



235 Main St  
Irvine CA 92606  
P.714.258.3698  
F.714.258.3699

**Request for Proposal (RFP):**  
**Network in the New Estate Home**  
**For: Daniel Sullivan**

*Prepared by:*

Daniel Lee  
Gerard Guzman  
Kelvin Gani  
Illya Lavrik  
Matthew Kim  
Norabhat Aneknidhi  
Wendy Bui

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# **EZ** Network Solutions, Inc

235 Main St Irvine CA 92606 P.714.258.3698 F.714.258.3699

May 3, 2010

**Mr. Daniel Sullivan**

Dear Mr. Sullivan:

On behalf of EZ Network Solutions, Inc. (EZNS), I am pleased to present to you our proposal entitled "Network In The New Estate Home". Our proposal meets the requirements specified in your Request for Proposal and is valid from April 8, 2010 until July 30, 2010.

After reviewing the Request for Proposal, our networking team has developed a comprehensive plan for your new estate's network design for connectivity and integration of all latest technology gadgets. Our team will customize a cable plan for your new estate. Our goal is to design a network that is fast, reliable, efficient and has the capacity for expansion as technology improves. After implementation of the network, we will offer you a ONE-YEAR warranty for equipment plus THREE YEARS warranty for the installation and labor, which also includes a maintenance package for continuing service.

Ensuring that our network service delivers the performance that your smart home demand is a challenge. An important phase in meeting that challenge is the initial planning and designing of the infrastructure in Local Area Networks (LAN). We are confident that EZ Network can help you meet those demands. We employ experienced and certified network engineers and network technicians. Our engineers and technicians have a wide area of expertise, including Backbone designs, LAN/WAN designs, network security, business process development, and technology implementation. We have clients throughout the entire United States, which encompass a wide range of organizations, and individuals.

EZ Network's networking team looks forward to meeting with you to discuss our plan in more detail. If you have any questions or concerns, please contact me at **(714) 258-3698** or by email at [wbui@eznetworksolutions.com](mailto:wbui@eznetworksolutions.com). We look forward to a mutually rewarding partnership with you.

Sincerely,

Wendy Bui  
EZ Network Solutions Representative

## Executive Summary

Mr. Daniel Sullivan is the CEO and founder of a successful software company. After having recently purchased a real estate lot in Southern California, he plans to build a “smart” home on the piece of land. In planning to build his estate home, Mr. Sullivan has contacted EZ Network Solutions, Inc (EZNS) to design and implement a network for his new estate.

Mr. Daniel Sullivan has provided information regarding his desires and expectations in an effort to help EZNS design and implement the best and most cost efficient network for Mr. Sullivan’s “smart” home. After meeting with Mr. Sullivan, EZNS has designed a network that will meet every need for a “smart” home.

Upon further inspection of the new layout, EZNS has developed a customized network to meet the demands of Mr. Sullivan’ “smart” home. This setup keeps all important network equipment in one room enabling the IT technicians to troubleshoot the network faster. It will also enable the IT technicians to effectively moderate network traffic and reduces the effects of any bottlenecks.

Based on EZNS’s research for the required network equipments and software, the estimated costs to cover all expenses including labor cost is \$42,725.24 plus \$139.98 monthly charge for internet, TV, and phone services. Please refer to the Cost Analysis section for a detailed explanation of costs incurred to meet Mr. Sullivan’s network needs. This amount includes all post and pre-installation project plans which are included for your review.

## Company Background

EZ Network Solutions, Inc founded in 2000, is a 1.3 billion dollar company that provides consultation for unique networking and security needs for clients with enterprises and homes. Originally we started off as a company that specialized in consulting for clients with enterprises. However, after seeing the level of service they received our clients started requesting us to provide consultation for their homes.

Each year we serve over hundreds of clients both domestically and internationally. In order to ensure that our clients are getting the most out of our services, we constantly seek out the latest in technology to meet their needs. Currently we spend just over a million dollars a year on research and development to ensure that we can offer creative solutions by using the most advanced technology.

