

# Sensitivity Analysis Of Hosted vs. Premises IP-Telephony TCO/ROI

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## Does it pay to go with a hosted service? In many cases, the answer will be yes.

In last month's issue, we presented some of the main reasons why enterprises might consider a hosted IP-telephony service instead of a customer premises equipment (CPE)-based solution (see *BCR*, November 2005, pp. 51–55). In the second part of our analysis on the hosted-vs.-CPE decision, we will present findings derived from a TCO/ROI tool that we have developed based on our research into hosted IP-telephony. We believe that the considerations described in last month's article, together with the cost issues detailed below, will drive significant increases in enterprise adoption of hosted IP-telephony services over the next several years.

The TCO/ROI tool compares the cash flows of premises-based IP-telephony systems with that of hosted IP-telephony services. Using this tool, it is possible to not only compare the financial effects of different premises systems and hosted services offers, but also determine the areas of greatest impact on ROI and cash flow.

This article demonstrates a set of results based on changes in costs which we have determined are the drivers of significant differences in the financial results of the two approaches.

### Assumptions And Results

The key assumptions that we used in this analysis are presented in Table 1. The financial results produced by the ROI tool when using these values in a 5-year analysis are shown in Table 2.

The costs modeled in the tool are distributed in four categories as shown below:

### Equipment/Service and Installation

- System purchase costs for premises system
- Hosted service monthly charges for service
- Terminals (bought or included in service)
- Software application upgrades
- Training

### Operations and Administration

- System and terminal maintenance (for all purchased equipment)
- Remote monitoring for purchased system
- MAC costs
- Power, HVAC, insurance, floor space

### Access and Toll Costs

- Access charges (T1s)
- Toll traffic charges

### Human Resources (Initial planning and ongoing management)

- Business/financial planning and project management

TABLE 1—Key Assumptions

Users (single location)	50
Voice mailboxes	55
Percent of users with soft terminals <sup>1</sup>	20%
Percent of users with digital phones	25%
Percent of users with single line IP phones	25%
Percent of users with multi-line IP phones	50%
Cost of capital	12%
IP Telephony service charge per month per user <sup>2</sup>	\$30
Voice mail service charge per mailbox per month	\$8
Soft phone terminal charge per month	\$1.50
Single line IP phone charge per month	\$3
Multi-line IP phone charge per month	\$5.50
Charge per port for system equipment (purchase price) (does not include terminals)	\$160
Charge per mailbox for voice mail system (purchase price)	\$36
Charge for IP Telephony software upgrade	\$1,000
Charge for voice mail/messaging software upgrade	\$250
Minutes of domestic toll use per month <sup>3</sup>	33,000
Cost per minute of domestic toll use with hosted service	3 cents
Cost per minute of domestic toll use w/o hosted service	3.8 cents

1 The tool allows users to have both hard phones and softphones.

2 Telephony service only—does not include toll or LD costs unless specifically included in bundle.

3 Assumes .5 hour per user per business day (local and LD)

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**TABLE 2 Results**

Net Present Value—Premises System Costs	\$225,380
Net Present Value—Hosted IP Telephony Service Costs	\$137,002
Total (discounted) Savings From Hosted Service Over 5 Year Planning Period	\$88,378
ROI of Hosted IP Telephony Service <sup>1</sup>	65%

<sup>1</sup> This ROI was developed by dividing the total discounted savings by the NPV of the Hosted Service costs. Thus, this is the ratio of savings to "invested costs." Another way to look at this is to say this is the percent of cash flow improvement for a Hosted Service.

- System administration
- System technicians
- Security management
- Contingency planning management

When reviewing the results presented in this article, it is important to understand that the ROI of the hosted solution is always a ratio of the savings from the hosted service vs. a premises system.

The breakout of the four cost categories for the purchased system costs over 5 years is shown in Figure 1. The breakout of the same categories for the hosted service costs over 5 years is shown in Figure 2.

