PROJETO REDE LOCAL CANOAS

VERSÃO 1.0 - DEZEMBRO 2009

O Projeto Rede Local Canoas apresenta um Sistema IP de Interligação em Rede Local dos prédios que compõe os 5 Blocos e a Sede do Condomínio Residencial Recreio das Canoas com as seguintes características:

- Será utilizado o padrão Ethernet Gigabit 1000 Mbps (megabits por segundo) na infraestrutura de interligação dos prédios;
- A distribuição para os apartamentos será Ethernet 100 Mbps;
- A utilização inicial prevista da Rede Local Canoas será um sistema de interfones formado por 220 telefones VoIP (voz sobre IP), gerenciados por um PBX VoIP.
- A infraestrutura da Rede Local Canoas utilizará instalações subterrâneas da rede elétrica já existentes para passagem de cabos de fibra ótica e/ou utilização de tecnologia Powerline, que depende de aprovação da Light;
- O sistema deverá continuar operando em caso de falta de energia elétrica por um período mínimo de 6 (seis) horas. Para isso, serão utilizados equipamentos padrão PoE (Power over Ethernet).

Apesar do objetivo primário deste projeto ser o sistema interfone, a Rede Local Canoas poderá ter seu uso ampliado para diversas outras aplicações como câmeras de segurança, acesso à Internet para moradores, serviços de impressão e pontos de acesso wireless, entre outros.

Telefone VoIP

Telefone VoIP PoE Class 2, ou seja, que consuma até 7W de potência da rede.

Transceiver de Fibra Ótica

Será utilizado um Transceiver padrão Mini-GBIC.

Model Name	Wavelength	Media	Power Budget	Sensitivity	Power	Distance
TEG-MGBSX	850nm	MMF	-9 ~ -3dBm	-18	9dBm	550m

Switches de Integração

Será instalado na sede em local escolhido pelo Sr. Sebastião um rack padrão 19" com:

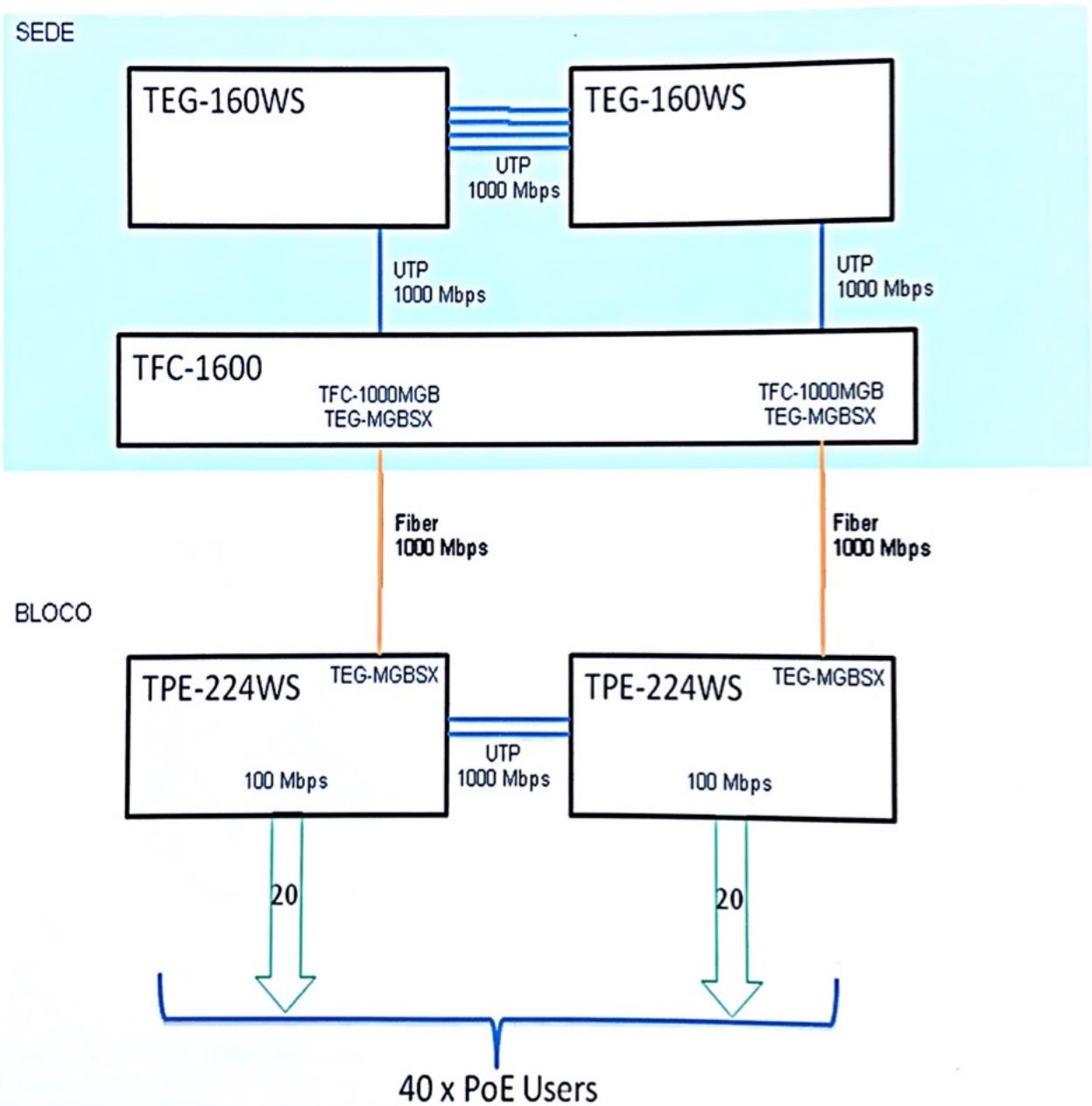
- Dois switches de integração TEG-160WS
- Chassis para Transceivers de Fibra Ótica TFC-1600
- Transceivers FC-1000MGB em slots TEG-MGBSX
- PBX VoIP
- Nobreak
- Baterias

Switches dos Blocos

Nos blocos serão instalados racks padrão 19" com:

- Dois switches PoE (Power over Ethernet) TPE-224WS
- Transceivers TFC-1000MGB
- Nobreak
- Baterias

Arquitetura da Rede Local Canoas com Fibra Ótica



Planta das Conexões Subterrâneas Existentes

DISTÂNCIAS ENTRE AS CAIXAS DE PASSAGEM

As medidas de distância entre as caixas de passagem, listadas abaixo, precisam ser confirmadas antes de se encomendar os cabos de fibra ótica.

Armário Light-1, Sede, Blocos 1 e 2

Cx	Dist (m)
A1-1	1
1-2	3
2-3	15
3-4	35
4-5	10
5-6	6
6-7	10
7-8	25
8-9	55

Armário Light-2, Blocos 3, 4 e 5

Cx	Dist (m)
A2-10	20
10-11	15
11-12	15
11-13	30
13-14	10
14-15	15
14-16	35
16-17	30
16-18	40

TRENDnet

16-port Gigabit Web Smart Switch w/ 2 Shared Mini-GBIC Slots

TEG-160WS (C1.0R)

The 16-Port Gigabit Web Smart Switch with 2 Shared Mini-GBIC Slots (model TEG-160WS) delivers a 32Gbps switching capacity with managed layer 2 features at a reduced cost. Support for SNMP v1, 802.1X, STP, 802.1Q VLAN, QoS, IGMP snooping, Broadcast Storm Control and port Trunking provides a cost effective, scalable and secure backbone switch solution for SMB networks.
SNMP support enables the switch to provide valuable status and event information, saving system administrators time and resources. Connect a fiber network to the shared mini-GBIC slots. Access the Web-browser management interface and segment up to 256 Virtual Local Area Networks, manage network priority with 802.1p support and dedicate bandwidth with port-based Trunking.

FEATURES

- 16 x 10/100/1000Mbps Auto-MDIX RJ-45 ports
- 2 x 1000Base-SX/LX Mini-GBIC slots (shared with Gigabit ports 15-16)
- 32Gbps switching capacity
- IEEE 802.3x Full Duplex Flow Control and Back Pressure
- IEEE 802.3ad Port Trunk
- IEEE 802.1D Spanning Tree Protocol
- IEEE 802.1p QoS
- IEEE 802.1X Authentication and SNMP v1
- Supports port based IEEE 802.1Q VLAN Tag and Asymmetric VLAN
- Store and Forward switching method
- Front panel diagnostic LEDs
- Supports Jumbo Frame packets (max size up to 10Kbytes)
- Integrated address look-up engine supports up to 8K absolute MAC addresses
- Supports 512Kbytes RAM for data buffering
- Easy configuration via Web browser
- Standard 19" (1U) rackmount size (rackmount kit included)
- 5-Years Limited Warranty

16-port Gigabit Web Smart Switch w/ 2 Shared Mini-GBIC Slots

TEG-160WS (C1.0R)

