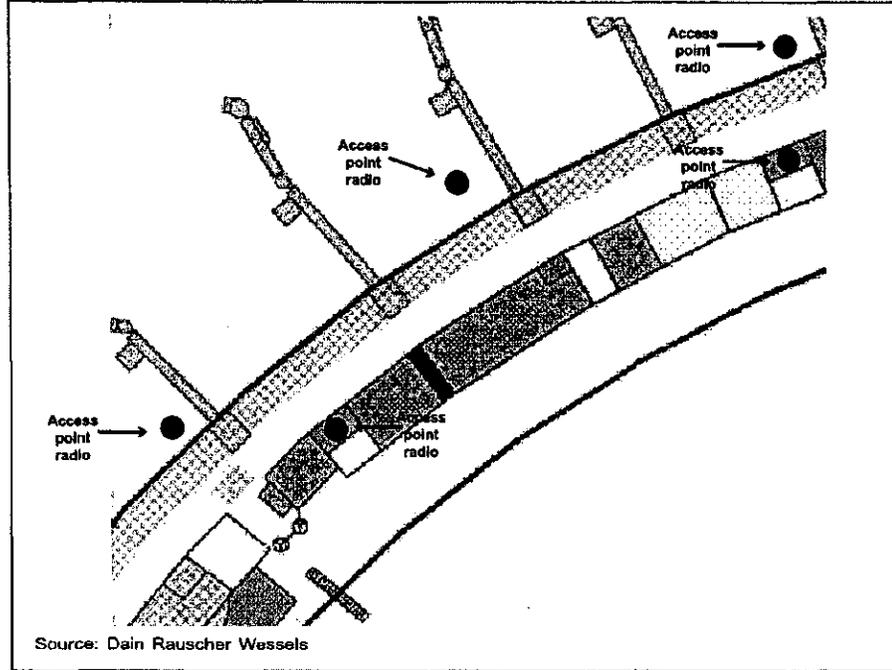
For the frequent traveler, initial public access offerings have taken the form of an Internet-accessible public kiosk or a private office area containing high-speed connections that can be rented out for short periods of time. As the use of VPNs to gain access to corporate networks over the public Internet steadily increases, we believe that business travelers will derive greater value from public access and view it as a way accomplish meaningful amounts of work, as opposed to just obtain access to the Web.

In parallel with the trend toward VPNs, we believe that the adoption of high-speed wireless LAN technologies utilizing freely available, unlicensed frequencies (such as the 2.4 GHz and 5 GHz bands discussed in Section 6) will lead to far greater access to the Internet and corporate networks from public venues. Many laptop and modem manufacturers are now building equipment that is compatible with the newer wireless LAN standards such as 802.11b and Bluetooth. As wireless LAN cards coupled with this newer equipment penetrate the installed business user base, the addressable market for BSPs that are now deploying wireless LAN radios in airline terminals, frequent flyer lounges, and other high-business-traffic locations is expected to increase significantly. With wireless throughputs ranging from 700 kbps to 11 Mbps, business travelers will likely perceive no difference in access speed compared to their daily office environments.

Deployment: Exhibit 8-13 depicts a typical airport installation. The BSP deploys small wireless LAN radios at access points that cover frequently trafficked gate and lounge areas. Most current equipment designs operate in the unlicensed 2.4 GHz band, but it is possible that future deployments will utilize the unlicensed 5 GHz band. Each access point is connected to a central hub, which in turn is connected to the Internet.

Section 8: Building Broadband Service Providers (BSP)

Exhibit 8-13 ♦ Typical Airport Installation of Public Broadband Access System



Source: Dain Rauscher Wessels

Although current deployments are limited to a handful of airports today, a number of companies, such as Wayport, MobileStar, and SoftNet Zone, are aggressively building out their networks to include several dozen locations. The current focus tends to be airports, but future deployments could well extend to hotels, convention centers, and other public facilities.

Exhibit 8-14 depicts some of the major strategic relationships that have been formed in the public-access arena. As with the other BSP segments described in this chapter, the public-access sector is in the “land grab” phase as it relates to obtaining access for eventual network construction.