Our ability to go above and beyond meeting our customer's needs and wants have allowed us to be one of the most innovative and leading companies when it comes to developing tools and technologies to keep people connected. We continue to lead the way in voice, data, video, and multimedia communication along with advanced security methods to ensure that we are using the most efficient and safest means of communicating.

## Needs Analysis

### 1. User Needs

#### **Fastest Internet Connection**

Every room will be completely wired with 1 GbE running over fiber optic for the fastest network connection. Fastest wireless network will be set up for complete coverage of wireless connection in the entire house.

#### **Centralized Home Server**

Centralized home server will be in place for integrating, controlling and storing information for back up for many of fundamental systems in the house such as multimedia, home office, climate control, and home security system.

#### **Home Office**

The home office, as in form of library room, will have a laptop docking station that automatically transmit and update all the files to the centralized home server for back up. A color laser printer will be networked to the centralized home server.

#### **Climate Control System**

Smart climate control system will be installed and networked to the home server. The system will use motion sensors that are set up throughout the house, controlling climate in the presence of people home.

#### **Integrated Home Security System**

External IP cameras will be installed and networked to the home server for monitoring purpose outside the house. Home server will be able to retrieve video streams from these cameras for a period of time. Alarm sensors will be set up on all doors and windows to notify the alarm company in case of possible forced entry.

#### **Surround Sound System**

The surround sound speakers will be set up in the garage, library, kitchen, outside atrium, and in the great room and will be networked to the home server.

### 2. Application Needs

#### **Network Operating System**

Network operating system, Microsoft Windows Server 2008 R2 will be installed on the centralized home server to integrate, manage, control, store and process incoming and outgoing data.

