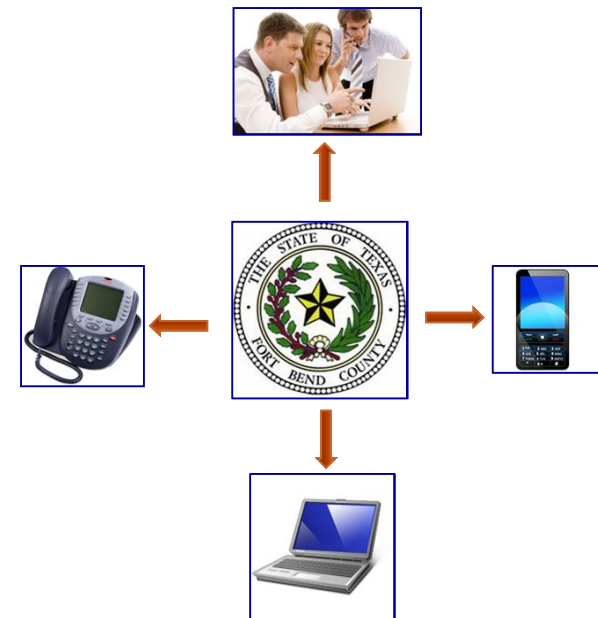# Fort Bend County Technology Audit[SM]

Purpose of the Technology Audit^{SM}

- Assessment of Fort Bend County's IT Support Organization.
- Assessment of Fort Bend County's Voice and Data Technology.

Key Elements of the Assessment

▸ A review of the County User's perception of the current technology and the associated support.

▸ A review of the IT organization – People and Business.

▸ A review of all standards and documentation within these support organizations.

▸ A detailed Network Bandwidth traffic study (Internet / Data).

▸ A detailed review of the current voice technology – phone system, voice messaging and voice response systems.

▸ A review of the Data Network Electronics.

Methodology

- **Observations**
  - Interviews
  - Documentation
  - Data / Telecommunications Traffic Study
- **Objectives**
  - Common threads heard throughout Fort Bend County
  - Common Goals
- **Industry Direction**
  - Industry Analysts
  - Major Research Companies (i.e. Gartner Group, Yankee Group, Forrester Research)
  - TechKnowledge Industry Experience
  - Peer Reviews (Williamson County, Travis County, Montgomery County, City of Houston)
- **Recommendations**
- **Action Plan**

Observations

▸ The County has an aging but functional infrastructure (voice and data equipment and circuits) but in need of modernization.

▸ Many single points of failure, often experiencing outages.

▸ There is a tremendous opportunity to reduce current monthly circuit charges while increasing bandwidth speed.

▸ The Internet is not being utilized to the County's full potential, based mostly on bandwidth deficiencies.

▸ 80% of the in place voice and data equipment is deemed "End of Life" by the manufacturer, thus requiring immediate plans to begin migration to state-of-the-art technology.

▸ There is an IT Leadership Team comprised of Central IT, Sherriff's Office and the Library System.

▸ Central IT has overall approval of products and services acquired by the county.

Industry Direction

- Converging Voice, Data, Video, over a common network.
- PBX systems are being replaced with centralized Voice over Internet Protocol (VoIP) solutions.
- Wide Area Networks (WAN) are being designed with traits such as;
  - Redundancy / fail over capabilities
  - Decreasing the number of circuits
  - Increasing the Bandwidth of the circuits
- Consolidation of business critical servers into the central data center
- Building a back-up, often completely duplicated, data center in a separate geographic location or in a leased co-location space.
- Hardening Data Centers with:
  - Proper power (electrical and generator back-up) and air flow (a/c) requirements
  - Redundancy in:
    - Core Switches
    - Power
    - Diverse Circuit Routes

TECHKNOWLEDGE
CONSULTING CORPORATION

High – Level Recommendations

- A standardization of technology throughout the County.
- A true "converged" IP network, capable of carrying all voice, data, video, security, through one ubiquitous network.
- A county wide VoIP telecommunications platform (voice, unified messaging, integrated voice response and automatic call distribution).
- A cabling infrastructure sized for dramatic increases in traffic (including video), extending 10 Gigabit speeds on the network backbone and 1 Gigabit speeds to the desktop.
- A well defined county dial plan to simplify intra-organizational communications. A 5-digit platform with 2 digit location identifier/3 digit extension would provide efficient and flexible management. This can be accomplished as County departments / offices are included in the VoIP rollout.

