

Cisco UPOE Powered Samsung NC220 Zero Client: Unleash the Power of your Network

Background

Virtual desktop infrastructure (VDI) is gaining popularity among enterprise customers to address increasing challenges of security, changing global business dynamics, total cost of ownership (TCO) requirements, and the mobile workforce. VDI fundamentally changes the way that employees, partners, and consultants work by providing anytime, anywhere, secure access to desktops hosted and managed in the data center. Benefits it provides include:

- Compliance, data security, and control
- Rapid desktop deployment and scaling
- TCO with centralized desktop lifecycle management

In a VDI deployment, an end-user device can be a zero client that provides an optimized, lower-cost device designed specifically to interact with a hosted virtual desktop.

Cisco® and Samsung have collaborated in this area to redefine the next-generation workspace experience by making it simple, highly available, and cheaper to manage.

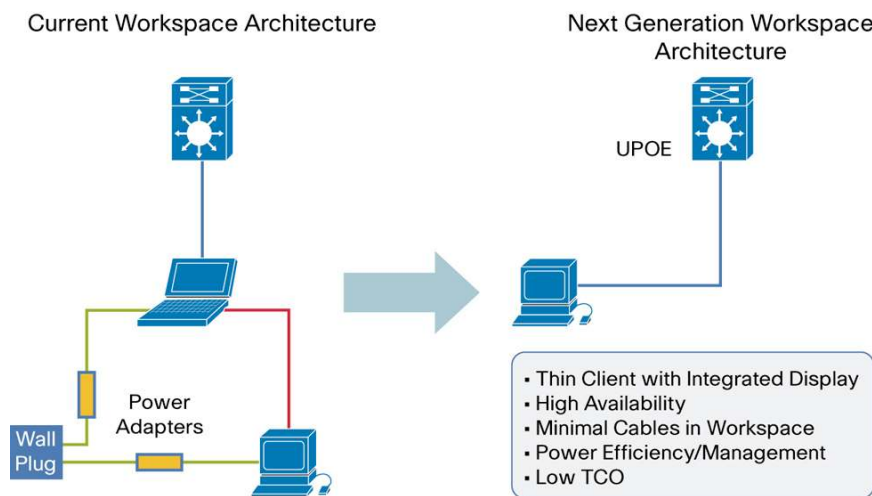
What You Will Learn

Cisco, the industry leader in cloud computing and connectivity, views the transition to a virtual desktop as a natural evolution to meet corporate sustainability goals for big enterprises. Samsung, the industry leader in display technology, views this transition as an opportunity to simplify and consolidate the user workspace, which will help enable further TCO reduction.

Together the two companies offer the industry's first integrated zero client display that is powered over the network. This cloud-based display negates the need for a separate VDI client and wall adapter for powering the desktop components. This desktop consolidation trends toward a simple and easy-to-use model. The capability to power the integrated display over Cisco Universal Power Over Ethernet (UPOE) extends the benefits Power over Ethernet (PoE) technology in terms of power resiliency and power management to the VDI client. This document focuses on the Samsung NC220 PCoIP-based zero client display and Cisco UPOE technology offered on the Cisco Catalyst® 4500E switches platform.

Figure 1 below shows how Cisco and Samsung are simplifying the workspace

Figure 1: Workspace Consolidation with Cisco UPOE and Samsung Zero Client Display



Challenges with VDI Deployment

Data security, ease of management, user experience, and energy sustainability have become requirements for all enterprise organizations. The move to desktop virtualization has its own share of challenges, including the initial capital expenditure, and in guaranteeing high availability for critical applications running on a virtual desktop environment.

Some organizations are leaning towards using refurbished PCs for their end-user client terminal in VDI environment. This fat-client device consumes more energy than thin clients. This is not an efficient model since the company invests in creating the cloud infrastructure to support desktop virtualization but does not gain the benefits offered by simplified and lightweight user clients that save in operations expenses.

VDI clients come in a variety of forms and sizes. An individual VDI client continues to occupy desk space like traditional fat clients. Users still need to deal with power cables, Ethernet cables, keyboard, mouse, an external monitor, and a monitor cable to perform basic work. This leads to waste in resources, space, and power, and creates increased points for failure. Cisco and Samsung are addressing these challenges through new innovative virtual desktop endpoints like Cisco Virtualization Experience Clients and Samsung NC220 Zero Client.

Business Benefits

The Cisco Catalyst 4500E switch platform is Cisco's leading modular, enterprise-class switch for campus deployments. This platform not only provides line-rate switching to all user access ports, but it also delivers comprehensive borderless network services critical for VDI deployments. Some of these services include high availability with full hardware redundancy, software features such as In-Service Software Upgrade, application visibility with Cisco Flexible Netflow (FnF), and hosted applications, including WireShark.

