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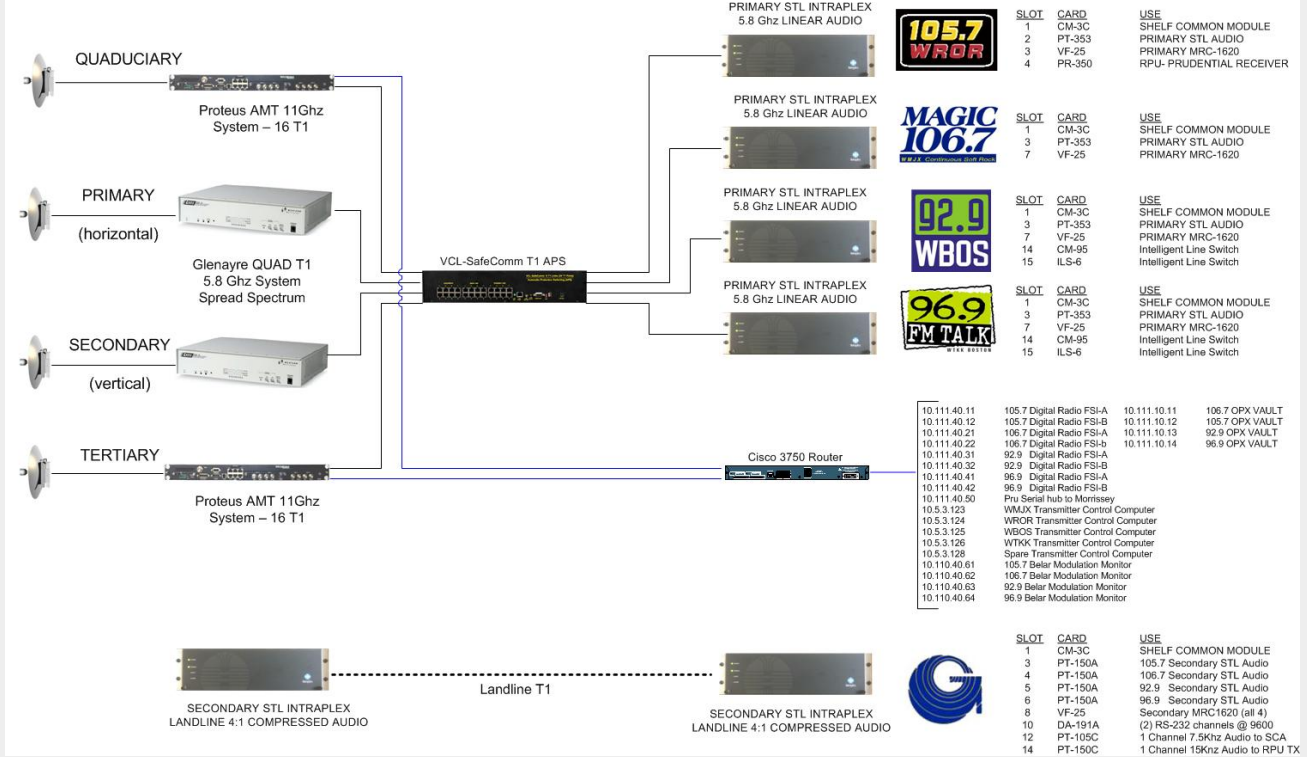**CRAVE MORE**