TECHKNOWLEDGE
CONSULTING CORPORATION

High-Level Recommendations

▸ A Wide Area Network with sufficient capacity to provide both high performance networking between the sites, and a level of redundancy suitable for Disaster Recovery purposes. This network must be sized for the deployment of VoIP, data and other services (i.e. video, security) consisting of both leased circuits as well as county-owned optical-fiber between major locations.

▸ High performance wireless networking throughout the County, providing a robust and secure method for employees, elected officials, visiting dignitaries, County constituents and the media to access information from common areas including outdoor locations.

▸ A consolidation of the IT strategic, planning and architecture support process under one common leadership.

TECHKNOWLEDGE
CONSULTING CORPORATION

Action Plan – Organizational

▸ One Governance Body - IT strategies and overall management should be consolidated under one decision making entity.

▸ Utilize the talent of multiple IT organizations throughout the entire County.

▸ Consolidate all network voice and data circuit responsibility under Central IT.

▸ Update all job descriptions to meet the current skill requirement and duty assignments.

▸ Develop, Educate and Distribute Written IT Policy and Procedures.

▸ Implement a Project Management Policy and Procedure document in conjunction with Facilities Management.

STANDARDS

TECHKNOWLEDGE
CONSULTING CORPORATION

Action Plan – Technology

- Replacement and major upgrades to the majority of Fort Bend County's voice and data infrastructure:
  - Take into account existing budget allowances
  - Map a phased deployment in the correct sequence to ensure each implementation is equipped with the required technology (hardware or network bandwidth) capabilities to perform properly in the long term.

- Obtain competitive pricing and alternative options based on:
  - Overall Design Criteria
  - Overall Implementation Plan
  - Total Cost of Ownership (5 years)

Action Plan – Technology

Development of a comprehensive set of specifications to be included in an RFI or RFQ for each of the following:

▸ First Step – Justice Center deployment with the VoIP - Avaya upgrade strategy as recommended in the comprehensive Assessment report under Voice Systems Section

▸ Integrated Voice Response System.

▸ Bandwidth;
   ◦ Leased Circuits
   ◦ Leased fiber
   ◦ Owned Fiber
   ◦ Digital and analog voice lines

▸ WAN/LAN Hardware/Software.

▸ Wireless Hardware/Software.

▸ Cable infrastructure - determine standards and qualified vendors (recommend, at a minimum, two certified vendors).

Sample RFP
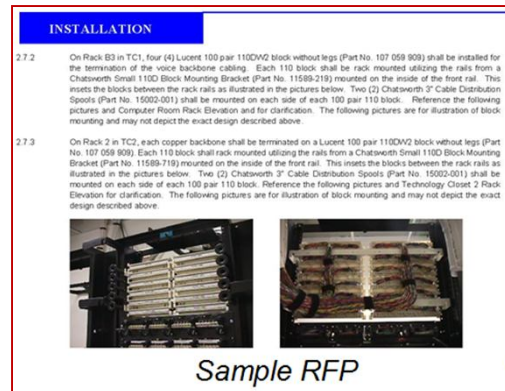
Action Plan – Technology

The specification should be written to enable Fort Bend County to:

▶ Evaluate alternative manufacturers' solutions for the data network electronics.

▶ Evaluate multiple Avaya Vendors for the migration to Voice over IP.

▶ Evaluate and allocate current and future budget requirements based on actual costs and not budgetary pricing.

▶ Evaluate vendors and their capabilities to implement a phased approach.

▶ Evaluate vendors on the total cost of ownership – maintenance costs for 3 to 5 years.

▶ The final step would be the Project Management of the phased implementation.

TECHKNOWLEDGE
CONSULTING CORPORATION

Budgetary Analysis

Network Costs (Voice, Data, Internet)

Current Monthly Costs (avg.)	$ 141,000 / mth
Estimated Newly Upgraded Network Costs	$ 115,000 / mth
Overall Savings (based on total implementation)	$ 26,000 / mth
Estimated Yearly Savings	**$ 312,000**

Budgetary Analysis

Estimated Hardware / Software Budget

Systems	Assumptions	Low	High
Data Network	3,500 Ports	$ 950,000	$ 1,350,000
Telephone Systems	3,600 Ports – 20% New Handsets	$ 2,000,000	$ 2,400,000
Automatic Call Distribution	200 Users	$ 300,000	$ 400,000
Integrated Voice Response System	48 ports	$ 250,000	$ 350,000
Wireless Network Systems	250 Access Points	$ 600,000	$ 700,000
Ancillary Costs	Back-Up Power, Cabling, Closet Upgrades, etc.	$ 600,000	$ 700,000
TOTALS		**$ 4,700,000**	**$5,900,000**