
Temple, Texas
City of Temple
Gigabit Ethernet Wireless Backhaul and Mobility Solution for
The City of Temple, Texas
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City of Temple, Texas

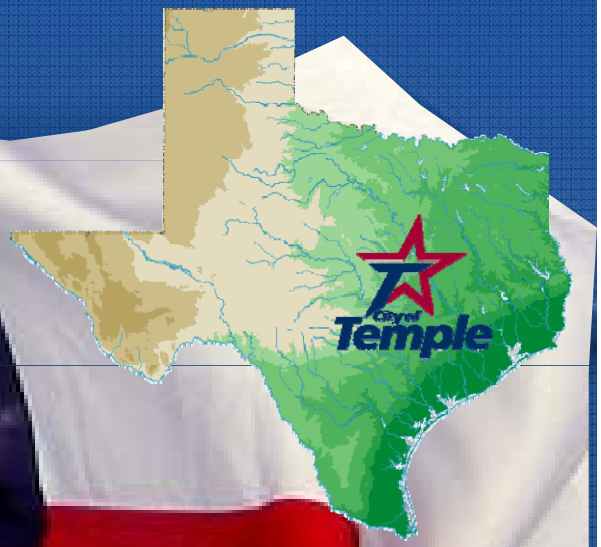
About Temple

Located in Central Texas

- 60,000 residents
- Area of 51 square miles

City-wide Infrastructure

- 40 buildings
- 700 Employees
- 150 Police and Fire Vehicles
- 625 Mobile/Ruggedized Laptops and Desktops



Temple Business

Home of Hig acclaimed Medical Centers an orations

- Scott & W Hospital
- Texas A&M ealth Science Center Colle of Medicine
- Cancer and iovascular Research Institute (S&W)
- Olin E. Teague Veteran's Medical Center
- McLane Corporation
- Wilsonart International

Objectives

- Launch Backhaul for Police, Fire and Public Works network
- Remove bottlenecks in existing network
- Connect 30 buildings to the new wireless network
- Scalable infrastructure for municipal applications such as video surveillance, real-time meter reading, disaster recovery and hot zones.
- Field Force Automation

Challenges

- 30 locations need insufficient bandwidth
- Fiber only [illegible] City locations and no fiber to other City [illegible]ets
- Limited access to pole locations
- Prohibitive trenching costs
- Lack of acceptable leased-line alternatives
- Lease of Gigabit Ethernet (GigE) circuit $1,800 - $2,000 per month when available
- No availability of GigE at 14 sites
- 3Mbps – $100K/yr

Business Approach

- Non-traditional approach to implementing a city-wide network
- Implement Backhaul, Mesh Gateways and wireless connections to City Facilities across the City
- Initially Implement mesh networks in high priority zones or corridors in the City
- Implement future mesh in a Zone or Corridor as the need arises for video surveillance, Public Safety and SCADA

Business Approach

- Pay as you [illegible] approach for targeted mesh zones and [illegible]dors
- The City will [illegible] implement mesh technology in targeted [illegible] so that the City can control maintenance costs
- Provide for survivable mesh networks and a robust topology when implementing in the target areas
- The network will only be used for City related business and applications

Solution

- Mount Wire[illegible]s Bridgewave Bridges on Ring of six water t[illegible]s with SkyPilot Mesh Gateways
- Provides Ba[illegible]ul to all city facilities and assets
- Provides wireless capabilities across 70 square miles of the City
- Enables mobile applications throughout the City

Solution

- Executive level support and commitment from the City Manager and City Council Offices
- $400,000 investment
- Provides backhaul for:
  - IP cameras
  - 5.8 GHz mesh gateways
  - SCADA & Traffic Monitoring
  - Hot Zones & Corridors
  - Disaster Recovery

Benefits

- Increased overall staff productivity
- Improved customer service to residents and businesses
- Simplified network infrastructure
- Meet HIPAA Compliance Requirements
- Return on Investment in under 3 years

