

VoIP IN THE CLARK COUNTY SCHOOL DISTRICT: Drivers for Adoption and Project Status

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Business Drivers

- Cost and speed
- Leverage existing CCSD resources
 - Part of GigE WAN
 - Existing cable infrastructure
- Rollout without disruption
- Minimize risk
- Recoup capital costs through operational savings

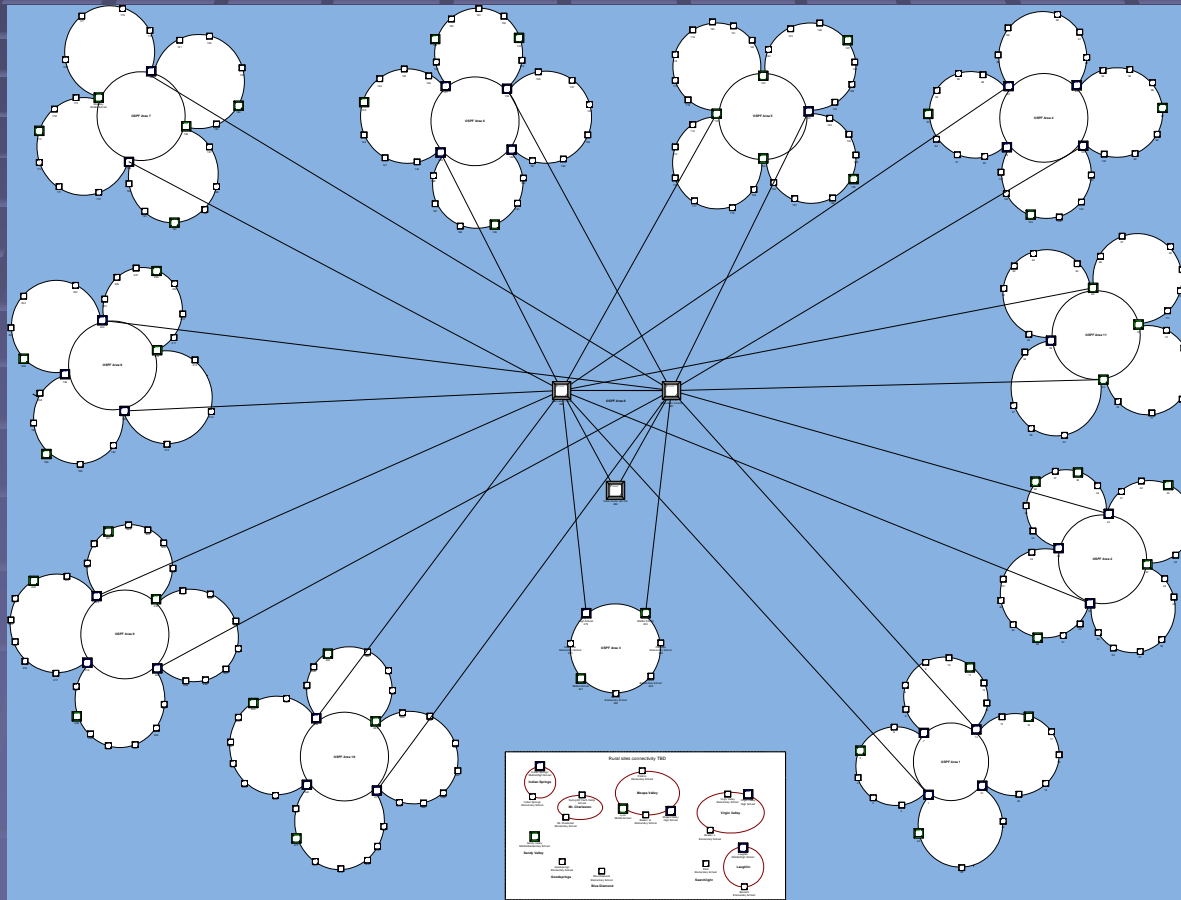
Voice: System Overview

- Unified, IP-based district-wide system
- Blended system
 - Completely VoIP between 300+ sites
 - Primarily digital within schools
- Large number of networked switches and phones
 - By 2006, 325+ switches
 - 27,000+ handsets: 25,000 digital; 2,000 VoIP
- Every existing phone and switch replaced
- Phones placed in every classroom
- System expanded from 9,000 to 27,000 phones
- Voice mail for every teacher (15,000+)

Voice: System Overview (2)

- 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

Network Architecture



Why Blended Approach?

- 2/3 of sites already wired for digital
- Substantial savings over alternatives
- Independent analysis compared 6 models
 - Extra costs associated with VoIP handsets
 - Power
 - Backup
 - Handset cost
- Rollout speeded up

Phones in Schools

- Phone in every classroom (15,000+)
- Voice mail for every teacher
 - Due to mobility, non-phone specific system
- Centralized “do-not-disturb”
 - Limit incoming calls during instructional time
- 911 and E911
- Automated attendant (English & Spanish)
- Panic button
- Installed by district staff

Phone Installations: By the Numbers

- 166 schools with classroom phones
- 55 schools with admin phones only
- 9 admin sites
- Total phones installed*: 18,880
 - Classroom 8,473
 - School admin 9,246
 - Non-school admin 1,161

Centrex lines disconnected: 4,104

*As of April 20, 2005

Initial Rollout: Strategic and Technical Issues

- Focus on dial tone rather than features
 - Install 700-800 handsets per month
- “Tweaking” the system
 - Echo
 - Calls disconnecting
- Miscellaneous
 - “last mile (kilometer)” problem
 - E911

Initial Rollout: Organizational Issues

- Traditional vs. IP telephony
 - Paradigm shift for telecommunications staff
 - Difficulty understanding system “networkability”
- Networking support group assumed control of voice communications
- Steep learning curve for school district and Alcatel & its partners
 - New to US & education market
- Developing effective lines of communication

Reduction in Operational Costs

- Phone system to triple in size but:
 - Support staff will increase by only 5%
 - Cost for outside services will be reduced by more than 50%
- Monthly outside line charges will drop from more than \$14/phone to less than \$3/phone
- Annual savings of more than \$1 million compared to Centrex-based system
- Number of additional features (voice mail, automated attendant) increase without additional cost