

# LEVEL 3 COMMUNICATIONS INC

## FORM 8-K

(Current report filing)

Filed 02/07/00 for the Period Ending 02/07/00

Address	1025 ELDORADO BOULEVARD BLDG 2000 BROOMFIELD, CO 80021
Telephone	7208881000
CIK	0000794323
Symbol	LVLT
SIC Code	4813 - Telephone Communications, Except Radiotelephone
Industry	Communications Services
Sector	Services
Fiscal Year	12/31

# LEVEL 3 COMMUNICATIONS INC

## FORM 8-K

(Unscheduled Material Events)

Filed 2/7/2000 For Period Ending 2/7/2000

Address	1025 ELDORADO BOULEVARD BLDG 2000 BROOMFIELD, Colorado 80021
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# SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

## FORM 8-K

### CURRENT REPORT

PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of Report(Date of earliest event reported): January 24, 2000

## Level 3 Communications, Inc.

(Exact name of Registrant as specified in its charter)

Delaware  
(State or other jurisdiction of  
incorporation or organization)

47-0210602  
(I.R.S. Employer  
Identification No.)

1025 Eldorado Blvd., Broomfield, Colorado  
(Address of principal executive offices)

80021  
(Zip code)

720-888-1000  
(Registrant's telephone number including area code)

Not applicable  
(Former name and former address, if changed since last report)

**Item 5. Other Events**

On January 24, 2000, the registrant held a conference entitled "Silicon Economics II: Supply o Demand & Disaggregation." Attached to this filing as Exhibit 99.1 are the slides presented at that conference. Exhibit 99.1 is hereby incorporated herein by reference as if set forth in full herein.

**Item 7. Financial Statements and Exhibits**

(a) Financial Statements of business acquired

None

(b) Pro forma financial information

None

(c) Exhibits

99.1 Slides presented at "Silicon Economics II: Supply o Demand & Disaggregation" by the registrant on January 24, 2000.

## **SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

### **Level 3 Communications, Inc.**

*February 7, 2000*  
*Date*

*By: /s/ Neil J. Eckstein*  
*Neil J. Eckstein, Vice President*

**The Level 3 Strategy**

1. Overview Jim Crowe
2. Supply Jim Crowe
3. Demand Ron Vidal
4. Disaggregation Ron Vidal
5. Silicon Economics and Value Creation Jim Crowe

**The Level 3 Approach**

6. Customers, Sales and Services Kevin O'Hara
7. - Colocation Services Jimmy Byrd
8. - Softswitch Services Ike Elliott
9. Level 3 Network Dan Caruso
10. International Strategy Colin Williams
11. Our People Kevin O'Hara
12. Financial Overview Doug Bradbury

13. Summary

Q & A

## **Forward Looking Statements**

The presentations made at the Silicon Economics II: Supply o Demand & Disaggregation, both oral and written, contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements include, among others, statements concerning:

anticipated trends in the market for communications services; the elasticity of demand for communications services; the anticipated reduction in the cost to provide communications over an IP technology based network; the anticipated price-performance of IP technology based products and services; the sources of demand for communications services; expectations of the rate of price performance improvements; estimates of completion dates; future revenues, monthly recurring revenues, gross margin percentages, selling general and administrative expenses as a percentage of revenues, capital requirements and levels of capital expenditures; expectations as to funding the company's capital requirements; and other statements of expectations, beliefs, future plans and strategies, anticipated developments and other matters that are not historical facts.

The forward-looking statements are based on management's beliefs as well as on a number of assumptions concerning future events. Participants at the conference and readers of these materials are cautioned not to put undue reliance on these forward looking statements, which are not a guarantee of performance and are subject to a number of uncertainties and other factors, many of which are outside the company's control, that could cause actual events or results to differ materially from those expressed or implied by the statements. The most important factors that could prevent the company from achieving its stated goals include, but are not limited to, failure by the company to: achieve and sustain profitability based on the creation and implementation of the Level 3 Network; overcome significant early operating losses; overcome difficulties in constructing the Level 3 Network which could increase its cost and delay its schedule completion, produce sufficient capital to fund the company's business plan; develop financial and management controls, as well as additional controls of operating expenses as well as other costs; attract and retain qualified management and other personnel; install on a timely basis the switches/routers, fiber optic cable and associated electronics required for successful implementation of the company's business plan; and develop and implement effective internal processes and systems for processing customer orders and provisioning. For a discussion of certain of these factors, please see the Company's Current Report on Form 8-K/A filed with the Securities and Exchange Commission on November 9, 1999.

\* \* \*

The materials presented at the Silicon Economics II: Supply o Demand & Disaggregation, including materials contained in this binder, are copyrighted by Level 3 Communications, Inc.

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## **Overview**

Jim Crowe  
President  
and  
Chief Executive Officer



### **Four Keys To Level 3's Strategy**

- o Bandwidth price-performance improvement rates will exceed Moore's law
- o Bandwidth demand is strongly price elastic
- o The combination of rapidly dropping prices and increasing demand ("Silicon Economics") is a key dynamic in the communications industry
- o Silicon economics is disrupting the traditional, vertically integrated communications industry

A Properly Designed Network Should Leverage Rapidly Improving Technologies

	IP Technology	Optical Technology	
Trend Line Annual Improvement Rate (%)	52%	100%	
Time to Double Performance Per Dollar (mo)	20	12	Weighted Annual =80% Improvement Rate
Percentage of Cumulative Variable CapEx(1)	34%	66%	

[FN]  
(1) Level 3 10-year plan

## The Silicon Economics Model

[Graphic: intersecting price and demand curved lines]

- o Rapid decrease in unit cost and unit price caused by market based technology improvement
- o Unit demand grows much faster than unit price declines

Computing Prices And Demand  
Illustrate Silicon Economics

[Graphic: intersecting line graph with \$ per MIPS on Y axis and years 1998 to 1996 on X axis]

- o Market based technical improvements have rapidly lowered unit cost and price
- o For each 1% decrease in price, demand has increased over 2%

Source: Industry Data

## Silicon Economic Model

[Graphic: Quadrant graphic with LD in lower left, electricity in upper left, computer hard drives lower right and micro-processors, backbone routers and bandwidth in upper right with increasing price elasticity on the X axis and price-performance improvement increasing on the Y axis.]