Given that the major impacts on ROI are associated with these categories, six costs were varied in order to test the sensitivity of the ROI analysis:

- Toll bundling

- Application software upgrades
- Purchase vs. lease of terminals
- Human resources involved in planning and managing systems
- Decrease in price of hosted IP-telephony and voice messaging services
- Decrease in price of premises IP-telephony and voice messaging systems

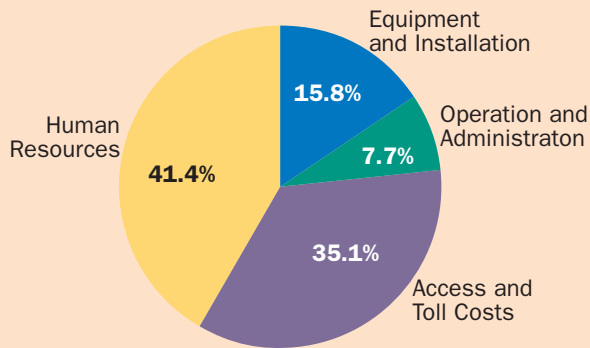
**We assumed hosted service customers would get a better rate for toll usage**

### Sensitivity To Toll Bundling

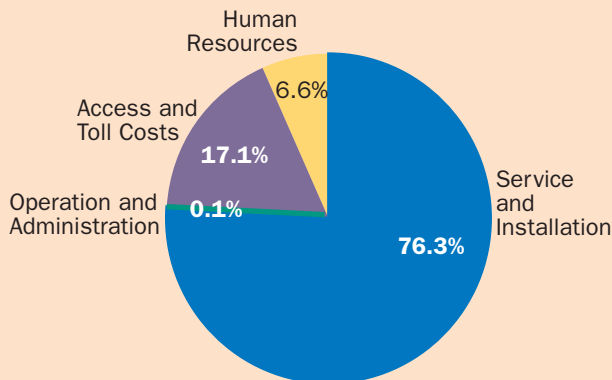
Toll bundling is defined as an offer by the hosted service provider to include the charges for all local toll calls in the monthly charge for the service. The ROI tool allows users to model bundling of any services (local, long distance, international and Internet) in any proportions. The inclusion of local service in this analysis was selected as being a common example of bundling that is offered by service providers.

It is assumed that half the total domestic toll usage is local. The difference in price per minute between the hosted and non-hosted service is based on the assumption that the hosted provider offers its hosted IP-telephony customers a slightly better price as part of its hosted package. By including these advantages in the hosted service offer, its ROI advantage over a comparable premises system increased by 117 percent (Figure 3, p. 42).

**FIGURE 1 Purchased IP Telephony System Cost Elements (5-Year NPV = \$225,380)**



**FIGURE 2 Hosted IP Telephony System Cost Elements (5 Year NPV = \$137,002)**



### Sensitivity To Software Application Upgrades

The base case assumes that there are four application updates, two for IP-telephony (in Years 3 and 5) and two for voice messaging (in Years 2 and 4). In addition to the cost of the software upgrades themselves, the tool assumes that managers in a CPE system environment will incur corresponding resource costs in evaluating (i.e., performing a cost/benefit analysis), planning and managing these upgrades.

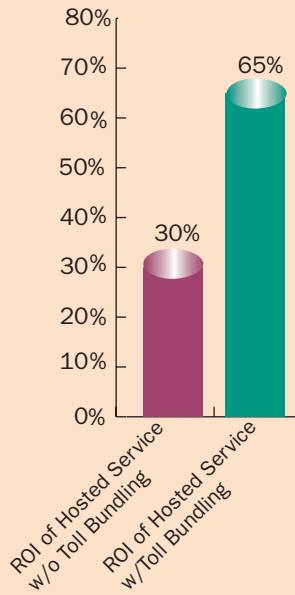
In the hosted environment, it is assumed that there is no charge for the application upgrades and there is virtually no need to evaluate, plan and manage the process. By including these advantages in the hosted service offer, its ROI advantage over a comparable premises system increased by 23 percent (Figure 4, p. 42).

### Sensitivity Of Terminal Leasing

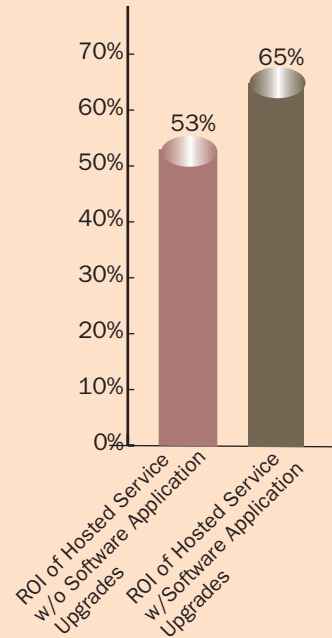
The base case assumes that all terminals are included in the hosted service and incur monthly charges as shown in Table 1 (which includes maintenance).

