

How IP Voice Services Saves Money

An IPVS TCO Whitepaper

May 2013



HOSTED
COMMUNICATIONS
SERVICES

How IP Voice Services Saves Money

Total Cost of Ownership of IPVS versus PBXs and ISDN

Why understanding the Total Cost of Ownership is important

Communications companies selling IP solutions have the challenge of combating entrenched legacy ISDN and PBX solutions. One of the key tools for showing the benefits of an IP solution is a Total Cost of Ownership analysis of IP versus legacy. This White Paper will give you, our resellers of IPVS, ammunition for informed conversations with your customers about how IPVS can reduce their costs of voice network ownership.

In this White Paper BT Wholesale demonstrates the immediate and longer-term savings of investing in an IP Voice Services (IPVS) solution. Through detailed analysis this paper introduces a TCO model for the following scenarios:

- IPVS Hosted Unified Communications (UC) versus PBX with ISDN
- SIP trunking versus ISDN

BT Wholesale's IPVS resellers can use this TCO model to:

- Identify the sweet spots for IPVS where cost reduction arguments are strongest
- Identify the additional benefits of IPVS beyond headline prices
- Identify the hidden costs of legacy solutions

TCO analysis methodology

The TCO model uses a series of inputs based on a typical set of costs and components used in order to create a robust solution.

Main Inputs:

- Wholesale prices have been used, to reflect the buy-in costs of resellers
- The TCO models were built from the bottom-up, with all major components identified and costed.
- The TCO models have excluded items which are optional or not readily quantifiable. However, these items are important so they are investigated in 'The advantages of IPVS versus the hidden costs of PBXs' section of this white paper.
- The IPVS Hosted UC versus PBX with ISDN scenario is for a customer that is considering buying a new PBX.
- The SIP Trunking IPVS versus ISDN scenario assumes the customer wishes to retain an existing PBX.

If you want to read about the inputs and assumptions, please go to the Appendices 1 and 2.

What does TCO mean?

The standard definition of Total Cost of Ownership is, a financial estimate to help decision makers determine the direct and indirect costs of a product. It is specifically used to assess the viability of a capital investment. TCO's are valuable in that they go beyond 'headline prices' and look at the full life costs of an investment.

What is IPVS?

IP Voice Services is made up of two different white label services, which can be bought separately or combined. It gives you the flexibility to offer your customers a solution that's exactly right for them:

IPVS Hosted Unified Communications (UC) is a fully managed, end to end IP centrex solution for you and your end users. So there's no need for a PBX.

IPVS SIP Trunking is a bridge between the legacy and next-generation technology, allowing your customers to keep their existing investment in PBX and handsets.



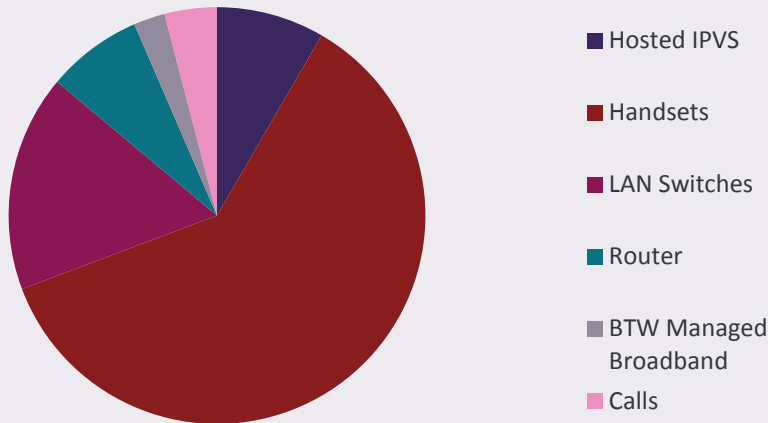
Findings from the TCO model

IPVS Hosted Unified Communications versus PBX & ISDN

The most useful periods to investigate in a TCO are the upfront and recurring costs over three years. The upfront costs are very important because this is what impacts cash flow immediately. This is the case particularly for SMEs where cash flow is the oxygen of their success or failure. The endpoint for the TCO calculation has been taken as three years, because this is a typical time period to justify an investment. It is of course possible to take longer time periods for a TCO and these have been investigated in this paper as well.

So how does IPVS Hosted UC compared to a PBX with ISDN30 for a 50 seat installation? Focusing on the upfront capital expenditure, IPVS Hosted UC incurs significantly lower costs than the PBX solution. **In this case saving 59% - The IPVS has less than half the setup costs of a PBX solution.** So end customers immediately see the benefit of the hosted solution. Why? An IPVS implementation does not have the high capital outlay required for the purchase and installation of a CPE solution. In fact in any size of installation, IPVS Hosted UC will have lower start-up costs than a PBX with ISDN.

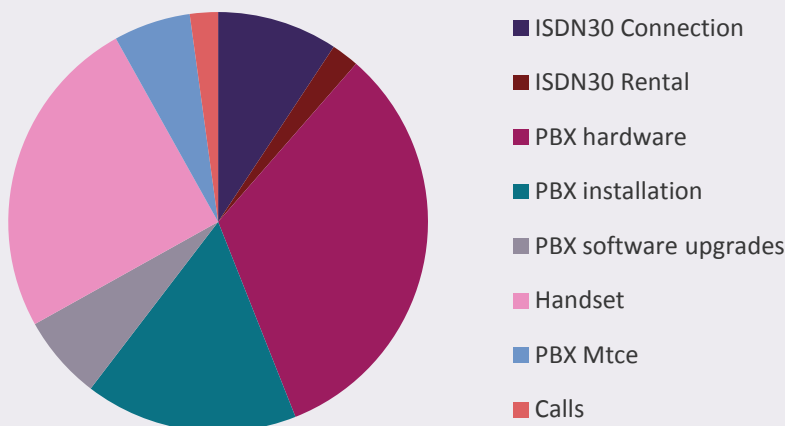
Chart 1. IPVS Hosted UC, 50 seats, month 1 costs