## Silicon Economics Is Disrupting The Traditional, Vertical Integration Model

- o Slow moving vertical companies challenged by fast moving focused competitors
- o Market based standards enable horizontal companies to offer bundled services
- o Horizontal companies rapidly decrease costs and prices, and stimulate demand

## **Summary**

- o To benefit from silicon economics, a service provider must rapidly decrease unit cost and unit price, and increase unit demand
- o A continuously upgradeable network is required to leverage technology improvements
- o Voice is a significant opportunity in the near term
- o IP based multimedia will dominate revenues over the longer term
- o Level 3 is focused on selling Internet infrastructure services to Web centric companies

### **The Level 3 Business Plan**

[Graphic: representative Gnatt chart showing Phase 1 to Phase 6 with years 1998 to 2000]

- o Focus on Web centric customers with rapidly growing demand
- o Comprehensive range of services
- o Upgradeable network
- o Attract and retain the best people
- o Maintain financial strength



## Supply

## **The Parts Of A Network**

[Graphic: representative schematic of access network and backbone network]

- o Access networks support specific service areas and directly connect to customers
- o Backbone networks connect points of traffic aggregation

## The Transmission Choices

[Graphic: two column chart with Access as label for first column and Backbone as label for second column. Wireless is label for first row and Wireline is label for second row. Upper left square contains fixed wireless, PCS, Cellular, 3G and Satellite. Upper right hand square contains N/A. Lower left hand square contains copper, coax and fiber. Lower right hand square contains fiber.]

Fixed Wireless And Satellite Are Not Competitive With Fiber For Broadband Applications

	Single Fiber Bandwidth		Total U.S. Spectrum
	(1) /	Total Spectrum	Owned (Mhz)
Capacity of 1 Fiber =	Owned	Company	
	3834	TELIGENT	13,040
	2167	MCI/SPRINT	23,072
	1422	ART	35,150
	1015	WINSTAR	49,250
	982	NEXTLINK	50,900

Source: ING Baring, JP Morgan, Lehman Brothers, FCC  
(1) 50 Thz

Fixed Wireless Is Cost Efficient In A Ring Which Expands As Fiber Price Performance Improves

[Graphic showing generic city map with two concentric circles. Inner circle labeled Fiber and outer circle labeled wireless with arrows on outer circle pointing outward].

## How Much Fiber Based Backbone Capacity Is (Or Will Be) In Place?

- o Dark fiber is not equivalent to capacity
- o Fiber is a rapidly changing network element
- o Each new generation of fiber enables substantial unit cost decreases

"Saying there is a glut of bandwidth because there is a lot of fiber is like saying there is a glut of microprocessors because there is a lot of sand."

Dr. Robert Metcalfe  
Inventor of the Ethernet  
Networking Protocol

## Fiber Is Only A Small Part Of The Variable Cost Of Capacity...

[Graphic: Pie chart showing Opto-electronics as greater than 95% and fiber as less than 5%]

- o Data from Level 3 ten year plan
- o Capital costs only
- o Cost of fiber for Level 3 requirements only
- o Does not include cost of fiber for dark fiber sales



...However, Fiber Characteristics Determine The Cost To Provide Capacity

**Unit Costs Are Determined By:**

The distance between equipment required to amplify and regenerate signals

The number of colors of light (wavelengths)

The line speed at which the lasers operate (OC-12, OC-48, etc.)

Both fiber and opto-electronics are rapidly improving.

The lowest unit costs results  
from the optimum combination of  
these two technologies."

Anil Khatod  
President  
Optical Internet  
Nortel Networks

"Fiber and opto-electronics are proving to show the highest price performance improvements in telecommunications. The lowest unit costs will be achieved by optimally combining these two technologies."

Wendell Weeks  
Executive Vice President  
Opto-Electronics  
Corning Inc.

"It is now clear that optical fiber, WDM and transmission equipment are all a part of a single integrated system. Each of these technologies is rapidly improving. I believe the right combination of each new generation of these elements can drive down the cost of moving information at rates that make Moore's Law look slow by comparison."

Gerry Butters  
Senior Vice President  
Marketing and Technology  
Chief Technology Strategist  
Lucent Technologies

## Submarine Cables Illustrate The Importance Of Optimizing Fiber Design To Match Equipment Advances

- o Each fiber is custom designed and fabricated to optimize price performance
- o As a result, submarine cables span thousands of miles without very expensive electrical regeneration
- o Several companies are bringing this same design approach to land based systems

Each New Generation Of Fiber Provides A Bigger "Budget" To Allocate To

Equipment Spacing, Number Of Wavelengths And Line Speed		
Generation	Fiber Type	Relative Budget
1	Single Mode	100
2	NZDSF	123
3	LEAF	138
4	Gen 4	172
5	Gen 5	345
6	Gen 6	431
7	Gen 7	862
8	Gen 8	1,078
9	Gen 9	2,156

Source: Corning, Inc., Nortel Networks, Inc., Level 3 Engineering

## Unit Cost Of Transport

[Graphic: Line graph with scale increasing from 0.01 to 10,000 labeled Unit Cost \$ per Gb/s per mile on the Y axis and years 1990 to 2010 on the X axis. Graph depicts decreasing Unit Costs over time for each new generation of fiber introduced]

### Assumptions:

- o Cost of opto-electronics for 1,000 mile point to point system
- o New fiber generations improve at SMF historic rates (29% per year)
- o New fiber generation every 21 months

Source: Corning, Inc., Nortel Networks, Inc., Level 3 Engineering

Compounding Unit Cost Reduction Rates Provide A Substantial Competitive Advantage

Year	Fiber Generation	% Unit Cost Reduction From Gen 1 (SMF)
2000	LEAF	28%
2002	Gen 5	71%
2005	Gen 7	88%
2010	Gen 9	95%

Source: Corning, Inc., Nortel Networks, Inc., Level 3 Engineering



## Transport Is The Largest Cost Element For IP Networks And Web Centric Companies

[Graphic: Bar graph showing total \$ of cost per CD Rom (NY to LA) total for IP network is \$1.98 and total for Circuit Switched Network is \$27.08]

- o Transport is approximately 50% of IP network unit cost
- o Transport is approximately 4% of circuit switched unit cost

