

Bull Direct

Bull monthly newsletter

EDITORIAL

Accelerating the development of new services



Following on from the worldwide recognition of the technological excellence demonstrated by Bull – with the TERA-10 supercomputer, delivered to the French Atomic Energy Authority (CEA) – I'd like to focus for a moment on some of the initiatives we have recently taken in the world of services.

During the first half of this year, Bull's services business recorded a 9% increase in revenues (with order intake up by 55%). The partnership signed recently between Bull and Barnsley Metropolitan Borough Council in the UK is just one example of the surge in activity that our services business has seen of late. A joint-venture set up to manage Barnsley's IT operations and proactively pitch for IT support contracts in the wider market has translated into a contract worth 110 million over ten years, and marks Bull's return to the services market in the UK.

Bull's recent acquisition of AMG.net, a Polish consultancy and systems integration company specializing in advanced and open IT solutions for the telecoms sector has strengthened our presence among international operators, and has marked a new step in the development of our activities. During the first six months we achieved 38% growth in this sector, and have several success stories to report. To mention just one of them... Maroc Connect, the Moroccan telecommunications operator – which provides fixed and mobile services – has chosen Bull to implement its information system.

Finally, as part of Bull's moves to reposition itself as offering high added value systems integration for complex systems, we have just announced the creation of a new worldwide business focusing on postal services, along with two acquisitions to extend our offerings:

The Software Department of Selisa – a subsidiary of Sofiposte – which specializes in video coding. This offering is a key element of the automatic address interpretation system project awarded by the French Post Office (La Poste) to Bull as part of its new mail sorting platforms

The postal software application development activities of First Logic Inc – a company recently acquired by Business Objects – for its automated address processing solutions that also form a core element of mail sorting systems.

As a builder of open, flexible and secure information systems, Bull taps into the world's intelligence and harnesses it for you. Your projects benefit directly from the commitment of all our teams across the globe

Didier Lamouche,
Chairman and Chief Executive Officer

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EXECUTIVE OPINION

Jean-François Lavignon,
Director of High-Performance Computing Solutions, Bull

Beyond the limit

High Performance Computing (HPC) has become an essential tool in the worlds of research and industry alike. From aeronautics, climatology and bioscience to finance and sport, computer modeling and simulation have made inroads into most areas.

Quite simply because HPC provides today's researchers with an essential means of investigation, creates major competitive

advantage for manufacturers and business, and is even fundamental to countries' national sovereignty...

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HOT TOPICS

Partnership is the key to a successful future for Barnsley and Bull

Bull and Barnsley Metropolitan Borough Council to create Joint Venture Company in deal worth €110 million.

Bull Information Systems, one of Europe's largest information technology companies, and Barnsley Metropolitan Borough Council (BMBC) have agreed to create a groundbreaking joint venture company that will manage BMBC's IT operations and proactively pitch for IT sup-

port contracts in the wider market. It is a 110 million contract value over the first ten years.

BMBC and Bull will jointly own the new organisation which will enable a more cost effective, reliable, secure, responsive and robust ICT infrastructure to support all of the council's services...

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Quite simply because HPC provides today's researchers with an essential means of investigation, creates major competitive advantage for manufacturers and business, and is even fundamental to countries' national sovereignty.



There's no doubt that acquiring the necessary technology for HPC represents a strategic investment. Which means it is crucial to find a partner that is capable of understanding its customers' specific requirements, designing the most appropriate architecture and providing the essential technology support to ensure you get the best out of your HPC system.

As Europe's leading manufacturer of servers and HPC solutions, Bull has all the human and physical resources it needs to create and sustain an offering that meets even the most demanding requirements for scientific or industrial computing, including:

- **Modular, integrated solutions**, to respond to the precise needs of each organization while also simplifying administration.

- **Solutions that capitalize on the expertise accumulated by Bull** over many years of working on large-scale systems architectures, operating systems and software/systems administration environments.

- **Solutions that have been chosen by organizations** as diverse as: the Atomic Energy Authority (CEA) in France, for whom we built TERA-10, the most powerful supercomputer in Europe; Dassault Aviation, the world's leading business aircraft manufacturer; Pininfarina, the world famous Italian automotive designer; and the National Oceanography Centre in Southampton, one of the most highly respected research centers in this area.

In the old days, the high cost of HPC meant it was limited to a few select areas. Today, high performance computing is affordable and available to a growing number and range of organizations, with the emergence of solutions that deliver very high levels of performance for significantly lower cost, based around clusters or grids of standard servers. Searching for new oil reserves, studying the human genome, simulating transport crashes... HPC solutions are helping us to push back the boundaries in so many areas of society, to solve new kinds of problems or explore existing, complex problems in more detail or more quickly.

The two key pillars of HPC strategy

How do you offer the highest possible availability? And how do you ensure the same kind of flexibility and ease of use you'd expect from a traditional system? How do you ensure that your system is scalable, and capable of supporting the load that tomorrow's demands may require? With the rapid expansion in

technology, Bull is ready with the answers, putting the emphasis on two determining factors:

- **Open systems, based on industry standards, for greater flexibility and a highly competitive price/performance ratio.**

As the foundations of our NovaScale servers, widely available standard processors and Open Source software or software supplied by independent vendors are the key to better price/performance ratios and greater flexibility. They are also the best way to guarantee on-going return on your investment and to ensure that your applications can rapidly take advantage of the wealth of innovations coming out of the research and business communities behind Open Source and standards-based products.

- **Highly effective cluster architectures, for the best possible fit with your applications.**

Cluster infrastructures designed by Bull are of appropriate size and granularity, enabling customers' applications to deliver optimal performance, perfectly in tune with the applications used and the amount of data being transferred. The cluster is easily installed and administered from a single point of control that allows to manage not only the hardware platform, but also the interconnectivity network and storage. And since HPC systems are used for production, where high levels of availability are essential, clusters can continue to operate even if one or more components fail.

"From processor-centric to data-centric":

putting data at the heart of IT architecture. Until now, users and their applications had to adapt themselves to the computers. But Bull is keen to offer the opposite: solutions that adapt to the applications they are running – because after all, it is the data that is at the heart of users' jobs, not computers. With this in mind, Bull is

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EXECUTIVE OPINION (CONTINUED)

currently developing the next generation of technology solutions, where data is at the heart of the system architecture. Via the middleware layer, the data will be able to be used in every phase of a scientific or engineering task from initial modeling to computation and exploitation of the final results. Compared with existing solutions, the main effect will be to add middleware layers that make the use of the various IT resources involved in different phases much more transparent. By adapting much more closely to user

needs, this kind of architecture will improve overall system efficiency to an even greater extent.

Bull's expertise in complex IT infrastructures and architectures means we know just how to optimize data management in HPC clusters. This is an area dogged by the same kinds of problems of balancing processing capacity, I/O flows and hierarchical storage organization as are found in large-scale dedicated data management systems.

More than others, Bull combines an extensive expertise over a long period in main-frame/large-scale server architecture, operating systems and system administration, with open systems based on industry standard hardware and software components. *We know the meaning of main-frame-class reliability and performance!*

GUEST CONTRIBUTORS

Jean Gonnord, Head of the Numerical Simulation Project and Computing at CEA/DAM.

“Europe is back in supercomputing”

To make up lost ground Europe should have a more proactive policy in supercomputing centred on a synergy between defence, industry and research.

LA RECHERCHE. A glance at the Top 500 is evidence enough that France and Europe are lagging far behind the United States and Japan in supercomputers. How do you explain this?

Jean Gonnord. Lagging behind like this is very alarming and is a direct consequence of setbacks in large ‘computational projects’ at the beginning of the 1990s. The European intensive computing industry collapsed and only a few businesses survived. This was the case for Meiko in Great Britain for example, which after its financial collapse was bought by the Italian firm Finmeccanica. Renamed Quadrics, this company is today producing the ‘Rolls Royce’ of networks. In France, after a long period in the desert, Bull is coming back to the forefront with the Tera-10 machine.