IPVS Hosted UC
TCO after
1 Month =

£4,499

Chart 2. PBX+ISDN30, 50 seats, month 1 costs



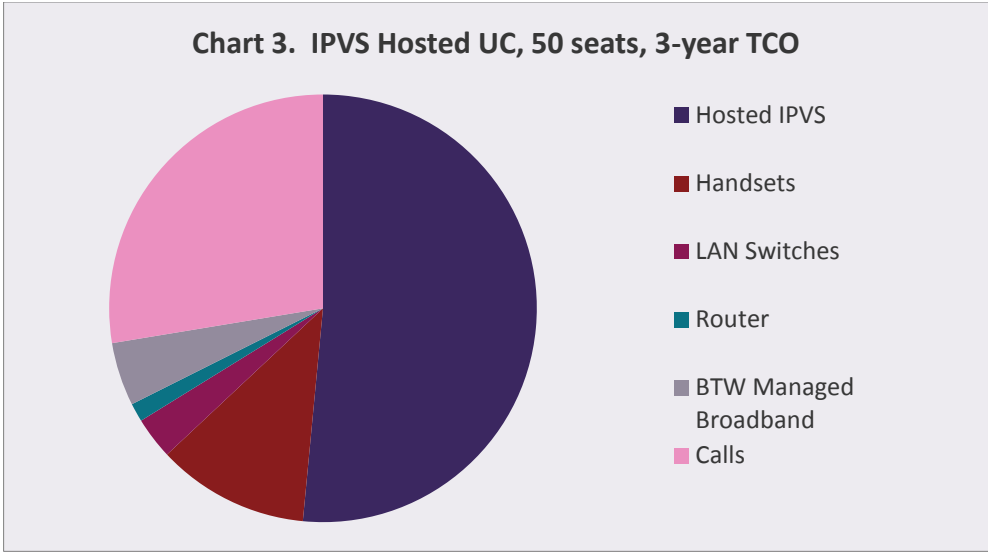
PBX+ ISDN
TCO after
1 Month =

£10,999

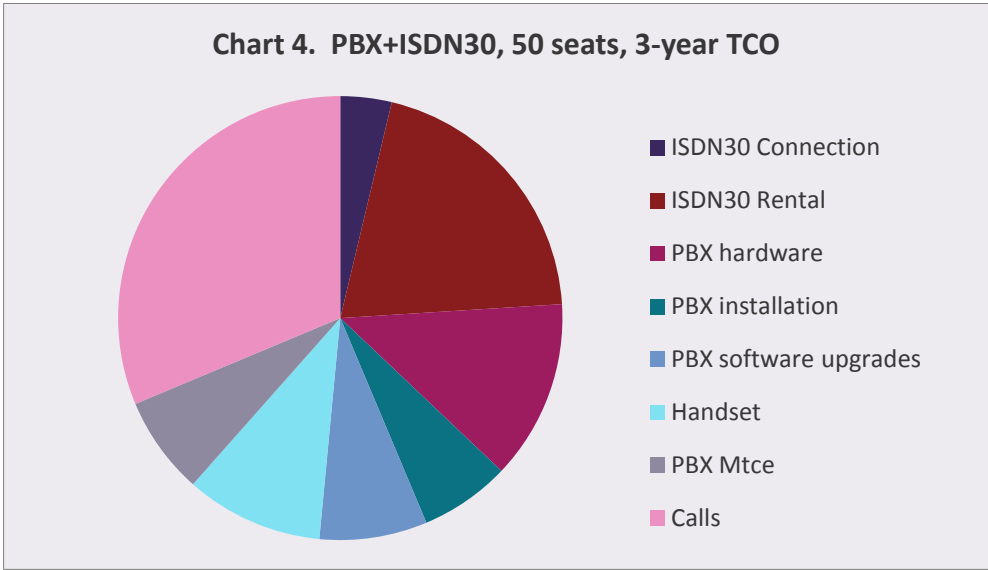


But what happens over the long term to the TCO? Again using the 50 seat IPVS versus ISDN30 with PBX comparison, the IPVS Hosted UC has a **13% lower TCO over 3 years**. The key reasons for the lower IPVS TCO are the reduced in-life costs of using BT Wholesale Broadband Complete, low IP call costs and the lack of software upgrade charges.

An IPVS solution in any scenario will have lower calling costs than the equivalent ISDN solution due to calls being carried by Internet Protocol (IP). This gives free on-net calls and lower off-net calls, as calls are switched back to PSTN/mobile network for termination using BT Wholesale's award-winning IP Exchange. IP Exchange allows VoIP traffic to interface with fixed lines, international & mobile networks. It's a clearing house solution that makes switching calls between next generation & legacy services invisible to your customers.



IPVS Hosted UC
TCO after
3 years =
£23,799



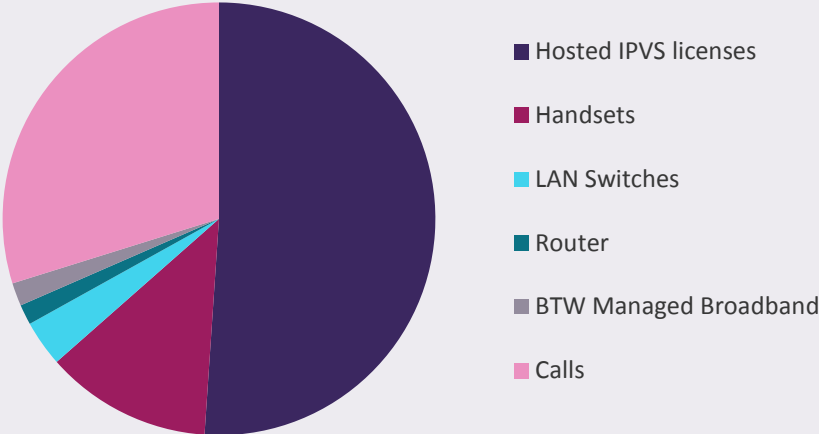
PBX + ISDN
TCO after
3 years =
£27,393



What about multiple sites?

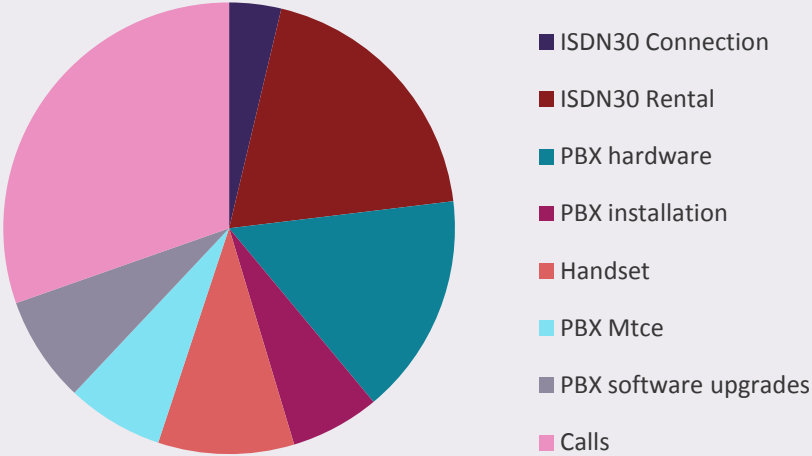
The following scenario includes 3 sites each having 50 seats. Using the TCO model, the IPVS Hosted UC solution is **22% more cost-effective over three years**. This demonstrates how the lower TCO of IPVS solutions is replicated in multi-site scenarios as each site needs a PBX, whereas the IPVS solution has a virtual PBX 'in the cloud'.