# National Networks Are Composed Of Various Fiber Generations

Company	(U.S. Network) Miles	Fiber Generation(1)	Total (Fiber * Miles)	Lit (Fiber * Miles)
AT&T	41,000	1	1,435,000	369,000
Sprint	31,000	1	620,000	155,000
MCI WorldCom	45,000	1	1,080,000	270,000
Qwest	18,450	2	885,600	73,800
Global Crossing	13,000	2	312,000	52,000
GTE	13,000	2	312,000	26,000
Williams	33,000	1 to 3	1,531,000(2)	19,700
IXC (Broadwing)	16,400	2	1,574,400	65,600
Enron	5,500	3	588,000	11,000
Level 3	16,000	3	1,152,000	780

Source: JP Morgan - Level 3 Estimates - WCG Public Disclosures

Notes: (1) Predominant fiber generation. Certain networks combined mixed fiber generations

(2) Assumes average fiber count of 46

Only A Small Percentage Of Total And Lit Fiber Employ Current Technology

[Graphic: Two pie charts. First pie chart labeled Total Fiber Miles - Gen 1 (SMF) 33%, Gen 2 (NZDSF) 38% and Gen 3 (LEAF) 29%. Second pie chart labeled Lit Fiber Miles -- Gen 1 (SMF) 77%, Gen 2 (NZDSF) 22% and Gen 3 (LEAF) 1%]

## Multiple Conduits Are Required To Leverage Technical Improvements In Optical Fiber

- o Pull new fiber when unit cost is lower
- o Move traffic when O&M cost in oldest fiber exceeds Capex + O&M in newest

fiber

National Networks Have Varying Numbers Of Conduits

Company	Network Miles	Conduits	Total Conduit Miles	Empty Conduits	Empty Conduit Miles
AT&T	41,000	1	41,000	0	0
Sprint	31,000	1	31,000	0	0
MCI WorldCom	45,000	1	45,000	0	0
Qwest	18,450	2	36,900	1	18,450
Global Crossing	13,000	0(1)	0	0	0
GTE	13,000	0(1)	0	0	0
Williams	33,000	0 to 3	47,750	0 to 2	25,900
IXC (Broadwing)	16,400	1	16,400	0	0
Enron	5,500	1	5,500	0	0
Level 3	16,000	12	176,000	11(2)	176,000
Total	235,350	19 to 22	399,550	12 to 14	220,350

Source: JP Morgan, Company Reports - WCG Public Disclosures

Notes: (1) Included in Qwest Network

(2) One conduit sold to INTERNEXT

Level 3 Is Positioned To Benefit From Fiber Technology Improvements

[Graphic: Two pie charts. First, labeled Number of Empty Conduits. Level 3 11, Williams 0 to 2 and Qwest 1. Second, labeled Empty Conduit Miles (%) Level 3 80%, Williams 12%(1) and Qwest 8%].

[FN]

(1) Assumes 25,900 empty conduit miles

## **Summary and Conclusions**

- o Fiber represents less than 5% of the cost of capacity
- o Fiber is a rapidly changing technology
- o Each new fiber generation substantially lowers associated equipment costs which represent greater than 95% of total cost
- o Multi conduit systems are required to leverage fiber technical improvements
- o Level 3 has the only US and European multi-conduit networks(1)

[FN]

(1) Estimated substantial completion 4Q00

**Demand**

Ron Vidal  
Group Vice President  
New Ventures & Investor Relations



## Excess Supply Predictions Have Been Common In Technology Based Markets

- o Mainframe Computers
- o Copy Machines
- o Fax Machines
- o Cellular Communications
- o Microprocessors
- o The Internet

## Historical Analysis Fails To Predict Demand From Two Sources

- o Demand created by disintermediation of legacy products and services
- o Demand for new products and services

## Historical Analysis Has Underestimated Bandwidth Demand

[Graphic: Graph depicting actual bandwidth demand versus projected bandwidth demand from 1980 to 2010. Source Lucent Technologies.]

## **Disintermediation**

Definition: The replacement of a product or service by a lower cost alternative.

## Disintermediation Is A Major Source Of Current Bandwidth Demand

Existing Market	Substitute
Consumer and business sales	Electronic commerce
Physical software distribution	Network based software distribution
Enterprise and consumer a software applications	Application service providers
Physical music and video distribution	Network based content distribution
Broadcast and Cable TV	Streaming audio and video

- o Existing information distribution channels are very large
- o Communications services are directly substitutable for these channels
- o As prices decline, demand grows more rapidly

## **Funding For New Services And Applications Is Accelerating**

[Graphic showing increasing dollars of funding to Technology Companies and Internet-related companies based upon data from PriceWaterhouseCoopers]

## **Bandwidth Intensive Companies Are Starting Up At Record Rates**

- o 25 to 30 Web centric startups receive a round of financing each day
- o Web centric enterprises spend 25% to 50% of operating expense on bandwidth
- o Geographic distribution of investments
  - 37% Silicon Valley
  - 7% Boston
  - 56% rest of U.S.

New Companies are Creating Bandwidth  
Demand at an Unprecedented Rate

Service Providers	Focal, RCN, Allegiance, Splitrock
ISPs	Juno, Earthlink/Mindspring, NetZero, AOL
Portals	AOL, Yahoo, Excite/@home
Web Hosting	DataReturn, eManage.com, Xuma
E-commerce	Commerce One, Amazon.com
Streaming Content	Yahoo., Enron
Wireless IP	Alcatel, Nokia, NovAtel.Inc.
IP Voice	3Com
ASP	WebUseNet, onebox.com, Live365.com, Desktopnews, Convergys



## Communications Approaching The Quality Of Physical Presence (Telepresence) Is Illustrative Of New Application Bandwidth Demand

### **Assumptions:**

1 half/sphere/per eye

24 bit color

30 frames per sec.

2,400 dots per inch

10.4 billion pixels

One telepresence session requires 15 terabits/second (uncompressed)

# Bandwidth Requirements Of Selected Future Applications

Applications	Backbone Bandwidth (1) (Petabits per sec)	Multiple of Current Backbone Bandwidth
Current backbone network	.001	1
Online virtual reality/augmented reality	1 to 10	1,000 to 10,000
3-D holography/telepresence	30 to 70	30,000 to 70,000
Meta computing	50 to 200	50,000 to 200,000
Web Agents	50 to 200	50,000 to 200,000

Source: Corning Inc.