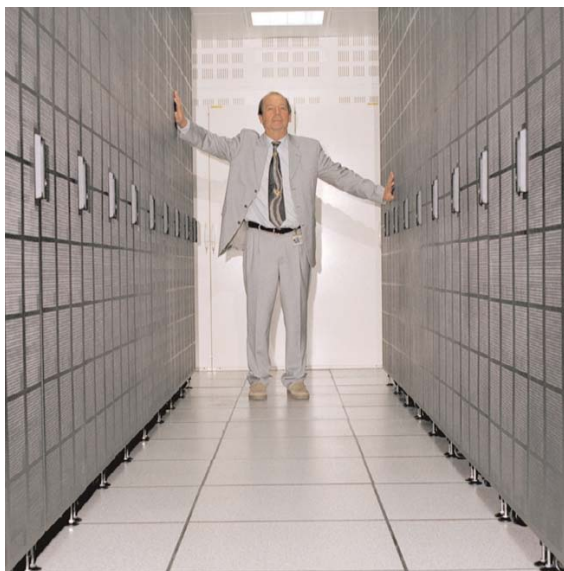
With the almost non-existent industrial framework and the lack of any real strategy, European countries are using a ‘cost base’ policy in intensive computing^[1]. High Performance computing (HPC) is considered as a tool used in a few disciplines. Laboratories are investing in HPC using their own research fundings with naturally the aim to get the cheapest machines. This has some odd effects: users practise self-censorship and depend on the American and Japanese makers to define what tomorrow’s computing will be like. And this makes Europe fall even farther behind.

By contrast, the computing policies of the United States and Japan, which can be defined as ‘strategic opportunity’^[1], imply a massive support to the sector’s industrial groups...

J. G. The USA aspire to one thing – world supremacy in this field which they think of as strategic. And they managed to do so: naturally by investing very large budget in the field, but also getting the most out of synergies between defence, industry and research. In real terms, the HPC policy is decided at the level of the

President himself who relies on the conclusions of the annual report from the President’s Information Technology Advisory Committee (PITAC).

This is then implemented by the Department of Energy (DoE^[1]), the Department of Defence (DoD) and the major research agencies – the National Science Foundation (NSF) and the Defence Advanced Research Project Agency (DARPA). These agencies fund both civilian and military laboratories, universities and the main computing cen-



tres to equip them with really big machines. But, and this is an important point, calls for project proposals are only open to American industry!

The Japanese have an almost identical policy, but the main applications are in civilian security.

Can you give us an idea of the American budgets?

J. G. They are considerable. For just the Advanced Scientific Computing Initiative (ASCI) program, since 1995 the DoE has been investing some 100 million dollars per year in its three military laboratories (Lawrence Livermore, Los Alamos and Sandia) just for the sheer power of one machine and 120 million dollars every three years to develop another machine

at the technological limits! And that’s not all. ASCI is also financing a research and development (R&D) program (Path Forward) aimed at American computer makers for them to focus on high performance computing (50 million dollars per year) and another, Alliance, to support upstream university research (8 million dollars per year). And this example is just the top of the iceberg. Historically, the major provider of R&D funds in the American computing industry has always been the National Security Agency (NSA) and of course this has not changed especially since September 11th...

Two years ago, China surprised the world by announcing a machine which made 13th place in the Top 500 supercomputers...

J. G. The emergence of this country in supercomputing field is really amazing. The chosen policy is similar to that of the United States, but the stated objectives of the Chinese government are more modest, at least for the moment: to become independent and therefore to control the entire technological chain from manufacturing processors to the final integration of systems. With this in mind, the Minister of Science and Technology launched an ambitious R&D program planned in five year periods from 1986 onwards having both civilian and military objectives. Nine large computing centres were created. For two years now the installed computing capacity has overtaken that of France! And the rate of progress is impressive. Even if the first large Chinese

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“We created ter@tec to share with the scientific community the outcomes of the defense simulation programme”

GUEST CONTRIBUTORS (CONTINUED)

supercomputers were bought from the United States, the second generation has been developed and assembled in China using American processors. The next generation will in all likelihood be 100% Chinese. Two projects have been launched to manufacture microprocessors: Godson for scientific computing and Arkll for general public use. Recently, the Chinese have announced that they are going to compete in the petaflop* race... Like the United States, the model for development is based on a defence-industry-research synergy. Europe and France would do well to be inspired by this. Only a strategic opportunity policy and putting in place a major European R&D programme would allow us to make up the lost ground.

That's precisely what you've done with the TERA project. When and how did this project start?

J. G. In 1996 after the President of France signed the treaty banning all nuclear testing, the CEA set up the Simulation programme within its military application direction. The aim was to guarantee the safety and reliability of weapons for deterrent. The program has two parts: one based on experimentation (with the AIRIX flash radiography machine and the Megajoule Laser being built in Bordeaux) and the other on numerical simulation. Computing is used to reconstruct the different stages in the functioning of a weapon. Around 100 computing engineers and mathematicians have been working on this simulator for almost ten years. They write software, that is millions of lines of code, developed from 'models' established by an equal number of physicists and validated in detail by referring back to past experiments. This colossal task is still ongoing and increasingly sophisticated models are being included in the simulator. To 'run' the simulator in a reasonable time (several weeks maximum) we would need a much more powerful computer than was available at the time. The required capacity in 2010, when the simulator will be complete, has been estimated as being 100 teraflops of sustained speed⁽³⁾, that's one hundred thousand billion useful operations per second! Our Cray T90 only provided 20 gigaflops⁽⁴⁾ at the time (twenty billion operations per second)! Let me tell you at that time that the prefix 'tera' (for 10¹²),

which stands for 'monster' in Greek, gave the project its name.

Did this pose a particular problem for the vendors?

J. G. The sustained power of 100 teraflops in 2010 was in 1996 well above what they could offer according to Moore's law. Roughly, this law predicts that the power of computers doubles every eighteen months for a fixed cost. This would give us at most 2 to 5 sustained teraflops in 2010 by extrapolating from the power of the very powerful Cray computers we had. Needless to say that such a gain in power which implies a fundamental change of the machine architecture demands considerable scientific and technological jumps. Only the parallelisation of many processors would resolve this problem. But for reasons of costs these processors should be as cheap as possible, that is those available on the mass market. We very soon realised that we would need to push the vendors beyond their limits. To influence their choices we would need to be able to discuss things on an equal footing. In 1997 we brought together a team of top experts on the CEA/DAM-Île-de-France site in Bruyères-le-Châtel. Around fifty engineers were able to interact with the vendors and help in defining an architecture that would fulfil our requirements. A timescale was established to achieve 1 teraflop of sustained speed in 2001 (operation Tera-1), 10 sustained teraflops in 2005 (Tera-10), and 100 sustained teraflops in 2009, all within a strict budget. Now we forecast to bring this capacity up to 10 sustained petaflops in 2017.

In real terms, you launched a call for proposals in 1999 for a machine with a 1 teraflop sustained speed. The specifications were extremely complex with more than 250 criteria and their related penalties! What was the response from the vendors?

J. G. Most of them didn't consider it feasible. Two answered with the best they could offer: IBM and Compaq (in fact Digital which had just been bought by Compaq). The latter won the bid. But with the very fast progress in technology, the machine that was delivered to us at the end of 2001 wasn't exactly what we ordered! However it did allow us to meet our goals and achieve 1.37 sustained

teraflops. A really great success...

So what conclusions did you draw from this first experience?

J. G. First of all that it was possible to overtake Moore's law, which vendors normally swear by, to the benefit of all partners. The scientific community also benefited. This machine would never have existed without us or, at least, not so soon. On our side we got the computing resources we needed for nearly five years, tested the simulator during its development, but also learn several lessons for the next machine: Tera-10.

What, for example?

J. G. When we commissioned Tera-1 our main obsession was the power. But once that goal was reached we realised that data management was just as important. I'll just give a few figures: everyday Tera-1 produces more than 3 terabytes of data that's in the range of 1 petabyte per year. Now no machine is safe from breakdown. As we cannot allow the results of a calculation, which might last several weeks on thousands of processors, to be lost, we need to save the data very regularly.

Unfortunately these operations are very greedy in terms of computing time. We estimate that in one hour the machine should not spend more than five minutes saving data and emptying its memory, which determines the size of the Input/Output (I/O) system. But that has turned out to be much more complex than expected. We underestimated the I/O capabilities of the machine. Also because of the architecture, the data must be written in parallel with keeping the possibility of reloading the data, not necessarily on the same processors. This poses problems for synchronisation when the machine is functioning at full capacity. Our teams and the vendor spent several months to get around this type of problem.

