

Cost Effective Mobile UC from Siemens Enterprise Communications

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Executive Summary

Mobility is one of the key benefits of unified communications (UC) and the IP PBX and UC vendors are offering a wide variety of solutions to deliver that capability. Accompanying that are any number of products and solutions aimed at extending the control, accessibility, and productivity features of UC to the growing population of mobile users. Some of those solutions simply look to extend wired network calls to cell phones while others allow access to presence status, corporate directories, conferencing tools, and enhanced features like visual voicemail.

At a recent VoiceCon trade show, dBrn Associates hosted a panel titled “Integrating Mobility and UC: Comparing the Vendors’ Solutions” where vendors offered their proposed solutions for a set of mobility requirements at a fictitious 2000-employee company. The requirements called for providing a functional and cost effective mobility solution to support 1000 local and wide area mobile users located at 27 facilities. Of those 1000 users, 560 split their time in and out of the office while 440 were mobile but only within the office.

When all of the costs were tallied, Siemens Enterprise Communications delivered the most cost effective solution for both the local and wide area portions of the task. This paper summarizes the cost and capabilities of their solution, as well as the major elements of their winning configuration. The solution called for a product line that addressed the full spectrum of mobile capabilities and the ability to apply those tools in a creative fashion. With a wide-ranging product line and an imaginative design approach, Siemens proved that the total cost of the mobility solution could be covered through the savings in the cellular usage.

The ten vendors listed in Table 1 participated in the exercise, though IBM provided only an informational presentation; their response is not included. Cisco did not participate in the original panel but did provide their pricing information for inclusion in the final report. What we found to be critical for success was not just the breadth of the vendor’s product line, but their understanding of the full range of mobility solutions.

Table 1: Vendors Responding	
○ Aastra	○ Mitel
○ Alcatel-Lucent	○ NEC
○ Avaya	○ RIM/BlackBerry
○ Cisco (Added Later)	○ ShoreTel
○ IBM (Informational response not included)	○ Siemens Enterprise Communications

The cost of the final solutions for both the local and wide area portions of the challenge are included in Table 2.

Table 2: Comparison of Solution Costs (Sorted Low to High)			
Vendor	Total 3-Year Cost (Wide Area)	Total 3-Year Cost (Local Area)	Total 3-Year Solution Cost
Siemens	\$1,800,379	\$161,040	\$1,961,419
Aastra	1,816,160	175,560	1,991,720
Avaya	1,890,640	231,000	2,121,640
Alcatel-Lucent	1,875,696	314,370	2,190,066
NEC	1,911,300	332,640	2,243,940
Cisco	2,060,952	205,040	2,265,992
ShoreTel	2,086,000	194,896	2,280,896
Mitel	2,131,200	321,200	2,452,400
Research in Motion	1,806,690	1,305,354	3,112,044

Cost containment was a major component of the challenge, and the requirements specified that the cost of the mobile network services would have to be included as part of the response. As a result, these costs represent not just the equipment and software licenses required, but the cost of the cellular network services used to support the solution.

The RFP included typical mobile pricing, and indicated that a significant portion of mobile voice calls were being made while the user was within range of a corporate wireless LANs (WLANs) or public Hot Spot. That provision allowed for vendors to reduce the cost of their proposals by making use of voice over WLAN technology. Given the questionable security profile of public hot spots, configurations looking to use that option would have to employ secure tunnels or equivalent measures like secure RTP (SRTP) to ensure the privacy of voice conversations.

To realize those potential cost savings, Siemens proposed a combined solution that included their single mode OpenScape Mobile UC client for BlackBerry users (UMA based) and their dual mode Wi-Fi/cellular OpenScape MobileConnect product for the remaining users. Siemens recognized that most of the wide area users were served by T-Mobile, who offers dual mode capability based on unlicensed mobile access (UMA) technology. Using that option along with their OpenScape Mobile UC client for BlackBerry allowed them to take full advantage of the Wi-Fi cost savings.