Exhibit 8-14 ♦ Strategic Relationships in the Broadband Public Access Sector

BSP	Strategic Alliances	Company Type
CAIS Internet	Royal Caribbean International	Cruise Operator
MobileStar	American Airlines Multiple hotel properties for public-area installation Multiple U.S. and international airports	Airline Carrier Lodging Transportation Authority
SoftNet Zone	Delta Airlines Multiple U.S. and international airports CMGI Nokia	Airline Carrier Transportation Authority Technology Incubator Wireless Devices Manufacturer
Wayport, Inc.	Multiple North American airports Toshiba IBM	Transportation Authorities Electronics Firm Computer Firm

Source: Company reports and Dain Rauscher Wessels

Section 7: Building Public Service Provider (BSP)

Installation costs for, say, an airport, depend greatly on the complexity of the build-out and the amount of public area to be covered. As a rough estimate, it costs \$5,000-\$10,000 to deploy an access point today, including equipment costs and backhaul arrangements to the central point of presence, although equipment costs are expected to decline rapidly. A small airport can be equipped with wireless LAN and backhaul infrastructure for less than \$50,000, while a major hub airport can run into the \$200,000-\$300,000 range or higher.

Apart from meeting capital requirements and possessing the requisite network know-how, an equally important factor in building out public-access broadband installations relates to process. Considering the example of airports, an operator must be able to coordinate relationships and processes among multiple parties, including several government jurisdictions (municipal, county, and/or state), airlines, and airport authorities.

Content, Marketing, and Distribution: Given the nascent stage of this industry segment, it is too soon to attempt to accurately depict the myriad of marketing and distribution arrangements that are being discussed or tested. In general, airline partners, travel companies, established telecommunications firms, and property owners and operators appear to be the most likely parties to co-market broadband services aimed at the business traveler. As with other segments in the BSP space, operators and strategic partners may in many cases attempt to add content-related features to their core broadband access offerings in order to take advantage of the attractive end-user demographic profile and "location-aware" nature of the service to generate additional revenue streams. The nature of potential revenue-sharing arrangements between core operators and the strategic partners will likely depend on a number of factors related to brand, potential bundling of other services, and even site build-out arrangements.

Even the end-user pricing model for public broadband access is not uniform. Depending on the operator, users may be charged by the month, by the day, by individual access session, by the amount of bandwidth transferred, or some combination thereof. Monthly subscription arrangements akin to the cellular phone model, in which the monthly fee includes a fixed amount of usage but does not cover over-use, are just one plausible scenario. Since no one firm should have a monopoly on public sites that are frequently trafficked by business travelers, it is highly conceivable that operators will form alliances with one another in order to allow users to roam among multiple networks (also akin to the cellular model).

Company	Website	Description	Address	Investors	Code
Allied Riser Communications	www.alliedriser.com	Allied Riser provides of broadband data, video, Web hosting, and advanced conference calling services to businesses located in commercial office buildings throughout the country. The company's network and services extend beyond commercial buildings to include a number of additional connectivity services. ARC delivers its services over fiber optic networks that it designs, constructs, owns and operates inside large and medium-sized office buildings.	1700 Pacific Avenue Dallas, TX 75201	Crescendo Ventures Management, Norwest Venture Partners, Goldman Sachs, numerous real estate owners and operators.	ARCC
CAIS Internet	www.cais.com	CAIS Internet provides high-speed Internet and portal services to business travelers in hotels, meeting rooms, convention centers, and other public areas; as well as to residents of multi-dwelling units. The company also provides dial-up and dedicated Internet access as well as hosting and collocation services.	1255 22nd Street, NW Washington, DC 20037	Kohlberg Kravis Roberts; ING Capital; numerous hospitality chains and real estate interests.	CAIS
Cypress Communications	www.cypresscomm.com	Cypress Communications provides small and medium-sized businesses in commercial office buildings with a full line of communications services, including high-speed Internet access, digital desktop equipment, local and long distance phone service, voice mail, and digital satellite television. The company constructs in-building networks consisting of fiber optics, coaxial cable, and copper connections to provide a wide array of offerings.	Fifteen Piedmont Center Atlanta, Ga 30305	The Centennial Funds, Alta Communications, Beacon Ventures, Nassau Capital, Gramercy Communications Partners, AEW Partners III, L.P., Transwestern Commercial Services, Latona Cycom Investment, LLC., numerous real estate owners and operators	CYCO
FiberNet Telecom Group	www.ftgx.com	Fibernet provides broadband transport services for both inter and intra-building connections, as well as associated collocation services. The company operates in-building fiber networks as well as metropolitan-area fiber connections between major commercial office buildings and carrier interconnection points, such as central offices and "carrier hotels," and provides its services on a wholesale basis. The company's current operational focus is New York City, with plans to expand to additional markets.	570 Lexington Avenue New York, NY 10022	Signal Equity Partners, Trident Telecom Partners, Metromedia Fiber Network	FTGX
SoftNet Systems	www.softnet.com	Through its ISP Channel subsidiary, SoftNet provides high-speed Internet access service with partnering cable operators. SoftNet's Intellicom subsidiary provides two-way satellite-based broadband services to schools, government institutions, and businesses. The company's SoftNet Zone unit provides Internet access to business travelers in airports and other public-access venues using wireless LAN technology and conventional wired T1 services.	650 Townsend Street San Francisco, CA 94103	RGC International Investors, White Rock Capital, Stark International, CMGI, Compaq, Delta Airlines	SOFN
B2B Connect	www.b2bconnect.com	B2B Connect delivers high-speed data communications, information technology and support services to the desktop within multi-tenant buildings. The company's offerings include a voice telephony, Internet access, data networking, Web hosting, and managed services.	2350 Mission College Blvd. Santa Clara, CA 95054		private

