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Editors Column

This issue is dedicated to the "AS/400e for Extreme Business" announcement, on 22 May 2000. This announcement marks the first use of copper and silicon-on-insulator processor technology in the industry. The new high-end AS/400e servers are the first to make use of this technology.

The new AS/400e Model 840 server pushes the limits of business computing by delivering world leading benchmark results. The Model 840 is the industry leader in four key industry benchmarks: single-server TPC-C, NotesBench, SPECjbb2000 and VolanoMark - outperforming servers from Compaq, Hewlett-Packard and Sun Microsystems (Page 6). Our leadership in these benchmarks offers clear proof that the AS/400e provides customers major scalability and performance advantages, to meet today's extreme business conditions.

In the Business Partner solutions section a number of IBM customers share with us the business benefits they have achieved through the implementation of solutions running on the AS/400. Included in this section Neller and LANSA outline the ASP (Application Service Provider) payroll offering they teamed up to deliver (Page 16) and Galileo Publishing a Lotus Business Partner share their experience in using an AS/400e Dedicated Server for Domino as their internal development platform (Page 7).

We trust that you will find this content valuable, your feedback is always welcome.

Sophie Baldwin
Marketing Manager - AS/400
IBM Australia and New Zealand

Congratulations to the following customers for winning a $1000 voucher to the adrenalin club, at the recent AS/400 announcement events in Melbourne, Sydney and Auckland.

Mr Walter Yeung
Group IT Manager
A Raptis & Sons Pty Ltd
Queensland

Mr Robert Mareschi
Manager IS Infrastructure,
Information Services
Nestle Australia Ltd

Mr Kevin Cassin
Financial Controller,
Corus NZ Ltd

Contents

Page

3 AS/400 Announcements

7 A User Experience
Galileo Publishing investigates the Dedicated Server for Domino

8 Business Article
Enterprise Resource Planning: From ERP to e-business

10 AS/400e Security = Web Security
Why can the AS/400e make the claim of being one of the most secure systems around?

12 Business Partner Solutions
- The Wrigley Company installs eBPCS
- Sussan goes with Silvon
- Movex and the AS/400 take a leading role in the fashion industry
- Neller Software revitalises HR/Payroll Offering
- SynergyPlus - "Weaves the Web into Legacy"
- The Apparel Group sets the trend with new merchandising system

20 Interaction
The Forum for IBM Users

21 Press Update
AS/400 has the right stuff for e-commerce

22 DB2 UDB for AS/400e
Query Processing with Encoded Vector Indexes

24 IBM Storage Solutions

25 Manage your AS/400
IBM Midrange Express

26 Esker Enterprising Connections
Corridor for Active Server

27 IBM Learning Services
AS/400 Education schedule

Readers Guide

non-technical moderate technical

AS/400e... FOR EXTREME BUSINESS

What business are you in? Today, sometimes it's hard to tell. With the rise of the Internet, the old rules have disappeared and the new rules keep changing. To stay competitive, you have to be ready, willing and able to transform your business at a moment's notice-but you can't do that if your technology is tying you down. That's why we're introducing a new line of e-business transaction servers. The AS/400e family of servers gives you all the tools you need to extend, reshape or redefine your business model to meet today's extreme business conditions.

THAT'S WHY AS/400e IS FOR EXTREME BUSINESS.

I am very excited about these new announcements.

First of all, the AS/400 is the first server in the industry to make use of the new copper and silicon on insulator processor technology. This shows that IBM continues to invest into the AS/400 and is committed to its successful future. Moreover, benefits to our customers are that AS/400's are being delivered with the power required to run new applications such as; web serving, data warehouses and supply chain management.

Secondly, the new AS/400e server 270 has been designed to meet the needs of those customers that want to run client server applications that have no 5250 (green screen) requirements. Who would have thought that IBM would release an AS/400 that runs no 5250 applications ?

Finally, the new release of the operating system (V4R5) is packed with features that will allow you to modernise the way you interact with your AS/400. Imagine, an AS/400 that can do all of the following:

- file serving (NetServer)
- a graphical front end to manage your system (Operations Navigator)
- Microsoft NT serving (on the Integrated Netfinity Server)
- Mail, calendaring, groupware applications (Domino for AS/400)
- Data warehousing
- e-business and Web Serving (Websphere, Net.Comerce, HTTP Server)
- backoffice applications (ERP, SCM, CRM)

The following announcement pages summarise the recent AS/400 announcement details.
I am sure that you will agree with me that the AS/400 has never been in better shape.

John Schilt

AS/400 Business Manager
Australia and New Zealand

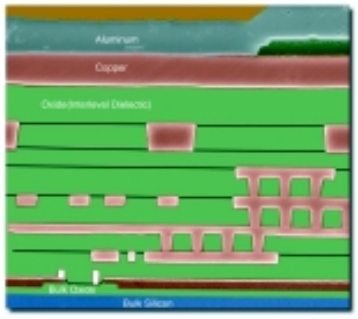
Complementing the current AS/400e models, new IBM AS/400e servers push the limits of business computing by dramatically extending performance and scalability.

Announcement Highlights

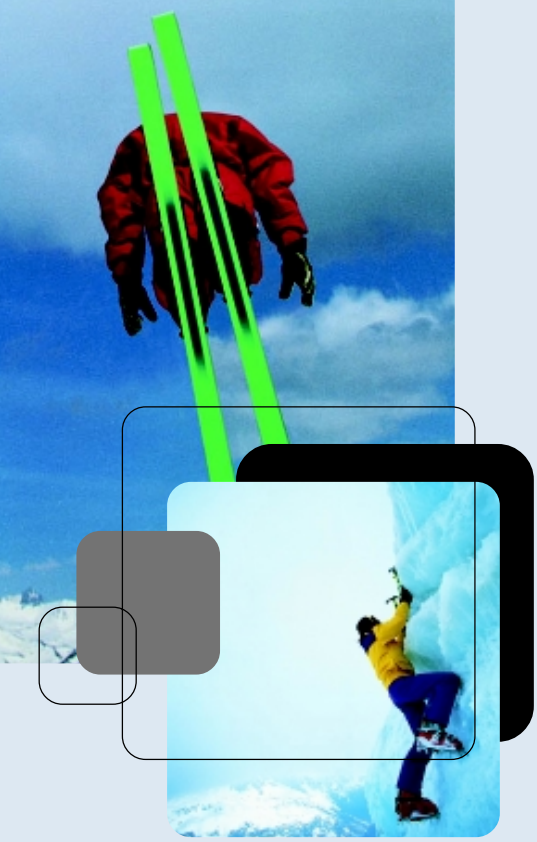
- New processor technology - breakthrough copper and silicon on insulator (SOI) technology.
- New AS/400e 8XX servers, including new 24-Way high-end model.
- New AS/400e 270 server.
- New AS/400 250 server.
- Six new AS/400e Dedicated Server for Domino models.
- New V4R5 operating system.
- New high-speed Token Ring and 1 Gb Ethernet adapters for improved network performance.
- New High Speed Link (HSL) and PCI bus technologies delivering improved reliability and throughput performance.

PUSHING THE LIMITS OF BUSINESS COMPUTING

IBM has unveiled the first processors designed to its copper and SOI (Silicon on Insulator) technology. The recently announced AS/400 8XX* servers are the first servers in the industry to be powered by these processors.



COPPER AND SILICON-ON-INSULATOR



New Processor Technology

SOI is a technique that insulates the wiring of IBM's copper processors. The result is reduced power consumption, lower heat during operation and improved performance of up to 30 percent. SOI represents a fundamental advance in the way chips are built. IBM's unique SOI process alters the design of transistors, essentially 'turbo charging' them so they run faster and use less power.

The addition of SOI alone can increase performance up to 20-30 percent beyond the use of copper by protecting the millions of transistors on a chip with a blanket of insulation, reducing harmful electrical leakage that wastes power. IBM was the first chipmaker to substitute copper for aluminum in chip wiring to boost performance and is now the first to perfect high-volume SOI manufacturing.

New AS/400e 8XX Servers

Copper and Silicon-on-Insulator technology dramatically increases processor performance on the new 8XX servers. Top model performance is extended by over three and half times for both processor and interactive. The top-of the line Model 840 boasts a new 24-way symmetrical multiprocessor. The new chip technology contributes to substantial performance improvements in the product line. The servers are designed to handle highly complex core B2B applications, including supply chain and customer relationship management, as well as solutions such as server-side Java, Domino and business intelligence.

At the high-end, the new line of 8xx servers builds upon the technology foundation established with the 7XX line, which were introduced in 1999. Easy, clear upgrade paths from SXX, 6XX and 7XX products allow AS/400 customers to affordably extend their existing technology infrastructure to meet rapidly growing user and application needs while protecting their previous investments.

To help preserve your investment in hardware, most existing SPD and PCI expansion towers and I/O features can be connected to 8XX models. A migration tower is used to connect the existing towers to the new 8XX system unit.

New AS/400e 270 Server

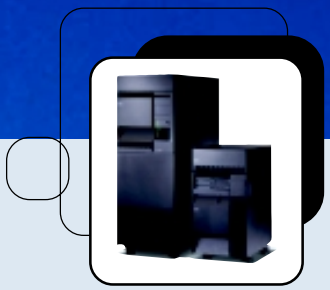
The new AS/400 Model 270 is designed to give small and medium businesses four times the performance of its predecessor. This server delivers the performance, reliability, and security needed for applications that span from core business to e-business and offers thirteen times top-to-bottom scalability.

