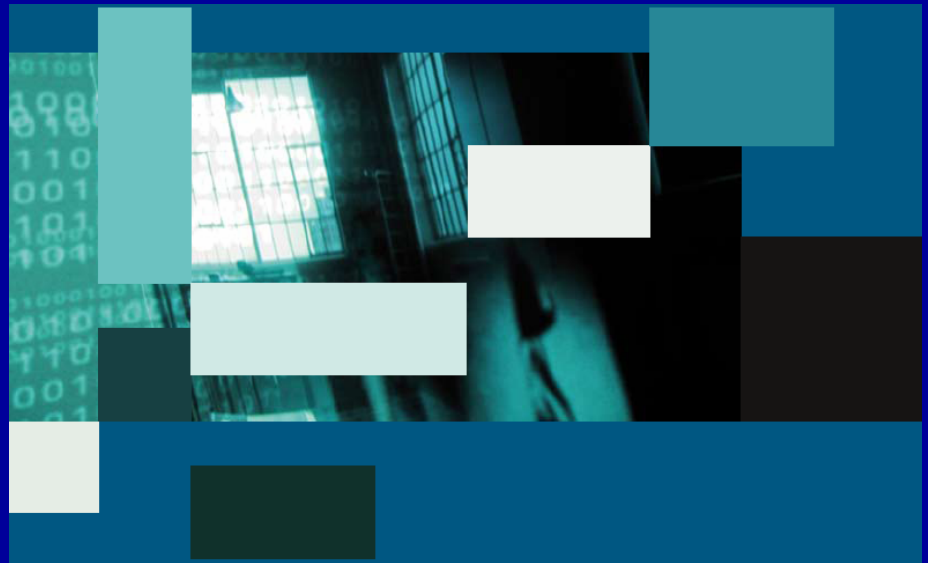


The Cost Effective Mainframe & SOA



Analysts review the changing economics of the mainframe and its role as an SOA hub

IBM System z9 – Cost Effective and SOA

Remember all those calculations showing how much more cost effective distributed systems were compared to the expensive, lumbering old mainframe. Well, times change, requirements alter and IT evolves and nothing has evolved more in recent years than the mainframe. Various industry analysts have been re-doing their sums and yes, much to some people's surprise, the total cost of ownership (TCO) can work out cheaper and in some cases much cheaper – yes cheaper!

But cost isn't necessarily everything and we're now moving to service oriented architecture (SOA), surely that doesn't suit the mainframe? Well the answer is 'why not'? The mainframe can offer a viable, flexible and cost effective platform for SOA system deployment, especially for mission-critical applications that demand high performance.

To justify these claims, PMP has reviewed reports from five independent analyst firms. This white paper gives a synopsis of their views, with the full text of their reports available by selecting the links.

The contributing analysts are:



- **Managing System z Mainframe SOA Environments**
Ian Bramley, Managing Director, Software Strategies



- **Five Steps to SOA**
An analysis of IBM's Five Entry Points and the role of the mainframe in the service-oriented architecture
Mark Lillycrop, Chief Analyst, Arcati Research Ltd



- **The King is Dead – Long Live the Mainframe**
Roy Illsley – Senior Research Analyst, Butler Group



- **Mainframe Mythology Lives On – Setting the Large Systems Agenda**
Mike Kahn, Managing Director, The Clipper Group



- **The Mainframe: It's Baaack!**
Cal Braunstein, Executive Director of Research, Robert Frances Group

Additional information on System z9 software can be found at:

<http://www.ibm.com/software/zseries>





Managing System z Mainframe SOA Environments

Ian Bramley – Managing Director, Software Strategies

www.software-strategies.net



SOA Explosion Meets Transformed/Resurgent IBM Mainframe

SOA, the most important advance in business application software architecture and technology ever, has enjoyed soaring adoption over the last three years. Leading enterprises across the globe, and from every industry, have rapidly expanded their SOA exploitation to bring much greater business flexibility, to respond faster to market needs, integrate their people, processes and information, and to better link enterprise applications with customers, collaborators and suppliers.

