

***Implementing
Microsoft's OCS 2007
in Real-World Telephony
Environments***

***Getting the Benefits
Without Breaking the Bank***



White Paper

Implementing Microsoft's OCS 2007 in Real-World Telephony Environments – Getting the Benefits Without Breaking the Bank

Sponsored by: Genesys Telecommunications Laboratories

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Situation Overview

The big economic wins in this decade and the next will likely go to those enterprises that can streamline the flow of knowledge and information throughout their entire organization. Unified communications provides a framework for doing so. It enables real-time, ad-hoc knowledge and information flows by combining collaboration and conferencing capabilities such as presence, instant messaging, telephony, audio conferencing, web collaboration, unified messaging, mobility, and videoconferencing, through a simple and easy to use interface.

Microsoft is emerging as a dominant player in the unified communications market, and the company's long anticipated release of Office Communications Server 2007 and the Office Communicator client became generally available in October 2007. Voice communications are a critical element of a complete unified communications solution, and Microsoft has invested heavily in creating a robust voice model for Office Communications Server that provides not only intra-OCS voice communications, but also voice communications with desk telephones connected to the PBX and with mobile phones and other telephones accessible through the public switched telephone network (PSTN).

Microsoft has clearly invested heavily and for the long term in its unified communications product offering, and it has developed a significant advantage in the unified communications market in both mindshare and in the numbers of enterprises likely to try its Office Communications Server 2007 (OCS) solution. The figure below illustrates end user preferences for the top five unified communications product offerings in terms of current deployments and plans.

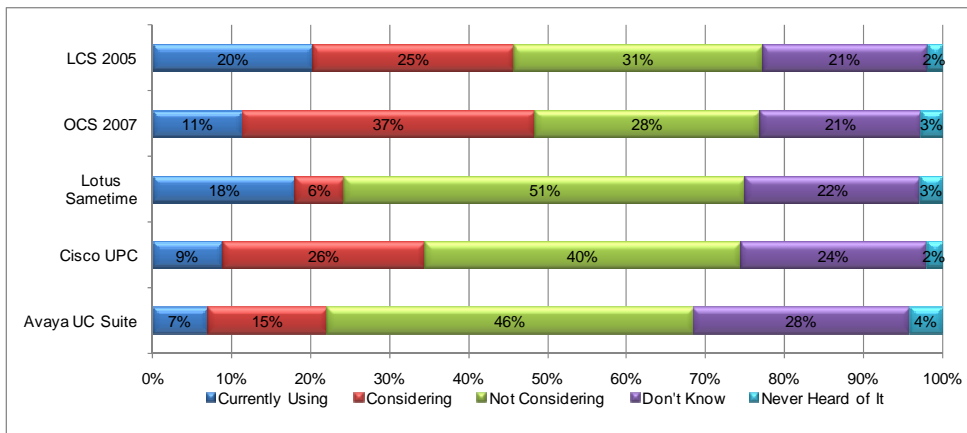


Figure 1: End user preferences for various unified communications solutions.



GENESYS
AN ALCATEL-LUCENT COMPANY

Solution Overview

Vendor Profile

Genesys
Telecommunications
Laboratories
Daly City, CA.

Business

Genesys is best known as one of the world's largest contact center software providers. Customers include 16 of the world's 20 largest telecom companies, 18 of the world's 25 largest commercial banks, 4 of the world's 5 largest airlines.

Solution

Genesys GETS is a middleware solution that enables over 100 IP and TDM PBXs to integrate seamlessly with Microsoft's Office Communications Server.

Benefits

- Voice-enables Microsoft's OCS unified communications solution.
- Utilizes existing PBX infrastructure with OCS
- Makes all OCS 2007 remote call capabilities available to all employees.
- Allows organizations to defer network and telephony upgrades making OCS deployment more affordable.
- Installed Cost: ~\$100/user

Source: Wainhouse Research Survey, June 2007

OCS 2007 provides two methods that organizations may use to integrate with existing telephone systems: Enterprise Voice and Remote Call Control (RCC). The key difference is where communications are managed. With Enterprise Voice, OCS manages the voice communications; with Remote Call Control, an enterprise PBX provides the call control.

