



Installing IP Telephony? IT Managers Have the Power to Reduce the Cost of Installation

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Businesses invest huge amounts of funds in their existing IP infrastructure, which includes high speed switching, security capabilities and guaranteed QoS features that are critical to VoIP implementation.

As deployment of IP telephony systems become more widespread, businesses also need consider methods of delivering power to their IP phones.

The approval of the IEEE 802.3af Power over Ethernet (PoE) standard effectively removed a significant barrier to the widespread adoption of IP telephony, in that it greatly reduced the challenge of providing power to VoIP devices. 802.3af enables electric power to be delivered along the same cables that transport Ethernet data, allowing PoE-enabled switches and Midspans to deliver power over standard Ethernet cabling to IP phones.

So, the decision is made... Power over Ethernet it is!

For IP telephony deployment, the IT manager now faces the following two alternatives for implementation of PoE:

- **Option A** - "Rip out" of existing network switches, replacing them with brand new PoE-enabled switches (Figure 1), or...
- **Option B** - Add on PoE Midspans to **existing Ethernet switches**, preserving the current investment

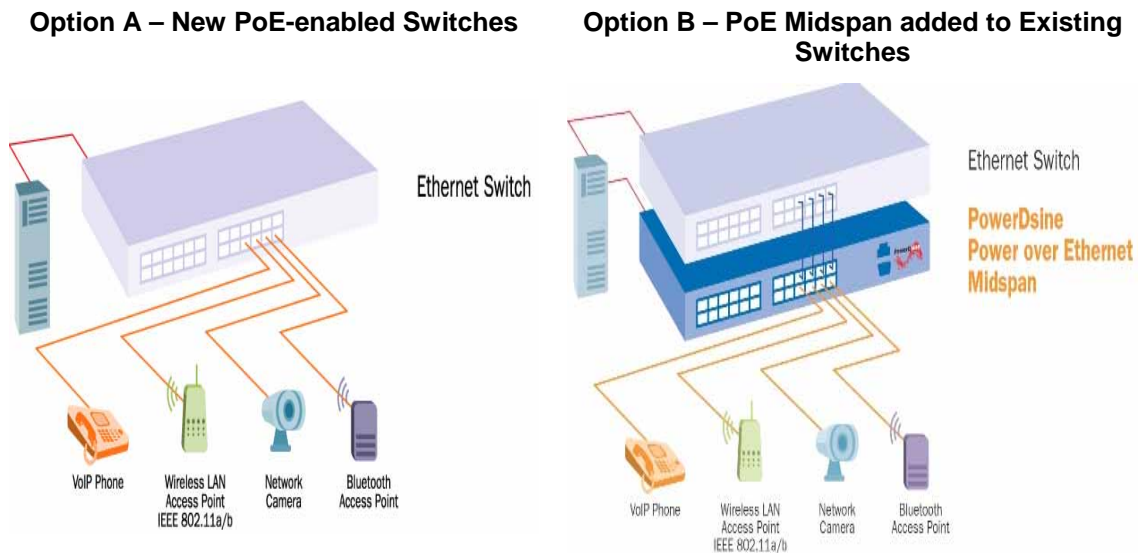


Figure 1: Brand new PoE-enabled switch vs. Midspan added to existing network switch



Where Does the PoE Midspan Fit into Your Infrastructure?

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

Figure 2 illustrates a typical installation utilizing a PoE Midspan. 10/100/1000Base-T data is routed via a standard RJ45 cable from the Ethernet switch to the PoE Midspan, and the PoE Midspan injects power into the unused cable pairs (only if PoE-compliant devices are detected on the cable end).

