

The GUI Bits

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Welcome	1
Development Tools	1
Microsoft .Net	1
SQL Server for Windows CE	2
WinCE Embedded Development.....	2
Testing Java Code.....	2
Optimization	2
Operating Systems	2
Microsoft.....	2
Handheld Platforms	2
Red Hat 7.1.....	3
Be Inc. Lays Off 25%.....	3
Java on a Chip.....	3
Applications	3
Streaming Video.....	3
Device Synchronization.....	3
Security Issues	4
Serious Security Breach in MS IIS	4
New Products	4
Security Alerts.....	4
Industry News	4
Cool Future Technology	4
E-Learning Keeps Employees Awake.....	4
Latest Pentium	4
Microsoft Embraces "Shared Source".....	5
5 Millionth iMac shipped.....	5
Patent Watch	5
Books	5
The Future of Books.....	5
Programming Methodologies.....	5
Recent Conferences	6
Upcoming Conferences	6
Degel Services	6

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Welcome

Welcome to this new issue of **The GUI Bits**, Degel Software Ltd.'s newsletter for software developers. Here at Degel, we're dedicated to expertise in software development. Through a wide range of consulting and programming services, we make that expertise available to our clients. Our group of experienced software professionals strives to keep up with the latest developments, and this newsletter is one product of those efforts. See our website at www.degelsoft.co.il for complete information about our company and how we can work with you.

David Goldfarb
President of Degel Software Ltd.

Development Tools

The world is getting more complicated every day. There was a time, not so long ago, when Unix programmers did not need to know about Windows tools; Windows programmers were oblivious of Unix tools, almost everyone ignored the Macintosh, and nobody took PDAs too seriously.

Today, the buzzword is inter-operability. In order to do a good job in any of these areas, you need to know what's happening in all of them.

At Degel, we pride ourselves on the breadth of knowledge that we've accumulated. In this newsletter, we'll try to share some of the key new developments with you, our clients and readers.

Microsoft .Net

Microsoft has announced the "Hailstorm" initiative. Hailstorm is described as a key milestone on Microsoft's .NET roadmap. It

consists of a set of XML based web services allowing processes running on different machines—both Windows-based and appliances—to communicate using shared XML and SOAP-based protocols.

These tools will allow .NET applications to run on non-Microsoft operating systems, including Linux. Microsoft's CEO, Steve Ballmer, also suggested that Microsoft will make it possible to access .NET services from Java applications.

(CNN; 14 March, 2001)

(Microsoft PressPass; 19 March, 2001)

SQL Server for Windows CE

Microsoft has released a version of SQL Server 2000 for Windows CE. An evaluation edition (120 day license) is available for free at www.microsoft.com/sql/productinfo/evaluatece.htm

(Microsoft PressPass; 18 April; 2001)

WinCE Embedded Development

Microsoft has announced the Windows XP Embedded Rapid Development Program and Beta 1 of Talisker, the next version of Windows CE, both of which will enhance the production of intelligent connected devices.

(Microsoft PressPass; 10 April, 2001)

Testing Java Code

ParaSoft has announced the release of JTest 4.0 and JContract. These tools automate unit testing using the Design by Contract (DbC) methodology popularized by the Eiffel programming language. DbC is a formalism that allows the programmer to annotate his/her code with "contracts" (pre- and post-conditions). JTest uses these specifications to automate both black-box and white-box testing.

(www.parasoft.com)

If your company has not yet adopted formal systems for testing and version control, Degel Software Ltd. can help you find the right tools to get the job done.

Optimization

Most developers know the importance of optimizing their code. What most developers don't

know is how to optimize properly. Often they start a project with the expectation that certain areas will be slow, and dedicate large amounts of time to optimizing those areas. Unfortunately, most of the time, the really slow areas are complete surprises—often just a few lines of carelessly written code.

The key to successful optimization is *never* to assume that you know where the problem lies. Always profile and measure.

If you are facing a performance problem, Degel's engineers can help you. We can show you useful techniques, and introduce you to key tools such as Microsoft Profiler, Intel's VTune, and NuMega's TrueTime for C++; JProbe and OptimizeIt for Java. We'll even teach you how to use our favorite quick-n-dirty technique: *Poor Man's Profiling™*.