SPONSORED BROADBAND AND WIRELESS PROVIDERS

Company	Website	Description	Address	Partners	Type
Broadband Residential	www.bbrez.com	Broadband Residential provides broadband services to tenants of multi-dwelling units, including a bundle of high-speed Internet, data networking, video, and e-commerce offerings. The company partners with property owners for building access and to establish a local presence for marketing and customer support. The company employs a variety of broadband technologies and backbone partners for high-speed connectivity to its in-building networks.	6708 Wisconsin Avenue Bethesda, MD 20815	Federal Capital Partners, JBG Companies, eLink Communications, and other private sponsors and network partners.	private
BroadbandNOW	www.bbnw.com	BroadbandNOW is a BSP that provides high-speed Internet access and multimedia content and applications to residential subscribers in multiple dwelling units and single-family homes in numerous regions of the country. The company's broadband network utilizes a variety of transmission technologies, including a private, national fiber backbone as well as cable modem, DSL, and wireless technologies.	1440 Corporate Drive Irving, TX	Lucent, Nortel, Liberty Media, GE Capital, Geneva Associates, Marcus & Partners, real estate partners	private
Darwin Networks	www.darwin.net	Darwin Networks provides broadband and internet services to several vertical segments, including multi-tenant commercial buildings, multi-dwelling units, hospitality, and public access. The company provides access using multiple broadband technologies, including DSL, T1, and wireless services. The company has deployed its network in multiple regions of the country and is in progress to launch services in approximately 800 locations in almost 40 states.	National City Tower 101 S. Fifth Street Louisville, KY 40202	Chrysalis Ventures, Vulcan Ventures, Richland Ventures, River Cities Capital, AT&T	private
Edge Connections	www.edgeconnections.com	Founded in 1999, Edge Connections is deploying in-building DSL infrastructure aimed at providing bundled voice, high-speed data, hosting, and other advanced services to small and medium-sized businesses in multi-tenant commercial buildings. The company is initially launching its network in eight major markets using a network architecture that leverages relationships with numerous IXCs, LECs, and ISPs for long-haul, local, and Internet connectivity.	1200 Abernathy Rd. Atlanta, GA 30328	Great Hill Partners Megunticook Fund	private
eLink Communications	www.elinkcommunications.com	eLink Communications partners with commercial building owners and property managers to wire their buildings with fiber-optic infrastructure in order to offer broadband Internet, data networking, and telecommunications services to business tenants. The company also provides on-site, in-person customer service through its CyberSuper Service program. eLink is preparing to roll out a tenant-centric portal, voice over IP services, and an applications hosting service for small and medium-sized businesses.	6708 Wisconsin Avenue Bethesda, MD 20815	Encore Venture Partners, Mayfield Fund, Avalon Investments, Communications Equity Associates, Lazard Technology Partners, The Greenwich Group	private
Eureka Broadband	www.eurekabroadband.com	Eureka Broadband provides broadband services to business customers in commercial office buildings. The company's in-building network is deployed in over 300 buildings, primarily in New York and Southern California. Eureka bundles broadband applications and content, such as Internet access, software rental, video streaming, business TV and other IT services over its packet-based fiber network.	270 Madison Avenue New York, NY 10016	AT&T Ventures, Spectrum Equity Investors, Eagle Financial Partners, Lineactive	private
Everest Broadband Networks	www.everestbroadband.com	Everest Broadband Networks provides broadband services to tenants of commercial office buildings and residential multi-dwelling units as well as to hotel properties. The company's services include high-speed Internet access, telephony, and video services.	One Executive Drive Fort Lee, New Jersey 07024	Pequot Capital Management, SOFTBANK Venture Capital, Worldview Technology Partners, Wolfson Equities	private