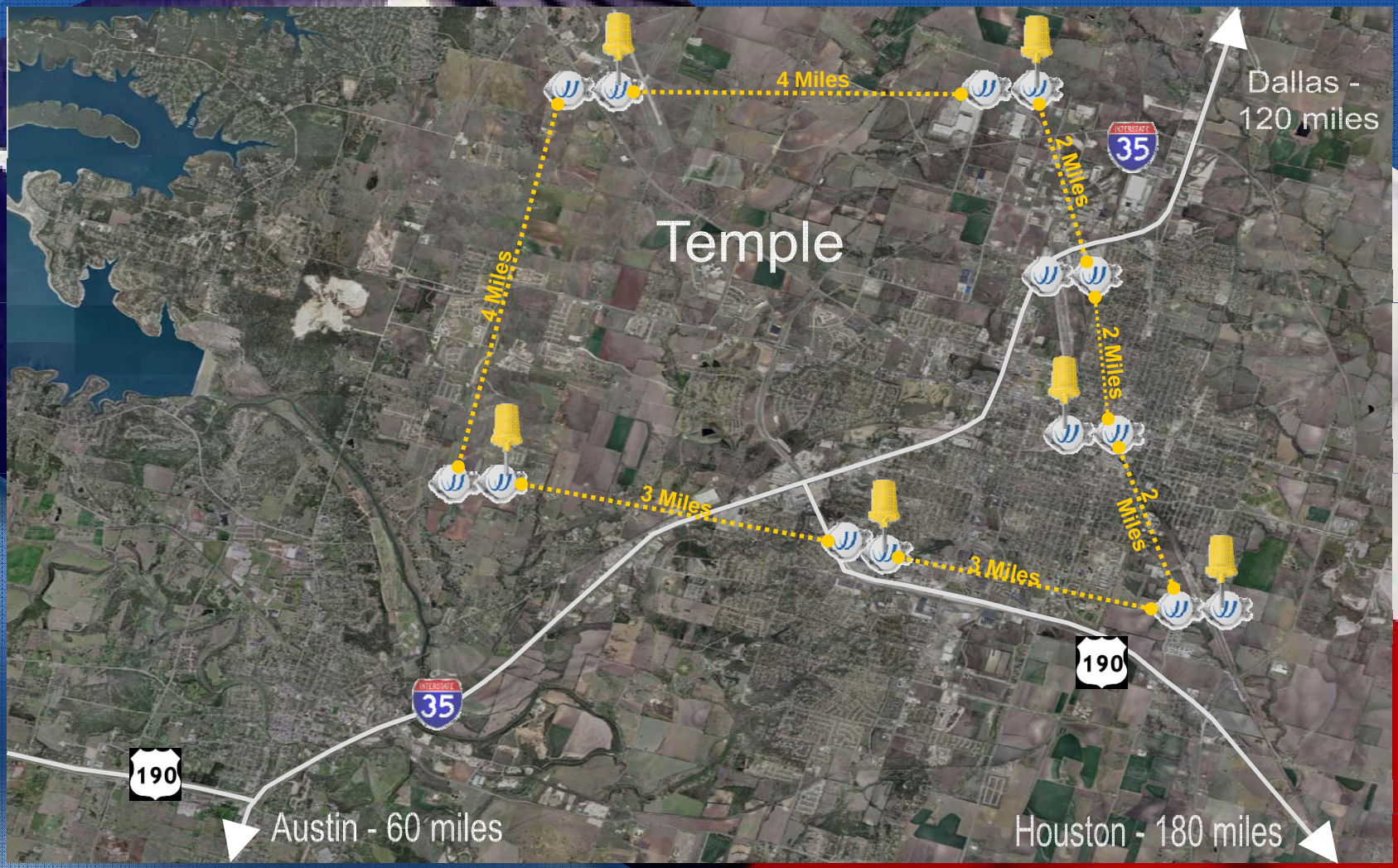
Benefits

- License-free deployment
- Multi-gigabit operation
- Ability to co-locate multiple radios on a single roof or mast
- Immunity to interference
- Ease of installation
- AES 256-bit Encryption

GigE Wireless

- **Allows the City to:**
  - Avoid construction and fiber-leasing costs
  - Significantly outperform copper-based alternatives
  - Build-in capacity for future applications
  - Own your infrastructure
  - Eliminate recurring leased-line transmission charges

Wireless Deployment



Fitting Our Needs

- Full-rate Gigabit Ethernet
- Low latency for VoIP & video
- Highly Secure
- No conflict with 5 GHz mesh access system
- Provided redundant paths for fail-over management if one or two links go down

Looking Forward

- Converge voice, video and data traffic
- Roll-out public safety Wi-Fi hot zones and corridors
- Migrate traffic and water monitoring applications
- Support rapid disaster recovery deployments
- On-demand Video Surveillance

Security

- **Narrow beams:**
  - Prevent interception
  - Resist interference
  - Superior to lower frequency products
  - Harder to “tap” than inter-building fiber
- **256-bit Advanced Encryption Standard (AES):**
  - Built-in – no external boxes
  - Full line speed
  - 2µsec latency

Network Interface

- **Embedded 10/100/1000 switch:**
  - Both Gigabit Ethernet fiber and 10/100 copper Ethernet ports
  - Enables “add/drop” applications
    - Video surveillance
    - Network management
    - WiFi / WiMax backhaul
    - Subscriber data drops

AdaptRate™

- **AdaptRate**
  - Overcomes intense downpours
  - Instantly switches to 100 Mbps *before* errors occur with less than a 50-millisecond interruption
  - Link Availability of 99.99% in heavy rain regions
  - Transparent to network

Questions

Thank You!