

## The Mainframe: Myth versus Reality

Mainframe Myth	Mainframe Reality
<b>Myth 1:</b> The mainframe is old and obsolete, and most existing mainframe users want to move to distributed systems.	<p><b>Reality 1:</b> The mainframe, starting with the System/360™ in 1966, has been running critical business applications for decades. During those years, the mainframe platform has matured and grown, meeting evolving business requirements. The modern mainframe can process Java®, Linux®, XLM, and Web services, and even run UNIX as part of the primary operating system, z/OS®.</p> <p>Twenty-five of the world's top 25 banks, 23 of the 25 top U.S. retailers, and 9 out of 10 of the world's largest insurance companies run DB2® on System z. Ninety-five percent of the Fortune 1000 enterprises use IMS™, and 490 of IBM's top 500 customers run CICS®. In addition, IBM's CICS handles more than 30 billion transactions a day, which is more than the number of page hits on the Internet!</p>
<b>Myth 2:</b> The mainframe is too expensive.	<p><b>Reality 2:</b> Because the mainframe is a large, highly visible server that is shared by multiple departments and business units, it might seem expensive. The hardware costs more than several distributed servers. However, System z hardware, software, and labor costs are decreasing 17.3% per year while delivering economies of scale, especially as the workload grows. System z delivers higher utilization, lower overheads, and the lowest total cost-per-user of any platform. When all cost factors are considered fairly, the mainframe is often the lowest cost alternative. This subject is covered in greater depth in Module 4 of this course.</p> <p>As a result of an internal study, IBM initiated Project Green to consolidate many distributed systems onto Linux on System z. IBM is in the process of consolidating thousands of servers onto approximately 30 System z servers, using about 80% less energy. The electrical power, floor space, and cooling costs for a mainframe often are less than those of distributed servers working a comparable load. Automation and cross-functional staff can manage many Linux images. The incremental increase in staff to handle additional work is much lower than the additional staff required for typical distributed systems.</p>
<b>Myth 3:</b> The mainframe is too complicated to run.	<p><b>Reality 3:</b> z/OS and z/VM®, two of the mainframe operating systems, provide extensive automation to increase the workload that the mainframe can process. Because the automation does most of the additional work, the same size staff can increase the workload they support.</p> <p>IBM provides graphical user interfaces (GUIs) to many new releases of system management tools and utilities. Developers or operational staff can use these products without having to know the more cryptic heritage capabilities that long-time mainframe experts can continue to use.</p>
<b>Myth 4:</b> Pricing on the mainframe is too complicated.	<p><b>Reality 4:</b> TechLine supports IBM sellers who need pricing or configuration assistance. TechLine team members are experts at executing the tools, and they understand IBM software and hardware pricing.</p>
<b>Myth 5:</b> Learning how to work with the mainframe is so difficult that programmers will not touch it.	<p><b>Reality 5:</b> A developer can use IBM Rational® Developer for System z (RDz), an Eclipse-based product, which is the same tooling for a Java developer or a COBOL developer. The tools provide development and test capability for a programmer who is unfamiliar with z/OS, its library structure, or its operational language, which is called Job Control Language (JCL). That developer uses the same Eclipse framework to develop Java for a distributed system or for a mainframe and has debug capabilities for both.</p>

## The Mainframe: Myth versus Reality

Mainframe Myth	Mainframe Reality
<b>Myth 6:</b> The mainframe requires COBOL programmers, and new college graduates know Java.	<b>Reality 6:</b> The primary operating system, z/OS, runs many languages, including Java and C, in addition to COBOL, PL/I, FORTRAN, and Assembler. Linux, available for the mainframe, supports Java. In fact, more than 1,200 Linux applications are supported on System z today.
<b>Myth 7:</b> All mainframe talent is retiring, so no one will be around to support System z in the future.	<b>Reality 7:</b> IBM has established relationships with hundreds of colleges and universities around the world, providing materials and guidance to teach mainframe topics, including operating systems and languages. In fact, IBM has committed to training 20,000 new students on the mainframe, globally, by 2010, and exceeded twice that number in 2008.
<b>Myth 8:</b> Third-party vendors do not want to build applications on the mainframe.	<b>Reality 8:</b> More vendors are migrating workloads typically associated with distributed platforms to System z, often taking advantage of specialty engines for Java or Linux to run work more economically. For example, SAP and PeopleSoft are two solutions that run on the mainframe and take advantage of many qualities of service, such as superior availability, powerful security, and extensive management tools and processes. Mainframes provide an excellent platform on which to run an Enterprise Service Bus (ESB). System z supports more than 4,000 independent software vendor (ISV) applications, and more than 1,300 ISV developers are developing on System z today.
<b>Myth 9:</b> Customers with large applications do not want to depend on one mainframe because it might not be large enough.	<p><b>Reality 9:</b> Superior reliability is embedded into the design of the IBM mainframe running z/OS, including automatic detection and switching to spare components, the basis of 99.999% availability.</p> <p>The primary operating system of the mainframe, z/OS, provides the ability to grow application solutions horizontally. With Parallel Sysplex®, the mainframe provides the capability to cluster, or tightly couple, up to 32 systems into one large capacity image. As such, software can automatically switch and share work among processors, providing high availability and excellent response time.</p> <p>z/OS is fully UNIX compliant, which means any workload that runs on other UNIX platforms can be ported to and run on Linux on System z.</p>
<b>Myth 10:</b> Although mainframe security is unparalleled, most customers have security that is “good enough.”	<p><b>Reality 10:</b> With increasing scrutiny on security, a company’s security should not be just “good enough.”</p> <p>Security on the mainframe is accomplished by a combination of software and built-in hardware functions, such as cryptography. For example, a component of z/OS works with the hardware to prevent one user from any possible contamination or overlay of another user’s work. In addition, user authentication and authorization are provided with IBM and other vendor software.</p> <p>IBM mainframes running z/OS have achieved Evaluation Assurance Level (EAL) 4+ for z/OS and EAL 5 for logical partitions (LPARs), the mainframe partitioning mechanism. The mainframe meets the Common Criteria ISO/IEC Standard 15408. These are the highest security classifications required in the industry, and most systems are unable to meet these standards.</p>