

Dhirubhai Ambani
Developer Programme

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R-EVOLUTION

Newsletter for the Developer Community

For Private Circulation only

Editorial

Dear Developers,

Smart companies are increasingly leveraging mobile technology to gain competitive advantage in the marketplace. Thanks to advancement in wireless technologies and availability of state-of-the-art devices, companies can now keep in constant touch with their field/floor staff in a seamless environment and monitor progress of projects, something that helps facilitate faster business decisions. This also leads to better management of resources, improved cost-efficiencies and increased productivity, which positively impact their bottom lines.

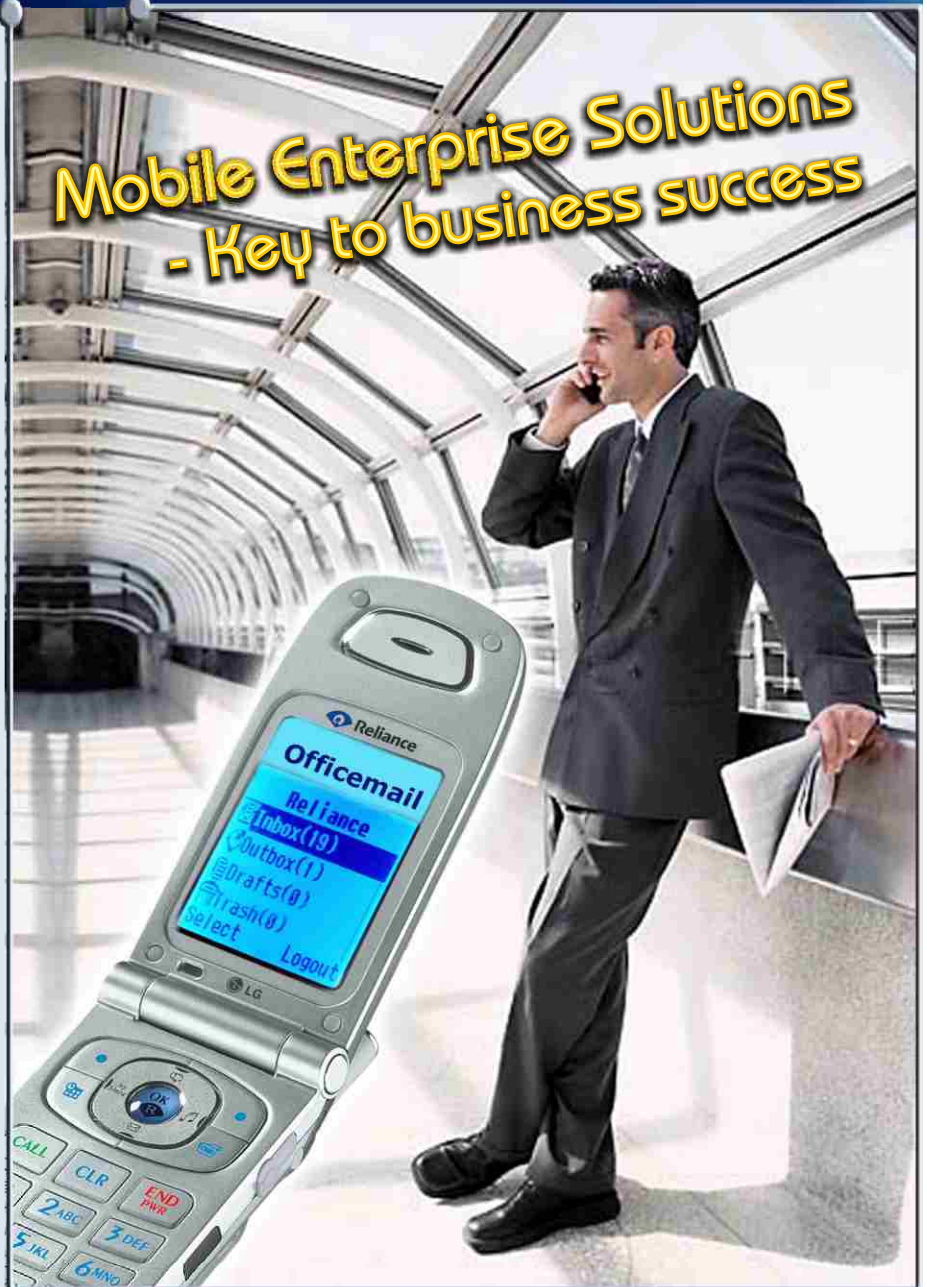
Our lead story for this issue details how mobile enterprise solutions like office mail, sales force automation, field force automation, fleet management, inventory management, and CRM have found a good number of users among enterprises. However, there is tremendous scope for developing more innovative applications in this space. For developers, this signifies a good opportunity for building and delivering focused solutions that can be easily marketed and can generate good ROI for enterprise clients.

