A Demand Study for Columbus FiberNet
by Wholesale Communications Services
June 2002

Columbus FiberNet: Providing Carrier Access in Columbus, Ohio

Executive Summary

Despite the prevailing downward trend affecting the telecommunications industry, the Yankee Group's research shows that there is a marked difference in terms of potential wholesale revenue generation between national, long-haul routes and those in metropolitan regions. Especially in metropolitan areas overlooked by the past few years' network expansion, demand for wholesale transport services still exists as retail service to end-users continues to propel demand for wholesale capacity. While thousands of network route miles have been deployed in the long-haul, the same is not true in metropolitan areas across the country. More building has occurred in Tier 1 markets, but even there network deployment efforts focused on the "core" as opposed to the "access" segment that is critical to reaching customers with high-bandwidth requirements.

The resulting bottlenecks at the "city gates" have been eased somewhat but not comprehensively, as the rate of investment at the local level has trailed interstate infrastructure investments significantly. This trend is evidenced in metropolitan areas' pricing levels for wholesale infrastructure and capacity, which have remained more stable than price levels on long-haul routes. Providers that are able to create route diversity both within and between cities offer their wholesale customers highly valued differentiation.

Given this disparity, the Yankee Group's view is that Tier 2 and Tier 3 MSAs, those representing populations of 500,000 to 2 million and 50,000 to 499,999 respectively, offer carriers' carriers promise as sources of new revenue and traffic growth, particularly in those markets still served primarily by the incumbent local exchange carrier (ILEC). Recognizing the demand for capacity that exists at the local level, and cognizant of carriers' reluctance to fund network expansion projects in an era of capital constraint, a number of independent (non-carrier) entities, including municipalities, utilities and other firms, are taking the lead to propel metropolitan network expansion. Columbus FiberNet (CFN) is an example of just such an initiative, and is designed to facilitate wholesale carriers' entry in the greater Columbus metropolitan area, which is encompassed by Franklin County, Ohio.

I. Franklin County's Market Opportunity

The Yankee Group's research with providers and customers of wholesale services demonstrates that demand for bandwidth in metropolitan areas represents the highest growth opportunity over the next three years. Interviews at a national level with companies selling bandwidth, as well as their customer base, demonstrate growth trends of 25 - 30% for metropolitan bandwidth demand. Revenues for wholesale local private line nationwide grew from $4.5 billion in 1997 to $9.6 billion in 2000. After relatively strong growth in 2001, generating an estimated $12 billion in revenues, the Yankee Group forecasts a plateau for 2002 at $12 billion for metro wholesale providers. The forecast for 2003 is for metro wholesale revenues to reach $15 billion as demand and capital investment become revitalized nationwide. The Yankee Group's interviews with wholesale customers show that they are willing to buy from multiple providers within a metropolitan area to gain the service area reach and diversity they need.

Given the past few years' rush to complete fiber optic installation/construction projects in metropolitan areas, many municipalities have either made the permitting process very difficult and time consuming or declared periodic construction bans. As carriers execute their business expansion plans by the end of 2002, and into 2003, CFN provides a strong value proposition by allowing an easy entry point to the greater Columbus market. As an already completed innerduct system, CFN can:

- Facilitate entry for operators new to the Columbus metropolitan area by eliminating the complex and time consuming design and construction process;
- Alleviate the capital intensive burden of deploying a fiber-optic network;
- Provide capillarity for providers currently operating in greater Columbus, but not necessarily in specific areas along the CFN 70-mile route, such as interexchange carriers, competitive local exchange carriers and cable operators.

Case Study: Columbus FiberNet

Columbus FiberNet is a 70-mile conduit access ring surrounding greater Columbus. Its route encompasses nine miles of Columbus's central business district, as well as commercially active parts of the city's eastern, western, and northern suburbs. CFN is carrier-grade infrastructure consisting of 20 1.5-inch innerducts, each capable of accommodating fiber cables with fiber counts ranging from 96 to 432. With a cluster of three manholes spaced at 600-foot intervals, the system has a total of 1,850 manholes. In addition to passing numerous high-bandwidth commercial customers, Ohio State University and residential communities, CFN's route passes nine of Ameritech's (the Columbus ILEC) central offices.

In order to gauge current demand for wholesale services in CFN's territory, which is within the boundaries of Franklin County, the Yankee Group conducted a county-level assessment to determine spending levels for telecommunications service. Since communications intensive industries are the largest contributors to overall demand for wholesale capacity in metropolitan areas, the evaluation focused on identifying the county's industry profile, segmenting it by the intensity in terms of communications demand, and assessing telecom spending trends in those industries.