Wouldn't things have been simpler if you hadn't ordered a blueprint machine?

J. G. Obviously, yes. In computing two years is like an eternity. In 1999 the vendors answered our call for proposals with technologies that only existed on paper. So it took them some time to develop and implement them. The lesson is clear – the time lapse between commissioning and delivery should be as short as possible.

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GUEST CONTRIBUTORS (CONTINUED)

Above all, before signing contracts we should insist on technological demonstrations that prove the essential elements of the machine work.

From the beginning of the Tera-1 operation you've offered computing time and your expertise to researchers and industry. What were your reasons?

J. G. To give them access to resources which they didn't have and by doing this to make our own project more credible. Numerical simulation is generally validated by one or more experiments. But with the end of nuclear testing we found ourselves in a new situation. Comprehensive experiments were no longer possible so how can we possibly assure the outside world that our project is credible without divulging the details of our methods for obvious security reasons? To demonstrate that we are totally proficient in the technology, that we have the best teams and the most powerful computing resources we began to look further afield. The idea was simple – any major challenges, whatever the subject, solved with our help would consolidate the credibility of our teams and our methods. So we not only offer our computing power, but got our experts to join in projects like genome sequencing or the modelling of the prion movement^[2].



ple from university and industry. The complex is managed by the Ministry of Defence for TERA and by a committee on which each partner is represented in proportion to their investment for the CCRT. Today the CEA has a little over a half of the shares of CCRT. The remainder belong to large corporations (EDF, Snecma, etc) or laboratories like ONERA. With the arrival of Tera-10 the overall capacity of the complex has reached 70 teraflops (60 for defence, 8 for CCRT and 2 for experimentation) end of 2005. It will pass the 100 teraflop mark beginning of 2007 when the new 40 teraflop CCRT machine will be delivered.

Almost two years ago, a technopole, Ter@tec, was also inaugurated on the DAM-Île-de-France site in Bruyères-le-Châtel...

J. G. The CEA scientific computing complex is in fact at the hub of a much wider operation – Ter@tec. The technopole's aim is to unify all parties interested in numerical simulation around the scientific computing complex: researchers, industries, and technology users and suppliers. And also to share the Defence programme's spin off with the scientific community and industry – and from here to bring Europe back up to the top level in high-performance computing.

Has this collaboration already borne fruit?

J. G. Two associated laboratories have already been created with the University of Versailles and l'École Centrale de Paris, and large industrial groups (Bull, Dassault, EDF, HP, Snecma) are collaborating with us in promoting simulation or in defining the next generation of machi-

nes. FAME is one of the first projects to come out of this synergy. Uniting Bull, CEA and the University of Versailles, this project supported by the Ministry of Industry has led to the development of a high quality server dedicated to scientific computing. It has been commercialized by Bull under the name of NovaScale since 2003. Fresh from this success, a second project (TeraNova) was undertaken in 2003-2004, this time without state aid, with the University of Versailles and the companies Bull, Dassault and Quadrics. The goal was to create a teraflop machine. The industrial outcomes of these operations are clear. Thanks to them, Bull was able to develop a very general commercial product which can be used in both commercial and scientific markets. They also developed the expertise which places them at the level of the largest corporations. This meant they could answer the Tera-10 call for proposals.

Moving onto the jewel in the crown, the Tera-10 machine. What have been its constraints?

J. G. There again our main goal – a 10 teraflop sustained speed – was far beyond predictions from Moore's law. Like Tera-1, the general machine architecture had to be a SMP cluster type (shared memory multiprocessors). But we had two additional demands. First we wanted a very high sustained speed for a minimal overall cost including the dissipated power and the floor space. This involved using the first dual core processors on the market placing us again at the limit of technology. Then we wanted to have large SMP servers for technical reasons (existing codes with a low degree of parallelism and the development of new multiscale models). A tough challenge for the vendors! Finally we wanted fifteen to thirty times higher I/O capacities with, of course, the software capable of processing such volumes with maximum reliability. Based on this, our architects wrote a very complete portfolio of specifications with 278 criteria including 53 corresponding to benchmarks defined by our experts. The call for bids was launched in January 2004. Eight vendors showed an interest. The call for proposals followed in March.

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“Tera-10 would never have existed without us, at least not so soon”

This policy of openness translated into the creation of the CEA Scientific Computation Complex. With its 60 teraflop machine, it is Europe's largest computing centre. How does it work?

J. G. By creating this complex, CEA wanted to get the most out of the synergy in its defence-industry-research programs and the outcomes of the numerical simulation program. Nearly one hundred and fifty CEA/DAM engineers and researchers are now working there. The complex is made up of the Defence Computation Centre with the Tera machine, the CCRT (Centre de Calcul Recherche et Technologie) which is open to all, and finally, a centre for experimentation where our experts work with peo-

GUEST CONTRIBUTORS (CONTINUED)

Tera-10 is the most powerful European machine.

What's more, for the first time in the history of high-performance computing it was made in Europe. Is that the reason you chose Bull?

J.G. Of course not! Let me just remind you that this machine is one of the crucial elements in a program that must guarantee French weapons for deterrent. Is it imaginable that the CEA/DAM who bears this responsibility could make a choice which might compromise the program for economical reasons or prestige? Five major makers answered the call for proposals: Bull, Dell, IBM, HP and Linux Networks. Bull made the best proposal. It was able to offer us a homogeneous machine having nodes with 16 dual core processors and a sustained performance at our Tera benchmark of at least 12.5 teraflops. The Bull machine also had by far the best I/O system and the most reasonable electricity consumption. Finally, BULL proposed an essentially open source solution for system software safeguarding the CEA's freedom of choice in the future. We are obviously very proud that a French company won this challenge. It emphasises the quality of our openness initiative via Ter@tec and the benefits that the French economy can gain from a defence-industry-research synergy. Finally, the victory of Bull marks Europe's return to the field of high performance computing which is certainly gratifying.

Does this success story show the way for France to get back in the race?

J. G. The conclusions of the report by Emmanuel Sartorius and Michel Héon submitted to the Ministry of Research^[3] are very clear. The implementation of a real policy in high performance computing is essential and our methods – grouping resources and the defence industry research synergy – seem to them to be the most appropriate. Times change - and mentalities too! Since the beginning of 2005 we have seen several changes. For example, the National Research Agency

(ANR) has included an 'intensive computing' aspect in its program and launched a call for projects last July. Nearly fifty projects were submitted last September and have been evaluated. Another sign is that the System@tic competitiveness initiative, of which Ter@tec is one of the key elements, has just launched a project to develop the new generation of computers with the Ministry of Industry's support. Of course, these efforts do not compare with those undertaken in the United States. But it's a good start.

Will we see a similar initiative at the European level?

J. G. Yes. After a year of effort and persuasion, supercomputing is going to reappear in the budget of the 7th European RTD Framework Programme^[5] (2007-2013)^[4] which should include an industrial aspect. The beacon project in this initiative will be, if it is accepted, to set up three or four large computing centres in Europe with the mission not of providing computing for a given scientific theme, but to stay permanently in the top three of the Top 500. Undoubtedly, this will mean that major numerical challenges could be solved in the majority of scientific disciplines leading to major technological jumps. The CEA/DAM-Île-de-France scientific computing complex is a natural candidate to host and organise such a structure. But one thing is sure – all of these projects will only make sense if they are based, like in the United States, Japan and now in China, on a solid local industrial network and a proactive policy of States and European Union.

Interview by Fabienne Lemarchand

[1]: *Investigation into the frontiers of numerical simulation*, Académie des technologies report by the Simulation working group, May 2005 www.irisa.fr/orap/Publications/AcaTec-rapport_Simulation.pdf

[2]: V. Croixmarie et al., *J. of Structural Biology*, 150, 284, 2005.

[3]: E. Sartorius and M. Héon *La Politique française dans le domaine du calcul scientifique*, March 2005. www.recherche.gouv.fr/rapport/calcul/2005-017.pdf

[4]: http://europa.eu.int/comm/research/future/index_en.cfm

(1) **Le DoE (Department of Energy)** leads the United States' nuclear deterrent program.

