Power over Ethernet Implemented in a Managed Service Offering

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Companies are looking to outsource services in order to avoid having to employ excessive technical teams and increase technical competency by specialized professionals. The objective of the system integrators who provide these managed services is to preserve and support the company's existing business processes. Power over Ethernet (PoE) Midspans (Figure 1) should be viewed as a technology that enhances this approach by providing simple and automatic responses to adverse AC mains distribution and is geared to assisting business continuity.

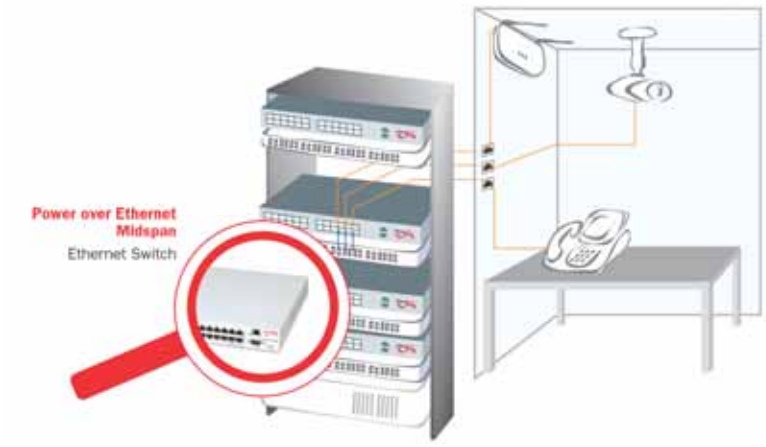

Figure 1: *A Midspan is a managed and secure power injector installed between an existing Ethernet switch and the end terminals, such as IP Phones, which enables the simultaneous delivery of power and Ethernet data to end-devices*

Introduction

This document explains the value proposition that Power over Ethernet Midspan can deliver to the system integrators who develop a managed service offering.

There are three major technology trends in IP Telephony, WLAN and IP Surveillance that PoE Midspan can directly affect:

- The cost of installation
- The speed of installation
- The resiliency of the installation

The PoE Midspan adds value to these equipment deployments by reducing their installation costs by up to 80 percent. Systems integrators providing a managed service are not necessarily interested in reducing the installation costs, since a major part of their outsourcing contracts take ownership of the existing networking infrastructure. Therefore these companies have a different perspective on the deployment of PoE Midspans.

Features such as plug-and-play to reduce the engineering skills needed for deployment and maintenance are of greater benefit. The ability to upgrade the existing Ethernet infrastructure to PoE without taking the network down and hence preserve the Service Level Agreements will be of practical benefit.

PoE can save up to 80% of the installation costs by removing the need for AC contractors.

Technology Upgrade with Minimum Interference

A Managed Service offering usually involves a fixed fee for a set period of time, in some cases an allowance is made for one equipment refresh during the period of the contract. In most cases it is up to the managed service company to provide current technology support. Under these circumstances, a managed service company will look for the lowest cost option. The managed service company must present to the client a new lower-cost model to provide all the communications infrastructure requirements. However, the key to gain acceptance is to reassure the customer that this lower-cost solution will not impact their business continuity. This concern is reflected in the penalties contained in the service level agreement that governor's all outsourcing contracts. The Power over Ethernet Midspan directly impacts business community by giving the systems integrator the greatest possible chance to meeting all of the service level agreement requirements.

High Availability

High network availability can be achieved using fault-tolerant systems to build resilient networks. PoE Midspan can greatly increase systems' resiliency by enabling a centrally deployed Uninterruptible Power Supply (UPS) to provide power backup service for remotely connected network devices.

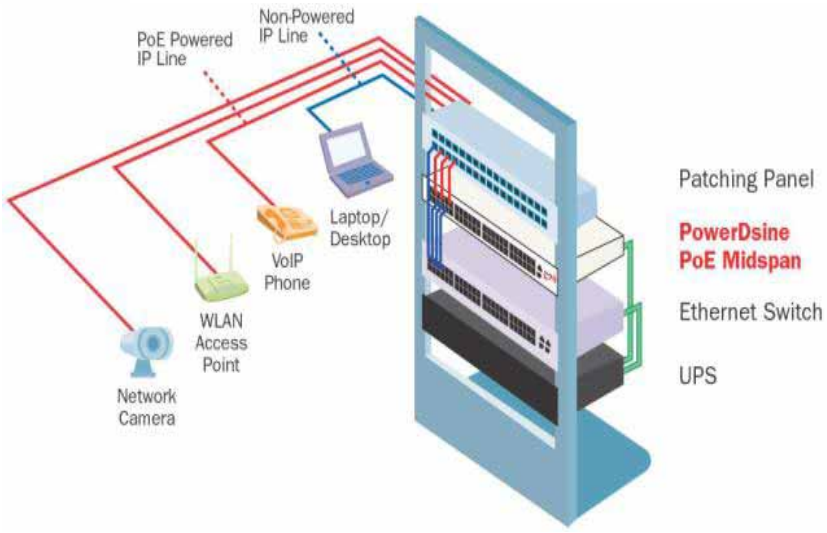

***Figure 2**: UPS installed in the communications closet can provide power back up to all remote low powered network peripherals even if they are not IEEE802.3af compliant.*