In the 'Application of the month' section, we bring you 'Field Staff Management' - a wireless enterprise solution developed by Reliance Infocomm. This application successfully manages the network and other vital company assets spread out in different parts of the country. The solution has significantly lowered operational costs and is now being commercially offered to several other enterprises.

In the 'Technology Tips' section we continue with the article on 'RMS package of Reliance APIs'. In this issue, we outline the various methods available for managing records in RMS of RIM handsets.

Looking forward to your useful feedback and valuable suggestions.

- S P Narayanan



Mobile Enterprise Solutions
- Key to business success



Tech Tip
RMS Package II



Application of the Month
Field Staff Management



Interactive
Discussion Forum



Interview of the Month
Taron Mohan
Phoneytunes



Quiz



Mobile Enterprise Solutions - Key to business success

Business catalyst

As more and more enterprises leverage mobile technologies to gain business advantage, demand for new and innovative wireless solutions is increasing worldwide. As per the estimates of the ARC Group, mobile enterprise services market will account for a whopping \$177 billion by 2009. Some of the popular wireless applications currently used by enterprises include sales force automation, field force automation, fleet management, inventory management and CRM. The first two solutions are generally termed mobile workforce solutions, which typically provide business users with seamless access to corporate email, information and other services from any place, any time via mobile phones or wireless devices.

While enterprises are trying innovative ways to leverage the latest developments in the wireless space for higher business productivity and better workforce management, the main challenge lies in deriving more benefits from these solutions in day-to-day business processes. The research firm Gartner estimates that by embracing wireless technologies, enterprises can increase the productivity of workers on the move by as much as 30 percent. No wonder then that for many companies empowering their employees with mobile solutions has gained top priority to increase business and gain a competitive edge in the marketplace.

Many enterprises are realizing that the biggest imperative is to put in place a comprehensive mobile business strategy, which calls for mobilizing business processes, rather than search for one-off solutions. A good way to start could be identification and clubbing of processes under separate categories like workflow enhancers, knowledge enhancers, transaction enhancers, reporting enhancers and the like, which can then form the basis for a comprehensive mobile business solutions strategy, enabling organizations to be more competitive,

collaborative, and agile - not just to keep pace with the competition, but to move a step ahead.

Opportunities galore

Specialized mobile phones and wireless devices like PDAs and Palmtops that facilitate high speed data exchange have been fairly well-adopted by certain classes of customers, namely investment bankers, lawyers and financial analysts for accessing their e-mails and to keep track of updated information while on the move. Globally, many local governments are using handhelds to capture field information from remotely stationed employees for resources control and tracking, Emergency Medical Services (EMS) and traffic management. In the healthcare industry, wireless technologies are helping physicians and healthcare professionals to capture and access health information at point of care, thereby more efficiently serving the patients.

The enterprise applications' success story today is mostly about mobile corporate e-mail services, which allow one-click access to e-mail accounts, calendar and corporate contacts. However, there is a big opportunity for developers to create new applications and hence, grow new markets. Developers therefore need to think and work in terms of optimizing the potential for wireless data to be an enabler of applications that can transform businesses. For example, one can see lots of opportunities for packaged applications configured to transform specific business functions in industries such as airlines, construction, healthcare, insurance, legal systems, public safety/emergency response etc.

This entails anticipation of the next wave of mobile application demand today. Some bright spots worth looking into are CRM, sales force automation and financial services applications and location-based and applications that can lead to convergence of desktop and mobile

environments. Developers must also realize that these applications must go beyond simply tying into legacy systems. Viewing data from remote locations is probably not just enough anymore. Workers need to effect change, reformat and interact with data via their wireless devices. Also, knowing the back-end systems and designing applications around business processes is extremely critical.

