

# Unified Communications

## Product Study: cycos mrs vs. Cisco Unified Communications

Version 1.04



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## Management Summary

It is not only since the key players in the industry, Microsoft and Cisco, discovered the subject for themselves that Unified Communications (UC) has been on everybody's lips. cycos and other providers have been operating in this segment of the market much longer and selling mature UC products for many years. This product study compares mrs (multimedia routing software), a highly scalable Unified Messaging and contact center solution from cycos, with Unified Communications products from Cisco, such as its Unified Messaging solution Unity. The two differ considerably, both in functional and in economic terms, especially with regard to the range of functions they offer, their scalability and their integration capability.

Cisco offers Unity in the versions Unity Express and Unity Connection for small and medium-sized businesses, and as Unity Unified Messaging for large enterprises. The product provides the user with an inbox for incoming voice mails and fax messages. However, in the "small" versions this cannot be integrated into groupware, so contradicting the basic concept of Unified Messaging. Additional UC functions are offered by other products, such as Cisco Unified Presence Server and Cisco Unified Contact Center. Unity is part of Cisco's portfolio of Unified Communications which, of course, enables the various Cisco products to be integrated well, and presents users with a homogeneous look and feel. This means that complex communications solutions are possible, especially if the network infrastructure and telephony solution are also from Cisco. Once a homogeneous communications solution of this kind has been implemented, operating costs are assessable and the migration costs for adding further Cisco services are kept to a minimum. However, at the same time, the decision to invest in Unity also constitutes a permanent commitment to Cisco's product portfolio. Combining it with products from other suppliers is only possible with considerable effort and involves making concessions in functionality. The inclusion of a voice solution from a third-party supplier is usually possible, for example, but is not available "off the shelf".

mrs Version 7, on the other hand, does not yet cover the complete spectrum of Unified Communications. However, it not only offers the user voice mail, fax and text messaging, but also CTI functionality and presence services – plus functions such as Automatic Call Distribution (ACD), Interactive Voice Response (IVR), campaign management and reporting. Its successor version, mrs 8.0, due for release in the fourth quarter 2008, will add instant messaging and Web conferencing to the spectrum. The wide range of functions and the open interfaces make mrs a very attractive product. Since it is compatible with many different voice solutions, it is of special interest to businesses without a homogeneous Cisco infrastructure. The middleware design of mrs with wide support of third-party products, and a high level of expandability also facilitate a soft migration from pure telephony with voice mail right through to complex value-added applications. Unlike Cisco, there are no artificial boundaries between different versions within the licensing model, making a change of version due to a rapidly growing number of users unnecessary. At the same time, the costs of acquisition for small and medium-sized companies in particular are very attractive. In typical scenarios, these amount to only about half the costs of a corresponding Cisco solution. In addition, small and medium-sized scenarios have much lower hardware requirements. This means that particularly when introducing Unified Messaging and Unified Communications with the aid of mrs, considerably lower hurdles have to be negotiated both from an economic and a technical point of view.

## 1. Introduction

Cisco dominates the network infrastructure market. However, its product portfolio increasingly serves the telephony and Unified Communications (UC) requirements of customers as well. In this study we intend to examine how a Unified Communications specialist like cycos performs in comparison to its networking-expert competitor. cycos mrs will be compared with Cisco Unity and other UC products with regard to the following points:

- target group and size of installation
- functionality
- integration and flexibility
- efficiency and costs.

Not only will a number of relevant technical details be examined, but also characteristics of the unique position held by each company.

## 2. Products

Below, we first describe the two products on which this study focuses. The actual comparison follows in the next section.

### 2.1 Cisco Unity

Unity is the current Unified Messaging (UM) product from Cisco. There are several versions available, addressing various requirements and offering a correspondingly different range of functions. Unity Express and Unity Connection are aimed at the small and medium-sized company sector, while Unity Unified Messaging is directed toward large enterprises.