Chart 5. IPVS Hosted UC, 3 x 50 seat sites, 3-year TCO



IPVS Hosted UC
TCO after
3 years =
£66,095

Chart 6. PBX+ISDN30, 3 x 50 seat sites, 3-year TCO



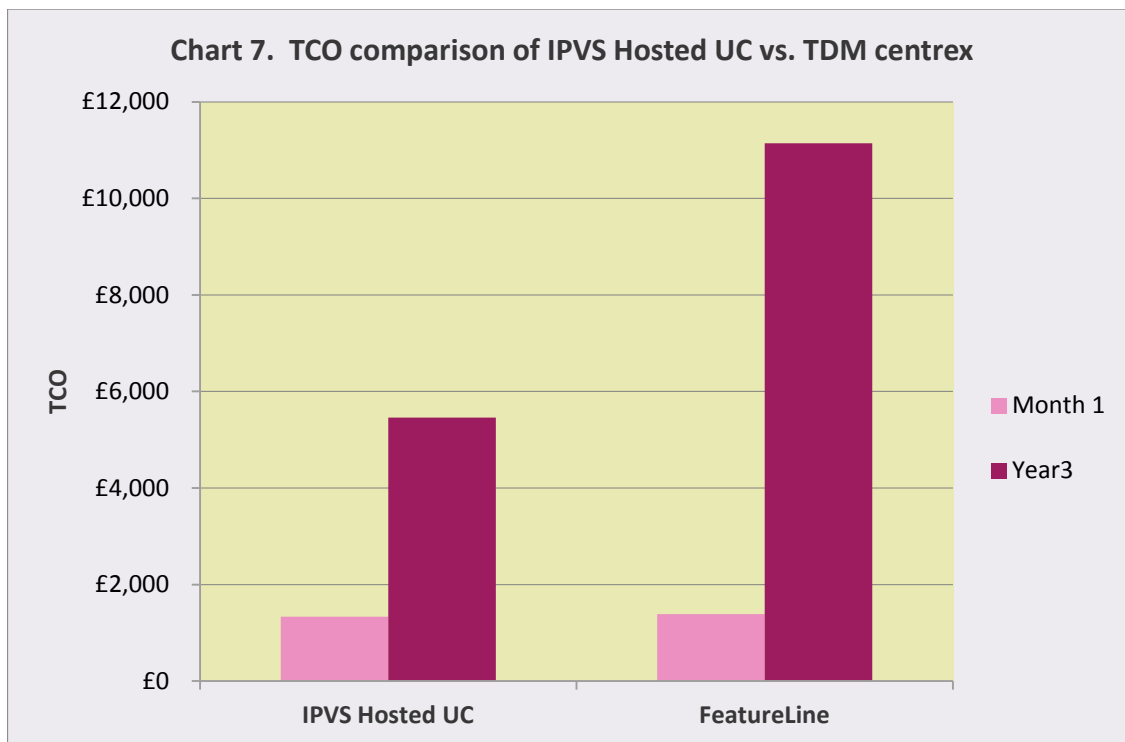
PBX + ISDN
TCO after
3 years =
£84,717



IPVS Hosted UC versus legacy TDM Centrex

A number of organisations have moved to a shared model via a Time Division Multiplexing (TDM) centrex platform. In the chart below a comparison has been made between the TCOs of IPVS & TDM centrex (FeatureLine) for a 10-seat installation. In this specific scenario the IPVS Hosted UC solution is clearly more cost effective. TDM centrex TCO figures can be complicated to calculate due to the very many configurations and tariffs available, however the key messages are:

- IPVS Hosted UC will typically be **at least 30% lower than equivalent TDM Centrex service** regardless of the number of seats. This is because:
 - On-net calls between sites are charged for with TDM Centrex (it's free on IPVS)
 - Costly 'long lining' small remote sites to a 'centrex exchange' (IPVS license costs are the same regardless of location)
- At larger TDM Centrex sites the equipment requires considerable space and electrical power (IPVS has a lower carbon footprint, resources are shared more efficiently between customers in the cloud)
- TDM Centrex often has complex calling options, so customers may not be on the best tariff (IPVS has 3 clear call tariff levels)



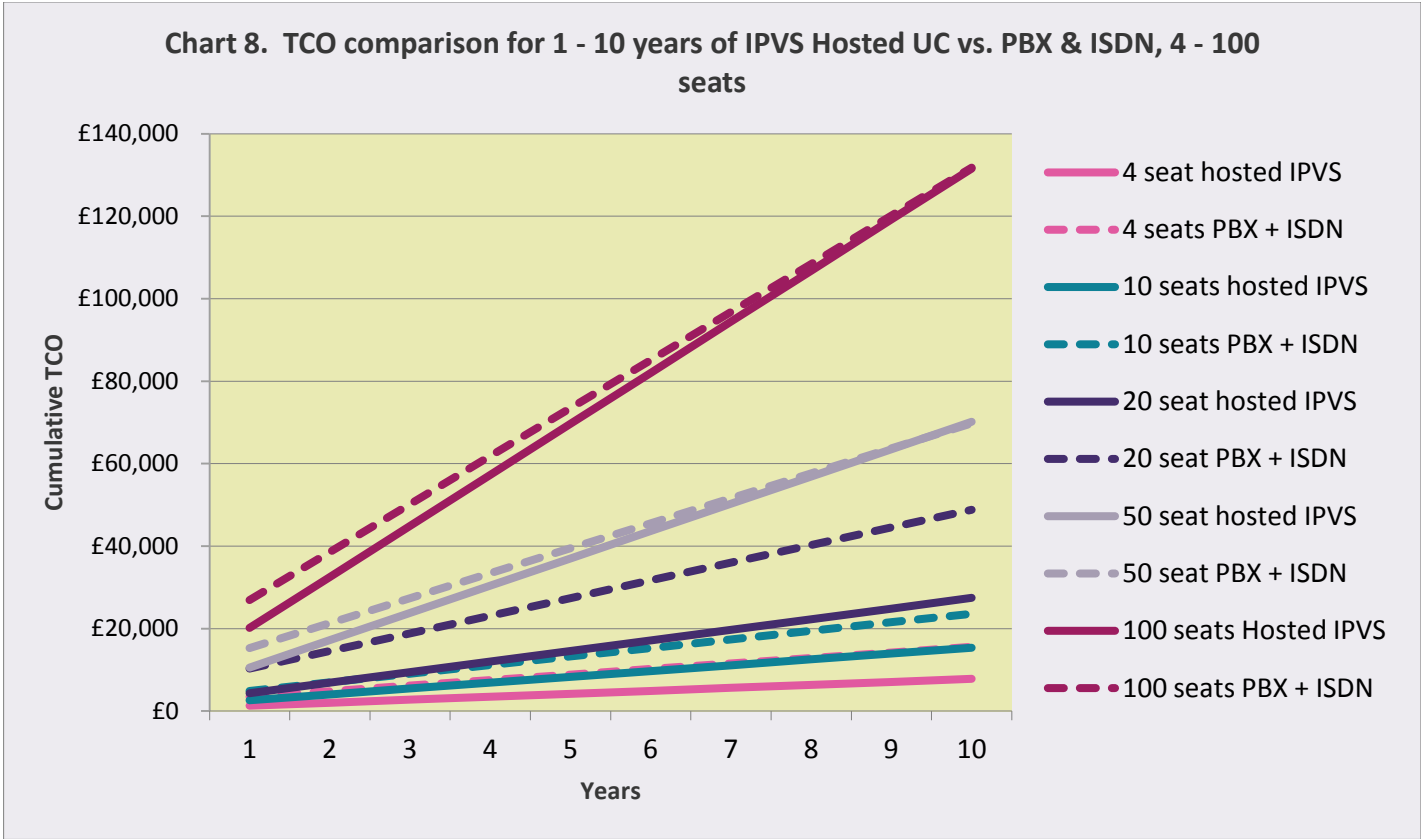
Source: IPVS pricing & www.bt.com FeatureLine, 3 year contract retail prices