An organization can use both Enterprise Voice and Remote Call Control simultaneously, if desired, and most of the calling and control features available are similar for either method. However, OCS allows an individual user to use only one or the other. Thus, some people in the company can be using Enterprise Voice while others use Remote Call Control. Regardless of the call control model users rely on, integrating OCS with the PBX or the PSTN enables some very compelling calling and control capabilities from within Office Communicator (see panel at right).

Although many organizations have indicated they want OCS's integrated calling capabilities, integrating OCS in regionally or globally dispersed organizations is very challenging. One of the primary difficulties is integrating OCS with the myriad telephone systems that exist throughout the corporation at the various enterprise locations. Several scenarios are possible, among which are the following:

- Upgrade the corporate intranet to support voice, rip and replace the entire corporate telephone infrastructure with a new IP PBX, and integrate OCS with this new phone system. The upside is clear: everyone will be on an IP system and every person will have access to the same OCS capabilities throughout the company. The downside is also clear: this may be a very expensive solution, and there may be locations within the company (i.e. South America, Africa, or parts of Asia) where upgrading the network is not economical.
- Upgrade locations across the company gradually with new network, new IP phone systems, and OCS capabilities. In this scenario, only users in the upgraded locations will have the ability to use OCS's call control capabilities. The upside is that less CAPEX is required all at once and an organization can migrate to IP and OCS progressively. The downside is that employees in different locations will have unequal communication and collaboration capabilities, which could stifle the flow of information throughout the organization.
- Keep the network and the telephony infrastructure relatively stable, only upgrading them as necessary, but implement middleware that integrates OCS with both IP and TDM PBXs,. Organizations will realize an upside of much less CAPEX required to have a full OCS/telephony integration available for all employees while at the same time having the capability to upgrade individual sites' networks and PBXs as needed. About the only downside of this solution would be that funds spent on the middleware solution are clearly not being spent on network or phone upgrades.

In the next section, we will explore a middleware solution from Genesys Labs branded GETS that enables almost any PBX – IP, legacy, or hybrid – to integrate with OCS. We will discuss the economics behind GETS, and we will describe the results one company using GETS with OCS has achieved.

OCS Remote Call Control Capabilities Enabled by GETS

- Click-to-Call
- Answer Call
- Clear Connection
- Deflect Call
- Hold Call
- Retrieve Call
- Consultation Call
- Single Step Transfer
- Transfer with Consultation
- Generate Digits (DTMF)
- Alternate Call
- Reconnect Call
- Set Forwarding
- Get Forwarding
- Missed Call Notification

Additional Call Control Capabilities with GETS

- Dynamic Multi-Line Control

(This capability allows users to control different phones/lines from the Communicator interface, even if these lines are physically connected to different PBXs. It is enabled by a custom tab in Office Communicator. Users click the custom tab, choose the extension they want to control, and restart Communicator (restart takes about one second).

- Highlight-and-Call

(This is like smart tags for names. But in this case, the operating system highlights any digits looking like a phone number or an extension in MS Office applications, Outlook, Internet Explorer, or Firefox. Users simply right click to place the call.)

How GETS Works

Conceptually, GETS is very simple. It sits between Office Communications Server and the PBX to translate OCS call control commands into commands the PBX and the telephone system understands. It also takes PBX commands and telephone handset off/on hook status and passes these to OCS. The GETS middleware uses the same robust mechanisms for communicating with the PBX that Genesys call centers have used for years.

The key elements in the GETS software are the OCS Adapter and the T-Server. The OCS Adapter accepts SIP call control commands directly from Office Communications Server. The T-Server knows how to communicate with each PBX. Call control commands from OCS arrive in the OCS Adapter. It translates them to generic call commands and sends them to the T-Server, and the T-Server passes these commands to the PBX in a protocol the PBX understands. Similarly, PBX commands and information destined for OCS go to the T-Server, through the OCS adapter, and into OCS itself using the SIP protocol.