Fig. 1: Cisco Integrated Service Routers

(a) 2800 series, (b) 3700 series with Unity Express network module, (c) 3800 series

As the “leanest” version, Unity Express is designed for operation on selected Cisco Integrated Service Routers (ISRs). It supports a maximum of 250 mailboxes and allows simultaneous processing of up to 24 voice mail sessions, depending on the version purchased. Unity Connection also addresses the small and medium-sized business market in the form of a single appliance for up to 3,000 users. For enterprises with up to 500 employees, a single-server installation with the Cisco Unified Communications Manager can

be implemented. In contrast to Unity Express and Unity Unified Messaging, it allows user-defined routing of incoming calls. The third version, Cisco Unity Unified Messaging (CUUM), is tailored to the large enterprise segment. According to the data provided by Cisco, it supports between 1,000 (single server) and 250,000 users.

All the products enable the user to receive voice mails and fax messages in a private inbox. With the “small” versions of Unity, this inbox cannot, however, be integrated into groupware and so contradicts the basic concept of Unified Messaging. Unity’s integration capabilities are also limited, depending on the version used. Unity Express can only be operated in conjunction with a telephone system from Cisco. In recompense, it offers an integrated IVR system which enables customers to create an interface to their business processes. To integrate Unity Connection or CUUM, recourse must be taken to telephony gateways or Cisco Unity Bridge in most cases.

Cisco covers functionality that goes beyond voice mail, fax and access to a mailbox by phone with other, specialist products. The Cisco Unified Presence Server, for example, provides presence information, and Cisco Unified Contact Center offers functions such as Interactive Voice Response (IVR) and Automatic Call Distribution (ACD).

Unity’s licensing model normally offers license packages in steps of 25, 50 or 100 users. These packages also contain the server licenses and a basic number of module licenses, e.g. for eight concurrent voice mail sessions and one text-to-speech session. These bundles can then be expanded by upgrade licenses (for additional voice channels, for example) and single-user licenses.

## **2.2 cycos mrs**

mrs (multimedia routing software) is a scalable Unified Messaging and contact center solution from cycos. It can be expanded with additional functionality from cycos’s own portfolio or from third-party suppliers, irrespective of the number of users. According to the data provided by cycos, the solution scales from small companies right through to scenarios with up to 150,000 users. Scenarios with more than 40,000 users for pure UM and a large number of CTI users have already been implemented.

mrs enables users to receive and send voice mails, fax messages and text messages. Incoming messages can be placed either in a separate message store or integrated in a groupware system (True Unified Messaging - TUM). cycos offers access to the message store or – in the case of a TUM installation – to the groupware account by phone. In addition to Unified Messaging, mrs also provides CTI functionality and presence services. A further focus is on contact center functions. Automatic Call Distribution (ACD) is offered, as are IVR, campaign management and reporting. Further Unified Communications services will be made available by the successor version, mrs 8.0, due for release in the fourth quarter 2008: support for instant messaging, Web conferencing and application sharing.

cycos sees mrs as central middleware for enterprise communications (see Fig. 2). It resides between the telephone system and business applications and can – depending on the size of the installation – be operated centrally or distributed over a number of servers. In addition to native support of proprietary systems from diverse suppliers, cycos offers connection via SIP. Many commonly used systems, such as the Cisco CallManager range or the Siemens HiPath series, for example, are certified as compatible. CTI can also be implemented with the majority of these systems. Compatibility with other voice mail systems is guaranteed thanks

to the VPIM and AMIS standards. To integrate UM into business processes, interfaces to various databases and CRM systems are offered.