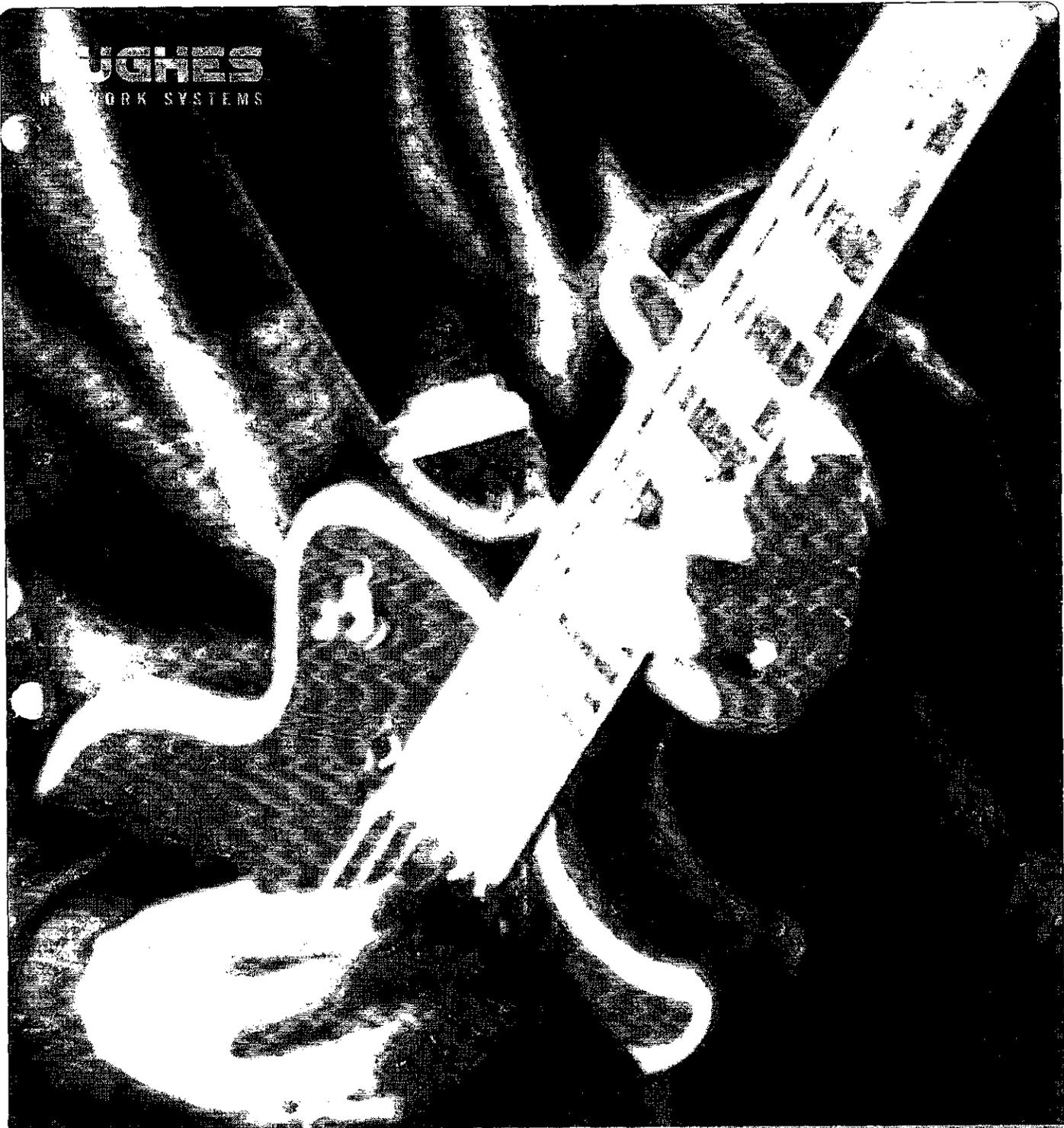
Eziz	www.eziz.com	Eziz provides broadband internet communications and enhanced data services, such as Web hosting, e-commerce and virtual private networking, within multi-tenant commercial office properties. As of April 30, 2000, Eziz had expanded into 38 cities and established service in 209 buildings, representing 60 million rentable square feet.	550 West Van Buren Chicago, IL 60607	Crosspoint Venture Partners, Edgewater Funds, Insignie Financial Group, numerous real estate owners and operators	private
MobileStar Network	www.mobiestar.com	MobileStar is creating a network of high-speed, wireless internet access locations for business travelers using wireless LAN technology. MobileStar's network is slated for installation in more than 700 hotels, airports and convention centers in 130 U.S. cities this year, with more than 100 sites currently in operation.	1601 N. Glenville Drive Richardson, TX 75081	Mayfield Fund, Blueprint Ventures, Norwest Venture Partners, Sierra Holdings, Tarrant Venture Partners	private
OnePoint Communications	www.onepointcom.com	OnePoint Communications provides communications services for residents of apartment communities. The company offers local and long-distance telephone service, cable television and high-speed internet access, and serves more than 68,500 customers in 10 states.	150 Field Drive Lake Forest, IL 60045	SBC Communications, Ventures in Communications, and other private sponsors	private
OnSite Access	www.onsiteaccess.com	OnSite Access is a building-centric provider of integrated voice, data, and internet services. The company has deployed broadband facilities covering over 350 million square feet of real estate in 29 markets.	1372 Broadway New York, NY 10018	Spectrum Equity Investors, Crosspoint Venture Partners, JP Morgan Capital, AT&T Ventures, Reckson Service Industries, Ventech Ventures, numerous real estate owners and operators.	private
PhatPipe	www.phatpipe.com	PhatPipe is a tenant-centric business services provider that enables commercial real estate owners the ability to offer products and services to their tenant base, while leveraging bulk tenant demand to negotiate discounts on services such as broadband access.	1902 Wright Place Carlsbad, CA 92008	AMB Properties	private
ReFlex Communications	www.reflexcomm.com	ReFlex Communications provides high-speed internet, data, video, and voice services to apartment and condominium communities. The company's network spans 12 markets across nine states.	81 S. King St., Ste. 106 Seattle, WA 98104	The Sprout Group Enterprise Partners	private