Notes: (1) 1 Petabit = 1,000,000,000,000 bits

## Summary

- o Bottoms up analyses have consistently underestimated demand
- o Historical analyses of bandwidth demand have underestimated demand from - Disintermediation of existing information distributed markets - New applications
- o As bandwidth unit prices decrease, bandwidth unit demand will increase much faster

**Disaggregation**

"When a horizontal business model meets a vertical business model, horizontal wins every time."

John Chambers  
President and CEO  
Cisco Systems, Inc.

### **Vertically Integrated Industries Disaggregate When...**

- o The pace of technical change is difficult for one company to master
- o Price performance improvements for new technologies significantly drop unit costs
- o Rapid changes in demand for disaggregated products or services are difficult for one company to meet
- o Market based standards, and partners, make bundling of services possible

## **IP And Optical Technology Development Is Market Based**

Market Based IP and  
Optical Technology

Led by hardware, software  
and service providers  
Product success determines  
standards  
Unpredictable and rapid

Centrally Planned  
Technologies

Led by national/international  
standards bodies  
Standards determine product  
development  
Predictable and slow

## Market Based Standards And Silicon Economics Have Disrupted The Computer Industry

[Graphic: Mainframe Market (Vertical Integration) showing physical hardware on bottom, memory, processor and storage on next level up, operating system on next level up and applications on top level. Client/Server Market (Horizontal Integration) physical hardware broken into three separate units on bottom, memory, microprocessor and storage broken into three units on next level up, operating system broken into three units on next level up and applications broken into three units on next level up.]



## Market Based Standards And Silicon Economics Are Disrupting The Communications Industry

[Graphic: Traditional Communications (Vertical Integration) Access and long distance network on bottom level, intelligent network on next level up and applications on top level. Web Centric Communications (Horizontal Integration) Access and broadband backbone in separate units on bottom level, intelligent distribution on next level up, hosting and network apps and data in separate units on next level up and portals, asps and e-commerce on top level in three separate units.]

Disaggregation Has Created Substantial Value In The Computing Industry



## **Summary**

- o Silicon economics is disaggregating the traditional, vertically integrated communications industry
- o Value creation will occur most rapidly in focused, more horizontally integrated companies

Silicon Economics & Value Creation

Jim Crowe President and Chief Executive Officer

What Combination Of Interrelated Prices, Demand And Capacity Maximizes NPV?

Price by service by location

Demand by service by location

2,500 city pairs = Tens of Thousands of Variables Number and type of fiber over time

Types of opto-electronics

Network architectures

## Maximizing NPV Requires Many Complex Trade-Offs Between Tens Of Thousands Of Variables

Dropping Prices - Lowers revenue per unit - But increases number of units sold Increasing transmissions speed (OC-12, OC-48) - Increases capacity - But decreases equipment spacing and number of colors of light Increasing numbers of colors (wave lengths) - increases capacity - But decreases equipment and transmission speed  
Shortening network element life - Leverages price performance improvements - But increases absolute capital requirements

### **Level 3 Has Developed The Industry's First Integrated Optimization Model**

- o Utilizes advanced optimization technology
- o Level 3 has strong team of leading operations research and process optimization personnel
- o Lucent (Bell Labs) has provided leading researchers to assist in mathematical formulations



### **Results Have Shaped Level 3 Strategy**

- o NPV is maximized when price decreases approach technology improvement rates
- o Pull less fiber, more often, to leverage technical improvements - Requires multiple conduits
- o Deploy new generations of opto-electronics technology very quickly
- o Average asset lives are short
- o Small improvements compound over time

## **Some Future Directions**

- o Modeling of competitor response
- o Forward pricing models
- o Integrate optimization models and provisioning systems

## **Customers, Sales & Services**

Kevin O'Hara  
Executive Vice President  
And  
Chief Operating Officer

## **Level 3 Sales Are Driven By High Growth Web Centric Companies**

[Graphic: Pie chart web centric at 76%, carriers at 11% and Enterprises at 13%]

- o Web centric companies' bandwidth demands are doubling every 4-6 months
- o Level 3 services often represent 25% to 50% of customer operating expense
- o Many customers are colocated at Level 3 gateways - Colocation substantially reduces bandwidth costs

### Level 3 Provides A Comprehensive Range Of Services To Web Centric Companies

[Graphic: Collection of customer logos]

- o Transport services
  - Private line
  - Dark fiber
  - Conduit
- o Colocation and Internet access
- o Softswitch platform services
  - Managed modem
  - Voice
- o Submarine Services

## Transport Services

[Graphic: collection of conduits with a single cable in a single conduit]

- o Includes private line, dark fiber and conduit
- o Private line is \$44 billion global market
- o Current market is supply constrained
- o Upgradeable multi-conduit local and intercity network assures low cost position

## Transport Services Representative Customers

Allied Riser Communications (ARC)

Cable & Wireless

CMGI Inc.

COLT Telecom

Computer Telephone Corp.

Convergys

DBN Corporation

Desktopnews

EManage.com

Enron

Focal

Disney/Go

InterNAP Network Services

Intellispace

**NEXTLINK**

Juno

Network Access Solutions

Northpoint Communications

Pacific Gateway Exchange

**RCN**

Splitrock Services Inc./McLeod

Time Warner Telecom

Worldstar Telecom

## **Colocation Services**

Jimmy Byrd  
Senior Vice President  
Colocation & IP Services



## **Colocation And IP Services**

- o \$50 billion global market (Source: International Data Corp. 1999)
- o Level 3 global facilities include over 3.4 million sq. ft.
- o Connectivity to Level 3's low cost broadband and IP networks
- o Today's market is supply limited

## Hosting And Colocation Are Different Businesses

### Hosting

- o Content development
- o Application Support
- o Operating system management
- o Database management
- o Server management

### Colocation

- o Physical space
- o Power and environmental management
- o Broadband network connectivity

- o Hosting is an IT systems integration business

- People intensive

- o Colocation is a broadband network service

- Provides portal to network

- Colocation on Level 3 backbone can reduce bandwidth costs by 50% to 80%

Web Centric Companies Benefit By Locating In Level 3's Gateways

[Graphic: Cost of transport for a 750 mile circuit. Relative cost on Y axis bar graph for Level 3 gateway and Third party gateway leased network]

### **Level 3 Has More Gateway Space Than Any Competitor**

[Graphic: bar graph showing Level 3 with most, next Exodus, next Global Crossing and lowest Qwest]

## IP Services

[Graphic: Map of United States with IP Backbone.]