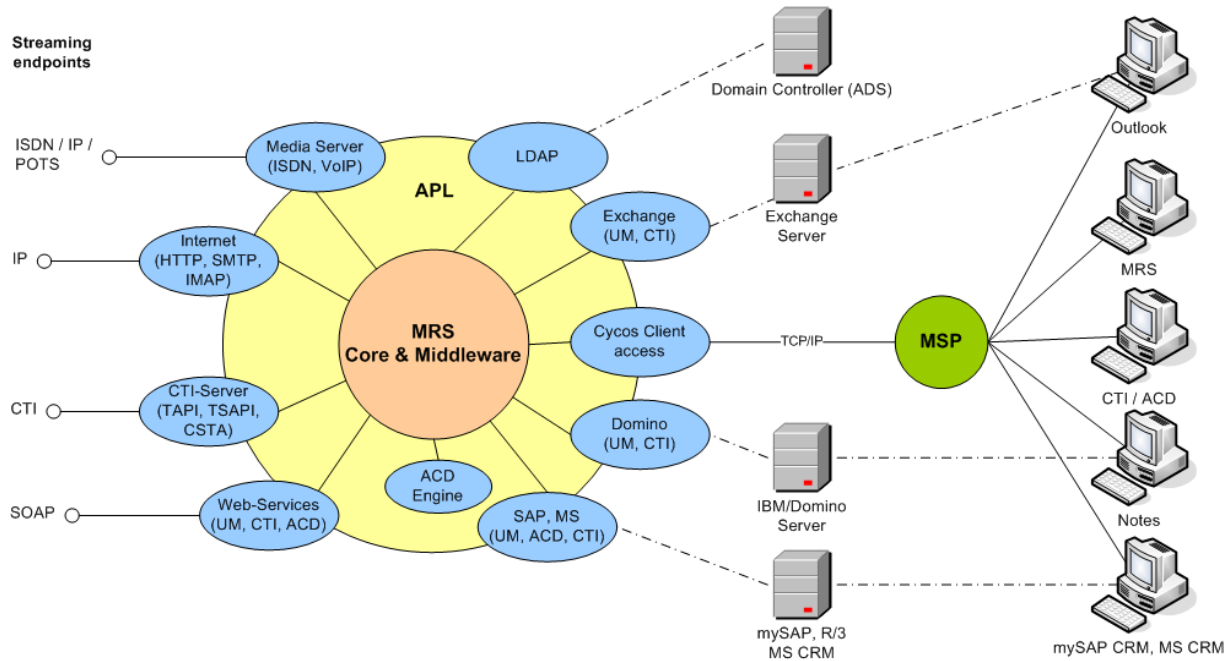


Fig. 2: cycos mrs integrated into an existing IT infrastructure

The licensing model is primarily client-based. Client licenses are available in a large number of gradations: between one service (fax or text messaging or voice mail) and Advanced Unified Messaging (AUM, i.e. Unified Messaging + CTI), and can be combined as required. For special applications, such as contact center ACD, add-on licenses are offered that are not linked to people. Expansions, such as special connectors to business applications, are licensed according to the same method. The client licenses already include the costs for the server software and all the standard modules required. If mrs is to be operated as a fail-safe cluster, the price of the client licenses is increased by 20 %. The licensing model for server applications, such as IVR, is channel-based and relates to the number of lines used in parallel.

### 3. Product Comparison

To enable a comparison of the two products to be made, they must first be classed within the context of Unified Communications. The functionality of Cisco Unity is almost exclusively restricted to the area of Unified Messaging. Beyond that, the contact center and fixed mobile convergence are the only areas touched upon (Fig. 3, top).