(2) **A petaflop:** is a million billion operations per second (10^{15} operations/s)

(3) The real power of the computer is expressed in **sustained teraflops**. It is the product of the theoretical power and the yield – the number of operations of a computing code it is able to use. On a parallel machine these yields are of the order of 20% to 25%.

(4) **A gigaflop:** A gigaflop is a billion operations per second (10^9 operations/s).

(5) **RTD:** Research, Technological Development and Demonstration Activities in the European Union.

Source: special issue released on June 2006 adapted from "Le calcul haute performance", which has been distributed in January 2006 with La Recherche n° 393.

HOT TOPICS

Partnership is the key to a successful future for Barnsley and Bull

Bull and Barnsley Metropolitan Borough Council to create Joint Venture Company in deal worth €110 million.

Bull Information Systems, one of Europe's largest information technology companies, and Barnsley Metropolitan Borough Council (BMBC) have agreed to create a groundbreaking joint venture company that will manage BMBC's IT operations and proactively pitch for IT support contracts in the wider market. It is a 110 million contract value over the first ten years.

BMBC and Bull will jointly own the new organisation which will enable a more cost effective, reliable, secure, responsive and robust ICT infrastructure to support all of the council's services.

Under the conditions of this 'in-sourcing' project, BMBC will set the ICT strategy. The existing 106 staff of BMBC's technical support team will be transferred to the new joint venture company where they will retain their existing employment packages and become core members in the new business.

The relationship with BMBC is a significant endorsement of Bull's decision to re-enter the IT managed services market. Bull will apply its technology and expertise to manage the new company, to deliver Gershon efficiency savings to the council and improve service performance. As part of the overall model, Bull will use Barnsley as a new centre for other contracts and has already commenced moving a number of other recently won hosting projects into the Barnsley operations centre. This will build on Barnsley's already impressive facilities with the intention of developing a regional or even national centre of excellence based on ITIL standard practice.

Phil Coppard, Chief Executive at BMBC

said: "The driving force behind this project is the delivery of modernised services to the people of Barnsley. The operation of a secure ICT infrastructure is an essential requirement for the council in its aim towards being an excellent council and key initiatives of remaking Barnsley, remaking education and digital challenge aspirations. In-sourcing our IT services in this way not only guarantees the jobs of the existing team, it creates a new high-tech company in Barnsley that we believe is ideally poised to win new business and create more jobs in the local area. The new joint venture company is more than just a resource that will deliver premium services, it is a valuable commodity that we can grow and sell to outside areas."



The joint venture company is aiming to work with regional bodies, colleges and skills councils to develop opportunities for local people to obtain IT training and join its workforce. Training will also be made available to existing employees who will be given the chance to develop their skills, driving up service standards for Barnsley residents. Barnsley's business community is also set to benefit from the relationship between Bull and BMBC as the joint venture company provides new services, which could include the provision of ICT services to small businesses and start-ups within the region.

Steve Houghton, Leader of BMBC Council, said: "Bull listened to our requirements and created an innovative and imaginative solution to meet the strategic needs of both parties. We believe that this joint venture company structure will help deliver the most cost effective ICT service, stimulate the local economy and through the ICT service form a basis to significantly improve the services that we provide to the residents of Barnsley."

The joint venture company will introduce service improvements to meet higher SLAs for IT service and support as well as improving on the current IT infrastructure. There will be a particular focus on helpdesk services, data centre management and flexible working solutions. The council's business IT processes will also be made more resilient through the mirroring of its servers to a back-up disaster recovery centre in Hemel Hempstead.

"We are very pleased to be able to work with Barnsley in developing an innovative solution to their business and area requirements. With an in-sourcing model such as the one we are providing through this joint venture company structure, the council will be able to benefit from our expertise but retain control of their ICT strategy," said Mike Dunk, Managing Director, Bull Information Systems, UK & Ireland.

BUSINESS NEWS

Bull signs 3-year extension for Data Warehouse solutions to help manage New York's Medicaid program and tackle fraud

Business Intelligence initiative will further strengthen the efficiencies of the largest Medicaid program in the nation.

Bull will continue to provide the State of New York with a Business Intelligence/data warehousing solution to manage its vast Medicaid program under the contract extension through 2009. First implemented in 2002, the BI/data warehousing solution has helped New York uncover fraud and abuse, and strengthen its analysis of long term care and pharmaceutical costs.

Bull reached agreement with Computer Sciences Corporation (CSC), the prime contractor with the New York Department of Health (DOH), on a three year contract extension for the BI/data warehouse solution to manage the Empire State's \$44 billion Medicaid program. The program is the nation's largest in terms of budget size, and serves more than 4.2 million participants, with over 2.5 million in New York City alone. Statewide, more than 825 staff members from 11 state agencies, one federal

agency, and 36 counties have used the data warehouse to access and analyze Medicaid-related data rapidly and securely. New York State expects that number to rise to 1,100 as new users and more counties come on board.

The state has used the Bull BI/data warehousing solution to help New York achieve millions of dollars in savings and make major advances in the following areas:

- Tracking potential fraud and abuse among providers and participants;
- Tracking prescription drug pattern usage to prevent abuse;
- Delivering enhanced audit control;
- Conducting predictive modeling;
- Responding quickly to legislative inquiries.

Users throughout the state have been trained to access the information contained in the data warehouse, utilizing a comprehensive suite of integrated query and reporting tools, and a customized suite of advanced analytics applications. One of the most immediate and most significant benefits of the New York BI/data

warehousing solution is the State's capability to access and analyze data rapidly – and in many cases within minutes or hours versus days, weeks or months – and transform it to knowledge about the Medicaid program. The user community currently averages more than 15,000 queries per month – more than 550,000 queries have been issued against the data warehouse since its initial deployment.

The Bull solution in New York was recognized in 2004 by the National Association of State CIOs (NASCIO), winning first prize in the organization's Enterprise Information Architecture category.

Place your PMU bets, wherever you are, from your mobile phone

As of the 27 June this year, the PMU (Pari Mutuel Urbain – first company of horse betting in Europe) is offering the French public the possibility of placing bets on horses from a WAP-enabled mobile phone. With a connection to the Mobile PMU site, bets can be placed at any time, and from anywhere, right up to the start of each race. Payments for bets and wins on races are handled in total security via a PMU account set up in the user's name.

With Mobile PMU, the PMU's objective is to "bring the world of betting and horse racing to new audiences, and notably a younger and more urban clientele".

Bull, as an experienced integrator of mobile solutions, has implemented this new bet placement service over the mobile Internet by integrating the multi-channel service software platform Mobility Engine, published by its partner Wokup. Accessible via Orange World, Vodafone live, i-mode and 'Gallery' kiosks, the application provides users with Internet access to an account set up beforehand from their mobile phone, and allows them to place bets on all PMU-promoted races.

The solution implemented for the PMU also integrates Bull Open Source components, and so offers the user all guarantees of performance, confidentiality and security necessary to the placing of bets.

The display interface has been optimized to suit the full range of mobile telephones currently on the market. WAP and i-mode applications, as well as the 'Pariez spOt' application that can be downloaded to i-mode have been developed jointly by the Wokup and Bull teams before being integrated by Bull in the PMU environment. Bull has also contributed its know-how in implementing mass-market solutions that handle huge volumes of data and provide a high level of availability.

"For this type of project, the PMU always puts the work out to tender. The decision to choose the solution offered by Bull was taken because it corresponded exactly to our demands for high quality, technology

(continued on page 10)



BUSINESS NEWS (CONTINUED)

scalability and performance," explained Guillaume Dolbeau, e-PMU Manager.

Two months after going live, the Mobile PMU service has attracted growing interest with more than 90,000 bets placed, and without a single technical problem being recorded. Its full public launch will

take place in September, with a major press and Internet campaign. The advertising slogan for the new service is: "With mobile PMU, time you normally waste can now be spent earning money!"

The PMU is Europe's premier horse betting organization with a 8.01 billion turnover and 6.5 million customers in 2005.

Remote PMU services already included bets placed by telephone, minitel, Internet and interactive television, with a turnover of more than 472 million in 2005, up 22.5% on the previous year. *nologiques et de performance.* » a précisé Guillaume Dolbeau, Responsable e-PMU.

