



# **Building Broadband Cities ...Connecting Milwaukee**



**April 10, 2002**

# Corporate Overview

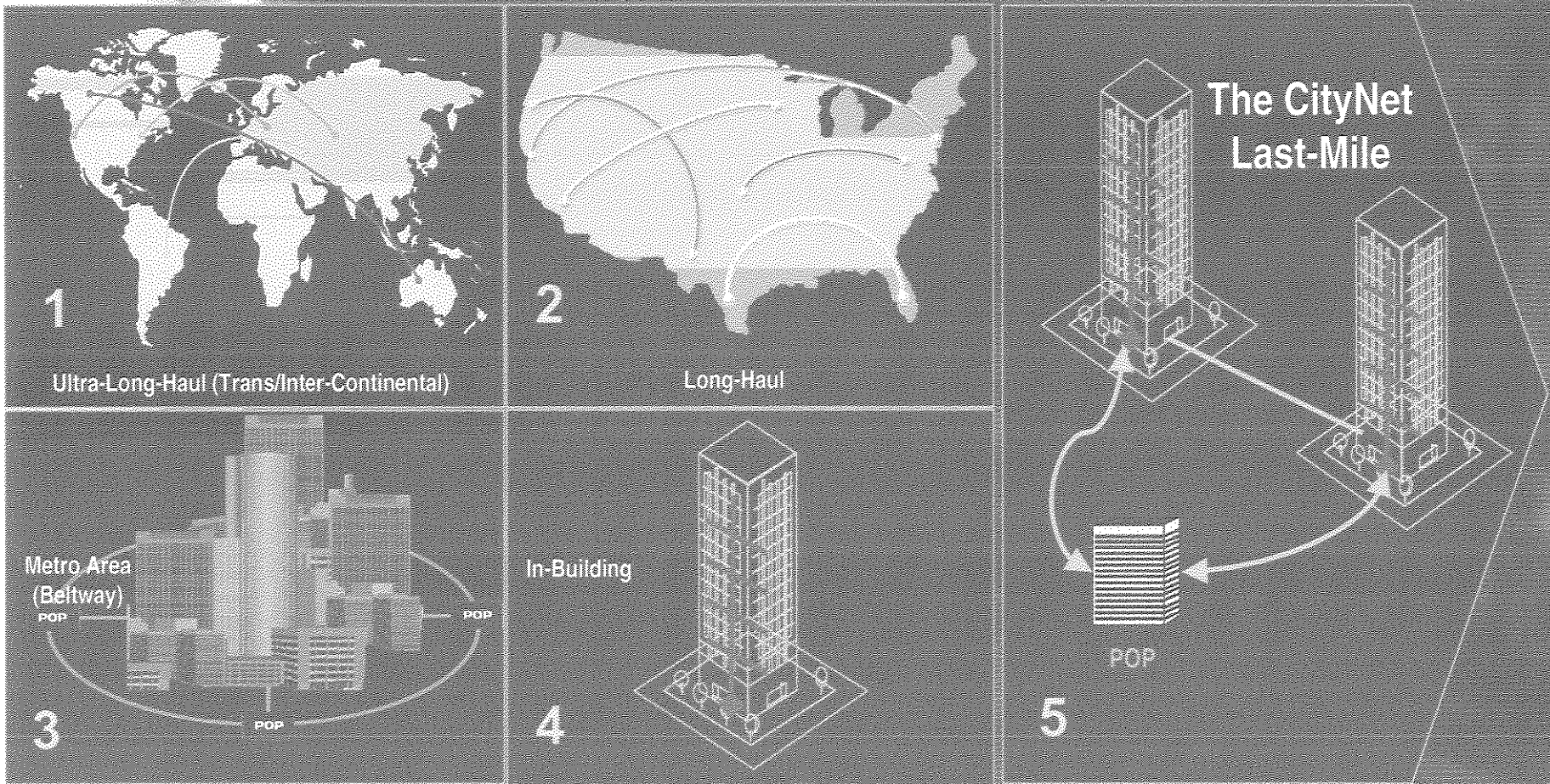
*So why have financial markets not attributed more of the value being created by the Internet Economy to the telecom carriers whose infrastructure enable this tremendous growth?*

*We believe the capacity bottleneck at the last-mile has been the root cause of this “value clog”.*

