# Products and Services Overview

Eeyond Bandwidths



# Enablement: The Level 3 Difference



#### Focus

Based on a horizontal business model, Level 3 sells only to communications-intensive businesses.

As a focused communications services provider, we strive to be the best within our chosen niche: the supply of highperformance bandwidth and related backbone services that scale easily with demand and at prices that stay competitive. Through this focus comes excellence. In addition to owning the most advanced international network in the world, Level 3 is known for its attentiveness to individual customer needs, outstanding operational performance and reliable backbone services.

### **Customer Enablement**

Predicting the future is an impossible task, but enabling customers to prepare for it is one of Level 3's specialities.

Our unmatched multiconduit infrastructure allows us to rapidly achieve new fibre-based on-demand and technological advances, thereby pushing improvements out to our customers in the process. All of this upgradeability is aimed at helping communications-intensive businesses to stay competitive in a constantly growing market.

Most important of all, Level 3's commitment to customer enablement is visible in the way we do business. We create on-going consultative relationships with our customers and enable them to satisfy the needs of their own clients.

One of the hallmarks of this relationship is our desire to give customers "integrated tools" - tools that allow them to control their piece of the Level 3 Network as though they had built it themselves. Level 3's online customer portal represents one such tool. This system allows our customers to monitor their own network performance and service usage 24 hours a day, 7 days a week.

#### Bandwidth-Intensive Services

Level 3's end-to-end, upgradeable network is allied with our commitment to enabling customers through low-cost backbone services. Companies throughout the communications industry are realising that it is faster, more efficient and more cost-effective to buy services from a focused carrier than to undertake building a network themselves.

Level 3 products and services are designed with these companies in mind. Our offerings are flexible and marked by industry-leading performance, causing at least threequarters of our customers to purchase more than one Level 3 service.

## **Operational Excellence**

While the industry standard may tolerate, for example, a wait of months for a long-haul 622 Mbps circuit, Level 3 has been known to provision similarly massive orders in a matter of days for on-net customers. In fact, our average installation time for this type of circuit is faster than the minimum offered by other major backbone providers. Level 3 has been able to automate the order-to-delivery process to meet more than 95% of our customer commitment dates; this is due in part to our revolutionary and proprietary ONTAP<sup>SM</sup> system.

Level 3's network construction plays an important role in this ability for rapid provisioning. While most other backbones are assembled as a complex web of leased or purchased segments, Level 3 has built and solely operates every part of its North American and core European networks. The same can be said of all 36 Level 3-constructed metropolitan networks.

After a business is up and running with Level 3, the true excellence of our network performance becomes clear. And when customers make calls to Level 3 headquarters, they are immediately connected with a Technical Customer Account Manager (TCAM) who combines business know-how with technical expertise to create a one-stop shop for all aspects of every account. Each TCAM leads a dedicated support team that can provide immediate assistance.

# Global Infrastructure Services

Level 3 owns and operates more colocation space than any other communications company in the world. Millions of square feet in facilities are interconnected by approximately 250,000 miles of conduit and nearly 1.5 million miles of fibre.

Constructing this required about 50,000 rights of way – some of which would be nearly impossible to obtain now. Fortunately, our customers can bypass these obstacles because a piece of our completed network can virtually belong to them.



## (3)Center<sup>SM</sup> Colocation and (3)Center<sup>SM</sup> Power and Cooling

# The ideal networking and hosting environment for customers' mission-critical equipment

Sold in 65 markets across Europe and North America, colocation in Level 3 Gateways provides our customers with network facilities free of facility build-out and maintenance costs. (3)Center Colocation puts companies closer to the Internet, the Level 3 Network and many other long-haul backbones.

Businesses obtain the latest in high-speed network access and connectivity options. Our closely-monitored Gateways provide them with secure locations where they can house and access their mission-critical hardware. Features include palm-scan ID entryways at every Gateway, plus closedcircuit TV monitoring and round-the-clock '24 x 7' operations at certain locations.

(3)Center Colocation represents a firm foundation for leveraging other Level 3 services.

(3)Center Power and Cooling services provide carefully monitored climate control and Uninterrupted Power Supply (UPS) for either AC or DC power output.



### (3)Link<sup>™</sup> Dark Fiber

The facilities-based solution for maximum customer control and flexibility

Once a company controls fibre on a national broadband network, it becomes a truly estimable player. Many providers offer intercity dark fibre to help customers reach this potential, but Level 3 is currently the only dark fibre provider complementing its intercity routes with extensive metro fibre. The result is a true end-to-end solution harnessing nine European markets and 26 Tier 1 North American markets. When a business expects large amounts of growth, an investment in a facilities-based network can serve long-term needs while providing rapid payback. This means staying ahead of the explosion for bandwidth demand. By controlling fibre, companies also gain responsiveness, service flexibility, competitive advantage and cost leadership.



# Global Transport Services

Customers of Level 3 transport services include carriers, national ISPs, media specialists and other companies who use substantial amounts of bandwidth. Whether they seek the maximum outsourcing and path redundancy offered by protected private lines or prefer the added control and long-term low cost per bit offered by unprotected wavelength routes, Level 3 offers a solution that fits.