The University of Manchester Selects Bull to Provide New Supercomputer

The University of Manchester, one of the leading centres for High Performance Computing (HPC) in the UK has chosen Bull through a competitive procurement to provide a new supercomputer to help researchers undertake more advanced simulations.

The supercomputer will be the first in the UK to use Intel's new Dual-Core Itanium® 2 processor (previously codenamed Montecito) and the first implementation in the world of Bull's new NovaScale® 3045 Symmetrical Multi-Processor server technology. With a total of 208 Montecito processor cores the Bull NovaScale supercomputer will have a peak performance of 1.33 Teraflops.

Due in July, the new system will be available to all staff and research students at the University and will boost processing power by 35 compared to the previous generation, enabling more advanced research to be undertaken in areas such as Computational Chemistry, Engineering, Biomechanics and Climate modelling.

"With our 2015 Agenda to become one of the world's leading research-led universities we need to ensure that our researchers have access to the appropriate HPC capability. Bull tendered the best overall solution including performance, cost effectiveness support and maintenance. The University of Manchester is keen to continue its tradition of leading the way in the

early deployment of promising new technologies and thus is delighted to be the first in the UK to deploy a Montecito based HPC system. This new supercomputer will help us to continue competing on an international stage with the best universities in the world." said Terry Hewitt, Director of Research Computing at the University of Manchester.

The new supercomputer is fully integrated by Bull and incorporates a Quadrics QsNetII low-latency interconnect network, a Lustre parallel file system and a complete HPC software environment including software development tools and cluster management tools.



Kraftway delivers a complete IT solution based on NovaScale technology to the city of Moscow's center for housing benefit

As part of the "Electronic Moscow" program, the solution registers citizens entitled to state benefits for housing and local authority services.



It has been designed to deliver high availability and performance for processing the large flow of inquiries on the city's database. The hardware provided consists of two Kraftway G-Scale B series servers and disk storage of more than 2 TeraBytes. The G-Scale B series servers are based on NovaScale technology, covered by the OEM agreement between Bull and Kraftway. The software involved includes Microsoft Windows Server 2003 Enterprise Edition and SQL Server 2005 Enterprise Edition, as well as spe-

cialized applications, particularly for rapid registration and information retrieval.

Kraftway Company is one of the recognized leaders in the Russian computer market with a wide offer range ranging from workstations to high-performance servers.

Source: Kraftway press release, July 31st 2006.

More information: www.kraftway.ru

EXPERT VOICE

By Michel Habert, By Michel Habert, Information Systems Consultant
An ESB. Why and how?



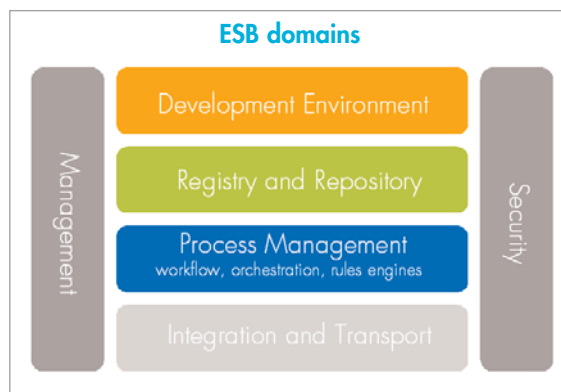
Michel Habert is a Senior Information Systems Consultant at Bull Services and Solutions. Michel obtained his degree at Supélec (École Supérieure d'Électricité), a leading French engineering 'grande école' (university), and went on to obtain a PhD. He specializes in Service-Oriented Architectures (SOA) and associated technologies (SCA, ESB, Web Services).

Following on seamlessly from the concept of EAI (Enterprise Application Integration), the ESB (Enterprise Service Bus) today constitutes the best way to construct Service-Oriented Architectures, a new model designed to ensure that information systems easily align with business processes. What are the component parts of an ESB? And how do you choose between them? While Independent Software Vendors (ISVs) are currently continuing to lead the way in this field, it's clear that Open Source ESBs are starting to offer a credible alternative. But over and above the ESB tool itself, the professionalism and automation of the development process will be a key success factor, as is the case in the majority of application software projects. In today's open world, information systems flexibility is becoming an essential component of strategic advantage. This is leading many businesses to adopt an IT strategy built around a structure dividing into a number of major application and business services that are easily combinable and interoperable.

Nevertheless, to guarantee the success of this strategy, they need to be able to configure, connect and administer these services rapidly, whilst maintaining operational profitability. Service-Oriented Architectures (SOA) are a new architectural model for applications designed to ensure that information systems are responsive, flexible and easy to run, to streamline deployments, and align technical solutions and business processes. Services are made available via interfaces that enable modular application software processing functions to be accessed and run. The objective of an Enterprise Services Bus (ESB) is to provide the infrastructure needed to make technical and application-based services available – in a fully

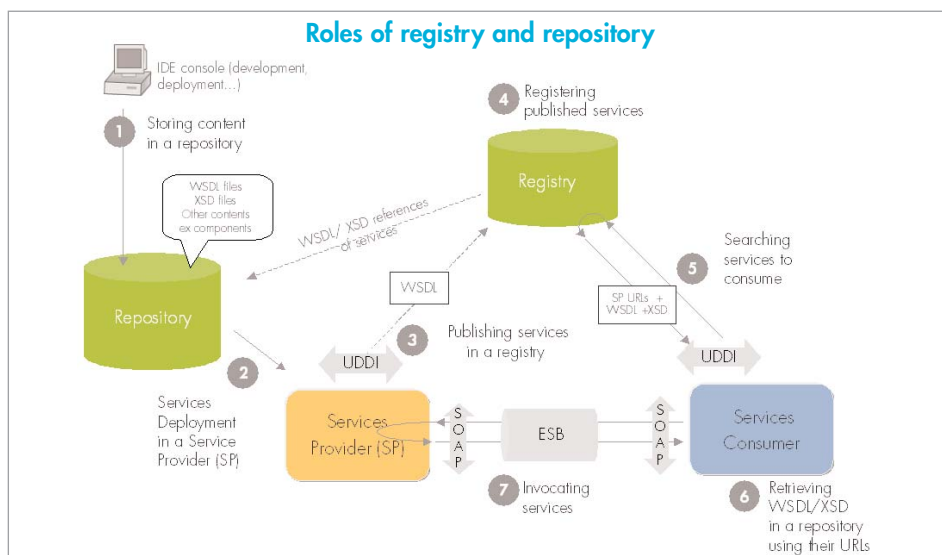
integrated and standards-based way – for the entire enterprise information system, or multi-enterprise ecosystem. Following on seamlessly from the Enterprise Application Integration (EAI) concept, the ESB started to become popular at the end of the 1990s. Today, the approach is going much further towards providing simplification mechanisms – even if it does remain somewhat complex – and basing itself on Web services, application connectors, the XML language, transformation and intelligent message routing, and other standards. It's the result of a professional and structured approach, which has resulted in lower implementation costs. The advantages ESB brings are many and tangible: more effective application software integration, the possibility of multiplying access and operational modes, lower maintenance and development costs, better system performance, and many more.

The main areas of the ESB
What are the main components of an ESB? The leading ISV's system integration suites all consist of six main areas:



Registry and repository
 At the centre of the ESB, the registry and repository facilitate the management and implementation of, and access to, services; the administration of their life cycle and related tasks such as version handling, user notification about changes, and system governance through policy management. An integrated and standard solution is the ideal one when it comes to interoperability with several registries and repositories that will appear as a single virtual element.

The standards are currently ebXML (registry and repository) and UDDI (registry), under the overall umbrella of the ebXML registry standard.



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EXPERT VOICE (CONTINUED)

Development environment

The integrated development environment is an important plus point for the ESB because of its capacity to ensure in-built flexibility and responsiveness within the information system. This is the area that manages and facilitates, via IDE consoles, the development, integration, testing, deployment and lifecycle of services.

Management

The systems management of SOA architectures is focused predominantly towards the functional rather than the technical. Technology must align itself to business processes, so that the information system's ability to react to change becomes a reality.

The centralized management and administration system is essential to this governance: it is both functional and technical, automated by processes, preferably event-driven, and provides feedback via 'dash-boards' and regular status reports. Depending on the software publisher, the management systems can be integrated within the ESB suite or supplied as an external component, but in every case the ESB will be offered with such a system.