**The Advent of the Bandwidth Inferno, Adventis Corporation, August 2001**

- A broadband infrastructure company
- Focused solely on building last-mile networks...
  - The missing on/off ramps of the all-optical network
  - Simultaneously connecting thousands of end-user buildings to POPs and larger metro “beltway” rings
- Carrier’s-carrier:
  - Wholesale, dark-fiber networks for telecom carriers and broadband/data network service providers
- Smarter solution for building last-mile networks:
  - Fiber deployment through city’s existing sewer system
- Headquartered in Silver Spring, MD, with international offices in Madrid, Spain and London, England

# What is the Last-Mile?



# Last-Mile Broadband Challenges

- Engineering/design is complex and very difficult... Navigating an asphalt and cement jungle
- Huge capital investment... estimates range from:
  - \$500,000 - \$750,000 per mile in smaller cities
  - \$1 million+ per mile in the largest cities
  - \$500 - \$1000 per foot for each building connection
- City governments making it difficult to obtain trenching/other permits
- An irate public fed-up with torn streets and traffic disruptions
- Current connections vulnerable to backhoe cuts, other digging

## An Ideal Last-Mile Solution...

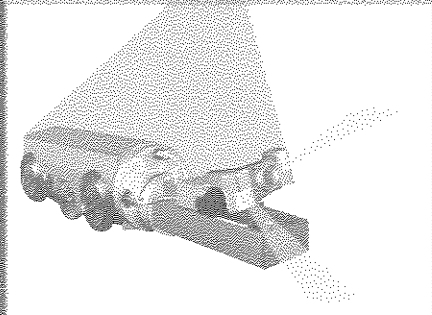
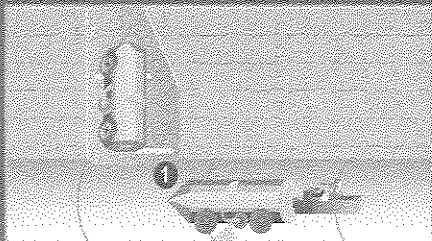
- Utilize city's existing infrastructure... the sewer system:
  - Non-man accessible (SAM )
  - Man accessible (various technologies)
- ~60% faster deployment, and far more cost-efficient
- Safer, more secure fiber network:
  - Sewers are gravity-driven... typically the deepest utility infrastructure in a city
  - Network installed in sewer pipes that are anywhere from 8 - 40 ft. underground
- Tested and proven in various European cities, and now in the U.S.
- Eco- and community-friendly



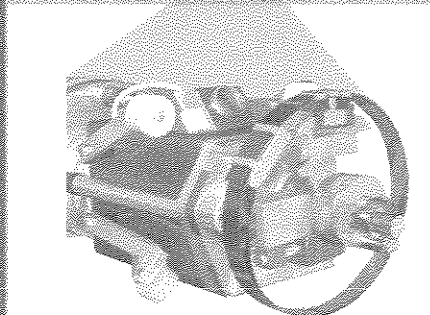
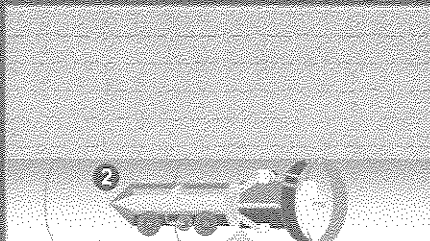
# SAM at Work

## 4-Step Process

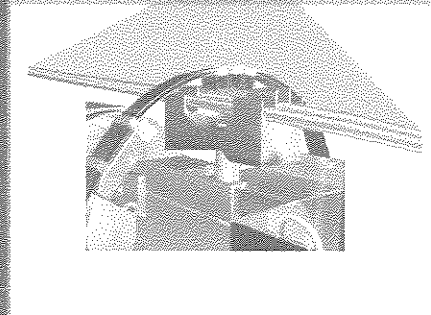
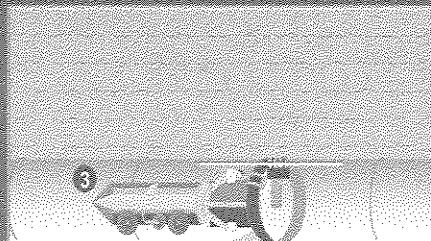
Step 1  
Mapping & Analysis