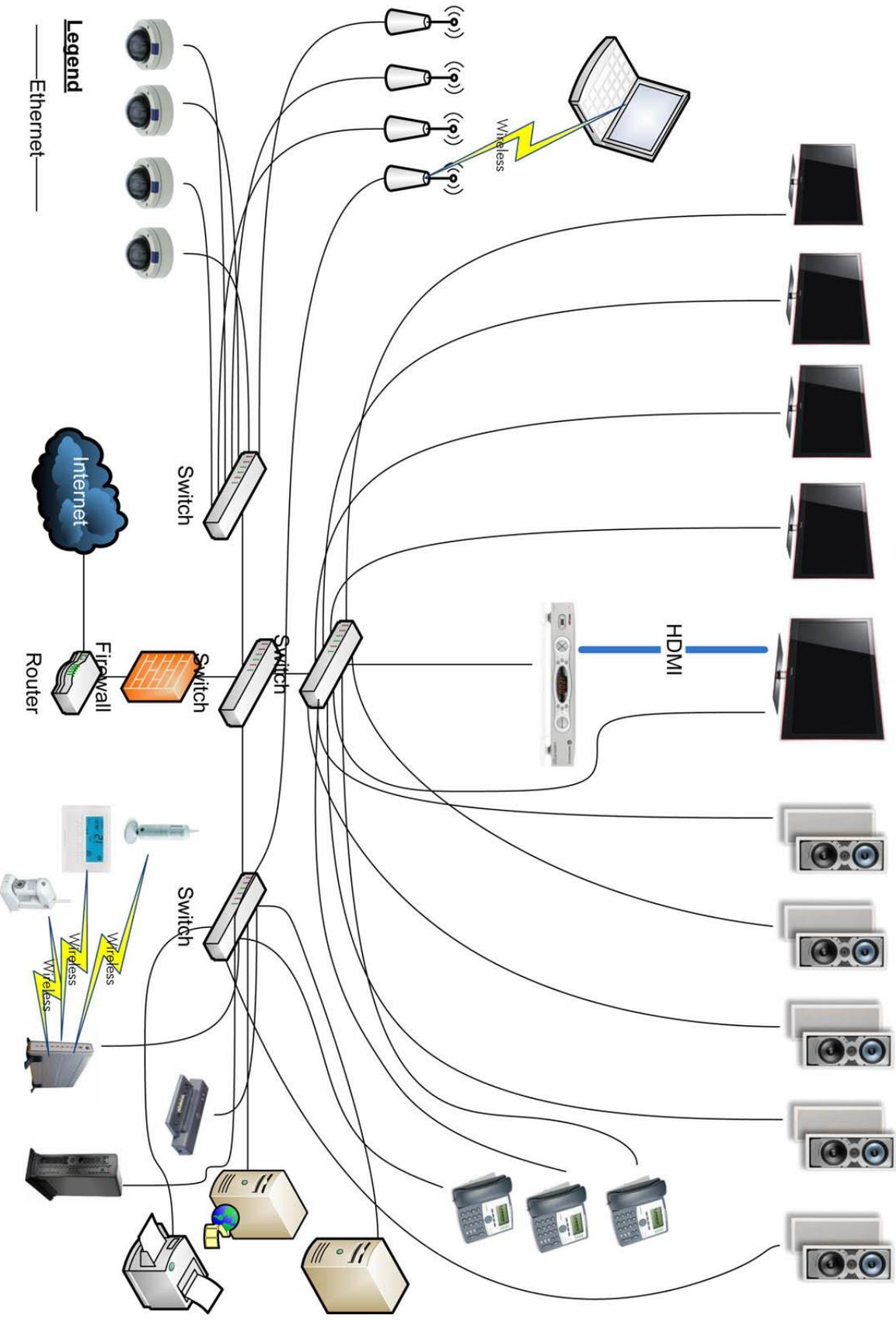
#### **Security Software**

The best and latest version of security software application from the world leading security software makers will be installed on every electronic device that can be installed on for protection from any threat of network.