For the 440 local mobile users, Siemens could have proposed either their optiPoint VoWLAN handsets or their Gigaset DECT devices. As there were voice capable wireless LANs in all facilities and plans to eventually upgrade local users to UC-enabled services, Siemens opted for the VoWLAN option. The end result was a solution that allowed existing users to stay with their familiar devices, and by taking advantage of Wi-Fi as a transport alternative, delivered a solution that covered the cost of the local mobile users with the savings on the cellular usage.

As mobility and UC merge, we are finding that organizations want to realize the productivity and collaboration benefits of UC and have a wide range of requirements with regard to cost, functionality, and manageability. With cellular often representing a third to a half of overall network costs in highly mobile organizations, solutions that can take advantage of cost-effective Wi-Fi communications when available are highly desirable. However, cost is only one part of the equation, as the solution must also provide the ability to make key people accessible continuously, maintain control of contact numbers, and the extend the rich communications environment of a UC deployment to mobile users to increase business productivity.

The clear message that comes through is that providing mobility in a UC environment is not prohibitively expensive. The major cost in mobility is for the cellular service, and by migrating some of that usage to wireless LANs, the mobile UC solution can essentially pay for itself.

Part 1: Customer Description and RFP Requirements

The RFP we issued described a customer with 2000 employees distributed among a headquarters (HQ), 2 regional offices, and 24 branch locations. The distribution of local and wide area mobile users among the various sites is summarized in Table 3. Some of their users were described as mobile but only within the office while others divided their time in and out of the office. Currently the wide area mobile users are equipped with smartphones, a 50-50 mix of BlackBerry and Windows Mobile devices; there was no local mobility solution in place. We asked the respondents to design a mobile solution to provide integrated UC capability for them while providing basic voice services for the local users.

Table 3: Summary of Existing and Planned Mobile Users			
	Facility Size	Existing Wide Area Users	Planned Local Mobile Users
Headquarters (HQ)	150 Kft²	100	100
Regional Offices (2)	50 Kft²	50 in each office (100 total)	50 in each office (100 total)
Branch Offices (24)	15 Kft²	15 in each office (360 total)	10 in each office (240 total)
TOTAL	--	560	440

Beyond the basic cost imperatives, the RFP also called for a solution that addressed the existing users' needs and preferences. That was challenging given that half of the users had BlackBerry devices while the other half were equipped with Windows Mobile smartphones. Users are reluctant to abandon their familiar devices regardless of the savings potential, so solutions that would allow all users to continue with their familiar device environment would be highly prized. Besides enhanced user satisfaction, maintaining the same device environment will also allow users to maintain their productivity while minimizing training and conversion costs. Further, the requirements called for a solution that extended the productivity enhancing feature of UC to wide area users and not simply a mechanism for extending basic voice calls to those mobile devices.

The RFP specified the need to address these requirements in the most functional and cost effective fashion, and that the computed cost would have to include cellular usage. We specified that the cellular plans for existing wide area mobile users cost \$100 per user per month, of which \$40 is for unlimited data service and \$60 is for voice. The in-building

cellular coverage is described as good, so cellular could also be considered an option for local mobility.

A considerable amount of the cellular usage was identified as occurring while users were in their offices, other company locations, or at a home or public Hotspot; those usage estimates are detailed in Table 4. The RFP specified that the voice portion of the cellular costs (i.e. \$60/user/month) could be reduced proportionately if those calls were shifted to Wi-Fi. That cellular to Wi-Fi cost savings could be accomplished using either a traditional dual mode solution or carrier provided unlicensed mobile access (UMA) service. The only national cellular carrier that offers UMA is T-Mobile and they are the current provider for the regional and branch offices. Service at the headquarters is provided by Sprint, though they could potentially switch with no penalty in 12-months when their current contract expires.