SPECIFICATIONS

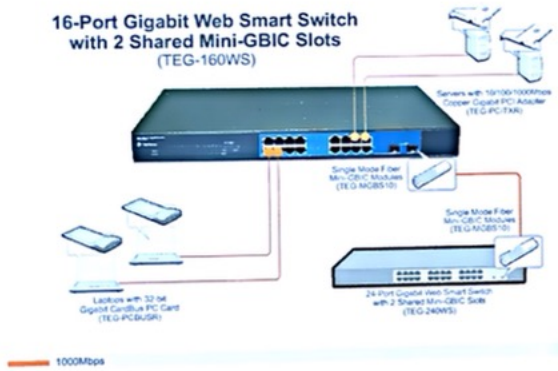
Hardware

Standards	• IEEE 802.3 10BASE-T • IEEE 802.3u 100BASE-TX • IEEE 802.3ab 1000Base-T • SNMP v1 • IEEE 802.3z 1000Base-SX/LX (Mini-GBIC) • IEEE 802.3x Flow Control and Back Pressure • IEEE 802.3ad Port Trunk • IEEE 802.1D Spanning Tree Protocol • IEEE 802.1p QoS • IEEE 802.1Q VLAN Tag • IEEE 802.1X Authentication
Protocol	• CSMA/CD
Transmission Method	• Store-and-Forward
Interface	• 16 x 10/100/1000Mbps Auto-MDIX RJ-45 ports • 2 x 1000Base-SX/LX Mini-GBIC slots (shared with Gigabit ports 15-16)
Network Media	• Ethernet: UTP/STP Cat. 3, 4, 5 up to 100m • Fast Ethernet: UTP/STP Cat. 5, 5e up to 100m • Gigabit: UTP/STP Cat. 5, 5e, 6 up to 100m
Data Transfer Rate	• 10Mbps: 10/20Mbps (Half/Full-Duplex) • 100Mbps: 100/200Mbps (Half/Full-Duplex) • 1000Mbps: 2000Mbps (Full-Duplex)
Data RAM Buffers	• 512KBytes per device
Filtering Address Table	• 8K entries per device
Switch Fabric	• 32Gbps forwarding capacity
Diagnostic LEDs	• Per Unit: Power, System • Per Copper Gigabit Port: Link/ACT, 1000M, 100M • Per Mini-GBIC Port: Link/ACT, 1000M
Power Supply	• 100 ~ 240VAC 50/60Hz, internal universal switching power
Power Consumption	• 30 watts (max)
Dimension	• 440 x 210 x 44mm (17.3 x 8.3 x 1.73in.)
Weight	• 3kg (6.6lb)
Temperature	• Operating: 0°C ~ 40°C (32°F ~ 104°F) • Storage: 5 % ~ 90 %(non-condensing)
Certification	• CE, FCC

16-port Gigabit Web Smart Switch w/ 2 Shared Mini-GBIC Slots

TEG-160WS (C1.0R)

NETWORKING SOLUTIONS



PACKAGE CONTENTS

- TEG-160WS
- Multi-Language Quick Installation Guide
- CD-ROM (Utility & User's Guide)
- Rackmount kit
- Power cord

RELATED PRODUCTS

TEG-PCBUSR	Gigabit PC Card
TEG-PCITXR	Gigabit PCI Adapter
TEG-240WS	24-port Gigabit Web Smart Switch with 2 Shared Mini-GBIC slots
TEG-448WS	48-Port Gigabit Web Smart Switch with 4 Shared Mini-GBIC Slots

Optional Mini-GBIC Modules

TEG-MGBSX	Gigabit PC Adapter
TEG-MGBS10	Mini-GBIC Single-Mode LC Module
TEG-MGBS40	Mini-GBIC Single-Mode LC Module
TEG-MGBS80	Mini-GBIC Single-Mode LC Module
TEG-MGBS10D35	Mini-GBIC Dual Wavelength Single-Mode LC Module 1310/1550 Pair
TEG-MGBS40D35	Mini-GBIC Dual Wavelength Single-Mode LC Module 1310/1550 P

ORDERING INFORMATION

TRENDnet

20675 Manhattan Place, Torrance, CA 90501 USA
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24-Port 10/100Mbps Web Smart PoE Switch w/4 Gigabit Ports and 2 Mini-GBIC Slots

TPE-224WS [B1.11R]

The 24-Port 10/100Mbps Web Smart PoE Switch with 4 Gigabit Ports and 2 Shared Mini-GBIC Slots (model TPE-224WS) delivers a 12.8Gbps switching capacity with Power over Ethernet (PoE) technology and managed layer 2 features at a reduced cost.

Support for SNMP v1, 802.1X, STP, 802.1Q VLAN, QoS, IGMP snooping, Broadcast Storm Control and port Trunking provide a cost effective, scalable and secure backbone PoE switch solution for SMB networks.

Power over Ethernet (PoE) technology reduces equipment and installation costs by delivering data and power over existing Ethernet cables. SNMP support enables the switch to provide valuable status and event information, saving system administrators time and resources. Access the Web-browser management interface and segment up to 256 Virtual Local Area Networks, manage network priority with 802.1p support and dedicate bandwidth with port-based Trunking.

FEATURES

- 24 x 10/100Mbps Auto-MDIX Fast Ethernet PoE RJ-45 ports
- 4 x 10/100/1000MbpsAuto-MDIX Gigabit ports
- 2 x 1000Base-SX/LX Mini-GBIC slots (shared with Gigabit ports)
- 12.8GBps switching capacity
- IEEE 802.3af Power over Ethernet (PoE) compliant
- PoE power of up to 15.4 watts for each PoE port
- Maximum PoE power of up to 170 watts for all PoE ports
- IEEE 802.3x Full Duplex Flow Control and Back Pressure
- IEEE 802.3ad Port Trunk
- IEEE 802.1D Spanning Tree Protocol IEEE 802.1p QoS
- IEEE 802.1X Authentication and SNMP v1 support
- Supports port based IEEE 802.1Q VLAN Tag and Asymmetric VLAN
- Supports Auto-recognition of PoE Powered Device (PD) signature
- Full Wire-Speed Non-Blocking reception and transmission
- Store and Forward switching method
- Integrated address look-up engine with an 8K absolute MAC address table
- Supports 128KBytes RAM for data buffering
- Easy configuration via Web browser
- Front panel diagnostic LEDs
- Standard 1U (19") rackmount size (rackmount kit included)
- 5-Year Limited Warranty

24-Port 10/100Mbps Web Smart PoE Switch w/4 Gigabit Ports and 2 Mini-GBIC Slots
TPE-224WS

SPECIFICATIONS

Hardware

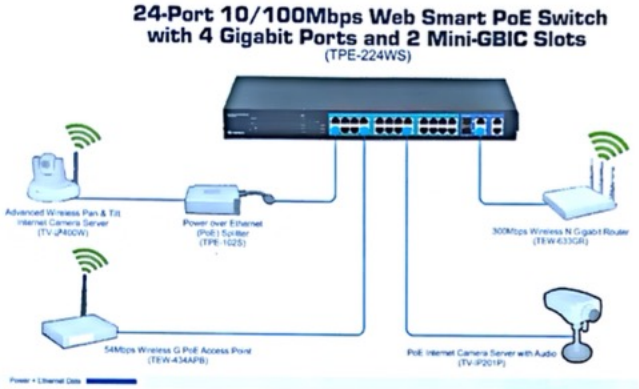
Standard	• IEEE 802.3af Power over Ethernet • IEEE 802.3 10Base-T • IEEE 802.3u 100Base-TX • IEEE 802.3ab 1000base-T • IEEE 802.3z 1000Base-SX/LX (Mini-GBIC) • IEEE 802.3x Flow Control and Back Pressure • IEEE 802.3ad Port Trunk • IEEE 802.1D Spanning Tree Protocol • IEEE 802.1p QoS • IEEE 802.1Q VLAN Tag • IEEE 802.1X Authentication • SNMP v1
Network Media	• Ethernet UTP/STP Cat. 3, 4, 5 up to 100m • Fast Ethernet: UTP/STP Cat. 5, 5e up to 100m • Gigabit: UTP/STP Cat. 5, 5e, 6 up to 100m • PoE: 4-pair UTP Cat. 5, 5e up to 100m
Protocol / Topology	• CSMA/CD, Star
LAN Ports	• 24 x 10/100Mbps Auto-MDIX PoE Ports • 4 x 10/100/1000Mbps Auto-MDIX Gigabit Ports • 2 x 1000Base-SX/LX Mini GBIC slots (shared with Gigabit ports)
Data Transfer Rate	• Ethernet: 10/20Mbps (Half/Full Duplex) • Fast Ethernet: 100/200Mbps (Half/Full Duplex) • Gigabit: 2000Mbps (Full Duplex)
Address Table	• 8K entries
Switch Fabric	• 12.8Gbps forwarding capacity
Data RAM Buffer	• 128KBytes
Power Supply	• 100~240V AC, 50/60Hz, internal universal power supply
Diagnostic LEDs	• Per Unit: Power, System • Per Port: Link/Activity, Speed • PoE: PoE Status
Power Consumption	• 26.5 watts (no Powered Device (PD) connected) • 170 watts max. power to PoE ports (11 x 15.4 watts PoE PD connected) • 196.5 watts max. power total consumption
Dimensions (W x D x H)	• 440 x 310 x 44 mm (17.3 x 12 x 1.73 in.)
Weight	• 4.4kg (9.75lbs)
Temperature	• Operating: 0° ~ 40° C (32° ~ 104°F); storage: -10° ~ 70° C (14° ~ 158°F)
Humidity	• 10%- 90% (non-condensing); storage: 5% ~ 90% RH (non-condensing)
Certifications	• CE, FCC

PoE

Power over Ethernet	• Up to 15.4 watts per Port; Max 170W for all PoE ports • PD classification Identify; Manual setting for PoE power limitation • Supports PoE priority setting; PoE over current protection and PoE short circuit protection • RJ-45 PoE power (pin 3,6 for power+ and pin 1,2 for power-)

24-Port 10/100Mbps Web Smart PoE Switch w/4 Gigabit Ports and 2 Mini-GBIC Slots
TPE-224WS