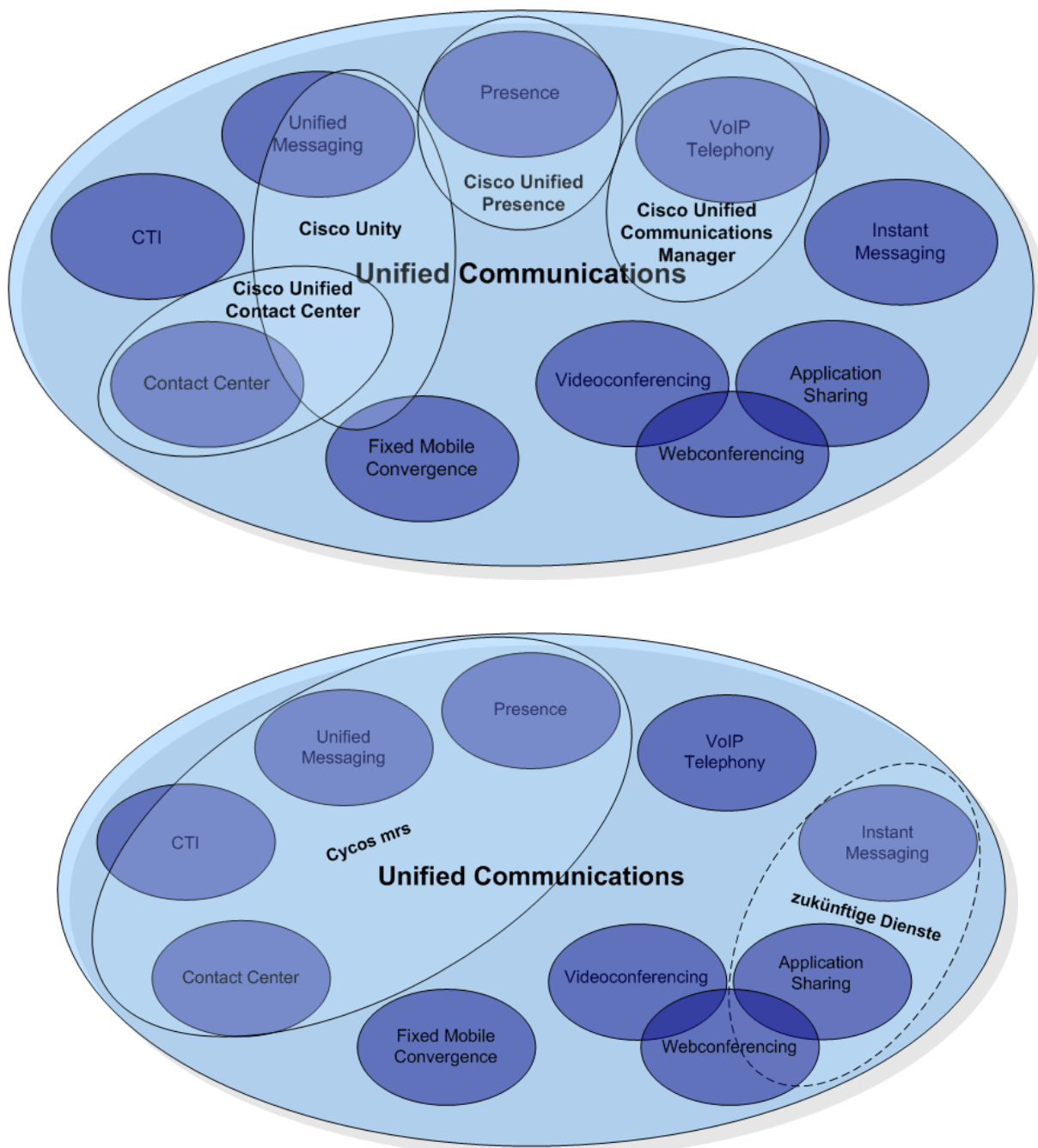


Fig. 3: While Cisco Unity (top) alone concentrates almost exclusively on voice mail and UM, cycos Mrs (below) also covers the presence, CTI and contact center areas

In the broadest sense, the IVR capabilities of Unity Express originate from the contact center area, even if the range of functions offered does not approach that of a full-fledged contact center solution. This is why, for larger IVR installations in combination with Unity Connection and Unity UM, recourse is taken to Cisco's Unified Contact Center product. Cisco addresses the subject of fixed mobile convergence with its voice mail integration for mobile terminal devices. For the other areas of Unified Communications (except for instant messaging), Cisco offers separate products.

In contrast to Cisco, cycos has a high level of experience in the classic telephony market. As a middleware provider for telephony solutions, cycos has been able to bridge quickly to the world of VoIP and offers the complete Unified Messaging, CTI and contact center spectrum both for the conventional and IP-based communications markets. In the meantime, presence has also become an essential component of mrs. Other areas of Unified Communications are not yet served by cycos. The strength of cycos mrs unmistakably lies in its interoperability with products of other vendors. The new Version 8.0 adds instant messaging, application sharing and Web conferencing to the services available, enabling other aspects of Unified Communications to be implemented on the basis of mrs in the future.

The two companies differ distinctly in the area of Unified Messaging. Cisco obviously understands the term UM chiefly to mean voice mail. Not only receipt of voice mails has, of course, been implemented, but also a restricted recording and sending option (in response to voice mails received). The functionality offered for fax messaging is, however, more scanty: it only provides for receipt. In conjunction with Unity Connections and Unity UM, an additional fax server is required to send fax messages. Text messaging is completely ignored by Cisco. cycos mrs supports both receipt and dispatch of all three messaging types. It is not only possible to send and receive text messages via GSM modem, but also via SMS Large Connector. This type of IP-based link to a provider network enables text messaging to be used even in scenarios involving a very high volume of communication, e.g. when text messages are employed for advertising purposes or as a marketing tool. So, in terms of supporting different communications channels, mrs is superior to Unity.

