

Intelligence Report: **Cisco Ups the Power over Ethernet Ante to 60 Watts in New Cat 4500E Line Card**

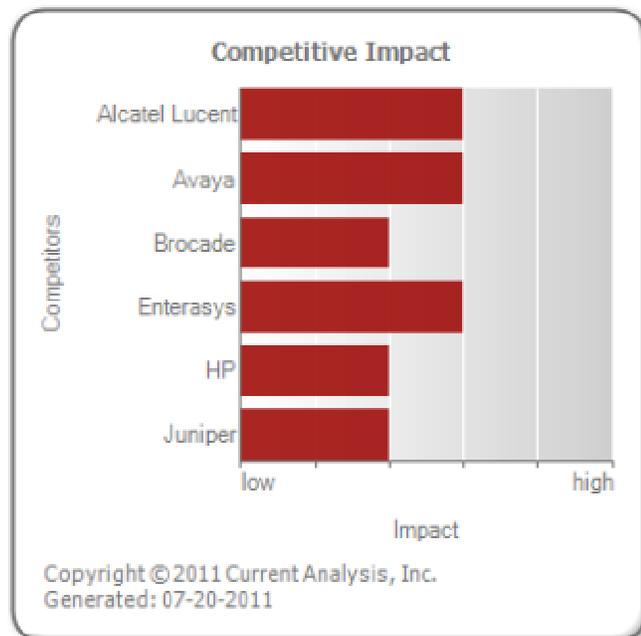
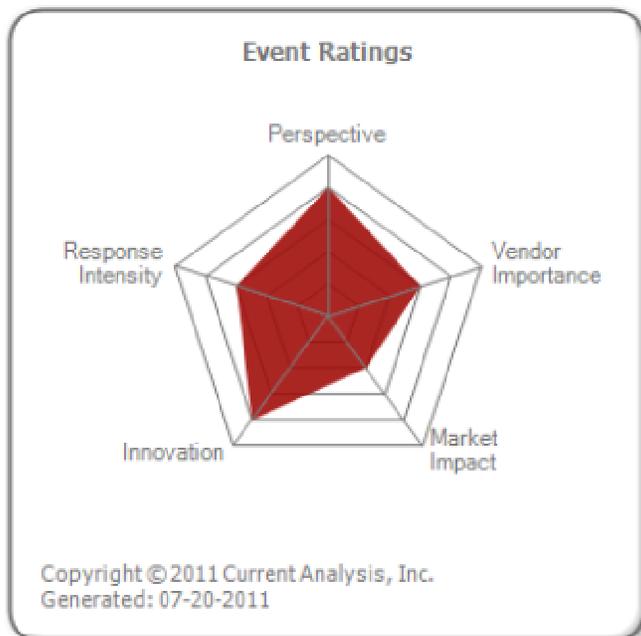
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Quick Take



Competitive Positives

- Cisco gets first-mover advantage
- Rapid growth of VDI thin clients presents larger market opportunity
- UPOE line card presents multiple opportunities to reduce costs
- New weapon for Cisco to fight commoditization in modular switch
- Good synergy with Cisco compact switch pass-through function

Competitive Concerns

- Creating new markets is hard, and unfamiliar territory for Cisco
- UPOE requires new Supervisor 7-E engine, which is not widely installed
- Missing out on the larger installed base of Cat 6500 switches
- What if Cisco built it, but nobody comes?
- Universal? Give me a break!

Event Summary

July 18, 2011 -- Cisco introduced an extension of Power over Ethernet that enables its Catalyst 4500E Switch to deliver 60 watts of power per port using a new 48-port line card. The extension of the IEEE 802.3at standard, which Cisco dubbed Universal Power Over Ethernet (UPOE), doubles the amount of power available in competing switches and expands the range of end devices that can consume that power.

Analytical Summary

Perspective

Positive on Cisco's Universal Power Over Ethernet (UPOE) launch, because Cisco is way out in front of the market with this innovation and intends to use it to expand the addressable market for its Catalyst 4500E switch. By doubling the power over the existing PoE+ standard, Cisco is opening the market to devices that consume more than 30 watts but less than 60 watts. By delivering the technology well in advance of a standard, Cisco is taking both a technology and market leadership position.



Vendor Importance

Moderate to Cisco, because the new UPOE line cards for the Cat 4500E can help to add greater value to the modular switch and continue to demonstrate why its distribution and access switches are not commodity devices. At the same time, only a handful of devices can exploit the new UPOE technology.