NETWORKING SOLUTIONS



PACKAGE CONTENTS

- TPE-224WS
- Multi-Language Quick Installation Guide
- CD-ROM (Utility & User's Guide)
- Power Cord
- Rack Mount Kit

RELATED PRODUCTS

TV-IP512P	PoE Internet Camera Server with 2-Way Audio
TPE-112GS	Gigabit Power over Ethernet (PoE) Splitter
TPE-80WS	8-Port Gigabit Web Smart PoE Switch

Optional Module

TEG-MGBSX	Mini-GBIC Multi-Mode SX Module
TEG-MGBS10	Mini-GBIC Single-Mode LC Module
TEG-MGBS40	Mini-GBIC Single-Mode LC Module
TEG-MGBS80	Power over Ethernet (PoE) Splitter
TEG-MGBS10D35	Mini-GBIC Dual Wavelength Single-Mode LC Module 1310/1550 Pair
TEG-MGBS40D35	Mini-GBIC Dual Wavelength Single-Mode LC Module 1310/1550 Pair

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16-Slot Chassis System for TFC series Fiber Converter

TFC-1600

TRENDnet's TFC-1600 16-slot EIA-19" Rack-Mount Chassis System provides housing for up to 16 TFC series media converters. Designed for continuous operation, the chassis is equipped with dual cooling fans and redundant power supplies (optional). Its Plug-and-Play and Hot-Swap features allow installing/removing the converter unit without powering off the chassis. TFC-1600 rack-mount chassis eliminates the external power adapters for TFC series media converters and organizes multiple converters in a single unit, which makes it the perfect solution for managing multiple TFC series converters.

FEATURES

- Provides housing for up to 16 TFC series media converters
- Front panel LEDs indication tiation Mode for Fiber Port
- Standard 19" rack-mount size, 2U height
- Hot-Swappable; easy & quick replacement of converter and power supply
- Single cooling fan (internal) mounted at the rear panel
- Optional redundant power supply to ensure non-stop reliable operation
- Optional Management Module
- Load Sharing mechanism to minimize downtime (available only with redundant power supplies)
- Power isolation designed with converter bays: ensures each bay is electrically isolated from others
- 5 Year Warranty

BENEFITS

- 1 x 10/100Mbps Fast Ethernet RJ45 port and 1 x RS-232 Console ports for management
- Web Browser Based Management via Ethernet port or Command Line Interface Management via RS-232 port
- SNMP Agent
- Provides media Link/Connection Speed/Duplex status for each module
- Provides Cooling Fans and Power Supplies status

16-Slot Chassis System for TFC series Fiber Converter
TFC-1600

SPECIFICATIONS

Hardware	
Capacity	• 16 slots for housing up to 16 TFC series media converters
Management Ports	• 1 x 10/100Mbps Fast Ethernet RJ45 and 1 x RS-232
Management Protocol	• SNMP(RFC1157), ARP(RFC826), IP(RFC791), ICMP(RFC792), UDP(RFC768), TCP(RFC793), TFTP(RFC783), Telnet(RFC854), BOOT(RFC951), MIB II (RFC1213)
Diagnostic LEDs	• Power x 2, In Use x 2, Fan Fault x 2
Power	• One power supply; optional second power supply
Input	• AC 100 ~ 240 VAC. Power Consumption: 150 watts max
Power Overload Protection	• All outputs protected from short circuit condition with automatic recovery
Cooling	• Single cooling fan (internal) mounted at the rear panel
Housing	• Steel sheet metal
Dimensions	• 415 x 390 x 89 mm (16.3 x 15.4 x 3.5 inches)
Weight	• appr. 7Kg (15.4 lbs) (with one power supply)
Temperature	• Operating: 0°~ 40°C (32°~ 104°F) • Storage: -10°~ 50°C (14°~ 122°F)
Humidity	• Operating: 10% ~ 90% • Storage: 5% ~ 90% (no-condensing)
Certifications	• FCC, CE, VCCI

RELATED PRODUCTS

TFC-1600	16-Slot Chassis System for TFC series Fiber Converter
TFC-1600RP	Redundant Power Supply for the TFC-1600
TFC-1600MM	Management Module for the TFC-1600
TFC-1600R48	48V Redundant Power Supply for TFC-1600

ORDERING INFORMATION

TRENDnet
3135 Kashiwa Street,Torrance, CA 90505 USA
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TRENDnet

1000Mbps TX to 1000Base-FX Fiber Converter

TFC-1000MGB

TRENDnet's TFC-1000 series Fiber Media Converter transforms 1000Base-T (Copper Gigabit) media to 1000Base-SX/LX (Mini-GBIC) media and vice versa. The 1000Base-T port supports full-duplex Gigabit connection at wire speed with RJ45 connector. The Mini-GBIC connection supports shortwave (SX) or longwave (LX) laser optic with multi-mode or single-mode Mini-GBIC module. This converter will give your Copper Gigabit connection the ability to interface with fiber connection over a great distance. With the optional 16-slot EIA-19" rack-mount chassis, the TFC series converters are the perfect solutions for various fiber media conversions for your network.

ENERGY STAR

FEATURES

- Compliant with IEEE 802.3ab 1000Base-T, IEEE 802.3z 1000Base-SX/LX Gigabit Ethernet Standards
- Provides One 1000Base-T Port, one 1000Base-SX/LX Mini-GBIC Slot
- Support Full-Duplex and Auto-Negotiation Mode for Fiber Port
- Provide Dip Switch to settings: Fiber (Auto/Manual), LLR (Enable/Disable)
- Optional 19" Fiber Module Chassis (TFC-1600) holds up to 16 Media Converters
- Hot Pluggable
- 5-year limited warranty

MANAGEMENT FEATURES

- Support LLCF (Link Loss Carry Forward, Link Pass Through)
- Support LLR (Link Loss Return) for FX Port
- Monitor the Status of Duplex/Link with TFC-1600 and TFC-1600MM
- Set Duplex force, LLCF on/off, LLR on/off for FX, ports on/off with TFC-1600 and TFC-1600MM
- Provides Link Down Source Port Information

1000Mbps TX to 1000Base-FX Fiber Converter
TFC-1000MGB

SPECIFICATIONS

Hardware

Standard	• IEEE 802.3ab 100Base-T ; IEEE 802.3z 1000Base-SX ; IEEE 802.3z 1000Base-LX
Network Media	• 1000Base-TX: UTP Cat. 5, 5E, 6 EIA/TIA-568 100-ohm STP • 1000Base-SX: 50/125µm Multi-Mode Fiber Optic Cable, Up to 550m, 62.5/125µm Multi-Mode Fiber Optic Cable, Up to 220m • 1000Base-LX: 9/125µm Single-Mode Fiber Optic Cable
Protocol	• CSMA/CD
Ports	• 1 x 1000Base-T with RJ45 Connector • 1 x 1000Base-SX/LX Mini-GBIC Slot for optional Mini-GBIC module
Transfer Rate	• 2000Mbps (Full Duplex)
DIP Switch	• Auto Negotiation or Manual for FX • LLR Enable or Disable for FX
Diagnostic LED	• Power, Link/Activity
Power Adapter	• 7.5V DC, 1.5A External Power Adapter
Power Consumption	• 5.5 watts (max)
Dimensions	• 120 x 88 x 25mm (4.7 x 3.46 x 0.98 inches)
Weight	• 354g (12.5oz)
Temperature	• Operating : 0° ~ 40° C (32° ~ 104° F); Storage : -25° ~ 70° C (-13° ~ 158° F)
Humidity	• 5% ~ 90% RH
Certification	• FCC,CE

ORDERING INFORMATION

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Single Mode Fiber Mini-GBIC Modules

TEG-MGBSX, TEG-MGBS10, TEW-MGBS40, TEW-MGBS80

1000Mbps-LX Mini-GBIC modules are designed to connect with any Gigabit Ethernet Switch with the industry standard GBIC slot.

FEATURES

- Compliant with IEEE 802.3z Gigabit Ethernet and Fiber Channel Standards
- Industry standard SFP package
- Duplex LC connector
- 1.0625Gbps Fiber Channel Compliant
- 1.25Gbps Gigabit Ethernet Compliant
- Single 3.3V Power Supply Voltage

Single Mode Fiber Mini-GBIC Modules

TEG-MGBSX, TEG-MGBS10, TEW-MGBS40, TEW-MGBS80

SPECIFICATIONS

Model Name	Media	Wavelength	Power Budget	Sensitivity	Pout	Distance
TEG-MGBSX	MMF	850nm	9dBm	-18	-9 ~ -3dBm	550m
TEG-MGBS10	SMF	1310nm	11dBm	-20	-9 ~ -3dBm	10km
TEG-MGBS40	SMF	1310nm	20dBm	-23	-3 ~ +2dBm	40km
TEG-MGBS80	SMF	1550nm	23dBm	-23	0 ~ 5dBm	80km

MMF: Multi-Mode Fiber
SMF: Single Mode Fiber

Application

- Switch to Switch Interface
- High Speed I/O for File Server
- Distributed Multi-Processing
- 5-Year Warranty

ORDERING INFORMATION

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Unknown

From: Y2 [y2@y2.com.br]
Sent: Monday, December 14, 2009 8:39 PM
To: Jose Motta
Subject: PROPOSTA - FIBRA OPTICA
Importance: High