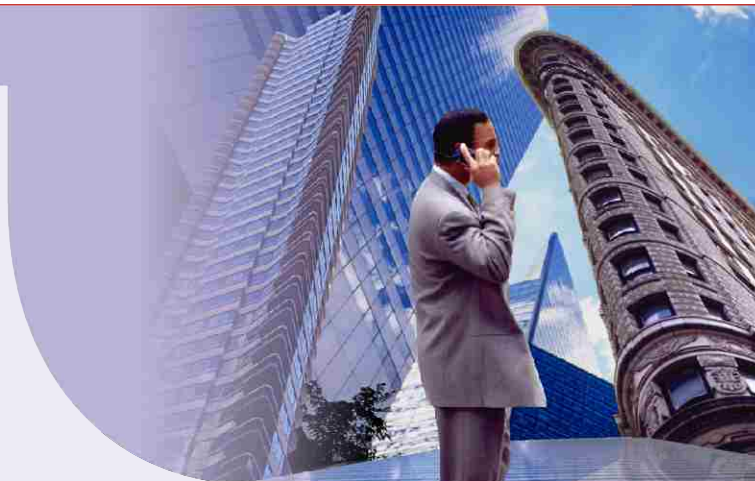
Infocomm's FSM solution

Reliance Infocomm's vast resources have provided a golden opportunity to deploy a mobile-based enterprise solution before offering the same to the external markets.

This is done through introduction of a Field Staff Management solution (FSM), an e-mobile maintenance solution, operated through palmtops, using RIM. This is integrated with SAP for real-time data. The FSM solution has significantly contributed to lowering the cost of operations. The staff using FSM can also globally update or make changes to work order assignments and thereby improve response time. The best part about FSM is that while other Indian companies are deploying it offline, it is for the first time that an e-Mobile application has been successfully used online on such a large scale. Infocomm is now looking at the prospects of offering it to sales force professionals in the not too distant future. "Within Reliance, retail outlets hold good prospects, as also cross country pipelines carrying our energy products. Having seen us doing this, one of the leading FMCGs of India too has approached us," shares Anil Pande, Head - Enterprise Applications, ASG, RIC.



Anil Pande



Long way to go

India has a lot of scope for enterprise applications to be executed on an SMS-based platform. Enterprises can use this platform for either the push-based SMS - wherein it can send information to employees, customers and partners using the enterprise database, as per defined parameters, incorporating automated response or answer mechanism - or push-based SMS applications through which employees and customers can access enterprise information in an interactive manner. However, this needs to be a highly secure process since it means allowing access to enterprise database. GPS-based services can also find application in offering location-based services in the B2C space, such as scheduling dates, sales campaign and in the B2B space like vehicle tracking or allied services. Also, MMS-based applications in the B2B categories such as access to product or design catalogues by executives or to flash alerts about criminals by the police departments are also a distinct possibility.

Enterprises have begun to understand that there is a clear Return on Investment (RoI) on mobile-enabling businesses. The advantages are manifold in terms of flexibility to customers, employees, stakeholders and partners. It leads to better cost efficiencies through optimal usage of information; better customer-orientation through prompt service delivery and ease of transaction; better process efficiencies by providing employees and partners, the ability to take decisions anytime, anywhere, besides real-time updating of enterprise databases.

Clearly, enterprise mobile solutions are creating value, new opportunities and excellence for enterprises. In the days to come, it will be interesting to note how developers utilize this increasing demand for enterprise applications to shape the way enterprises do business.

RMS package of Reliance APIs

Part 2

In this second part of the article on RMS package, the various methods available in the RAPRecord class are detailed.

The RAPRecord class consists of fifteen methods, which provide various functionalities on RAP Records. These methods are addField, createRmsRecord, delete, fromString, getField, getNumFields, getOffsets, getRecordId, isDirty, save, setDirty, setField, setRecordStore and size. Each of these methods offers different functions, as explained below.

The method **setRecordStore(java.lang.String name)** associates the given record with the Record store. If the record is already associated with a record store, setting the record to a different record store will return 'false'. The input parameter given to the method is the name of the record. On successful completion, the method returns 'true' and if not, 'false'.

The **size()** method is used to find the size of the record. The method returns an integer.

The method **getField(int fieldId)** is used to retrieve the data of a specified field. The method requires the field ID for which the data is to be retrieved. The Field ID for the first field is 0. The method returns data available for the given field ID in the form of a byte array. An empty byte array is returned, if the field does not exist.

The **addField(byte[] input, int offset, int length)** method is used to append a field to the record. The method requires details of the data to be appended in the form of a byte array, the offset of the byte array and length of the byte array. The method returns 'true' or 'false' and throws java.lang.IllegalArgumentException, if the specified field is greater than 32 or less than 0 or if the input data length is less than offset plus length. The method also throws java.lang.NullPointerException, if the input byte array is null.