New high performance features for 270 and 8XX servers:

- 700Mhz Integrated Netfinity Server
- High-Performance PCI bus with Hot Plug PCI adaptors
- High-speed links
- 1Gbps high-speed Ethernet LAN adaptor
- 100Mbps high-speed token-ring adaptor

* High-end 820, 830, 840 use copper and SOI processors

AS/400e FOR EXTREME BUSINESS



New AS/400 250 Server

This new AS/400e Model 250 entry server includes OS/400 and three licensed programs (Query, Client Access and SQL) in the base price. The full complement of AS/400e application support is also available making this system ideal for businesses that require an entry-priced server for traditional transaction and data serving applications.

New AS/400e Dedicated Server for Domino

Extended to leverage the fabulous technology of the new Model 270 and 820, the new Dedicated Server for Domino provides:

- EXTREME performance and scalability
- up to 20 times greater disk capacity
- 3 times scalability compared to previous AS/400e Dedicated Server for Domino

The AS/400e Dedicated Server for Domino, in conjunction with Lotus Domino(TM) Release 5.0, or later, delivers outstanding performance, growth and value. This tightly integrated solution delivers world-class reliability, manageability, and availability in support of Domino functions including:

- e-mail and messaging
- powerful collaborative tools for teams
- rapid application development and Web enablement
- offline computing (e.g. - laptops, mobile sales force)
- foundation for knowledge management initiatives

The AS/400e Dedicated Server for Domino is particularly effective when combined with the partitioning capabilities of Domino Enterprise Server(TM) to support multiple Lotus Domino workloads (for example, mail and Domino applications) on a single physical server.

OS/400 V4R5 Operating System Highlights

Built on the robust and stable base of OS/400, V4R5 is a prerequisite for the new AS/400e models. It delivers enhancements over previous releases including;

- Improved Java integration, including currency with Sun's version of Java, WebSphere Application Server Editions delivering support for Java Server Pages (JSP) and Enterprise Java Beans as well as multiple Java deployment enhancements
- 65% Java performance improvement with V4R5
- LPAR enhancements, including support for up to 24 partitions
- Portable Application Solutions Environment (PASE) support for AIX 4.3.3, to further expand the ability to port UNIX applications to AS/400e servers
- Domino integration enhancements and support for Domino Release 5.0
- Windows server integration enhancements and support for Microsoft Windows 2000 Server in:
  - Client Access
  - Integrated Netfinity Server
  - NetServer for AS/400
  - Operations Navigator

New I/O Implementation

The SPD bus, used in previous AS/400 models, is replaced by High-Speed Link connectivity and enhanced PCI capability on 270 and 8XX models, delivering dramatic performance improvements and configuration flexibility for I/O adaptors and devices.

Benefits Include:

- I/O throughput up to ten times faster than the previous implementation
- Running multiple 3590's and disk in the same tower at a rated speed
- Enables new high-speed technology, such as 1Gbps Ethernet
- Provides significantly improved save time for large objects
- Hot Plug PCI - for adding/removing/replacing hardware without taking the server down on all 8XX models and the two fastest 270 models. "Hot Plugging" is made possible by power control to individual card slots so that PCI IOP and/or IOA's can be added/removed/replaced while the system remains active. In most cases, IOA configurations can be changed while other IOA's on the same IOP remain operational.
- Flexible placement rules for IOP's and IOA's allow you to customise your system for performance, capacity, availability or logical partitions.
- Industry-standard SCSI Enclosure Services (SES) supports concurrent maintenance on individual DASD and removable media devices.

The new product range is available for delivery August 2000

From innovative new chip designs to highly integrated e-business solutions, the AS/400 server line continues to deliver leading technology and performance for e-business

New AS/400e world leading benchmark results:

Benchmark	Description	Result	Position	Announced	Reference
TPC-C	Traditional OLTP order entry / inventory scenario	152,346 TPM-C	# 1	July 26, 2000	www.tpc.org
NotesBench	Cross platform mail benchmark based on Domino R5 Mail and Calendaring Users (MCU)	MCU users 75,000 active	# 1	July 26, 2000	www.notesbench.org
SPECjbb2000	Java emulated 3-tier typical business application	80,348 ops per second	# 1	June 26, 2000	www.spec.org/osg/jbb2000
VolanoMark (TM)	Java benchmark, measures chat room message switching	42,863 messages	# 1	June 6, 2000	www.volano.com/benchmarks.html

These benchmarks were set by using the 24-way IBM AS/400e Model 840 server. These are powered by the world's first production microchips made of silicon-on-insulator transistors and copper wiring. The addition of SOI alone can increase performance up to 20-30 percent beyond the use of copper. This technology is available today to our customers in the recently announced AS/400e 8xx series.

Announcement letters

For more information, visit **www.as400.ibm.com** or refer to **IBMLink** for the announcement letters listed below at **www.ibmlink.ibm.com**

AG00-0202 IBM AS/400e servers...for extreme business
AG00-0203 9406 270 AS/400e server
AG00-0204 IBM AS/400e middle-tier servers...for extreme business
AG00-0208 AS/400e dedicated server for domino - new models
AG00-0209 IBM AS/400e server 250 - serving your business
AG00-0048 IBM AS/400 selected products withdrawn
AP00-1141 DB2 warehouse manager for AS/400 v7
AP00-1147 DB2 datapropagator for AS/400 v7.1

AP00-1150 IBM AS/400e server 150 v4r5 software upgrade
AP00-1152 QMF for windows for AS/400
AP00-1148 MQ Series for AS/400 v5.1
AP00-1151 DB2 olap server, AS/400 v1.1
AA00-3044 New IBM AS/400 models offer extreme scalability & performance
AA00-3049 OS/400 v4r5 delivers performance & flexibility for new AS/400
AA00-3050 IBM AS/400e ...for extreme business
AA00-3054 IBM Domino Server for AS/400e additional choices

A User Experience

DSD - (Dedicated Server for Domino)

Galileo Publishing Pty Ltd (GP.com.au) is a Lotus Business Partner specialising in the development of custom Internet applications for a wide range of clients. Traditionally all of GP's clients operated Intel and Windows NT4 based systems. GP were very keen to investigate the AS/400e DSD as a new internal development platform, as well as using the box to demonstrate it's capabilities to prospective clients. GP were initially loaned a DSD for a trial period.

The AS/400e DSD Experience

After a few teething troubles which we expected to encounter with a new platform, and after getting my head around the 'green' screen interface, we went about integrating the AS/400e into our Windows NT environment.

Immediately you notice the little differences. With the NT environment one inevitably finds oneself installing and configuring a Domino server in the clients' server room. These are generally cold and inhospitable places and the less time spent in them the better! With Domino for the AS/400 you have two choices for server setup and config - web based or green screen. Whilst the web based setup looks great, we ran into a few problems due to the type of install we were doing (it seems ideally suited to an initial Domino install) and I was forced to use the green screen version. What a godsend - not only am I able to sit at the comfort of my desk and setup and configure Domino servers, but for good measure I sat in my hotel at Surfers Paradise and setup an additional server from there while attending PartnerWorld/Fusion 2000.

For the next 4 weeks we utilised the AS/400e DSD as a secondary development server. We noticed no real difference between the AS/400 and our existing NT4 based server except for the lack of crashes and reboots. In fact, when we found the code that crashed our NT based server, we promptly tested the same code on the AS/400 with surprising results. Both platforms were running Domino R5.02c. Even though we are dealing with servers that are used as a Development platform downtime can be costly - if our current NT based development server is down for 1/2 hour then our developers are unable to do the work for which we get paid for that time.

In the five weeks that we had the AS/400 on site after the initial setup the machine was booted - not rebooted. After our weekly ritual of server recycling this was all the proof I needed of the reliability of the AS/400 platform. We cycled the Domino server once or twice which was purely to show someone how quick and easy it was to do remotely.

With the NT environment that we, and most of our customer's currently use, weekly reboots of systems are a regular occurrence. In fact, we often reboot the systems as a preventative measure against extended downtime which often occurs at the most inconvenient moment. System maintenance and updates are a breeze. Instead of having to access the NT server, updates are FTP'd (or written using Net Server for AS/400) to the AS/400 and installed from a green screen command line.

At the conclusion of the loan period I was impressed, to say the least. At our next board meeting a recommendation was made that we purchase an AS/400e DSD model 170-2407 as our new development platform and this was duly accepted. The justification was that the current NT server went down on average 3 times per week for around 1.5 hours at a time. With four developers using this box that is an average loss of eighteen developer hours per week lost due to NT. No matter what they did to the AS/400, the box would not go down - business case justified and signed off by the board.

Galileo also now do regular remote system administration via a palm pilot using an infra-red modem and a mobile phone.

Justin Deeley

Notes Principal Systems Administrator R4/R5

Galileo Publishing Pty Ltd
http://www.gp.com.au/

Enterprise Resource Planning

Change in business is happening today at an unprecedented rate. As we look into this uncertain future, it is advisable to also look to the past. A good understanding of the past can prevent the same mistakes from being made again in the future.

In the beginning of the use of technology to manage an enterprise, there was inventory - and plenty of it. Companies could afford to keep inventory on hand to satisfy customer demand. The normal policy in purchasing was to keep a little of everything on order all the time just to make sure that it never ran out. We were in the age of reorder point systems where the assumption was that the customer would continue to order what they had before and the future would look very much like the past. Product life cycles were measured in years. If a little extra was ordered, it was not a big issue since it could be used up before it became obsolete. Inventory was an asset not only on the balance sheet but also in the mind of the average manager. Warehouses, automated storage/retrieval systems, and carousel systems were the solution of the day to handle this plenty. Fixed assets like these were added to manage, sort, and retrieve inventory. The focus was on internal efficiency.