Security

The security system is constructed around policies and processes, and can be deployed across a range of different organizations (for example, to enable identity federation). This tool is fundamental to governance, and must align with the relevant regulations (such as Sarbanes-Oxley). An ESB has its own individual security profile, so it can handle the risks to which it is likely to be exposed and to the needs of user security. It must have in-built mechanisms for handling network security, vulnerability management, content security, and identity and access management.

Process management

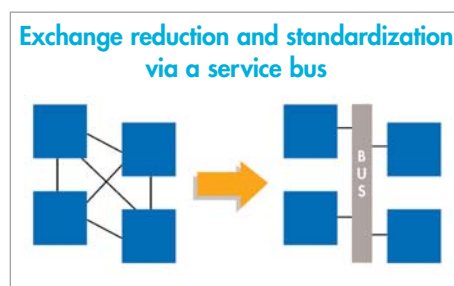
• **Workflow** reduces coding in applications by enabling them to offload application code into behavioral code. It can be supported by a rules engine, to offload application code from business intelligence code. The workflow will also appear at the application software level of management and security systems, which execute processes that are increasingly event driven.

• **Orchestration of processes** goes beyond the framework of application

orchestration of Web services. An ESB contains an internal orchestration mechanism for the technical services involved in composing data flows. The aim is to ensure that the technical elements are as flexible and agile as the functional ones. The final objective is to be able to omit the programming stage altogether, composing data flows using a graphic console. In this area, we again encounter the unique aim of the SOA, to align technical and business aspects, and increase responsiveness whilst unifying the mechanisms.

Integration and transport

• **Component integration** is achieved via a service bus acting as an interface, and standardizing messaging exchanges between integrated components. The components are of two types: either they provide operational or technical services, or they are connectors responsible for exchanges with the exterior: external services, mainframes, customers (humans or computer programs).



• **Transport**, finally, plays an important role because it handles distribution when deploying a system on IP networks of the Intranet, Extranet, or Internet type. It also ensures scalability, by simply increasing the number of service buses to absorb the load, or to facilitate modular functional processing.

Reliability, performance, and service continuity – which in turn depend on persistence management, transaction support, load sharing and high availability – are all essential. An ESB supports different types of message-oriented transport: synchronous or asynchronous (MOM) with an event-driven publish/subscribe mode corresponding to strong, weak or zero coupling types between the communicating entities. Weak and zero couplings are the ideal ones for an ESB.

Note that the bus doesn't just transport messages. It also provides intelligent rou-

ting services based on content and mediation services (translations and transformations). These services facilitate exchanges between components using different types of access and data formats. So a Cobol application that uses a structured messaging format plus MQSeries as its messaging system can communicate with the EJB of a Java application that handles data in XML format and uses JMS as messaging system. The construction of this type of flow taken together with its heterogeneous messaging systems, plus mediation for translating protocols and transforming Cobol data into XML and vice versa, will be performed without any need for coding, but with the aid of a graphic console.

Deploying an ESB: what are the alternatives? What are the current trends?

Faced with a growing need for IS flexibility, the ESB is developing rapidly. According to Gartner, more than half of large companies will have an ESB up and running by the end of 2006. Publishers and system integrators are not wasting any time: most of them have incorporated the ESB within their core range. Pioneer publishers like Axway, BEA, Cape Clear, Fiorino, Iona, Sonic Software, SeeBeyond, Tibco or Web Methods, have been joined by the major enterprise application publishers such as Oracle, SAP, IBM and others.

Players from the open systems world – including Apache, Codehaus, JBoss and ObjectWeb – are also entering this domain in force, with solutions such as Celtix, Mule, Petals, ServiceMix, Synapse and others, that are not only reliable and inexpensive, but also offer great flexibility to be adapted thanks to the free availability of code.

Confronted with multiple choices, enterprises can select integrated turnkey published solutions, or shop around to select individual components. There is a high degree of freedom that favors interoperability of numerous elements, and which can sometimes allow a 'best of breed' approach for certain domains. For example, the registry produced by SYSTINET is aligned with the UDDI standard, and is a benchmark in this area, distributed under OEM agreements by several publishers. In the same way, the current state of the art when it comes to integrated develop-

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EXPERT VOICE (CONTINUED)

ment environments (IDEs) is based on ECLIPSE, with plug-ins covering the whole range of technical and business service requirements. WTP (Web Toolkit Platform) and STP (SOA Toolkit Platform) are examples of IDEs from the open systems world. Finally, as we have seen, Open Source components are beginning to offer attractive alternatives.

So how do you choose between them? Over and above the technical parameters individual to each project and each context, there are two particularly important factors to consider: openness and interoperability. The rise in power of Open Source bears this out, even if free software solutions are still lagging behind the proprietary offerings in many areas of functionality.

Bull is heavily involved in this area, both as a contributor and an integrator. As a longstanding expert in middleware integration for complex projects, and then as major contributor to the development of free middleware (application servers, transactional monitors, workflow, Web service orchestration, etc.), Bull integrates the leading ESB solutions on numerous projects, and is also involved in the development of free software ESBs – on the one hand through R&D collaboration with various communities, and on the other hand through customers' Open Source projects.

Over and above ESB platforms, experience also shows that increased professionalism and automation of developments itself plays a key role in the success of projects. An ESB project will often be an integral part of a global project, requiring dedicated application development. In this context, numerous elements must be managed with great care: quality control (management of testing, bug handling and patch systems, validation processes and back-up, etc.), re-use of existing elements (methodologies, processes and rules for re-using components, documentary repository, etc.) and effective sharing of information between participants (source handling, reporting, alerts, traceability of decisions taken, etc.).

This is why Bull has developed NovaForge™: a secured project management and integrated distributed develop-

ment platform at the core of the Group's global network of resources and service centers. The objective of NovaForge is to rationalize and share development resources for customers to improve productivity, quality and the maintainability of their applications.

As in most application software projects,

the quality of the professionalism and structure in development industrialization is a key success factor, above and beyond the ESB tool chosen; and this needs to be taken seriously into account. The implications are huge, in terms of quality, timescales and cost, and it deserves a great deal of attention on every project.

GLOSSARY

- **ESB** (*Enterprise Service Bus*). SOA architecture middleware based on standards such as Web services. An ESB generally includes features such as adaptors (for example, JCA connectors) for integrating existing systems, use of a pivot XML format for messages, transformation and intelligent message routing, reliable messaging, a registry and a repository, process management engines (workflow, rules, orchestration), management and security functions and an integrated development environment. ESBs transport enterprise's XML messages on a software bus that connects all the organization's applications, making them accessible to all the information systems involved. ESBs are seen as the best way of implementing information systems that conform to an SOA.
- **SOA** (*Service-Oriented Architecture*). Architectural integration and manipulation (composition, assembly) model for the various blocks and application software components making up an information system, including management of the relationships they handle. This approach is based on the reorganization of applications into processes that invoke services.
- **ebXML** (*Electronic Business using eXtensible Markup Language*). A suite of specifications based on the XML language that defines a standard for e-commerce. In particular, ebXML defines the access interface to a repository and to a registry.
- **UDDI** (*Universal Discovery, Description and Integration*). Access specification in XML to a catalogue of services provided by service providers, and enabling service consumers to locate and obtain the characteristics of the services they need, in order to be able to invoke the providers of these services.
- **EJB** (*Enterprise JavaBeans*). Extension of JavaBeans enabling construction of components that are reusable on any Java platform.
- **MOM** (*Message Oriented Middleware*). Messaging system for reliable message transmission between applications or machines.
- **JMS** (*Java Message Service*). Standard Java interface providing access to a messaging system (ex-MOM) for reliable message exchange between applications or machines. Note that JMS does not standardize the message system used.
- **IDE** (*Integrated Development Environment*). A series of tools supplied as a group of integrated consoles, enabling global management of the life cycle of the technical and functional components involved in the make-up of an information system designed to align with an SOA.

SOLUTIONS

Bull doubles the performance of its high-end NovaScale servers with new Dual-Core Intel® Itanium® 2 processors

Capitalizing on its experience as the designer and maker of Europe's largest supercomputer, Bull affirms its unique expertise in server technologies.