Operational Continuity

Businesses today require 24x7 availability. As such, there is no opportunity for network down time. For this reason, all networks run on structured wiring systems offering the IT managers the highest flexibility to add, move and change terminals location at the lowest cost with the least disruption. Power over Ethernet deployed using Midspan Power injectors are designed to support structured cabling and to be installed with no network downtime. They can be redeployed with the network live and without knowledge of the end clients. They are non-disruptive plug-and-play devices. Managed PoE Midspan provides real time power status on each PoE port, with capabilities to measure and report on each port status on a real time basis over the web (using SSL) or over the NMS (using SNMP).

Power Outage Risk

Major cities in the world are suffering from the growing demand on AC power. This affects their reliability and continuity of the supply of AC power. Businesses overcome this limitation using UPS systems to support the servers and communications equipment in the computer room. According to research carried out in North America, the average number of power outages per year sufficient to cause IT systems malfunction is 15. The conclusions presented by the report were that if power was backed up for the minimum of one hour, the organization would achieve 99.999% availability.

A Managed Service company understands that UPS support is not cheap. Power over Ethernet can add great value to a network infrastructure by providing central control thereby extending the capabilities of the UPS. But the greatest contribution that managed

Midspans can bring to resiliency is to extend the life of the UPS by reducing the load during operations. A UPS that provides one hour backup at full load will provide nearly three hours backup on 50 percent load batteries. If the Midspan monitors the power and reduces the load to a timetable, the UPS can support mission critical devices far longer than the purchase one hour support.

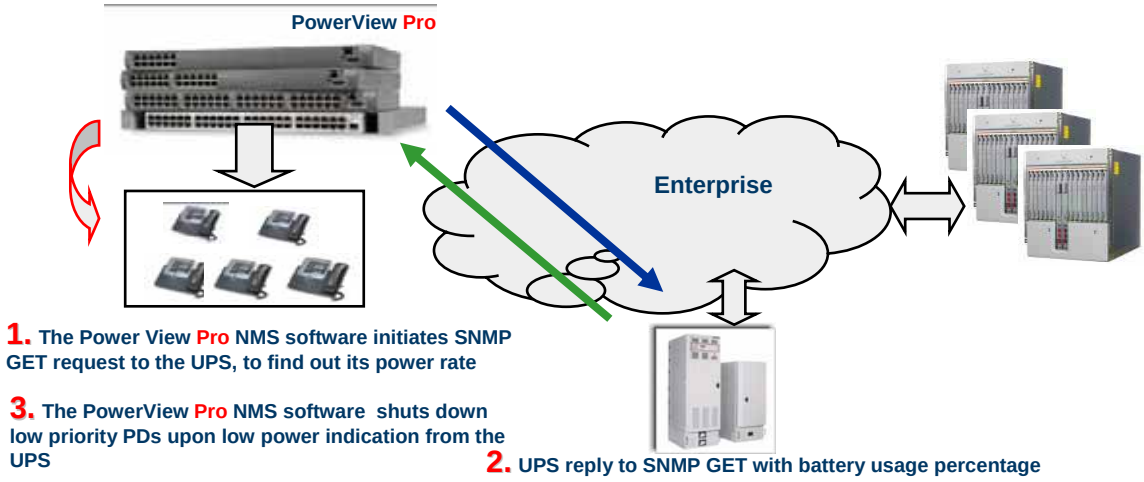

***Figure 3**: PoE Midspan monitors the UPS power utilization by SNMP, and optimally manages its power budget by shutting down low priority terminals*

The value of reduced downtime will obviously vary greatly from company to company and industry sector. However, IDC uses a figure of $85,678 as the average annual revenue saved by increasing systems' uptime - with an additional $5,374 per 100 users gained by avoiding lost employee productivity. These figures do not include the revenue gains that result from avoiding the potential permanent loss of a customer's business due to a service outage.

Disaster Recovery

All technology has a ‘Mean Time Between Failure’ and AC mains supply can be active or a complete failure. To have an effective agreed level of service, a disaster recovery plan needs to be created and designed into the system. The PoE Midspan can greatly assist in the area of mains failure. The PoE Midspan not only distributes the services of a UPS, but can also control the load on a UPS and extend its effectiveness.