### 3. Network Requirements

- 1 GbE running over fiber optic cable
- WiFi
- VoIP
- Server

**EZ Network Solutions, Inc**  
Logical Network Diagram for Mr. Sullivan's Smart Home



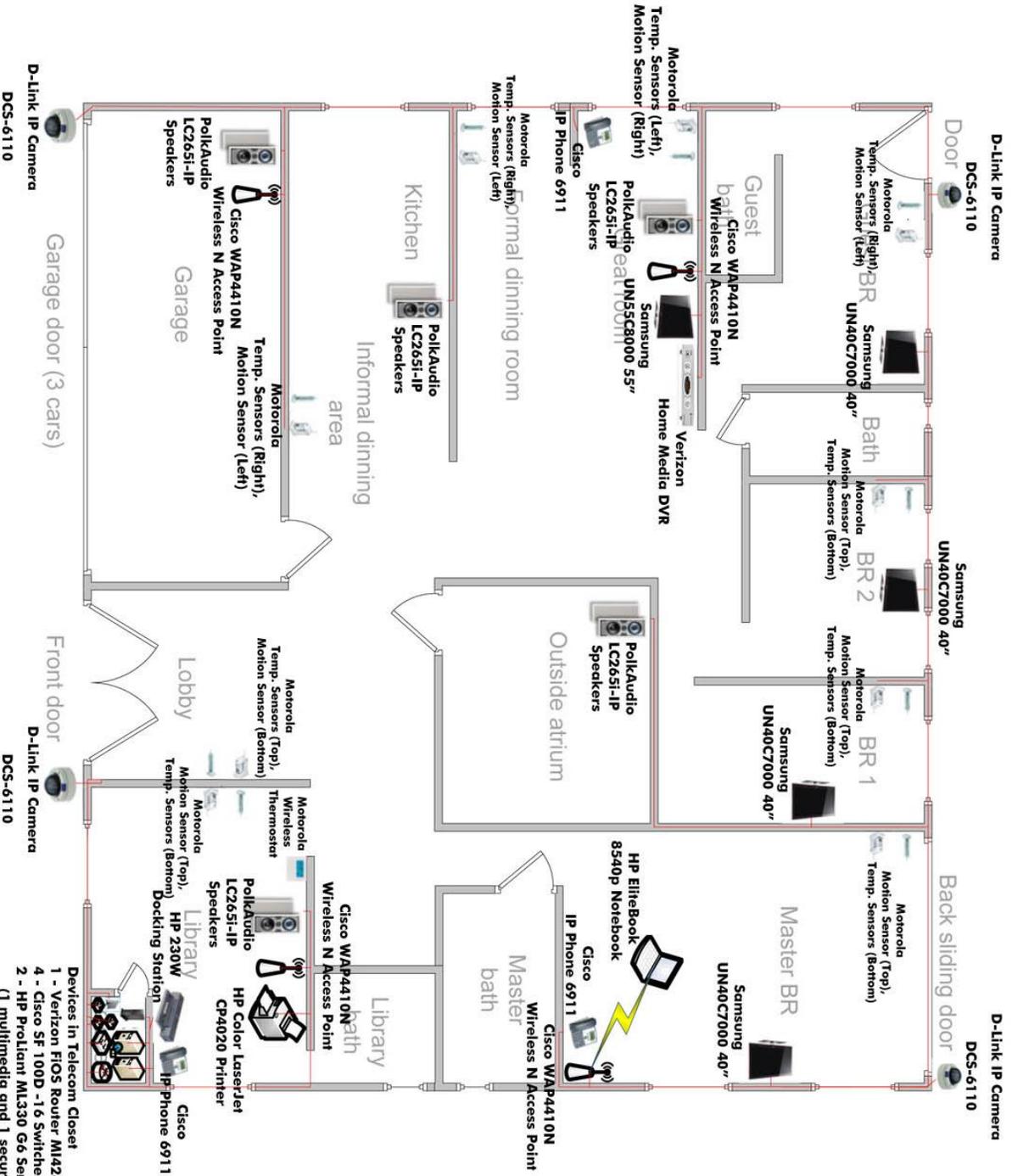
## Expected Network Performance

The home internet network connection is using Verizon Fios Tier 3 with download speed up to 50 Mbps and upload speed up to 20 Mbps. The network installed throughout the house is composed of both wired and wireless networks.

The network uses 1 GbE fiber optic cable and 1000Base-T (UTP Cat 6) cable. Both cables have maximum data rates up to 1 Gbps. The wireless access points support gigabit Ethernet and can operate up to 300 Mbps.

If all the devices in LAN are using the networks simultaneously, the total data rate usage will only be about 140 Mbps. It is when 5 TVs streaming HD video with 15 Mbps each TV, 4 IP security cameras streaming live with 15 Mbps each camera, and one laptop streaming HD video with 15 Mbps ("Bit Rate"). Since the bandwidth of the LAN network is 1 Gbps wired and 300 Mbps wireless, the network will be able to perform without any problem.

**EZ Network Solutions, Inc**  
 Detailed Floor Plan for Mr. Sullivan's Smart Home



- Devices in Telecom Closet**
- 1 - Verizon FIOS Router M1424WR
  - 4 - Cisco SF 100D - 16 Switches
  - 2 - HP ProLiant ML330 G6 Server (1 multimedia and 1 security server)
  - 1 - Cisco Network Storage System NSS2100 (1TB)
  - 1 - Motorola Homeshift Gateway for Climate Sensor

## Hardware Configuration

### Cisco SF 100D-16 Switches

- 16 Fast Ethernet 10/100 Ports
- 3.2 GBps Switch Capacity

("Cisco Small Business 100 Series Unmanaged Switches")

### Cisco Small Business Network Storage System NSS2100

- Preconfigured with (1)x 1 TB Hard drive
- Supports RAID 0, RAID 1
- Can support two SATA drives

("Cisco Small Business Network Storage Systems")

