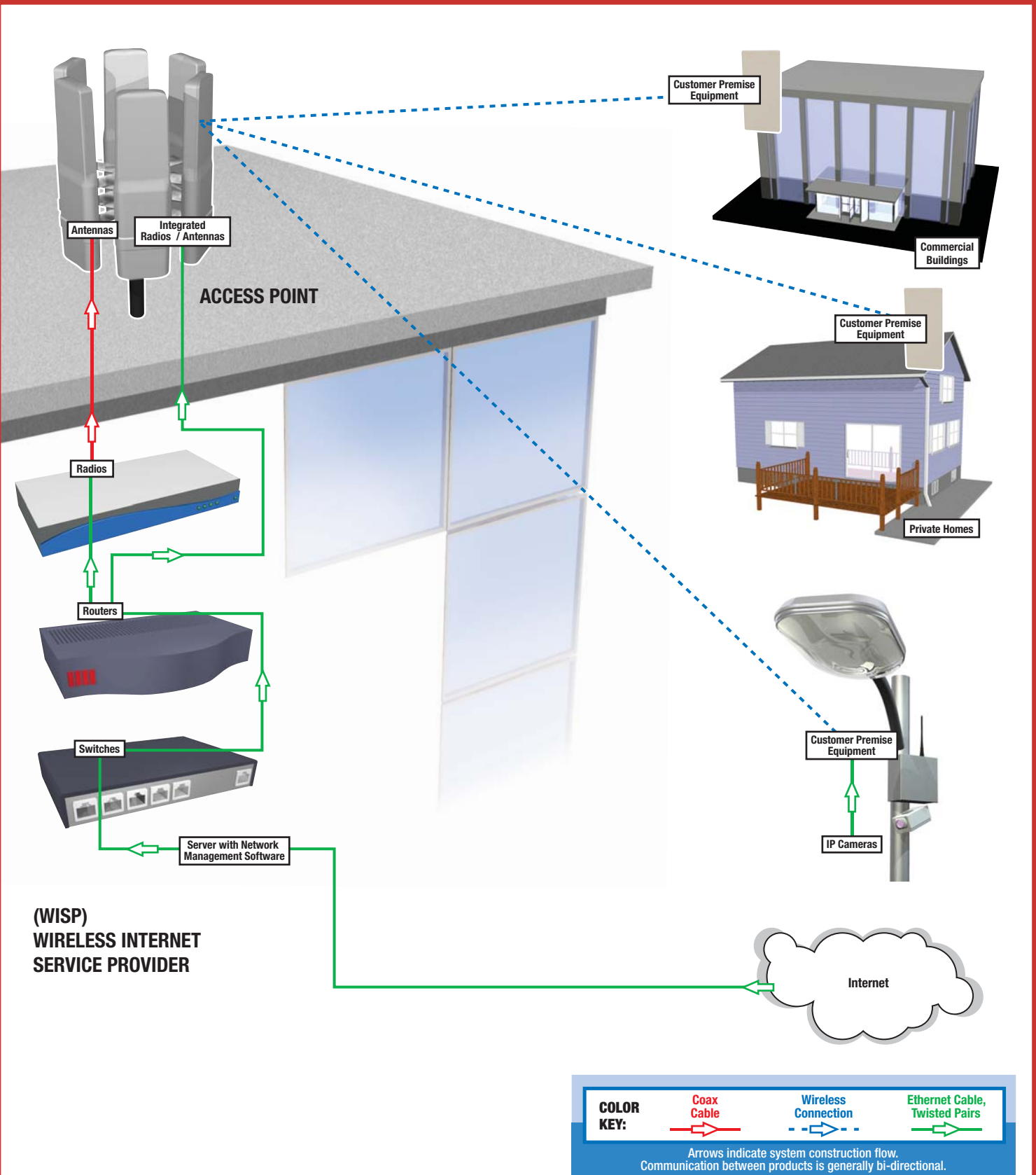


*Illustrated Applications from TESSCO*



ZK4019 - Revision Date 04/01/2008 © 2008 TESSCO Technologies Incorporated

# Point to Multipoint

## MARKETS

Internet service providers (business-to-business, residential), education, campus environments, utility, government, transportation

## USES

- Network connectivity between multiple buildings:
- Data, voice, video
- WISP, competitive local exchange carrier (CLEC)
- Leased line replacement
- Alternative to fiber extension:
- When fiber is not an option due to obstruction (e.g., railroad tracks, river)
- When cost is prohibitive due to distance from fiber ring
- Alternative to cable or digital subscriber line (DSL)

## FEATURES

- Speeds ranging from 1 Mbps to 60 Mbps
- Distances ranging from a few meters to more than 15 miles
- Integrated or external antennas
- Licensed or unlicensed spectrum
- Line-of-sight (LOS) path
- Non-line-of-sight (N-LOS) path (e.g., 900 MHz, OFDM, mesh)
- Bandwidth management (WISP)
- Fixed or mobile access
- 802.11 a,b,g compatibility (802.16 planned)
- VoIP options

## BENEFITS

- High-speed Internet connection
- Quick deployment time
- Portability
- Scalable bandwidth
- Quick ROI
- Complete network connections
- New revenue opportunities

## INFORMATION NEEDED

- Link distance
- Bandwidth required
- Number of users
- Budget
- Type of path required (e.g., LOS or NLOS)
- Level of security required
- Rooftop, tower and environmental characteristics
- Backhaul requirements (e.g., more robust point-to-point radio)

## CRITICAL CONCERNS

- Grounding needs and lightning arrestors
- Network interface requirements (POP and CPE)
- Competing frequencies (e.g., interference)

## OTHER EQUIPMENT OPTIONS

- Cable and connectors
- Grounding and lightning arrestors
- Antennas
- Towers and mounting hardware
- Enclosures
- Power solutions
- Test equipment
- In-building network interfaces