



**James Q. Crowe**  
**President**  
**Chief Executive Officer**  
**(402) 536-3670**  
**Fax (402) 536-3632**

## **James Q. Crowe**

### **Personal Profile**

James Q. Crowe is President and CEO of Level 3 Communications, Inc., formerly known as Kiewit Diversified Group Inc., a wholly owned subsidiary of Peter Kiewit Sons', Inc. (PKS). Level 3 is a diversified corporation with interests in construction, mining, telecommunications, energy and infrastructure privatization and development.

Mr. Crowe previously held the position of Chairman and CEO of MFS Communications Company, Inc. (MFS) from July 1986 until December 1996. When the company merged with WorldCom, Inc. in 1996, he was then elected Chairman of the Board of WorldCom.

MFS was the parent corporation of a family of companies serving the communications needs of business and government, and was a unit of PKS until September 1995 when it was spun off and became an independent, publicly owned corporation. Prior to founding MFS, Mr. Crowe was Group Vice President of Morrison Knudsen Corporation.

Mr. Crowe presently serves on the board of directors of Level 3 Communications, Inc., Peter Kiewit Sons' Inc., RCN Corporation, Commonwealth Telephone Enterprises, Inc., and Inacom Communications, Inc.

Mr. Crowe was graduated from Rennselaer Polytechnic Institute with a Bachelor of Science degree in mechanical engineering. He also holds a Master of Business Administration degree from Pepperdine University.

Level 3 Communications, Inc. 3555 Farnam Street Omaha, Nebraska 68131  
[www.L3.com](http://www.L3.com)

## **Level 3 Communications**

### **Introduction to Level 3**

Level 3 is an international communications company building an end-to-end network optimized for Internet Protocol technology. Level 3 will offer a full range of communications services beginning in the third quarter of 1998. Level 3's goal is to continuously lower the unit cost of communications and, over time, to offer services which approach the quality of interaction achieved by physical presence.

#### **Level 3's Business Plan**

- ▶ Level 3 will address all market segments with a full range of communications services.
- ▶ Services include private line, Internet access, Web hosting, virtual private networks and PSTN quality voice and fax.
- ▶ Level 3 will sell directly to larger business and provide wholesale services to others for resale to medium and small business, and residential customers.

**Note:** Level 3's choice of direct and wholesale sales channels is determined by the company's view that its central goal - significantly lowering the unit cost of communications on a continuous basis - requires scalable, broadband local access. This access is currently available only for larger businesses. The failure of legal/regulatory policies intended to make copper loops available to competitors of the incumbent local phone companies (primarily the Bell Operating Companies) on a reasonable basis makes broadband access for smaller businesses and residential consumers one of the nation's most serious communications issues. Level 3 intends to review its choices of sales channels as legal/regulatory and technical/factors evolve.

Level 3 is constructing an international, end-to-end network optimized for Internet Protocol Technology

- ▶ 50 U.S. city networks with multiple fiber rings
- ▶ 15,000 miles of U.S. intercity networks
- ▶ 13 European city networks
- ▶ 3,000 miles of pan-European network
- ▶ Advanced fiber capable of carrying multiple wavelengths (Dense Wave Division Multiplexing or "DWDM")
- ▶ No legacy circuit switches

The Level 3 network is designed to be continuously upgradable.

- ▶ Multiple conduits to accommodate future changes in fiber/transmission technology
- ▶ Emphasis on open, non-proprietary equipment interfaces
- ▶ Operating support systems are modular and upgradable
- ▶ Financial assumptions based on average asset lives significantly shorter than industry standard

Level 3's network is designed to interconnect with the public telephone network

- ▶ Interconnected for both traffic (in band) and signaling (SS-7 out of band)
- ▶ Enables quality and setup times equal to the public telephone network

### **Communications technology and market structure consideration relevant to Sec. 706.**

Current advanced data networks are more cost effective than traditional circuit switched networks.

#### **Cost to Move a CD-Rom (650 MB) From New York to Los Angeles**

Data Network	\$1.98
Public Telephone Network	\$27.08

#### **Assumptions**

Local Switched Connection (each)	\$.005/min
Long Distance	\$.01/min
45Mb Internet port (each)	\$19,000/mo
DS-3 Dedicated Line (each)	\$1,000/mo
Packet overhead	10%

The foregoing analysis is based on service provider cost, not selling price and thus extraneous factors such as access charges do not affect the conclusion.

The performance/price of technologies underlying the communications network are now improving at exponential rates.

<b><u>Technology</u></b>	<b><u>Time to Double Performance Purchased Per \$</u></b>
Frame Relay	10 Months
Transmission	13 Months
Routing	20 Months
ATM	40 Months

Source: "Why Circuit Switching Is Doomed,"  
Peter J. Sevcik, Business Communications Review, Sept., 1997, and  
Level 3 Communications Estimates

Current industry assumptions with respect to capital intensity, average asset lives, margins and unit cost projections do not reflect rapid continuous improvements in technology.

Unit pricing reductions have not reflected improvements made possible by technology improvements.

In effect, communication capacity has been rationed by high prices.

Unit demand for communication is higher than supply and is price elastic for the foreseeable future.

Fundamentally, the communications industry has asked the wrong question for a significant period of time, i.e., "What set of network facilities meets current aggregate demand at the lowest cost?"

The proper question for the industry and the regulators is "Over time, what set of network facilities results in the lowest unit cost of communications given the price elasticity of communications demand?"

Current regulatory policy is at odds with the goal of continuously lowering the unit cost of communications.

- ▶ Access charges are a per unit charge which, if not modified, will shortly represent the dominate fraction of unit cost.
- ▶ Current legal/regulatory policies do not make copper loops available to companies seeking to aggressively deploy high bandwidth, low unit cost technologies (such as xDSL). The ILECs have a direct economic incentive to slow deployment of these technologies since the services they currently sell over these loops command unit prices (i.e., price per unit of bandwidth) many times higher than the services competitors desire to offer.

### **Policy considerations for the Federal Communications Commission**

Rapidly implement a universal services subsidy program which:

- ▶ is competitively neutral
- ▶ is not proportional to unit demand and thus is not a brake on unit cost reduction
- ▶ is provided to those in need of subsidies as determined by policy makers, not industry participants

With respect to data networks, develop clear policy statements which require open, non-discriminatory interconnection between and among public switched telephone providers and new advanced data networks. Chairman Kennard's recent speech to the Federal Communications Bar Association is a clear statement of this key objective.

With respect to advanced data networks, utilize industry governed, independent bodies, industry consensus, etc., to set technical and economic standards. The approach taken by the Securities and Exchange Commission toward the capital markets may be a reasonable analogous model in this regard. The pace of technical change makes traditional communications regulatory processes too cumbersome and slow.

Develop a policy which ensures that local copper loops, upon which most Americans will depend for the foreseeable future, are available to innovators deploying high bandwidth technologies. These policies should explicitly ensure that entities owning these loops have an economic incentive to make them available to those deploying new technologies. Again, Chairman Kennard's recent speech is a guidepost. Copper loops are clearly "essential facilities" as described in his remarks.