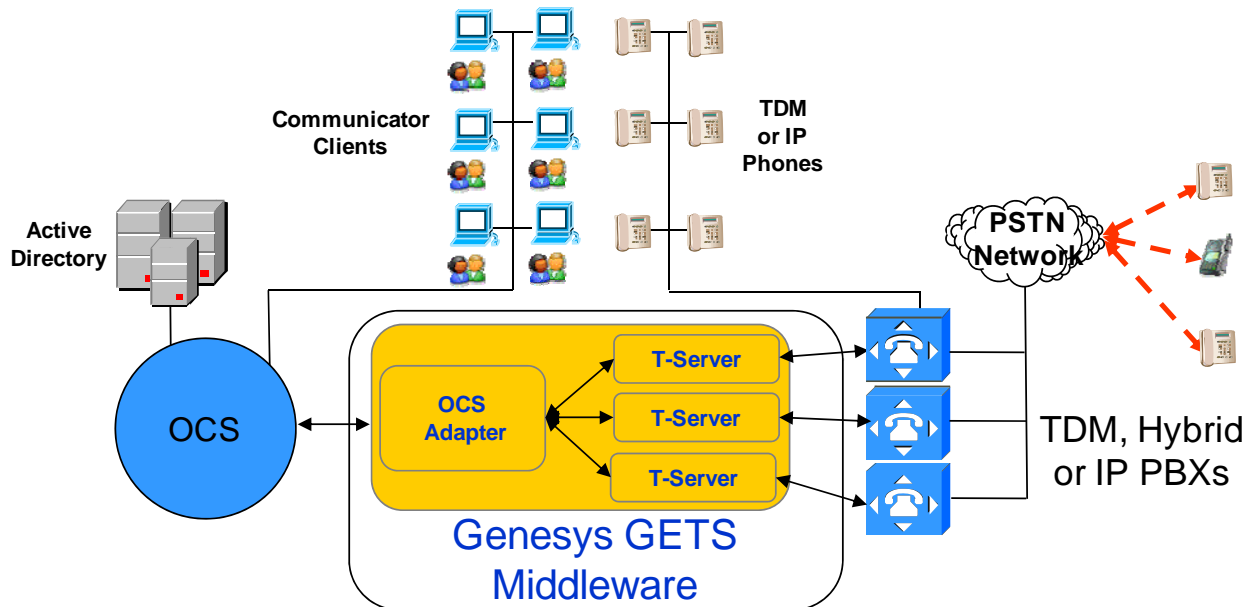


Figure 2: Genesys GETS sits a middleware between OCS and the PBX.

We should point out that there is a one-to-one mapping between T-Servers and PBXs; however, a single GETS middleware server can support multiple T-Servers. Thus, an organization can have a centralized OCS deployment and just a few GETS middleware servers used to integrate a number of PBXs with OCS. Also note that if an organization chooses to use Microsoft's Enterprise Voice model for call control, there may need to be a Mediation Server and possibly a gateway between the PBX and OCS. The Mediation Server transcodes Microsoft's proprietary voice compression protocol into a voice protocol the PBX can use. With Enterprise Voice, if the PBX does not support SIP, a gateway will be needed to convert the media and control streams from IP to TDM.

If an organization uses Microsoft's Remote Call Control mechanism for integrating the enterprise PBX with OCS, these other devices are not required; however, a CTI interface is required. Some vendors provide the CTI link at no charge (i.e. Cisco), some customers may already have a CTI link if they have call center software, and some vendors charge a fee for a CTI link (i.e. Avaya).

GETS Economics

Any organization that wants the productivity benefits OCS delivers such as premise-based presence status and IM, click-to-call telephony, presence and calling capability from within Outlook, instant web conferencing, voice, and video, will still need a mechanism for integrating with the enterprise PBX and with the PSTN. Some organizations will choose the rip and replace strategy, upgrading the network and replacing PBXs with new equipment. This option clearly works. Most organizations, however, will take a slower, less CAPEX-intensive, hybrid approach by migrating to IP telephony gradually. For these organizations, depending upon their technology infrastructure roadmaps and cash constraints, GETS could be a compelling alternative to immediately upgrading the network and phone system while still obtaining the benefits OCS promises.