Skyway Partners	www.skywaypartners.com	Skyway Partners provides broadband services to tenants of multi-tenant commercial and residential buildings. The company's offerings include data, voice, video, and internet services over in-building broadband facilities.	200 Motor Parkway Hauppauge, NY 11788	numerous private sponsors	private
STSN	www.stsn.com	STSN provides high-speed internet, VPN, and e-commerce services to the business traveler market. The company is partnering with business hotel chains to deploy wireless LAN and wireline broadband infrastructure in major U.S. and international cities.	5983 S. Redwood Drive Salt Lake City, UT 84123	APV Technology Partners, BankOne, First Media ST Holdings, Intel Corporation, Marriott International, Third Coast Capital, TurnWest, TransAmerica Technology	private
Tenant Connect	www.tenantconnect.com	Founded in 1994, TenantConnect is a BSP that provides voice and data telecommunication services to small to medium-sized businesses in more than 2,000,000 square feet of office space. The company is a registered CLEC in its operational markets, located primarily in Southern California.	2716 Ocean Park Blvd, Suite 1064 Santa Monica, CA 90405	Real estate owners and operators.	private
Urban Media	www.urbanmedia.com	Urban Media is a building-centric service provider offering free basic internet connectivity to small and medium-sized businesses as well as an array of fee-based broadband services, such as local and long distance voice, e-mail services, domain name registration, remote access, Web hosting, and virtual private networking. Urban Media's services also include an integrated e-toolbar, which provides customers access to specialized services, content and applications.	101 University Avenue Palo Alto, CA 94301	SOFTBANK Venture Capital, Accel Partners	private
Wayport	www.wayport.com	Wayport uses wireless LAN technology to provide high-speed internet access and VPN services to business hotels, airports, and meeting facilities.	8303 North MoPac Expressway Austin, TX 78759	Sevin Rosen Funds, New Enterprise Associates, Trelle Venture Partners, and GC Technology Fund	private
Wired Business	www.wiredbusiness.com	Wired Business is an in-building, facilities-based provider of broadband services to small and medium-sized businesses in multi-tenant office buildings. The company utilizes the building's existing copper infrastructure to provide broadband internet access.	2 Penn Center Plaza Philadelphia, PA 19102	Dolphin Communication Partners, Norwest Venture Partners, Forest City Enterprise	private