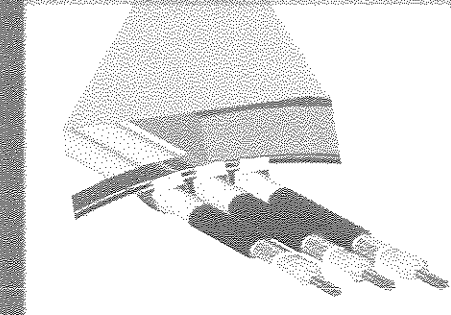
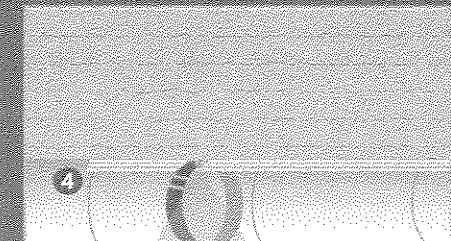
Step 2  
Ring Install



Step 3  
Conduit Install



Step 4  
Fiber Optic Install



# Landmark City License Agreements

## Signed Agreements

- Houston
- Dallas
- Fort Worth
- San Antonio
- Pittsburgh
- Indianapolis
- Albuquerque
- Scottsdale
- Mesa
- St. Paul
- Omaha
- Tempe
- Seville, Spain
- Vienna, Austria

## Negotiations/Discussions

- Austin
- Seattle
- Portland
- San Francisco
- Oakland
- Los Angeles
- San Diego
- Phoenix
- New Orleans
- Atlanta
- NY City
- Boston
- Milwaukee
- Chicago
- Minneapolis
- Denver
- Washington, DC
- ...and 10 additional European Cities

# CityNetwork<sup>SM</sup> – Albuquerque:

## The World's First Last-Mile, Dark Fiber Ring Network



- Deployed for the first time through a city's sewer system
- Less than 4 months to construct... Completed October 2001
- Last-mile network profile:
  - Dark fiber; Mini-ring network topology for redundancy and efficiency
  - Connecting directly into 19 buildings, 1 Telco, with 6 more planned
  - Average building is 120,000 Sqft... largest building is 318,000 Sqft.
  - Direct access to 1000+ businesses and consumers



## Albuquerque ... A True Broadband City!

- A prototype for other U.S. cities
  - 4 months to complete construction
  - 27 buildings
  - Approx. 4 route miles
  - Thousands of end-user tenants
  - City running Gigabit Ethernet over new network
  - One of the most wired cities in the world

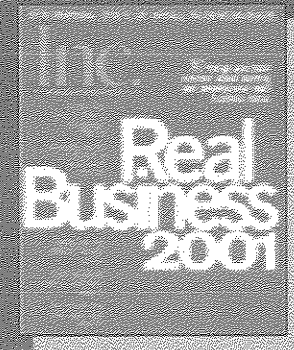


## CityNetwork<sup>SM</sup> – Albuquerque: Lighting the Ring

- City of Albuquerque government has lit the network:
  - 3 municipal buildings
  - 600 end-users
  - Move from ATM backbone to Gigabit Ethernet
  - Took ~2 days to install equipment and provision
  - Used for various high-speed services and applications, e.g. interconnecting public transportation schedules and routes; library system to city hall; etc.

## A CityNetwork<sup>SM</sup> to Benefit Milwaukee

- State-of-the-art last-mile broadband infrastructure to boost Milwaukee's economic competitiveness:
  - Inc. ranked high-speed connectivity as 3rd most important economic development tool
  - Jones-Lang LaSalle study ranked high-speed broadband as #1 most requested by tenants/prospects
- Avoided damage to Milwaukee streets by traditional trenching
- New found revenue
- CityNet builds, manages and maintains the networks
  - Initial and ongoing in-kind costs for cleaning & other maintenance



*"CityNet truly embodies the best of what we at the FCC worked to promote following the passage of the Telecom Act of 1996.*

*By pioneering the widespread, efficient building of the fiber optic last-mile, CityNet is unlocking the value of all broadband service providers in the marketplace, including IXCs, ISPs, CLECs, the Bell companies and cable providers. From Albuquerque to Dallas, CityNet is delivering broadband connectivity to each competitor, and most importantly, to the American consumer."*

**William Kennard, former Chairman,  
U.S. Federal Communications Commission**