- o Global IP network
- o Directly connected to tier one ISPs
- o Accessible via local transport or colocation

Colocation And IP Services Representative Customers Akamai  
Alchemy Communications, Inc.  
AltaVista Company  
Yahoo  
Castle.net  
CMGI Inc.  
Communications & Leasing Services, Inc.  
Computer Telephone Corp.  
Consumer Net Marketplace, Inc.  
Critical Path  
DataReturn  
EarthLink/Mindspring  
Disney/Go  
Intervue  
Keynote Systems  
Live365.com  
NetGravity  
Net2000 Communications  
Northpoint Communications  
onebox.com  
Oracle  
Sony Online Entertainment  
StorageTek  
WebUseNet  
Xuma

## Summary

- o Gateways are portals to Level 3 Network
- o Level 3 IP bandwidth and capabilities are redefining the market
- o Supply constrained market

## **Softswitch Services**

Ike Elliott  
Senior Vice President  
Softswitched Enabled Services



## **Softswitch Platform Services**

- o \$664 billion global market (Source: International Data Corp. 1999)
- o Softswitch architecture means rapid, long term cost and price reductions
- o Services include
  - Managed Modem (available)
  - LD Voice (available)
  - Local Voice (estimated 2001)

Today's Revenues Are Dominated  
By Telephone Services  
(\$ millions)

Today's IP Market

Data Services	\$47,104
Internet Access	27,000
IP Telephony	4,100
IP VPN	913
Total	\$79,117

Today's Telephone Market

Switched Telephony	\$529,000
Fax	121,000
Total	\$650,000

Today's Voice Services Market == 89%  
Today's Total Market

Source: International Data Corp. 1999

## **Softswitch Services**

- o Softswitch services with IP economics are a major opportunity today
- o Softswitch technology enables high quality services today
- o Softswitches are commercially available today

## **Softswitch Architecture**

- o Software based substitute for conventional circuit switch
- o Utilizes general purpose computers
- o Open interfaces enable third party software development
- o Leverages silicon economics
- o Utilizes efficient, distributed architecture

## Key Concepts The Four Major Communications Networks

IP Networks

Telephone Networks

SS7 Networks

**All on top of Transmission Network**

## Key Concepts Digital Circuit Switch

- o Integrated functionality
- o Proprietary software
- o Proprietary application development

## Key Concepts SS7 Enabled Softswitch

- o Distributed functionality
- o Open platforms
- o Open interfaces enable new applications
- o Overflow to PSTN when quality is unacceptable

## Softswitches And Media Gateways Are Commercially Available Today

- o Over 100 leading companies are members of International Softswitch Consortium
- o At least 22 vendors have introduced or plan to introduce Softswitch gateway controller technology
- o At least 20 vendors sell or plan to sell Softswitch gateway components



## Softswitched Services Leverage Silicon Economics

Time To Double  
Performance Per Dollar  
(mo)  
Circuit Switch 80  
Softswitch 20

- o Currently a Softswitch costs 40% to 45% less than an equivalent circuit switch
- o Given relative price-performance improvement rates, Softswitches will be much less expensive over time
- o Distributed components with open interfaces will spur development of new applications

## **Managed Modem Is The First Widely Available Softswitch Based Service**

- o Used for dial-up Internet access
- o Available since October 1998
- o Quality equal to or better than circuit switch based service
- o Level 3 is the only national supplier

## Managed Modem Representative Customers

- o AOL
- o Access Technologies
- o CMGI Inc. o Earthlink/Mindspring
- o Juno
- o NetZero
- o UltraNet Communications
- o 1st Up

### (3)Voice Is The Industry's First Commercially Available Softswitch Based Voice Service

- o Sold to LD carriers
- o Available since Dec 1999
- o Quality equal to circuit switch based service
- o Coverage in 24 cities by Mar 2000
- o Level 3 is the only national supplier

## **Submarine Services**

- o Key part of Web centric focus
- o Many Web centric companies have international operations
- o Ownership assures Level 3 has low cost position
- o Level 3 is major operator
- o TAT-14
- o AC-1
- o Project Yellow
- o US-Japan
- o Japan-Hong Kong

Web Centric Sales Representative Average Productivity Is Rapidly Increasing

[Graphic: bar graph showing increasing sales from Q1 to Q2 to Q3 in 1999]

## **Customer Service**

- o Focused on Web centric enterprises
- o Convergys partnership enables full suite of services and Business Support Systems
- o 24x7 customer service and support
- o Growing Web based support capability

## Summary

- o Level 3 is focused on enabling high growth, Web centric enterprises
- o Level 3 has the industry's most complete set of Web centric services - Transport - IP and Colocation - Softswitch Services - Submarine Transport Services
- o Level 3 Sales productivity are rapidly growing



### **Level 3 Network**

Dan Caruso  
Group Vice President  
Global Customer Operations

[Graphic: five pictures: colocation sites; IP network; intercity network; local networks softswitch network]

## Colocation Gateway Facilities Typical Colocation Site

[Graphic: Not to scale depiction of layout of typical colocation facilities]

- o Typically 50,000 to 500,000 sq. ft.
- o Dual, fault tolerant Level 3 network connections
- o Interconnected with at least 3 other local networks and intercity networks
- o High level of physical and network security

## Gateway Facilities

[Graphic: Map of U.S. showing locations of colocation facilities separately identified as in service in 1999 and 2000]

## Typical City Network

[Graphic: artist rendition of city network in lower Manhattan and northern New Jersey.]