II. Market Demand

The Yankee Group's research demonstrates that demand for wholesale services is largely a function of the size and type of corporate users located in a given geographic area. Certain types of businesses exhibit the highest spending and usage rates for telecommunications. Communications intensive businesses fall within the following broad categories:

- Finance, insurance, real estate (FIRE);
- Information technology;
- Manufacturing.

Large enterprises, establishments with 500 or more employees, generally demonstrate higher telecommunications usage rates, propelling demand for wholesale services. The Yankee Group conducted a year-end 2001 survey of 171 large corporations nationwide. The results showed that communications services represent approximately 33% of the enterprises' total budgets in 2001 and 2002. Further, respondents' average spending on communications and information technology was $27.1 million in 2001 and an estimated $28.6 million for 2002.

Franklin County's large enterprise profile is strong, especially in the communications intensive FIRE category. As Exhibit 1 shows, the county has 43 FIRE establishments with over 500 employees. This is followed by services (a subset of which is information technology) with 29 establishments with over 500 employees, and finally, manufacturing, which has 27 establishments with over 500 employees.

Franklin County is home to an estimated 10% of Ohio's total business establishments, with 27,461. In addition, the county has 40% of the state's large enterprises. The services sector is most pronounced in the county, contributing 48% of establishments (13,286) as shown in Exhibit 1. Retail trade is the county's second largest segment, contributing 15% (4,143) followed by the finance, insurance, real estate (FIRE) segment, which contributes approximately 14% (3,737). Exhibit 2 presents an overview of the employment distribution segmented by major industry category.

Employer Profile

Of the state's largest 75 employers, 12 companies (16%) have their headquarters in Columbus; Exhibit 3 presents these companies.

Exhibit 1
Franklin County's Establishments by Number of Employees
Source: U.S. Census Bureau and the Yankee Group

		Total Establishments	1 - 499	500 or More
*	Finance, Insurance, Real Estate	3,737	3,694	43
*	Services	13,286	13,257	29
*	Manufacturing	1,556	1,529	27
	Retail Trade	4,143	4,133	10
	Transportation/Public Utilities	717	712	5
	Wholesale Trade	1,840	1,837	3
	Construction	2,149	2,148	1
	Mining	33	33	0
	Total	**27,461**	**27,343**	**118**

Exhibit 2
Franklin County's Employment Distribution
Source: U.S. Census Bureau and the Yankee Group

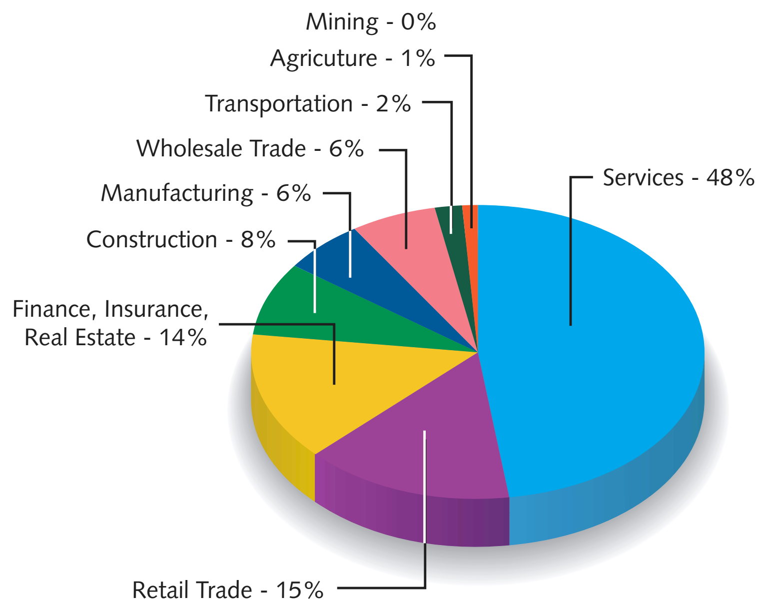

Exhibit 3
Ohio's Top Employers with Columbus Headquarters
Source: Ohio Department of Development and the Yankee Group

Institution	Employees in Ohio	Sector
Ohio State University	17,600	Education
Ohio Health	15,000	Health
Bob Evans Farms, Inc	10,000	Service
Nationwide Insurance Co.	9,310	Insurance
Limited	7,600	Retail
Value City Stores Corp.	7,300	Retail
American Electric Power	7,180	Electric Utility
Emerson Electric	6,940	Retail/Electric Products
Riverside Hospital	6,050	Health
Mt. Carmel E/W and St. Ann's	4,280	Health
OSU Hospitals	3,770	Health
Worthington Industries	3,750	Metal/Plastics

