

IEEE Consumer Communications and Networking Conference  
Las Vegas, Nevada  
January 2005

# End User Needs – A Reality Check

Doug Zuckerman

*An End User*

*w2xd@aol.com*

# New House



# Background

- In 2003 bought new-build house in new development – 2 floors and 2,100 sq ft
- General “needs”
  - Home office
  - Home theatre
  - Computer networking
  - Smart lights
  - Ubiquitous audio
  - Plasma TV for bedroom
  - Alarm system
  - Heating/cooling control
- Most important “need”: Help!!!

# To the Rescue: *Sound and Video Integrators*

*You dream it...*

**We Make It Happen!**

## **What we do:**

As you are probably aware, today's technology has advanced at a blinding pace. Yet, the benefits in Home Entertainment, Communications, Life Safety and Enhanced Home Systems are more exciting than ever before!



The professionals at Stereo & Video Integrators are here to simplify your choices and streamline your selection process. Our years of experience with the best products and all the latest technologies enable us to simplify your home – and ultimately your lifestyle. We're here to help make the experience in your new home safer, healthier, and more pleasurable for today – and tomorrow.

# What I Got!

- **Home theatre and office in loft**
  - High definition cable TV
  - Overhead LCD projector with 80-inch screen and very comfortable lounge chairs
  - Media Center computer – not quite integrated
- **Computer networking**
  - CAT5E in most rooms (state of the practical art in 2004)
  - Cable modem and wireless access point/router
- **Smart lights (recessed lighting and outdoors)**
  - Wireless control of double-click variable light switches
  - Scenarios (provided software fix for electrical wiring problem)
- **Ubiquitous audio**
  - Cable, satellite radio and audio server with 20 GB storage
  - Server on computer network – downloads to iPod
- **TVs**
  - 42 inch High Definition Plasma TV (cable) in bedroom
  - 13 inch LCD TV under kitchen cabinet
- **Alarm system**
  - Three panels but not integrated with other systems or internet
- **Environmental control of two zones**
  - Thermostats not integrated with other systems
- **Integration**
  - LCD touch panels and computer control of almost all functions
  - PC to Home Theatre system integration

# Specific Consumer Elements - 1

## ■ Home Theater / Home Office

- InFocus Screenplay 7200
- Stewart Film Firehawk 6' diagonal screen
- Kenwood VR-5700 Surround Sound Receiver
- Kenwood VR-5700 Progressive Scan DVD Player
- AudioRequest 20GB Music Server
- Lutron Lighting Control System Switches, Dimmers, Master Controllers and Chronos astronomical clock and control center
- SpeakerCraft Speakers throughout house
- Velodyne SPL-8 Subwoofer
- Universal Remote Control MX-800
- +Sony Vaio Desktop with Windows XP Media Center

## ■ Master Suite

- Sony 42" Plasma Tv
- Crestron CT-1000 Touchpanel (bedroom)
- Crestron 12-Button Control Pad (bathroom)
- Lutron Lighting Control Switches and Master Controls

# Specific Consumer Elements - 2

## ■ Kitchen

- Sharp 13" LCD TV
- Crestron CT-1000

## ■ Family Room/Outside

- Crestron TPS-2000L Touchpanel
- Lutron Lighting Control Dimmers and Switches

## ■ Security System

- GE Interlogix Concord RF Panel
- LCD Alphanumeric Keypads
- GE Wireless Smoke and CO Detectors

**Work a little...**



**Play a little...**



# What I May Get

- LCD TV for outdoor barbecue deck and replacement of remaining picture tube TVs
- Integration of audio from PC with home sound system (AOL Radio, Napster, iTunes, etc.)
- DVD hard disk storage and control analogous to OnRequest system for audio files
- Remote control of home infrastructure via the Internet
- Further integration of sound, video, lighting, environmental and alarm systems
- *More ooh's and ah's from guests! 😊*

# Building vs. Upgrading

- Part of building new house - "*I really want it!*"
  - Concept – builder's "design center" referred us to their "pre-wire" contractor (SVI)
  - Requirements – SVI worked with us to agree on functional requirements including pre-wiring design
  - Ordering – specific hardware/software was ordered around completion of home in November 2003
  - Installation – most done during first month of occupancy and will continue through at least 2005
- Upgrading existing home infrastructure - "*Do I really need it?*"
  - Based on actual experience
  - Availability of new consumer elements
  - Integration with separately purchased computer system
  - Replacement of older technology (e.g., clunker TVs with "picture tubes")

# General Observations

- Overall we are very happy with our “home infrastructure” – very high quality at reasonable costs
- Could not – and would not - have done it without a “one stop” integrated product/service provider working closely with us as a partner
- “Pre-wired” and “post-wired” needs/wants are significantly different
- Big challenge: Knowing what we wanted
  - Showroom visits before house was built were helpful but not enough
  - Had to move in and “live the house” to really know
- Important to have an “integration” company continue working with us from conception through inception and beyond

# Areas for Improvement

- Not all solutions worked the first time (e.g., wireless media receiver from PC to home theatre didn't work so did wired approach)
- If security was better would have had remote control of home infrastructure and integrated alarm system with other components (e.g., garage door opener and lighting)
- Hard to justify high costs for some cross-system functionality (e.g., smart light switches control audio)
- *Optimize popcorn flow and lounge chair usage in home theatre! 😊*

# Challenge Questions – From Homeowner

- Will broad scope home networking (physical to application layers) ever be practical without using a “one stop” integrator company?
- Can the Web enable “one stop” e-Integration without requiring in-person meetings with builder, showroom, on-site and for upgrades?
- Can more be done to educate end user customers on terminology, functionality, state of the art and product choices?
- How can the “excitement of an owner” and the “awe of a guest” be translated into more “smart home” business?
- When will video catch up to audio distribution services on the Internet (e.g., iMusic, Napster)?
- When will it *really* be easy to copy VHS tapes to DVD on a PC?

# Challenge Questions – From “An Integrator”

- If this type of integration is the future why not have the architect work with the integrator at the first step?
- Could an integrator, like us, be placed in charge of all controlled aspects of the job i.e. lighting design and control and HVAC Control? We have done this on a couple of larger jobs with great success for the builder, home owner and us.
- What about the implementation of education programs that would turn out professional integrators who would have a basic knowledge of electrical, heating and air conditioning, plumbing and general contracting. This would create people who could take the home owners ideas and be able to properly communicate the solutions to the contractors and make these ideas reality.
- How can the potential homeowner be made more aware of these types of options so they might be more likely to use them?

# Summary

- By up front working with an “integrator” was able to get “smart home” that met our needs
- Willing to spend much more money as part of new home build than afterwards
- Must “live the home” to fully appreciate functionality and identify needs for home systems and networking upgrades
- Ongoing relationship with “integration” company is a big help