Another serious disadvantage of the Cisco product is that the small and medium-sized business versions Unity Express and Unity Connection do not support True Unified Messaging (TUM). Instead of integrating – or at least replicating – the message store into a groupware system, a separate message store is set up on the Unity appliance. This increases administration effort and prevents access to groupware functionality by phone. Unity is therefore tantamount to an answering machine that also understands fax. Why this restriction is made in the small and medium-sized business sector, even though the technology required is available, is a mystery. It is no doubt based on the assumption that a small enterprise neither possesses groupware nor shies away from the costs of maintaining a further message entry point per user. cycos offers a TUM option for mrs, irrespective of the number of users. The user-based licensing model means that even quite small companies can afford this functionality.

A further point of criticism regarding Unity Express is that it is only available as a hardware module for a Cisco Integrated Service Router. The assumption that every company with up to 250 employees should have a router of this kind can be understood from Cisco's point of view. Nevertheless, the wish was no doubt father to the thought. The object of introducing UM and UC cannot be to break down every network installation to fit the specifications of one individual supplier. So, it only makes sense to use Unity Express if this router is already available or a network consolidation based on Cisco hardware is planned, and restricted functionality can also be accepted.

### **3.1 Integration**

The example of Unity Express as an integrated service demonstrates the sorts of questions that – in addition to the technical characteristics of the individual products – every IT decision maker asks when introducing Unified Communications. These include:

- Will the network need to be restructured before the product can be used?

- Can the product grow with the network?
- Can the existing infrastructure continue to be used and be integrated?
- Which applications and processes can be integrated and optimized?
- What costs are to be expected?

The essence of all these questions is whether a product can be seamlessly integrated into an existing infrastructure and thus achieve the greatest possible added value. The question about costs is directly related to this, since the costs for any necessary restructuring, new acquisitions and operation normally outweigh by far those of licensing the product. Efficient integration is therefore the key question that no decision maker can avoid. If a product eats up its own added value, it is worthless.

When it comes to integration, Cisco clearly relies on its own portfolio of products. As a successful infrastructure provider, it is taken completely for granted that Unity will be deployed in conjunction with other Cisco products. In addition to the Cisco Unified Communications Manager as a telephone system (CUCM, previously known as the Cisco CallManager), Cisco offers a range of other products, such as presence server, Web conferencing and contact center solutions. Unity can be integrated into an IT environment made up of these products without difficulty. Unity Express, in particular, can only operate if the telephone system used is the CUCM. Unity Connection and Unity UM, on the other hand, can also be operated with telecommunication systems from other suppliers if (Cisco) gateways are deployed.

Existing UM or voice mail systems from other vendors can, however, only be integrated with Unity UM. The “smaller” versions simply do not support the Audio Message Interchange Specification (AMIS). Expressed in plain terms, this means that, as Cisco sees it, an enterprise must have at least 500 employees (a size from which it would make sense to use Unity UM) before a new external location or subsidiary can be linked up. In any other case, the new location would be forced to purchase Cisco Unity – regardless of whether it already had a voice mail solution or not. This certainly limits the growth of a corporate network.

cycos does not offer such a wide-ranging product portfolio. Up to now, its focus has clearly been on Unified Messaging, CTI, presence and the contact center area. The instant messaging and Web conferencing services the market is demanding will be offered with the upcoming Version 8.0. The company’s conception of itself as a provider of telephony middleware results from this concentration on UC services. As cycos cannot fall back on products of its own in the areas of telecommunication systems and other network components, broad compatibility of mrs with products of other vendors is the logical consequence. The portfolio of natively supported telecommunication systems is enhanced by generic connection via SIP. This not only applies to pure telephony. Fax services and text messaging can also be implemented through standard conformity without difficulty. In addition to the integration into commonly used groupware systems already mentioned, linkage to other UM products by means of standards such as Voice Profile for Internet Mail (VPIM) and AMIS, as well as a number of supplier-specific protocols is also possible. This means that external locations with self-sustaining voice mail systems can be seamlessly integrated into an mrs environment.