The **setField(int fieldId, byte[] input, int offset, int length)** method is used to change the value of the field, if the field already exists. If the field does not exist, no field will be set. The method requires the field ID for which the data has to be changed, the data to be appended in the form of a byte array, the offset of the byte array or the length of the byte array. The method returns 'true' or 'false' and also throws java.lang.IllegalArgumentException, if the specified field is greater than 32 or less than 0, or if the input data length is less than offset plus length, and throws java.lang.NullPointerException, if input byte array is null.

The **save()** method is used to save the record in the record store. The method updates the record if it is already present in the record store or adds a record if it is not present in the record store. If the record store name is not specified, the record will not be saved and the method returns '-1'. The method throws javax.microedition.rms.RecordStoreException if an exception related to record store occurs. If successful, the method returns the record ID of the saved record.

The **delete()** method is used to delete the record in the record store. The method returns 'true' if the record is successfully deleted and returns 'false' if the method fails to delete the record.

The **isDirty()** method is used to find whether the record is dirty. The method returns the dirty bit.

The method **setDirty(boolean dirty)** is used to change the dirty bit. The method requires a Boolean parameter, which should be 'true' to set the dirty bit of the record.

The remaining methods of the class, along with the implementation method, will be discussed in the next issue of R-evolution.

Field Staff Management



One of the key success factors in businesses today is the ability to effectively manage their field teams and provide the missing link or crucial data that a team leader would require to clinch a deal or to ably carry out field customer-care tasks.

Wireless applications have a strong potential wherever there are physical disconnects between workers and the information they need. Whether immediately addressing customer service needs or cutting through multiple layers of tedious paperwork, mobile solutions are often at their best in hectic work environments where timely access to information is critical. Regardless of industry, companies primarily adopt mobile data solutions to increase the efficiency of existing applications and gain a competitive advantage.

The Field Staff Management (FSM) solution is one such enterprise application developed by Reliance. The FSM has been deployed across the country for maintenance of assets and keeps field staff away from their maintenance offices most of the time. Earlier, field staff would report to the office at the start of the day, take stock of the jobs allocated and then proceed to attend to them. This resulted in delays in the execution of the task, since a lot of time was spent traveling, increasing the Mean Time To Repair (MTTR). A need was therefore felt for handling maintenance through hand held devices to enable the maintenance staff to perform its jobs in the field itself.

The FSM application has significantly contributed to lowering the cost of operations. Initiatives in Field Service Automation have generally shown positive ROI within nine months. In terms of cost effectiveness, one can decipher the cost incurred for a job within half an hour of its being completed, thanks to better management of the field staff. On logging into the application, the FSM makes available the job details, material requirement, stock status etc and one can also check the material requirement for a job and



book it online. FSM further enables the planner sitting in the office to access records, so that he or she can ascertain how much has been spent on field maintenance on a daily basis. Features like Auto Job Allocation and Instant SMS also result in faster job execution.

The usage has parallels in other industries as well and the application can be customized to meet specific requirements in different verticals like FMCG, pharma, manufacturing industry, construction industry and the service industry as a whole.

Innovative mobile enterprise solutions are already creating value, new opportunities and excellence for enterprises. If the next territory to be conquered is in the enterprise data solutions space, Infocomm certainly is ready.



Rajnikant Dhorajia

The FSM is integrated with SAP for real time data. The system has been designed to analyze the nature of all network related issues and job location, and accordingly match it with the availability of a technician in a particular region and assign the job. The system intimates at least three Field Engineers, carrying a PDA and a data cable, regarding the assignment through SMS. "Once they login to the corporate system with their password, the person best equipped to handle the job accepts it and the same is knocked off from the lists of the other two. The system also instantly gets the message that a particular Field Engineer is handling a particular job," informs Rajnikant Dhorajia, Product Manager, Enterprise Applications.

Developer Forum

How can data from one MIDlet be made available to or shared with another MIDlet? Can we create a user-defined class for our J2ME applications as we create these in regular Java programs, e.g.class abc{}

The MIDP specification requires that a platform provide some form of persistent storage via non-volatile memory. The RMS manages these record stores, which are simply flat files containing binary data. Each piece of data in a record store is referred to as a record and has an associated numeric record ID that is unique to that record store. Each record store has a name that must be unique within the MIDlet suite that created it. MIDlets can access only record stores created by themselves or other MIDlets in the same suite. When a MIDlet suite is removed from a device, all its associated record stores are deleted with it. Thus only MIDlets in the same suite can access or share data across each other.