Silently the need to order only what was really needed crept in on the time horizon. No longer could a company afford to order some of everything. Orders had to be based on what was being sold offset by what was already in inventory or committed on a purchase order. Forecasting these requirements was impossible and the tried and true reorder point system failed miserably to effectively manage those purchased parts. To address this need, in the mid-1960's a great new invention allowed these kind of detailed calculations. MRP (Materials Requirements Planning) was quickly developed to utilise a brand new invention - the computer. For the first time

Enterprise Resource Planning is a cornerstone in the foundation for a company to become an e-business.

: From ERP to e-business

e-business

proactive detailed planning could be done for material. This capability quickly evolved with MRPII (Manufacturing Resource Planning) to include capacity planning and then financial controls. This integration extended across the enterprise with the advent of ERP systems. The tools available to more effectively manage a business changed as quickly as the technology changed. More powerful software and hardware promised to improve costs and enhance internal processes.

However, one constant can be noted as this history is carefully examined. The simple purchase of software and hardware was not sufficient to drive bottom line value. The same software could be installed in different companies with very different results. ERP implementations became front page news in the Wall Street Journal and other business magazines. Many executives are asking today how they can be assured of adequate return on investment in the latest development - e-business.

In the early 1990's ERP was considered a business process enabler and a strategic investment in world class infrastructure. Today, ERP is simply the plumbing under the extension of information systems to critical constituencies - much like the foundations supporting the construction of a house. ERP does not provide competitive advantage. Currently, the focus for the business manager has turned to three deceptively simple questions:

- **Where will we be allowed to make a profit?**
- **What will be our value propositions?**
- **What business designs will drive profit and shareholder value?**

One answer to these questions is to become an e-business. An e-business is an organisation that connects critical business systems directly to their critical constituencies. (e.g. customers, employees, vendors and suppliers) via intranets, extranets and the world wide web. e-business is about business and not just about technology. Technology is necessary but not sufficient to achieve the kind of competitive advantage needed to survive today. ERP is a cornerstone in the foundation for a company to become an e-business. Becoming an e-business is not just simply publishing a fancy web site. e-business is about driving real bottom line value for the holistic enterprise by transforming basic business processes using Internet and Intranet tools to drive value for the customer.

Executive vision is critical to successfully evolving to become an e-business. Once this vision is developed and communicated, the constraints and barriers to achieve this vision can be identified. A complete approach to the plan includes issues like people, tools, and processes that must be changed or developed to support the strategy. The evolution to an e-business occurs in a rapid iterative fashion by leveraging the current processes, transforming the constraints to achieve higher enterprise performance, building necessary programs to support these new business processes and running these programs in a secure environment. Entry into this cycle can begin anywhere. The e-business cycle, leverage, transform, build and run, while focused on the vision is a proven approach to become an e-business. ERP is a key foundation in this transformation process.

The future is uncertain. However, by understanding and learning from the past while focusing on the vision of the desired future state, business executives can be confident as they boldly go where business has not gone before - e-business.

Bio: Carol A Ptak

IBM Global ERP/SCM Solutions Group Executive

Carol A Ptak is a world-leading trainer, educator, and consultant for integrating organisational performance. She specialises in production and inventory management, operations, and organisational assessment, and is well-known for her ability to turn theory into practical realities.

Ms Ptak is the current President of APICS, the Educational Society for Resource Management.

Ms Ptak has produced outstanding results in consulting to organisations including Boeing, IBM, Intel Corp, Malaysia Pacific Industries, Microsoft, Sanyo Corporation, and the US Naval Undersea Warfare Center. Her consulting experience was preceded by more than 20 years in hands-on, management roles for manufacturing and distribution operations.

Ms Ptak holds an MBA from Rochester Institute of Technology, is certified at the fellow level in Production and Inventory Management (CFPIM) through APICS, and was internationally certified with the first group in Integrated Resource Management (CIRM).

Ms Ptak is the author of numerous articles, and the book MRP and Beyond: A Toolbox for Integrating People and Systems. Her second book, ERP: Tools, Techniques and Applications for Integrating the Supply Chain, was jointly authored with Eli Schragenheim. Ms Ptak is now working on a third book.

AS/400e Security = Web Secu

Why can the AS/400e make the claim of being one of the most secure systems around?

Why can the AS/400e make the claim of being one of the most secure systems around?

When you examine press stories about computer break-ins, you see that security breaches can be attributed to three key areas: problems in the system's architecture, programming bugs in the operating system, and system administrator configuration errors.

The AS/400e is often accused of being old and stodgy because the architecture used to provide security and integrity has been around awhile. But rather than being a detriment, this stability means that AS/400e security has been tried and tested - it's solid.

There are several reasons why AS/400e security is so robust. First, AS/400e security is integrated throughout the system-from the hardware up through every component of the operating system. Second, we provide tools that help control and measure security. Third, new technologies, such as TCP/IP change the security exposures for the AS/400. IBM examines these exposures and provides solutions before adding new functions to the system. Fourth, security is a design feature in AS/400e development. The development processes demand that the security considerations of each new feature be addressed at the feature's initial design phase. Security on AS/400e is not an afterthought.

Rock-Solid, Integrated Security

The AS/400e has a layered architecture. Each layer has its own security features, and higher layers, for example, application programs can only access functions at lower layers (e.g. licensed internal code), by using specific published and securable interfaces. The security level on AS/400e is set by the QSECURITY system value, ranging from 20 (password security) to 50 (enhanced system integrity). User profiles and resource security control which functions and objects can be accessed by an individual user.

There are several reasons why AS/400e security is so robust. First, AS/400e security is integrated throughout the system — from the hardware up through every component of the operating system.

Some of the security integrity features are integrated into the AS/400e hardware itself-something that is not available on UNIX or PC hardware. Security levels 40 and 50 provide operating system integrity. That means that user-written programs cannot access objects except through IBM-approved interfaces. Because they must use an approved interface, third-party programs cannot bypass object auditing. Also, it means that third-party applications will not break from release to release of OS/400 because they are not using interfaces that change between releases.

Proof Positive

The ability to prove that security is working is just as important as what the security does. The AS/400e provides integrated auditing and security journaling support. Security journaling functions provide integrity in audit journals by preventing a user from deleting individual entries from a journal receiver.

Auditing capabilities in OS/400 are quite comprehensive. You can audit system-wide security actions, the security actions of a particular user, system-wide accesses of an object, and a specific user's access of an object.

In addition to the auditing tools, OS/400 provides tools to help you manage your users and groups and the authorities they have to the objects on the system. For example, by using one simple command, you can see which users have passwords the same as their user profile name and force them to change their password at the next log-on; or, you can schedule to delete or disable profiles at a specified date. Authority reports let you keep track of the private authorities on your most sensitive files and directories.

Virus Resistance

PC viruses cannot wipeout the AS/400e because it doesn't use a PC instruction set. Also, the AS/400e architecture prohibits a pointer from being 'manufactured'-a common entry point for viruses. One way for a virus to cause damage is to take an off-set and turn it into, or 'manufacture', a pointer. Using the manufactured pointer, data can be over-written, erased, etc. On the AS/400e, a pointer must be declared, and before it can be used, the program must be compiled knowing that a certain variable is a pointer. The rules concerning pointers are enforced through an AS/400e hardware feature which makes them nearly impossible to bypass.

Adapting to New Technology

On the AS/400e, we're incorporating Internet security technologies as soon as they become industry standards. This ensures you'll have the necessary tools to protect your system on the internet.

Recent additions to OS/400 include native implementations of Virtual Private Networking (VPN), Network Address Translation (NAT) and IP packet filtering.

rity

Another important security technology is Secure Sockets Layer (SSL) support which has been integrated into OS/400 and enabled through the IBM HTTP Server for AS/400e since V4R1. The IBM HTTP Server for AS/400e is an integrated part of the operating system and in addition to supporting SSL. It offers numerous configuration options that allow you write secure Web applications.

AS/400e users can either be 'real' users or 'Internet users. That is, they can have a user profile object and can sign on to your system, or they can have a user ID that is known only to a particular Web application. Such an Internet user cannot sign on to the AS/400e, own objects or have a job started under their ID because there is no (real) user profile associated with the ID. In an intranet environment, applications typically require a user to have an AS/400e user profile. In the Internet environment, applications typically require only an Internet user ID. AS/400e gives you the flexibility to use either type of ID depending on the application security requirements.

AS/400e sets the standard for security against which all other business computers should be measured. AS400e security is integrated, solid, virus-resistant and thoroughly documented.

Another key Internet technology is digital certificates. AS/400e Digital Certificate Manager (DCM) provides support for creating and managing digital certificates. DCM is available as an optionally installable, no charge feature of OS/400. To extend the utility of digital certificates beyond web browsers, APIs are available on AS/400e to allow many types of applications to authenticate a user using the digital certificate process.

Put to the Test

AS/400e has been put through several 'ethical hacking' tests by IBM's Watson Research Ethical Hacking team, IBM's Global Services Intrusion Detection team as well as internal testing teams. While none of these attacks have been successful, they provide valuable information on how to further improve AS/400e security features. However, a strong word of caution: the AS/400e comes with many functions and features to help you secure your system, but, just as you have to arm an alarm system, you must ensure your AS/400e's security features are in use.

AS/400e sets the standard for security against which all other business computers should be measured. AS400e security is integrated, solid, virus-resistant and thoroughly documented. Integrated security management and auditing tools provides the help when you need it. These are the characteristics that lets IBM claim that AS/400e Security = Web Security.

The Wrigley Company installs eBPCS as a launching pad for e-business developments

The Wrigley Company Pty Limited is an Associate company of the William Wrigley Jr. Company, the world's largest manufacturer of chewing gum products.