### 3.2 Scalability

The wealth of different Cisco products offered for the various areas of Unified Communications can certainly be understood with regard to the modularization and flexibility of large installations. However, it also clearly restricts use in small and medium-sized companies. The possibility of consolidating installations on the same hardware is very limited. Unity Express can be operated on the same hardware with Unified Communications Manager Express, for example. Presence services cannot, however, be integrated into such a small installation. The consequence: a large number of servers that have to be maintained. An installation that provides telephony, presence, voice mail and – for part of the workforce – contact center functionality, would thus require at least three to four servers. If fax dispatch is to be integrated into desktop applications, an additional fax server would be needed. This complexity is something a smaller company would probably want to avoid, especially since it would have to replace an existing telephone system with the CUCM.

A very large enterprise, on the other hand, would only rarely be discouraged by this hardware complexity, because a large number of users always requires corresponding capacities. Since Unity UM would be deployed, there would not be any problems integrating existing telecommunication and voice mail systems in many cases. The scalability of individual services in line with the number of users is certainly a welcome side effect of the wide-ranging product portfolio. A disadvantage for very large installations is the complicated licensing procedure. The manual activation of user licenses, and the fact that they are tied to server instances cause problems in redundant and distributed installations, unnecessarily complicating solutions for server failover and roaming of users between corporate locations.

Cycos achieves scalability by modularizing mrs. For this purpose, all the services and interfaces have been designed around a central core, the mta (message transfer agent). Additional services such as presence, or applications such as Automatic Call Distribution, can therefore be selected from the vendor's portfolio and added to the system. It is irrelevant whether the module runs on the same server as the core or, for performance reasons, is located on another server. Scaling can therefore range from small, consolidated installations right through to very large installations. The upper limit for the size of an installation is only restricted by the performance of the mta. This means that the upper limit of a Cisco installation (250,000 users according to Cisco) cannot be reached, but the maximum number of 150,000 users specified by cycos covers the vast majority of applications. Roaming users in distributed scenarios are no problem with mrs since all the licenses are administered by a central server instance and floating licenses (workstations used concurrently) are also available.

### 3.3 Scenarios

Two different scenarios were developed to examine the costs of acquisition. To maintain comparability, the highest common denominator regarding features was examined in each case. This applies, for example, to text message dispatch, which is not offered by Cisco as part of a Unity installation, but is already included in the licensing costs for cycos mrs. The list prices of both companies were taken as the basis for calculation and, in the case of Cisco, converted into euros at the exchange rate valid on January 28, 2008. For better clarity, the prices were rounded to whole thousands of euros. Project-related price reductions were not taken into account, only quantity discounts in accordance with the price lists. Prices for installation, service and training were not included either, since these are heavily dependent on the provider.

The first scenario is a medium-sized enterprise with 1,200 employees. All of these are to use Unified Messaging with functionality for receiving and sending voice mails and fax messages. CTI applications are not required. The company already has a SIP-capable PBX serving as an interface to its telecommunications. Microsoft Exchange, providing the central UM mailbox for each user, is deployed as groupware. Up to 64 voice sessions (incoming/outgoing voice messages, mailbox accesses) and eight fax sessions are to be possible at the same time. A three-language automated attendant (German, English, French) with 32 channels is available to the users. This enables phone access to the UM mailbox, further groupware functions (calendar etc.) and other functions such as number forwarding. The automated attendant is voice-driven and able to process messages via text-to-speech (TTS) in a maximum of eight concurrent sessions. In addition, two external locations, which have an AMIS- and a VPIM-compatible voice mail system, are to be linked up to the company's network. The servers of the Unified Messaging system are to operate redundantly.

Two MCS-7835 Media Convergence Servers running in failover mode form the basis for the Cisco solution. The server licenses required cost around 39,000 euros. This includes licenses for additional modules such as voice support or an AMIS module. Two IP media gateways are used for connection to a SIP PBX. The user licenses for a redundant environment cost a total of roughly 151,000 euros and include licenses for 64 voice channels and eight TTS channels. Outgoing faxes require a separate fax server that is also based on the MCS-7835. This, in turn, requires a T1 interface module for eight fax channels. The fax server, including the necessary software, comes to 32,000 euros. The sum total for the installation is 246,000 euros.