In the following analysis, any organization wishing to implement OCS will need to buy OCS software and licenses regardless of the approach they take to integrate with the PBX and the PSTN; consequently, the price of OCS is taken out of the analysis since it will be constant in any deployment scenario.

A GETS-OCS implementation requires just four elements:

1. Windows 2003 Server software and a physical server to run the GETS software on,
2. GETS user licenses,
3. An optional VAR or technology integrator to do the implementation, and
4. CTI (computer-telephony interface) licenses for the PBX (if they are not free or the organization does not already have them).

Data from actual GETS implementations show that the costs for these four enabling components averages around \$100 per user for a 5,000 user deployment. The CTI licenses in item four above may or may not be an additional charge, depending upon which PBX is used. Cisco gives them away, while other vendors, like Avaya, charge for CTI licenses. The average cost of \$100 per user, which includes the cost of the CTI license, is the total average cost required for integrating an organization's existing PBX with OCS 2007 using GETS regardless of whether it is TDM, hybrid, or pure IP.

An alternative, of course, would be to replace the existing telephony and network infrastructure with a new IP PBX capable of integrating with OCS natively. Reliable data suggest that the CAPEX required for upgrading to an IP PBX runs between \$500 and \$700 per user, a significant portion of which covers the cost of a new IP handset. Implementation and startup costs add between \$100 and \$130/user¹. Thus, the telephony system upgrade costs run from \$600 to \$830 per user.

Another factor to keep in mind is that the network vendors themselves indicate that there is a 1.5x – 3x cost in networking gear that accompanies a typical IP telephony upgrade. Hence, the network upgrade in an IP PBX telephony refresh may cost an additional \$750 to \$2,100 per user. Adding network upgrade costs to the PBX upgrade gives a total upgrade cost of between \$1,350 and \$2,930 per user depending upon the vendor(s) selected and the telephony system features and handsets chosen. Thus, upgrading the telephony system to integrate with OCS can cost 13 to 29 times more than a GETS solution for integrating with OCS.

¹ See <http://www.arnnet.com.au/index.php/id:64165196;fp:4194304;fpid:1> for an example of IP telephony upgrade cost data. Another source is slide 24 in Allan Sulkin's VoiceCon Fall 2007 tutorial titled "IP Communications Market Today & Tomorrow" available at <http://www.voicecon.com/sanfrancisco/presentations/> (a password is required to see this presentation).

GETS vs. PBX Upgrade for OCS Integration

GETS Middleware Solution, 5,000 Users

Requirements:

- GETS Software
- Windows 2003 Server software and physical server
- Optional VAR or Integrator
- CTI licenses (if required)
- Cost: ~\$100/user

Result:

- Low cost integration with OCS
- Keep existing network
- Keep existing telephone infrastructure
- Postpone upgrades
- Reallocate CAPEX
- Reusable GETS licenses

Phone System Upgrade, 5,000 Users

Requirements:

- High cost integration with OCS
- New IP telephony system
- New handsets
- User training on phone system
- Optional VAR or Integrator
- Optional network upgrade
- Cost: \$600 - \$800/user plus 1.5x – 3x network upgrade cost

Result:

- High cost integration with OCS
- New, more powerful network
- New IP telephony infrastructure
- CAPEX dispensed on phone/network system

Microsoft has publicly stated that it believes the cost for telephony will fall by 50% by 2010 because of widespread adoption of OCS². Siemens stated that it estimates the cost will fall by as much as 75% over the same period³. Wainhouse Research believes these telephony cost predictions are overly optimistic, believing costs will more realistically fall between 15% and 30%. Even if telephony costs were to fall by 40%, GETS would still be a compelling solution to consider.