Its Australian operation, with headquarters in Sydney and four sales offices throughout the country, enjoys a dominant market share in the chewing gum category.

With the assistance of a third party warehouse, The Wrigley Company distributes its products through Australia's leading retail wholesalers and exports to markets in New Zealand, Papua New Guinea, the Pacific Islands and South Africa. Well known brands include Extra, PK, Juicy Fruit, Freedent and Hubba Bubba.

Business Environment

Operating from a position of market strength, The Wrigley Company is focused on growing the business, by improving productivity, and continuously increasing efficiencies throughout the supply chain. As a confectionery manufacturer, they face continuous pressure from retail wholesalers to reduce margins and maintain service levels and delivery times. In addition, they need to address the specific demands of a wide range of export markets.

"The main reasons for the move were performance, improvement in product functionality and the establishment of a stable base for e-business development," said Tony O'Donnell, Managing Director, The Wrigley Company. One of the major considerations was the company's plan to develop e-business capabilities. Any new solution needed to be able to integrate leading third party software with ease.

SSA Solution

The Wrigley Company has implemented eBPCS Financials, Manufacturing, Orders and Billing on an IBM AS/400 S20-2165 server.

"The eBPCS implementation took just eight incident free weeks. Needless to say, we are now getting on with the job of running our business and laying down future plans, without the distraction of drawn out implementations." added O'Donnell.

Business Benefits

- The eight weeks, problem free implementation has ensured maximum return on investment.
- Overall performance improvements have delivered time and cost savings throughout the business.
- Order processing speed has been vastly improved.
- Reliability contributes to increased user satisfaction and reduced support costs.
- eBPS provides a stable platform on which to build future e-business developments.

With eBPCS running smoothly, the Wrigley Company plans to develop true e-business capabilities throughout the supply chain.

SSA

For more information

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The right solutions. To the right market. At the right time.

SSA

Sussan goes with Silvon

Sussan Corporation, one of Australia's most successful fashion retailers, has selected Silvon Software's Integrated Business Intelligence solution DataTracker following a major review of all their business systems.

Inefficiencies in the way Sussan processed, analysed and distributed their information internally were putting a handbrake on the company's growth: the finance department needed better information from Planning and Logistics for their cash flow and For Ex forward cover management; Planning needed better information from the retail outlets to streamline inventory holdings and increase speed of sell-through; Retail needed better information from Marketing to plan for promotional campaigns and so on.

The company decided to invest in a data warehouse solution so that all areas of the business had access to a single, accurate version of the truth at all times.

Over 8 months a project team, led by IT Operations Manager Michael Kanizay, conducted an exhaustive evaluation of BI/Date Warehouse solutions on a range of platforms before unanimously selecting DataTracker from Silvon's Victorian partner Network400, to run on an AS/400 model 730.

"We were looking for a solution that would deliver accurate and timely information across the whole organisation, on a platform that our business users were familiar and comfortable with," says Michael Kanizay. "Naturally we also wanted a fast ROI, so it needed to be quick to implement and low-maintenance."

"DataTracker won on three principal criteria," says Kanizay, "simplicity, credibility and value."

With over 300 stores throughout Australia and New Zealand, some 14,000 stock items live at any one time, and up to 42 million possible combinations of style, size and colour, Sussan needed a solution that was sufficiently robust to process massive volumes of data – around 100,000 transactions per week- and with the ability to track sales, inventory, cash flow and profitability right down to a single stock item. It was also considered essential that the solution should be highly scalable to cope with the additional 100 stores arising from the acquisition of Sportsgirl.

Silvon's two-tiered technology – running an OLAP (On Line Analytical Processing) viewing tool directly over the data warehouse – was considered a simpler and more effective solution than the other products, where multi-dimensional databases, or "cubes" introduce a third tier.

The value proposition, which includes rapid deployment and low ongoing IT resource requirement, was reinforced by the AS/400's reputation as a stable, and hence economical, platform.

The team also researched the product's credibility in the marketplace: "we wanted to know that the software was being used successfully by similar businesses in similar markets;" says Kanizay. "DataTracker is marketed as an integrated module of JDA's ERP software, which in itself is a recommendation in the retail sector, but we also talked at length to DataTracker users in Australia and overseas."

DataTracker is used by over 1,200 companies worldwide, principally in the manufacturing, wholesale distribution and retail industries, where companies typically have high volumes of data to process and analyse.

"In the end, DataTracker was felt to be the product that fitted in best with the way we do business", concludes Kanizay; "Network400 clearly demonstrated that they had the right balance of skills combined with a firm understanding of our business to deliver the solution we were after."

Silvon
The Application Data Mart Company

sussan
this goes with that

About Silvon

Silvon delivers end-to-end, multi-platform business intelligence solutions to manufacturing, wholesale-distribution and retail organisations. It currently has over 1,200 installations world-wide.

Silvon Australia offers a strong network of Alliance Partners throughout Australia and New Zealand. These include Network400, QTECH, Madison Systems and Diamond Management.

A recent IDC report ranked Silvon #1 in the global Packaged Data Mart segment.

For more information

Contact: **Silvon Australia in Sydney**
(+61 2) 9552 1216
Network400 in Melbourne
(+61 3) 9821 0799

Or visit www.silvon.com

Movex and the AS/400 take a lea

With over 3,000 customer sites running on AS/400's, Intentia's product 'Movex' is one of the world's most successful Enterprise Application products.

Fully e-business ready, and now totally re-written in 100% pure Java™, Movex is supported in Australia/New Zealand by Intentia's team of over 200 specialist staff working from offices in Sydney, Melbourne, Brisbane, Adelaide and Auckland.

Industry Support

Movex has been developed to cover a variety of specific industries, including; automotive, aviation, distribution, fashion, food and beverage, furniture, maintenance repair & overhaul (MRO), paper, service and rental and steel. The product is developed in a series of Industry Application Centres around the world, staffed by industry experts whose goal is to keep Movex's functionality ahead of industry trends.

Movex Fashion

Like all Intentia's targeted industries, the Fashion industry has several special requirements, which Movex is uniquely designed to handle. For example, Movex Fashion includes a four-dimensional matrix, which is made up of Style, plus three user-defined attributes, for example; colour, waist size, and inseam length. Movex Fashion is also designed to handle complex supply chains, volatile sales patterns, large volumes of SKUs (Stock Keeping Units), make-to-stock and make-to-order in the same company, and complex scheduling of cutting, sewing, subcontracting and transportation. Several fashion companies in Australia/New Zealand have already chosen Movex running on the IBM AS/400 platform as their Enterprise Application solution. These companies include Speedo, R.M. Williams, Sara Lee Intimates and Charles Parsons. Recently the Dempsey Group and Dryen Australia Pty Limited have implemented Movex Fashion.

Angela Poulos
Chief Financial Officer, The Dempsey Group.

The Dempsey Group

The Dempsey Group is Australia's largest family owned and managed group of companies in the local textile homewares market. Since its foundation by John Dempsey in 1960, The Dempsey Group has benefited from gradual and strategic development, operating well established successful manufacturing and retail divisions.

From its origins as a small company specialising in chenille bedspreads, and manufacturing, importing and retailing textile products, the Dempsey Group now employs 350 staff and operates 30 retail stores across Australia.

As the Australian manufacturing sector continues to face pressure, Dempsey's economic challenges increase. The most pressing challenges are operating a business with reduced tariffs and tighter profit margins. Under these pressures Dempsey has increased efficiencies across the company by upgrading its IT systems. "Of all the products we evaluated, Movex had the framework which required the minimal amount of modification to fit in with our business requirements", said Dempsey Chief Financial Officer, Angela Poulos.

"The great differentiator with Movex is the improved analysis, tracking and reporting of all our items. This provides a bird's eye view that enables Dempsey to provide our customers with improved levels of information about stock allocation and delivery dates. "Movex provides us with an information technology platform which allows us to analyse our sales trends, manage our stock levels effectively, manufacture efficiently and maintain a high level of customer service by ensuring we have the right stock on hand in the right quantity and at the right time in order to meet our customer demands", Ms Poulos added.

Dempsey implemented Movex in less than six months using Intentia's implementation methodology Implex.

The Dempsey Group already operated an RS/6000 so it had no hesitation in adopting another IBM hardware platform. After some further investigation and reference visits, Dempsey put to rest its initial concerns about the AS/400's old technology reputation. Indeed Dempsey was pleased to discover that the AS/400 is not only a stable, reliable, and easy to use platform, but also its advanced technology makes it particularly well suited to take the company into the future with e-business.

THE DEMPSEY GROUP

Dryen Australia Pty Limited

Dryen is a privately owned importer, manufacturer and distributor specialising in bed linen and coordinates for the bedroom. Established in 1970 and based in Melbourne, Dryen sources the majority of its products from South East Asia and distributes to a nation-wide network of retailers. It is one of the top ten operators in

ding role in the fashion industry

Indeed Dempsey was pleased to discover that the AS/400 is not only a stable, reliable, and easy to use platform, but also its advanced technology makes it particularly well suited to take the company into the future with e-business.

its industry, selling over three million articles per year. As it handles several thousand distinct product lines, the company needed to ensure its systems could handle inventory by style, colour and size. Consequently, in seeking a new enterprise solution, Dryen looked for an easy-to-use integrated and centralised information system that specifically identified inventory by these three dimensions.

Dryen reviewed several alternative products before deciding on Movex on the IBM AS/400 platform. According to Dryen's Chief Financial Officer, Brian Churchill, Movex was the only solution that provided inventory management by style, colour and size without any software modifications, proving 'good value for money'.