What happens to the Hosted UC TCO over longer periods of time?

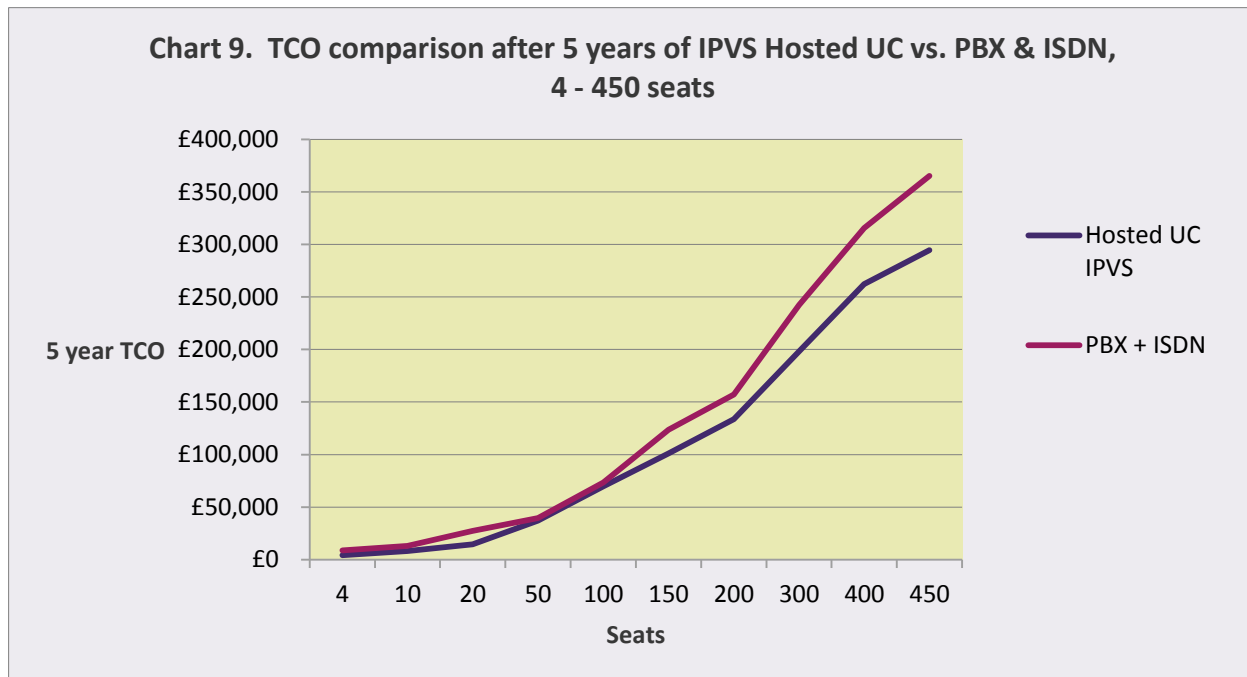
Some customers use time periods longer than 3 years for business cases, so the TCOs up to 10 years have been investigated. The cost saving benefits of IPVS Hosted UC over PBX & ISDN continue to grow over time for site sizes 4 - 20 seats. In the case of 50 & 100 seat sites, the TCO of each alternative equalise at around nine years. Most customers don't run business cases out 10 years, but even if they do, your customer should consider the hidden costs of PBXs. **The hidden costs of PBXs swing the argument in favour of the hosted solution.** These costs are examined in the White Paper section, "The advantages of IPVS versus the hidden costs of PBXs".

The TCOs for 150-1000 seats are lower for IPVS Hosted UC compared to PBX & ISDN in all time periods. Their TCOs are shown up to year 5 in appendix 3.



Where are the sweet spots for IPVS Hosted UC versus PBX & ISDN?

Sales channel resources are already stretched, so how can an IPVS reseller target the most winnable deals? A sweet spot analysis was carried out on site sizes 4-1000 seats by looking at the TCO over five years. **Two sweet spots emerged: one at 20 seats and another at 150 seats and above.** These can be seen in the chart on this page by the distance the blue hosted line is below the red PBX + ISDN line. The 1000 seat figures were left off the chart, due to scaling issues, but the pattern established at 150 seats continues. The 20 seat sweet spot is driven by the low cost of copper broadband access versus ISDN30. The 150 seat and above sweet spot is possibly driven by low cost of fibre broadband access.



IPVS Hosted UC: Summary

The most important drivers for the lower TCOs of IPVS Hosted UC versus PBX/ISDN are:

- Start-up costs are significantly higher with PBXs
- Call costs are lower with IPVS because calls are originated using Internet Protocol
- Network access costs for broadband are very much lower than ISDN
- PBX vendor's have an ongoing charge for software upgrades



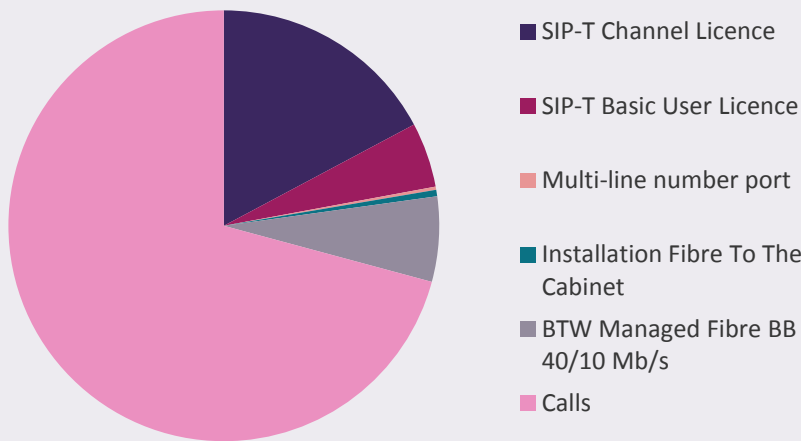
Comparing the TCO of IPVS SIP Trunking to ISDN30

In this scenario the customer has decided they wish to retain their PBX but replace their ISDN30 lines with IPVS SIP Trunking. This is a common situation with millions of ISDN lines still in service.

