

# Video Conferencing: A TCO Analysis

## *A Look at What Companies Really Spend*

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### Executive Summary

*Video conferencing is an increasingly important technology to improve employee and partner collaboration, especially for increasingly virtual organizations supporting rising numbers of mobile and home workers. But many companies still struggle to justify their investments in video conferencing, and to understand potential cost differences among competing solutions – not just hardware and software expenses, but also investments required for bandwidth and operational support. Comparing various video conferencing solutions requires examining deployment models, licensing arrangements, network infrastructure needs, and the various technologies employed by the solutions themselves to minimize hardware and bandwidth costs. In this report Nemertes examines network, hardware, and operational costs for leading video conferencing solution vendors in a variety of scenarios, using real-world data gathered from actual buyers of video conferencing products and services. The result: significant differences in costs across all areas, especially for varying deployment models.*

### The Issue

Picking the right video-conferencing solution requires analysis of a variety of factors: Does the feature set meet my needs? Can the vendor offer the support I need? Can it integrate with my other unified communications applications? Is the vendor financially stable? Will business benefit justify the investment? And finally, what will it cost? In this age of constrained IT budgets, IT leaders often tell us that this last factor, cost, is the most critical aspect of their evaluation process. As video conferencing vendors now largely deliver similar offerings – including high definition, UC integration, support for mobile, desktop, room, and immersive telepresence end-points; total cost of ownership is quickly emerging as the single most important factor in deciding which vendor to choose.

Determining the real-world total cost of ownership of video conferencing remains a challenge. Companies are adopting a variety of implementation strategies ranging from all desktop to a mix of room/immersive telepresence and desktop to just standalone room systems. Implementations may or may not require additional investment in network infrastructure and management tools. Some leverage managed, hosted or cloud services to reduce up-front capital costs. This report looks at all of these cost areas, broken down by vendor, with data harmonized on a cost-per-endpoint basis, providing a snapshot of what actual companies are spending to deploy video conferencing. These costs focus on highly relevant areas including network investment, hardware investment, licensing costs, and on-going maintenance expenses. The end result is a set of data that will assist IT leaders in evaluating the total cost of ownership of implementing solutions from leading video conferencing vendors.

## Methodology

Nemertes follows a structured methodology for all research projects consisting of hypothesis and question development, data gathering, data analysis, and results reporting. For this project Nemertes gathered data from the actual buyers and users of video conferencing technology. We directly conducted live interviews with IT leaders responsible for procuring and managing their video platforms, and we supplemented these live interviews with a survey of screened and qualified participants. By using both methods we're able to integrate quantifiable data and qualitative data from a broad mix of end-user companies. Participants ranged from small companies (less than \$10 million in revenues) to global multinationals exceeding \$20 billion in revenue (Please see Figure 1).