#### (3)Link<sup>™</sup> Private Line (Standard or Unprotected)

#### Point-to-point bandwidth on the Level 3 Network

(3)Link Private Line services provide dedicated amounts of bandwidth between two fixed locations. Typically purchased by customers who need ultra-reliable, secure and efficient transmission for large amounts of data and media, the (3)Link Private Line service connects points in the same city, across the country or even between continents. Because Level 3's private lines are provisioned on our fully diverse, ring-protected backbone, they are not subject to transmission interference or tampering.

Customers can choose between (3)Link Private Line and (3)Link Unprotected Private Line. (3)Link Private Line is inherently "protected" which, in this context, refers to both route and network equipment redundancy. In the unlikely event of a fibre cut, traffic switches to a dedicated "protect" route in milliseconds.

Provisioned along a dedicated, unprotected network layer, (3)Link Unprotected Private Line provides substantial cost savings along with the flexibility to design and control private network protection and restoration architectures.



## (3)Link<sup>™</sup> Global Wavelength

#### Point-to-point, flexible transport at the highest optical speeds

DWDM (Dense Wave Division Multiplexing) technology lets businesses purchase 2.5 Gbps or 10 Gbps wavelength services. By breaking light into multiple frequencies, one wavelength channel (or lambda) can carry the same amount of information that once required an entire strand of fibre.

(3)Link Global Wavelength service lets companies use raw, unprotected bandwidth as a building block to establish their own optical networks. They can purchase single or multiple wavelengths along the fibre routes of Level 3's international network. A network designed using multiple wavelengths can take advantage of Level 3's complete end-to-end physical path diversity.

Installed in a matter of days between on-net demarcation points, (3)Link Global Wavelength service gives our customers greater network control along with a most attractive cost per megabit. Level 3's low-cost, highly scalable backbone sets the foundation for aggressive wavelength pricing that continues to drop over time.



# **Global IP Services**

Level 3 ranks consistently among the top three IP backbone performers in the U.S., directly interconnecting with all U.S. Tier 1 Internet backbone providers. More than 90% of our peering is private, allowing for the most direct routing across networks.



#### (3)CrossRoads<sup>™</sup>

#### Wholesale Internet access

(3)CrossRoads is Level 3's wholesale IP transit service, enabled by a robust MPLS infrastructure. Level 3's IP backbone consistently ranks among the top three providers in performance.

The (3)CrossRoads platform is based on the continuously upgradeable Level 3 transport network, allowing a company to rapidly scale its Internet bandwidth both now and into the future. Level 3's ability to install and upgrade service has proven invaluable to companies around the world. Additionally, customers can choose their billing method based on their own traffic patterns. With more than 175 peers, Level 3 is one of the bestconnected Internet networks in the industry. We directly interconnect with all Tier 1 Internet Backbone Providers and more than 90% of Level 3's peering is private, allowing for the most direct routing available across networks. Highcapacity, scalable interconnections ensure non-congested connectivity between the world's largest backbones.

The statistics and track record of this high-performance, high-bandwidth service outperform the industry standard and at a competitive price.



Level 3 has deployed one of the only seamless, international MPLS networks in the industry. The MPLS network serves as the foundation for Level 3's Tier 1 IP Backbone, Softswitch and (3)Packet Private Network services.

## (3)Packet<sup>sm</sup> Private Network Services

#### MPLS-based private networks for Ethernet, ATM and Frame Relay

Businesses can connect to Level 3's pure MPLS (Multi-Protocol Label Switching) backbone using (3)Packet Private Network Services. This revolutionary technology reduces overall costs and simplifies traffic management by converging Ethernet, ATM and Frame Relay handoffs onto a single network.

(3)Packet is a scalable, flexible and cost-efficient alternative to traditional virtual private network and private line services. The service's usage-based, distance-insensitive pricing helps to shield customers from market uncertainty, while allowing a rapid response to fluctuating demand.

Customers can scale their networks from 1 Mbps to 1000 Mbps and connect to Level 3 using Ethernet, Frame Relay or ATM. They then have the flexibility to provision or remove virtual circuits between any two ports on the network as needed. Businesses can consistently rely on (3)Packet to extend their reach, support new applications or add capacity to their existing infrastructure.

(3)Packet provides Service Level Agreements that cover latency, packet loss, jitter and network availability.

Companies no longer need to build oversized networks or purchase bandwidth to sit idle in anticipation of future growth or peak utilisation.



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# Global Softswitch Services

Level 3 pioneered the Softswitch platform, which emulates and goes beyond the functions performed by traditional circuit switches in controlling and processing calls (including audio, video, modem and conference calls). Softswitch is analogous to an operating system. It is an open platform on which innovative IP applications can be developed.



(3)Connect<sup>™</sup> Modem (Service currently available in U.S. markets only)

#### Complete outsourcing of dial-up networks

ISPs and large corporations will appreciate the (3)Connect Modem service as it lets businesses provide dial-up connections to the Internet without incurring the costs associated with maintaining their own infrastructure. As of First Quarter 2002, Level 3 was processing more than 10 billion minutes per month over the (3)Connect Modem service.