Yes you can create user-defined classes in J2ME as in regular java. In fact, you should have only one class extending the MIDlet class and other supporting user-defined classes.

How can one send data to a server using the POST method, if the amount of data to be sent is large?

You can set the request method to GET or POST while setting up the connection. To send a large amount of data, set the request method to POST using the following method:

```
HttpConnection c =(HttpConnection)Connector.open(url);
c.setRequestMethod(HttpConnection.POST);
```

How do we achieve connectivity between the MIDlet running in the J2ME toolkit environment and a webserver running on the same PC or at a remote location?

MIDlets running on the handsets or in the J2ME toolkit emulators connect to the webserver using the Connector class found in the package javax.microedition.io. The following is a sample code for connecting to a servlet and reading the response from it:

```
HttpConnection c = null;
InputStream is = null;
String url = "http://<ipaddress>/myservlet";
try
```

```
{
    C =
(HttpConnection)Con
nector.open(url);
    i s =
c.openInputStream();
    StringBuffer buffer = new
StringBuffer();
    int data;
    while( (data=is.read()) != -1)
        buffer.append((char)data);
    is.close();
}
catch(Exception e) {}
```

// variable buffer holds the response received from the server.
// IP address in the URL refers to the IP address of the remote server where the servlet is running. If the webserver is running on the same machine as the wireless toolkit, specify 'localhost' instead of the IP address.
// myservlet is the name of the servlet

How do I know when, and the number of times a number key has been pressed in the handset for gaming applications, using Canvas. My game requires performing some operations while the key is pressed. How do we achieve this?

The Canvas object defines several methods for the purpose of delivering events to the application, which are referred to as Event Delivery Methods. One of the methods it defines is the keyRepeated(int keyCode) method and is called when a key is repeatedly held down.

Implement this method and define your particular action, which you want to perform when a key is repeatedly pressed. The keyPressed() method, which is also defined, is so called when a key is pressed, and keyReleased() method is so called when a pressed key is released. You can define a particular action you want to perform when a key is pressed and stop your particular action when the key is released. The getGameAction() method can be called within these methods to determine what game action, if any, is mapped to the key.



*Post your query on DADP Discussion Forum
and win a surprise gift from DADP!*

If your query is selected by the DADP technical team, as the most innovative and challenging of all postings in a month, you will win a surprise gift. And yes, your query along with your photograph will be published in 'R-evolution' as well! So visit www.dadp.com, register (if not registered already) and start sending in your queries.

'The advent of the BREW platform augurs well for the country'

Taron Mohan is the CEO of Phoneytunes. An engineering graduate from IIT Delhi, Taron has been an active entrepreneur. In 2000, he started his own company called Phoneytunes offering value added services on mobile handsets. Today, Phoneytunes is a key player in the mobile applications arena.

Taron is married and extensively travels both for work and pleasure. In an exclusive interview with Revolution, Taron unravels his experiences with Reliance and the applications he has developed for R World.



Can you tell us something about your experience of working with Reliance, especially as a participant in the Mobile Application contest 2004?

It was indeed a great challenge to build an application that would bring out the creativity of our team and utilize the handset capabilities on imaging and music playback. Taking this challenge forward, we conceived and built the application 'My Cartoons'. This application deployment and development was possible only with the support of the DADP team, which helped us with the necessary APIs within the handset to show our true capabilities.

Working with the Reliance team over the past two years has been quite interesting and exciting. We have had an open challenge and a free hand to propose and develop applications that help manifest our latent creativity and offer the customer true fun and a thrilling experience on the R World platform. In fact, the R World today is one of the most advanced services on offer with any mobile operator worldwide. It has truly brought about a revolution in content and application on mobile devices.

Which other applications have you developed for Reliance?

Well, we have developed quite a few of them. Let me elaborate. Our first application was 'Cocktails', which offers users a wide range of combinations. It provides information on the ingredients, how to make and serve them. With advanced options on search and topics, it truly is an amazing and a unique offering on mobile handsets. Next, we have developed 'Recipes' by expanding the concept of 'Cocktails' for cooking, with pan-India coverage for dishes.

Then we created 'My Cartoons', which was our winning application. It has been modified and the user can now browse

set, predefined images and create his/her own image and then use it for messaging.