The model shows that by including these terminals in the hosted service

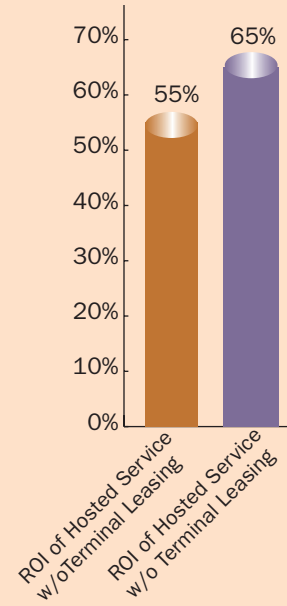
**FIGURE 3 ROI Of Hosted Service Increased By 117% With Toll Bundling**



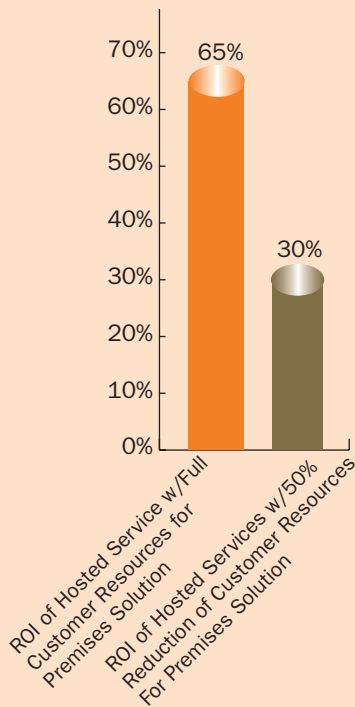
**FIGURE 4 ROI Of Hosted Service Increased By 23% With Software Application Upgrades**



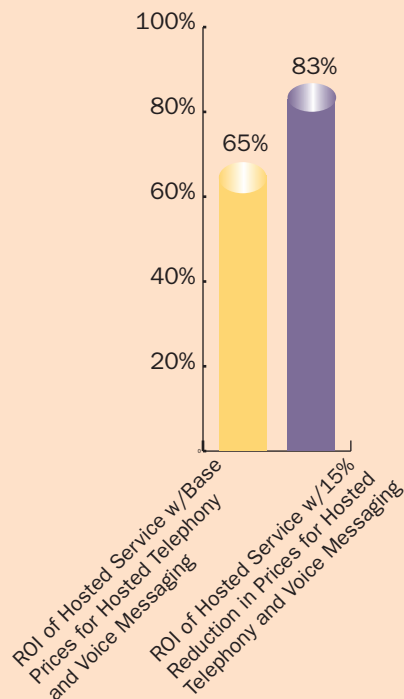
**FIGURE 5 ROI Of Hosted Service Increased By 18% With Terminal Leasing**



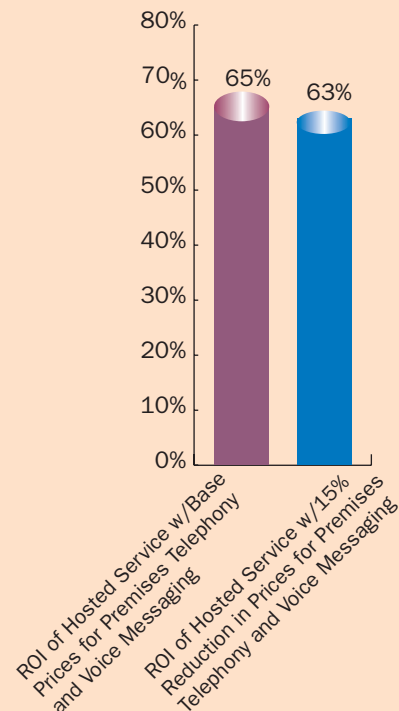
**FIGURE 6 ROI Of Hosted Service Decreased By 54% With 50% Reduction In Customer Resources Needed For Premises System**



**FIGURE 7 ROI Of Hosted Service Increased By 28% With 15% Reduction In Charges For Hosted Telephony and Voice Messaging**



**FIGURE 8 ROI Of Hosted Service Decreased By 3% With 15% Reduction In Charges For Premises Telephony And Voice Messaging**



instead of purchasing them separately (along with separate maintenance charges), the ROI advantage over a comparable premises system increased by 18 percent (Figure 5).

### Sensitivity To Resources

The base case assumes that the customer must commit considerably greater resources in order to plan, implement and manage a premises-based system, compared with a hosted system. The baseline assumptions for the premises-based system include 0.2 man-years for planning (includes all financial and technical planning, business and project management) and 0.21 man-years of ongoing system/network planning and management each year. These figures represent a small potential implementation (about 50 users), and scale up as the system size increases.