CARO MOTTA

Abaixo valores unitários - FIBRA OPTICA

01 - m Cabo Optico - 8 Fibras - AS	R$ 8,58
01 - m Cabo Optico - 12 Fibras - AS	R$ 10,99
ou	
01 - m Cabo Optico - 8 Fibras - Ind/out	R$ 5,97
01 - m Cabo Optico - 12 Fibras - Ind/Out	R$ 8,14
01 - Cordão Duplex SC/SC 2,5 m (2 para cada Bloco)	R$ 84,65
01 - Fisa Optic-Block 8F Metalico BG (10 unidades para os 6 blocos)	R$ 115,59
03 - Caixa de Emenda Optica	R$ 402,60
01 - CADA FUSÃO	R$ 75,00

att

Yukishigue YANO
Email: y2@y2.com.br
Tel/Fax: 21-22342442

_____ Information from ESET NOD32 Antivirus, version of virus signature database 4687 (20091214) _____

The message was checked by ESET NOD32 Antivirus.

http://www.eset.com

12/23/2009

Unknown

From: Jose Motta [josemotta@trendware.com.br]
Sent: Monday, December 07, 2009 11:47 AM
To: 'eduardo acquarone melo'; antoniojo@uol.com.br; 'yano'
Cc: 'Denis Pimenta'
Subject: FW: Project connecting 200 x PoE ports divided into 6 x areas

Caros,

Segue o "thread" com informações sobre o projeto da **Rede Local Canoas**, desculpem está em inglês, pois enviei os diagramas para sugestões dos nossos especialistas da fábrica. A rede está projetada para ter cinco blocos (*Buildings* no desenho abaixo) conectados a um Centro de Integração (módulo *Integration* a ser instalado nos fundos da sede do condomínio, na sala indicado pelo Sr. Sebastião).

As conexões estão prevendo conexões redundantes que permitirão o funcionamento da rede, mesmo em caso de falha em um componente, seja switch ou uma das fibras, por exemplo. A partir do mapeamento que já fizemos das caixas de passagem do sistema elétrico, o próximo passo seria calcular os cabos de fibra que devemos comprar e instalar. Podemos também fazer uma lista detalhada dos equipamentos e **fazer as encomendas do projeto como um todo**, programando as entregas de acordo com nosso cronograma de implantação da rede, **bloco a bloco**. Desta forma, podemos negociar um melhor **desconto**.

O ideal seria ir instalando, de imediato, os **cabos de fibra ótica pelos dutos que já temos dos cabos de eletricidade**. Precisamos contratar uma empresa de instalação para abrir as caixas de passagem, passar os cabos de fibra e lacrar as caixas novamente. Esses dutos lacrados há dez anos merecem mesmo uma **revisão, para prevenir apagões!**

No cronograma também está prevista uma pequena obra civil para interligar os blocos 2 e 3, passando um **duto pela ponte** do nosso igarapé (é como chamam meus sobrinhos do Amazonas, pois lá rio é outra coisa).

Estou à disposição para qualquer dúvida,
At,
José Motta

PS:

1. Dudu, favor ver detalhes abaixo sobre switches configurados com STP (Spanning Tree Protocol). Isso é contigo, ok? Vamos trabalhar juntos com o Steve. Fv ver abaixo link para download dos manuais.
   http://www.trendnet.com/downloads/list_subcategory.asp?SUBTYPE_ID=1115
   http://www.trendnet.com/downloads/list_subcategory.asp?SUBTYPE_ID=1175

2. Jô, por favor, repassa esse email pro Chico.

3. Yano, o cabo de fibra que você cotou possui quantos pares? Teríamos um cabo com 4 ou 8 pares? Você faria o serviço de instalação?

4. Pra terminar um detalhe. Onde se lê 5 x Buildings, na verdade são 6, pois o Bloco 5 teria dois conjuntos de switch, o que equivaleria dizer que seriam dois blocos. Com isso, ficariam sobrando algumas portas, pois teríamos 80 portas para 54 apartamentos. As portas adicionais seriam aproveitadas para áreas comuns que teria equipamentos diversos como Pontos de Acesso para hot spots wireless, câmeras de monitoração e até mesmo extensão para as áreas da sauna e piscina que ficam perto.

From: Steve Kuo [mailto:s.kuo@trendnet.com]
Sent: Friday, December 04, 2009 10:48 PM

To: 'Jose Motta'
Subject: RE: Project connecting 200 x PoE ports divided into 6 x areas

Dear Jose,

One quick note is that STP implementation is good for redundancy. However, the price to pay is to need more knowledge to install and maintain. The plan B is to use trunk solution and it's easy to install and maintain with good level of redundancy as well. The only drawback is not to have redundancy at the integration center when using one TEG-160WS and it dies.

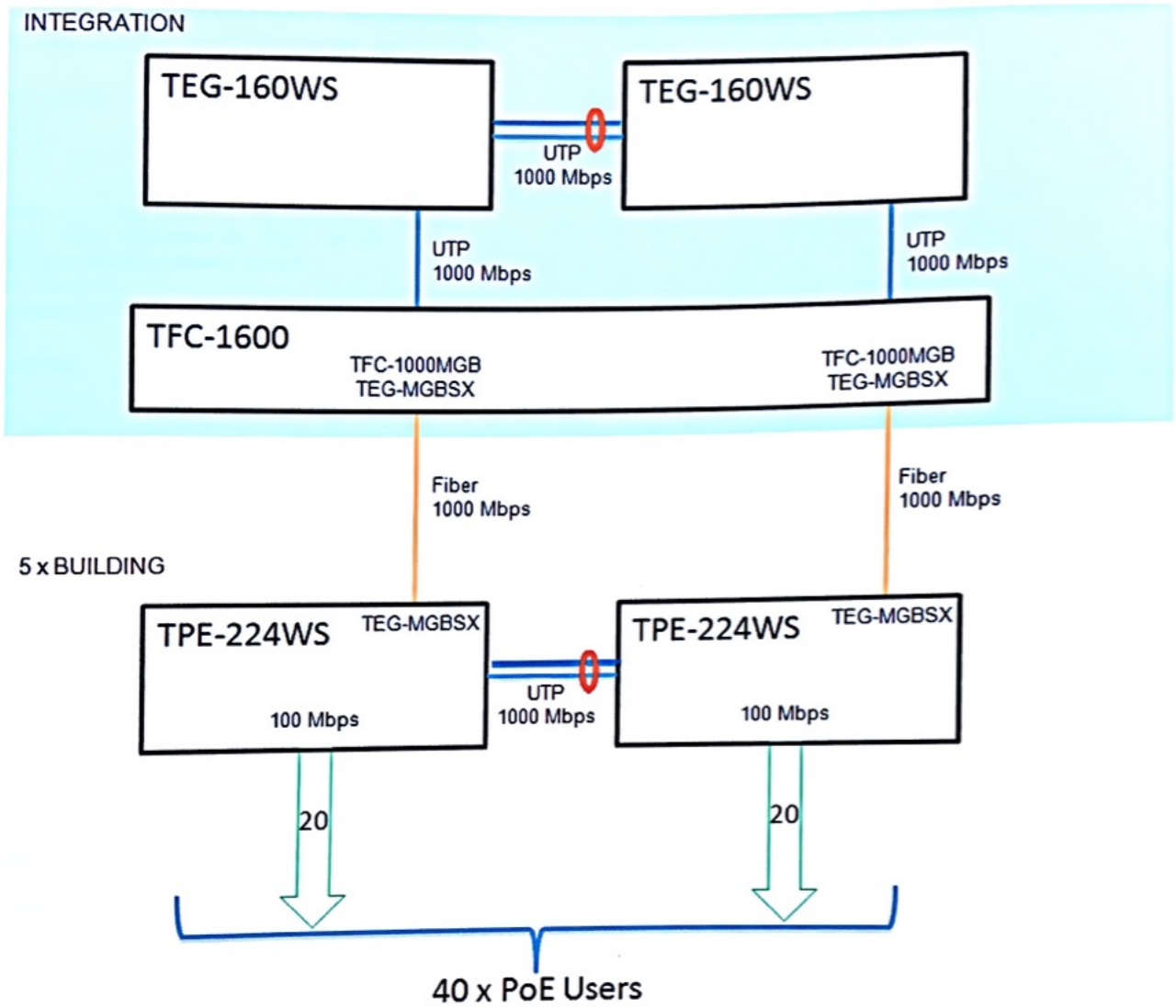
Steve

From: Steve Kuo [mailto:s.kuo@trendnet.com]
Sent: Friday, December 04, 2009 3:51 PM
To: 'Jose Motta'
Subject: RE: Project connecting 200 x PoE ports divided into 6 x areas

Dear Jose,

As we all know STP is used to provide L2 redundancy. Now, we have 5 loops in this implementation per the following design because of 5 buildings. We could use this design and we need to make it well calculated(priorities & root bridge) to ensure that breaking points are always on either one of two uplinks from each building to the integration center. Meanwhile, I suggest to have a trunk of two copper links between two TEG-160WS and two TPE-224WS so that we can control possible failure points and it's economical to implement(short Cat6). Fiber and long Cat6 cables are expensive and two should be good enough from each building. The TFC-1000MGB and TEG-MGBSX can pair up okay inside of TFC-1600 and it supports around 550m. Of course, customer needs to have spare of mini-GBIC just in case. The enclosed Mini-GBIC table is for your reference to meet different distance requirement. Finally, STP has to be enable on all switches. Please do one building at a time and control the initial break point on one of uplink from building to the integration center. Then, work on the second building till the last one. Hope all these help.