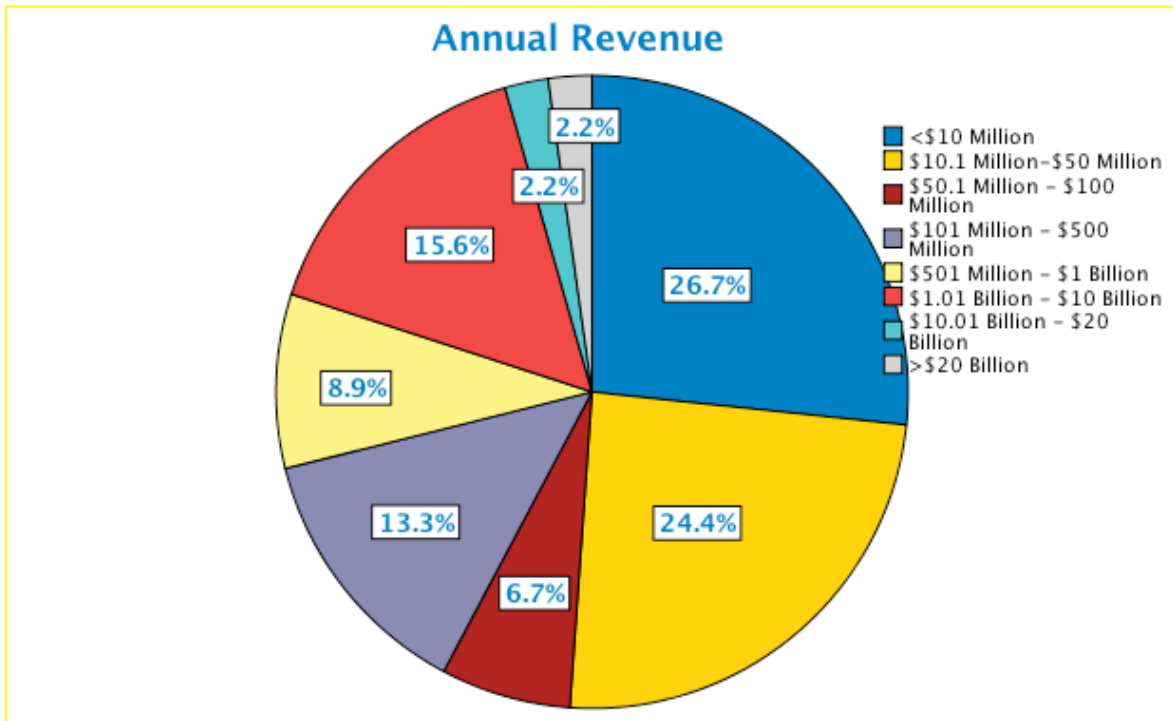


Figure 1: Annual Revenue

Nemertes gathered and analyzed the TCO for four leading video conferencing vendors: Cisco (including Tandberg), LifeSize (a subsidiary of Logitech), Polycom, and Vidyo (Please see Figure 2). We gathered data as well for Radvision, but not from enough customers to warrant inclusion in this report. We specifically looked at on-premise solutions rather than hosted or fully managed offerings, though some participants do use managed services for some aspects of implementation and on-going support of their on-premises platforms.

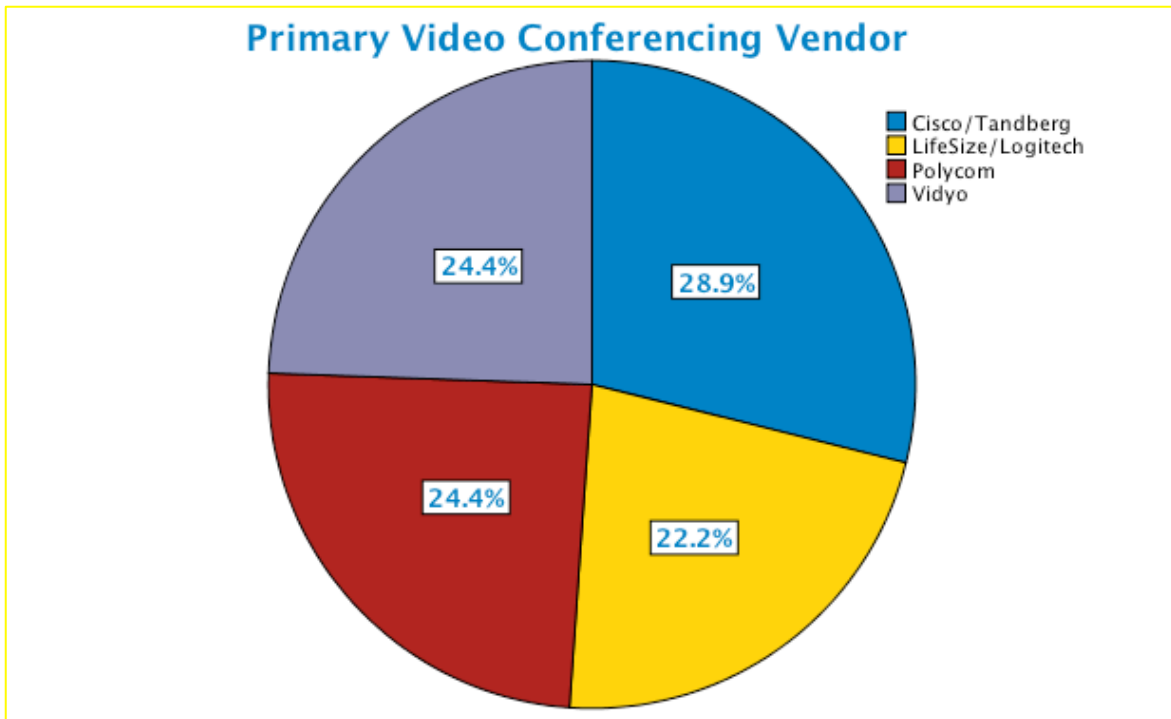


Figure 2: Primary Video Conferencing Vendor

For all cost areas we harmonized expenses by the total number of endpoints. We did not break down costs for desktop vs. room vs. telepresence systems simply because the IT leaders we interviewed typically had a single enterprise-wide budget for video that included a mix of end-point options rather than separate budgets for different types of video conferencing end-points. Our goal was to uncover the total cost of delivering video to a range of user-types, rather than the cost for particular segments of the video conferencing market. However we do provide data showing costs based on percentage of desktop vs. room/telepresence systems to demonstrate real-world deployment ratios.

### Video Conferencing TCO:

For any IT infrastructure investment, TCO is comprised of two factors: capital costs and operational costs. For video conferencing, typical components of these costs are listed in Table 1 below. For the sake of clarity we separate out costs associated with network infrastructure to support video with the costs for actual video conferencing platforms.