A 150 seat scenario has been selected for analysis. The Month 1 costs for both alternatives are similarly low as there are no capital expenditures. The real difference comes when we look at the 3-year TCOs. Here the IPVS SIP Trunking option is **37% lower than using ISDN30**.

A SIP-T solution is very attractive as it allows customers to replace ISDN30 with lower cost broadband, while at the same time retaining their investment in their PBX and handsets. Furthermore, customers get lower calling costs through free on-net calls and lower off-net calls, as off-net calls are switched back to PSTN/mobile network for termination via BT Wholesale's IP Exchange.

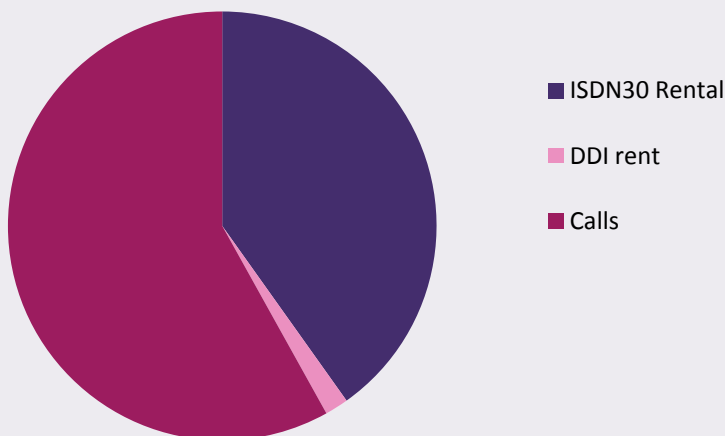
Chart 10. SIP-T IPVS, 150 seats, 3-year TCO



IPVS SIP-T
TCO after
3 years =

£16,625

Chart 11. ISDN30, 150 seats, 3-year TCO



ISDN30
TCO after 3
years =

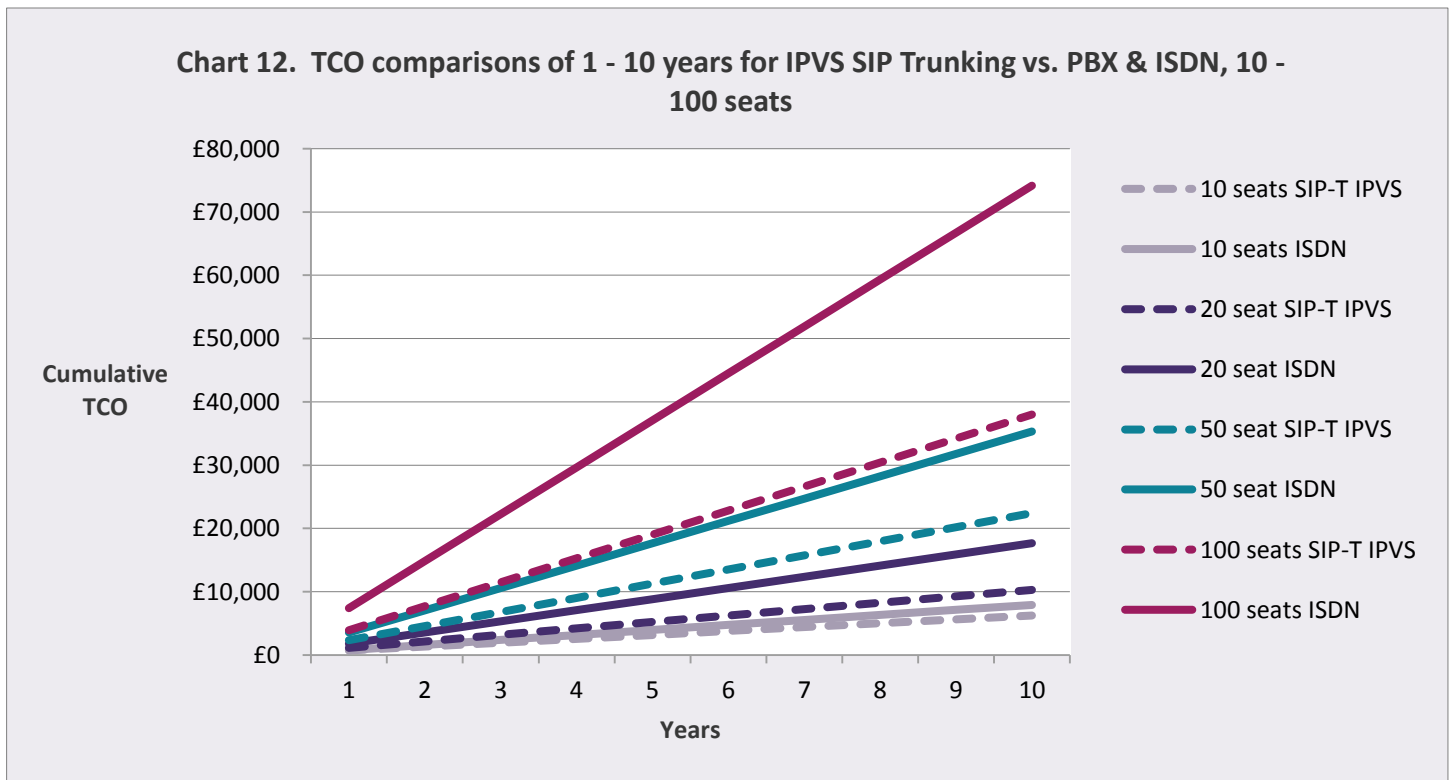
£26,465



One of the characteristics of the PBX market is very great variety of vendors & models. IPVS has interoperability with all of the leading vendors, and for those outside of this list a media gateway is used to connect IPVS SIP-Trunking to the PBX. These typically cost in the range of a few hundred to low thousands of pounds. That means even with the addition of a media gateway the TCO for SIP-T is still very attractive. SIP Trunking vendors should always check with the end user's PBX manufacturer for compatibility with SIP Trunking.

What happens to the SIP-T Trunking TCO over longer periods of time?

The chart below shows a long-term time-series out 10 years for 10-100 seat scenarios and compares the TCO of IPVS SIP Trunking to ISDN30. IPVS SIP Trunking has a clearly lower cost than the alternative in all time periods. This pattern is replicated for 150-1000 seat sites. The TCOs up to year 5 for site sizes 4 -1000 seats are shown in appendix 3.