Movex gives us better control over inventory so that we can provide a much better service to our customers whilst at the same time managing our inventory risk better", Mr Churchill said.

The system embraces all current distribution technologies including EDI, (Electronic Data Interchange) ScanPack and MGB Way. For retailers it also monitors the sales of every individual SKU on a weekly basis as part of a vendor managed inventory process operated in conjunction with the store buyers. Movex Fashion provides better control over inventory management, shipments, the overall supply chain and product development in a single system which integrates seamlessly with an executive information system. "For the cost of about one percent of Dryen's turnover, Movex has improved profitability through the streamlined operations and better cost control", Mr Churchill concluded.

Dryen already had a long and successful relationship with IBM through the S/36 and was aware of the advantages offered by the AS/400. Dryen initially set out to find the most suitable software to run the business, and was pleased to discover that Movex operates on the AS/400, providing an ideal marriage of hardware and business software. Since implementing the AS/400, Andrew Carrazzo, Dryen's IS Manager, has discovered that the AS/400 is more than just a reliable, easy-to-use, and secure platform. He is most impressed with the ability of the AS/400 to combine many advanced technologies into a single system such as web serving, file and print serving, and electronic commerce. These features offer great flexibility for the future at Dryen.

Dryen AUSTRALIA PTY LTD

e-business

Movex Fashion offers Internet, Intranet and Extranet solutions for business to business, business to consumer, employee self-service and more. For example, apparel, footwear and home fashions manufacturers and distributors can use Movex Fashion and the Internet to allow their customers to view catalogues, check the status of an order, and even place catalogue orders directly over the Web. Movex Fashion's Internet-enabled capabilities are designed to help companies provide more responsive customer service and forge closer relationships with their suppliers and business partners.

Dryen product range

intentia

ABOUT INTENTIA

Intentia is one of the world's leading suppliers of Enterprise Applications. Our business concept is to develop and make business processes more effective by combining software and know-how. Our Enterprise Application, MOVEX, is one of the most advanced on the market and is available in a number of industry applications to meet the unique requirements of different industry sectors. Movex is also one of the cornerstones of Intentia Solution: a unique set of tools, methods and functionality for configuring and implementing Enterprise Applications. Intentia has more than 3,000 employees in 40 countries around the world.

For more information

For more information call Intentia in Australia on **1800 656 575** or New Zealand on **0800 669 944**.

www.intentia.com

Neller Software revitalises HR

ASP Success Story on AS/400

Neller Software, Australia's leading AS/400 provider to the Human Resources and Payroll sector, has refreshed its entire product range to take advantage of new technology and to satisfy changing market requirements. The initiatives Neller Software has taken are:

- the launch of new Application Service Provider (ASP) offerings including EZPay
- the launch of a new Internet-based employee self-service module
- the launch of a new high-speed data entry module for high-volume sites
- the announcement of a new generation version of its flagship product Preceda V8.

Capitalising on the fact that over half a million employees, mostly in Australia, are paid regularly via its software, Neller will use its expanded product range to move into new market segments and attract new customers. Underpinning this growth will be a sound architectural foundation consisting of IBM's AS/400 and LANSA's e-business and development solution. Both the AS/400 and LANSA offer Neller Software the reliability, availability, security, productivity and scalability required for highly critical business functions such as Payroll and Human Resources.

Application Service Provider (ASP) Solutions

To reach new markets, Neller has recently launched a new Application Service Provider (ASP) offering. "We call our first ASP service EZPay," explains Mr Andy Brown, Managing Director of Neller Software. "We took the Preceda product and made it simpler by scaling it down, automating procedures and providing a browser front-end. Preceda is our high-end product, with rich functionality and a wide variety of options. With EZPay we simplified matters to target smaller companies."

The new ASP model provides extra benefits for employer organisations, as Mr Andy Brown explains, "Traditionally when companies outsource their payroll to a bureau, you may enter the data yourself, but you don't have control over the processing. With EZPay you not only do the data entry yourself, but you also print the reports and pay-slips and make corrections when required. You can enter and process your payroll data whenever and from wherever you like. You could even do it from home on the weekend."

While EZPay suits small and medium enterprises, Neller Software has learnt that larger organisations are increasingly demanding full-service ASP solutions. Hence, Neller plans to make its entire product range available via the ASP model. Now even organisations whose primary platform is not AS/400 can take advantage of the AS/400's rock-solid reliability to remotely host their payroll processing requirements.

Employee Self-service

The Preceda application is traditionally used by the Human Resources and Payroll departments of Neller customers. Employees wanting information about their HR or pay records contact the HR department to have their queries attended to or records updated.

Now Preceda V8 Self Service empowers employees with direct, secure access to relevant details from a web browser. Depending on company policy, access can be restricted to the intranet or extended to the Internet as well. Collins Food International is one Preceda customer who has already taken advantage of this new feature to offer an increased level of service to employees.

High-volume Data Entry

Preceda scales up to service large organisations, which often have a centralised HR/pay administration facility. In these environments, there is a need for high-speed volume data entry. For example, at Coles Myer in the peak period before Christmas, the supermarket division hires an additional 1,000 seasonal employees each week, which results in a substantial increase in the data entry for Preceda.

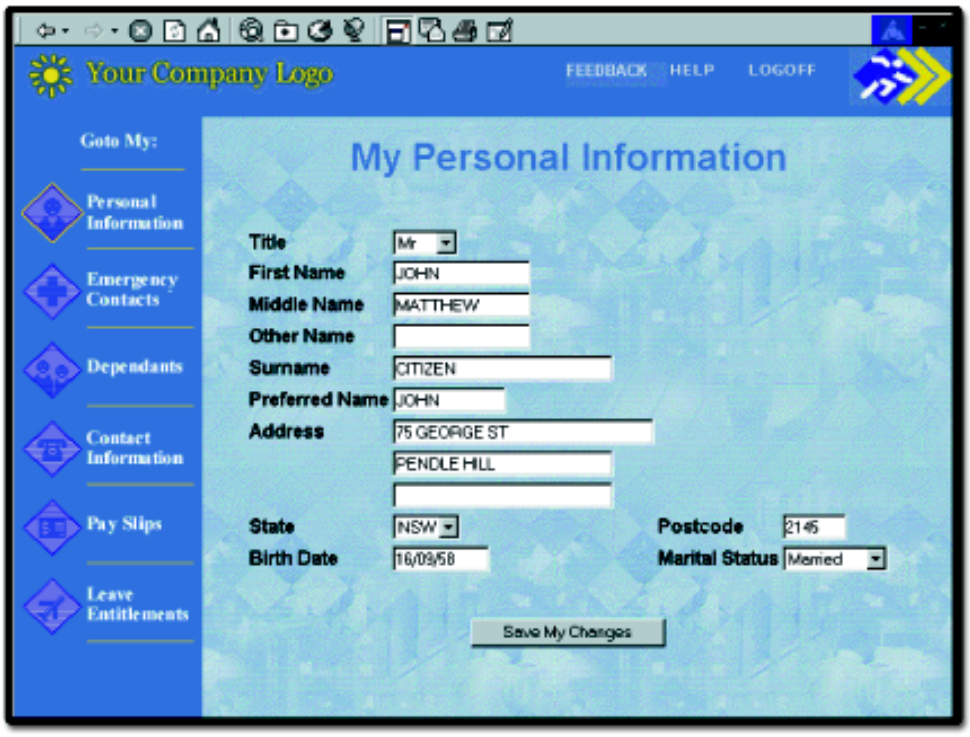
Neller has introduced Preceda Professional, which uses Visual LANSA and LANSA's high-speed client/server middleware to provide high throughput processing for the relevant Preceda data entry functions. The module is already in use at Coles Myer, and compliments the core Preceda application. Greg Irvine, Coles Myer payroll and superannuation administrator says, "Neller helped us move from disparate payroll systems to a shared service environment. Neller provides a proven payroll operation with an integrated system and we have the opportunity to move with other components down the track if required."

New Browser Interface for Preceda

At its March 2000 Client Conference on the Gold Coast, Neller Software previewed Preceda V8, its new generation flagship HR/payroll solution. With Preceda V8, the package's front-end has been totally redeveloped by Neller and now has a native web browser interface. This offers the following advantages to customers:

Mr Andy Brown
Managing Director, Neller Software

/Payroll offering



Neller plans to make its entire product range available via the ASP model. Now even organisations whose primary platform is not AS/400 can take advantage of the AS/400's rock-solid reliability to remotely host their payroll processing requirements.

- secured access, anywhere and anytime
- minimal deployment overhead
- reduced operational costs
- easy to use and navigate
- leverages industry-standard web server and browser technology.

Often Human Resources and Payroll are not the primary line-of-business applications implemented by an organisation. Therefore it is in the customer's interest if Preceda can be installed and maintained with minimal special requirements. Preceda V8 uses industry-accepted software standards, including IBM's standard HTTP Server for AS/400 and Internet Explorer on the client. Once the web browser is in place on each client device, there is no additional software to be loaded on the client. LANSA for the Web serves industry-standard HTML and JavaScript without the need for any special plug-ins or controls. Consequently, the Preceda-specific component of an installation is restricted to a one-time effort on the server, dramatically cutting down installation and upgrade times.

LANSA's Role at Neller Software

LANSA has provided an extremely productive development environment allowing Neller Software to turn its new vision into reality. Mr Andy Brown explains, "We wanted a tool that would seamlessly integrate with the AS/400 and RPG-based core functionality of Preceda. We also required one tool that would allow us to develop AS/400 server-side routines, web applications with a browser interface and fast, high-volume client/server applications. These requirements significantly narrowed down the field of tools that we could use."