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DOCUMENT SEPARATOR SHEET

Print Batch Document #: 1

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Music and **Messaging** services

for your **business** from **DIRECTV**



Music that works
as hard as **you do**

The Perfect Accompaniment

Adding music to your sales environment offers scores of advantages. It enhances the mood of your establishment, extends your brand personality, and energizes customers and employees. When customers hear their favorite music, they'll shop longer, leading to increased sales. Music and Messaging Services from DIRECWAY set the tone for your business environment.

Music and Messaging services from DIRECWAY is a full-service, customizable music and messaging solution that lets you tailor your music and messaging by time of day as well as store region or location. With easy and fast installation, Music and Messaging services from DIRECWAY allow you to start up quickly and don't require staff training and support for its operation. Take advantage of these benefits while keeping employees free to concentrate on their primary role, your customers. Integrate daily, weekly, monthly or quarterly marketing messages for timely, compelling advertisements and other sales initiatives. Music and Messaging services from DIRECWAY accommodates on-hold music and messaging for another opportunity to educate and entertain customers in a manner consistent with the in-store experience. Music and Messaging services from DIRECWAY can provide production facilities for your messaging, or accept already produced messaging from you or your agency.

15 channels of CD Quality Music

Choose energized, upbeat music to stimulate activity in retail environments during the day and opt for soothing melodies for subdued activities in the morning or evenings. Pump up the volume of today's techno sounds to appeal to younger customers and staff, or lend a distinct air of sophistication with classical or jazz selections. Perhaps oldies are the perfect intra-generational option—with Music and Messaging services from DIRECWAY, you'll find the mix of music that's best for you, for your customers and for each store environment. Unlike on-air music sources, Music and Messaging services from DIRECWAY is all-digital—so there's no static, hissing or pops. Combined with this quality is a selection that lets you not only target your customers by music type, but combine different genres to provide a compelling environment for everyone.

Each of our exciting genres contains 20 hours of music, which are automatically updated to keep them fresh. Choose from these three options to meet the specific music demands of your demographic.

SELECT – Choose the one music channel that best meets your needs to establish a consistent music element throughout your retail network. Integrate the same music channel into your on-hold messaging system for even more consistent branding. Optionally, your personalized messages can be included to stimulate customer sales.

PREMIERE – Add flexibility to your music program by utilizing any combination of four different music channels. Change from easy-going selections in the mornings and evenings, to more upbeat and energetic selections during peak daytime hours when a younger crowd might be in-store. You can select music specific to the characteristics of a group of stores or even by location. Included in your PREMIERE package are:

- **Dayparting** – allows you to tailor music to specific times of day.
- **Regionalization** – lets you play music per group of locations – geographically, by store type or event, for example.

With PREMIERE service, you also can choose from these options to further customize your music marketing program.

- **Music On-Hold** – helps extend your brand by allowing callers on hold to hear a consistent music style.
- **Messaging** – Broadcast announcements and influence customer decisions at point-of-sale by inserting messages or advertisements into the music playlist.
- **Music & Messaging On-Hold** – allows you to combine your music and messaging in-store with that of callers on hold.

CUSTOM – When your branding concept and your target markets demand a personalized music solution, Music and Messaging services from DIRECWAY, in conjunction with our music partners, can produce totally customized audio solutions.

From our most basic service to our totally customizable one, Music and Messaging services from DIRECWAY is a chart-topping music and messaging resource you can depend on to help create your image and better control your business.



■ **Messaging—that speaks to your audience**

Another great way to target customers is with Messaging services from DIRECWAY. A custom messaging service—and a profitable option to integrate into your music mix. With messages you furnish to us already produced, or have produced through our partners, you can:

- *Spotlight products*
- *Coordinate with in-store promotions*
- *Extend external promotions by including their themes in-store*
- *Extend and reinforce valuable and effective branding effort*
- *Broadcast public service announcements*

All leading to higher potential sales and increased customer awareness.