How are these applications unique? Any special features?

The basic concept and idea are wholly unique as they bring out total fun and excitement on the mobile handset. Additionally, the search commands on the mobile phone is a unique offering available only on these selected applications.

Which other applications are you currently developing for Reliance?

Currently, we are developing the ringtone creation platform for Reliance. Some more new applications are in the offing.

Any memorable event that you would like to share with the readers?

The experience of working with the Reliance team and its attitude quite impressed me. Our partners in Reliance used to say "Do it, we are here to help you wherever and whenever you need support from us on the handset hardware and software. Please bring something new, as we want to look at creativity." All these encouraging words really got our adrenaline going and helped us bring out our best for Reliance.

What are your views on the mobile applications business in India? Future trends?

We still have a long way to go. The advent of the BREW platform augurs well for the country, as it will really revolutionize the content of a variety of services and enrich the mobile experience.

Dear DADP Team

Your newsletter is very informative and provides inspiration to the new young and innovative developers to take a step forward to develop innovative and revenue generating applications .

Abhay Kishore

Trivandrum

Editor's reply: We are encouraged on receiving such valuable feedback from developers like you. We will try our best to provide you with meaningful and relevant information from the wireless world from time to time.

Dear DADP Team

Kindly inform the Developer community about your plan for the next Mobile Application Contest in advance so that each one of us can get enough time to think and develop unique Mobile Applications.

Thanks & Regards

Bhavesh Arora

COMP ENG & MBA, Guwahati

Editor's reply: Thanks for your email. We will be shortly launching the Mobile Application Contest 2005. Keep visiting www.dadp.com for the same. We will also email all registered members of DADP as soon as the contest is launched.

1. Which cannot be used in declaring and initializing an automatic (method call) variable?

- A) initialized arrays (Such as {"Hello", "Goodbye"})
 B) final
 C) public constant of non-primitive type
 D) inner class from other scopes

2. What is true of the listeners?

- A) The return type is Boolean
 B) Most components allow multiple listeners to be added.
 C) A copy of the original event passed into a listener method
 D) None of these

3. What is the range of an integer?

- A) -2^{15} to $2^{15}-1$
 B) 0 to 0 to 2^{15}
 C) -2^{31} to $2^{31}-1$
 D) 0 to 2^{31}

4. Choose the correct sentence for fully encapsulated class:

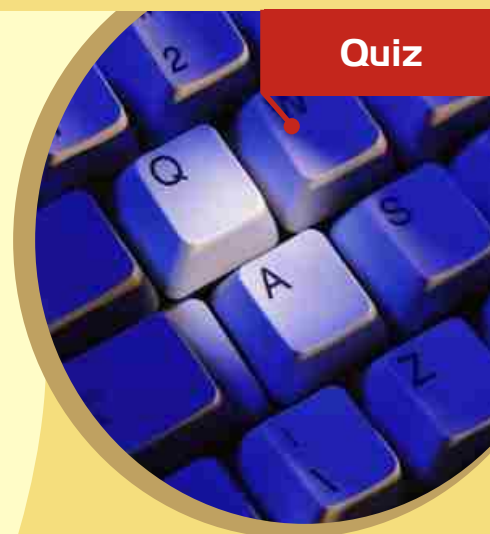
- A) All member variables are private
 B) All member variables declared private and provide public accessor methods for each variable.
 C) Declare all variables without any access modifier
 D) Make all methods private

5. Which corporation is popularly referred to as "Big Blue"?

- A) Oracle
 B) Infosys
 C) Pepsi
 D) IBM

Answers : 1. C) 2. B) 3. C) 4. B) 5. D)

Quiz



Monthly Poser

At the recent developers conference in California, Sun showcased the new Solaris 10. This was primarily targeted towards which of the following groups?

- A) Gaming Developers
 B) Application Developers
 C) Telecom Companies
 D) None of the above

Answer to last month's poser: DADP OTA Tool

Winner of the last month's poser (through a lucky draw) is: Nito Jose, Kerala

Winner will receive the prize by courier.

Answers to the Monthly Poser should be sent to dadp.newsletter@relianceinfo.com mentioning Monthly Poser - April 2005 as the subject with the sender's location stated. The winner will be decided on the basis of a lucky draw and walk away with a prize from DADP.

You can contribute ideas and information to R-evolution at the following e-mail address: dadp.newsletter@relianceinfo.com.

Please note that contributions may be edited for clarity, style or length.

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