



## Success Brief

Intel® Xeon® processor  
7400 series  
IT Services



“The Intel® Xeon® processor 7400 series is very powerful and impressive, and has enabled us to further pave the way towards our Critical Adaptive Eco Hosting Strategy.”

Gérald Dulac,  
Founder and Director,  
Business & Decision Eolas

# Virtually Green

<b>Company</b>	Business & Decision is a leading Consultancy and System Integrator, and provider of managed and hosted services
<b>Product evaluated</b>	Intel® Xeon® processor 7400 series
<b>Challenge</b>	Utilise high processing power and virtualization for energy efficient, adaptive and mission critical, hosted environments such as business intelligence (BI), customer relationship management (CRM), and e-business services for medium-sized companies
<b>Results</b>	A drastically expanded scope of Service Level Agreements for an installed customer base with impact on infrastructure costs, through high value virtualised services such as backup, archive and recovery, running off a single physical server
<b>Impact</b>	Ability to provide high value and eco-efficient hosted services, resulting in reduced time to deliver hosted solutions, continuous improvement, and minimal costs and risks – known as a Critical Adaptive Eco-Hosting solution
<b>Next steps</b>	Reinvent hosted offerings for BI, CRM and e-business as a series of mission critical, virtualised services including hosting of development and production servers, and backup, archive and recovery related services. Leverage the upcoming Intel® Xeon® processor 5500 series to further improve the Critical Adaptive Eco-Hosting solution

### Challenge

Business & Decision is a leading French international consulting and data management company that specialises in hosting services for business intelligence, customer relationship management and e-business applications. In the face of rising energy prices, wider concerns about energy efficiency and due to a growing demand for specialised hosting services, it decided to expand its data centers facilities in Grenoble, France, by developing a new ‘green’ data centre. For example, the data centre utilises an underground stream and cold external air for free cooling, and incorporates a very precise metering tool that monitors and continuously improves energy consumption. It is also one of the world’s first hosting data centres built specifically for virtualisation and will house approximately 8,000 physical servers. As part of its drive towards creating a data centre of the future, Business & Decision Group evaluated the power consumption and virtualisation potential of the Intel® Xeon® processor 7400 series.

### Deployment

Business & Decision Eolas, dedicated hosting subsidiary of Business & Decision, assessed the value of the Intel Xeon processor 7400 series by using it to power a service that was representative of the hosted applications it offers. It opted for a financial consolidation system operated by a leading online retailer, with extensive operations throughout Europe.

An assessment study that revealed the Intel® Xeon® processor 7400 series could efficiently enable a ratio of approximately 12 virtual servers for one physical server, while ensuring high-performance due to Intel® Virtualization Technology (Intel® VT).<sup>1</sup>

The Intel Xeon processor 7400 series processor is designed with specific virtualisation capabilities which enable users to develop an ‘eco-system’ of software-based virtualisation. Because virtual servers can concurrently host multiple operating systems, the need for back up hardware and software is dramatically reduced.

Furthermore, enhanced 45nm Intel® Core™ microarchitecture delivers up to 50 per cent better performance and up to 10 per cent power reduction, compared to previous generations.<sup>2</sup> For very dense server platforms, low voltage options provided by the six-core Intel Xeon processor 7400 series also reduce cooling requirements, which in turn lowers IT costs.

Following the assessment study, Business & Decision Group used Intel Xeon processor 7400 series to power a server running the VMWare ESX\* 3.5 virtual machine manager (VMM). Twelve virtual servers were created and the company began measuring data input/output on the hosted financial consolidation application.

## Results

Business & Decision Eolas monitored 'very impressive' input/output results. First, the benchmark proved the ability to break new ground in terms of high availability and mission critical services. For example, the financial consolidation application actually ran more reliably, despite a complex architecture clustered over numerous web and application layers. In practical terms and from a business operational perspective this was considered as equally improved as important performance.

Even more importantly, this platform proved an ability to provide in a single physical server, high-end services related to disaster recovery. For example, when provisioned as virtualised services, backup, archive and recovery services become affordable to companies with limited budgets, typically those found in the small and medium business market.

