THE OMNI USER

Huh? An ON TIME Issue?

What is wrong with this picture? (And it's not quite on time, anyway… I missed the speaker meeting.)

Nothing's wrong, gentle reader. We're just turning over a new leaf here at OMNI News Central and our first order of business is getting the newsletter out on time. Traditionally we don't have a December newsletter, and so I was able to make the deadline on that one <grin>.

You should have already gotten an email announcing the 18th Annual OMNI User Technical Conference. However, you may not have signed up yet.

Table of Contents

Edited by Joe Pluta - omni-comm@plutabrothers.com

*** *** WHY NOT??? *** ***

Seriously, this is going to be your first opportunity to learn all about the new V5R4 release, and it's the *only* opportunity you will have at this price. With the incredible range of speakers both from IBM and from the industry at large, even IBM is telling its clients to attend this conference. And well they should: with names like George Farr, Kent Milligan and a keynote address from Jim Herring, you know IBM is excited. And at the same time, the industry superstars will be there including Jon Paris and Susan Gantner along with "Dr. Franken and iGor" (Larry Bolhuis and Jim Oberholtzer). At this price, you really can't afford **not** to go.

NEWSFLASH! The earlybird registration deadline has been extended to February 1st! See the website for details!

So go to the website, http://www.omniuser.org/Conf2006.html, take a peek at what the conference has to offer, and then register right there online. We look forward to you coming on down!

TOPICS! We've got TOPICS!

In fact, we've got some of the very hottest topics, ranging from the intricacies of advanced programming to the nuts and bolts of getting the most out of your new iSeries hardware.

For example, Jon Paris and Susan Gantner will be covering the gamut on the various RPG enhancements, so by mixing and matching their sessions, you'll be able to create a day of education that will either greatly enhance your traditional programming skills or begin to expand your range into things like the IFS or calling Java.

For the hardware minded and those that keep the shop running for the propeller heads, we've got a slew of topics on things like LPAR and work management and PTFs and security and HMC brought to you by the not-so-evil geniuses of the midrange, Larry Bolhuis and Jim Oberholtzer. You can create an entire schedule that's focused on the operational aspects of the iSeries (and these days that's no small amount of information!). Or, if you're into stretching a little more, you can catch their sessions on the enhancements to CL, or the interaction of the iSeries with the Unix world.

The database administrators can spend most of the day with Kent Milligan on various DB2 related topics "hot off the grill" as he puts it. Carole Miner will offer a pair of sessions on taking advantage of the new features in iSeries Access for the Web, while Leonardo Llames will bring you up to speed with the that great new topic, Service Oriented Architecture (SOA) and how it figures in the iSeries world.

For those who are getting ready to venture to the Web interface, or who are just thinking about it, your humble newsletter editor Joe Pluta will be providing two sessions that will walk you through everything you need to know to begin making the tough decisions on Web deployment.

And even the management types can get some input, as George Farr provides insights into IBM's investment in RPG as well as WDSC and the iSeries Developers Roadmap. These sessions will give you a clear picture of IBM's direction for the future, and it's not all Java and Linux! And of course, the high point of the day will be Jim Herring's keynote address on the entire V5R4 release and what it means.

So pop on over to http://www.omniuser.org/Conf2006.html and register today!

January Meeting Recap

I apologize for this newsletter once again being out *after* the speaker has spoken, especially since Rex Smith's presentation on web enabling systems and the issues involved was so timely. He covered a wide range of topics ranging from SSL security to report delivery; topics that sometimes get lost in the marketing part of web enablement.

We thank Rex for taking the time to share his wealth of expertise, and hope he can join us again in the future.

February and March Meetings

The February meeting is superseded by the conference. (Which conference? Why the 18th Annual Omni User Technical Conference, of course!). You'll all be so completely swamped with information you won't be able to attend anything else next month!

The March meeting, though, is up for grabs. We're still looking for ideas, so if there's something in particular that you need information on, drop me a line and I'll let everyone know!
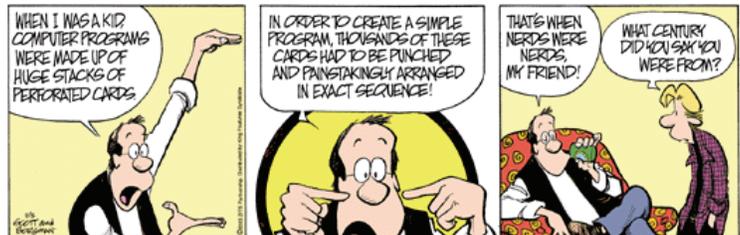
The 18ᵗʰ Annual OMNI User Technical Conference
V5R4: "It's in there"

But where is the conference?