Today's Modern Multi-Purpose STL's

- IP Based Connectivity (two way)
- Remote Controls
- HD Radio feeds to Importers/Exporters
- RDS Encoder Feeds
- Audio Processor Remote Control
- OPX Telephones
- General Internet Access at Transmitter Sites
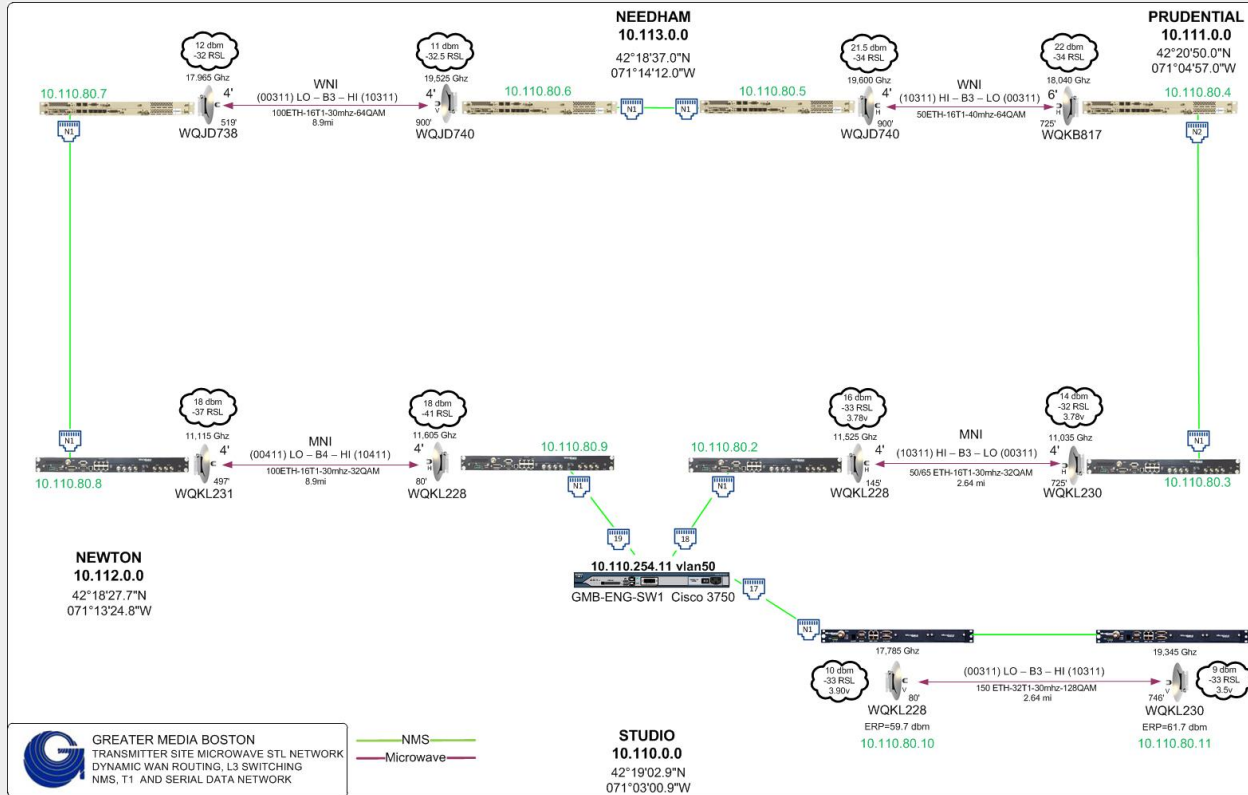
Multi Purpose STL's

- Primary STL Audio (Analog Discrete L/R)
- Transmitter Remote Control (FSK or RS-232)
- HD Radio feeds to Importers/Exporters
- RDS Encoder Feeds
- RPU Audio (both directions)
- 2 way radio repeater voter audio
- General internet access at transmitter sites
- IP camera connections

Examples of Traffic Content

55 MORRISSEY BLVD STUDIOS TO PRUDENTIAL BUILDING TRANSMITTER SITE

Sonnet Ring Architecture

STL Ring Architecture Advantages

- Self Healing Design
- Redundant Equipment
- Instant Switching (clockwise/counter- clockwise)
- Email alarms
- RPU Audio (both directions)
- 2 Way Radio Repeater Voter Audio
- General Purpose Internet Access at Transmitter Sites
- IP Camera Connections
- Audio Processor Remote Control

Sonet Ring STL Disadvantages

- Complex to set up
- Complex to Maintain
- Expensive
- Requires ongoing High Level IT Support (Layer 3)