### Cisco Unified IP Phone 6911

- Embedded web server that provides configuration and statistics
- Quality-of-service (QoS) reporting
- Integrates Ethernet switch ports

("Cisco Unified IP Phone 6911")

### Cisco WAP4410N Wireless N Access Point

- Supports 802.11b/g/n
- Segmenting wireless network amongst workgroups & guests
- Having Bridging and Repeater capabilities
- Security capabilities include WPA2, rogue AP detection, 802.1x supplicant

("Cisco Small Business Wireless Access Point Brochure")

### D-Link Fixed Dome PoE Network Camera

- Can save video to a server.
- Can view a live video feed from a Internet-ready mobile phone
- Supports MPEG-4 and Motion JPEG

("DCS-6110 Fixed Dome POE Network Camera")

### HP 230W Advanced Docking Station

- Perfectly compatible with HP EliteBook 8540 Notebook
- Charging notebook or laptop while it is in the docking station.
- Coming with 6 USB ports

("HP 230W Advanced Docking Station")

### HP Color LaserJet Enterprise CP4020 Printer

- Can print images up to 1200 x 1200 dpi
- Has two-sided printing feature

("HP Color LaserJet Enterprise CP4020")

### HP EliteBook 8540p Notebook

- Windows 7 Professional
- Intel Core i7-620M 2.66 GHz, 4 MB L3 cache processor
- 4 GB 1333 MHz DDR3 SDRAM
- 320 GB 7200 rpm SATA II

- 15.6" diagonal LED-backlit HD + anti glare display
  - NVIDIA NVS 5100 graphics 1 GB
- ("HP EliteBook 8540p")

#### **HP ProLiant ML330 G6 Server**

- Intel Xeon E5504 Processor (4 core, 2.00 GHz, 4MB L3, 80W)
- 2 GB Memory
- 192 GB Maximum Memory
- 18 DIMM slots
- Supports 4 expansion slots
- 1GbE NC326i 2 port Network Controller
- 250GB SATA Hard Drive
- Smart Array B110i SATA RAID Storage Controller

("HP ProLiant ML330 G6 E5504")

#### **PolkAudio LC265i-IP Speakers**

- Can be connected via Ethernet or RCA
- 1 – 6-1/2" Diameter Subwoofer
- 1 – 6-1/2" Diameter Mid/Woofer
- 1 – 1" Diameter Tweeter

("The Ultimate In-Wall Loudspeaker")

#### **Samsung UN55C8000 55" 1080p LED HDTV**

- Can view movies in 3D
- Can access Web connected Apps for streaming video, games, and pictures

("UN55C8000 55 in")

#### **Samsung UN40C7000 40" 1080p LED HDTV**

- Can view movies in 3D
- Can access Web connected Apps for streaming video, games, and pictures

("UN40C7000 40 in")

#### **Verizon FIOS Home Media DVR**

- Can show recorded shows to multiple rooms
- Record 80 hrs of standard definition content and up to 20 hrs. of HD content
- Can access FIOS TV standard and HD channels
- PC Media Manager software can allow you to view slide shows and listen to music stored on your home PC

("Home Media DVR")

#### **Verizon FiOS Router MI424WR**

- Hardware-enabled QoS (Quality of Service)
- Able to support speeds well beyond 100 Mbps

("Verizon FiOS Router")

#### **Wireless Thermostat Climate Control System**

- Can remotely control the temperature in the house.

- Works perfectly with the Motorola Homesight Gateway, Temperature Sensors, and Motion Sensors  
("Wireless Thermostat Climate Control System for Motorola Homesight Gateway")

### Hardware Justification

We choose the finest hardware and equipments in the market with the most competitive price and specifications. The most suitable laptop for the user is HP EliteBook 8540p. It comes with pre-installed Windows 7 Operating system and Gigabit Ethernet NIC. User can utilize the most out of the home wireless network connection ("HP EliteBook 8540p").