This year we have the pleasure of announcing that the OMNI User Technical Conference will be held at the luxurious Drury Lane Theater, in easily accessible Oakbrook Terrace, central to pretty much the entire Chicago metropolitan area, and just a stone's throw from Interstates 88 and 294.
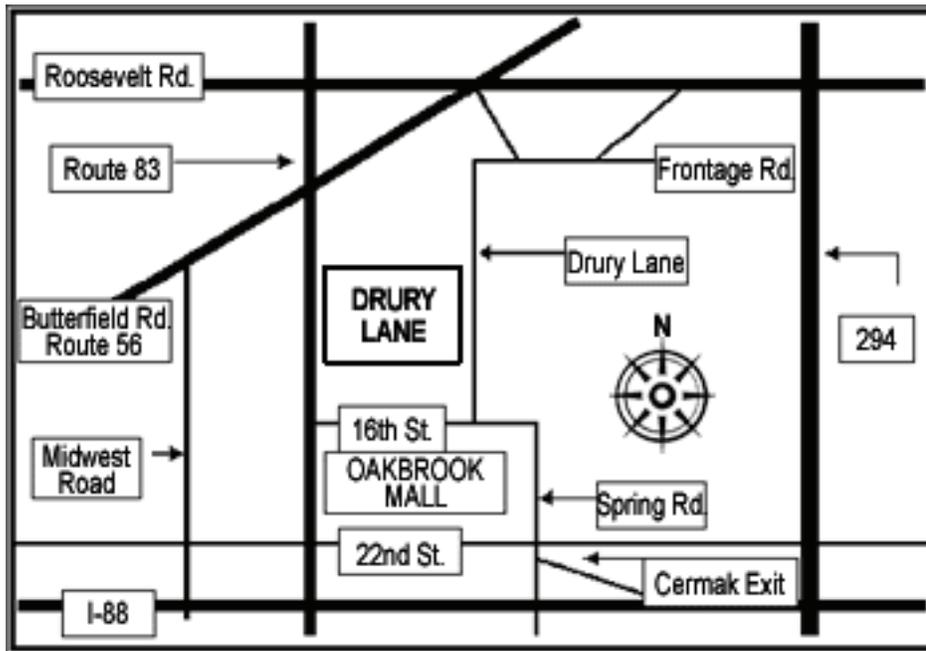
The facilities are superb, and the amenities unmatched. Feel free to stop by the Drury Lane website for more information: http://www.drurylaneoakbrook.com/.