The advantages of IPVS versus the hidden costs of PBXs

The analysis so far has focused on identifiable costs in order to build a transparent and credible TCO model. There are also less apparent costs when comparing hosted solutions with PBX/ISDN. These cost items can be critical in helping your customers make the decision to move to IPVS, as this is an area in which IPVS really wins out against the older technologies.

Disaster Recovery

The disaster recovery options available for PBXs come at a price. This is because few single site businesses can justify duplicating their PBX at a separate location. Multi-site businesses do have the opportunity to duplicate their PBXs at separate sites but this requires more capital investment.

IPVS's Disaster Recovery options are built into the license cost:

- IPVS is a fundamentally resilient service with geographically separate servers with dual routing between them, at no extra cost.
- If the local access network has an issue, customers can still receive inbound calls with IPVS, using the various Call Forwarding options to any phone/mobile/laptop.
- IPVS also can redirect calls from one site to another if there's an issue at a specific site. The PBX could only achieve this using Openreach's 'Diverse Routing', but this requires purchasing additional ISDN30s.

A lower cost future with IPVS

One item in the TCO analysis of PBXs deserves a deeper look, is the on-going cost for software upgrades.

PBX software is costly to keep up-to-date, typically at an annual cost of 20% of the initial PBX price - that's equivalent to buying a new PBX every 5 years. In addition to incremental software updates, customers are often pushed towards paying for full upgrades. It's not unusual for PBX vendors to support no more than two older versions of their software. This forces many customers to repurchase their PBX after five years. And what's worse, some PBX vendor's are moving towards annual cycles for major releases so customers may be forced to repurchase their PBX every two years!

Furthermore, there are other costs in addition to the software charges. These are the cost of skilled technicians to do the upgrade, who will be doing the work at night or weekends. Sometimes upgrades require the purchase of new hardware as well.

Customers with smaller site sizes, for example less than 100 seats, often do not take the upgrade package. However customers with larger estates or who are risk intolerant have no option but to pay for the upgrades.

Things are simpler and less costly with IPVS as there are no charges for software upgrades. Customers always get the latest IPVS version at no additional cost.



Flexibility

A hosted solution offers greater flexibility than a PBX:

- Deployment of IPVS Hosted UC is quicker than a PBX.
- PBXs require site surveys and complicated integration with LAN/WAN infrastructure.
- IPVS has lower installation costs because the solution is already set up 'in the cloud'. Project management is limited to install of end users.
- It's quick and easy to add additional end-user licenses to cope with growth on IPVS. However, with a PBX this may require additional hardware and installation charges.
- IPVS Hosted UC allows customers to cut costs quickly, our resellers typically offer one-year contracts for licences. Whereas the upfront costs of a PBX can't be recovered.

Reducing carbon footprint

The power consumption of PBXs is an issue for customers because of the increasing cost of electricity and the environmental impact of power generation:

- IPVS has a lower overall carbon footprint than PBXs, as large numbers of customers share the same computing resource.
- There is no additional charge for electricity using IPVS compared to a PBX.
 - A PBX/server running 24/7 using only 200W @ 15p/kWh would cost £260/year.

More IPVS advantages and PBX hidden costs

There are costly PBX extras, which are worth pointing out to your customers. These have not been included in the TCO calculations unless stated, as these are optional or difficult to quantify:

- Customers often have spare hardware on which to run PBX software, but if not the customer will need to purchase a PC or server.
- PBX vendors offer a number of optional extras, at a price, such as sophisticated call logging. A typical cost for this option would be a few hundred pounds.
 - IPVS Hosted UC provides straightforward call logging for free.
 - PBX vendors charge extra for voicemail, IPVS Hosted UC Advanced & Mobile licences includes voicemail at no extra cost.
- PBX solutions may only work with a limited range of the vendor's phones. These phones can be premium priced. IPVS is compatible with low as well as high-end phones.
- Some customers want the reassurance of having guaranteed power for their PBX, so they invest in an Uninterruptable Power Supply (UPS). These can cost £10,000.
 - IPVS has dual platforms hosted on separate servers in secure data centres.
- The pain of high upfront PBX costs can be mitigated by leasing deals, offered with low interest rates. But even low interest rates have a cost.
 - The license structure for IPVS is designed to have low upfront costs.
- Day-to-day management of a hosted solution is less of an overhead than a PBX.
 - While IPVS can't claim to reduce headcount, it could free up some of the time spent administering a PBX, so the people involved can move onto more productive activities.
- When a PBX reaches the end of its life, it needs to be disposed of to comply with WEEE (Waste Electrical and Electronic Equipment) regulations.
 - With IPVS this is not a concern for resellers or customers as platform disposal is the service provider's responsibility.



Conclusions

This White Paper has sought to answer comprehensively questions about the Total Cost of Ownership of SIP Trunking and Hosted UC voice versus PBX and ISDN solutions. The answer very clearly is that in almost all circumstances IPVS Hosted UC is lower cost than a new PBX and ISDN. What drives this low-cost position?

1. No upfront capital expenditure required for IPVS Hosted UC
2. Low-cost and high bandwidth fibre or copper broadband access
3. Lower overall call costs due to free on-net calling and off-net calls being IP originated and delivered for termination via BT Wholesales IP Exchange
4. PBX vendor's have an ongoing charge for software upgrades

In cases where cost isn't the overriding factor for your customer, the hidden costs of PBXs swing the argument decisively the way of IPVS.

With SIP Trunking versus ISDN the cost reduction benefits are even clearer in favour of the IPVS solution. Copper or fibre broadband access is so much lower in cost than ISDN30.

What can you do?

We hope we have given you plenty of ideas to introduce in your conversations with your customers, about the range of benefits of IPVS Hosted UC and SIP Trunking. We would like you to use this White Paper:

- To build winning pricing quotes using the ideas presented here
- To show how IPVS can reduce costs for your customer
- To show how IPVS avoids the hidden costs of owning a PBX

For general information on IPVS:

https://www.btwholesale.com/pages/static/Products/Voice/IP_Voice_Services/index.htm

If you have any questions or wish to share some ideas on how TCOs can help you sell more IPVS, then please get in contact with me:

philip.hayden@bt.com

0203 328 1166



Appendix 1: Major assumptions used in this paper

1. The IPVS Hosted UC vs. PBX/ISDN scenarios are being installed at a new site or as a complete replacement for an existing voice system.
2. Prices were obtained from the following BT sources: BT Wholesale product lines, BTserveassure, BT Wholesale eCatalogue, INET, Openreach, www.dabs.com and www.bt.com.
3. Wholesale prices (ex. VAT) have been used to reflect the buy-in costs of resellers, except in the TDM Centrex scenario in which retail prices were used for FeatureLine.
4. The prices used as of April 2013. Although price changes will occur over time, we expect the main principles of the TCOs to remain true.
5. On-site wiring costs have not been included in IPVS or PBX/ISDN TCOs. This is because these can be variable depending on site geography, however they would be similar for both technologies.
6. User training is assumed to be the same for IPVS & PBXs.
7. PBX-ISDN channel contention ratios used are those typical of an office environment.
 - ISDN Channels : End Users (DDIs)
 - 4 : 10
 - 8 : 20
 - 10 : 30
 - 15 : 50
 - 20 : 100 (same ratio used for 150-450 seat installations)
 - 180 : 1000

A call centre would have a higher number of ISDN channels to end users.
8. The IPVS Hosted UC licence to end user ratios used were 1:1 in all scenarios.
9. The IPVS SIP Trunking channel license to end user ratios used were the same as the PBX-ISDN channel contention ratios.