"LANSA was easy to learn for our AS/400 developers with an RPG background. We did not have to recruit new web or client/server specialists and could use our existing people who already have extensive HR industry knowledge. We love LANSA's single skill-set approach and plan to gradually replace the entire code with LANSA." said Mr Brown.

About Neller Software

Neller Software has provided Payroll and HR solutions in Australia for over twenty years, and employs more than 60 staff in offices in Adelaide, Melbourne, Sydney, Brisbane and Perth. Customers include Coles Myer, Woolworths, Coca Cola Amatil, Pacific Dunlop, Commonwealth Bank of Australia, BRL Hardy and Wesfarmers.

For more information

For more information please contact Neller Software on **61 8 8364 1800** or

Visit **Neller's Web site** at **www.neller.com.au** and LANSA's site at **www.lansa.com.**

LANSA is available from LANSA Pty Ltd on **61 2 8907 0200**

Synergy Plus "Weaves the Web into Legacy"

Synergy Plus has developed a winning formula to successfully web-enable traditional AS/400 customers quickly and cost effectively using their exclusive advanced Internet toolkit solution, "Weaving the Web into Legacy".

"Our customers have invested heavily in their AS/400 business solutions over many years. Rather than re-invent the wheel, we developed an Internet enablement solution that leverages off that investment" said Chris Engel, e-business Practice Manager at Synergy Plus.

The solution is based on IBM's Websphere Application Server that manages the connection between the Web user and existing AS/400 applications, as well as providing fully configurable scalability, availability and security options.

Synergy Plus has provided Lease Plan with an e-business solution that puts us ahead of our competition

Synergy Plus' intimate knowledge of the AS/400 and commitment to research and development has resulted in an advanced AS/400 internet toolkit that delivers high quality web based solutions that integrate seamlessly into existing AS/400 applications. The solution has been used to deliver intuitive and responsive real-time applications like web based order entry, order enquiry, order confirmation and stock status enquiry, to a number of Synergy's existing clients, including Lease Plan.

"Synergy Plus has provided Lease Plan with an e-business solution that puts us ahead of our competition by delivering a higher level of service to our customers without increasing our costs" said Mr Rod Solomons, Managing Director, Lease Plan Australia.

SYNERGY PLUS

IBM e Business Partner

Synergy Plus becomes IBM's First e-Business Certified Business Partner

Synergy Plus has become the first Business Partner in Australia/New Zealand to receive an e-business certification from IBM. The certification demonstrates Synergy's commitment to e-business, including having proven experience in helping its customers meet their e-business needs.

Synergy Plus, in conjunction with IBM GSA, are currently offering a free half day e-business workshop, to develop an understanding of e-business needs as the starting point to developing an e-business plan.

For more information on "Weaving the Web into legacy", or the free half day e-business workshop, email info@synergy.com.au

The Apparel Group "Sets the Trend" with new merchandising system

The Apparel Group is a newly formed part of the privately held S.F. Beaujolais Group, a well recognised apparel manufacturer in Australia, which last year was formed with the purchase of two quality retail brands, Howard Showers and Sportscraft, for which it already supplied product.

The new retail group, which operates at 69 locations throughout mainland Australia, was a totally "greenfields" operation. The Apparel Group faced a 10 week deadline to establish its own computing infrastructure, after the transition period from the previous owner's existing Oracle based Retek system. "In acquiring both labels, we have bought intellectual property and brand image, so we had a demand, but we had absolutely no systems," said The Apparel Group's Commercial Manager, Mr Evan Morrison. "The issue we had was to have an ability to control our stock, purchasing, receipting and sales. We had to go to a manual stock-based system for a limited period of time, but when you're selling 20,000 items a month, we obviously had to get up a system in pretty short order."

After a review of existing products in the market place, The Apparel Group made the choice to migrate from the Retek system to the ORSI - Retail Management System (ORSI -RMS) running on an AS/400 Model 170. ORSI-RMS is a true merchandising system designed for fashion retailers, wholesalers and franchise operators with functionality down to size/colour and dimension. The solution was supplied and implemented by Melbourne-based IBM Business Partner, Quantin.

The current system supports over 20 users, and no functionality has been sacrificed in the change of systems, with significant improvements made in ease of use, and response times. "An important factor with the AS/400 and ORSI software was that the solution required next to no modification, which meant it was quick to implement," says Mr Morrison.

"The AS/400 platform is very stable. This high level of stability and the low level of administration required were also attractions because we don't have anyone on deck that's an AS/400 expert" says Mr Morrison.

The Sportsgirl Sportscraft Group's Retek UNIX based computer system was supported by a team of approximately 20 MIS staff. Sportscraft's ORSI-RMS system is currently being supported by one part-time operator.

ORSI RMS screens are attractive and easy to use. Users can gain access from their PC's using a familiar windows graphical user interface. ORSI RMS is configurable and includes a menu/security system that allows users to only access the functions they need.

Mr. Morrison, who holds responsibility for the company's back office and operational functionality, said the solution was implemented in just six weeks. "The system has lived up to our expectations and the hardware hasn't missed a beat" he said. "Key issues for us were time to implement and low cost of ownership."

"This is the third separate occasion I have been involved in an implementation involving the AS/400 platform and I've had nothing but positive outcomes in each instance."

Mr Morrison is very positive when describing the relationship with Quantin "The customer care level they have really exceeds my expectations. It's the product knowledge and regular contact that really makes the difference. They understand our needs and it's a partnership."

QUANTIN COMPUTER TECHNOLOGY SERVICES

Quantin is managed by a group of professionals with extensive experience in software development, information systems and quality assurance in many high profile Australian companies. Quantin specialises in the retail industry providing on-site, in-house, and online consultancy, offering high-quality, cost-effective software solutions.

For more information

For further information about **Quantin** email **info@quantin.com.au** or visit **www.quantin.com.au**

INTERACTION AUSTRALASIA

The Forum for IBM Users

Interaction's primary role is to help Users of the AS/400 (and all other IBM systems) to:

- share knowledge (without giving away trade secrets!)
- influence IBM in its development of business solutions
- meet regularly to discuss problems and find answers
- develop a network beneficial to you within the IT industry
- learn of the most recent announcements and technical directions that quickly impact your organisation
- hear overseas speakers (from IBM Development Labs) and local experts present on everything from LINUX to e-business
- attend a major Conference and Trade Show each year - typically attracting over 1,000 participants.

Interaction User Group YOUR User Group

If your organisation is not already a member of Interaction (membership costs $250 + GST per calendar year) and you'd like to know more then please don't hesitate to contact us - details below.

Interaction conducts regular AS/400 meetings in most capital cities. Your participation is warmly welcomed. Details on our web site - www.interaction.com.au

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Australian Reseller News
the newspaper for the australian it channel

AS/400 has the right stuff for e-commerce

IBM's venerable AS/400 could be the most misunderstood computer on the planet. Despite a 10-year history and worldwide sales of 700,000 units, it remains something of a mystery — even among fans who support the platform with Macintosh-like devotion. Given its broad range of capabilities, some confusion is inevitable. From its origins as a terminal-centric, 48-bit box known best for 5250 "green-screen" applications, the AS/400 has evolved into a sleek, 64-bit machine that supports e-commerce, enterprise resource planning (ERP), customer relationship management (CRM), business intelligence, and back-office applications with equal aplomb. In 1995, IBM dubbed these newer models AS/400e servers.

The AS/400e has considerably improved business processes via Internet technology. Although numerous native AS/400e products and technologies can be used to implement effective e-commerce, not the least of which is IBM's WebSphere Application Server, here we limited our analysis to Java and Lotus Domino. Both have been particularly well received by AS/400e customers who have e-commerce deployments in mind.

Although performance, scalability, security, and reliability have always been hallmarks of the AS/400, the platform's relevance would diminish if it could not exploit the power of the Internet. Thus, IBM has invested heavily in making the AS/400e a formidable Internet platform. In May 1999, IBM released Version 4 Release 4 (V4R4) of OS/400 with more than 3 million new lines of code dedicated primarily to e-commerce.

Under The Hood

To understand the AS/400e's appeal as an e-commerce platform, you should be familiar with its technological underpinnings. Every AS/400e ships with a 64-bit operating system (OS/400), 64-bit database (UDB/400), and one or more 64-bit RISC CPUs. As a "pure" 64-bit platform, the AS/400e can directly address far more storage and process bigger chunks of data more quickly than 32-bit servers such as Windows NT can.

A single AS/400e can support as many as 12 CPUs in a symmetric multiprocessing (SMP) configuration with as much as four terabytes of disk storage and 2.5GB of main memory. And unlike PC-based servers, the AS/400e can support even massively parallel processing (MPP) computing tasks, because up to 32 AS/400e servers can be clustered together.

To further enhance performance, the AS/400e offloads many tasks traditionally performed by CPUs to dedicated I/O processors. Attached via high-speed, fibre-optic buses, these I/O processors let CPUs focus on more intensive operations such as the execution of program logic.

As for security, the AS/400e is an object-based system that is inherently difficult to corrupt via hacker attacks or viruses. In fact, no virus has ever been reported in the AS/400e arena.

Finally, because the AS/400e features tightly integrated components that are designed, maintained, and produced by a single vendor, the platform has enjoyed near-perfect reliability since its inception more than a decade ago, which helps explain its enduring appeal and adaptability as a core business system.

Java may already be a de facto standard in client-side Web-based application development, but its true value will be realised as a language for portable server-side applications. Java server programs require facilities to communicate with the particular hardware on which they run. The AS/400e provides a native JDBC (Java Database Connectivity) driver to optimise access to its integrated 64-bit relational database, as well as a direct execution compile option that dramatically improves AS/400e Java performance relative to other platforms.