Model Name	Wavelength	Media	Power Budget	Sensitivity	Power	Distance
TEG-MGBSX	850nm	MMF	-9 ~ -3dBm	-18	9dBm	550m
TEG-MGBS10	1310nm	SMF	-9 ~ -3dBm	-20	11dBm	10km
TEG-MGBS40	1310nm	SMF	-3 ~ +2dBm	-23	20dBm	40Km
TEG-MGBS80	1550nm	SMF	0 ~ 5dBm	-23	23dBm	80km
TEG-GBSX	850nm	MMF	-9 ~ -3dBm	-18	9dBm	550m
TEG-GBS10	1310nm	SMF	-9 ~ -3dBm	-20	11dBm	10km
TEG-GBS40	1310nm	SMF	-3 ~ +2dBm	-23	20dBm	40km
TEG-GBS80	1550nm	SMF	0 ~ 5dBm	-23	23dBm	80km



From: Jose Motta [mailto:josemotta@trendware.com.br]
Sent: Friday, December 04, 2009 2:23 PM
To: 'Steve Kuo'
Cc: 'Sonny Su'
Subject: RE: Project connecting 200 x PoE ports divided into 6 x areas

Dear Steve,

Thanks for your reply. Please see answers below:

1. Yes, a dealer got this project and is asking our help.
2. A new brand project is being created from ground up. The architecture shown below is a suggestion and you may change it at will.
3. Partner asked us to build a 200-port LAN infrastructure divided into 5 groups with 40 ports each in order to connect Class 2 VoIP PoE phones (draw max 7W) and one VoIP PBX would manage all phones. Bandwidth should be enough to provide a limited numbers of simultaneous calls among users (10-20 calls is fine). No external calls are necessary in the first part of project (it is a internal voice system only) and budget is limited, since we are competing with regular PABX system.

We will also post this project here in order to get more customers interested on similar PoE VoIP voice system. Please advise if you need more info and thanks a lot for your support.

Best regards,
Jose

From: Steve Kuo [mailto:s.kuo@trendnet.com]
Sent: Friday, December 04, 2009 7:49 PM
To: josemotta@trendware.com.br
Cc: 'Sonny Su'
Subject: RE: Project connecting 200 x PoE ports divided into 6 x areas

Dear Jose,

How are you? In moving forward, I will work with you on this case.

I have read this email thread, just want to clarify few things to get started if you don't mind:

1. Are we working on this project for one customer, right?
2. Is this integration center an existing or a brand new one from ground up? If existing, then what other components are available?
3. Any budgetary, schedule and/or bandwidth concerns for this project?

I don't know if it's practical to go for STP now until I have answers to all these questions. Please advise. Thanks,

Regards,

Steve

From: Jose Motta [mailto:josemotta@trendware.com.br]
Sent: Thursday, December 03, 2009 8:08 AM
To: 'Sonny Su'
Subject: RE: Project connecting 200 x PoE ports divided into 6 x areas

Dear Sonny,

Thanks for info. I got TPE-224WS user´s guide at downloads section from our website.

Thanks a lot for suggestions. I reviewed the architecture and included details about all components. Would you please confirm? Some questions:

1. In the buildings the 2 x TPE-224WS are linked thru Gigabit ports and we will enable Spanning Tree Protocol. Any special configuration or just default setup is ok? Main applications are VoIP phones for now.

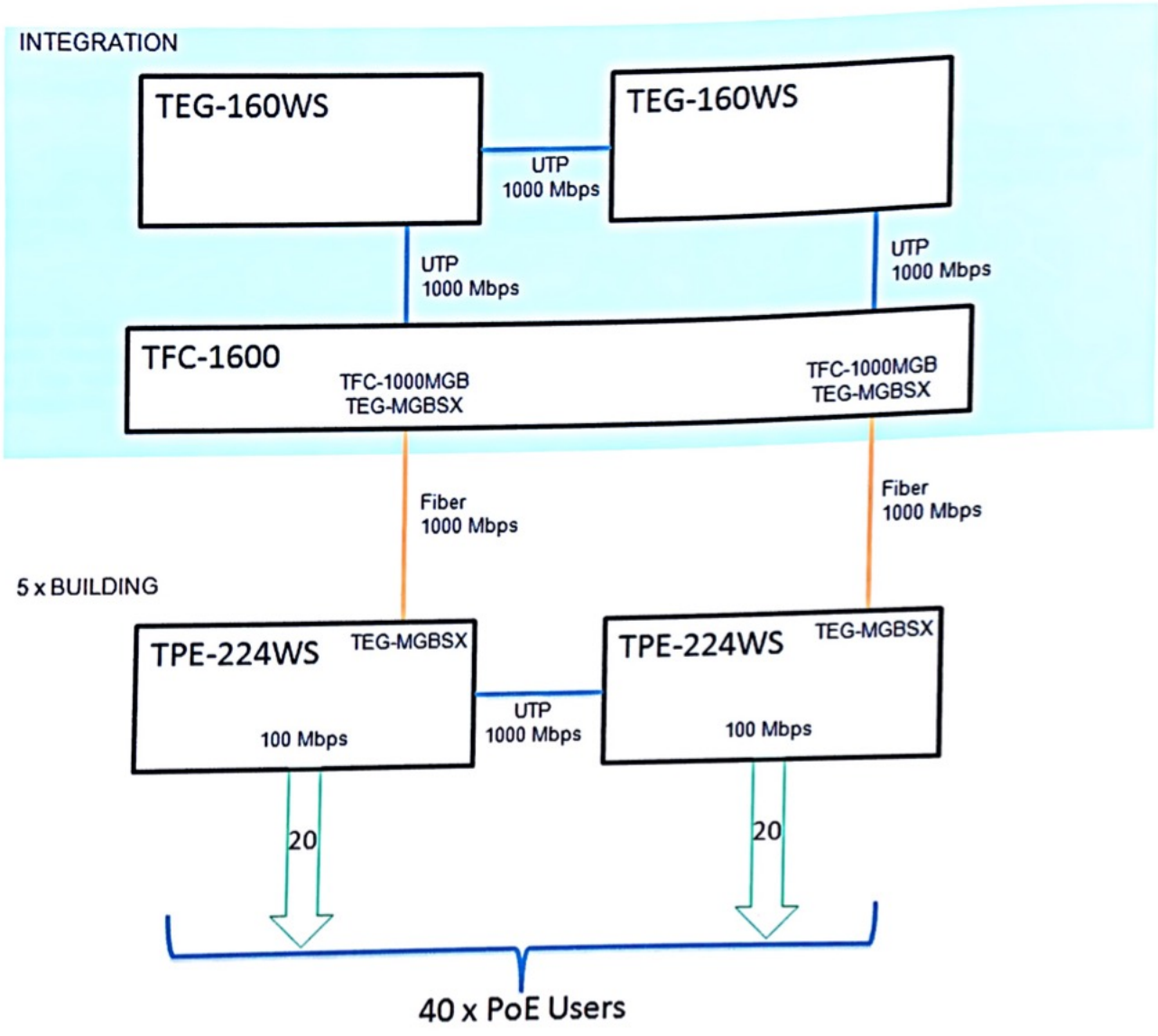
2. Is TEG-MGBSX the better choice for fiber transceiver at building side plugged into TPE-224WS? Then 10 fiber links would arrive at integration center and a TFC-1600 would be necessary, isn´t? For transceivers, I suppose the TFC-1000MGB+TEG-MGBSX is the better choice at integration center. Then customer could order more mini-gbics in order to have spare parts in case of failure. Please comment.

3. We are suggesting dual TEG-160WS at integration center for redundancy. The links from each building are connected into both switch. Then if a TEG-160Ws fails the other would still guarantee connection for entire network. Is this ok? My question is if we also need to link the 2 x TEG-160WS for redundancy, as shown below. Then Spanning Tree Protocol should also be enabled at both TEG-160WS?

4. Any other hint are welcome.

Thanks for your support,

Best regards,
Jose



From: Sonny Su [mailto:s.su@trendnet.com]
Sent: Wednesday, December 02, 2009 8:39 PM
To: 'Jose Motta'
Subject: RE: Project connecting 200 x PoE ports divided into 6 x areas

Hi Jose,

I believe you are looking at the old user's guide from the old CD-Rom. The new CD-Rom version 2.0's user's guide shows max. 170w. In your application, you should be able to connect up to 24 IP phones, assuming that each would draw max. 7w.

best regards,

Sonny Su

TRENDnet
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12/23/2009

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Fax: 310-961-5511
Email: s.su@trendnet.com

www.trendnet.com

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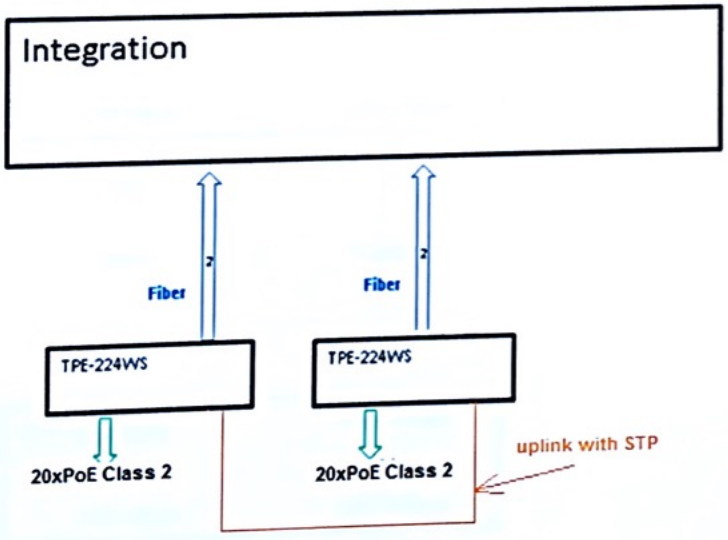
******