<b>Network Capital Costs</b>	<b>Network Operational Costs</b>
<ul style="list-style-type: none"> <li>• Initial WAN bandwidth upgrades</li> <li>• Application delivery optimization (WAN optimizers, QoS (Quality of Service) management tools)</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing performance management</li> <li>• Bandwidth</li> </ul>
<b>Video Capital Costs</b>	<b>Video Operational Costs</b>
<ul style="list-style-type: none"> <li>• Screens</li> <li>• Cameras/Codecs</li> <li>• Multipoint Control Units</li> <li>• Gateways</li> <li>• Software</li> <li>• Peripherals</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing licensing</li> <li>• Support and management</li> </ul>

**Table 1: Video Conferencing TCO Components**

Why is examining these costs so important? Of the factors limiting further demand, cost is the single biggest factor with 78% of companies citing cost-related concerns as the primary constraint to further video deployment. These are companies that have demand for video, but can't meet it due to the expense of upgrading bandwidth, buying video hardware, or expanding licensing purchases to cover more employees. If these companies can bring their costs down, they can meet business demand for greater access to video conferencing.

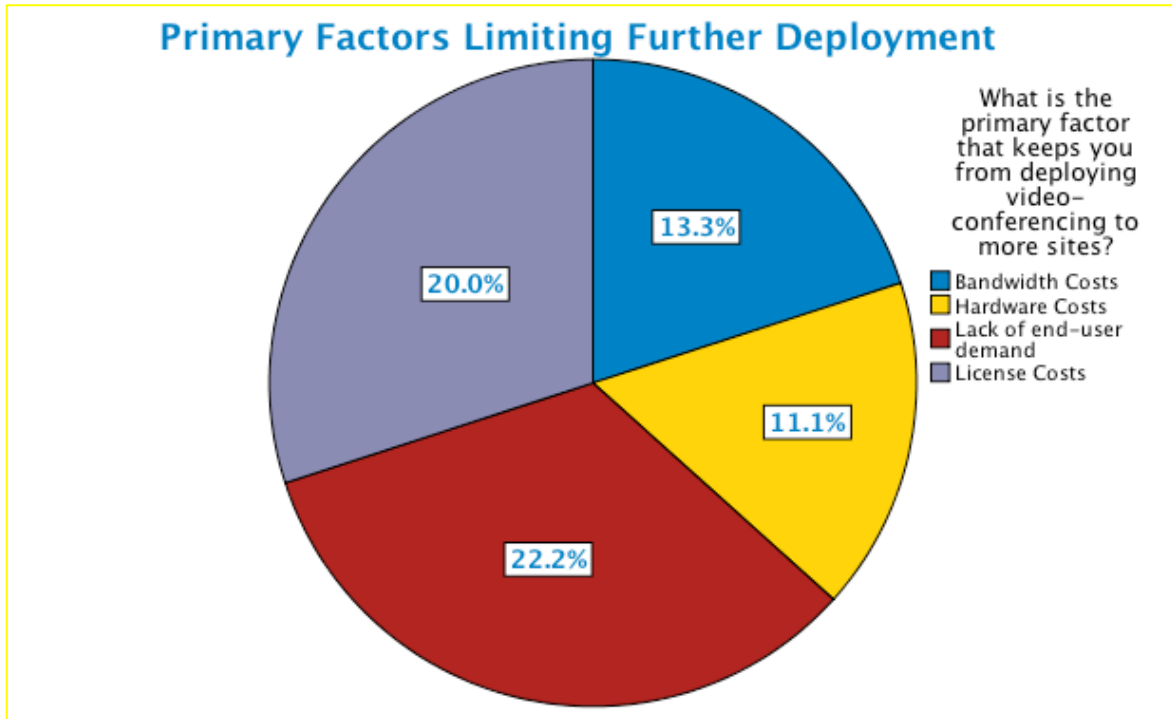


Figure 3: Primary Factors Limiting Further Deployment

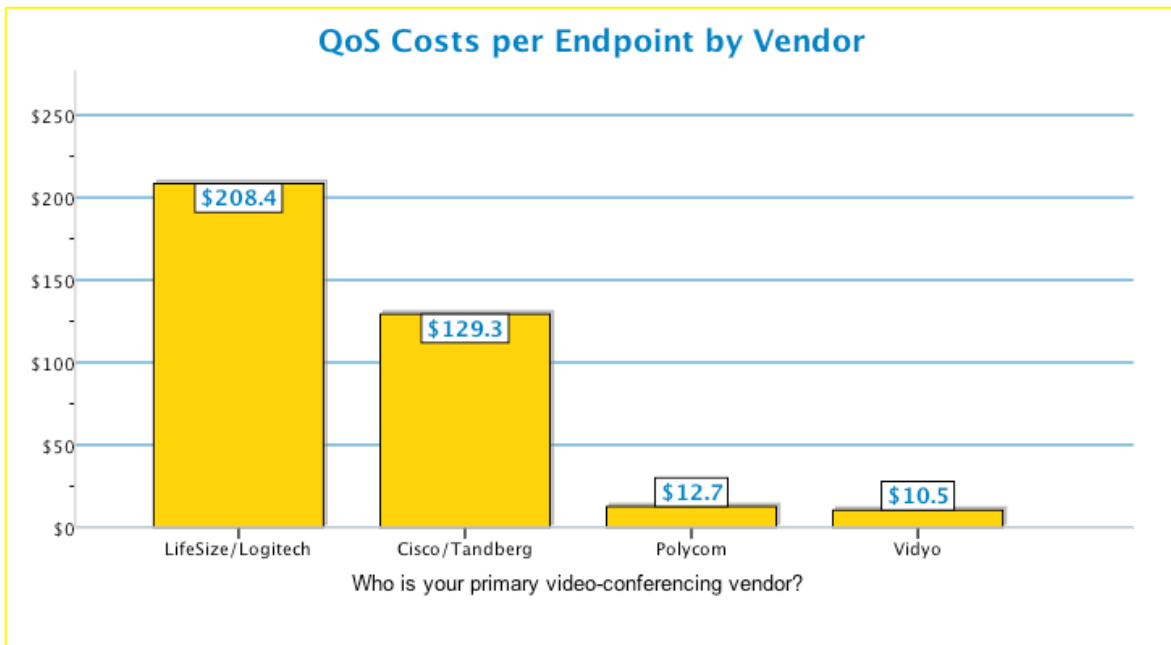