http://www.tlashford.com/
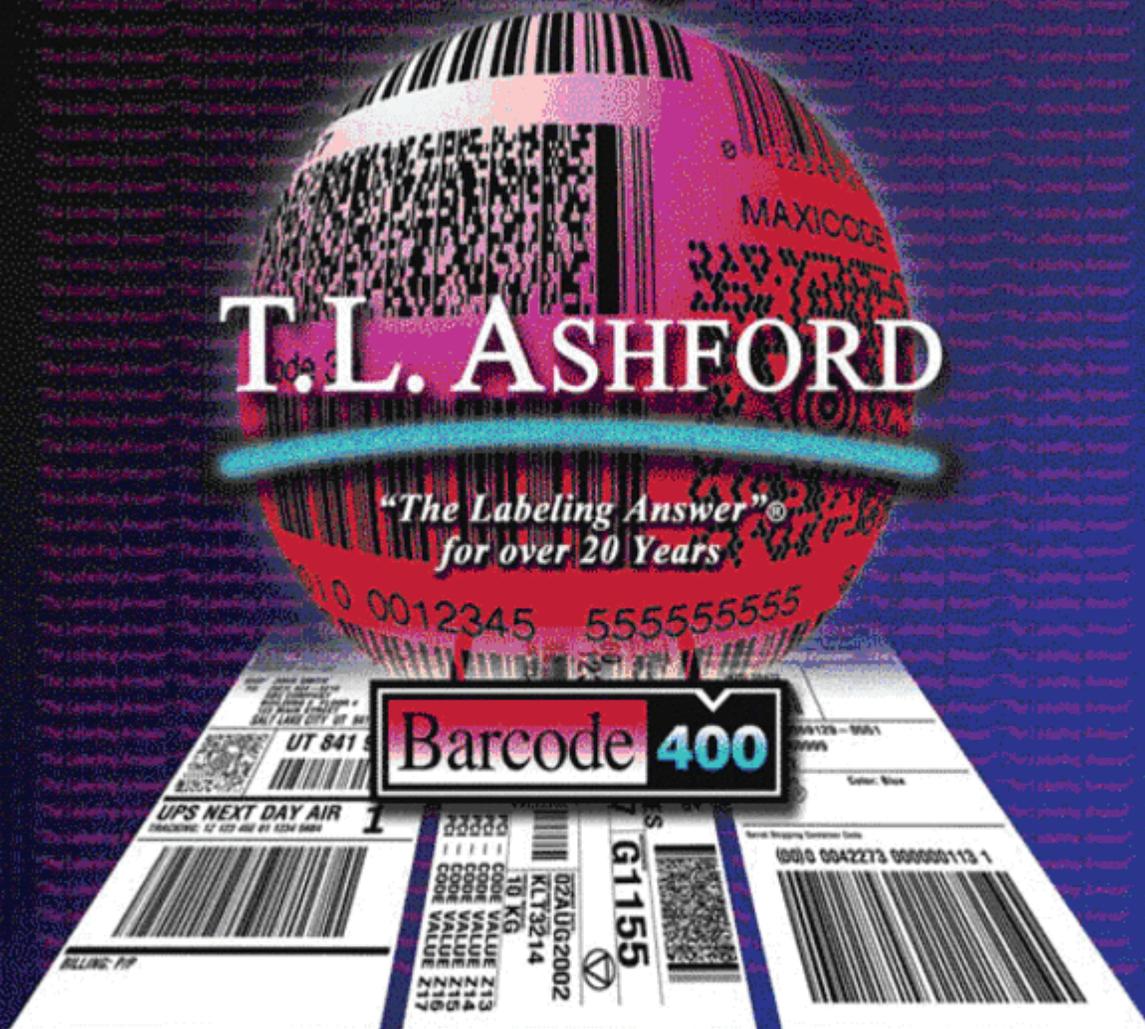
Solutions! Get'cher Red Hot IT Solutions Here!

Not only will there be incredible information at the conference, but there will also be scads of vendors and vendors presentations. Some vendors that have signed up (with more on the way every day) include:

Business Computer Design	www.bcdsoftware.com
Ciber	www.ciber.com
COMMON	www.common.org
Computech Resources	www.compures.com
ICS FormSprint	www.formsprint.com
Information Builders	www.informationbuilders.com
Integrated Barcode Solutions	www.intbarcode.com
Lakeview	www.lakeviewtech.com
Linoma	www.linomasoftware.com
Midrange Performance Group	www.mpginc.com
MKS	www.mks.com
NBS	www.nbsconsultants.com
Pluta Brothers	www.plutabrothers.com
Pro Data Computer Services	www.prodatacomputer.com
RJS Software	www.rjssoftware.com
Softlanding Systems	www.softlanding.com
Symtrax	www.symtrax.com
Total Network Solutions / Data Exchange	www.tnsolutions.com
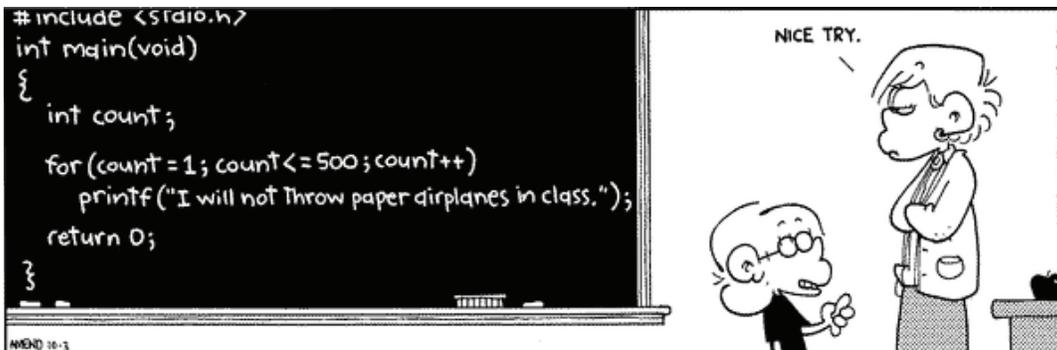
IBM Redbooks/Redpapers

A monthly compendium of recent IBM Redbooks and Redpapers of interest to iSeries developers.