- o Connects
- o Colocation sites
- o ILEC Cos
- o Third party hosting sites
- o Carrier hotels
- o Upgradeable multiple conduit system
- o Connects points of traffic aggregation
- o Not an access network

## Metropolitan Networks

[Graphic: Map of U.S. showing locations of metropolitan networks separately identified as in service in 1999 and 2000]

## **U.S. Intercity Network**

[Graphic: Map of the U.S. showing proposed intercity network with in service dates of 1999 and 2000]

- o 16,000 U.S. route miles
- o Upgradeable 12 conduit system
- o Connects more than 150 cities
- o Leased facilities enable sales upon gateway completion

### Level 3 Expects To Complete The U.S. Intercity Network Ahead Of Schedule

[Graphic: time line graphic showing original schedule and newly announced schedule]

- o 9,300 miles of network complete as of Dec. 31, 1999
- o Average of 250 miles of network completed per week
- o 3,000 miles of 96 fiber cable installed as of Dec. 31, 1999
- o First segments lit 4Q99
- o Substantial completion in 4Q00



Level 3's Intercity Network Cost Is A Strategic Advantage

[Graphic: bar graph showing indicative cost per conduit mile of Level 3's network (\$12,000) Qwest's network (\$61,000) Williams (\$82,758) and Broadwing (IXC) (\$120,000). Notes: Assumes cost of \$120,000 per mile for single conduit network plus \$2,000 per mile for each additional conduit for Level 3. Williams is noted that non continuous conduit - figure indicates average conduits per mile.]

### **Level 3 IP Network**

[Graphic: Map of the U.S. with IP Network shown with dates in service for 1999 and 2000]

- o Operational IP backbone connects 27 cities
- o Direct peering with major ISPs
- o Currently replacing ATM layer with MPLS routing

### **Level 3's Network Uses 4 Layers**

[Graphic: depiction of elements of network with primary attributes. Fiber - physical medium; WDM - high capacity, SONET - multiplexing, low error rate, fault tolerance, ATM - quality of service, IP - addressing]

#### **4 Layer Networks Have Inefficient Overlapping Functionality**

Global Addressing - IP

Quality of Service - ATM

Multiplexing - IP, ATM, SONET, WDM

Low Error Rate - IP, ATM, SONET

Fault Tolerance - IP, ATM, SONET

High Capacity - SONET, WDM

Networking Technologies Have Varying Improvement Rates

	Improvement Rate Per Year %	Time to Double Performance per Dollar (mo)
IP	52	20
ATM	23	40
SONET	32	30
WDM	130	10

Souce: Level 3 Estimates "Why Circuit Switching is Doomed," Peter J. Sevcik, Business Communications Review, Sept., 1997

## Multi Protocol Label Switching (MPLS) Enabled Routers Are Expected To Eliminate ATM

- o MPLS is an extension of IP
- o MPLS provides Quality of Service capability similar to ATM
- o MPLS enabled routers are commercially available - Level 3 is currently deploying MPLS routers
- o Elimination of ATM provides substantial cost savings



### **Caveat!**

Unexpected innovations in technology will disrupt predicated technology trends

(It's good to hve an upgradeable network)



## **The Level 3 Softswitch Network**

[Graphic: Map of the U.S. with indications of locations of Media Gateways and Softswitches]

- o Distributed, open architecture
- o Fully interconnected with public telephone network
- o Provides Managed Modem and (3)Voice Service
- o Level 3 has deployed the only national Softswitch network

## Summary

- o On or ahead of schedule on all major activities
- o Major network elements will be completed during 2000
- o Continued focus on execution o Level 3 is the leader in deployment of IP optimized, upgradeable networks

## **International Strategy**

Colin Williams  
Executive Vice President  
Global Services & Systems

## **International Strategy**

- o Focus on Web centric companies
- Market leadership in colocation facilities
- o Leverage industry's first upgradeable, multi-conduit network
- Connect Internet intensive locations
- o Maintain access to low cost submarine capacity
- o Sell scaleable, globally compatible services
- Leverage global development and deployment

Western Europe  
Level 3 is Focused on High Growth, Web Centric Markets

Country	Population (000s)	Internet Penetration (%)	Growth Rate (%)	Number of Users (000s)
Germany	81,600	12.4	31.4	10,118
United Kingdom	58,100	15.1	39.3	8,773
France	58,978	6.9	39.3	4,069
Italy	57,200	5.4	38.8	3,088
Netherlands	15,808	15.7	36.0	2,482
Belgium	10,182	7.7	35.0	784
Sweden	8,100	28.2	31.5	2,284
Spain	39,600	5.1	48.3	2,019
Finland	5,158	31.0	25.0	1,599
Denmark	5,357	21.5	29.0	1,156
Switzerland	7,275	14.4	32.0	1,048

Graphic indicates that Level 3 Markets are top 6 markets on chart.

Source: IDC Report (11/22/99), Ovum Internet Market Forecasts, Level 3 Estimates

Relative Bandwidth Costs Are High

Country	EU Private Line Price Ratio(1)
U.S.	1.0
Netherlands	3.5
Belgium	5.0
United Kingdom	5.8
France	6.6
Germany	7.7
Italy	13.6

Source: Tarifica "Leased Line market in Europe" 1998 (Incumbent Pricing)

[FN]

Notes (1) For E1 half circuit

## Western Europe Services Availability

Service	Availability
Transport	
- Private Line	Available
- Dark Fiber	Available
- Conduit	Available

Submarine Transport Available

IP and Colocation

- Colocation Available
- IP Available Softswitch Services
- Managed Modem 2000
- Voice Service 2001

## Representative Customers

Xstream  
Gigabell  
Quoka.com  
Gigaport  
**BBC**  
**COLT**  
**Sony Music Europe**  
**IDT**  
Cistron  
Wish.com  
Planet Internet  
**UPC**  
Versatel Telecom  
Compuware  
Euronet  
Scoot.com  
Virtual Internet  
**LIT**



**Western Europe Gateway Status**

[Graphic: Gateway locations in Western Europe and in service date of 1900 and 2000]

## Western Europe Metropolitan Networks

[Graphic: Western Europe locations and in service dates of 1999, 2000 and future]

- o Multi-conduit capability
- o Connects PTTs, carriers and Internet traffic hubs

## **Western Europe Intercity Network**

[Graphic: Route map of 3 ring intercity network in Western Europe]

- o Upgradeable, multi-conduit network
- o Over 2100 miles complete as of 4Q99
- o 4Q00 scheduled completion
- o Joint build with COLT