From: Sonny Su [mailto:s.su@trendnet.com]
Sent: Tuesday, December 01, 2009 2:21 PM
To: 'Jose Motta'
Subject: RE: Project connecting 200 x PoE ports divided into 6 x areas

Hi Jose,

Please allow me to check with Engineer regarding the total max power supported. The 11 devices limitation you saw was for standard power-device (PD) that is drawing the max. power, which is 15.4 w.
As for redundancy, if possible, the best thing to do is to connect all the switches to the Integration Center directly, instead of uplinking them. Then, link the two switches together and enabled Spanning Tree for redundancy. With this setup, if any of the fiber is broken, the backup connection would be enabled automatically (see attached picture).
In any case, please wait for my confirmation tomorrow.



best regards,

Sonny Su

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www.trendnet.com

12/23/2009

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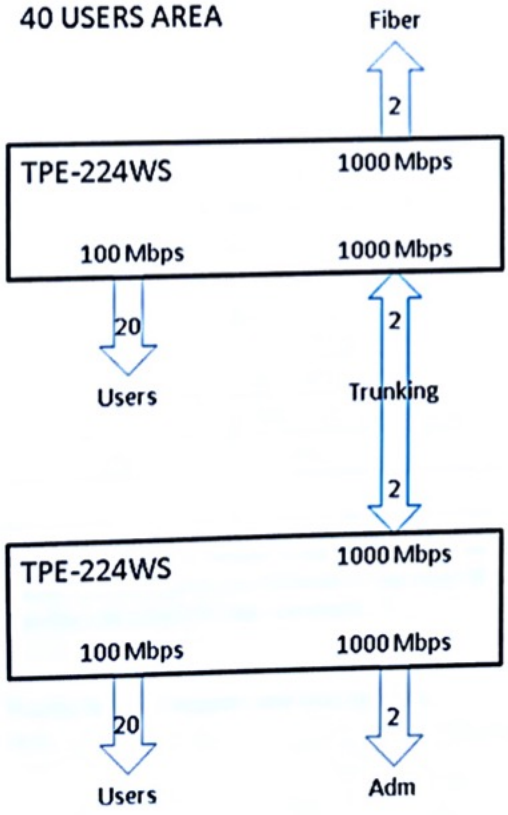
From: Jose Motta [mailto:josemotta@trendware.com.br]
Sent: Monday, November 30, 2009 8:05 PM
To: 'Sonny Su'
Subject: Project connecting 200 x PoE ports divided into 6 x areas

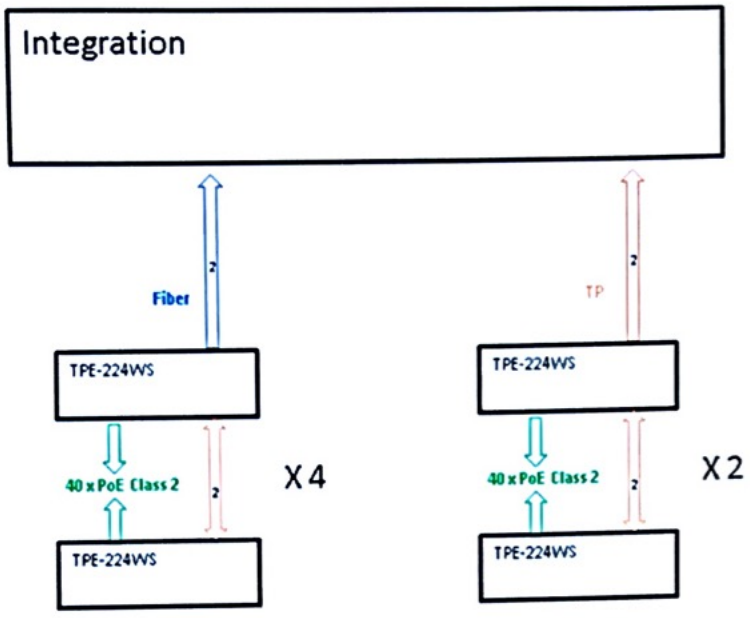
Dear Sonny,

Hi. Would you please help us with project to connect 200 x PoE ports divided into 6 x areas? The ports would be initially connected to VoIP phones. In the future micros are expected to be connected to VoIP phone extension and traffic may increase.

In our suggested architecture, shown in the picture below, each AREA is equipped with a couple TPE-224WS that would distribute up to 40 PoE ports to connect Class II VoIP Phones (up to 7W). Uplink to integration switch would use fiber or TP, depending on distance: 4 x areas needs fiber (>100 m far from integration center) and 2 x closer areas may use TP. Inside area, a couple ports are configured for trunking in order to connect the 2 x TPE-224WS.



Below is shown the diagram for integration center with 4 x areas connected by fiber and 2 x areas that may use TP links. For both cases a dual uplink is expected to increase availability. Would you please comment about best option for integration switch and/or switches, since a single device would be a dangerous risk for whole network and maybe a dual solution would be recommended? Please comment.



There is another question about output power, since I noticed at TPE-224WS user´s guide (pag 67), shown below:

Number of Ports	24 x 10/100M 100BASE-TX PoE Fast Ethernet Ports 4 x 10/100/1000M 1000BASE-T Gigabit Ethernet Ports 2 x mini-GBIC Slots (shared with port 25 and 26 1000BASE-T ports)
Physical and Environmental	
AC inputs	100-240V AC, 50-60 Hz internal universal power supply
Power Consumption	26.5 watts. max. (no PD device connected) 196.5 watts. max. (up to 11 PoE Device connected)
Temperature	Operating: 0~40 °C, Storage: -10 ~ 70 °C
Humidity	Operating: 10% ~ 90%, Storage: 5% ~ 90%
Dimensions	440 x 210 x 44 mm (L x W x H)
Certifications	CE, FCC

Please note we need to connect 20 x Class 2 PoE devices, each one may drain 7 W power. This would result on 20 x 7 = 140W maximum for each switch. It seems ok since 196.5W is max power, but spec also shows only 11 device may be connected. Please clarify. Only 11 ports are allowed to use PoE? What we need to do in order to power 20 devices on each switch? Should extra injectors be used? Please comment.

Thanks for your support and best regards,
Jose

12/23/2009

Unknown

From: Jose Motta [josemotta@trendware.com.br]
Sent: Thursday, August 27, 2009 3:48 PM
To: yano@y2.com.br; antoniojo@uol.com.br; ary@xtech.com.br; Denis
Subject: Planta do Condomínio Recreio das Canoas para orçamento de serviço de rede IP
Attachments: b2.verm.ping.4096.JPG; b2.verm.cam.JPG; b2.verm.JPG; Planta Canoas.pdf

Caros,

Segue em anexo planta do Condomínio Recreio das Canoas para o orçamento de serviço de rede IP interligando os cinco blocos e a sede do condomínio. Foram hoje realizados testes, conforme indicado na figura abaixo, com dois equipamentos TRENDnet TPL-302E – Adaptador Fast Ethernet AV Powerline 200 Mbps conectados ao cabo de alimentação de energia elétrica (fase identificada com tarja vermelha) que interliga o CT de entrada da Light e o PC do Bloco 2. As telas em anexo mostram que a banda passante neste trecho alcançou 30 Mbps. Para o teste, foi conectada uma câmera TRENDnet TV-IP212 em uma das pontas e na outra um laptop.

Como os cabos de alimentação de energia elétrica estão divididos em dois grupos, espera-se conectar as duas sub-redes para formar a infra-estrutura de rede IP completa do condomínio. Teríamos então a primeira opção da seguinte forma:

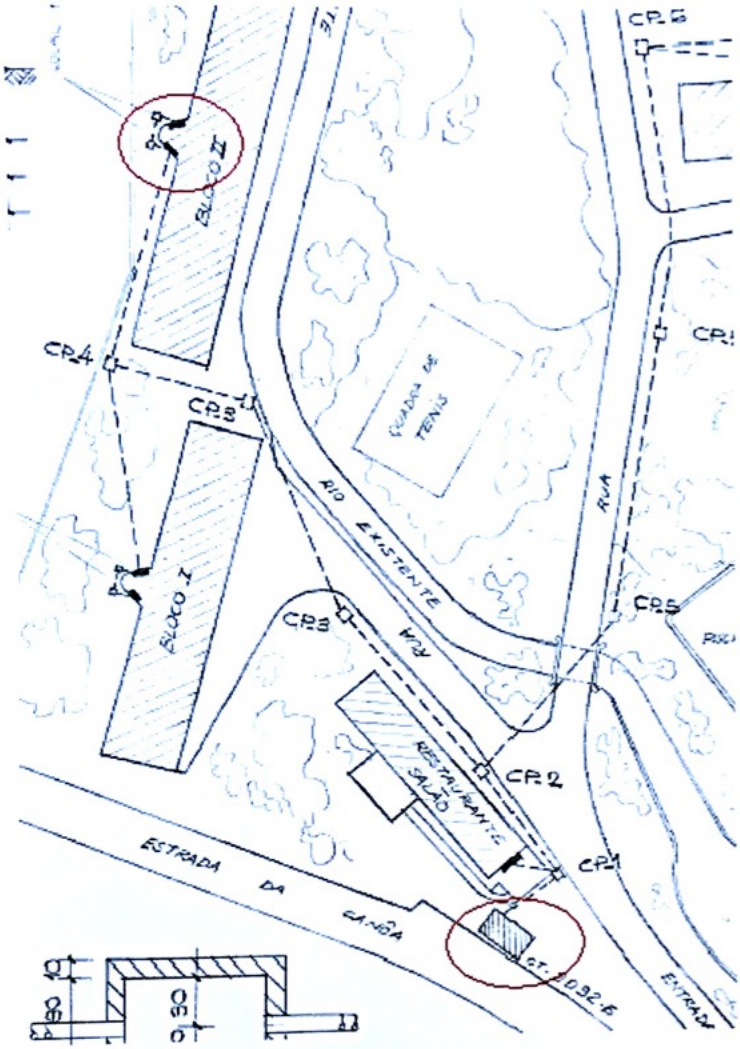
- Sub-rede com 3 x TPL-302E para conectar em uma única fase o Bloco 1, o Bloco 2 e a sede do Condomínio;
- Sub-rede com 3 x TPL-302E para conectar em uma única fase o Bloco 3, Bloco 4 e Bloco 5;
- Uma conexão de fibra ótica completaria a conexão entre as duas sub-redes acima.