Operating Systems

Microsoft

Microsoft has released the second beta of their forthcoming Windows XP operating system. This new version of Windows is based on the Windows 2000/NT code base. It includes a beta version of Internet Explorer 6.0, Window Media Player 8.0, and support for .NET-style web services. XP will be available in three editions: Window XP Home Edition aims to eventually replace Windows 95/98/Me; XP Professional is for more robust commercial use and a 64 bit edition will be available for workstation use. A beta version of the 64-bit edition is available for hardware developers producing and testing 64 bit platforms.

(Microsoft PressPass; 26 March, 2001)

Microsoft has announced that there will be no more service packs for NT 4.0, canceling an anticipated SP 7. However, they will continue to release hot-fixes as needed.

(WinInfo; 17 April, 2001)

Handheld Platforms

A recent Business Week column (www.businessweek.com/bw50/content/mar2001/bf20010323_936.htm) declares that we are approaching the end of the PC era. At De-

gel, we agree. While PCs will not disappear any time soon (after all, even mainframes are still going strong), they will continue to be supplanted by smaller devices such as PDAs, cell-phones, and other next-generation handheld devices.

On April 12, Microsoft celebrated the one-year anniversary of Pocket PC, their latest version of the Windows CE operating system. During this year, they claim, Pocket PC has captured 16.5% of the handheld market.

If you are interested in exploring how your company can move your applications from the PC to handheld devices running Windows CE, PalmOS, or Epoc, please contact us at Degel Software Ltd. (info@degelsoft.co.il).

Red Hat 7.1

Red Hat has announced Linux 7.1 with the 2.4 Kernel. This version offers better multi-processing, support for up to 64GB of RAM, and a fair number of usability enhancements.

(Red Hat; 16 April, 2001)

Be Inc. Lays Off 25%

Be Inc., producers of the BeOS alternative operating system for multimedia devices and PCs has announced layoffs of about 25% of their workforce. They have also indicated that they need to line up additional financing in order to remain in business.

A year ago, Be moved its focus from the desktop to appliances, and recently closed a deal to supply BeOS for Sony's eVilla appliance.

There have been rumors that BeOS would be released into "open-source," but Be CEO Jean-Louis Gasse suggested that this will not happen anytime soon.

(SiliconValley.Com; 17 April, 2001)

Java on a Chip

In April, Ajile (www.ajile.com) announced JemCore, a CPU kernel that uses Java byte codes as its native instruction set. They've recently demonstrated a PDA built around this technology delivering 45 fps of 18-bit color at a resolution of 320 by 240 pixels. They claim that

equivalent processors using conventional instruction sets have been unable to display better than 2 fps of 120 by 160 grayscale. Later, they announced a low-power version of the chip, using less than 100 milliwatts at 100MHz

Xilinx (www.xilinx.com) has also announced the very similar LavaCore processor core.

(office.com; 19 April and 8 May, 2001)

Applications

Streaming Video

A recent Jupiter study predicts that corporate spending on streaming video solutions will rise dramatically over the next few years, reaching a predicted \$2.8 billion in 2005, twenty times higher than the \$140 million spent last year.

While most analysts had previously assumed that the strongest market for streaming video would be for consumer entertainment, Jupiter predicts that corporate needs will dominate for the next few years. For example, SEC requirements are forcing companies to make more and more information readily available, and streaming video is often the medium of choice.

(CNet news; 12 April, 2001)

Apple has released QuickTime 5 and Streaming Server 3. More info and download is available at www.apple.com/quicktime/. Note that there is no easy way to downgrade back to QuickTime 4, so we suggest that you first install this update on a non-critical machine.

Device Synchronization

A number of major vendors, including IBM, Motorola, Nokia, Ericsson, Psion, and Palm, are pushing a new standard, SyncML. SyncML, based on XML, defines an open standard for sharing information between personal digital assistants (PDAs), phone and computers, including contact info and scheduling.

As someone who juggles way too many desktop machines, notebooks, PDAs, and PIMs, I can't wait for SyncML to be incorporated into all of my tools.