## European IP Network

[Graphic: depiction of network connections between East Coast of U.S. and European intercity network]

- o Operational IP Backbone connects 4 cities
- o Peering with major ISPs
- o Currently replacing ATM layer with MPLS routing

### **Level 3 Trans Atlantic Capacity**

[Graphic: depiction of undersea capacity between East Coast of U.S. and Western Europe]

- o Connectivity between multi-terabit U.S. & European networks
- o Integrated sub-sea and terrestrial network
- Operated and managed as one
- o Ability to take advantage of regulatory and technical environment
- o Ability to continually refresh network and drive costs down

Asia					
Level 3 Is Positioned To Benefit					
From Asia's Rapidly Growing Demand for IP Based Services					
Country	Population (000s)	Internet Penetration (%)	Growth Rate (%)	Number of Users (000s)	
Japan	125,100	17.8	35.5	22,392	
Korea	68,271	9.8	55.0	6,691	
Taiwan	22,113	18.5	42.0	4,090	
Hong Kong	6,100	32.8	28.3	2,000	
China	1,220,000	0.1	74.9	1,220	

Graphic indicates that Level 3 Markets are top 4 markets on chart.

Source: IDC Report (11/22/99), Ovum Internet Market Forecasts, Level 3 Estimates

	Regulatory Environment	International Facilities	Data Services
Japan	Local Facilities	Open	Open
Hong Kong	Open	Licenses For Entities	Open
	No New Local Facilities	Bringing New Cable	
	Licensed Until 1/1/2003	Capacity to Hong Kong	
South Korea	Maximum 49% Foreign	Maximum 49% Foreign	Open
	Ownership	Ownership	
Taiwan	Market Opening July 1,	Market Opening July 1,	Open
	2001. Maximum 60%	2001. Maximum 60%	
	Foreign Ownership upon	Foreign Ownership upon	
	WTO (20% Currently) Upon	WTO (20% Currently) Upon	
	WTO entry likely this	WTO entry likely this	
	year	year	
Singapore	No Licenses Currently	Policy Under Review	Open
	Available; Review in 2002		
Australia	Open	Open	Open
China	Significant Easing of	Significant Easing of	Significant Easing of
	Geographical, Foreign	Geographical, Foreign	Geographical, Foreign
	Ownership and Licensing,	Ownership and Licensing,	Ownership and Licensing,
	Restriction. Full	Restriction. Full	Restriction. Full
	Details Still Being	Details Still Being	Details Still Being
	Finalized	Finalized	Finalized

Asia Relative Bandwidth Costs are Very High

From	To	Relative Cost Per STM-1 Mile
New York	San Francisco	1
New York	London	1
Tokyo	San Francisco	6.5
Tokyo	Hong Kong	7.7
Hong Kong	San Francisco	8.2

Source: Level 3 Estimates



## Asia

[Graphic: depiction of Northern Asia network connected to U.S. intercity network]

- o Tokyo gateway facility secured
- o Hong Kong to Tokyo Cable under development
  - 1Q01 estimated completion
- o Major ownership in US - Japan cable
  - 3Q00 estimated completion

## **Summary**

- o Services to Web centric companies in Europe and Asia are a major opportunity - Very rapid growth - High relative prices
- o Level 3 can leverage global customer relationships and service development
- o Level 3 is building the first international network optimized for IP in these markets

## **Our People**

Kevin O'Hara  
Executive Vice President  
and  
Chief Operating Officer

Level 3's First Priority Is To Attract And Keep The Best People In The Industry

## **The NextGen Service Provider Versus The Traditional Carrier**

### **NextGen Service Providers**

Entrepreneurial  
Flexible, team oriented  
Very rapid business cycle  
Scalable thru information technology Emphasizes use of partners and market based solutions

### **Traditional Carriers**

Utility mindset  
Highly structured workplace  
Slow business cycle  
Scalable thru rigid processes  
Centrally planned, with custom systems

### **Level 3's People**

- o Entrepreneurial
- o Results oriented
- o Prefer success based compensation to entitlements
- o High degree of technical expertise
- o Take responsibility for continuous learning

### **Think Like Owners**

### **Level 3's Approach**

- o Locate in the right place
- o Provide the right work environment
- o Compensate in the right way

## Compensation Plan

Salary	90% - 95% of competition
Bonus	Up to 110% of competition for targeted performance

Benefits Competitive and "market smart"

Long Term Ownership oriented

- Shareworks
- Outperform Stock Options



Long Term Incentives

Shareworks Stock Grant	All employees Up to 3% annual compensation
Shareworks Match	All employees Up to 7% annual compensation
Outperform Stock Options	Granted to all employees

### **Outperform Stock Option**

- o Grants equal in initial value to competitors' grants of standard options
- o Four year life
- o Granted on rolling quarterly basis
- o Value at exercise equal to market price minus strike price, times multiplier

## **Few Companies Consistently Outperform The S&P 500**

## **Outperform Stock Options**

- o Aligns management team and stockholder interest
- o Properly balances management team and stockholder rewards
  - Stockholders receive S&P 500 return before management participates
  - At maximum outperformance, stockholders receive 75% of extra value creation
- o Attracts and retains success oriented entrepreneurs

### **The Level 3 Plan Is Working**

- o Hired executive team with proven record
- o Hired 3,850 experienced people
- o Receiving average of 500 resumes per week
- o Current data base of 35,500 applicants

## **Financial Overview**

Doug Bradbury  
Executive Vice President  
and  
Chief Financial Officer

- Overview
- o Financial Strategy
- o Business Plan Funding
- o Financial Drivers
- o Summary

## **Financial Strategy**

- o Level 3's strategy is to maximize NPV while minimizing financial risk
  - Conservative use of debt
  - Prefunding of business plan
- o Preserving access to capital is key goal



## **Capital Acquisition Plan Guidelines**

- o Diversify funding sources
- o Maintain timing flexibility
- o Equity is appropriate for up front expenditures
- o Debt is appropriate for success based spending
- o Substantially prefund logical business phases
- o Continue to improve credit quality