Outra alternativa com maior performance seria utilizar várias fases e um "par de TPL-302E" em cada conexão, o que dobraria a quantidade de TPL-302E mas permitiria maior banda passante na rede. Assim teríamos 2 x TPL-302E entre a sede e o Bloco 1. Usando outra fase, conectaríamos mais 2 x TPL-302E entre a sede e o Bloco 2. Os TPL-302E das diferentes fases seriam interligados para formar a sub-rede. O mesmo se repetiria nos blocos 3, 4 e 5.

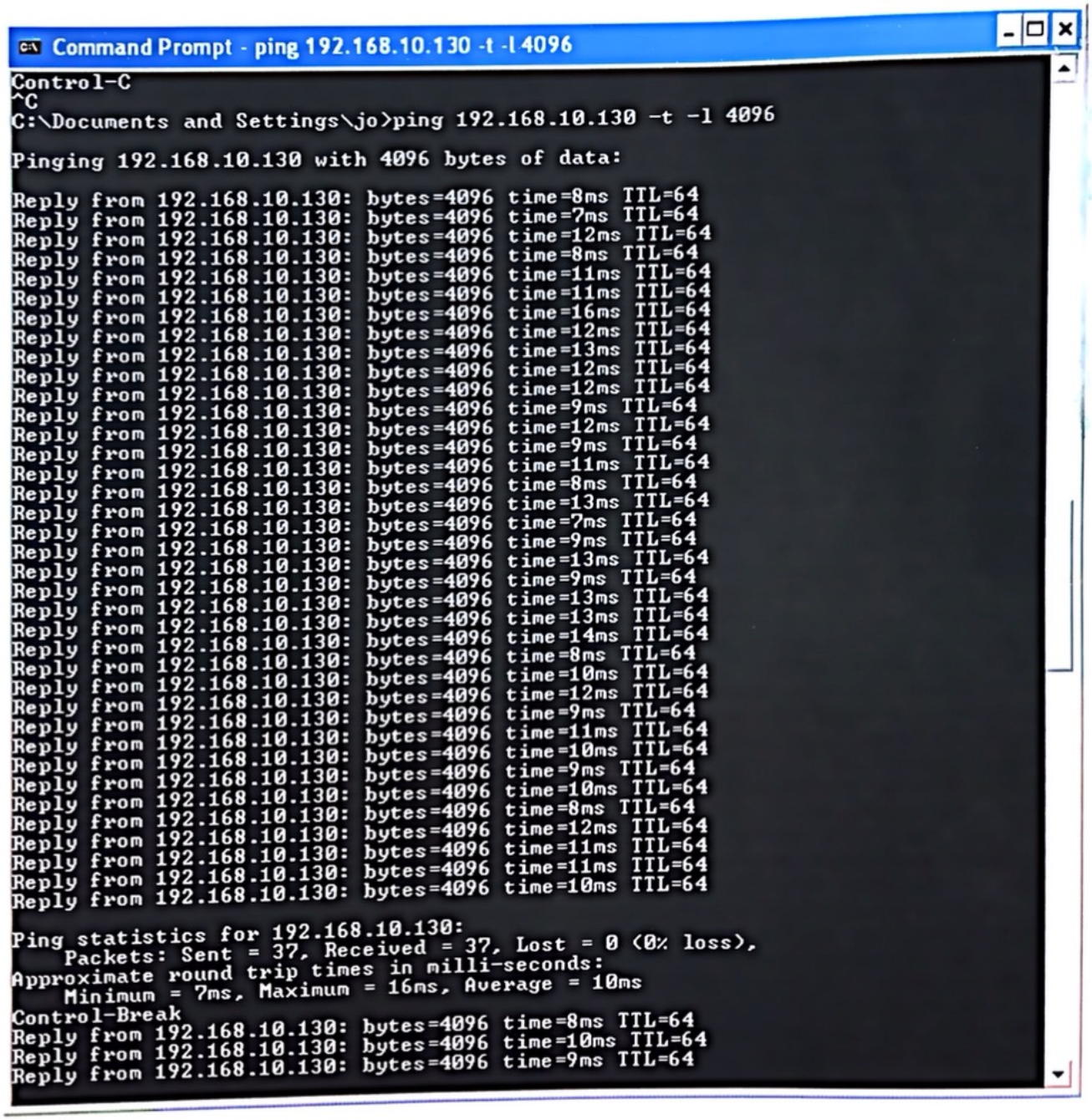
Sendo assim, além de cotar esta infra-estrutura de rede IP, solicitamos o orçamento para:

- distribuição nos blocos do sinal de rede para 200 apartamentos e mais 20 pontos avulsos (piscina, bar, etc)
- extensão da rede até a portaria do condomínio (pode ser cabo par trançado);
- extensão da rede entre o CT de entrada e a sede (pode ser cabo par trançado);
- solução para telefonia VoIP a ser distribuído entre os apartamentos, sede e portaria do condomínio.

Estamos à disposição para quaisquer esclarecimentos.
At,
Jose Motta


CP.6
CP.1
CP.4
CP.5
CP.3
CP.2
CP.7
BLOCO II
BLOCO I
QUADRA DE TENIS
RIO EXISTENTE
RUA
RUA
RESTAURANTE SALÃO
ESTRADA DA CANOA
ESTRADA
30
30