Second, the solution proved to be very adaptive, thanks to the ability to easily provision new virtualised services on customer's dedicated physical server. The labour required to set up a new virtualised service was only one or two days when compared with traditional data center provisioning practice. And thanks to six cores on one processor and increased memory capacity, operational costs for each physical server hosting virtualised services is 25 per cent less than the cost of just one physical server hosting one service.<sup>2</sup>

Last but not least, the solutions were highly eco-efficient. For example, there was at least a 20 per cent reduction in energy costs compared to previous generation processors.<sup>2</sup>

## Future

Business & Decision is now deploying the Intel Xeon processor 7400 series for its medium-sized and large-sized customers. Despite running the test with a 12:1 virtualisation ratio, the company actually settled on a 7:1 ratio. This was considered to be the most optimal for its needs.

The operational costs savings are being used to create a new, highly secure, failover solution, that is, one remote redundant server for each physical server and designed to deliver 'ultra-reliable' disaster recovery operations.

The ability to now develop appropriate, cost-effective SLAs for medium-sized companies, enabled by the Intel Xeon processor 7400 series, is also predicted to attract more customers than originally anticipated.

At a wider level the Intel Xeon processor 7400 series plays an essential role in helping Business & Decision achieve its wider aim of creating one of the world's first virtualised data centres and one that is governed by remarkably high levels of energy efficiency.

Furthermore, the compelling benefits of the Intel Xeon processor 7400 series has driven the company to begin testing the Intel Xeon processor 5500 series – based on the next-generation 35nm Intel microarchitecture – an eight core processor that can deliver virtualisation ratios of 20:1.<sup>2</sup>

## Impact

Business & Decision Group concluded that the advantages of the Intel® Xeon® processor 7400 series were more than suited for its Critical Adaptive Eco-Hosting strategy. The Intel Xeon processor 7400 series could also underpin a new drive into the small and medium-sized arena, by helping develop an affordable disaster recovery model.

In summary, it identified significant costs reductions from creating virtualised versions of customer applications, higher security thanks to new redundant servers created from cost savings, and higher performance.

These benefits taken together mean the company could offer a more attractive lower-cost hosting proposition and appropriate service level agreements (SLA) for medium-sized customers.

The power consumption savings enabled the Intel Xeon processor 7400 series also dovetails with a growing need among customers to become more energy efficient.

There are already several dynamics driving customers in this direction. These include increased awareness about environmental and political damage that can arise from unfettered energy consumption and the need to comply with regulation that mandates lower energy consumption.

Business & Decision believes that customers, as they decide to source external IT services such as cloud computing, Software as a Service or hosted services, will increasingly factor eco-efficiency as a key element in their supplier decision making process.

Consequently, Business & Decision is working very closely with Intel and others to develop industry first eco-efficient capabilities such as software for metering energy usage, optimized Power Usage Effectiveness (PUE) through holistic power and cooling infrastructure design, use of natural sources to cool the data centre and more. Intel Xeon processor 7400 series is galvanising this drive to energy efficiency even further.



Gérald Dulac, Founder and Director, Business & Decision Eolas, said: "Early tests have shown that we can gain virtualization rates of 20:1 with a processor usage rate that is slightly below 55 per cent. By utilising this virtualization capacity and the added performance we can really extend hosting capacity and ensure greater security through full redundancy."

Hyperion Financial Management (HFM) running on Microsoft SQL Server 2005 and Citrix OS <sup>2</sup>		
Description	Physical platform	Virtualised platform
Number of servers	6	1
Number of operating systems	6	6
Number of assigned cores	20	24
Assigned memory GB	40	16
Processor models	8 x Xeon® 5160 + 2 x Xeon® @ 3.20GHz	4 x Xeon® X7460 @ 2.66GHz
<b>Energy</b>		
Electricity consumption (KWh)	1.4	0.59
<b>Cost</b>		
Hardware budget	The cost of one server as X	One fifth of X
<b>Application performance</b>		
HFM Average Consolidation time (sec)	125	85
HFM Average reporting time (sec)	3	3

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<sup>1</sup> Intel® Virtualization Technology requires a computer with an enabled Intel® processor, BIOS, virtual machine monitor (VMM), and for some uses, certain platform software enabled for it. Functionality, performance, or other benefits will vary depending on hardware and software configurations, and may require a BIOS update.

<sup>2</sup> Source: Business & Decision internal calculations.