SOA loosely links both new and traditional application components and databases, presented as business services over an ESB, using open Web services standards, to provide next-generation, SOA composite applications. These can be far more closely aligned to optimized core business processes, and can much more easily be changed to respond faster to new business needs.

The IBM mainframe, host to over \$1T-worth of customers' business-critical applications investments, and 90% of the world's largest databases, has now become the central platform for the most important SOA initiatives and developments at many enterprises. The IBM mainframe, through this decade, has also enjoyed swelling market resurgence, benefiting from a dramatic transformation through many years of intense IBM innovation, development, and \$B of new investment, reviewed below.

Next Mainframe SOA Challenges – Management, Security and Virtualization/Provisioning

As enterprises learned the extensive benefits of SOA, chose their entry points to begin SOA adoption, and rolled out their early new SOA applications, in many cases they have exploited SOA software capabilities, and the advanced enterprise IT platform attributes, of the modern IBM mainframe.

For these earlier-adopter SOA users on the mainframe, their focus has now moved on from SOA concepts/building their first new applications, to address the next stages of SOA adoption. Questions of service management, service security and service virtualization/provisioning have now come to the top of their SOA priority list, as the next challenges to be mastered on their SOA journey. These users now need answers to important questions, including:

How can security be ensured, and identities be correctly managed, in these new SOA applications, which now often extend outside the enterprise DMZ to embrace partners' and suppliers' systems?

How can enterprises best manage, monitor and automate operations of their next-generation SOA applications in production, to ensure the right high-levels and QoS are delivered?

How can flexible, virtualized IT resources be quickly provisioned, and their capacity easily flexed, to meet fast-changing business workload needs and demands?

To read the full report 'Managing System z Mainframe SOA Environments' click [here](#)

“The IBM mainframe has now become the central platform for the most important SOA initiatives and developments at many enterprises”

“Questions of service management, service security and service virtualisation have now come to the top of the SOA priority list”





Five Steps to SOA

An analysis of IBM's Five Entry Points and the role of the mainframe in the service-oriented architecture

Mark Lillycrop – Chief Analyst, Arcati Research Ltd
www.arcati.com



Most big businesses that are now considering SOA will have gone through many cultural shifts over the years, from mainframe-centric applications to distributed solutions, to loosely- or tightly-integrated heterogeneous systems, and many will see SOA as an opportunity to simplify the complexities that have built up over the years. This might well involve re-centralizing the management and provision of distributed applications on the mainframe, in order to support enterprise-wide services more effectively.

Such a decision needs very careful consideration, and will depend on a mixture of cost of ownership, availability of applications and skills, existing investments, and long term business drivers. Nevertheless, there is growing evidence that the unique strengths of the mainframe platform – superior availability, highly sophisticated security, and unparalleled scalability – give the System z a special role to play within the SOA environment.

In this context, system utilization has once again become a major factor in the choice of platform. It has long been accepted that the mainframe typically offers a much higher level of utilization under normal use than other platforms – often over 90%, compared with around 30-50% under Unix and maybe 10% or less on PC servers.

This is dependent to some extent on the way servers are configured and workloads are managed, but most users of distributed systems tend to add a server or a blade every time they need to support a new application or gain more capacity. This is a very inefficient way to increase overall capacity and does nothing to reduce the complexity of managing a large and diverse repertoire of enterprise applications.

In itself there is nothing wrong with 'scaling out' if cost and performance are both acceptable. Equally, low utilization is not a problem per se, particularly if other factors make a distributed solution more attractive. But there are a number of issues – such as regulatory compliance, environmental factors, and the total cost of system management and support – which make a centralized, high-utilization approach far more logical and desirable from a corporate point of view. Consolidation of distributed applications onto a small number of large systems arguably allows businesses to manage assets, share data, and keep track of changes and events much more effectively than hitherto.

Whatever platforms are selected to support the SOA strategy, the biggest question facing users is where to start - or once started, how to progress.