IBM eServer i5 and iSeries System Handbook i5/OS Version 5 Release 3 (October 2005 -- Draft)
Revised: January, 6, 2006
http://www.redbooks.ibm.com/redpieces/abstracts/ga195486.html

Planning for IBM eServer i5 Data Protection with Auxiliary Write Cache Solutions
Published: August, 11, 2005
http://www.redbooks.ibm.com/redpapers/abstracts/redp4003.html

Patterns: Implementing Self-Service in an SOA Environment
Published: August 8, 2005   ISBN: 0738493767
http://www.redbooks.ibm.com/abstracts/sg246680.html

Deploying IBM Workplace Collaboration Services on the IBM eServer iSeries Server
Published: July, 7, 2005
http://www.redbooks.ibm.com/redpieces/abstracts/sg246640.html

Patterns: SOA Client - Access Integration Solutions
Revised: January 12, 2006
http://www.redbooks.ibm.com/redpieces/abstracts/sg246775.html

WebSphere RFID Handbook: A Solution Guide
Revised: January 4, 2006
http://www.redbooks.ibm.com/redpieces/abstracts/sg247147.html

Build a business process solution using Rational and WebSphere tools
Revised: December, 22, 2005
http://www.redbooks.ibm.com/redpieces/abstracts/sg246636.html

Performance Management for IBM eServer iSeries and pSeries: A Systems Management Guide
Published: December 29, 2005   ISBN: 0738493240   258 pages
http://www.redbooks.ibm.com/abstracts/sg247122.html

Deploying IBM Workplace Services Express on the IBM eServer iSeries Server
Published: November, 29, 2005
http://www.redbooks.ibm.com/redpieces/abstracts/sg246664.html

AIX 5L on IBM eServer i5 Implementation Guide
Revised: November 27, 2005   ISBN: 0738490539   426 pages
http://www.redbooks.ibm.com/abstracts/sg246455.html

IBM eServer iSeries Windows Server Integration for Small and Medium Businesses: An Application-Serving Network Example using Citrix Access Suite on Integrated xSeries Systems
Published: December, 5, 2005
http://www.redbooks.ibm.com/redpapers/abstracts/redp0710.html

2006 Omni Board Elections

It's that time of year, folks! The Omni board will be holding elections, and we're always looking for new members. And even if you can't devote the time to be a board member, you can always be a volunteer! Trust me, we **need** volunteers! This is the time we all need to get behind our beloved platform (whatever it's name is this year) and the best way to do that is to support your Local Users Group.

Elections will be held during the conference (that's the 18th Annual Omni User Technical Conference, in case I haven't beaten that into your head enough yet). So come on down, get on the board, or just pitch in. We're looking forward to your support!

Upcoming Midrange Events

January 17 5:00 pm	OMNI Monthly Dinner Meeting Rexford Smith, "Real-Life Examples in Modernization for Employee and Internal Customer Applications using newlook". Detail/Registration	Embassy Suites 707 E. Butterfield Rd Lombard, IL
February 7	18th Annual OMNI User Technical Conference V5R4:"It's in there" Details/Registration	Drury Lane Oak Brook, IL
May 8 - 12	IBM iSeries (spring) Technical Conference Online Registration	Fontainebleau Hilton Lake Buena Vista, FL
May 15 - 17	RPG World Spring 2006 Conference "The RPG Programmers Education Event" Online Registration	Orleans Hotel Las Vegas, NV

Introduction to 802.11 WLAN
By Keith Mixon

Wireless networks, once considered a fad, are springing up for general public use in hotspots in airports, hotels and retail stores across the country. WLAN technology can be found everywhere from the average home to hospitals and throughout corporate America.

This article is the first in a series that will focuses on the IEEE standard 802.11 for WLAN and bridging. It will also briefly touch on the 802.16 WiMAX technology.

802.11 wireless networks are a combination of 2.4Ghz and 5.8Ghz radio equipment and Ethernet (IEEE 802.3) LAN technology, combined to extend the Ethernet network to areas where copper cable and fiber optics cannot be used, such as in warehouse or manufacturing space where you don't want to lay new fiber optic cable.

WLAN technology reduces the total cost of ownership of an Ethernet network infrastructure because it reduces the cost of network equipment and deployment with reduced administration compared to traditional Ethernet networks. WLANs also give an immediate return on investment as they streamline workflow, production, manufacturing process, and tooling time to supporting applications, emerging technologies, and device management.