Item	cycos mrs	Cisco Unity UM
<b>1,200 user licenses</b>	€ 42,000	€ 151,000
<b>Server &amp; module licenses</b>	€ 76,000	€ 39,000
<b>Server hardware</b>	€ 12,000	€ 19,000
<b>PBX gateways</b>	--	€ 5,000
<b>Fax hardware and licenses</b>	€ 6,000	€ 32,000
<b>Total</b>	<b>€ 136,000</b>	<b>€ 246,000</b>

Table 1: Costs for scenario 1 (an enterprise with 1,200 users)

For the mrs installation, cycos requires two standard servers costing roughly 6,000 euros each. The 42,000 euros required for the user licenses include voice, fax and text messaging functionality and the fundamental server software. The 76,000 euros for modules include costs for the automated attendant, voice control, TTS and additional voice packages. Costs for networking modules (AMIS, VPIM), redundancy (cluster networking, 20 % license surcharge for redundancy) and SIP-capability of the voice channels are, however, also included. Eight fax channels cost roughly 6,000 euros, including hardware, whereby a fax interface is used that can also connect 30 voice channels via S2M. The total cost for hardware and licenses is therefore around 136,000 euros.

The second scenario is a large enterprise with 9,000 subscribers, the majority of which (8,000) are to be provided with Unified Messaging. The other 1,000 are to have Unified

Messaging, CTI functionality and presence services at their disposal. 60 agent workstations with additional queues in the company's own Sales Contact Center are to be provided, requiring workstation software and management functions such as on-demand recording and reporting. Automatic Speech Recognition (ASR) and TTS are to be available on 60 channels. 60 channels are also needed for fax receipt and dispatch. On the strength of average load assumptions, 240 VoIP channels are to be provided for voice access. As the infrastructure to be connected, a SIP-capable PBX and Microsoft Exchange as groupware are again available. Server redundancy is to be established for central services (UM, presence, CTI).

Item	cycos mrs	Cisco Unity UM
<b>9,000 user licenses</b>	€ 154,000	€ 1,132,000
<b>Server &amp; module licenses</b>	€ 325,000	€ 88,000
<b>1,000-user CTI</b>	(included in user licenses)	(third party, approx. € 100,000)
<b>Hardware</b>	€ 60,000	€ 123,000
<b>60-station contact center</b>	€ 161,000	€ 94,000
<b>60-channel fax</b>	€ 28,000	€ 127,000
<b>Presence: 1,000 users</b>	(included in user licenses)	€ 22,000
<b>Total</b>	<b>€ 668,000</b>	<b>€ 1,686,000</b>

Table 2: Costs for scenario 2 (an enterprise with 9,000 users)

Three MCS-7845 servers with dual CPU and 4-GB RAM are deployed as the basis for the Unity Installation. These are to operate redundantly. Hardware for the fax server and a redundantly operating presence server is also required, i.e. another three MCS-7845 servers. According to the list, the user licenses for Unified Messaging cost around 1,132,000 euros, the server licenses a further 88,000 euros. For the hardware, roughly 123,000 euros, including the SIP gateway, are required. Hardware and software for the fax and presence servers is calculated at a list price of 149,000 euros. The contact center is based on Unified Contact Center Express. This costs roughly 94,000 euros, including software for the agent workstations and two supervisor stations with reporting and on-demand recording. Since Cisco does not offer a CTI product for telephone systems from third-party vendors, a further 100,000 euros for 1,000 users has been calculated. The acquisition costs for the installation as a whole therefore come to 1,686,000 euros.

cycos mrs is operated on three servers, each with four 4-CPU cores and 4-GB RAM. These work redundantly and make up 10,000 euros per server of the total costs. 8,000 Unified Messaging licenses, 1,000 Advanced Unified Messaging (UM + CTI) and 60 ACD/AMD licenses are calculated. The latter already include the fees for the supervisor stations and agent software. Modules for reporting and on-demand recording must also be calculated, as well as module licenses for SIP channels, ASR and TTS. Including third-party modules, this comes to a total of 325,000 euros, plus the costs for user licenses and agent workstations. For fax services, hardware and software calculated at around 28,000 euros are required. A

presence service is already included in the Advanced Unified Messaging licenses. The mrs-based solution costs a total of 668,000 euros.