PoE has long been considered as a critical innovation to revolutionize and expedite the adoption of IP telephony in the enterprise market segment. The Cisco Catalyst 4500E platform was the first platform to deliver PoE-plus compliant switches, two years prior to the introduction of the IEEE 802.3 PoE-plus standard. The PoE-plus standard defines the mechanism to source up to 30 watts of power from switches. With Cisco UPOE, the Cisco Catalyst 4500E dramatically increases the power sourced by the switch to 60 watts. Cisco UPOE helps extend the benefits of power resiliency, management, and efficiency to a wider range of devices.

The Samsung NC220 is the world's first PCoIP zero client integrated with Samsung's leading edge LED panel. This product receives power over the network through Cisco UPOE offered on Cisco's Catalyst 4500E switches using standard Ethernet cabling infrastructure.

One of the benefits of this product is the ease with which it can be installed and used. For example, a user does not have to plug in power cables, but can simply connect the Ethernet cable to the Samsung NC220 to provide both data and power connectivity over the standard RJ45 interface. Furthermore, this product saves installation time, and prevents desktop clutter compared to set-top-box-style VDI clients because the client functionality is already built into the display. Users can access their virtual desktop just by plugging in the Ethernet cable, keyboard, and mouse. This product also offers high security since there is no local data storage, such as a hard disk drive.

Together, the Samsung NC220 and Cisco UPOE on the Cisco Catalyst 4500E can also help organizations save more energy. Samsung's low power LED panel with NC220 consumes a maximum of 51 watts of power with a much lower typical power consumed during the normal course of operation. When NC220 is used in conjunction with Cisco EnergyWise technology, users can set policies to power down the device when it is not being used to further enable an additional 50 percent energy savings.

Samsung NC220 helps users increase their productivity. It has two built-in speakers for multimedia and the world's best Samsung crystal clear LED technology. Users can see, hear, and work better. This product can also be used to integrate the functionality of Cisco IP phones to help enable greater capital and operational expenditure savings while guaranteeing the high availability for power and data over Cisco UPOE.

In conclusion, Samsung NC220 powered over Cisco UPOE enables users in VDI environments to increase their overall savings.

Product Specification: Cisco Catalyst 4500E Switch Platform and Cisco UPOE

The Cisco Catalyst 4500 Supervisor Engine Supervisor 7-E (or later) is based on Catalyst 4500E switch platform with Cisco UPOE-capable line cards. Figure 2 below displays the switches.

Figure 2: Cisco Catalyst 4500E Switches Platform



Table 1 shows Cisco UPOE compatibility on Cisco Catalyst 4500E platform.

Table 1: Cisco UPOE compatibility on Cisco Catalyst 4500E platform

Chassis	Supervisor	Line Card	Power Supply
WS-C4503-E	WS-X45-SUP7-E and later	WS-X4748-UPOE+E	PWR-C45-1300ACV
WS-C4506-E			PWR-C45-2800ACV
WS-C4507R+E			PWR-C45-4200ACV
WS-C4510R+E			PWR-C45-6000ACV

Product Specification: Samsung NC220 UPOE Zero Client

This product is a PCoIP zero client operating under the VMware View environment for VDI. Cisco UPOE is supported when the product is connected to UPOE-capable Cisco Catalyst 4500E switches. Figure 3 below shows the Samsung NC220 UPOE Zero Client.

Figure 3: Samsung NC220 UPOE Zero Client



Key features include:

- Cisco UPOE
- Dual-Monitor support (mirror, dual mode)
- Two built-in speakers
- 4 USBs (1.1) support
- LED panel
- Swivel, tilt, height-adjustable stand
- Maximum power is 51 watts
- Headphone out, audio and microphone in

Category	Features	NC220
Panel	Size	22"
	Aspect ratio	16:10
	Brightness (typical)	250 cd/sq.m
	Contrast ratio (typical)	1000:1
Signal	Input/Output	RGB-IN (15 pin D-SUB)
		LAN (RJ45, Giga, x2EA)
		USB (1.1 x4EA)
		HeadPhone Out
		Audio IN
		MIC IN
		RS-232C (9pin D-SUB)
		DVI OUT (for Dual)

Category	Features		NC220
Power	Power-on	Maximum	51W
	Stand-by		Less than 2.7 watts
Optional	Built-in Speaker		1W x2 (Optional)
Dimension	Set, with stand (W x H x D)		508.0 X 515.0 X 215.6
	Set, without stand (W x H x D)		508.0 X 344.3 X 56.6
Stand	Type		Swivel/Tilt/Height Adjustable

For More Information

For more information about Samsung NC220 for Cisco UPOE, please visit <http://www.samsunglfd.com>

For more information about the Cisco Catalyst 4500E switch platform, please visit the following resources:

- Cisco UPOE white paper
http://www.cisco.com/en/US/products/hw/switches/ps4324/prod_white_papers_list.html
- Enhancing VDI Experience with Cisco UPOE AAG
http://www.cisco.com/en/US/products/hw/switches/ps4324/product_at_a_glance_list.html
- Cisco Catalyst 4500E platform data sheets
http://www.cisco.com/en/US/products/hw/switches/ps4324/products_data_sheets_list.html

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