Customers purchase ports in Level 3 Gateways for an allinclusive per-port or per-hour fee; we provide the local dial network infrastructure and local numbers. (A freephone service is available in the U.S. and Canada.) We also provide traffic termination to the customer's site or to the Internet.

Outsourcing a dial network to Level 3 gives our customers' end users the same high-quality experience that they expect from the largest ISPs. And because Level 3 owns its own CLEC interconnection in more than 55 markets, we can achieve an extremely low price position.



#### (3) Voice<sup>sM</sup> Origination (Service currently not available)

*IP-based voice service that is competitive with the Public-Switched Telephone Network* 

Our (3)Voice Origination product allows calls to originate from a traditional phone and terminate via IP at our customer's location(s) for any unique call handling, before moving on to the terminating phone. This service requires no changes for the individual end-user. Callers continue to use ordinary telephones, but our customers enjoy cost savings through Level 3 harnessing the local network presence.

Level 3 provides phone numbers and the IP backhaul aggregation to our customer's location(s).

Because (3)Voice buyers no longer need to maintain a presence in every market, colocation costs can be significantly reduced along with any associated operating and network expenses.

For a fixed port price, Level 3 delivers voice traffic via IP to centralised locations of the customer's choice. The ease of procuring additional ports per market via the Level 3 Network makes it easier for companies to plan capacity according to customer demand.



# Our Completed Network

More than an "all-optical" network, Level 3's infrastructure is meant to redefine architectural excellence. Our commitment to enablement can be seen in our future-proof, multiconduit infrastructure – and in the fact that we are 100% route-diverse. Using the Level 3 Network, businesses can satisfy their customers' current and future demands for bandwidth. Their traffic is carried on a high-performance, broadband network with outstanding reach and capacity. This secure infrastructure is also responsive to the industry's escalating demands for Internet access, video, imaging, voice and broadband data transmission services at an affordable price.



#### International End-to-End Reach

Level 3's infrastructure includes not only long-haul networks but also a significant number of local or urban metropolitan networks. This means that our customers have true end-toend reach in Europe and North America, with additional connectivity via our transoceanic fibre lines. Level 3's intercity networks consist of 16,000 route miles in the U.S.A. and 3,600 route miles in Europe – all joined by thousands of miles of transoceanic cabling. On the local metropolitan side, Level 3 has approximately 2,125 total metro route miles in Europe and North America.

Every route connecting and encircling these cities is protected by a diverse path. As for the above-ground pieces that attach to this fully route-diverse network, Level 3 excels with 95% diversity on entrance facility connections and building risers.



## **Rapidly Scalable**

Because improved fibre reduces the number of amplifiers and regeneration facilities needed along any given fibre route, (thereby reducing maintenance requirements and the chance of failure), one key to maintaining the lowest unit cost is to keep up with the most current generation of fibre.

New generations of fibre tend to come into being approximately every two years. With multiple conduits in the ground, new cables can be rapidly and cheaply blown through the next empty conduit using an air compressor, thereby making staggering savings in carrier construction costs as fibre continually improves. Meanwhile, the old cable can be easily removed or used for additional capacity. This is the reasoning behind Level 3's multiconduit infrastructure and Level 3 furthermore remains the only carrier to have installed more than one or two conduits everywhere throughout its core network.

The Level 3 Network is "future-proofed" with a minimum of 10 intercity conduits and a minimum of eight metro conduits throughout. Only one of these conduits was filled with fibre, leaving the rest open for the next generation. We have already announced plans to fill a second conduit with the latest generation of fibre and we plan to pass the savings on to our customers.

#### Security

With the goal of providing the highest level of security possible, Level 3's business plan includes a comprehensive strategy for protecting the physical and electronic infrastructure of our international network. In fact, our network was built to meet or exceed commercial telecom standards worldwide for availability, integrity and confidentiality.

Our security features are designed to deter, detect and deny access by unauthorised parties. Continuous network monitoring by our Network Operations Centres allows us to maintain an uninterrupted service by means of immediate detection and remedial action. Buried deep, our diverselyrouted fibre optic cables are difficult to tap and our maintenance chambers are fully-enclosed, reinforced structures. Access to our data centres (Gateways) requires passing a minimum of four layers of security.

Specific features include palm-scan ID entryways at every Gateway, closed-circuit TV monitoring, secure access to customer equipment, tracking systems that trace distributed denial of service and other attacks to their sources at the network edge - and much more.

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## Wholly Owned By Experts

Level 3 has secured rights of way, dug trenches all over the world, buried conduit, pulled fibre and built scores of data centres internationally. Our customers take pride in knowing that their backbone services are purchased directly from the source. They see the Level 3 Network as their own. They depend on the reality that no significant portions of the Level 3 Network were "acquired". The Level 3 Network is clean, unified, seamless and consistent. Companies that take advantage of the Level 3 Network can bypass the significant capital expenditures and the myriad of legally-challenging processes faced during network creation or expansion. They can also take advantage of our experienced personnel; a group that has already solved complex network issues during Level 3's own construction and service design phases.



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