In order to determine the sensitivity of the ROI to these resource requirements, both the initial and ongoing planning resources for the premises-based system were decreased by 50 percent (basically assuming that the CPE implementation could be made more resource-efficient). The result was that the ROI of the hosted service was reduced by 54 percent (Figure 6).

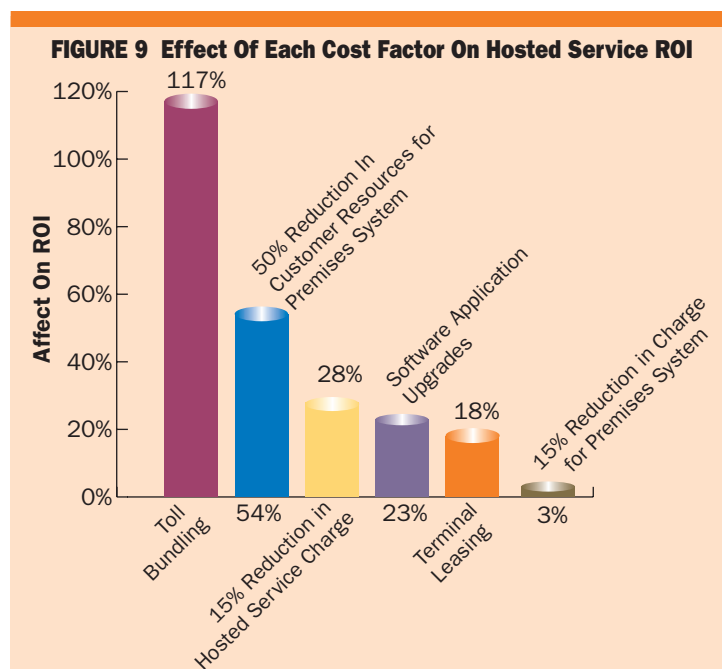
While the 0.2 man-years involved in implementing a small system may seem negligible (and the above numbers may be conservative), there are two points to keep in mind:

1. In a small-system environment, some of the people needed to plan and manage the system have other functions, and reducing the amount of time needed to plan and manage the telecom system frees them up to perform other duties. While the customer will not see a direct difference in the bottom line associated with these costs (they are not going to lay off a fraction of a person), there is a hidden cost associated with diverting these resources to manage telecom, and this is largely removed in a hosted environment.

2. The numbers used in this analysis will scale up when larger systems are being implemented, and can start to affect the actual cost of resources (e.g., freeing up a full person can be used to offset the need for a new hire). Thus the analysis here should be viewed as directional and scalable.

### Sensitivity To Changes In Base Prices

The model used in this analysis assumed (as shown in Table 1) that the charges for hosted IP-telephony and hosted voice messaging were \$30 per user per month and \$8 per user per month,



respectively. (These assumptions were based on InfoTech’s research with existing hosted IP-telephony services.) Reducing these charges by 15 percent resulted in a 28 percent improvement of ROI (Figure 7).

By comparison, the model used in this analysis assumed (as shown in Table 1) that the purchased prices for the premises IP-telephony and voice messaging systems were \$160 per user and \$36 per user, respectively (based on InfoTech’s research with PBX vendors). Reducing these charges by 15 percent resulted in only a 3 percent decrease in the ROI of the hosted service (Figure 8).

The reason this decrease was so small is the fact that, as shown in Figure 1, equipment and installation accounted for only 16 percent of the total CPE costs over 5 years. Other costs such as toll services, and operations and administration (maintenance charges) are significant factors in the total costs incurred by customers with premises-based systems, tending to “swamp” out the effect of a cut in equipment prices.

On the other hand, the 15 percent reduction in hosted services charges is much more effective than a 15 percent reduction in premises system charges in improving the ROI of the solution, because, as shown in Figure 2, the hosted service charges account for more than 76 percent of the total costs over the 5-year period.

### Conclusion

Figure 9 summarizes the impact of each cost factor on the overall ROI results. While toll bundling clearly has the largest effect, the other areas analyzed contribute significantly to the overall financial results. In the absence of a toll bundling offer, these other areas would represent some of the key decision factors. Even with toll bundling, their cumulative impact would be considerable□

**Price breaks on a service translate to greater savings than do price breaks on equipment**