

VOIP in the Clark County School District: A Hybrid Solution

Philip J. Brody, Ph. D.
Chief Technology Officer
Clark County School District
May 11, 2004

Where We are Going

Legacy System

- 10,000 phones
- 9,000 Centrex lines
- 260 schools
- Maintenance by truck
- Stand alone systems

New System

- 27,000 phones
- 1,200 Centrex lines
- 450 schools
- Remote maintenance
- Fully meshed using IP connectivity over gigabit WAN

System Overview

- Unified district-wide system
 - 27,000+ handsets
 - 2,000 VOIP
 - 25,000 digital
- Hybrid system
 - Primarily digital within schools
 - VOIP between schools
- Every existing phone and switch replaced
- Phones placed in every classroom
- Voice mail for every teacher (16,000+)

System Overview (con't.)

- Alcatel OmniPCX 4400 in every building
- Connectivity
 - PRIs to PSTN
 - 2-sites per WAN area to different Central Offices
 - Redundant 13-switch Gateways between areas
- Common 8-digit dial plan
 - 4 digit location code
 - 4 digit standardized extensions
- “Forced on-net”
- Remote management system

Why VOIP?/Why Hybrid Approach?

- Leverage Gigabit WAN
- Clear industry direction
- Significant cost savings
- 2/3 of sites already wired for digital phones
- Substantial savings over alternative systems
 - Independent analysis compared 6 models
 - Extra costs associated with VOIP handsets
 - Power
 - Backup
 - Handset cost
- Rollout speeded up

Vendors and Criteria

- Alcatel
- Avaya
- Cisco
- Intertel
- Mitel
- NEC
- Nortel
- Cost
- Architecture
- Other technical
- Ability to meet hybrid
- Scalability

Return on Investment

- Capital costs used to save operational costs
 - Approximately \$1.3 million/year when complete
- Reduced implementation costs:
 - Leveraged existing wiring infrastructure in more than 200 buildings
 - Significantly reduced Centrex lines while increasing number of handsets—90% reduction
 - Use gigabit WAN that was being built

Implementation: One Year Later

- 97 schools with classroom phones
- 26 schools with new admin phones only
- 7 admin sites + Ed Center
- Total phones installed: 11,725
 - Classroom 5,594
 - School admin 5,028
 - Non-school admin 1,103
- Centrex lines disconnected: 1,605
- Next Steps
 - Continued rollout
 - New applications
 - E911
 - Phones in every classroom

Toughest Problems

- Getting started & gaining momentum
- Playing together: various vendors, district, district support units
- Paradigm shift for telecom staff
- Various technical issues: annoying, but no show stoppers
- Getting users comfortable with new system