IBM's SOA Entry Points are designed specifically to help businesses align their new and existing processes with the underlying technology, and to do so in a way that provides one or more meaningful views of the way that service orientation delivers function to the enterprise.

To read the full report 'Five Steps to SOA' click here

“There is growing evidence that the unique strengths of the mainframe platform give the System z a special role to play within the SOA environment”

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The King is Dead – Long Live the Mainframe

Roy Illsley – Senior Research Analyst, Butler Group
www.butlergroup.com



According to reports, currently 70% of organisations and governments are running critical applications on mainframes. However, the current modern day mainframes bear little or no resemblance to the devices that I worked on 25 years ago. Therefore, the real debate is how the current day mainframes compare to the plethora of other technologies available. In mature markets the wider adoption of the mainframe will be influenced by developments in the Service Oriented Architecture (SOA) paradigm, and the impact that the advancements in the capabilities of x86 server virtualisation is having in the market.

“The real debate is how the current day mainframes compare to the plethora of other technologies available”

Supporters of server virtualisation extol the virtues of the technology in terms of its ability to provide the organisation with a flexible and responsive infrastructure; IBM's response to this was to offer Linux on the Z series, which supports server virtualisation on a single central computing platform. A single Z9 can accommodate up to 350 separate Virtual Machines (VMs). This ability means that implementations of any new VMs is quick and simple in the mainframe environment, providing the capacity exists to support the workload, whereas in the distributed environment this may require additional hardware to be implemented.

The problem with SOA adoption is not that the technology cannot deliver, or that organisations do not understand its possibilities, it is the fact that for SOA to be widely adopted it must adhere to the principle of open standards. IBM, by making its WebSphere portal product available for Z series, has provided mainframe customers with the technology to use the mainframe as the heart of any SOA implementation. However, wider adoption of mainframes as the central plank of any SOA implementations is being frustrated by the lack of open standards.

“By making its WebSphere portal product available for the z series, has provided the technology to use the mainframe as the heart of any SOA implementation”

According to Datamonitor, 80% of the cost of running a data centre comprises labour costs, and the mainframe, according to its supporters, requires less people to manage it than the equivalent distributed environment. Bill Homa, CIO of US-based supermarket chain Hannaford Brothers, is quoted as saying: “It's easier to manage the mainframe than a bunch of Windows servers. We have a smaller staff running the mainframe and those functions run 80 % of our business”. Statements such as these need to be verified and translated to the individual organisation's specific operating environment.

The mainframe has created a solid user-base in the financial services and government sectors based on its reliability, security, and performance capabilities. However, the challenge for the mainframe is to move beyond this traditional perception, and move towards being considered as one possible solution in simplifying the data centre, and making IT more flexible.

To read the full report 'The King is Dead – Long Live the Mainframe' click [here](#)





Mainframe Mythology Lives On – Setting the Large Systems Agenda

Mike Kahn – Managing Director, The Clipper Group
<http://www.clipper.com>



When it comes to large systems, in general, and mainframes, in particular, this much is clear – there is a lot of misinformation out there, driven, on one hand, by a lack of familiarity or knowledge and, on the other hand, by a collection of enduring myths. The myths about mainframes seem to have much more to do with their “stickiness” (in terms of the myths’ ability to stick to whomever hears them) than the truth.

“Most of the world’s largest enterprises rely on mainframes for the bulk of their mission-critical transaction processing and data serving.”

One of the nice things about labelling something as a myth is that the reader knows where the author stands. If it is a myth, it is – by definition - not true, but commonly believed to be true. So, here are many of my favorite mainframe myths, which keep many folks from considering the mainframe path to IT nirvana.

1. The mainframe is dead, extinct long ago. No one uses them anymore.

False! Most of the world’s largest enterprises rely on mainframes for the bulk of their mission-critical transaction processing and data serving. Far from extinct, this dinosaur has survived and continued to evolve. Server growth for mainframes has outpaced other designs. It is the most sophisticated and most secure IT system available. It is often said that 80% of the world’s mission-critical data is stored on and accessed by mainframes.

