ALFATECH CAMBRIDGE GROUP

PRESENTATION

TO

COLLEGE OF MARIN

BY

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ALFATECH CAMBRIDGE
Purpose & Objectives

- Partnership with Technology Committee
- Develop the Minimum Standards for Technology Infrastructure

- Review existing facilities
- Evaluate business plan objectives
- Develop minimum standards and guidelines
- Identify key infrastructure dependencies
- Provide input to Architects for future projects
Project Approach

- Alignment with Facility Plan
- Allow for input and feedback
- Incorporate emerging technologies
- Understand industry trends

**Technology Industry**
- Wireless Technologies
- Audio/Visual Solutions
- Network Infrastructure
- Distance Education
- Security/Surveillance
- Building Management Systems
- Remote Access Capability

**Educational Market**
- Stanford University
- Santa Rosa Junior College
- Solano Community College
- Monterey Peninsula College
- West Valley College
- Gavilan College
- Ohlone College
Technology Approach

- Protect Investments – Sustainable Solutions
- Solutions That Ensure Long-Term Supportability
- Create Efficiencies to Increase Productivity
- Deliver Location Independent Services
- Centralize Maintenance and Administration
- Develop Scaleable Solutions

IP Convergence – “The Driving Force”

- Building Management
- Voice Applications
- IP Communications
- Integrated Applications
- Audio Visual Systems
- Security & Surveillance
- Video Conferencing
- Mobility – Student Access
Solutions Require Converged, Integrated Services and Applications
Technology Has Become a Utility

Electrical Grid

IP Communications Grid

Highly Available
Exponentially Scalable
Universally Accessible

Servers
PDA
IP Phone
E-Mail
Ethernet
Internet Access
IP Phone
Client

Servers
PDA
IP Phone
E-Mail
Ethernet
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IP Phone
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Current Infrastructure

- Cisco 7200 Router – WAN and ISP
- HP ProCurve 5300 Series Core Switches
- HP ProCurve 4000M Edge Switches
  - ProCurve 4000M was discontinued as of April 2005.
  - ProCurve will continue to support the 4000m for as long as you own the product.
- IDF Closets located in shared utility spaces
- Category 5e Station Cabling
- 12 strand multi-mode (MM) 62.5 um Backbone Fiber
- 1Gb Speed Between IVC and KTD
- 100Mb Between Core and Edge (MDF and IDF Closets)
- 10/100Mb to Network Devices
CENIC Internet Connection

IVC Campus

KTD Campus

Core - MDF

Edge Closets

100Mb

1Gb

10/100Mb
Risks and Limitations

- No UPS in IDF Closets – Exposed to power failures
- No ground protection in IDF closets
- IDF closets are not environmentally protected
- IDF closets do not have Air Conditioning
- Backbone – Aging 62.5um Fiber Optic Cable
  Limited to 200MHz per km – 220 Meter Distance
- Network Switches have 100Mb bandwidth limit
Requirements Gathering Process

- Roundtable Workshop with Technology Committee
- Individual Interviews with IT, Faculty and Staff
- Site Assessment – IT Rooms, Classrooms
- Published Meeting Minutes and Site Assessment Report
Technology Functional Requirements

- Allow the instructor to incorporate multi-media content into the learning environment
- Ability to access and display content in the classroom from multiple sources including Public Internet, Campus Servers, VCR/DVD, Live TV, Local Computer and Flash Drives
- Easy to use media controls that are consistent in functionality between classrooms
- Ability for instructors to share course content from a central server and have remote access to this content from off campus
- Need redundant connectivity to ‘key’ buildings
- Enable students to use personal laptop computers on campus with wired and/or wireless access to student network services and the public internet
- Increasing student demand for Distance Learning – Web based courses and content
- Ability to deploy IP based devices in the future – Phones, Paging, Cameras, BMS, etc.
- Infrastructure must support long-term sustainability objectives
Proposed Recommendations

- Address IDF Environmental Issues
  - UPS, Dedicated Power and Grounding
  - Dedicated Secure IDF Closet or Cabinet Enclosure
  - Air Conditioning

- Update Network Equipment Standards
  - Managed Layer 3 platform
  - PoE to support future VoIP deployment
  - Gig Backbone Architecture
  - 10/100Mb to desktop adequate for foreseeable future

- Cable Plant Standards
  - 50um Laser Optimized Multi/Single-Mode Fiber Backbone
    500MHz per/km – 10 Gig to 300 Meters - * Requires upgrade to network electronics
  - Category 5e Station Cable – 10/100Mb adequate for foreseeable future
Proposed Recommendations

- **Campus Wireless Solution**
  - Evaluate campus wide solutions
  - Use Access Points to supplement coverage
  - Secure ‘Private’ access for internal use by faculty and staff
  - Unsecured ‘Public’ access for student use (DMZ)

- **Minimum Standard for Classrooms**
  - Power and Pathways for AV equipment (Projector, Controls)
  - Projection Screen designed to work with projector
  - Wired and Wireless Network Access Ports
  - Implement AV equipment as budget allows
Smart Classroom Solution Examples

Wall Mount Media Control Panel

Lectern Style Furniture Functional and Secure

Projectors and Document Cameras

Power and Cable Raceway Systems

In Floor Power and Cable Raceway Systems
Smart Classroom Solution Examples

- Drop Down Projection Screen
- Projectors
- Speakers
- Television
- Remote Control Devices
Simple Media Control System
MLC 206

- DVD
- VCR

Closet

Extron WP 150
Wall Plate

Laptop #1

Extron WP 150
Wall Plate

Laptop #2

Extron
MLC 206
MediaLink™ Controller
MediaLink™ Control System, Lectern Mounted Controls
MLC 206 AAP with MLS 406MA

Extron MLC 206 AAP
- MediaLink Controller
  - Projector On/Off control
  - Lighting control
  - VCR & DVD control
  - Switcher control

Extron MLS 406MA
- MediaLink Switcher
  - Video/RGB switching
  - Audio amplifier

Lectern
- Laptop
- VCR
- DVD

Projector
- IRCM-DV+
- Lighting controller
- Mono Audio
- Speaker system

Diagram showing connections and control flow for the MediaLink™ Control System.
Classroom Functional Concepts

Flex Classrooms
Interactive Classrooms
Instructional Labs
Lecture Hall
Distance Education
Anywhere…..
• Sustainable Design and Products
• Focus on Core Infrastructure
• Design to Minimum Standards
• Design Input to the Architects
Questions or Comments?