## Video Conferencing CapEx:

### *Network Capital Costs*

The first area of TCO we looked at was the cost of network and bandwidth upgrades. Capturing these costs provides a meaningful assessment of the amount of provisioning is required to support different vendor solutions. This comprises two segments:

- ⊕ The cost to add additional bandwidth
- ⊕ The cost to add QoS capable services (ranging from MPLS WANs to WAN optimization devices).

Looking first at the cost of adding QoS to the network to support video, we find a range in values from around \$13 for Polycom, \$10 with Vidyo, to more than \$100 for Cisco and LifeSize (Please see Figure 4).



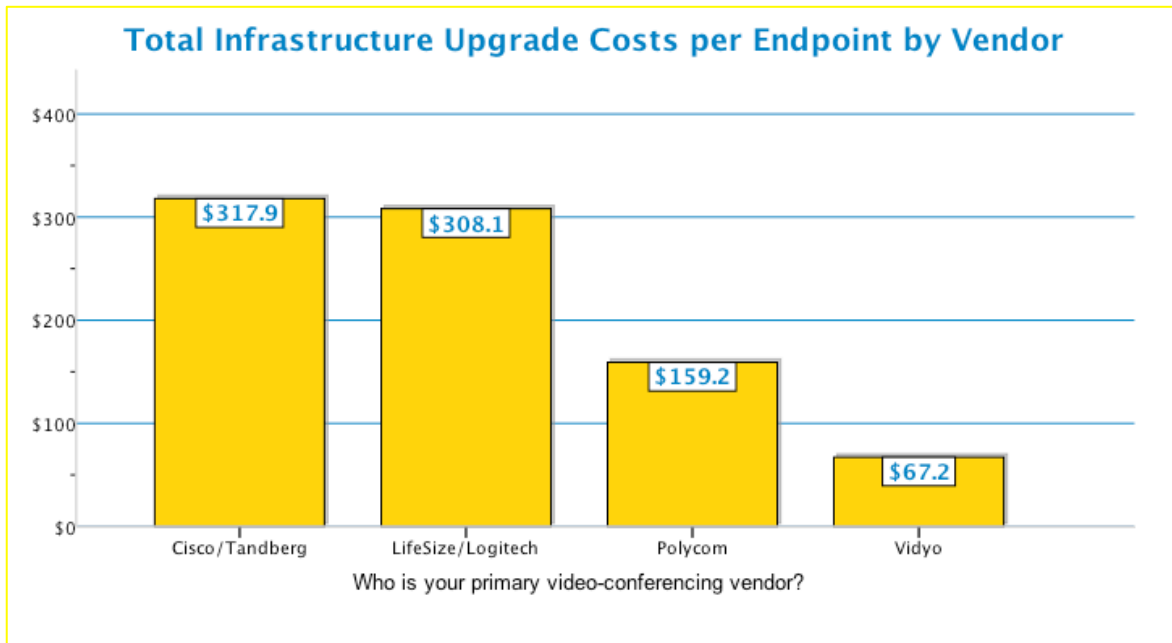
**Figure 4: QoS Costs per Endpoint by Vendor**

Why the discrepancies? Largely, they are the result of the types of deployments reflected in the data. Our sample pool included several companies who had rolled out Cisco’s desktop video client to thousands of users without investing in any additional QoS capabilities. Vidyo customers also tend to roll out desktop endpoints, but without requiring QoS in the WAN. Additionally, several of the Vidyo customers we interviewed are using the solution to support remote workers over residential Internet connections. This is a capability Vidyo customers are able to leverage because of Vidyo’s reliance on the International Telecommunications Union (ITU) H.264 Scalable Video Coding (SVC), a codec that provides high quality conferencing even on networks without QoS.