Bull announces that the new dual-core Intel® Itanium® 2 processor (formerly codenamed Montecito) is now available on its new NovaScale 3005 and NovaScale 5005 series.

Mid July, Bull announced that the Dual-Core Intel® Itanium® 2 processor (formerly codenamed Montecito) was available on its new NovaScale 3005 and NovaScale 5005 servers for platform shipment beginning in late August. This underlined the ability of the NovaScale server family to host several generations of Intel processors, and so protecting NovaScale customers' initial investments.

"Our long-standing relationship provides us with early access to new Intel technologies and enables us to integrate new Intel processors quickly into our server line. We have found the performance and reliability gains of the new Dual-Core

Intel® Itanium® 2 processor to be outstanding and, combined with Intel® Virtualization Technology, offer enterprise and HPC customers a truly advanced, open and scalable IT infrastructure. That's why Bull customers can already take advantage of powerful Bull NovaScale servers based on Dual-Core Intel® Itanium® 2 processors" said Michel Lepert, General Manager of Bull Products and Systems activities.

Higher levels of performance and density, lower electricity consumption and thermal output

Equipped with Dual-Core Intel® Itanium® 2 processor 9000 series, the NovaScale 3005 and 5005 series deliver much improved price/performance ratios, while the lower electricity consumption and heat output from the new processors offers two and half times better performance per watt compared to previous generation Intel® Itanium® 2 processors.

Bull, through its long-established and recognized know-how in building enterprise open systems and mainframes, has focused its R&D investments to enable the

development of innovative enterprise-class Intel® Itanium® 2 processor server families. The resulting technology will contribute to reinforcing Bull's product range, as well as its position as a key Intel® Itanium® 2 based server supplier. These investments have given Bull a leading edge in the mastering of complex IT infrastructures, which are the cornerstone of its development strategy.

"With the introduction of the dual-core Intel® Itanium® 2 processors as part of the Bull NovaScale server line, a new dimension in enterprise IT is born. This provides more flexible, energy-efficient, higher performance and more reliable solutions. This opens up new prospects for implementing large-scale applications and for server consolidation, particularly with Intel Virtualization Technology," said Kirk Skaugen, Vice President, Digital Enterprise Group, Intel. *"Bull has confirmed its ability to build enterprise-class servers using the best standards-based technologies".*

More than 400 Bull systems supplied under HA999 contracts

A commitment

IT infrastructures are increasingly handling customers' mission-critical activities, to the extent that any service interruption has an immediate and negative impact on the revenues or production capacity of the enterprise.

Therefore, for European customers seeking 24/7 operating capacity allied with very high levels of availability, for over five years now Bull has been offering premium high-availability services under the framework of its HA999 contract, the cornerstone of this highly specialized offering. In fact, Bull is one of the very few service providers to make a contractual commitment to a specific number of hours of availability (in this case, 99.9%).

Guaranteeing 99.9% availability that effectively equates to a cumulative weekly rate of just four hours downtime over 4,380 hours of production

The mechanism Bull deploys is very simple and highly effective. A local, dedicated, technical team, led by a Technical Account Manager (a TAM) is nominated. The customer's systems are linked up to the technical center at Grenoble, France, specialized in high-availability technologies. Continuous surveillance by experts in this field have enabled some systems under HA999 contracts to remain in continuous operation, without a break, for more than three years. This center is operational 24 hours a day, seven days a week, and uses powerful and secure IT tools developed by Bull. It provides these services to anywhere in Europe.

Today more than 400 systems and their storage environments are continuously monitored by the center, which in turn constitutes a valuable technological showcase for the expertise of Bull teams in the area of high-availability services. Among the European customers who have opted for the HA999 contract are major organizations seeking to provide users and customers with a guarantee of continuous remote (Web) access and businesses in the utility distribution sector with obligations to fulfill service requirements however great the demands made on the system in terms of volume, as well as financial institutions, for whom guaranteed unflinching continuous operation for financial transactions is essential.

WHAT'S NEW

Bull NovaScale Servers set a new WORLD RECORD performance for server side Java computing

Bull NovaScale® Servers have set on August 11, 2006 a new world record performance under the SPECjbb2005 Benchmark for server side Java computing, reaching 128 755 business operations per second (bops) on a NovaScale 3045 with four Dual-Core Intel® Itanium® 2 9050 processors, running Red Hat Enterprise Linux 4 Update 4. The JVM (Java Virtual Machine) used for the benchmark was the BEA Jrockit® 5.0.

Beating other Intel Itanium 2, Intel Xeon, AMD Opteron and Power5+ processor based servers, the Bull NovaScale 3045 server becomes the best-in-class 8-cores system. SPECjbb2005 (Java Server Benchmark)

is SPEC's benchmark to measure the performance of server side Java by emulating a three-tier client/server system. It provides a new enhanced workload, with a more object-oriented approach to reflect how real-world applications are

designed and introduces new features such as XML processing and BigDecimal computations to make the benchmark a more realistic reflection of today's applications. The benchmark stresses the implementations of the JVM and also measures the performance of CPUs, caches, memory hierarchy and the scalability of shared memory processors (SMPs).

Cisco awards Bull for Excellence in Customer Satisfaction

For years, Bull has been a key network integrator in Europe, building strong partnerships with major network systems makers, including Cisco. This excellence has been recognized by Cisco Systems who awarded Bull as a 1st tier partner of

Cisco Systems, with the status of "Cisco Customer Satisfaction Excellence". "Customer Satisfaction Excellence" is the highest distinction a partner can achieve within Cisco certified Partner companies. It is based upon the customer satisfaction

enquiry results conducted by Cisco, identifying the partners having achieved outstanding customer satisfaction as part of Cisco's worldwide assessment process.

ISO 9001: Quality certification rewards Bull's expertise

Bull's Products & Systems, Research & Development and Customer Maintenance & Services divisions in France have successfully obtained ISO 9001 (version V2000) certification once again across the range of their activities:

design, development, production, distribution, sales and support.

This latest step confirms the success of the Group's approach over the past few years. It provides the guarantee customers

need that Bull is in command of all the processes related to products and services – from design through to delivery and maintenance – assuring them of Bull's commitment to constant improvement.

EVENTS

20 September, at the Westin hotel, Paris – 2nd Health Conference 2006, organized by IDC

Modernizing Information Systems for tomorrow's health services

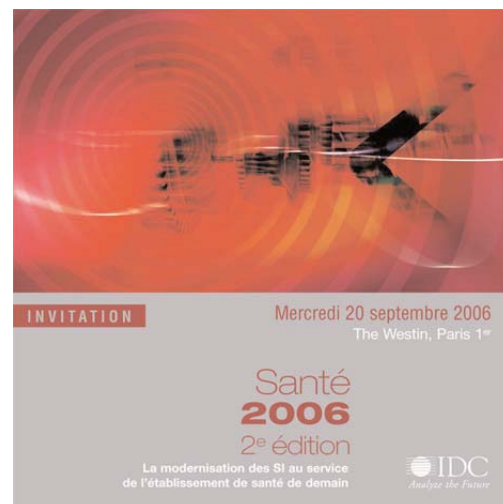
By 2007 there will be more than 3,000 establishments responsible for public healthcare in France: over 1,000 of them in the public sector and around 2,000 in the private sector. This is a highly sensitive sector, being one of those areas that can reap greatest benefit from the latest advances in information technology. And yet, regulations and confidentiality requirements, the constraints of cost control and in addition the emergence of a new patient monitoring system, are opening new horizons for managers in this sector. IDC analysts, market experts and health sector players will address all these issues that underlie the profound transformations taking place in the French healthcare system."

The program for the day is as follows:

- Users from the hospitals in the French cities of Reims and Lyon, and the regional health authority in Franche Comté will give accounts of their experiences in the field
- The Single Electronic Patient Record (DMP): driving computerization from 2006?
- Transforming hospital information systems
- Computerizing health care procedures
- Security of hospital information systems: a presentation by Hassan Maad, General Manager of Bull Evidian
- Activity-based healthcare tariffs, and HIS (hospital information systems).