12/23/2009


Command Prompt - ping 192.168.10.130 -t -l 4096
Control-C
^C
C:\Documents and Settings\jo>ping 192.168.10.130 -t -l 4096
Pinging 192.168.10.130 with 4096 bytes of data:
Reply from 192.168.10.130: bytes=4096 time=8ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=7ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=12ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=8ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=11ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=11ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=16ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=12ms TTL=64
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Reply from 192.168.10.130: bytes=4096 time=12ms TTL=64
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Reply from 192.168.10.130: bytes=4096 time=12ms TTL=64
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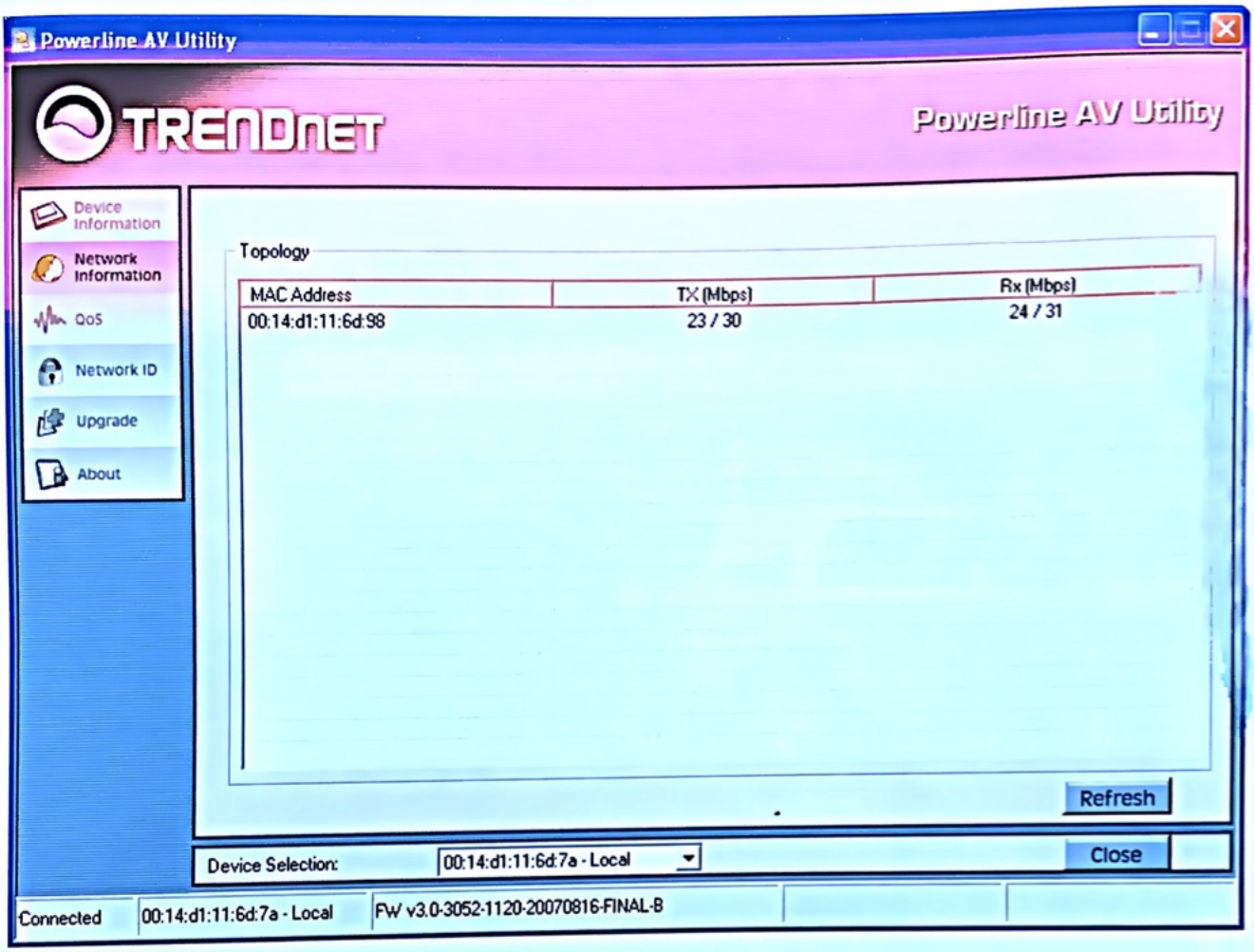
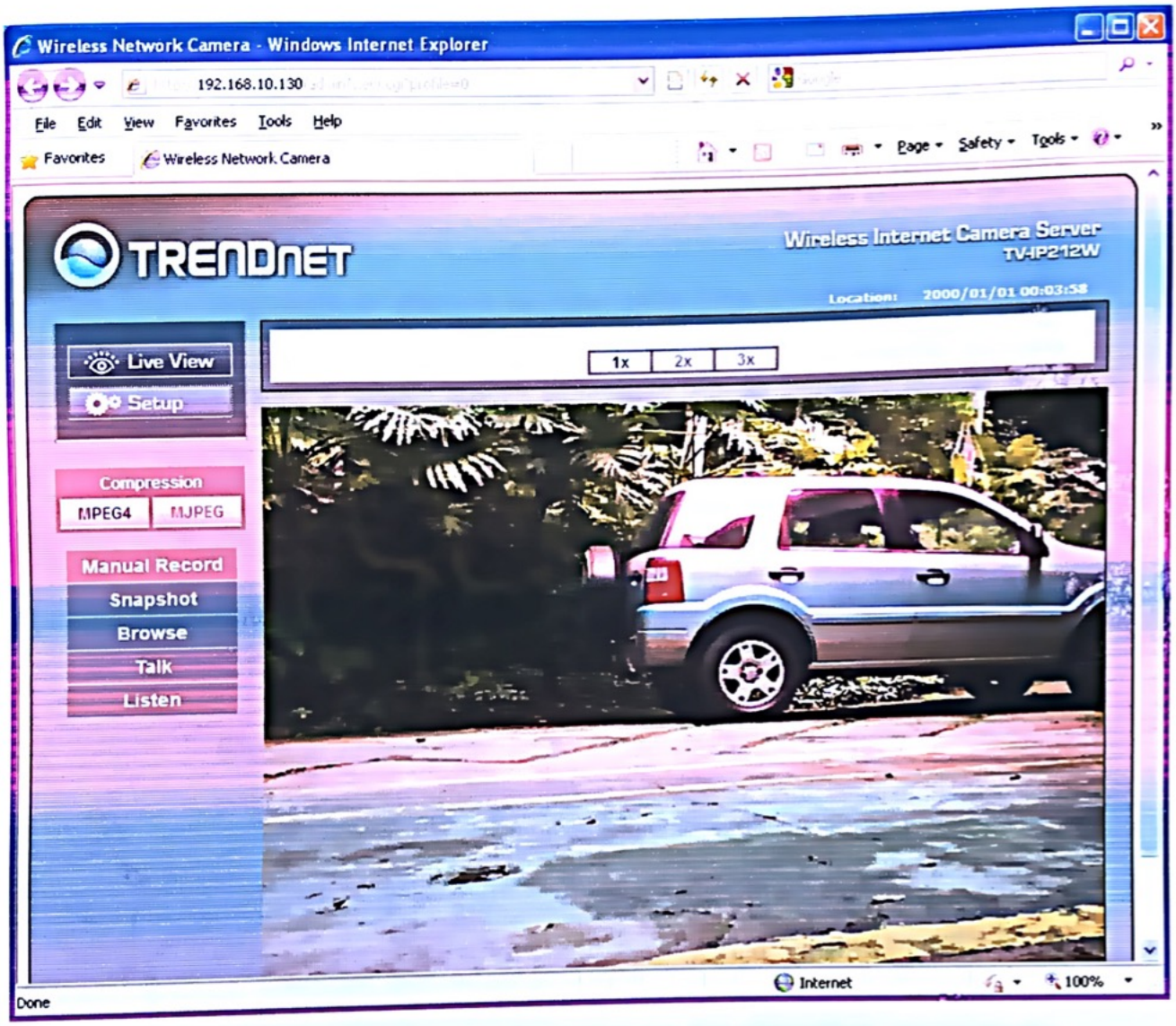
Reply from 192.168.10.130: bytes=4096 time=10ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=8ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=12ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=11ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=11ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=10ms TTL=64
Ping statistics for 192.168.10.130:
Packets: Sent = 37, Received = 37, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 7ms, Maximum = 16ms, Average = 10ms
Control-Break
Reply from 192.168.10.130: bytes=4096 time=8ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=10ms TTL=64
Reply from 192.168.10.130: bytes=4096 time=9ms TTL=64


Powerline AV Utility
TRENDnet
Powerline AV Utility
Device Information
Network Information
QoS
Network ID
Upgrade
About
Topology
MAC Address
TX (Mbps)
Rx (Mbps)
00:14:d1:11:6d:98
23 / 30
24 / 31
Refresh
Device Selection:
00:14:d1:11:6d:7a - Local
Close
Connected
00:14:d1:11:6d:7a - Local
FW v3.0-3052-1120-20070816-FINAL-B


Wireless Network Camera - Windows Internet Explorer
192.168.10.130
File Edit View Favorites Tools Help
Favorites
Wireless Network Camera
Page Safety Tools
TRENDnet
Wireless Internet Camera Server
TV-IP212W
Location: 2000/01/01 00:03:58
Live View
Setup
1x 2x 3x
Compression
MPEG4 MJPEG
Manual Record
Snapshot
Browse
Talk
Listen
Internet
100%
Done

Análise de Propostas para Interfonia do Condomínio Recreio das Canoas

José Motta
Antonio Joaquim de Macedo Soares
29 de setembro de 2009

Justificativas

Atendendo ao disposto na Assembléia Geral Ordinária de xx/xx/2009, onde foi decidido que os signatários deste documento apresentassem ao Conselho uma análise de propostas para a interfonia do Condomínio, estamos encaminhando a referida análise, juntamente com as propostas apresentadas por fornecedores.

Tal discussão se prende a conclusão unânime dos moradores, expressa na referida Assembléia, de que o atual sistema não mais atende as necessidades, devido principalmente aos seguintes aspectos:

(1º) A rede encontra-se deteriorada pela obsolescência dos equipamentos (aparelhos telefônicos e fiação exposta ao tempo).

(2º) O contato entre apartamentos só é possível "passando" pela portaria do Condomínio, bloqueando qualquer outra ligação, ocupando os porteiros gerando possíveis problemas de segurança.

Parecer sobre alternativas viáveis

São duas as alternativas para o projeto de interfonia:

(1ª) Implantar um sistema analógico, similar ao atual, mais moderno, substituindo-se os aparelhos telefônicos, efetuando uma avaliação na fiação existente, substituindo-a se necessário (o que provavelmente ocorrerá).

(2ª) Implantar uma "rede IP", com alternativas de ligações por cabo de cobre, por rádio ou por fibra ótica.

Vantagens e desvantagens das alternativas apresentadas

(1ª) Sistema analógico

Vantagem: custo mais reduzido

Desvantagens: A ligação por fiação tem duração limitada, com inconveniência do aspecto estético (fiação exposta ligando blocos e sede). Um outro ponto negativo é a não flexibilidade para qualquer outra possível instalação, limitando expansões futuras na atual configuração.

(2ª) Rede IP

Vantagens:

- Telefones "VOIP" (tecnologia mais moderna) para ligações internas e externas.
- Câmeras IP em qualquer ponto da rede (permitindo expansões ilimitadas)
- Possibilidade de implantação de serviços de informática a qualquer tempo (micros, consoles, impressoras, internet
- Comunicação independente entre apartamentos e dependências da sede
- Eliminação das ligações por fiação, possibilitando maior flexibilidade para expansões e maior segurança no funcionamento, principalmente em se considerando as ligações por fibra ótica.

Desvantagens

- Custos de implantação mais elevados

Análise Preliminar de Custos[1]

Esta análise foi efetuada sobre as proposta apresentadas por empresas consideradas idôneas e capazes de efetuar as instalações previstas.

Estas propostas são apresentadas em anexo.

1ª) Sistema analógico

Proposta da empresa *LC Telecom*..... **R$23 290,00**
prevendo a instalação de sistema circuito fechado de TV (com 11 câmeras) e um sistema PABX com 223 ramais.

(2ª) Rede IP

Proposta da empresa *XTech*.....**R$ 39 700,00**

Proposta conclusiva para avaliação e decisão do Conselho

A análise efetuada sobre as propostas apresentadas, subsidiada pelas pesquisas realizadas sobre os sistemas operacionais, indicam como a solução mais viável a implantação de uma **"rede IP, com ligações por fibra ótica"**, por sua modernidade, flexibilidade de expansão e implantação de componentes futuros, maior durabilidade, considerando ainda o aspecto estético da não existência de fios aéreos.

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[1] Esta análise assume um caráter preliminar por ter sido avaliada nas propostas fornecidas, cabendo reduções de custo a partir de negociações (preço e prazos de pagamento) para o fechamento.