Cisco’s results are skewed a bit by customers of its telepresence solution, which requires approximately 15Mbps for a three-screen room for 1080p60 frame per second operation (the highest level of quality the solution offers). LifeSize, which we find most often in SMBs, leads the pack in terms of QoS costs, often because LifeSize customers are new to video conferencing and are making smaller initial network investments in video to support limited roll-outs of primarily room-based systems. Specifically, LifeSize deployments had an average of 10 rooms versus approximately 20 for deployments using other vendors.

Looking at total infrastructure upgrade costs (QoS + network upgrades), we see a similar picture to the data for just QoS (Please see Figure 5). Vidyo leads the pack in terms of lowest upgrade costs, with its customers spending an average of \$68

per end-point to add bandwidth and implement QoS, versus \$320 for Cisco. Overall, Vidyo customers are spending much less on provisioning and upgrading their networks to support their video conferencing solution than competitor’s customers.

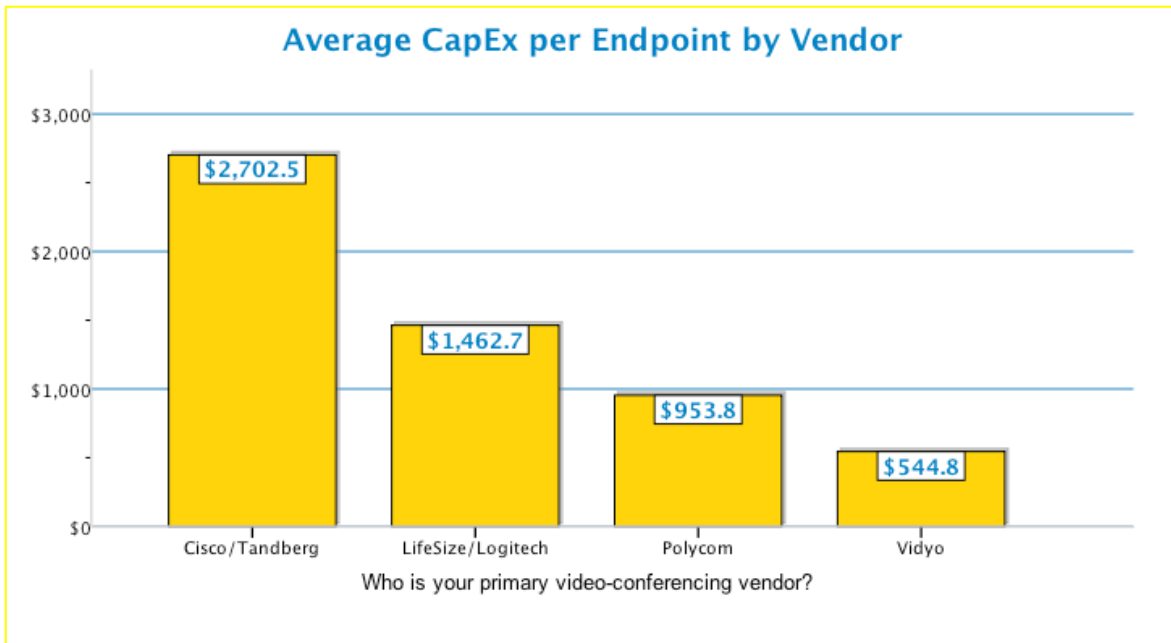


**Figure 5: Total Infrastructure Upgrade Costs per Endpoint by Vendor**

### *Video Capital Costs*

The second area we examined in our analysis of capital costs was the actual one-time expenditures for video conferencing equipment and software. Here Vidyo, with its software-centric delivery model, the lack of need for an MCU, and its ability to support off-the-shelf screens again demonstrates a significant cost advantage (Please see Figure 6). Vidyo customers are spending approximately 80% less on a per-end-point basis than Cisco, and almost 70% less than LifeSize customers. Given similar deployment characteristics between Cisco, LifeSize and Vidyo (on average about 0.55 end-points for every employee), this cost differential is significant. In contrast, data gathered from Polycom customers for this report indicate a lower density of deployment, with 0.35 end-points per employee. This is due to Polycom deployments being more room-heavy than those from the other vendors; almost 20% of the endpoints in the average Polycom deployment are for room solutions.