Market Impact

Low on the enterprise switching market, because UPOE only addresses specific use cases in five vertical markets, and while it helps to solidify the premium positioning of Cisco's Catalyst 4500E switch, it only works with the ten-month-old Supervisor 7-E engine, requiring a more expensive upgrade for a large swath of the installed base.



Competitive Strengths

Competitive Positives

- Cisco has a decided first-mover advantage in delivering 60 watts of power over Ethernet using standard Category 5E cabling and RJ45 connectors in a network switch. No other rivals have introduced such functionality, and standards discussions are in the very early stages. That is in contrast to the way the PoE+ standard unfolded following Cisco's lead with the 30-watt implementation. Although Cisco has had talks with the IEEE over the formation of a UPOE specification, a working group has not yet been formed, and that could take up to six months.
- The rapid growth of the VDI market presents a great opportunity and quickly growing installed base of end devices that can exploit the increased power delivered over the new line cards. Cisco believes that 8 million VDI thin clients/monitors were sold in 2010, and it has partnered with the number three vendor in that space in its Samsung integration. With those 8 million potential access ports installed, even a fraction of that offers Cisco a great opportunity to grow its UPOE line card sales quickly.
- The new UPOE line card, combined with Cat 4500E redundancy features and Cisco's EnergyWise, offers multiple opportunities for customers to lower their costs. Customers can cut costs by consolidating backup power infrastructure into the wiring closet; they can reduce their energy bills by using EnergyWise to manage power usage for non-traditional PoE devices; and they can in some cases eliminate the need to wire for both power and connectivity in locations servicing lower-power devices such as point-of-sale terminals.
- The new UPOE capabilities in the Cat 4500E give Cisco another weapon with which to fight commoditization in its modular switch line. By making it a power distribution and management device, it adds greater value for customers looking to better manage their energy use and lower their power bills.
- All of Cisco's compact switches enable pass-through of the 60 watts generated by the new line card and can divide that power up into smaller increments to power a range of devices, including cameras, badge readers, and lower-power IP phones, enabling a broader array of endpoints to exploit the increased power and opportunity to lower power consumption through EnergyWise. However, a forthcoming software release is required to enable the pass-through capability.

Competitive Weaknesses

Competitive Concerns

- Cisco hopes to create new markets/market segments with this technology, which will require a great deal of education, time, and creativity before demand takes off in a significant way. Cisco has rarely been in this position, and it will take patience and a significant investment in market development and awareness activities for this development to bear fruit. However, timing is not on Cisco's side, given the recent layoff announcement and obvious budget constraints the company is facing now and in the foreseeable future.
- The opportunity to sell this into the large installed base of Catalyst 4500E switches is not as broad as it seems, because the UPOE line card requires the Supervisor 7-E engine, which has only been on the market for ten months. Cisco estimates that 40% of new sales go with the Sup 7-E, but it is not clear how widely the existing installed base has upgraded. That will increase the cost of deployment for those customers that have to upgrade, making it less attractive.
- Cisco is missing an even larger installed base to go into with the new UPOE line card by not supporting it in the Catalyst 6500. Given that Cisco now positions the Catalyst 6500 as an alternate platform for the access layer to the Catalyst 4500's lead (and indeed it has described the Cat 6500 as a possible wiring closet switch for some time, in addition to the 6500 having a much larger PoE wattage pool), it is missing out on that larger opportunity. Still, because Cisco does describe the Cat 6500 as its Swiss army knife of network services, it is undoubtedly only a matter of time before it adds a UPOE line card for that switch as well.
- Although the preceding IEEE 802.3at standard for PoE+ has been completed for some time and switch vendors have had products in the market, there has been little demand for the technology, and it remains a very small market niche to date. If PoE+ demand remains weak, it may also suggest that this power increase is another solution in search of a problem.
- Cisco chose the unfortunate descriptor of Universal POE for this advance in the technology, which suggests this is the "be all, end all" for Power over Ethernet. Although Cisco engineers are quite confident that it is impossible to increase the amount of power that can be effectively carried over Category 5E cable above 60 watts, should another engineering team find a way to achieve that in a meaningful way, the UPOE moniker could become a bad joke.

