# Hybrid Computing:
## Blending disparate systems to meet modern needs

Computing has changed over the years, evolving from one application and limited data per server to multiples of both on each server instance in the enterprise. New advances in technology make possible ever more sophisticated and integrated applications. New generations of consumers find uses for increasing empowerment at their fingertips. At the same time, IT organisations suffer from spiralling costs that leave them strapped to innovate less and spend more on operation and maintenance of the existing estate. All the while, the notions of improved service and quality become ever more distant goals.

Hybrid computing is an approach that aims to support the heterogeneous nature of modern computing environments but in a simplified way, supporting existing and new applications with less complexity, better performance and at a lower cost.

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### Navigating the IT jungle

Keeping a handle on the jungle of hardware and software required to support the ever expanding needs of 21st century IT consumers is not easy. As servers have proliferated, control has spread from the centre. Underfunded IT teams have gladly handed responsibility for individual servers and applications over to the department concerned. It is often only when things go wrong that the weaknesses in this approach are exposed.

Ray Jones, IBM's VP of Worldwide System z Software notes: "*I have met with many customers who have hundreds if not thousands of systems and data bases that cannot be managed to deliver predictable results. Users ask the same question twice and get different answers. And many times the questions asked are of fundamental importance to good decision making. In desperation, the end users have hired dozens of people to get to the bottom of why they cannot achieve consistent results. And what they tend to find is that the underlying inconsistency of business logic coupled with multiple sets of inconsistent data defeat the quest for better intelligence*".

With applications distributed across multiple servers and platforms, and control spread throughout departments it is hard to maintain a consistent view of both the functional requirements – what the application or platform needs to deliver - and the non-functional but equally important challenges: such as power consumption, security, backup and resilience.

### Matching workloads to capabilities

At the core of most enterprise IT is often still a large enterprise server churning out huge transaction volumes against core databases. Surrounding this is a plethora of different distributed servers – typically Windows™, Unix/AIX or Linux - handling applications and web interfaces. These systems run with little correlation between the work performed on the enterprise and the distributed servers.

Once an application is deployed, the platform on which it sits tends to persist, even if the selection was one of convenience or even fashion at the time. The challenge for businesses now is to move to a situation where the right platform is in place to serve an array of IT demands. Platforms each have their strengths and weaknesses. The objective is to fit application types to the server environments based on optimal delivery of the end computing purpose. The goal is to construct a hybrid environment of mixed but integrated systems that delivers the optimum levels of economy, efficiency, security and reliability for each application.

Judging the right environment for each application is not easy. Few companies today are equipped to make accurate side-by-side comparisons of different platforms and architectures based on realistic metrics. There is no single standard for a unit of processing power that allows for such benchmarking; staff costs are very hard to attribute accurately; space and cooling requirements are often allocated based on historic use not current; energy charges, a small but increasingly important component, are rarely broken down beyond the departmental or building level. The IT department may not have any sight of them at all. Often, these considerations are not factored into business cases because it is so difficult to put any kind of number against them.

As a result, the situation is often only analysed properly in the wake of a disaster or major dislocation: an outage; a data breach; or some other form of compromise. Only then are the difficult questions asked.

### Optimise when the going is good

It was not always so: calculations on the cost of computing power and mechanisms for charging back were commonplace when the capital cost of hardware was so high. Today, because of the low cost of commodity hardware and perceived notion that it is easier to deploy, companies tend to "*incrementalise*", applying controls on a case-by-case, application-by-application basis. This almost always leads to suboptimal service delivery and economics because the right platform was usually not selected and the hardware that was perhaps low cost to acquire ended up costing more to maintain, administer, and perform at a level to meet customer satisfaction levels.

But according to IBM's Vice President of Competitive Technologies, John Shedletsky: "*...the pendulum is swinging back. Customers are evaluating the newly announced zEnterprise system because of its value of integrating heterogeneous environments with a centralised management, scalability, efficiency, and ultimately lower cost.*"

Like every function of business today, IT departments are under pressure to deliver more with less. And with increasing reliance on data, and threats to that data, they need to achieve this with minimal risk. If they are to maximise the potential of each platform deployed in a hybrid computing approach, companies need to understand the true costs, and requirements of each platform. Only when they can make a realistic comparison of each platform option will they be able to proactively determine the most efficient and effective choices for their business.

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With the right metrics and mechanisms in place companies can make better decisions about the right platforms on which to build, deploy and operate. As IBM's Ray Jones says: "*once you really understand what your workload is, you can figure out the best solution for that workload. To assist with more informed deployment decision making we have developed a methodology called Fit for Purpose. It aims to optimise service levels, cost and flexibility for growth in application and database deployment*".

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**Hybrid: Many systems, one environment**

Assembling a package of platforms that best fit the applications businesses are supporting is a huge step forward but still leaves a big management overhead. Tackling this remaining challenge is the key to success with a hybrid computing approach: ensure that the optimum package – whatever platforms it combines - is assembled in a coherent format with the associated automation for systems to self manage, protect and heal themselves. Achieve this and IT departments can minimise the staff overheads and more importantly minimise the risks associated with security, data backup and resilience.

The promise of hybrid computing is to deliver an IT infrastructure capable of fostering the growing needs and demands of consumers in the 21st century. With the optimal blend of platforms, Fit for Purpose approach to deployment, and automation for simplicity of operation, hybrid computing holds the promise of transforming the IT landscape for a better future.

If you would like to learn more about hybrid computing and what it could bring to your organisation please contact Fredy Bia at **fredy_bia@uk.ibm.com** or visit **www.ibm.com/software/uk/system-z/**