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Music and Messaging services from DIRECWAY are one feature of a complete list of services offered by HUGHES Network Systems. Other DIRECWAY Services include:

- Polling
- Business Television
- Credit Card Validation
- Content Delivery
- Employee Training
- Internet Access
- Credit Aggregation

For more information, contact the sales representative in your region or send an email to Music@hns.com

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DIRECWAY.

The Power of Music

Music Concepts	Demographic	Atmosphere	Artist Examples
Current Wave	12-24 suburban youth	Lively and vivacious	Ricky Martin, Destiny's Child, Jessica Simpson, Len, Foo Fighters, Backstreet Boys
Jazz FX	30-55 sophisticated adult	Sleek, refined and mellow	Bob James, Earl Klugh, Lee Ritenour, Rippingtons, Fourplay, David Benoit
Vintage Rock	30-55 casual adult	Casual, with a classic rock feel	Tom Petty, The Doors, Led Zeppelin, U2, Stone Temple Pilots
Timeless Tunes	30-55 mainstream adult	Relaxed, family-friendly and traditional	Rod Stewart, Billy Joel, Fleetwood Mac, Gloria Estefan, Sarah McLachlan, Madonna
Alternative Rock	12-24 alternative youth	Hip and assertive	Smash Mouth, Bush, Foo Fighters, Third Eye Blind, Everclear, Red Hot Chili Peppers
Today's Tempo	18-35 modern adult	Casual, familiar and fun	Barenaked Ladies, Sugar Ray, Sarah McLachlan, Serebra, None the Richer, Goo Goo Dolls, Paula Cole
Country Roads	18-45 country adult	Rootsy, fun and active	Mary Chapin Carpenter, Dwight Yoakam, Eagles, Shania Twain, Linda Ronstadt, Bonnie Raitt
Classical Expressions	40-65 mature adult	Sophisticated and mild	Bach, Beethoven, Mozart, Doyle Williams, Andke Previn
Latin Wave	18-35 casual adult	Sociable, upbeat and happy	Marc Anthony, Chayanne, MDC, Fulanity, Jennifer Lopez, Luis Miguel
Spanish Rhythms	25+ casual adult	Contemporary, relaxed and romantic	Julio Iglesias, Jose Feliciano, Pajoma San Brasilio, Tito Rodriguez, Camilo Sesto, Pimpinela
Groovin' R&B	18-35 urban adult	Romantic and polished	Mary J. Blige, D'Angelo, Eric Benet, Faith Evans, K-Ci and Jo Jo, Maxwell
Feelin' Jazzy	25-55 contemporary adult	Metropolitan, mature and stylish	Anita Baker, Candy Dulfer, Lisa Stansfield, Count Basie, Peter White, Simply Red, Jeff Golub
Memory Lane	30+ mainstream adult	Nostalgic and fun	Buddy Holly, Elvis Presley, The Crests, Jackie Wilson, Otis Redding, Brenda Lee, The Platters
Facets	25+ sophisticated adult	Casual to upscale, relaxing and light	David Arkenstone, Otmar Liebert, Chris Spheria, Mark Antoine, Jatin Tesh, Spencer Brewer
Hi-Octane	18-35 trend-setting adults	Energetic and fun	Everything But The Girl, Rufus Wainwright, Daria G., Moby and dance remixes of Cher, Savage Garden, and Ricky Martin

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Practical Applications of Music in Service Settings

J. Duncan Herrington and Louis M. Capella

Musick hath Charms to soothe a savage Breast
To soften Rocks, or bend a knotted Oak.
I've read, that things inanimate have mov'd,
And, as with living Souls, have been inform'd,
By Magick Numbers and persuasive Sound.

Such goes the often (mis)quoted passage from William Congreve's play *The Mourning Bride*. While the magical effects of music on mankind as related through folklore provide a certain amount of intuitive pleasure, it is only recently that researchers have begun scientifically to explore the effects of music on consumer behavior. A number of studies, most of them published in the last ten years, provide some empirical evidence to support the plethora of myths surrounding musical effects. However, many of the commonly accepted axioms concerning musical effects are based on inference, anecdote or, at best, weak empirical findings which are limited in terms of their applicability. In addition, most of what is practiced appears to be based more on intuition than available facts (Miller, 1991). Considered in its entirety, it appears that practical knowledge of background music is somewhat limited. This is unfortunate, given its potential applications (Bruner, 1990).