## **Business Plan Is Logically Phased**

- o Business Plan requires approximately \$13-\$14 billion
  - Phase 1-5 require \$11 billion Includes \$1 billion in transoceanic capacity
  - Phase 6 adds \$2.5 billion
- o Phases designed to service debt without additional capital

Currently Planned Phases  
Cumulative Statistics

Phase	Global Metropolitan Markets	Global Gateway Space (sq. ft.)	Global Intercity Backbone Miles (1)
1	15	1.1M	9,000
2	31	2.1M	17,800
3	39	2.8M	19,400
4	69	3.4M	19,400
5	69	5.2M	19,400
6	77	6.5M	20,775

[FN]

(1) Excludes undersea cables

Currently Planned Phases Cumulative Statistics				
Phase	U.S. Metropolitan Markets	International Metropolitan Markets	U.S. Intercity Network Miles	International Intercity Network Miles
1	15	--	9,000	--
2	26	5	16,000	1,800
3	26	13	16,000	3,400
4	56	13	16,000	3,400
5	56	13	16,000	3,400
6	56	21	16,000	4,775

### **Prefunding Each Phase Minimizes Risk**

- o Prefunding minimizes both financial and operating risk
- o Available liquidity plus undrawn portion of bank facility substantially prefunds phases 1 thru 4
- o Phases 1 thru 4 result in substantial global presence

## **Success Based Capital Spending Enhances Value**

- o Capital spending directly associated with incremental cash flow
- o Electronics installed after customer order
- o Success in executing strategy
  - Increases ROI
  - Decreases risk
  - Efficient network utilization
  - Benefit from silicon economics

### **Level 3 Has Balanced Debt And Equity Issuance To Fund The Business Plan**

Phase 1	\$800 million Initial Cash Contribution \$1.2 billion proceeds from sale of CalEnergy stock
Phase 2	\$2 billion 9.125% Senior Notes
Phase 3	\$500 million 10.5% Senior Discount Notes \$1.6 billion Common Equity
Phase 4	\$1.4 billion Senior Secured Credit Facility \$823 million 6% Convertible Subordinated Notes

Phases 1 Through 4 Are Substantially Prefunded In Accordance With Capital Acquisition Plan(1)

[Graphic: Capital Expenditures Pie Chart: Up Front at 56% and Success Based at 44%. Capital Structure Pie Chart: Equity at 53% and Debt(2) at 47%.]

[FN]

Notes: (1) Reflects market value of RCN and CTCO as equity on the balance sheet

(2) Convertible Debt offering treated as debt for ratio purposes



### Level 3 Has The Financial Strength To Execute Plan

(\$ Millions)	As of September 30, 1999	
	Actual	Assuming Fully Drawn Credit Facility
Cash and Marketable Securities	\$4.218	\$5,118
Total Debt	\$3,983	\$4,883
Total Stockholders' Equity	\$3,531	\$3,531
Total Capitalization	\$7,514	\$8,414
Total Equity Market Capitalization(1)	\$31,400	\$31,400
Total Debt/Book Capitalization	53%	58%
Total Debt/Market Capitalization	13%	16%

[FN]

(1) As of 1/18/00; does not include market value of RCN and CTCO holdings (\$2.3 billion)

Key Financial Drivers - Revenue Key Drivers

- o Capacity and dark fiber sales
- o Number of markets
- o Array of products
- o Sales to Web centric companies - 85% of revenue
- o Rapidly decreasing unit prices, rapidly increasing volume
- o Estimated revenue mix

Transport	20% - 30%
Colocation/IP	30% - 40%
Softswitch	40% - 50%

[Graphic: Telecom Revenue estimates bar graph. 1999 less than \$200 million; 2000 \$750 million and 2001 \$1,700 million]

## Key Financial Drivers - Cost Of Revenue

### Key Drivers

- o Migration of Traffic from leased to owned facilities
- o High Web centric sales ratio
- o Increase in gateway space brings more traffic on-net

[Graphic: Telecom Gross Margin % bar graph. 1999 N/A, 2000 25% and 2001 50%]

## **Key Financial Drivers - SG&A**

### **Key Drivers**

- o Headcount and growth related expenses
- o Variable expenses dominate over time
- o Operating expense efficiency
  - Web enabled customer service and provisioning
  - Web centric sales channels

[Graphic: Total SG&A As A % of Total Revenue bar graph. 1999 slightly more than 100%, 2000 80% and 2001 65%].

## **Key Financial Drivers - CapEx**

### **Key Drivers**

- o Scope and pace of network construction
- o Increased CapEx reflects accelerated network build-out
- o Up front to success based capital ratio
- o Average depreciable life of approximately 5 to 7 years over time

[Graphic: Telecom Capital Expenditures bar graph. 1999 slightly more than \$3.0 billion, 2000 \$3.5 billion and 2001 \$2.5 billion.]

# Key Financial Drivers - Summary

(\$ in millions)	2000	2001
Telecom Revenues:	\$750	\$1,700
Telecom Gross Margin:	25%	50%
Total SG&A:	80%	65%
Telecom CapEx:	\$3,500	\$2,500

## **Over 85% of All Expenditures Are Invested in The Network Platform(1)**

[Graphic: Capital Expenditures at 87% and Operating Losses and Working Capital at 13%]

[FN]

(1) Cumulative use of cash to positive cash flow.

### Level 3 Stock Performance(1) Current Value of \$1000 invested in November 1997

[Graphic: Bar graph showing AT&T at \$1,668; MCI WorldCom at \$2,234; Sprint at \$2,498; Qwest at \$3,223; Level 3 at \$9,009; Nasdaq at \$2,609 and S&P 500 at \$1,585]

[FN]

(1) From November 14, 1997 to January 18, 2000



## Financial Summary Financial Projections Are Consistent With Level 3's Strategy

- o Phases 1 through 4 are substantially prefunded
- o Strong revenue growth is driven by increasing market demand for Web centric services
- o High gross margins over time reflect on-net strategy
- o High absolute capital expenditure levels reflect on-net strategy and silicon economics

## Summary

- o Level 3 is an Internet infrastructure company focused on the needs of Web centric companies
- o Level 3 has the right strategy to meet these needs
- o Level 3 has the right network to meet these needs
- o Level 3 has the right services to meet these needs
- o Level 3 has the financial strength to capitalize on this substantial opportunity

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**End of Filing**

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