For more information and to register for the event visit:

<http://www.idc.com/france/events/sante06.jsp>



September 19-20, Paris

STAR Conference France 2006 – Paris, September 19-20

The STAR Conferences organized by CD-adapco are aimed at users of STAR-CD, STAR-CCM+ and the STAR-CAD Series. They are also an annual gathering of some of the top experts and users in industrial CFD. The STAR

Conference France 2006 will enable industrial CFD users to keep in touch with the very latest technology and fully leverage the potential of industrial flow simulation.

Visit the Bull booth!

More information:

http://www.cd-adapco.com/events/STAR_Conf/UGM_FR_06/EN_info.html

September 26, in Nantes (France) – Joint Bull and Business Objects seminar,

Cost management with new piloting tools



To help you track your business performance and precisely understand its drivers while running your organization, Business Objects and Bull have organized a seminar on September 26, in

Nantes intended for decision makers on the theme: "Cost management with new piloting tools".

The agenda includes:

- **Patrick Philippe**, CIO, Monique Ranou company, Number 2 in France in self-service delicatessen products, will speak on its return on investment thanks to the implementation of a purchasing and

control management solution, based on Business Objects tools, a Bull partner since 1991

- **Jean-Michel Jurbert**, Business Objects, will present the stakes linked to Business Intelligence's standardization
- **Yannick Rolland**, Bull, will make recommendations on implementation, based on Bull's savoir-faire in the completion of many such projects.

EVENTS (CONTINUED)**September 28-29, Paris, France – Bull HPC User Convention 2006,****Free up performance in a multi-core environment**

The second Bull High Performance Computing User Convention will be held in Paris on September 28-29, 2006, in the unique setting of the Museum of Fairground Arts.

Computing is coming today to a new technological turn. With the processor clock frequency increasing at a slower pace, processors go multi-core to boost performance. Multi core processors offer more computing power, more density, at a reduced cost. However, making full use

of the capacities of multi-core processors requires a fundamental rethinking of how to deliver performance. Speed is still important, of course, but parallelism is a must to efficiently distribute the workload between increasingly numerous cores. Optimizing code, tuning applications, choosing the best tools for the massive parallelism brought by multi-core processors are key issues to maximize performance.

The Bull HPC User Convention will

address these issues, through speakers from major HPC centres, Bull partners, and the Bull HPC Competence Centre. The Convention will also offer many opportunities to for informal exchange between experts from all horizons.

For more information and register:

<http://www.bull.com/novascale/hpc2006convention.html>

October 10-12, Toulouse (France)**EuroPAM 2006**

EuroPAM, ESI Group's 16th European Conference and Exhibition on Digital Simulation for Virtual Engineering will take place in Toulouse, France on October 10-12. Geared at experienced

users, the advanced conferences provide in-depth discussions of the theory and application of various ESI Group product capabilities.

Visit the Bull booth!

More information:

<http://www.esi-group.com/EuroPAM2006/>

October 10-12, in Belgium**NATO InfoSec Symposium 2006**

From October 10 to 12, the NATO InfoSec Symposium 2006 will take place at SHAPE premises in Belgium. This event is organized by NATO exclusively for its 26 member countries. Four hundred representatives from the NATO

Agencies and the Strategic Commands will attend the conferences and visit the stands.

Bull has been invited to participate in this Symposium as "Vendor" to present its TrustWay offering, which already gained

recognition from the market and the accreditation bodies; it includes VPNs, cryptographic PCI cards and boxes, PPS USB cryptographic tokens.

October 10-12, Roma**ISSE**

The 8th edition of the ISSE (Information Security Solutions Europe) Conference, the biggest European event in the IT security world, will explore the technical, organisational, legal and political issues in Identity Management and Access Control, Trusted Computing, Wireless and Mobile Security, Public Key Infrastructure, etc.

Our experts will be pleased to welcome you on Bull stand and will present their TrustWay secure solutions, including: VPN, PCI CryptoCard, CryptoBox, PPS USB cryptographic token.

Being involved in the European POSITIF (Policy-based Security Tools and Framework) project which has been funded by the European Commission, Bull

will also be present on their booth. The main goal of this project is to offer automatic tools to support security managers in protecting networked infrastructures and applications.

EVENTS (CONTINUED)

October 12, Paris - Seminar organized by IDG

IT and local government territories attractiveness

Local authorities are at the very heart of economic activity and at the center of the State's relationship with its citizens. Information and Communications Technology (ICT) provide a fantastic opportunity to further improve this key role in the society and strengthen their attractiveness in an increasingly globalized world.

Against this backdrop, what new services can they offer with the help of ICT? How

can they prove their dynamism through the use of e-government (for example, in terms of creating employment, improving the quality of their services...)? What technologies are available for them to use? What skills do they need (change management, security, outsourcing, regulatory compliance, breaking down departmental barriers)?

All these subjects will be covered at a

morning event organized by Bull, CIO and French IT magazine Le Monde Informatique on October 12, at the Pavillon Ledoyen in Paris.

André Santini, Deputy and Mayor of the town of Issy-les-Moulineaux and Didier Lamouche, Bull Chairman and Chief Executive, will be attending.

October 18-20, Issy-les-Moulineaux (France)

World eGov Forum "Which connected society do we want?"

Bull is sponsor of the World eGov Forum which will be held from 18 to 20 October at Issy-les-Moulineaux, France. It will represent a unique opportunity to showcase both the role and the impact of Information and Communication Technologies (ICT) in the public sphere; to present public e-services and citizens' opinions to all types of publics. South Korea will be the guest of honor of the Forum. Approximately 30 countries will participate in various conferences.

Three plenary sessions, four conference themes and around 20 simultaneous round table discussions are organized around the central question: **Which connected society do we want?**

- E-inclusion: the real challenge to build the connected society that we want
- E-government as a strong issue of the governments transformation
- Re-invent democracy at the age of information: to a participatory democracy?

Bull speakers

On October 18, from 10:45, **Didier Lamouche**, Bull's Chairman and CEO will be attending the opening plenary session;

On October 18, from 16:30 to 17:45, **Jean-Pierre Barbéris**, General Manager, Bull Services & Solutions and French network will participate in the round table number 6: *"How to build a new IT strategy using open source software?"*

On October 18, from 16:30 to 17:45, **Matthew Foxton**, Director of Bull Corporate Communication will lead the roundtable number 16: *"Public-Private Partnerships and large outsourcing projects"*.

Ken Rutt from Barnsley (UK) and **Jean-Pierre Le-Treut**, Bull's Managed Services will be part of this roundtable.

For more information:
www.worldegovforum.com



October 20, Paris – CUBE (Bull European User Group) UNIX day

CUBE UNIX



Following two successful initial sessions, Bull and CUBE (the Bull European User Group) are organizing another day where users can share their experiences and learning points on October 20 in Paris. The event – which

will be focused on Bull Escala® servers and the AIX® environment under which they run – is not restricted to CUBE members: any French-speaking customers or prospects will be welcome to attend.

The main themes of the day will be the global virtualization of IT architectures,

illustrated by key customer case studies, including SOITEC.

For more information and to register for the event contact:
christophe.loye@bull.net

EVENTS (CONTINUED)

November 11-17, Tampa (USA), SC06

SC06, the premier international conference on high performance computing, networking and storage, will convene in November 2006 in Tampa, Florida. This year the conference will take

its inspiration from Albert Einstein who said, *“Computers are incredibly fast, accurate, and stupid; humans are incredibly slow, inaccurate and brilliant; together they are powerful beyond imagination.”*

Visit the Bull booth (N°1651)!

More information:

<http://sc06.supercomputing.org/>

November 22-23, Paris

InfoSecurity Paris

As each year, Bull will be present at InfoSecurity Paris, the main security event in France that will take place at CNIT Paris la Défense, from November 22 to 23. Themes of conferences include: **E-SSO, intrusion, phishing, encryption, audit, etc.**

On its booth (number G14-H13), Bull will

demonstrate the software solutions of its Evidian subsidiary (WiseGuard, identity, access and Single Sign-On management, quality of service management, etc.), its TrustWay encryption solutions (cryptographic USB key [Personal Protection System], VPN appliances, encryption cards, etc.), and present its complete



le salon de
**la sécurité
informatique**
FRANCE

22 et 23 nov. 2006 Cnit Paris La Défense
www.infosecurity.com.fr