Part 101 STL Systems

- Offers Protection from interference
- Wideband for extraordinary throughput
- Expensive to purchase
- Requires advance frequency allocation study
- Ideal for congested metropolitan areas
- Allocations are getting rare due to common carriers

Part 101 STL Systems
Frequency and Dish Size Selection Criteria

- 6,11,18, and 21 GHz
- Larger Dish sizes allow longer distances (6' 10')
- 18 and 21 GHZ more susceptible to rain fade
- 6 and 11 GHz generally offer longer range

Unlicensed STL Systems

- Spread Spectrum Technology
- No Protection from interference
- Wideband for extraordinary throughput
- Less expensive to purchase
- Does not require advance frequency study
- Ideal for less congested rural areas
- Available to put on the air instantly

Conclusions

- New wideband STL Systems are bi-directional
- Offering not only audio but many other services
- Flexible Backup Solutions
- Licensed Part 101 Systems for protection
- Spread Spectrum may be appropriate for less congested areas

Centralized UPS Systems
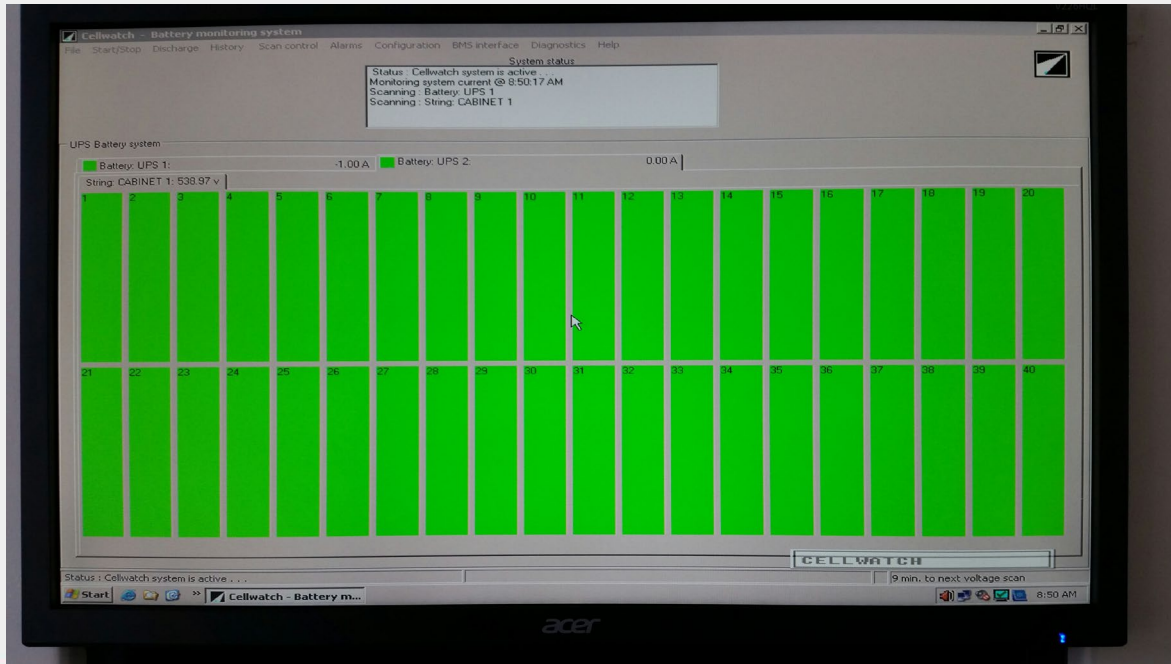
Centralized UPS Systems
Advantages

- Simplifies maintenance
- Saves space, cleaner installation
- Saves money
- Especially efficient for larger plants
- Highly reliable
- Extra capacity for heavy loads
- Highly advanced diagnostics and battery monitoring capabilities

Centralized UPS Systems
<u>Disadvantages</u>

- Expensive to install
- Expensive to maintain
- Requires dedicated environmentally controlled space
- Best for new construction