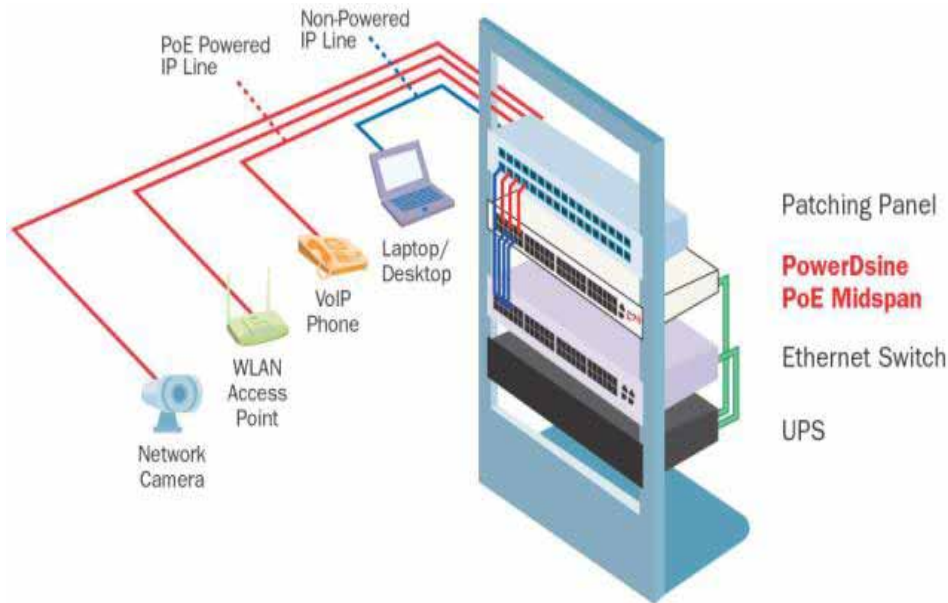


Figure 2: Implementation of a PoE Midspan within the network installation

How Do You Save Significant Money with PoE Midspans?

Lower total cost of ownership

A PoE Midspan offers significant financial benefits when compared to upgrading existing Ethernet switches or replacing them with new, PoE-compliant switches.

- ❖ **Low purchase cost** - Installing a PoE Midspan costs less than upgrading to new PoE switches, since Midspans can easily connect with existing Ethernet switches. Sunk costs are maintained (i.e. current switches) and the expense is incurred only for the PoE Midspan, as opposed to purchase of brand new PoE switches (that would be purchased most likely only for the PoE support).

<input checked="" type="checkbox"/>	LOW PURCHASE COST
<input checked="" type="checkbox"/>	LOW INSTALLATION COSTS
<input checked="" type="checkbox"/>	NO DOWNTIME
<input checked="" type="checkbox"/>	EASY & SIMPLE INSTALLATION
<input checked="" type="checkbox"/>	MINIMAL LEARNING CURVE
<input checked="" type="checkbox"/>	INTEROPERABLE WITH MOST NETWORK DEVICES
<input checked="" type="checkbox"/>	SECURE PoE MANAGEMENT
<input checked="" type="checkbox"/>	FUTURE COST PROOFING
<input checked="" type="checkbox"/>	SCALABLE IMPLEMENTATION

- ❖ **Low installation costs** - Midspan is a plug & play product making the installation much easier than a PoE switch. There is no need any software downloads.

- ❖ **No downtime**- PoE Midspans enable higher productivity due to the fact that their addition to the network involves negligible downtime (typically a few hours in a single day of work).



- ❖ **Easy & simple installation** – Only an IT Engineer is needed to install PoE Midspans (as opposed to the massive network engineering efforts required to upgrade or install new PoE switches). The Midspans also require less support and maintenance.
- ❖ **Minimal learning curve** - New PoE Midspans implementation is an easy adjustment for IT personnel. Quick system stabilization prevents a decrease in business productivity. Installation of new PoE switches necessitates education of IT personnel regarding new configurations, troubleshooting, maintenance, upgrades, which can be time-consuming.
- ❖ **Interoperable with most network devices** - PoE Midspans are interoperable with all Ethernet switches and most terminals. They are compliant with the IEEE 802.3af PoE standard as well as Cisco Inline power. PoE Midspans can be used in conjunction with different switch vendors, and end-terminals which not comply with the PoE 802.3af standard.
- ❖ **Secure PoE management** - Midspans include secure SNMP V3 power management modules and enable remote Web-based management, as well as other advanced and flexible power management features.
- ❖ **Future cost proofing and scalable implementation** - When the time comes to consider Ethernet switch replacement due to new technologies or standards in the switch market, (e.g. as security 802.1x with Guest VLAN, or, 802.1x with Port Security), it will not be necessary to pay again for PoE functionality.