Appendix 2: How the TCO models were built

The tables below detail the TCO cost items in providing an IPVS Hosted UC versus PBX + ISDN 30 for a 50 seat site. Ongoing costs are shown in the Opex column and upfront costs in the Capex column. The important figures to look at are costs in month 1 (is it affordable for your customer today?) and the final 3 year TCO (what is the real cost of this investment?).

Example of bottom-up cost build of IPVS Hosted UC on a new site

Chart 13. IPVS - Hosted Unified Communications 50 seats											
Note	Item	Qty	Rate	Opex	Capex		Month 1	Month 2	Year 1	Year 2	3-year TCO
1	Hosted Licence (premium inc.voicemail)	50	£5.95	£298	£0		£298	£298	£3,570	£3,570	£10,710
2	Reception Console (Per License)	1	£41.95	£42	£0		£42	£42	£503	£503	£1,510
1	Number sub allocation	50	£0.75	£0	£38		£38	£0	£38	£0	£38
3	Handsets (Polycom SoundPoint IP331 + Pre-Configuration)	50	£54.79	£0	£2,740		£2,740	£0	£2,740	£0	£2,740
3	Cisco SRW248G4P-K9-UK (48-port Managed Switch PoE)	1	£531.00	£0	£531		£531	£0	£531	£0	£531
3	Linksys SRW208MP-K9-UK (8-Port Managed Switch PoE+)	1	£226.00	£0	£226		£226	£0	£226	£0	£226
3	Cisco 887V Integrated Services VDSL2 Over POTS Router (FTTC) CISCO887V-K9	1	£334.00	£0	£334		£334	£0	£334	£0	£334
4	Installation Fibre To The Cabinet	1	£80	£0	£80		£80	£0	£80	£0	£80
4	BTW Managed Fibre Broadband 80/20 Mb/s with 100Gb/month	1	£29.48	£29	£0		£29	£29	£354	£354	£1,061
5	Calls	50	£3.65	£183	£0		£183	£183	£2,190	£2,190	£6,570
				£551	£3,948		£4,499	£551	£10,565	£6,617	£23,799

1. An advanced IPVS Hosted UC user license for an employee that works mostly from a desk and some of the time on the move. This licence includes voicemail and a toolbar for smart phones for no additional cost.
2. IPVS reception console have been included to improve manageability.
3. To keep costs competitive a base model phone from Polycom was selected, with Power over Ethernet LAN switches that connect all the phones to a VDSL2 router. This router is designed to work with Fibre to the Cabinet Broadband. Prices were sourced from BT Wholesale eCatalogue and www.dabs.com
4. BT Wholesale Broadband Complete 80/20 (80Mb/sec downstream and 20 Mb/sec upstream) was selected using the assumptions:
 - Maximum of 15 simultaneous calls plus an additional 20% capacity. This is a typical office profile.
 - A G711 codec was selected for the voice calls as this provides good call quality with 106kb/sec for each voice channel.
 Alternatively, an Ethernet circuit could be used, however the higher service quality of this would come at a higher price.
5. The call costs are based on a typical IPVS profile of an end-user on the service.



Example of bottom-up cost build of a PBX & ISDN30 on a new site

Chart 14. ISDN30 + PBX (1 line / 15 channels + 50 extensions)										
Note	Item	Qty	Rate	Opex	Capex	Month 1	Month 2	Year 1	Year 2	3-year TCO
1	ISDN30 Connection	1	£900.00	£0	£900	£900	£0	£900	£0	£900
1	ISDN30 channel connection	15	£5.50	£0	£83	£83	£0	£83	£0	£83
1	ISDN30 Rental	15	£9.84	£148	£0	£148	£148	£1,771	£1,771	£5,314
1	DDI planning charge	1	£81.57	£0	£82	£82	£0	£82	£0	£82
1	DDI connection	50	£0.81	£0	£41	£41	£0	£41	£0	£41
1	DDI rent	50	£0.09	£4	£0	£4	£4	£52	£52	£156
2	PBX software	1	£3,581	£0	£3,582	£3,582	£0	£3,582	£0	£3,582
2	PBX installation	1	£1,804	£0	£1,804	£1,804	£0	£1,804	£0	£1,804
3	PBX support	1	£652.10	£652	£0	£652	£0	£652	£652	£1,956
4	PBX software upgrades	1	£716.35	£716	£0	£716	£0	£716	£716	£2,149
5	Handset	50	£55.00	£0	£2,750	£2,750	£0	£2,750	£0	£2,750
6	Calls	50	£4.77	£238	£0	£238	£238	£2,859	£2,859	£8,578
				£1,759	£9,240	£10,999	£390	£15,291	£6,051	£27,393

1. The standard PBX access service, ISDN30, pricing from Openreach.
2. An Avaya IP Office PBX (a popular PBX from a leading vendor) with voicemail and installation costs.
3. 24/7 support was added to the costs, as it is the level of engineering support provided with Hosted IPVS.
4. On-going software upgrades (for bug fixes etc.) for the PBX at the rate of 20% of the value of the PBX per annum, a typical rate.
5. To keep the costs competitive and comparable to the IPVS Hosted UC TCO a low-end handset was selected.
6. The call costs are based on an IPVS calling profile but using typical Wholesale Calls rate card pricing.