If costs were to fall by as much as 40%, then the cost for a new PBX would still be between \$350 and \$500. The network upgrade costs would remain additive to the telephony upgrade costs, adding an additional \$450 to \$1,250 per user. Thus, even if the GETS average cost remained constant at \$100 while telephony and network costs fall by 40%, GETS integration with OCS would still be 85% to 95% less than a telephony upgrade followed by OCS integration.

For organizations considering OCS telephony integration, a GETS middleware implementation using the existing telephony system will cost far less than an upgrade to a new phone system. Furthermore, valuable CAPEX will be available to be reallocated until the enterprise really needs a new PBX (and possibly network) due to expansion needs, PBX contract expiration, or some other driving force. We should note that GETS licenses are perpetual and can be transferred to any new telephony system when a PBX upgrade occurs, assuring that employees maintain OCS functional parity.

GETS enables existing telephone system integration with OCS at a cost of 85% to 95% less than a phone/network upgrade followed by OCS integration.

² Comments made by Jeff Raikes, President of Microsoft's Business Division at VoiceCon Spring 2007 and at the OCS 2007 launch. For the actual quote, see the transcript of Jeff's speech at <http://www.microsoft.com/presspass/exec/billg/speeches/2007/10-16UCLaunchGates.msp>.

³ Comment made by Mark Straton, SVP Global Marketing, Siemens Communications. He stated call control costs would decrease by a factor of 4. See <http://www.voicecon.com/unified-communications/2007/03/12/issue-17-voicecon-spring-and-ucwow/>.

Why A Global 50 Energy Company Chose GETS

(This is a real company that requested to remain anonymous. We call it G50 for simplicity.)

As a global energy company with locations on six continents, communications is one key to G50's business. The company has been a Microsoft Technology Adoption Partner for many years. It initially rolled out LCS 2005 in one city four years ago. Since then, G50 has rolled out the OCS 2007 beta in another location with 600 – 700 users, and it is now moving to the generally available version of OCS 2007.

When G50 started its LCS implementation, it recognized that it had a number of different PBX makes and models. Rather than trying to integrate each brand separately, the company chose a GETS middleware solution because it was PBX agnostic. It also provided a single integration control point.

The first PBX G50 integrated with LCS was from NEC in a small facility. The company wanted to check out the viability of call control from the Office Communicator interface. G50 chose Dimension Data as the ISV to do the integration. Dimension Data worked with Genesys, Microsoft, and NEC to enable click-to-call from LCS with the NEC PBX. No additional CTI software was required.

With call control working in a small location, G50 wanted to enable another 600 – 700 users in its main office. The main office had an Avaya switch. In the Avaya scenario, G50 had to buy CTI software from Avaya, which integrated with the Avaya PBX. Again, Dimension Data was the selected ISV. This time, the OCS beta software was used.

Rollout at the headquarters was done floor-by-floor. Users were educated on what Office Communicator would look like, how call control worked, what incoming call notification toasts popped up and how to handle them, and in which scenarios click-to-dial made sense.

G50 was not sure of the success with this rollout until IT intentionally broke the system. This happened during a PBX upgrade in another location. During the upgrade, the corporate dialing plan had to be changed. Consequently, the dialing plan in GETS, OCS, and the Avaya PBX had to be updated. Updating the dialing plan broke the click-to-dial capabilities in Office Communicator for several days. User response was immediate. Numerous calls came to the help desk reporting the outage. Users demanded click-to-dial integration with the PBX back. The net of this experience is that G50 believes the value to users of click-to-dial is quite meaningful.

As an aside, G50 was curious what using OCS from a distance would be like. The company reports that the performance of call control from remote locations was actually very good. The protocol OCS uses for remote call control is lightweight and requires little WAN network bandwidth.

G50 plans to allow OCS/GETS deployments grow organically as each location determines its needs and chooses to allocate the resources for deployment. There are plans to rollout OCS and GETS at several other sites where Avaya PBXs are deployed. In this deployment, the GETS middleware server will be located centrally and will integrate with multiple PBXs concurrently. G50's long-term plans call for a software-driven telephony environment, tightly integrated into the desktop environment. With this lengthy transition, there is a play for GETS for some time to come.