Response & Recommendations

- Cisco could have made a bigger splash with its UPOE launch had it chosen to wait until it had more partners working with its UPOE technology beyond Samsung and BT with its Netrix trading turret. Cisco is in talks with other vendors, and it should create a steady drumbeat of partnership news as deals are signed around its UPOE to build momentum and awareness of the technology.
- Cisco should quickly follow up the 48-port UPOE line card with a 24-port UPOE line card, which would offer customers an opportunity to start with a smaller deployment that would be less costly and allow them to grow as they gain confidence in the technology.
- As Cisco gains more customers and experience in supporting the UPOE line card for the Catalyst 4500E, it should consider adding a version for its venerable Catalyst 6500. That would allow it to exploit a much larger installed base of switches and contribute to its array of different network services that it supports.
- Cisco was smart to use the Borderless Networks Facebook and Pradeep Parmar's blog to encourage people to share their ideas about how to use 60 watts per port POE, but it could go even a step further by using those media outlets and others to develop and promote a contest for the most creative idea on how to exploit the new technology. This could help to greatly expand the use cases for UPOE.
- Rivals working with their own extensions to the POE+ standard should get in on the ground floor of standards discussion for a 60 watt version. Rivals should insure they have a place in the working group that is formed in the next six months to help ensure their ideas/innovations are incorporated into the specification. They should also press to give it a name other than UPOE.
- Microsemi Corporation should describe Cisco's new UPOE as a "me too" technology, given its slight lead in delivering an alternative mid-plane implementation of 60 watts over Category 5E cabling. At the same time, it

should tout its ability to work with existing non-PoE switches, as well as its ability to allow customers to start with smaller, less costly deployments and get comfortable before investing more heavily in the technology.

Buyer Actions

- Catalyst 4500E users supporting a range of devices which require greater power than that delivered by POE+ would do well to evaluate the new line card and splitter. Enterprises deploying VDI thin clients could see some significant cost saving opportunities with the new UPOE technology.
- Enterprises in retail, hospitality, facilities management, financial trading, and those managing workspace could see significant cost saving advantages, especially any organization planning new buildings. By eliminating the need to run electrical wiring for POS terminals, electronic signage, VDI thin clients, and more, the UPOE technology has the potential for quick ROI. At the same time, the ability to avoid battery replacement cycles for badge readers is another cost saving opportunity.

Analytical Perspective

On July 18, Cisco launched what it claimed is the first 60 watt Power Over Ethernet technology in a leading market switch. However, it is not the first technology to enable 60 watts of power to be carried over widely installed Category 5E cabling. That distinction belongs to Microsemi Corporation, which introduced a mid-span POE device in early January (through its PowerDsine brand) that sits between a network switch and the end device to deliver power over the Cat5E Ethernet cabling. It also uses four pairs of wires, as does Cisco, and claims to be compliant with the IEEE 802.3at standard, which of course does not yet support 60 watts. Still, Cisco is way out ahead in the switching industry, and it is in the unusual position (for Cisco) of attempting to create a market that does not yet exist. The technology is implemented in a \$9,995 48-port line card for the Catalyst 4500E, and 24 of those 48 ports on the card can concurrently deliver 60 watts of power each. A total of 120 Universal Power Over Ethernet ports can be supported in the switch. It also works with a \$200 (list) splitter, which is being used by integration partners Samsung (in its zero-client VDI monitor) and BT (in its Netrix stock trading turret). The splitter will be generally available for other end devices in September. Other partners will follow. Cisco's own compact switches, personal telepresence systems, IP phones, and wireless access points work with the splitter, as does Oracle's Sun Ray thin client.

Cisco's UPOE builds upon the IEEE 802.3at (PoE+) standard by delivering an initial 30 watts to the endpoint and then repeating the process to deliver additional watts, based on what the endpoint device requests. That capability is implemented both in hardware (the splitter) and software. A second option, dubbed "power policing," can be enabled on the Catalyst 4500E to deliver only a specified amount of power through a port to an end device. For example, a port can be configured to deliver only 45 watts, even if the end device requests more. Such policing can be managed via EnergyWise.

By pairing UPOE with EnergyWise to manage a wider range of devices than is possible with POE or POE+, Cisco estimates that a customer could save \$128 per port over five years. Other cost savings come from the ability to consolidate battery backup in the wiring closet (which also improves power resiliency), eliminating the continuous replacement of batteries in badge readers, and more importantly, eliminating the requirement to run electrical wiring to devices that can now get their power from their Ethernet connection in new buildings or in retrofitting projects.

There are few downsides to the UPOE launch, with the exception that the technology applies to just a handful of vertical markets and use cases, at least initially, although Cisco believes it has the potential to expand the addressable market. Only time will tell.

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