Power over Ethernet: The Low-cost Model

In the past two years, eight percent of the Ethernet Switches installed in field had integrated PoE technology in them. In parallel, in typical installations, only one out of eight ports are deployed on a powered device. At least 50 percent of the ports are connected to PCs and printers which cannot use this service and 20-30 percent are not

occupied at all. With these facts in mind, when a Managed Services company is required to deploy PoE in an existing infrastructure, it has one of two options:

1. Upgrade the Switch to gain PoE

   or

2. Deploy separate power injectors called Midspans.

Business Case Scenario	No of ports	ports	Cost of Upgrading to…		
			*PoE stack switches**	*PoE Blades**	*PoE Midspans**
Small Business e.g.: small retail chain with 130 employees	**260**	**110**	**$22,750**	--	**$4,400**
Med-size Business e.g.: healthcare campus, with 3000 employees	**4,500**	**1,800**	**$393,750**	**$533,250**	**$72,000**
Large Enterprise *e.g.: large bank firm with 8000 employees*	**20,000**	**11,000**	**$1,750,000**	**$2,370,000**	**$440,000**

***Figure 4**: Cost comparison between a Switch with PoE or a separate power injector*

More Service to Offer with Better Control

PoE Midspan enables the linking of building security to managed Midspans and thus the control of power distribution to employees depending on whether they are in the building or out of the building. It is also possible to have a predetermined power distribution plan to minimize power usage on weekends and holidays, and when applied to Wireless Access units, greatly enhance their security.

Managed Power over Ethernet

In our homes we have electrical meters that measure our power consumption and provide us the ability to manage our costs. Deploying PoE in a business environment means that the power distribution is being done from the computer room. This requires the combination of monitoring and measurement of power consumption into the power distribution units, i.e. the PoE Midspans. With management comes control and although it is very useful to be able to centrally turn on and off devices distributed around the

network, it also creates a security risk. Some hackers are not intent on stealing information but on doing malicious damage. Therefore being able to turn off distributed computer equipment would be a honey pot to such hackers. SNMP V3 with its encryption capabilities as well as SSH and Radius support remove the hacker risk. Power management is a useful tool for the managed service company in providing additional information to support the service level agreement. You will know which terminal was on and for how long and using PowerDsine's Midpan products you have the basis for Power billing if required.

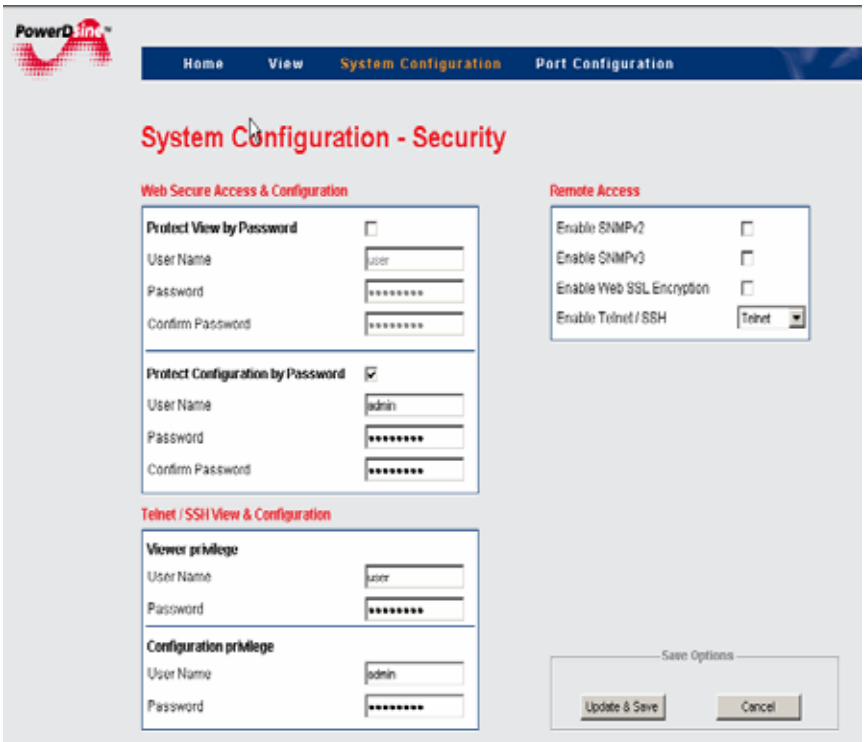

Figure 5: *High level of security to avoid hacking attempts into the network*

The Future – PoE to PCs

In the next generation of PCs, which may consume as much as 400 Watts, Power over Ethernet will be able sustain power delivery during power failure to enable them to accomplish a controlled hibernation without crashing. This may greatly improve system recovery time and remove the need for the Managed Services company to provide engineering resources to the crashed desktops. This means a lower cost model for the Managed Services company and higher availability for the end user.

What's the Reason for Choosing PowerDsine's Midspans?

If you are responsible for another company's business infrastructure then you need to be certain that products used to build the infrastructure comply with international standards and meet specific performance levels. PowerDsine invented and holds the patents for PoE. To prove conformance and not to compromise other manufacturers warranty and service contracts, PowerDsine's Midspans have been proven by the University of New Hampshire, the official IEEE 802.3af vendor independent test facility, to be the only independently certified power injector. PowerDsine's PoE Midspan is the only product to have passed the TIA 386 tests for Xtalk. This means that the these units are independently certified and do not introduce errors into the data path, a very important feature when you are being measured against a service level agreement. PowerDsine's PoE Midspans are certified class B conformant which also demonstrates the high quality of the product.