“The net value of using click-to-dial is quite meaningful to the users... there is a play for Genesys GETS for some time to come.”

G50 Principal Architect, Technology

Impacting the Business

Clearly Microsoft is going to significantly impact how people work at the office, at home, and while on the road. We see the impact it is already having on the company mentioned above. Microsoft already owns the desktop, and it has created a compelling solution in Office Communications Server 2007 to help enterprises accelerate the flow of knowledge throughout an organization. But to use OCS effectively, most organizations will need to integrate the voice capabilities from their PBXs and the PSTN into OCS.

Coupling enterprise telephony with Office Communications Server's presence-enabled call control capabilities creates a powerful new communications environment that can significantly increase worker productivity. People will be enabled to connect with one another and with groups more accurately and more rapidly from Office Communicator, Outlook, and desktop applications whether in the office or while mobile.

Most organizations have significant investments in traditional PBXs and TDM phones, and most companies will want to upgrade these gradually, as needed. Using Genesys GETS may be a cost effective, scalable, and flexible middleware solution to integrate these existing telephony solutions with Office Communication Server. GETS is available today for over 100 different models of PBXs. A GETS integration will cost on average approximately \$100 per user versus \$600 to \$800 per user for a PBX replacement and an additional \$700 to \$2000 per user for a network upgrade.

This solution gives full OCS capabilities to everyone in the company at a reasonable cost.

OCS/GETS Telephony Integration Solution Requirements

OCS 2007 Components	Genesys GETS Components
Microsoft Windows 2003 Server Software	Microsoft Windows 2003 Server Software
Microsoft Office Communications Server 2007 (Standard or Enterprise edition)	Genesys GETS Software (user licenses)
Microsoft SQL Server (for OCS Enterprise Editions)	Computer-Telephony Interface Software (if required by the PBX manufacturer)
Windows 2003 user CALs	Optional VAR or ISV to do the integration
OCS 2007 User CALs (Both Standard and Enterprise required)	

About Genesys Telecommunications Laboratories, Inc.

Genesys Telecommunications Laboratories, the worldwide leader in computer-telephony integration, has leveraged more than 15 years of experience to bring GETS—a proven solution—to the enterprise market. An Alcatel-Lucent company, Genesys has more than 4,000 customers in 80 countries; seven of the 10 largest banks and all 10 of the largest telecommunications companies, use Genesys Contact Center Software to power their businesses.

Together, GETS from Genesys and Microsoft Office Live Communications Server and Communicator bridge the gap between computer and phone to significantly increase productivity and reduce operating costs while allowing the enterprise to leverage its existing infrastructure or migrate to IP at its own pace.

For more information, visit Genesys at www.genesyslab.com/GETS.

About Wainhouse Research

Wainhouse Research (www.wainhouse.com) is an independent market research firm that focuses on critical issues in unified communications and collaborative technologies including IM, presence, audio conferencing, web conferencing, mobility, videoconferencing, and streaming media. The company conducts multi-client and custom research studies, consults with end users on key implementation issues, publishes white papers and market statistics, and delivers public and private seminars as well as speaker presentations at industry group meetings. Wainhouse Research publishes a free newsletter, *The Wainhouse Research Bulletin*, as well as a number of reports detailing the current market trends and major vendor strategies including [Microsoft's Software-Powered Unified Communications Strategy](#), [IBM's Unified Communications and Collaboration Strategy](#), and [Telephony-Based Unified Communications 2007](#).

About the Author

E. Brent Kelly is a Senior Analyst and Partner at Wainhouse Research. He has authored numerous reports and articles on Unified Communications, has spoken at industry events and trade shows, and has developed seminars on implementing unified communications technologies. Mr. Kelly has a Ph.D. in engineering from Texas A&M and a B.S. in engineering from Brigham Young University. He can be reached at bkelly@wainhouse.com.