Example of bottom-up build for SIP Trunking IPVS

Chart 15. IPVS SIP-Trunking (30 Channels 150 Users)

Note	Item	Qty	Rate	Opex	Capex		Month 1	Month 2	Year 1	Year 2	3-year TCO
1	SIP-T Channel Licence	30	£3	£80			£80	£80	£954	£954	£2,862
2	SIP-T Basic User Licence	150	£0	£23			£23	£23	£270	£270	£810
3	Multi-line number port	1	£40		£40		£40	£0	£40	£0	£40
4	Installation Fibre To The Cabinet	1	£80		£80		£80	£0	£80	£0	£80
4	BTW Managed Fibre Broadband 80/20 Mb/s with 100Gb/month	1	£29	£29			£29	£29	£354	£354	£1,061
5	Calls	150	£2	£327			£327	£327	£3,924	£3,924	£11,772
				£458	£120		£578	£458	£5,622	£5,502	£16,625

1. The IPVS SIP Trunking channel licence is directly equivalent to an ISDN channel, one ISDN channel = one SIP-T licence.
2. The basic user IPVS SIP Trunking license allows the user to make calls on their existing IP phone with the same functionality, through their PBX.
3. Multi-line number port is the charge to retain the customer's current numbering plan when their numbers are "ported" to IPVS SIP Trunking. The multi-line number port charge is for a continuous number range e.g. DDIs xxx1000 to xxx1149 in this example.
4. Wholesale Broadband Complete 80/20 (80Mb/sec downstream and 20 Mb/sec upstream) was selected using the assumptions:
 - Maximum of 30 simultaneous calls plus an additional 20% capacity. This is a typical office profile.
 - A G711 codec was selected for the voice calls as this provides good call quality with 106kb/sec for each voice channel.
5. Alternatively, a retail Ethernet circuit could be used, however the higher service quality of this would come at a higher price.
6. The call costs are based on a typical IPVS end-user profile on the service.

Example of bottom-up build for ISDN30 supporting a PBX

Chart 16. PBX + ISDN30 (1 line/30 channels & 150 users)

Note	Item	Qty	Rate	Opex	Capex		Month 1	Month 2	Year 1	Year 2	3-year TCO
1	ISDN30 Rental	30	£9.84	£295	£0		£295	£295	£3,542	£3,542	£10,627
1	DDI rent	150	£0.09	£13	£0		£13	£13	£156	£156	£468
2	Calls	150	£2.85	£427	£0		£427	£427	£5,123	£5,123	£15,370
				£735.15			£735	£735	£8,822	£8,822	£26,465

1. The standard PBX access service, ISDN30, pricing from Openreach.
2. The call costs are based on an IPVS calling profile but using typical Wholesale Calls rate card pricing.



Appendix 3: Summary of 5 year TCO analyses by site size

Summary table of 5 year TCO analysis for IPVS Hosted UC vs. PBX & ISDN

Chart 17. Summary of TCOs 1 - 5 years for IPVS Hosted UC vs. PBX+ISDN					
	1	2	3	4	5
4 seat hosted IPVS	£1,299	£2,021	£2,743	£3,465	£4,187
4 seats PBX + ISDN	£3,491	£4,831	£6,172	£7,512	£8,852
10 seats hosted IPVS	£2,631	£4,044	£5,457	£6,870	£8,283
10 seats PBX + ISDN	£4,907	£6,986	£9,064	£11,142	£13,220
20 seat hosted IPVS	£4,338	£6,903	£9,468	£12,034	£14,599
20 seat PBX + ISDN	£10,316	£14,591	£18,867	£23,142	£27,418
50 seat hosted IPVS	£10,565	£17,182	£23,799	£30,417	£37,034
50 seat PBX + ISDN	£15,291	£21,342	£27,393	£33,444	£39,496
100 seats Hosted IPVS	£20,164	£32,541	£44,918	£57,296	£69,673
100 seats PBX + ISDN	£26,913	£38,562	£50,211	£61,860	£73,509
150 seats Hosted IPVS	£28,701	£46,838	£64,975	£83,113	£101,250
150 seats PBX + ISDN	£48,128	£67,020	£85,912	£104,803	£123,695
200 seats Hosted IPVS	£37,995	£61,892	£85,789	£109,687	£133,584
200 seats PBX + ISDN	£60,605	£84,777	£108,949	£133,121	£157,293
300 seats Hosted IPVS	£56,454	£91,871	£127,288	£162,706	£198,123
300 seats PBX + ISDN	£93,394	£130,620	£167,846	£205,072	£242,298
400 seats Hosted IPVS	£74,590	£121,527	£168,464	£215,402	£262,339
400 seats PBX + ISDN	£121,544	£170,066	£218,588	£267,111	£315,633
450 seats Hosted IPVS	£83,658	£136,355	£189,052	£241,750	£294,447
450 seats PBX + ISDN	£141,175	£197,158	£253,142	£309,125	£365,109
1000 seats Hosted IPVS	£184,479	£300,890	£417,301	£533,712	£650,123
1000 seats PBX + ISDN	£290,951	£411,120	£531,289	£651,459	£771,628

Summary table of 5 year TCO analysis for IPVS SIP Trunking vs. ISDN

Chart 18. Summary of TCOs 1 - 5 years for IPVS SIP Trunking vs. ISDN					
	1	2	3	4	5
4 seat SIP-T IPVS	£504	£881	£1,258	£1,636	£2,013
4 seats ISDN	£361	£722	£1,082	£1,443	£1,804
10 seats SIP-T IPVS	£735	£1,344	£1,952	£2,561	£3,170
10 seats ISDN	£792	£1,584	£2,376	£3,168	£3,960
20 seat SIP-T IPVS	£1,142	£2,157	£3,173	£4,188	£5,204
20 seat ISDN	£1,767	£3,533	£5,300	£7,067	£8,833
50 seat SIP-T IPVS	£2,349	£4,578	£6,806	£9,035	£11,264
50 seat ISDN	£3,531	£7,062	£10,593	£14,124	£17,655
100 seats SIP-T IPVS	£3,906	£7,692	£11,477	£15,263	£19,049
100 seats ISDN	£7,416	£14,832	£22,249	£29,665	£37,081
150 seats SIP-T IPVS	£5,622	£11,124	£16,625	£22,127	£27,629
150 seats ISDN	£8,822	£17,644	£26,465	£35,287	£44,109
300 seats SIP-T IPVS	£10,770	£21,420	£32,069	£42,719	£53,369
300 seats ISDN	£17,644	£35,287	£52,931	£70,574	£88,218
450 seats SIP-T IPVS	£15,918	£31,716	£47,513	£63,311	£79,109
450 seats ISDN	£26,465	£52,931	£79,396	£105,862	£132,327
1000 seats SIP-T IPVS	£34,592	£68,983	£103,375	£137,766	£172,158
1000 seats ISDN	£56,450	£112,901	£169,351	£225,802	£282,252





The information in this publication was correct at time of production. We may make minor alterations to the specifications of products which do not affect their performance, and may vary prices and delivery charges.

The telecommunications services described in this publication are subject to availability and may be modified from time to time. Services and equipment are provided subject to British Telecommunications plc's respective standard conditions of contract. Nothing in this publication forms part of any contract.

© British Telecommunications plc 2013.
Registered Office: 81 Newgate Street, London,
England EC1A 7AJ.
Produced by BT Wholesale.
Designed by Jacob Bailey.

Email clientreception@bt.com or call

0800 671 045

www.btwholesale.com