Battery Monitoring-- Cell Watch

Kirk Key Interlock System

- Bullet Proof Interlock System
- Highly recommended for ability to bypass UPS in the event of emergency
- Complex Procedure requires instructions
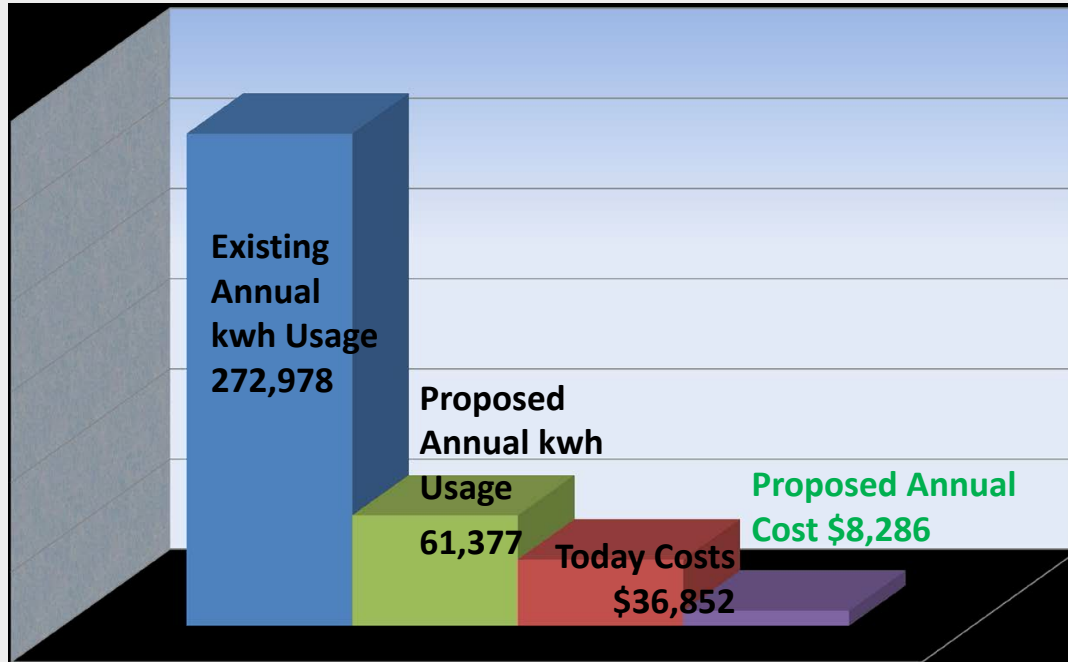
Kirk Key Interlock System

Conclusions

- Centralized UPS Systems simplify facility design
- Highly reliable UPS covers all mission critical equipment
- Ability to add redundant parallel cabinets
- Ability to carefully monitor health of batteries
- Expensive to install and maintain

LED Lighting Retrofit for Studios

- Green Initiative
- Save on maintenance Costs
  - LED technology is rated for 10X longer than incandescent lighting
- Save on Energy Costs
- LED's produce much less heat than incandescent lights – cooler working environment
- Smart fixtures take advantage of natural light and occupancy within a space and adjust accordingly
- New Wireless technology allows for fixtures be configured and controlled via PC or remote devices
- Allows for flexible lighting changes with area re-configurations

LED Lighting Retrofit for Studios

LED Lighting Retrofit for Studios

LED Lighting Retrofit for Studios

Before Retrofit	After Retrofit
Load: 67,725 KWh	Load: 15,820 KWh
Annual KW 65.73	Annual KW: 15.82
Annual Lighting Cost: $36,852	Annual Lighting Cost: $8,286
(assuming energy cost $0.135)	
	Reduction/Year: 49.91 KW
	Reduction/Year: 211,601 KWh

LED Lighting Retrofit for Studios

Category	After Retrofit
Maintenance Savings/Year	$3,850
Electrical Savings/Year	$28,566
Project Cost	$186,153
Utility Incentive	$74,060
Cost After Incentive	$112,092
Estimated ROI	29%
Monthly Energy Savings	$2,381

LED Lighting Retrofit for Studios

Category	After Retrofit
Finance Option: 84 mo@7.8%	$1,540
Monthly Cash Flow	$841.00

