Abhijit Apte, Practice Director Atos | Syntel

The modern Mainframe : reliable platform and stable foundation for incremental modernization

"Over 40 years legacy of success": that's how the role of the mainframe in our ICT history can be summarized. Mainframes have been in use from the very start of organizations' ICT strategies, and they are still very much alive and kicking[1]. The continuous advancements in technology have kept mainframes relevant even today: they still play a crucial role in overcoming business challenges created by ever evolving local and global scenarios.

Mainframes are renowned for their unwavering and relentless processing power, huge storage capacity, and unparalleled levels of reliability. They can process large numbers of simultaneous transactions and enormous I/O data traffic without slowing down. A mainframe typically maintains peak performance even when approaching full load capacity. The high RAS (Reliability, Availability and Stability) is a distinguishing feature of the mainframe. Add to this its highly secure design and the extremely configurable hardware resources, and you can easily understand why the mainframe has been a platform of choice for world's major businesses and Fortune 500 companies for decades.[2]

From 'close to the exit' to 'core of the IT strategy'

Mainframes have often been called 'closed systems' and therefore no longer suited for today's needs in an era that is focused on open standards. But even if this reputation held some ground of truth at some point in time, nowadays this label of 'closed system' is no longer applicable. The modern mainframe has opened up considerably, allowing integration with modern workloads, and it is much more extensible. Mainframes can simultaneously run multiple operating systems and software applications.

It is not surprising then, that the mainframe is still very much alive today, despite talk about 'exiting'. Most large mainframe customers continue to plan initiatives around scaling up and modernizing their mainframe environment. Mainframe is still at the heart of their IT transformation strategy. If organizations decide to turn to alternatives, this decision is often made from an applications point of view, not because they question the mainframe as a platform.

Counter-arguments countered

Admittedly, there have been factors such as mainframes' high running cost which have led businesses to consider a mainframe exit. But recently these concerns have been significantly moderated through the introduction of marginal or no charges for modern workloads.

For any MIPS -intensive business - with over 15,000 MIPS (Millions of Instructions Per Second) - the economies of scale will still be higher when staying on the mainframe platform. Besides, successfully migrating from a mainframe environment to a different platform is lot easier said than done[3]. Research indicates that a significantly high number of such attempts face enormous challenges caused by a poorly executed exit scenarios, leading to high cost and a long duration of the entire mainframe exit process[4].

Mainframe critics also refer to the mainframe's inadequacies with respect to vertical vs horizontal scaling[5]. This is an obsolete debate, as this can be addressed via the creation of hundreds of virtual machines (VMs) on a single mainframe logical partition (LPAR); not much different a private cloud environment.

Remaining issues

So far, we have focused on the positive aspects of continuation of your mainframe environment. However, there are some aspects inherent to mainframe that may tilt the balance in favor of moving away from this platform. Leading among these issues are **skills shortage, technical debt**[6], and agility of applications/time to market.

Amid the Covid-19 situation worldwide, the 'SOS' call for help from COBOL programmers[7] launched by the Governor of the state of New Jersey (USA), is a striking example of how acute the skills shortage became. Programmers skilled in this sixty-year-old language are in huge demand, because many applications running on the mainframe are written in COBOL, but skilled resources are hard to find in the marketplace. This is the same for many mainframe languages and databases: the skills to maintain these applications are rapidly diminishing.

Next, there is the mere observation that applications on the mainframe have been created many years ago, and frequently modified throughout the years. This has resulted in layers of procedural code, assembler and non-optimized application stacks, which are not inherent to mainframes but rather the result of ageing poorly. The technical debt we observe in these applications stems from a sizeable amount of bespoke alteration over the years, resulting in dead, duplicate and obsolete code in the applications. Many of these legacy applications were written at a time when modern design principles were not defined. Consequently, the applications' technical debt also hinders the adoption of the newer business models that customers demand. And the effort/cost to apply any incremental change in such heritage applications is high compared to modern turnkey applications.

Finally, there are many customers who have moved part of their business functionality to distributed or cloud environment to meet the requirements for rapid change and better user experience. However, since the 'core' system of records runs on the mainframe, they are still facing release timeframes of months, if not quarters. Such **impact on time to market and agility** is unsustainable in the current competitive market where agility and responsiveness are key watch words[8].

Summarizing, one can say that the problems are predominantly caused by legacy applications making it difficult to meet the modern business demands and efficiencies. The mainframe as a platform, on the other hand, proves to be surprisingly modern and dynamic.

So, what should you do?

While there is no silver bullet that will suit all mainframe customers, each can adopt an appropriate strategy to get the best from the platform and associated innovation for their application landscape. There are many solutions available within the mainframe platform. The right approach will depend on your portfolio.

Small mainframe estates, can consider moving to a mainframe hub, creating economies of scale, and then consideration to gradually transform legacy applications towards new platforms.

For large mainframe installations, platform owners may also consider moving to mainframe hub getting benefit of economies of scale, while incrementally transforming of mainframe applications, moving them into modern technology stacks such as Java or .Net, while continuing to run on the mainframe platform exploiting the highly resilient operating system and processing technology utilizing modern frameworks.

Atos offers the full spectrum of solutions for mainframe customers: mainframe hub hosting, mainframe application management mainframe performance optimization, modernization, transition and transformation and mainframe migration to the cloud. Our wide range of patented IP, accelerators and assets provide faster, better, cost-optimized and de-risked solutions.

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