Although WLANs have mainly been used to access corporate applications and the Internet, the combined use and integration of all types of wireless networks will create true user mobility, or the ability of a user to reach information both general and personal from any location on Earth.

WLAN History

The U.S. Navy discovered spread spectrum radio communications in the early 1950s. This radio frequency (RF) technology is defined by its wide bandwidth and low peak power; it is hard to detect and very secure if implemented correctly. Because of these features, the military uses spread spectrum technology extensively.

In the 1980s, the Federal Communications Commission (FCC) implemented regulations to allow for public use of spread spectrum air space (900Mhz, 2.4Ghz and 5.8Ghz). The two most popular types of spread spectrum modulation used in the public sector today are FHSS (Frequency Hopping Spread Spectrum) and DSSS (Direct Sequence Spread Spectrum). Most of the FHHS networks operate at 900Hmz and the DSSS networks operate at 2.4 GHz ISM and 5.8Ghz UNII band.

The WLAN networks in use today use the DSSS radio modulation technology combined with 802.3 LAN device technologies to create a device called a Wireless Access Point or WAP. This WAP communicates to an authorized RF client adaptor to create a mobile network connection allowing the end user to access applications, network resources and information without being physically wired to the network.

WLAN Standards

The **FCC** is responsible for the allocation and enforcement of the radio spectrum in the U.S., and sets rules and regulation for the use of 802.11 radio frequency use. The FCC has ruled that the 900Mhz, 2.4Ghz and 5.8Ghz radio spectrum is free for the implementation of industrial, medical, scientific, and public use devices. These RF signals can be transmitted and received without regard to physical property lines; this airspace is free for everyone's use.

The **IEEE** (*Institute of Electrical and Electronic Engineers*) is responsible for the development of the standards that define the use of DSSS RF technologies integrated with IEEE 802.3 LAN devices and infrastructures including security mechanisms and processes. User groups, business, individuals, military, government, and academics develop these standards. Manufactures adhere to these standards to ensure that networks and security mechanisms will interoperate with each other's products.

The **Wi-Fi Alliance** (*formerly WECA*) is the global Wi-Fi organization that created the Wi-Fi brand. A nonprofit organization, the Alliance was formed in 1999 to certify interoperability of IEEE 802.11 products and to promote them as the global, wireless LAN standard across all market segments. The Wi-Fi Alliance has instituted a test suite that defines how member products are tested to certify that they are interoperable with other Wi-Fi CERTIFIED products. These tests are conducted at an independent laboratory. Thanks to the Wi-Fi Alliance, you don't have to read the fine print or study technical manuals; just look for the Wi-Fi CERTIFIED logo and color-coded Standard Indicator Icons to match interoperable products.

WLAN Basics

It has been said that the secret to understanding wireless networks is one part science and two parts art. In our case, the science is the ability to understand LAN design and the use of TCP/IP and Advanced Network Security. The art of wireless networking is in understanding and visualizing RF characteristics to a given environment, applied to a specific application or combination of applications and being able to manipulate the RF to your advantage and to the hackers' disadvantage.

802.11 WLANs are primarily used in these configurations:

AdHoc Peer to Peer (RF and infrared) AdHoc networks are intended to connect computers and personal devices at a very close range.

WLAN (802.11 A/B/G – 2.4Ghz ISM and 5.8Ghz UNII band) WLANs are used in indoor and in green space environments between buildings on a campus. WLANs consist of a LAN connected to Wireless Access Points by Ethernet cables to Ethernet LAN hubs or switches, and then the wireless client devices connect to the Wireless Access Points by the use of RF signals. These WLANs are designed around security and user bandwidth requirements.

Bridging (Point to point, point to multipoint networks) Bridges can transmit data/voice and video at speeds up to 430 Mbps full duplex at distances of up to 50 miles line of sight. Bridges are typically used to connect LAN segments that are geographically diverse.

Metropolitan wireless networks and WISPs (Wireless Internet Service Provider) use 802.16 WiMAX to cover large areas. WIMAX is a new IEEE standard that will be ratified in the third quarter of 2005. WiMAX addresses issues with implementing large city and countywide wireless networks over the top of WLANs and bridges already in existence.