**Figure 6: Average CapEx per Endpoint by Vendor**

Another factor driving lower CapEx for Vidyo deployments is how customers procure the platform. Several study participants noted that for them, their investment in Vidyo is primarily operational as they get Vidyo’s VidyoRouter (a software appliance alternative to a traditional MCU for handling call routing and multi-party conference management) as part of their annual licensing agreement. Because Vidyo’s architecture uses a software appliance rather than a MCU, it doesn’t require a dedicated port for each conference participant; rather the appliance can scale to support large numbers of participants without the need for transcoding (though transcoding is still required to connect Vidyo end-points to third-party SIP or H.323-based devices).

For Vidyo customers getting the software appliance as an operational expense, their only capital costs are the cost of cameras/codecs, screens, and any required room build-outs. For example, one IT manager noted that his total capital budget to support 6,000 Vidyo endpoints was just \$97,000, spending only \$4,000 per room system.

### Video Conferencing OpEx:

To provide a comprehensive view of OpEx, we not only examined areas such as licensing, but the amount of hours required to provide ongoing support, and the accompanying costs. OpEx tells a different story from CapEx, with Polycom coming in at an average cost per end-point of less than half of its competitors. Many Polycom customers find that they can support the platform in-house, using resources that are often tasked to other IT support areas, well. We note that determining support costs

for video conferencing is often difficult as it's rare to find companies that employ staff solely to support video conferencing.

As noted previously, Vidyo's OpEx tends to be a higher due to its licensing model, which defers pricing to a recurring model (read: OpEx) or in some cases, an inexpensive perpetual model. Cisco's OpEx costs are driven by higher maintenance and support program costs; one participant noted that 92% of his operational budget goes just to support Cisco maintenance agreements.

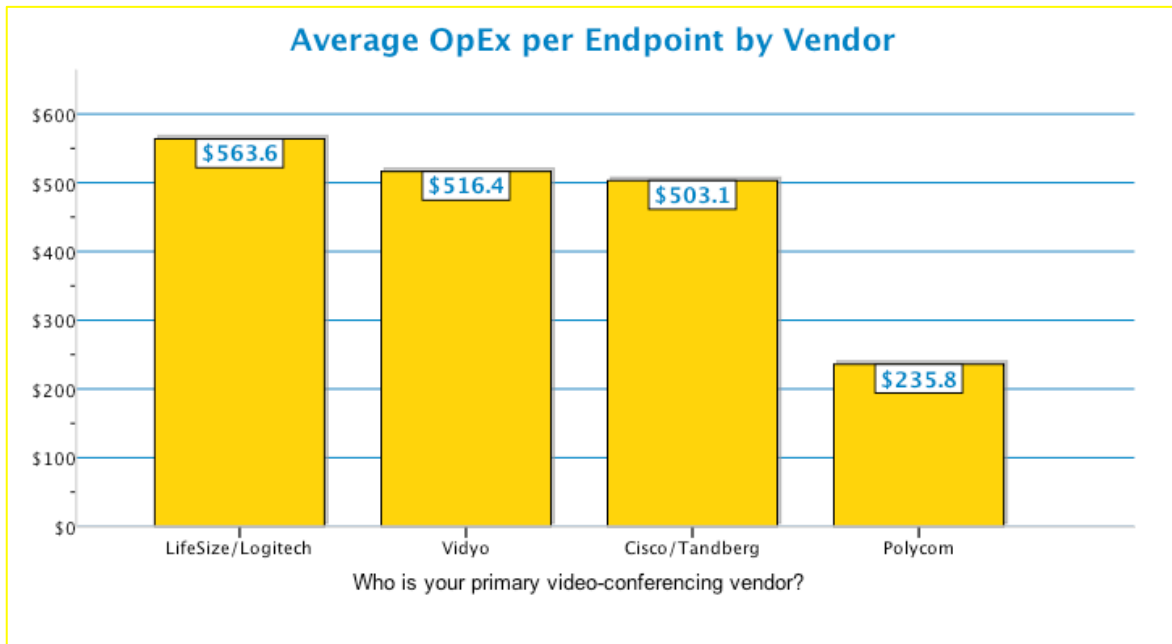


Figure 7: Average OpEx per Endpoint by Vendor

Table 2 provides a breakdown of how customers of each vendor are spending their operational budgets (note that total percentages exceed 100% for each vendor due to rounding). The highest spending area for each vendor is highlighted in red.