Table 4: Estimates of Cell Phone Usage in Wi-Fi Accessible Areas			
	At Home Office	At Other Company Locations	At Home or Public Hot Spots
HQ Wide Area Mobile Users	25%	25%	10%
Regional Wide Area Mobile Users	25%	25%	10%
Branch Wide Area Mobile Users	25%		10%

The local users currently have no mobility solution, and they could be served by either voice over WLAN (VoWLAN), DECT, or with cellular voice service; cellular voice service for those users would cost \$60 per user per month. The RFP specified that there were voice-capable WLANs in all facilities, but a DECT solution would require base stations as well as the DECT handsets.

The task assumes the customer has already implemented an IP PBX that provides messaging, presence, collaboration, and the other core UC capabilities in their desktop environment. We requested that each vendor describe the hardware and software products required and the incremental costs involved in adding mobility to these UC-enabled systems.

The basic requirements for local and wide area mobile users are summarized in Table 5.

Table 5: Basic RFP Requirements	
Wide Area Users (Total 560):	
<ul style="list-style-type: none">• Single number reach: May use either simultaneous ring or preferred device selection.• Single voicemail: May use the cell phone or the PBX voicemail.• Productivity-enhancing UC functionality: Presence will be highly beneficial, along with corporate directory access, visual voicemail, and in-call desk-to-mobile/mobile-to-desk call switching.• Control contact numbers: Employees use their personal cell phone numbers so it is critical to keep those numbers unknown to business contacts.	
Local Mobile Users (Total 440):	
<ul style="list-style-type: none">• Basic voice service initially, but more enhanced UC functionality may be required in the future.	

Part 2: Solutions Comparison

A wide variety of solutions were proposed by the various participants. To take advantage of the potential savings generated by moving cellular voice usage onto Wi-Fi the majority of responses included some form of dual mode solution. For local mobility, most chose a VoWLAN solution though there was one vendor who chose DECT and one who chose cellular. As a general rule, solutions that depended primarily on cellular services had higher overall costs.

Even among the solutions that employed the same fundamental technologies we observed a wide range of prices. The major variables were license fees, hardware (like dual mode controllers), and handset costs for VoWLAN devices. The respondents' technology choices and their resulting costs are summarized in Table 6.

Vendor	Total 3-Year Cost (Wide Area)	Wide Area Technology	Total 3 Year Cost (Local Area)	Local Area Technology	Total 3-Year Solution Cost
Siemens	\$1,800,379	Dual Mode and UMA	\$161,040	VoWLAN	\$1,961,419
Aastra	1,816,160	Dual Mode	175,560	VoWLAN	1,991,720
Avaya	1,890,640	Dual Mode	231,000	VoWLAN	2,121,640
Alcatel-Lucent	1,875,696	Dual Mode	314,370	VoWLAN	2,190,066
NEC	1,911,300	Dual Mode	332,640	VoWLAN	2,243,940
Cisco	2,060,952	Cellular	205,040	VoWLAN	2,265,992
ShoreTel	2,086,000	Cellular	194,896	DECT	2,280,896
Mitel	2,131,200	Cellular	321,200	VoWLAN	2,452,400
Research in Motion	1,806,690	UMA	1,305,354	UMA	3,112,044

Part 3: The Siemens Solution

Siemens proposed both the lowest cost and most creative solution. The cost advantage was due in part to their generally attractive pricing, but also to the breadth and flexibility of their product line. They leveraged that product range with the creativity of their overall approach. While their fundamental proposal was along the lines of most others using dual mode and VoWLAN, their pricing was more attractive and their combination of traditional dual mode and UMA allowed them to deliver a cost-effective solution that supported both BlackBerry and Windows Mobile smartphones.

Wide Area Proposal

Siemens' basic wide area solution depended on dual mode Wi-Fi/cellular, but they moved ahead of the pack by combining traditional dual mode OpenScape MobileConnect product with UMA-based carrier services. That configuration allowed users to stay with their familiar devices while taking advantage of the cost savings afforded by migrating cellular voice usage to Wi-Fi.