The Proof is in the Pudding

No matter what size your business is, large, medium or small, Power over Ethernet Midspans added on to an existing switch infrastructure can save an organization **up to 80%** total cost, compared to infrastructure replacement with brand new PoE switches.

Business Case Scenario	No of Ethernet ports	No of PoE 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

* ASP per port are: PoE stackable switch: \$87.5, PoE Rack blade switch: \$118.5, PowerDsine Midspan: \$40 (CDW Nov 05)

Table 1: Price Comparison of Power over Ethernet solutions for IP Telephony Installations



Explanation of the Model

Assumption #1: Each organization uses a certain amount of Ethernet ports that allows it to operate its business functions. For the purposes of this model, we assume that the number of Ethernet ports is 50% higher than the number of users/employees.

Assumption #2: The percentage of Ethernet ports requiring PoE functionality is smaller in an order of magnitude than the amount of Ethernet ports. We can say that:

- In **medium-sized business** (up to 5,000 ports) and **large enterprises** (5000+ ports), the PoE number is about **40-60%** off the total Ethernet ports
- For **small businesses** (up to 500 ports) the PoE ports needed vary between **40-50%** from the total Ethernet ports

Assumption #3: In different businesses, the decision to deploy IP telephony is based on different specifications (e.g.: cost, support, installation downtime, etc.).

Assumption #4: The size of the business influences the type of solution chosen due to the cost differences. Choices are available between:

- PoE Midspans vs. PoE switches
- Stackable switches vs. Rack-mounted blades

A medium-sized healthcare campus, with several sites that has over 3,000 employees, typically requires about 50% more Ethernet ports. Let's assume that this organization carries 4,500 Ethernet ports (for different appliances such as: Patient Monitoring, medical care equipment, electrical location based services, x-ray machines, printers, scanners etc.). In such an organization, probably 40% will be needed for PoE (mainly for doctors/nurses location based IP phones, WLAN access points deployed within the campus, and few IP surveillance cameras around the hospital premises).

A large enterprise, such as bank, with several hundred branch offices, that employs 8,000 people, will need a greater number of approximately 20,000 Ethernet ports (tellers PC station, phones, printers, scanners, copy machines, faxes and other communication equipment, and additional ports for future use). Let's assume that this organization requires PoE functionality for 55% of its total Ethernet ports (PC stations, IP phones for each bank teller, WLAN communication access points, IP cameras, etc.).

The questions should be asked:

- ❖ "Why should I invest so much money on new PoE switches, when all I need is about 50% PoE support?"
- ❖ Why do I need to replace my current Ethernet infrastructure, which was purchased two years ago, when it already complies with 802.1q (vLAN), QoS and 802.1p, 802.1x with port security?

Midspan is the Right Choice ... So Which One?

Now that it is so clear why midspan is the most cost-effective choice for powering your IP telephony system, it is important to ensure that your PoE Midspan includes the following ingredients:

- ✚ **Secure management features**- support SNMP interoperability for medium or large business, along with remote web based management for small business
- ✚ **Gigabit support** – support for Cat 5E and Gigabit implementations
- ✚ **Product variety** - Midspan with scalability that can fit all your organization needs (i.e. with variety choice of PoE ports)



- ✚ **Support both PoE 802.3af standard, and Cisco Inline power-** a choice that can provide you the ability to support any IP phone vendor, or all Cisco IP phone models.

Be a Hero and Save Money for Your Business!

PoE Midspans undoubtedly provide businesses of any size the best option for powering their IP systems, without having to replace their legacy (non-PoE-enabled) Ethernet switches. The cost savings is magnificent, and the benefits are clear.

So, what are you waiting for?

Note: PowerDsine 6548 48-port and 6000G Gigabit Ethernet Power over Ethernet (PoE) Midspan solutions are the first PoE midspans on the market to have met the Cisco Technology Developer Program criteria for interoperability with all Cisco IP Telephony products.