HP Color LaserJet Enterprise CP4020 works with wireless connection, and it has a two-sided printing feature that will reduce up to 50% of paper use ("HP Color LaserJet Enterprise CP4020").

Cisco WAP4410N Wireless-N Access Points is currently one of the fastest wireless access points. It integrates MIMO (multiple-in, multiple-out) technology. This WAP also supports Power over Ethernet (PoE), so it can be installed in places without any power electrical source ("Cisco Wireless Access Point Brochure").

Samsung UN55C8000 55" 1080p 3D LED HDTV is the newest television in the market. It has the 3D feature and can be networked with Ethernet cable so user can stream videos online ("UN55C8000 55 in").

The server used is HP ProLiant ML330 G6. It is a dual processor tower platform built on the latest Intel® Xeon® processors. Also, it comes with the HP ProLiant Onboard Administrator (powered by iLO 2 controller) which allow user to manage servers anytime and anywhere. ("HP ProLiant ML330 G6 E5504")

The network architecture in the house will be a star topology, and it will use four Cisco SF 100D-16 Switches with 16 ports. The switches have a capacity of 3.2 Gbps ("Cisco Small Business 100 Series Unmanaged Switches"). With the use of four 16 ports switches, the network will be flexible. This is one of the strategies in the growth plan.

The phone will use the Cisco Unified IP Phone 6911. It supports two incoming calls with a single-line endpoint, and it integrates Ethernet switch ports ("Cisco Unified IP Phone 6911").

The audio of the house will use Polk Audio LCi-IP Ultra High Performance In-Wall/ In-Ceiling Loudspeakers. These speakers are the world's first active Internet Protocol-ready Loudspeakers which can be connected to the home network with Ethernet cable ("The Ultimate In-Wall Loudspeaker").

**Cost Analysis**

**Hardware**

1 Samsung UN55C8000 55" 1080p 3D LED HDTV	\$3,499.99
4 Samsung UN40C7000 40" 1080p 3D LED HDTV	\$7,999.96
HP Color LaserJet Enterprise CP4020	\$999.00
HP EliteBook 8540p Laptop	\$1,609.00
HP 230W Advanced Docking Station	\$299.00
Broadview Premium Security System	\$155.00
4 D-Link Fixed Dome PoE Network Camera	\$2,127.96
Wireless Thermostat Climate Control System	\$97.95
Motorola Homesight Gateway	\$195.95
9 Motorola Homesight Wireless Temperature Sensors	\$233.55
9 Motorola Homesight Motion Sensors	\$260.55
4 Cisco SF 100D-16 Switches	\$799.96
Cisco NS2000 Network Storage Systems 1TB	\$424.99
2 HP ProLiant ML330 G6 Servers	\$2,630.00
3 Cisco Unified 6911 IP Phones	\$365.07
4 Cisco WAP4410N Wireless-N Access Points	\$759.96
5 PolkAudio LC265i-IP Speakers	\$14,500
500 ft Fiber Optic Ethernet Cables	\$265.00
25 3ft Ethernet UTP CAT-6 Cables	\$49.75
Mediabridge Ultra Series - 15ft High Speed HDMI Cable	\$13.99
Verizon FiOS Router (MI424WR) (Free with FiOS plan)	\$0.00
<b>Total Hardware Cost</b>	<b>\$37,286.63</b>

**Software**

Windows Server 2008 R2 Standard (up to 5 licenses)	\$1,029.00
Norton 360 Version 4.0 (Antivirus)	\$79.99
<b>Total Software Cost</b>	<b>\$1,108.99</b>

**Internet TV & Phone Services (Monthly)**

Verizon FIOS Tier 3 (50 Mbps) Internet, TV, & Phone Bundle	\$119.99 per month
Verizon FIOS Home Media DVR	\$19.99 per month
<b>Total Monthly Charge</b>	<b>\$139.98</b>