The greater metropolitan Columbus commercial and residential areas have been growing beyond the downtown's central business district over the past 10 years. Along the CFN route, office parks ranging in size from medium to large have been developed in the Easton, Polaris and Worthington areas during this period. In addition to the Ohio State University, one of the nation's largest in terms of its student body size, the following private and public sector employers are located along the Columbus FiberNet route. These businesses represent communications intensive users, particularly in data transfer, that propel demand for wholesale services:

<table>
<tr><th>Category</th><th>Employer</th></tr>
<tr><td>Finance</td><td>• Banc One Corporation
• BiSys
• Chase Manhattan Mortgage
• Fifth Third Bank
• Firstar Bank
• Huntington Bancshares Inc.
• National City Corporation
• Nationwide Financial Services
• State Auto Insurance</td></tr>
<tr><td>Education</td><td>• The Ohio State University</td></tr>
<tr><td>Government</td><td>• Battelle
• Chemical Abstracts
• Department of Transportation
• Defense Supply Center
• Franklin County Services
• State of Ohio</td></tr>
<tr><td>Manufacturing</td><td>• Abbott Labs/Ross Products
• Anheuser Busch Co.
• Ashland Chemical Co.
• Mettler Toledo
• Worthington Industries</td></tr>
<tr><td>Service</td><td>• American Electric Power
• Cardinal Health
• Cigna Healthcare
• IBM Data Services
• Merck-Medco
• Microsoft Corporation
• M/I Schottenstein Homes
• Mount Carmel
• Ohio Health
• Online Computer Library Center
• Qwest Communications
• SBC Sterling Commerce
• Smart Pipes
• WorldCom/UUNet</td></tr>
<tr><td>Retail Trade</td><td>• Big Lots
• Distribution Fulfillment Services (Eddie Bauer/Spiegel)
• The Limited
• Value City Department Stores</td></tr>
</table>

Businesses' Telecommunications Spending

On a national level, the Yankee Group's research shows that enterprises with between 500 and 1,499 employees spend approximately $1.6 million (per business) per year on telecommunications services. Large enterprises with between 1,500 and 2,499 employees spend more than double that ($3.3 million) per business per year.

In CFN's specific territory, Franklin County represents 10.3% of Ohio's overall business spending for telecommunications. The county's compound annual growth rate (CAGR) for telecommunications spending across all industries between 1999 and 2004 is projected at 3%, consistent with the national CAGR. These examples highlight positive growth figures in the categories of highest telecommunications use:

Category	Franklin Co. CAGR
FIRE	3.0%
Manufacturing	2.7%
Services	3.7%

Exhibit 4 presents the spending figures by industry category.

Exhibit 4
Franklin County's Business Spending for Telecommunications

Source: the Yankee Group, 2002

	Institution	1999	2004
	Agriculture Services, Forestry, Mining	$1,457,551	$1,507,817
	Mining	$344,734	$354,544
	Construction	$12,623,608	$13,583,836
*	Manufacturing	$46,160,472	$52,854,011
	Transportation/Public Utilities	$36,382,881	$43,914,148
	Wholesale Trade	$47,724,772	$47,888,970
	Retail trade	$37,239,858	$39,072,501
*	Finance, Insurance, Real Estate	$97,913,680	$113,774,940
*	Services	$137,958,371	$165,483,740
	Total	**$417,805,927**	**$478,434,507**

County Population Trends

In addition to corporate users, consumers' technology use contributes to demand for wholesale services. According to a national Yankee Group survey conducted in 2001, 60.3% of the Ohio-based respondents have household connections to the Internet, though only 7% of the Ohio respondents had high-speed Internet access in 2001. Approximately 32% of those surveyed in Ohio expressed interest in subscribing to high-speed access in the future.

Franklin County's demographics show additional indications of growing demand for telecommunications services. The population grew 11% between 1990 and 2000, registering a total of 1,068,978 in the 2000 federal census. The county had 438,778 households in 2000, a 15% increase from 1990's total of 379,240. At the end of 2002's first quarter, Franklin county's unemployment rate was 4.2%, one of the state's lowest. Overall, the state's unemployment rate at the end of 2002's first quarter was 5.7%.

Conclusion

CFN's innerduct network addresses the demand for telecommunications services by easing wholesale carriers' access to the Columbus market. CFN supplies carriers with communications' core infrastructure without the associated obstacles of network design and construction.

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