Perhaps the best evidence of IBM's commitment to AS/400-based e-commerce is the development of its own Java virtual machine(JVM). Based on Sun Microsystems' specification, Big Blue's JVM is integrated at the lowest levels of the OS/400 operating system. This allowed IBM to optimise the JVM to take advantage of the AS/400e architecture and hardware, while still meeting the standards for a Java-compatible certification from Sun.

The AS/400e Java environment differs from other JVMs in two ways. First, it removes objects from memory (known as garbage collection) without halting all concurrent threads. This helps the AS/400e perform more effectively and scale better as a Java server. Second, the AS/400e Java Development Kit (JDK) provides an option to compile the bytecode into 64-bit executables. The benefit of this approach is improved performance in Java application serving.

For AS/400e customers, IBM's support of Java is significant for other reasons as well. First, AS/400e sites can use Java to integrate legacy applications and databases with the Internet. Second, ISVs can easily port their Java e-commerce applications to the AS/400e.

Bonding with Domino

Lotus Domino is a leading groupware application that is often used to build Web sites that accept and maintain orders online, as well as manage electronic communications with both customers and suppliers. It has been available as a native 64-bit application on the AS/400e since March 1998.

The AS/400e is a compelling Domino platform for several reasons. First, a single AS/400e can be logically partitioned to support up to 30 Domino servers that can be managed separately. In other environments, Domino is usually implemented on several different servers. By operating multiple Domino servers on a single AS/400e, IT departments avoid the cumbersome administration tasks associated with server farms.

Largely due to server consolidation, the AS/400e's total cost of ownership (TCO) in Domino environments is much lower than that of PC servers. In fact, a recent International Data Corp study found that the TCO for a 500-user Domino configuration on the AS/400e was 51 per cent lower than a similar PC server-based implementation.

Earlier this year, IBM introduced several AS/400e servers tuned specifically for Domino. Dubbed bumblebees because of their distinctive yellow stripes, these model 170 Dedicated Server for Domino (DSD) servers are configured for small-and-midsize businesses. For large-scale Domino implementations, higher-end AS/400e models are more suitable. For example, the largest AS/400e running Domino can accommodate more than 27,000 mail users on a single footprint. Clearly, scalability is a factor behind the AS/400e's rising popularity as a Domino server.

Another reason for Domino's success in the AS/400e arena is its tight integration with existing AS/400e facilities. Domino databases can exchange information with DB2 UDB/400 databases via real-time and scheduled jobs, and the Domino Directory/Address Book synchronises with the AS/400e System Distribution Directory automatically.

Finally, the AS/400e is becoming a popular Domino host because built-in features such as RAID 5 storage, mirrored disk units, and integrated backup facilities let organisations run Domino applications 24 hours per day, every day.

The AS/400e occupies an enviable position in the race to become the world's leading development platform for Java. Through IBM's San Francisco project (an object-oriented application framework), Enterprise JavaBeans (EJB) deve..lopment, and a customised JVM, Big Blue has given the platform formidable weapons for that race.

The AS/400e adroitly accommodates e-commerce by extending the reach of existing applications to the Internet, as well as supporting the development of brand-new, Web-enabled systems. By successfully heralding the arrival of e-commerce and the advent of the Internet age, its future looks quite bright.

the bottom line

E-commerce on AS/400e

Business Case: Organisations that rely on the AS/400e for back-office applications can extend the reach of those applications to the Internet. Also, customers can develop new, cutting-edge e-commerce applications using native AS/400e tools and ISV applications.

Technology Case: IBM's AS/400e effectively combines traditional strengths such as scalability, performance, security, and reliability with native support for Java, JDK, EJB, WebSphere Application Server, and Domino.

Pros:

- High transactional volume enabled via 64-bit technology
- Rigorous demands of e-commerce applications supported by top-notch scalability
- Low total cost of ownership

Cons:

- No native support for third-party databases
- Difficult to find AS/400 expertise

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DB2 UDB for AS/400e

Query Processing with Encoded Vector Indexes

To ensure that delivery of information to data warehouse users is fast and efficient, a Database Management System (DBMS) requires an advanced query optimiser. The optimiser is responsible for determining the fastest and most efficient way to return the selected data for a given query or report. Most of the leading database products use cost-based query optimisers that rely on table and index statistics to achieve this.

Cost-based Optimisation

DB2 UDB for AS/400e (DB2/400) has included a cost-based query optimiser since its inception. A unique feature of the AS/400e query optimiser is that it doesn't require a database administrator (DBA) to update the database statistics. The DB2/400 database manager maintains all of the statistics automatically. Statistics play a big role in how well a query optimiser can tune the performance of queries because they reflect the true attributes of and distribution of the current databases.

To better support the adhoc queries that occur in data warehousing, the DB2/400 optimiser offers query rewrite capabilities (for example, transform sub queries into a more efficient join implementation) and dynamic bitmap indexing. Instead of requiring the user to create the perfect index for a query, or the optimiser creating a temporary version of the perfect access path, dynamic bitmap indexing allows the query optimiser to build bitmaps from existing indexes and logical files.

Encoded Vector Index

A new AS/400 feature, Encoded Vector Indexes (EVI), is designed explicitly for query workloads, and was introduced in V4R3. Designed to make dynamic bitmap indexing even more efficient, EVI's are based on patented technology developed by IBM Research, and DB2/400 is the first database to take advantage of this exciting, new technology.

The original AS/400e indexing technology is based on a binary radix-tree-index structure. Business intelligence systems however, requires additional indexing technology suitable for the complex queries and large data stores associated with a data warehouse. DB2/400 EVI will compliment radix-tree-indexes to provide fast response times on a wider range of queries on the AS/400e.

Bitmap indexing is popular in the industry today, and EVI technology is a dramatic advancement on this technology. EVI's solve many of the scalability and flexibility issues associated with the base bitmap indexing technology.

Indexing 101

DB2/400 EVI's are probably best understood by first getting a refresher on database indexing. An index in a book allows you to quickly locate information on a specific topic without blindly paging through the book. Database indexes provide similar benefits by providing a relatively quick method of locating data of interest. Without indexes, the database would probably be forced to perform a full table scan which blindly searches through every row in the database table - a lengthy and inefficient process.

Indexed scans are more efficient since the index key values are usually shorter than the length of a database record. Shorter entries mean that more index entries can be stored in a single page, and results in a considerable reduction in the number of pages that must be processed (I/O requests) to locate the requested data. While indexed scans can improve performance, the complexity of the query and the data determine how effectively the query can be implemented.

Different queries stress the database in unique ways and that's why different index types are needed to cope with ever-changing workloads.

Several DBMS vendors have used bitmap indexing technology to help solve the inefficiencies. When many distinct key values exist however, bitmap indexing technology also has some size and efficiency problems. The bit arrays start becoming very sparse (contain large clusters of zeros) when there are a large number of distinct key values. More bit arrays are also needed as the number of distinct key values increase. The size of a bitmap index can approach and exceed the size of a binary radix-tree-index as the number of distinct key values approaches a couple dozen. Complexity of the bitmap index structure can also be a problem. The structure is difficult to maintain as rows in the base table are changed and added. Some bitmap implementations are restricted to read-only because of these issues, and require the bitmap indexes to be rebuilt from scratch each time the data is refreshed in a data warehouse. This restriction adds one more task that has to fit into the ever-decreasing nightly batch window.

EVI's offer an alternative

EVIs are an advanced form of bitmap indexing that use a single array (or vector) to address some of the issues that arise when there are more than a few distinct key values (high cardinality). The EVI structure consists of a single vector and a symbol table. The symbol table contains an entry for each distinct key value and the unique code value assigned for that key value. Data statistics such as the number of occurrences are also maintained for each key value to aid in query optimisation. The single vector has an entry for each row in the base table, and the entry contains the unique code value corresponding to the key value found in the row of the base table. If new distinct key values are added that overflow the number supported by the element size, DB2/400 automatically rebuilds the EVI with a larger element size. In addition, the order of the elements in the vector matches the physical ordering of the table data, which leads to more efficient I/O processing.

A small element size (never greater than 4 bytes) and the single vector design keep EVI's compact in size, thus requiring less I/O and resulting in a faster running query. Bitmap implementations have addressed some of the storage concerns by utilising compression to eliminate some of the overhead, but that introduces the complexity of decompression into the implementation. EVI's do not suffer from the size limitations of bitmap indexes due to an underlying structure that offers a scaleable solution when the table grows in both number of rows and number of distinct key values. EVI's can also retain the advantages provided by bitmap indexing while removing the disadvantages.

The dramatic difference in size offers two advantages. First, DB2/400 can handle more concurrent query users since EVI processing requires less main memory. And second, more EVI's can be created on the system to improve the performance of a larger number of queries by either using a single index or combining multiple indexes together.

EVI's are even more important in ad hoc query environments where combining multiple indexes (via bitmaps) is a bigger requirement than decision support solutions featuring static, canned reports. You can do a good job of creating the perfect index for the canned queries and reports that you know about ahead of time. Tuning a database for adhoc queries is more trying since you cannot predict and create all the optimal indexes ahead of time. Dynamic bitmap processing with EVI's allows DB2/400 to provide acceptable performance even for adhoc queries.

EVI's are leveraged by DB2/400 to improve query performance, and even more so in future releases. Multiple indexing technologies makes it easier to speed data access for end users for both static business reports and adhoc business analysis.