**Labor**

Technician Fee		\$79.99
Install Ethernet jacks	(\$54.99 per jack * 25 jacks):	\$1374.75
Wireless networking set up:		\$149.99
- Set up, configure and secure your router.		
- Enable devices to share the Internet, files, printers and other media.		
3D TV install and setup:	(\$299.99 per TV * 5 TVs):	\$1499.95
- Install and configure of a networking adapter		
- Setup speaker system (5.1/7.1), receiver, and subwoofer in 1 room		
To install/setup and network just 3D TV		\$399.98
Setup & Install centralized multimedia server		\$349.99
Setup of backup servers and storage driver		\$149.99
Networking of climate control system, sensors and computers:		\$199.99
- Network everything together		
- Setup auto back up to server		
Install security/firewalls:		\$124.99
- Install antivirus and antispysware software.		
- Test and verify network/software functionality & security.		
	<b>Total Labor Cost</b>	<b>\$4,329.62</b>

## Project Plans

### Pre-Installation

#### Inspection the building

- Upon approval, we will inspect the house to ensure it meets all the determined requirements. This will allow us to confirm the physical plan, and accurately order hardware. Building inspection ensures proper cable architecture upon installation.

#### Ordering of hardware and purchasing of software licenses

- The hardware and software will be purchased according to the specifications. Hardware includes all TVs, cables, desktops, servers, networking devices, phones, printers, etc. The software licenses must be purchased to ensure adequate supply for users on the network. As specified, the software needed is: Norton 360 Version 4.0.

#### Backing up of data files from previous network

- All data that is needed to be transferred from the old network will be backed up to avoid data loss/corruption. In addition, backup log files are created to prevent any errors in the process. The backup files will be tested thoroughly to make sure they are properly running.

### Installation

#### Laying of cables

- 1 GbE Fiber and 1000BASE-T unshielded twisted pair Cat6 cable will be laid according to the physical diagram. We will be running gigabit Ethernet for the network.

#### Network configuration and Internet Activation

- The network is established as the cables and networking devices (router and switches) are set up. Access priority and restrictions to network resources are set up according to the business' specifications.
- This network will then be connected to the internet via Verizon Fios Tier 3.

#### Configuration and testing of hardware and software

- Our IT staff will install all hardware in the house. All desktop and servers will be set up with their appropriate operating system and the bundle software purchased. Network and Internet connectivity will be configured and thoroughly tested.

### Post Installation

#### Training

- Train all users in the house how to use the new network. This process will take 6 days.
- Provide testing of all security policies put in place.

#### Annual Network Checkups

- We will send out technicians to come to your house and perform test and diagnostics on the network, to make sure the network is meeting all standards and needs.

#### 24-Hour on Site Tech Support

- If a major problem ever occurs and you need help fixing the problem, we will send out a technician to help figure out where the network problem is occurring.

24-hour Emergency Hotline

- We are providing a hotline that will answer any questions you might have regarding the network. Our hotline technicians will be available to you anytime during the year, including weekends and holidays.

**Project Timelines**

Task	Task Name	Duration (days)
	<b>Pre-installation Stage</b>	
1	Building Inspection	1
2	Backup server	2
3	Documentation/testing backup	1
4	Contact ISPs	3
5	Contact Hardware Vendors	2
	<b>Installation Stage</b>	
6	Cable installation	5
7	Network setup and Configuration	2
8	Hardware Installation and Testing	3
9	Software Installation and Testing	4
	<b>Post Installation Stage</b>	
10	Training	7
11	Acceptance Testing	2
<b>Total Project Duration</b>		<b>32 days</b>

**Growth Plan**

It is our understanding to grow and expand as a business, therefore we design flexible network and install top of the line computer hardware and equipments, so user does not have to change the network architecture or continually upgrade equipments to meet the network demands. We have designed a network which will support such a growth. The network will have four switches that include total of 64 ports and use fiber optic Ethernet cables; as a result, the network allows for additional computers or any devices to be easily added to the network.

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