(PC World; 17 April, 2001)

(www.syncml.com)

Security Issues

Serious Security Breach in MS IIS

The good hackers of eEye Digital Security (www.eeye.com) found a serious security breach in Microsoft Internet Information Server (IIS) 5.0, affecting all those with Internet Printing capabilities in enabled. The breach is opened by creating a buffer overflow in the Internet Server API (ISAPI) printer extension. Microsoft has issued a hot-fix and acknowledged that the problem is "extremely serious". More details about this security hazard can be found in the following article: www.windowsitsecurity.com/Articles/Index.cfm?ArticleID=20920.

(Windows IT Security; 1 May, 2001)

(WinInfo; 2 May, 2001)

New Products

Atypie.com has released Kill the Spams, a \$20 shareware product that it claims will keep your inbox free of spam, viruses, and other unwanted email. They use a complex set of rules that eliminates the need to create complex filters or track thousands of spam addresses. To me, the program looks promising, but still a bit rough. Free trial download and more info is available at their website, www.zipstore.com. For a discussion of other ways to solve the spam problem, see the [Dvorak column](#) in the March 19 issue of PC Magazine.

A new Security Alliance has been formed combining CERT Coordination Center and the Electronics Industries Association. The cost for joining this alliance will range from \$2,500 to \$70,000 per year for various levels of access. The alliance's website is www.isalliance.org. Members of the alliance will receive CERT warnings up to 45 days before they are released to the public.

(Yahoo News; 19 April, 2001)

Security Alerts

A Denial Of Service problem has been reported in **Lotus Domino Web Server R5** versions earlier than 5.07. An upgrade is available from Lotus. For more details see this article: www.windowsitsecurity.com/Articles/Index.cfm?ArticleID=20646

(Windows IT Security; 12 April, 2001)

Industry News

Cool Future Technology

Cell-phones without batteries: Casio will be demonstrating new cell-phones and PDAs using power-cells developed by the Fraunhofer Institute's Solar Energy Systems ISE.

(Yahoo news; 18 April, 2001)

Telepathic Computers? Researchers at the EC Joint Research Center have announced the success of an experiment that allowed a severely disabled man to type by connecting him to a system that detected simple thought patterns and used them to move a cursor and choose letters in an on-screen keyboard.

(The Register; 30 April, 2001)

E-Learning Keeps Employees Awake

Traditionally, training employees in new skills has required either expensive in-house training or sending employees off to courses. Today, e-learning offers a better option. Courses are offered across the Internet, and delivered to the worker's desk. Employees often prefer these courses, too, since they can complete one module at a time while juggling busy schedules. IDC estimates that the market for e-learning will cross \$11 billion in 2003.

(New York Times; 18 April 2001)

Latest Pentium

Intel has introduced its fastest microprocessor to date, a Pentium 4 clocked at 1.7GHz. This chip has reached a SPECint*_base2000 score of 573 and a SPECfp*_base2000 score of 598. This new chip is being produced primarily at Intel's plant in Kiryat Gat, here in Israel.

(Intel; 24 April 2001)

Microsoft Embraces "Shared Source"

Craig Mundie, Senior VP of Advanced Strategies at Microsoft, has announced Microsoft's answer to the open source movement (www.microsoft.com/presspass/features/2001/may01/05-03csm.asp). Called "Shared Source," this is not a new policy, but rather a new name covering a variety of Microsoft procedures that have existed for years.

Shared Source refers to the granting of limited access rights to source code, regulated by various license agreements. For example, Microsoft has made the entire source hierarchy of Windows available to a limited number of companies and universities. They have also released millions of lines of less critical code to much wider populations of developers via SDK and DDK samples, MSDN, and similar programs.

What Mundie is offering today is nothing new, and is not a real alternative to the power of open source. However, if they extend the model somewhat, they may come up with a very interesting alternative. When I worked at Symbolics, nearly twenty years ago, we made nearly all of our source code available to all of our licensed users. This was not open-source by a long shot (as a matter of fact, this Symbolics policy was a major factor inciting Richard Stallman to start the Free Software Foundation), but it did offer tremendous power to Symbolics users, and enabled them to solve many tricky problems that required full source-code access.

However, Mundie did not limit himself to merely presenting an alternative to Open Source. In his remarks, he attacked Open Source and the GNU General Public License, perhaps indicating Microsoft's real concern about the inroads Open Source products have made.