The primary purpose of this article is to discuss the practical applications of music in retail and service settings. More specifically, it attempts to apply what is known about music and musical effects to the development

of more effective retail and service strategies regarding the selection of appropriate background music. The retailers and service providers for which these concepts are most applicable are those who require consumers to visit their locations (e.g. traditional retailers, medical services and other location-bound service providers).

Unique to this article is a discussion of the various characteristics of music that potentially evoke certain desirable consumer behaviors, thus resulting in some practical considerations for selecting appropriate background music. Secondary data relating the musical preferences of consumers are also provided in an effort to help retailers to determine the most appropriate type of music for their target market. Of notable interest is a presentation of the differences between the structural (physical) and affective (emotional) characteristics of music and the specific behavioral effects associated with these characteristics. Deficiencies in the literature are revealed and some suggestions are offered which may serve to guide future research toward filling some of the theoretical gaps.

Practical Applications of Retail Background Music

It is safe to assume that retail profitability is determined in part by meeting three primary objectives:

- (1) getting an optimal number of consumers into the establishment,

- (2) helping consumers to achieve positive shopping experiences within the establishment (this includes fulfilling purchase needs), and
- (3) encouraging long-term consumer patronage.

Consequently, the discussion presented here will be in the context of how music can be used to help retailers to accomplish these objectives.

Figure 1 is a simplified structural framework to organize the discussion of the literature on music and retail settings. Previous experience with a retailer and/or knowledge of a retailer from other sources provide input for the retail selection decision. The influence of music on the retail customer at the point of purchase is the second part of the framework consisting of store atmosphere, shopper mood, employee performance, and customer psychological costs of shopping. These variables influence the amount of time spent and purchase amounts within the retail setting as well as shoppers' evaluations of the shopping experience (e.g. employee performance and customer service). Finally, customer evaluations serve as input for future retail selection decisions (retail patronage).

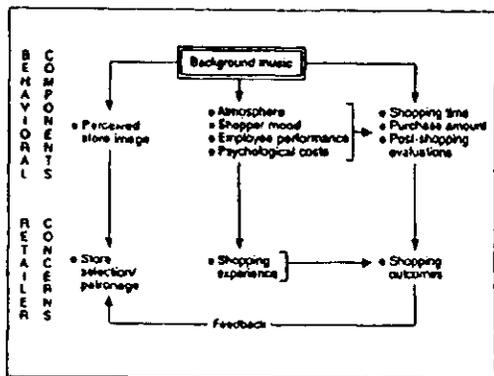


Figure 1.
Structural Framework for Relationship of Music to a Retail Environment

Background Music and Store Selection

In practical terms, a retailer might ask "How can background music help to draw customers into my establishment?" The answer: through its impact on retailer image! Retailer image serves as the basis for consumer attitudes toward a retail establishment and, ultimately, store selection (Monroe and Guitinan, 1975). Retailer image is formed on the basis of such factors as merchandise quality, pricing and assortment, convenience of location, sales clerk performance, general service level, and store atmosphere or environment (Mazursky and Jacoby, 1986). The degree to which retail atmosphere influences a consumer's store selection decision varies by the types of product and service provided by the retailer (Kotler, 1973). For some retail operations such as night-clubs, bars, and discotheques, atmosphere may serve as one of the primary consumer selection criteria. Atmosphere may play a lesser role for other types of retailer (e.g. hardware stores). Regardless of the level of impact, atmosphere can help to define a retailer's image (Ward *et al.*, 1992) and background music can be an important component of retail atmosphere (Langrehr, 1991; Milliman, 1982).

Because of its potential impact on atmosphere, background music may influence choice between stores of the same type (Baker *et al.*, 1992). Consequently, playing the appropriate background music may help a retailer to develop a desirable atmosphere, which in turn contributes to the image of the retailer and consumer store choice (Zillmann and Bhatia, 1989). For instance, a consumer's decision to patronize a night-club or discotheque may be based almost exclusively on the type of music played, as different types of music appeal to different segments of the market. Even non-entertainment-oriented retailers such as The Limited apparel stores use popular contemporary background music