For the Windows Mobile population, Siemens proposed their dual mode MobileConnect solution that allows users with dual mode handsets to roam transparently between cellular and Wi-Fi networks. As calls made/received while the mobile device is in an accessible Wi-Fi coverage area are not charged against the user's cellular plan minutes, they could take full advantage of the savings potential of shifting that cellular usage to Wi-Fi.

Siemens elected to support BlackBerry users with their OpenScape Mobile UC client. Normally using the OpenScape Mobile UC client would mean that the BlackBerry smartphones would have to operate on cellular service and hence would not deliver the same financial advantage as the dual mode Windows Mobile devices. However, Siemens chose to deploy the BlackBerry smartphones in the Regional and Branch offices (255 of the total 280 BlackBerries) with T-Mobile's dual-mode UMA-based *Wi-Fi Calling for Business* service. That strategy allowed them to reap the same savings for those devices that a dual mode solution would yield, while allowing the BlackBerry users to retain their familiar devices.

The cellular carrier at the headquarters location was provided by Sprint, who does not offer UMA service; the Sprint contract was not due to expire for another year. Siemens elected to switch the cellular service at the headquarters to T-Mobile one-year into the project and so were able to reduce the cellular costs for those additional 100 users in years 2 and 3.

This strategy did involve some upfront costs. The solution required new dual mode handsets for all users; we had specified that dual mode handsets would be priced at \$400 each for a total of \$224,000. The OpenScape MobileConnect appliance capable of supporting up to 1500 users came in at \$51,346. The only software license fees were the OpenScape Mobile UC clients for the 280 BlackBerry devices that priced out at \$52.31 each for a total of \$14,464. The MobileConnect client for the Windows Mobile devices was included with the appliance.

Siemens' combined dual-mode/UMA solution was cost-effective in that it allowed the user to take the savings gained via shifting the cellular usage to Wi-Fi while allowing the BlackBerry users to keep their familiar handsets. Like other dual mode solutions, the Windows Mobile users got a somewhat weaker feature set, but as the solution called for buying all new handsets, they did have the opportunity to switch over to the OpenScape Mobile UC on BlackBerry option.

The element that set the Siemens response apart was the ability to combine their various mobility solutions in conjunction with carrier provided FMC options. A number of other IP PBX proposals recommended cellular-only mobile UC clients, but none of those recognized the potential to combine those with UMA.

Local Mobility Solution

For the local mobility requirement Siemens had the choice of bidding either their Gigaset DECT solution or their optiPoint VoWLAN product. Either option would have met the requirement for basic local mobile voice capability.

Given the limited data transmission capabilities of DECT and the potential requirement to add UC capabilities for the local users later, Siemens opted for voice over WLAN to address the local mobility requirements. At \$366 each, their optiPoint VoWLAN handsets were the lowest priced of any we reviewed. The optiPoint devices natively support Siemens' signaling protocol, so no gateway was required to connect them to the PBX further adding to the savings. The optiPoint handsets support 802.11e/Wi-Fi Multimedia quality of service to ensure good voice quality and WPA2-based encryption for privacy.

While the customer's WLAN was described as being provided by Aruba, Siemens does offer their own WLAN infrastructure product and claims one the highest percentage of voice deployments with their WLANs.

Conclusion

There were a number of key findings that became apparent in this study.

- Overall the cost of the mobile UC hardware and software were insignificant when compared to network costs, particularly where cellular service is involved. Cellular costs ranged from 66% to 77% for the dual mode solutions and 82% to 89% for the cellular only solutions.
- Dual mode solutions can save real money, whether that involves a traditional dual mode or a UMA-based solution.
- Those savings may have to be weighed against what you give up, particularly if that means losing support for BlackBerry devices, so solutions that could combine dual mode capability with BlackBerry support were key.