OpEx Cost Components				
Vendor	Maintenance	Staff	MSP	Training
Cisco	38%	34%	18%	17%
LifeSize	30%	28%	21%	22%
Polycom	31%	38%	18%	17%
Vidyo	28%	30%	25%	17%

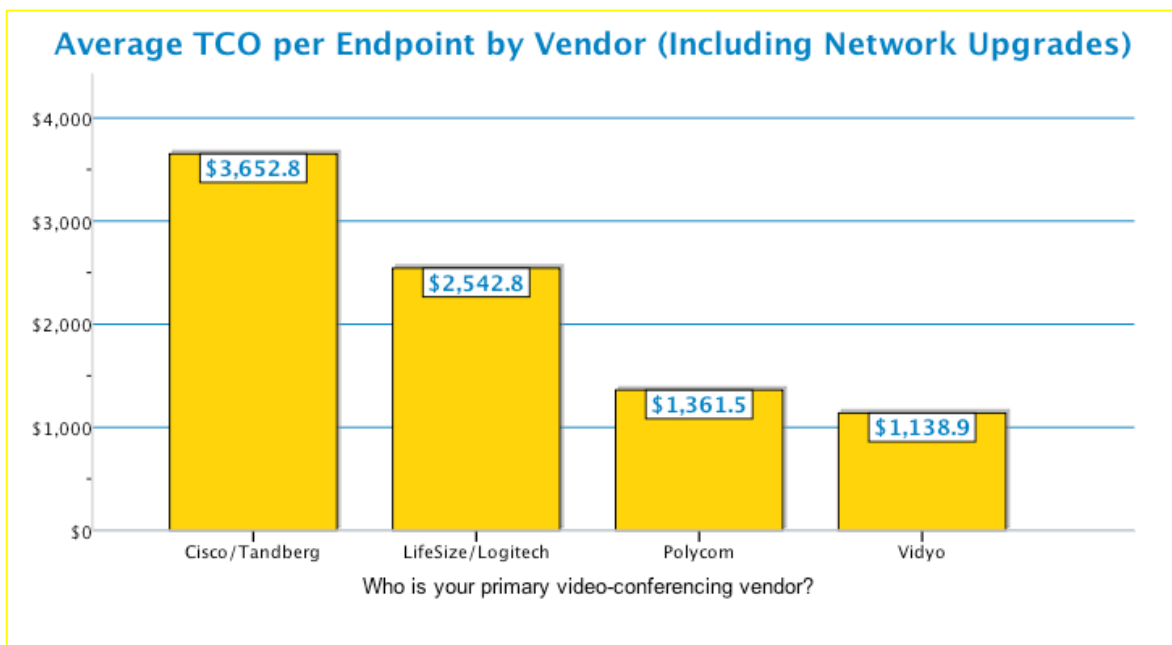
Table 2: OpEx Cost Components

Cisco customers spend more of their operational budgets on maintenance than any of their competitors, while Polycom customers have the highest investment in staff required to maintain the system. Vidyo customers spend more on managed service providers, and LifeSize users spend more on training than those who

purchase other systems. LifeSize systems often are purchased by small businesses, and set up in standalone, room-to-room configurations, requiring more training of users in areas including how to establish conferences. This is contrasted by the desktop interfaces used more frequently by Cisco, Polycom, and Vidyo customers.

### Putting it All Together: Total TCO:

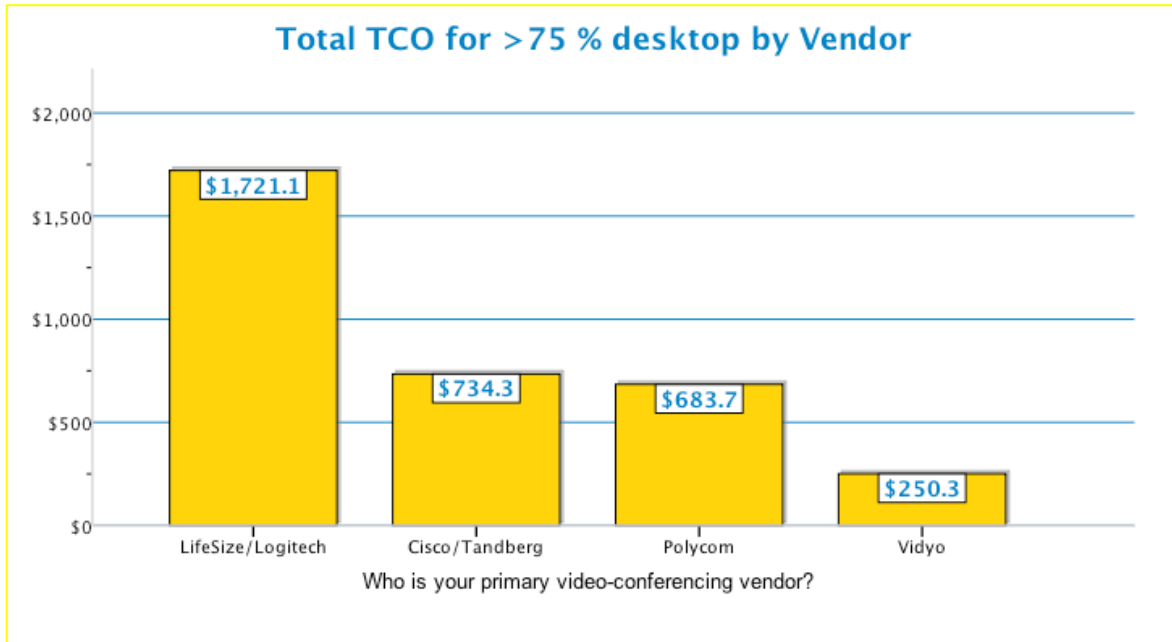
Adding all cost components together gives us a total first year TCO for each vendor, as shown in Figure 8.