Wireless Access Point

Wireless Access Points, commonly known as AP's or WAP's, have been designed to be used at the access layer of the LAN. The WAP connects to the LAN by means of an Ethernet cable connected to either a LAN Ethernet hub or LAN Ethernet switch. The WAP is powered by either an A/C wall power and a power adaptor supplied by the manufacture, or by the use of a PoE (Power over Ethernet) adaptor. The primary function of a WAP is to associate the wireless RF client to the LAN. Wireless Access Points come in two types: Shared Medium and Switched Medium. The shared WAP (Fat AP) is nothing more that an eight-port Ethernet hub with a radio integrated into it. The switched WAP is a combination of a thin AP and an AP switch controller. The AP controller in the switched WLAN looks at all WAPs as if they were one. These systems are very fast, secure and dependable.

Each of these technologies has its place in WLAN network design:

Shared WLAN technologies are usually used in smaller network implementations with low user/application bandwidth requirements and simple WLAN security scenarios.

Switched WLAN technologies are used in enterprise WLAN implementations. These WLANs scale to user and application bandwidth requirements in an enterprise environment. These switched WLANs are used in areas where you have a diverse user base with diverse applications and security requirements, WLAN clients, and supporting technologies like voice-over WLAN (VoWLAN) and streaming video over WLAN where authentication and Quality of Service (QoS) is essential. WAPs operate on radio channels. In the U.S., WAPs use channels 1 through 11 to communicate to wireless device clients. Channels 12 through 14 are reserved and are not available for use in North America.

Wireless Client (*Client RF Device*)

Wireless client devices come in a wide variety of forms and with different bandwidth and security requirements. Laptop computers with wireless chipsets or adaptors, desktop computers, security cameras, PDAs, Biometrics, WiFi Phones, hand scanners, RFID readers and scanners, manufacturing and production machinery, servers and mainframe computers, print servers, security systems, etc; are all examples of wireless client devices. The list of client devices that can be associated to an enterprise WLAN environment can be mind-boggling. These clients all have different application, bandwidth and security requirements. The challenge to the WLAN designer is to match the number of access points to the number of clients in a given area, while ensuring that all devices have adequate bandwidth to function correctly. Client devices like WiFi phones and laptops or PDAs with streaming video will require that the LAN and WLAN support QoS (Quality of Service) for these connections. It is also very important to ensure that the WLAN and WiMAX networks are designed to induce wireless client device roaming. Roaming is the ability of the wireless client device to move between WAPs and not loose connection or accessibility to applications. In the case of a WiFi phone, if the WLAN is roaming correctly the wireless client on a shared WLAN will roam at 30 milliseconds (ms), and on a switched WLAN the wireless client will roam at 0 ms roam time between WAPs.

WLAN Usage

     WLANs have been typically been developed in the manufacturing. warehousing and distribution vertical markets. In the past few years, WLANs have become commonplace in government facilities, corporate offices, hotels, convention centers, hospitals and healthcare facilities, universities, transportation facilities, public schools, and in our homes.

     WISPs have worked hard to create subscription bases to support their business models, and you now see cell phone providers getting into the game by providing Internet connectivity over their networks.

     Wireless technology is here to stay. It is reliable, dependable and, if designed and implemented correctly, it is highly secure. Wireless technology is an empowering technology that can increase productivity and reduce the cost of IT networks. The WLANs of today are designed to compliment the security policies and technologies of the LAN environment. Wireless networks will change traditional information technology Ethernet networking for the better. Wireless networks will ensure that connectivity and information are always available to you any time and any place.

About the Author

Keith Mixon, Chief Executive Officer for Avacorp, Inc., has been a leader in the Information Technology industry for over 30 years. He has held senior executive and high-level technical positions for Fortune 100 companies, and has an extensive background in wireless technologies, systems design and integration, application development, and information technology security. Keith resides in Atlanta, Georgia, with his family.

OMNI 2005 Board

President	Dale O'Leary	doleary@zysolutions.com
Vice-President	Ed Booth	ebooth@suncast.com
Secretary	Yvonne Enselman	yenselman@comcast.net
Treasurer	Bill Parks	wparks@worldnet.att.net
Seminar Vice-President	Rodger Greif	rgreif@ciber.com
Membership & DB Director	Sal Stangarone	sals@mrc-productivity.com
Communications Director	Joe Pluta	joepluta@plutabrothers.com
Advertising Director	Matt Gross	prrgg1@sbcglobal.net
Conference Director	Mike Pavlak	mike@pavlak.com
Webmaster	Dave Andruchuk	dandruchuk@sungardfutures.com
Past President	Paul Nelson	pnelson@arbsol.com
IBM Liaison	Joe Thompson	jwthomp@us.ibm.com
Advisory Member	Jerome Hughes	jromeh@comcast.net