For more information

For further technical information on the AS/400 refer to AS/400 Technical Studio

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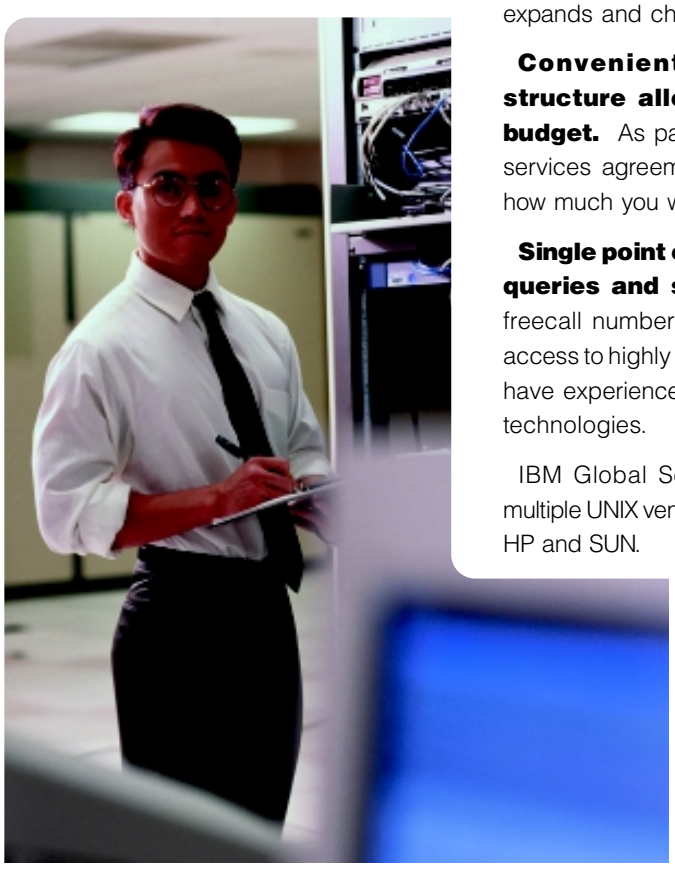

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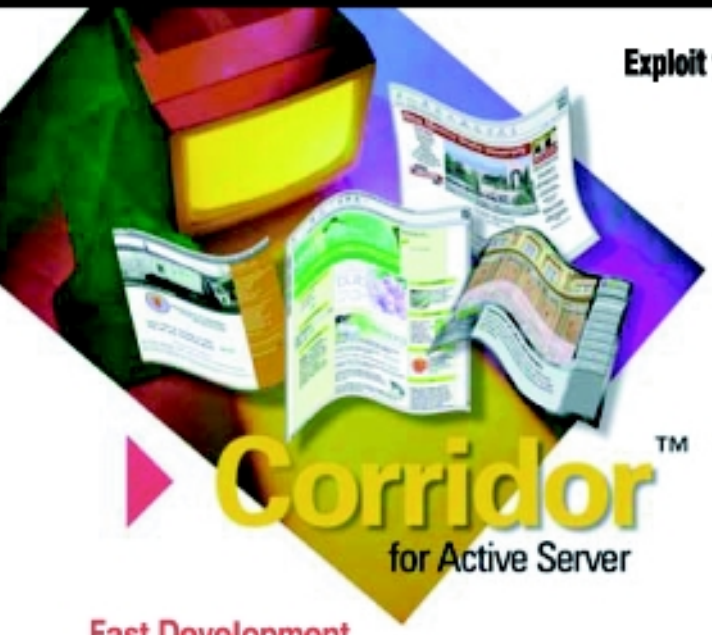

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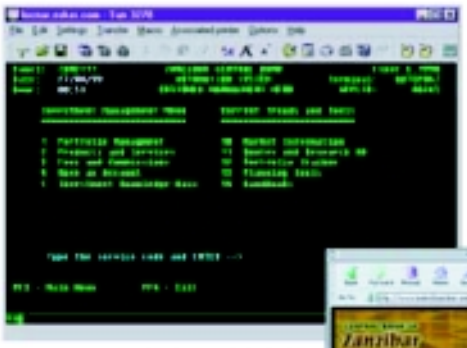

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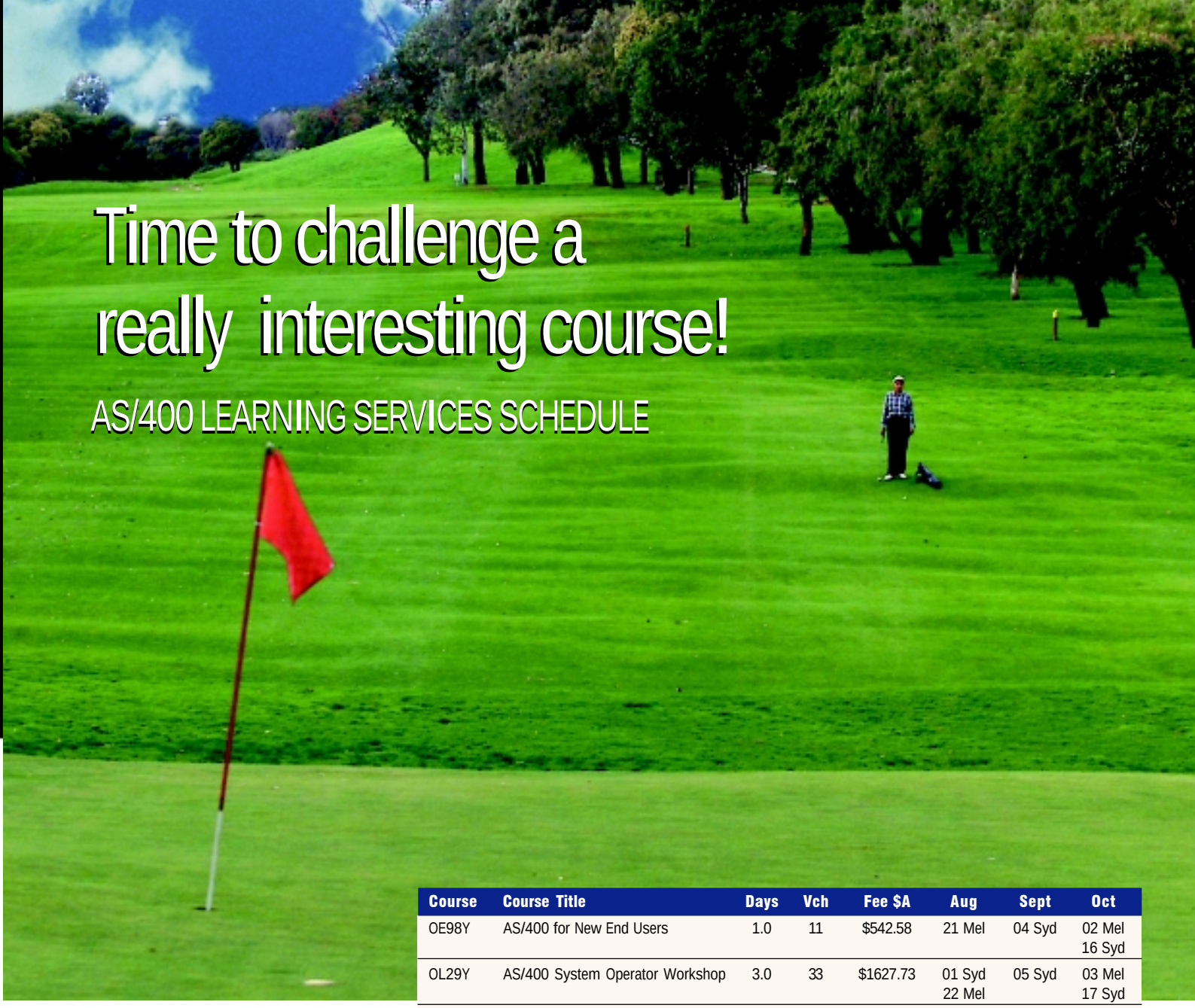

Time to challenge a really interesting course!

AS/400 LEARNING SERVICES SCHEDULE

Course	Course Title	Days	Vch	Fee $A	Aug	Sept	Oct
OE98Y	AS/400 for New End Users	1.0	11	$542.58	21 Mel	04 Syd	02 Mel 16 Syd
OL29Y	AS/400 System Operator Workshop	3.0	33	$1627.73	01 Syd 22 Mel	05 Syd	03 Mel 17 Syd
OL41Y	AS/400 Advanced System Operator	3.0	33	$1627.73	08 Syd	06 Mel	
OL19Y	AS/400 Administration & Control	4.5	49	$2441.58	28 Mel		30 Syd
OL50Y	AS/400 Security Concepts & Implementation	2.0	22	$1085.15	24 Syd	28 Mel	30 Syd
OE14Y	IBM Query for AS/400	1.0	11	$542.58	04 Syd	29 Mel	20 Syd
OL14Y	AS/400 Interactive Program Design	4.0	43	$2170.30	28 Syd	11 Mel	
OL88Y	AS/400 Advanced RPG IV Programming Topics	5.0	54	$2712.88	14 Syd		16 Mel
UA705Y	Structured RPG Programming	5.0	54	$2712.88	21 Syd	04 Mel	
UA709Y	As/400 Introduction to Control Language Programming	1.0	11	$542.58			06 Syd
CF12Y	DB2 SQL	2.0	24	$1193.67	16 Syd	06 Can 14 Mel	05 Syd
OL37Y	Accessing the AS/400 Database Using SQL	2.0	24	$1193.67			12 Syd
OL35Y	Lotus Domino R5.0 for As/400 - Installation & Management	2.5	27	$1356.43	28 Syd	11 Mel	
OL36Y	AS/400 Programming Interfaces for Domino R5.0	1.5	16	$813.86	31 Syd	14 Mel	

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