**Figure 8: Average TCO per Endpoint by Vendor (Including Network Costs)**

Based on all TCO components, Vidyo comes out as the lowest cost per-endpoint solution at less than one-third the cost of Cisco at the high end, with LifeSize in the middle and Polycom approximately 20% more expensive at the low end.

One of the key areas for video growth is the desktop. While 80% of companies still deploy desktop video conferencing to less than 10% of their employees, we wanted to see the effect larger desktop video deployment percentages would have on TCO. As desktop video capabilities and integration continue to grow, so to will adoption. The results are shown in Figure 9.



**Figure 9: Total TCO for >75% Desktop by Vendor**

Here Vidyo’s cost advantage is compounded; an average total TCO of \$250 per end-point versus Lifesize’s cost of \$1,721. Cisco’s TCO improves as well, thanks to several participants who had deployed large numbers of Cisco’s VT Advantage desktop video product as part of a bundled Cisco Unified Workspace License (CUWL). What this data ultimately shows is that increasing the number of desktops significantly reduces TCO across all vendors. This result is demonstrated most dramatically with Vidyo who’s TCO drops to less than 25% of its TCO for all endpoints (Please see Figure 8).

## Recommendations and Conclusion

It’s worth again noting that this study is designed to take a snapshot of real-world costs for video conferencing implementations, and thereby provide the most accurate picture of what companies are spending to deploy video conferencing today. Actual costs will vary based on installed base of equipment, your current LAN and WAN environment, your bargaining power, and existing support requirements. These results validate the potential of Vidyo’s H.264 scalable video coding / non-transcoding architecture to offer significantly lower initial TCO. In all vendors surveyed, but particularly Vidyo, these savings are compounded in deployments where a large percentage of endpoints are for desktop video conferencing. Actual on-going costs will vary as well with utilization. We find that as desktop video conferencing (and video conferencing on mobile devices such as tablets and smartphones) use increases, so does the cost of adding network bandwidth to

support demand. We also expect operational costs to go down for all vendors as training budgets decrease with improved built-in help tools and video adopters get better at either managing performance on their own, or they outsource management to trusted third-parties.

Mobile devices are driving employee adoption of variety of applications, including video conferencing, which is in turn pushing IT departments to provision licenses and network capacity accordingly. Given the rapid changes within the mobility market, this can be a very difficult task, particularly if companies have opted for a BYOD model. Cellular and even many well-built enterprise Wi-Fi networks have highly variable latency and bandwidth characteristics. Companies that are evaluating or currently supporting mobile devices and video conferencing should focus on solutions that can provide an acceptable end-user experience regardless of the connection medium. The same philosophy can be extended to companies with plans for virtual/home office video conferencing, where employees' wired home connections might not be ideal.

IT buyers should carefully evaluate their own cost components versus the data we provide, while evaluating the cost of new purchases using a variety of factors such as:

- ⊕ Does the solution require network infrastructure upgrades and QoS?
- ⊕ What is the cost of rapidly adding capacity?
- ⊕ What are the ongoing licensing and maintenance costs?
- ⊕ How do costs change as my deployment strategy changes (e.g. more desktop/mobile)?
- ⊕ What types of mobile devices are being used on my network and for what purposes, i.e. tablets in particular can drive employee adoption for a variety of reasons, including form factor choice.
- ⊕ What is the cost to integrate with my legacy infrastructure versus replace it?
- ⊕ What are the costs for delivering acceptable video quality to a variety of locations (HQ, branch, home, and mobile devices)
- ⊕ For business-to-business video conferencing, what types of interoperability expectations exist?
- ⊕ What types of usage patterns do I project (e.g. more desktop or room video)?

Nemertes recommends evaluating a minimum of three vendors to obtain a wide range of options. Of course cost isn't the only evaluation factor – look at interoperability with existing systems as well as planned unified communications and voice platforms. Demonstrations of each platform might uncover capabilities and/or limitations specific to your needs. Other considerations include the capability, either

now or on vendors' roadmaps to run infrastructure on virtualized environments or even in the cloud.

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