Conclusions

- LED Lighting retrofit makes sense for most installations
- Payback in 3 years or less
- Financing arrangements can allow for positive cash flow
- Substantial incentives from utilities
- Save on maintenance costs
- Save on energy costs
- Ability to re configure lighting for different office layouts as your needs change and people move
- Centralized lighting control possible

Advantage of Centralized Server Virtualization

- Reduces costs on hardware , power, cooling, and facilities
- This helps save rack space
- Enhances administrative functions
- Reduces maintenance
- Increases availability
- Lowers downtime

Backups and Disaster Recovery with Centralized Server Virtualization

- Snapshots possible
- Backups are agnostic
- Simplifies Disaster Recovery (highly portable)

Greener computing with less heat buildup

- Less Hardware
- Smaller Footprint
- Positive environmental image

Backups and Disaster Recovery with Centralized Server Virtualization

- Snapshots possible
- Backups are agnostic
- Simplifies Disaster Recovery (highly portable)

Centralized Server Virtualization Moving to the cloud

- Easy to deploy services in remote data centers
- Create your own hybrid-cloud infrastructure
- Mindset is similar to virtualization

Centralized Server Virtualization Single Purpose servers

- Single minded servers
- Each server is dedicated to a single application
- Multi-purpose servers are often more difficult to maintain suffering from trying to service too many applications from a single platform
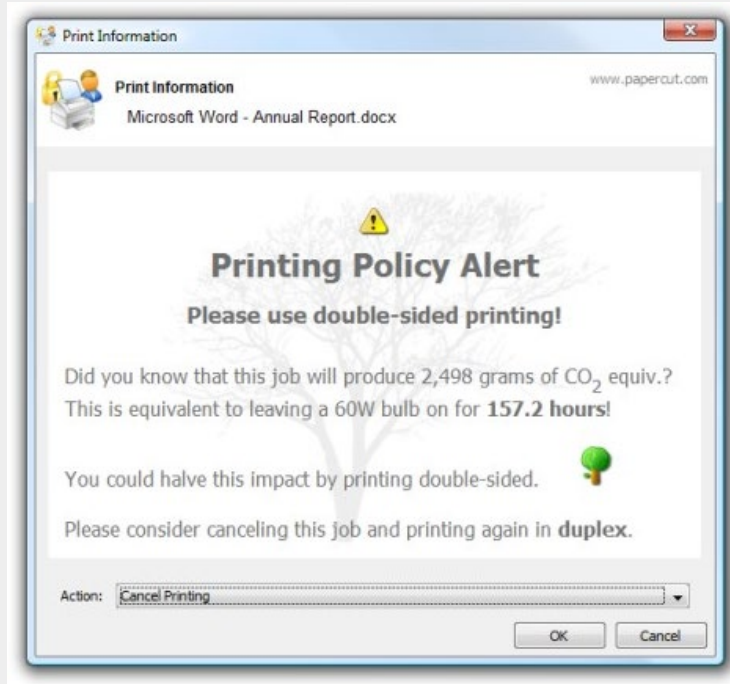
Conclusions

- Server Virtualization Makes sense in most cases
- Saves space, energy, and maintenance costs
- Highly transportable and easy to backup restore, and move around
- Virtual machines have no physical ports for RS-232, Audio Cards, USB, etc.

Printing Economies

- Paper Cut technology allows for substantial savings on office printing costs
- Tabulates printing statistics
- Allows user to pick up print jobs at user selected machines
- Deletes print jobs if not printed in a specific amount of time

Printing Economies

Printing Economies

Printing Economies

- Utilizes passcodes, or existing security proximity cards
- Reminds people to print efficiently
- Central management tool for administering printers

Conclusions

- Green Initiative
- Saves Thousands of dollars annually by eliminating wasted paper and toner supplies
- Users may have resistance to carrying proximity card to copy machine
- Keeps confidential print jobs confidential
- Allows people to print to other machines while large print jobs are tying up a printer
- Can intelligently route print jobs to the most cost effective machine

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