(InfoWorld.com; 4 May, 2001)

5 Millionth iMac shipped

Apple announced that it has shipped its five millionth iMac computer. The iMac has managed to succeed despite continuing to flout the orthodoxy of PC compatibility.

(Apple; 19 April 2001)

Patent Watch

The US Patent Office (USPTO) has recently made it slightly more difficult to receive patents on business methods, by introducing a second level of review through which all such patent applications must pass. The approval rate of business method patents has dropped from 57% to 47% over the past year.

Democrats in Congress have proposed legislation to prohibit patents whose only novelty is that they move business onto the Internet.

(The Industry Standard; 9 April, 2001)

Books

The Future of Books

Arts and Letters has published an essay by D.T. Max entitled The Last Book that delightfully explores the consequences of a world where computers have replaced books.

For a copy of the full text of the essay, look at www.utne.com/bTechnologyPr.tmpl?command=search&db=dArticle.db&eqheadlinedata=The%20Last%20Book

Meanwhile, books are still an important part of how we learn new technologies and methodologies, so we will continue to review key books in this section of **The GUI Bits**.

Programming Methodologies

If you are a programmer or manage a programming team, and are looking to improve the quality of your code I urge you to immediately read Martin Fowler's book, **Refactoring** (ISBN 0201485672). I've read many Software Engineering books over the years, and this is the first one that completely captures all the right ways of programming. Fowler's basic thesis is that, while design is obviously needed, it is also dangerous to over-design. It is important to write your code in such a way that the code does exactly what is needed. Also, it is imperative to write large numbers of test cases that you can run automatically and that allow you to verify that your code is still behaving

properly. With this in place, you can freely refactor your code.

What is refactoring? It is the art of making incremental tweaks to your code that preserve the functionality while rendering the code more readable or more maintainable. Most of the book is a cookbook of many typical refactoring steps, with discussions of the pros and cons of each. While many of these steps are obvious (at least after reading the book) it is still worth reading the book carefully. I have been refactoring for nearly two decades, and I've still learned a few new tricks from Fowler.

Once you've absorbed the wisdom of refactoring, I suggest reading the Extreme Programming books, starting with Kent Beck's **Extreme Programming Explained: Embrace Change** (ISBN 0201616416). The Extreme Programming series of books advocates a number of techniques: constant testing, pair programming (two programmers working together, constantly critiquing each other's work), and continuous refactoring. Here at Degel, we've tried these methodologies with great success. While not always appropriate, these techniques do work very well and should certainly be part of every development team's bag of tricks.

Recent Conferences

Sun Technology Days; May 7–8; Dan Panorama Hotel. The latest info about Java and Solaris for software and technology developers. To register for future events and more info, go to www.sun.com/developers/techdays/. Recordings of past TechDays sessions are available at developer.java.sun.com/developer/onlineTraining/webcasts/. I especially recommend Max Goff's speech about Jini. (www.techitsolutions.com/webcast/sun/td040201/jinipart01.ram). Even if you are not at all

interested in Jini, his presentation is still a lot of fun to hear.

Upcoming Conferences

Computax; Jun 5–7; Tel Aviv Fairgrounds. Hardware, Software, Communications, Internet, Microsoft World, etc. 50,000 attendees expected.

Microsoft Tech-Ed, Jun 17–21; Georgia World Congress Center, Atlanta, GA. This week-long annual conference is aimed at everyone developing on Microsoft platforms. Major tracks include web services, security, mobile devices, IT management and infrastructure, e-commerce, developer tools, and data management. Registration and more information about the conference can be found at: msdn.microsoft.com/events/teched/

Red Hat TechWorld. Brussels Expo, Belgium; September 17–18, 2001. The best of Linux and open-source technology comes to Europe. Registration and agenda for the TechWorld conference are available at www.europe.redhat.com/techworld/.

Degel Services

Degel Software Ltd. offers a team of highly experienced software developers who can answer all of your development, project management, and technical evaluation needs. All right, not all of them. But lots and lots of them! You'd be surprised. We offer programming services for a wide range of technologies, technology evaluations, mentoring, scheduling, and functional design services. See our website at www.degelsoft.co.il for more details.

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