The scenarios described above provide an overview of the acquisition costs to be expected. The price calculation in the second scenario should be viewed with caution. Diverse customer-specific connection scenarios (CRM, ERP, databases in general) have not been taken into account and could cause considerable variations in the price. What is more, distributors of Cisco components often allow substantial price reductions for installations of such large dimensions. Another point to be considered is that, in scenarios of this size, it is not acquisition, but employee training, service and administration that account for the majority of the costs. This price calculation only covers the costs for licensing and hardware of the basic installations. If the above mentioned points are taken into account, the great difference in the total costs may be put into perspective. Since it can be assumed that the costs for integration and training will be similar for both providers, cycos, with its mrs-based solutions, is much more favorably priced than Cisco (a 45 % or even 60 % saving on the acquisition price).

## 4. Conclusion

With Unity, Cisco offers a further building block in its wide-ranging Unified Communications portfolio. For this reason, this product should also be considered from the point of view of its interoperability with other Cisco applications. This is the great strength but, at the same time, the great drawback of a UM solution from Cisco. For administrators and IT decision makers, a solution from a single source is extremely attractive when implementing large communications scenarios with a wide range of functions. This is especially true if the network infrastructure is from the same supplier. Simplified administrability and uniform service agreements may well counterbalance the higher costs of acquisition. The other side of the coin is the worry about investment dead ends. Should use of a Unified Messaging product be allowed to restrict the freedom of choice for other communications infrastructure? Definitely not, even if this course is often chosen for the homogeneity reasons previously mentioned. The problem of an investment dead end is accentuated even more if the product – now and in the medium term – does not offer all the functions required.

Unity offers a restricted range of Unified Messaging functions. First and foremost, it implements voice mail and also serves as the connecting link between groupware, telephone system and fax server. Other services, such as CTI, contact center or voice conferencing, for example, are covered by other, specialist products. This results in a high financial outlay for hardware and software acquisition – an outlay that often does not pay off, especially in very heterogeneous scenarios in which, for example, only part of the workforce uses presence services or contact center functionality. In many cases, use is not worthwhile for small enterprises either, since Unity Express, the version tailored to small and medium-sized businesses, also offers a considerably reduced range of functions. Splitting up the product into three versions has created artificial boundaries and prevents the steady growth of both functionality and the number of users. Growth beyond the defined boundaries requires a completely new investment.

cycos mrs 7.0 does not yet cover the entire spectrum of what is understood by Unified Communications. It offers a selection of functions – albeit a large one – the focus of which is clearly on UM, CTI and the contact center area. This currently makes mrs of less interest to enterprises purchasing a completely new Unified Communications solution, including telephone system, UM, video and Web conferencing and instant messaging. For greenfield scenarios of this kind (that are quite rare), the integration and administration effort increases

considerably if an alternative product has to be acquired for every service mrs does not offer. In the near future, instant messaging and Web conferencing are to be added to mrs, thus relativizing this disadvantage.

The strengths of mrs clearly lie in heterogeneous scenarios. Due to a gratifyingly wide range of Unified Messaging functions and a large number of special applications, cycos is able to offer suitable solutions even for enterprises with a very mixed workforce structure. This is especially true if existing infrastructure is to be integrated. Its middleware design and wide support of third-party products means that it can respond to the most diverse requirements.

The expandability of mrs with additional services also facilitates a soft migration from pure telephony with voice mail right through to complex value-added applications. The growth of a company with regard to locations and the number of employees is supported, since no artificial boundaries have been constructed through licensing levels. The degressive licensing model and the gradation of the end-user licenses from single service (voice mail only, fax only), to UM with CTI, right through to call center agents with the full range of functions enables optimal readjustment if requirements grow. Growth is only restricted by the server hardware deployed, but this can be expanded to a cluster solution if required. One installation can therefore grow to a maximum of 150,000 users. Although this figure is below the maximum number of 250,000 users specified by Cisco, enormous scenarios of this kind are only of limited relevance in practice.

Using Cisco Unity can make sense if large installations that include services cycos does not yet offer, are being planned from scratch, and uniform administrability and maintenance of all services are key criteria. In such cases, the high costs, high hardware requirements and limited flexibility can be accepted. If, however, no concessions are to be made with regard to UM functionality, flexibility and heterogeneity of the services used, preference should be given to cycos mrs. The comparatively low price in conjunction with a wide range of functions makes cycos mrs an extremely attractive solution both for small and medium-sized companies and large enterprises.