The big lesson of this exercise was that correctly implemented mobility can not only increase accessibility and productivity for mobile workers, it can actually reduce the cost of the UC solution. The total out-of-pocket costs for the Siemens solution (including 3-year maintenance) was \$463,837, however, that was offset by a reduction in cellular costs of \$509,760. So the Siemens' wide area mobile UC solution not only paid for itself, it also funded the local mobility solution for 440 users, and generated \$45,923 in savings.

The key for Siemens was having that wide ranging mobility product line and the ability to employ those products creatively to take advantage of both enterprise and carrier-based technologies.

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Table A1: Comparison of Wide Area Solution Costs

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**Appendix:
Detailed Cost Comparisons**

Table A1: Comparison of Wide Area Solution Costs

(Sorted Low to High)

Vendor	Wide Area Hardware	Wide Area Licenses	Wide Area Handsets	Total Initial Wide Area Costs	Initial Cost Per Wide Area User	1-Yr Wide Area Cellular Cost (Avg)	3-Yr Wide Area Cellular Cost	Annual Wide Area Maintenance	3-Year Wide Area Maintenance	Annual Cost per Wide Area User	Total 3-Year Cost
Siemens	\$51,346	\$14,464	\$224,000	\$289,810	\$517.52	\$502,080	\$1,506,240	\$481	\$1,443	\$1,071.65	\$1,800,379
Research in Motion	25,000	16,800	224,000	265,800	474.64	509,280	1,527,840	1,450	4,350	1,075.41	1,806,690
Aastra	67,200	0	224,000	291,200	520.00	494,880	1,484,640	4,480	13,440	1,081.05	1,816,160
Alcatel-Lucent	0	33,600	224,000	257,600	460.00	535,333	1,606,000	1,344	4,032	1,116.49	1,875,696
Avaya	140,000	0	224,000	364,000	650.00	494,880	1,484,640	4,667	14,000	1,125.38	1,890,640
NEC	3,300	150,640	224,000	377,940	674.89	494,880	1,484,640	5,413	16,240	1,137.68	1,911,300
Cisco	24,000	7,995	0	31,995	57.13	672,000	2,016,000	1,440	4,319	1,226.76	2,060,952
ShoreTel	0	53,200	0	53,200	95.00	672,000	2,016,000	1,867	5,600	1,241.67	2,086,000
Mitel	20,000	95,200	0	115,200	205.71	672,000	2,016,000	0	0	1,268.57	2,131,200

Table A2: Comparison of Local Area Solutions
(Sorted Low to High)

Vendor	Local Hardware	Local Licenses	Cost Per Handset	Total Handset Cost	Total Initial Cost per Local User	Total Initial Cost	Annual Maintenance Cost	3 Year Maintenance Cost	3-Year Cellular Cost	Annual Cost Per Local User	Total 3-Year Cost per Local User
Siemens	\$0	\$0	\$366.00	\$161,040	\$366.00	\$161,040	\$0	\$0	\$0	\$122.00	\$161,040
Aastra	0	0	399.00	175,560	399.00	175,560	0	0	0	133.00	175,560
ShoreTel	32,996	74,800	140.00	61,600	384.99	169,396	8,500	25,500	0	147.65	194,896
Cisco	0	0	466.00	205,040	466.00	205,040	0	0	0	155.33	205,040
Avaya	0	0	525.00	231,000	525.00	231,000	0	0	0	175.00	231,000
Alcatel-Lucent	0	62,920	520.00	228,800	663.00	291,720	7,550	22,650	0	238.16	314,370
Mitel	0	35,200	650.00	286,000	730.00	321,200	0	0	0	243.33	321,200
NEC	0	118,360	400.00	176,000	669.00	294,360	12,760	38,280	0	252.00	332,640
Research in Motion	0	26,400	150.00	66,000	210.00	92,400	8,798	26,394	1,186,560	988.90	1,305,354

The material presented in this report is based on both primary and secondary research data, coupled with our professional interpretation of the material. We believe that the information and assessments presented in this study should be used in conjunction with other collaborating data for making sound business decisions. No warranty as to completeness or accuracy is implied. We welcome your comments on this report.

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