2. The mainframe only runs legacy software (like CICS, IMS, COBOL, etc.).

False! The majority of the new engines (the “processor complex”) sold are for Linux and Java applications.

3. The mainframe makes no sense for an open systems data center (with no legacy applications from the mainframe era).

False! The majority of the new engines sold are for Java and Linux. That is where most of the enterprise-class application development is being done. If you are running SOA workloads, the mainframe also makes sense, because most executables are Java-based or have components that run in a Linux environment.

4. The mainframe is unaffordable. It just costs too much to buy and run.

False! While the hardware appears to cost more on an application processor basis, the mainframe does much more work. In addition, the mainframe has many supplemental (hidden, special-purpose) processors (for I/O, security, and management) that are not included in the classical “engine count”. Furthermore, the fastest-rising cost today is for systems administration, where the mainframe shines as a lower-cost operating environment. Lastly, the mainframe may be the most efficient enterprise-class solution, in terms of electrical consumption, floor space, and cooling.

5. The mainframe makes no sense for mid-sized enterprises.

False! The new System z9 BC (business class) is targeted at mid-sized enterprises and offers a broad range of sizing options and upgrade alternatives.

To read the full report ‘Mainframe Mythology Lives On’ click [here](#)

“The majority of the new mainframe engines sold are for Java and Linux.”



The Mainframe: It's Baaack!

Cal Braunstein, Executive Director of Research, Robert Frances Group
www.rfgonline.com



RFG believes the dynamics of infrastructure ownership are rapidly changing; central IT groups have, or will soon have, ownership of and responsibility for the entire underlying infrastructure in data centers. This watershed event is being driven by the desire for consolidation, cost savings, power and cooling constraints, risk management, and virtualization. This will allow IT to be able to maximize utilization of hardware resources, and to devise a cohesive hosting strategy that leverages existing investments. One result of this shift has been, and will continue to be the re-emergence of the mainframe as a platform of choice.

“The value proposition for the mainframe in large enterprises has been greatly underestimated.”

The value proposition for the mainframe in large enterprises has been greatly underestimated. Moreover, it will be improving over the next few years. Some of the value components that provide significant leverage include data sharing, disaster recovery, Linux, partitioning, power and cooling, server pool workload balancing and prioritization, security, specialized processors, total system utilization, and virtualization. Before IT executives and architects decide to offload applications from the mainframe or select platforms for new applications, they should have a complete understanding of the mainframe value proposition and total cost of ownership (TCO) components. Three strategically important roles that IT executives should consider for the mainframe are information hub (data serving), security hub, and server pool master control and management hub.

The new wave of consolidation, partitioning, and virtualization occurring on Unix and x86-architected platforms is an affirmation to the mainframe model, and a move away from the distributed one-application-per-server mentality that has driven up the cost of computing. The multi-purpose role of mainframes, with its inherent superiority in partitioning and virtualization, provides the same options now being considered on non-mainframe platforms, but with stronger and more proven technology. IT executives should consider the value of the 20-year advantage that mainframes have over other platforms in this area. RFG believes the mainframe technology investments that IBM Corp. has made (and will continue to make) will ensure technology superiority for the foreseeable future. With this in addition to the power and cooling advantages of the mainframe, IT executives and staff should consider the mainframe as a "first tier" option for hosting new applications and acting as a central hub for security, server pool management, and consolidated workloads/data.

“The expansion of Java and other languages that are platform-independent will help address the development issues that have hurt the mainframe in the past.”

Service-oriented architecture (SOA), standardization, use of wrappers, and other reuse techniques present new opportunities to mine the value of legacy applications on the mainframe. For many enterprises, SOA will help unleash the millions of lines of legacy code that are optimized for the mainframe for reuse by other applications. In addition, the expansion of Java and other languages that are platform-independent will help address the development issues that have hurt the mainframe in the past. IT executives and architects should consider mainframes in the context of "black box" application servers that can satisfy most application requirements, including availability, reliability, and scalability.

To read the full report 'The Mainframe: It's Baaack!' [click here](#)

