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## The DCB ET Series - Encrypted Tunnel Applications Note – March, 2005

### Brief description of the ET-3300 and ET-6600 Encrypted Tunnels

The ET Series is a hardware security device. It provides a secure encrypted Ethernet tunnel for connecting remote locations securely through an insecure network, such as the Internet. Encryption method is the AES, Advanced Encryption Standard. AES is an encryption standard that is the recommended replacement for DES and 3DES. The American government NIST fully endorses and recommends AES with no restrictions: see FIPS-197 (Federal Information Processing Standard number 197).

<http://csrc.nist.gov/publications/fips/fips197/fips-197.pdf>

### Benefits:

- High Security
- Easy to install
- Low Cost
- Central Administration
- Tunnels all protocols
- Use low cost Internet connections for private line substitute
- Hardware solution for devices that do not support internal software security

### Applications for the ET-3300 and ET-6600

- Utilities – Gas and oil production, pipelines, electric generation, transmission and distribution. Allows for secure use of the Internet with RTU's.
- Retail – Stores, kiosks, credit card machines connected over the Internet
- Law Enforcement – Small remote offices connected over the Internet
- Medical – AES encryption of the ET Series meets **HIPPA** requirement for securing data over open networks such as the Internet. The medical industry is mandated by **HIPPA** to meet **HIPPA** privacy and security requirements over open networks.
- Real Estate – Connecting to and updating the database of listed homes.
- Field sales personnel working out of the home, hotel rooms wired for high speed Internet access.
- Financial industry – Additional security on internal corporate links, branch offices, ATM machines, key personnel remote secure access.
- Remote office with multiple devices, sharing the ET with a switch or a hub.
- Consultants at customer locations – Allows secure Internet connection to home office without access to the customer internal network.
- Office to Home
- 2 networks at each end, bridged via the Internet
- Remote network monitoring via the Internet, as the ET passes all protocols

### DCB Internal Use Example:

The ET is used at DCB to connect the **corporate office** to the home offices of **sales and engineering** employees. All the remote in-home offices have broadband Internet service. The Internet connection at the DCB main office is through a T1 link. Sales and engineering personnel take their notebook computers home and connect the computers to the Internet with the ET placed between the notebook computer and the Internet. At the DCB end, there is an ET positioned between the Internet and the DCB internal network, parallel to the DCB firewall (the device could also be placed behind the firewall). The remote notebook computers use the same internal IP addresses as they do when running at the DCB corporate office.



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### **Using the ET-6600 while working at client sites:**

An employee needs to retrieve documentation and check email while **visiting a customer**. The customer uses DHCP, so all you need to do is plug the ET-6600 into the customer network. The PC is connected to the ET, the ET to the customer network. This gives you instant access to the inside of your office corporate network. The advantage to the customer is your PC is completely isolated from their network. You can't get into the customer network, the customer can't get into your PC or your office network. This application is ideal for organizations with contractors working inside their buildings. Contractors can use the ET and get to their home corporate networks, but are blocked from the customer network.

### **Installation is "a piece of cake"**

The ET is completely set up at the main office so the employee just takes an ET home and plugs it in. For remote locations with using DHCP, no remote location IP address needs to be set. For remote locations with fixed IP addresses, the IP address is entered into the ET and the user is up and running. Installation is as easy as plugging in two Ethernet cables, one to the Internet, one to the remote computer.

### **University of Illinois, Beckman Institute**

At the University of Illinois, the ET is used to securely and remotely access the Beckman Institute network. The ET allows secure remote network administration. When there is an early morning, evening, late night or weekend emergency, many problems can be diagnosed and fixed without the need for someone to drive into the office. The ET saves time and makes the after hours work less disruptive for the employee.

### **Parkland Community College, Champaign, Illinois**

An electronics professor can access, manage and control his classroom computers and courseware from home. The ET allows the professor more time at home, less overtime commuting to the college for administrative tasks. Data securely traverses the Internet.

### **Remote Pole-top Web Cams**

The ET-6600 is being used to connect remote pole-top web cams over satellite telephones.

### **Remotely Manage Medical and Industrial equipment through the Internet**

Users are finding the ET series products ideal for securely managing customer equipment. Examples of equipment remotely controlled securely through the Internet include medical instruments, industrial air compressors, CNC machines, telecommunications equipment.

### **Remotely Access Office Information through the Internet**

Users of the ET-6600 include bank auditors who use the Internet from their homes to connect to the banks being audited. Vet clinics are using the ET-6600 to access the office veterinary medical information from remote other offices and from home.

### **Use the Internet and still get the security of dedicated private lines.**

Use the ET to save on line costs by using the internet instead of dedicated private lines. High-speed cable modem links, broadband, DSL and high speed wireless ISP links are often very cost effective versus private lines. The longer the distance between locations, the more cost effective is to connect using the Internet versus dedicated private lines. The ET makes this possible by providing a secure channel between the end points.



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<b><i>ET-6600 Compared to VLAN</i></b>	
<b>ET-6600</b>	<b>Software VPN</b>
Simple hardware box for Server and Client	Hardware Server, Client Software often required
AES 128 bit encryption	Various – RC4, 3DES, RSA, etc, may be proprietary un-reviewed protocol encryption
Does not require Windows or Linux or any operating system for client	Requires Windows or Linux client
No computer reconfiguration required – very easy to setup	Requires computer reconfiguration – can be quite cumbersome to configure
Use any IP port number, no special protocol to pass	PPTP requires port 1723, GRE protocol 47 L2TP requires port 1702, GRE protocol 46 IPSec requires port 500, protocols 50, 51
Ethernet bridging	IP routing, not suitable for non-IP protocols
Bridges non-routable protocols – NetBEUI, IPX,/SPX	Passes routable IP protocols only
Can use any single IP port number for tunneling, providing great flexibility	Most implementations use multiple ports, others are port limited
Passes through any router	Some routers do not pass IPSEC frames
Understands and passes VLANs, bridges VLAN switches	May not handle VLANs
Doubles as a LAN to LAN encryption box ET-6604 bridges Gigabit Ethernet up to 40 Mbps, ET-6620 over 200 Mbps (sustained) Same IP address as host site, regardless of where the client is located	Designed for server to remote client users Higher bandwidth VPN servers and encryption units are extremely expensive Some VPN implementations require differing subnet addresses
Small, inexpensive box	Relatively expensive
Always compatible	Compatibility between systems is not guaranteed
One box serves a small remote office, including printers and other devices that do not have a Microsoft or Linux or Apple OS	Requires a client software install for every machine. May not be installable on printers and other devices that do not have an OS to run the VPN client software
Key management is easy and transparent	May have a cumbersome key management system
Functions as hardware VPN and hardware encryption appliance in a single unit	



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**ET Series - How it works, key features**

- AES encryption (128 bit), key is periodically updated
- Common pass phrase for ET to ET authentication, user pass phrase for user authentication
- Each ET6600 and ET-3300 supports up to 8 users, ET-6604 and ET-6620 supports 50 users
- Links to the Internet from the ET can be Ethernet or serial
- Ethernet links to the Internet can be configured for serial dial backup
- Very easy to set up using a web browser
- Passes all protocols from one Ethernet network to another
- Sustained throughput of approximately 800,000 bps

**Product Details:**



1U high ET-6604 and ET-6620

The ET-6604 supports up to 40 Mbps sustained throughput, the ET-6620 over 200 Mbps



Size: ET-6600 front and rear view- 4 1/4" x 5 1/2" x 1 1/2"

ET-3300 - 4 1/4" x 3" x 1"

**Application Example:**

