

IBM @server zSeries and
Automotive Common Environment (ACE)



**Your people work together.
So should the components of your infrastructure.**

*An integrated infrastructure platform designed to help your
automotive business compete in an on demand world*



The IBM Automotive Common Environment (ACE) solution is an integrated IT infrastructure designed for fast response to on demand requests.

It's no secret—the new on demand era is transforming the way companies do business. In fact, in the current climate, you could say that the only constant is change. As the e-business world continues to evolve at a staggering pace, IT infrastructures grow more complex with every passing day. In order to survive and compete, your business has no choice but to adapt.

Processes can no longer operate efficiently in silos, where each department has its own systems dedicated to separate missions. Instead, business processes and systems need to be integrated end-to-end, resulting in a flow of work, ideas, transactions and opportunities that spread rapidly among your employees throughout your company, as well as to partners, customers and suppliers. This integration can help you respond with speed and flexibility to fluctuations in the marketplace, dynamic customer demands and unpredictable requirements.

Your people work together. So should the components of your infrastructure. How can you get there? Only with a well-integrated IT infrastructure that can enable your business to be more nimble, more responsive and more resilient—on demand.

ACE solution

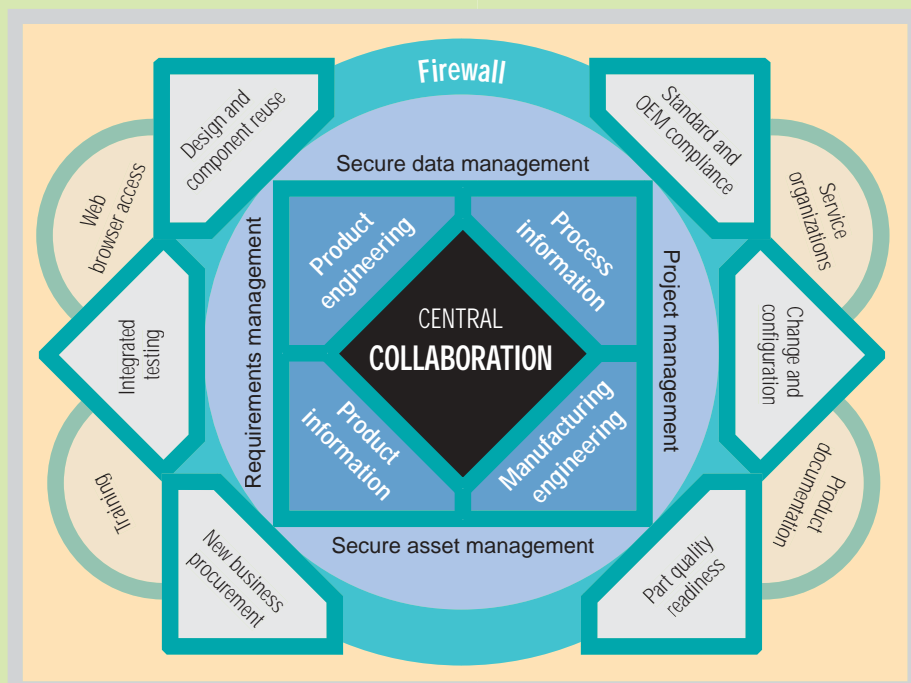
The automotive industry has gone through some tough times recently, and many businesses find themselves at a crossroads. They are striving to compete through the acquisition of new technologies, applications and businesses, but are faced with no clear means of integrating these new acquisitions without a potentially significant negative impact on cost, time and quality.

ACE is a technology framework that has been developed to enable automotive businesses to quickly and cost-effectively implement new ways to compete. It is also designed to help those businesses navigate the tricky transition from a silo-based environment to a more unified platform of hardware, middleware, architecture, governance and technology services.

ACE is designed to enable critical business processes using standardized technologies and services so you can develop and integrate different processes and applications in efficient, operationally-tuned environments. ACE is specifically designed to enable an automotive company's IT organization to proactively monitor and respond to on demand requests, while delivering industry solutions in a fast, consistent and low-cost manner. ACE supports existing technology investments, while introducing open software and industry standards that can accommodate heterogeneous physical infrastructures.

ACE brings together a portfolio of proven, function-rich software, hardware and services, as well as the research and financing capabilities that make IBM an ideal long-term strategic IT partner.

Automotive Common Environment (ACE) model



Creating an on demand operating environment

Ideally, in an on demand environment, employees, customers and suppliers should have access to the applications, processes and data they need at any given moment. This vision drives the need for an on demand infrastructure that is:

- **Integrated** to help enable multiple platforms, technologies and applications to work together so information can flow freely throughout the enterprise
- **Open** to encourage diversity, better enable integration of technologies, and provide flexibility to choose the best mix of applications and tools
- **Autonomic** to help improve systems management and gain efficiencies in complex environments
- **Virtualized** to help increase systems utilization, maximize uptime and allocate resources effectively

How can you deliver this flexibility to your automotive business? You need a closely integrated IT infrastructure based on open standards that can enable rapid deployment and integration of the applications that support your business processes. And you need an operating environment that allows for true virtualization within the infrastructure, helping to enable delivery of IT capabilities on demand. Finally, you need to build this environment on a highly reliable, scalable and security-rich server platform such as

IBM **@server** systems. IBM **@server** systems can help you maximize your hardware investment through support of open standards and provide the infrastructure you need to support your business growth.

Since ACE is a technology framework that supports solutions across the key phases of the product lifecycle, one can expect to deploy applications on a variety of IBM platforms, including IBM **@server**™ pSeries™, xSeries® and zSeries® servers. This brochure will focus on the characteristics and benefits that make the zSeries platform—both in part or in its entirety—ideally suited for the critical demands of the automotive environment supported by ACE.

What is ACE? ACE represents the technology framework that supports solutions through their entire plan, build and run phases. It is built around common platforms, reusable patterns and technology services that address common challenges for automotive solutions. At the same time, it underpins the transformation of the IT organization into a service-oriented structure—one that utilizes standard assets and supports a proactive approach to enabling business solutions. ACE can foster an early alignment of business units and IT, helping to reduce costs and risk while accelerating time-to-value and increasing quality.

What does ACE contain? ACE brings together technology and services to help ensure a successful implementation for your business. The technology consists of highly reliable architectures and underlying technologies that are designed to provide a security-rich and scalable environment. A portfolio of ACE technology services allows an optimal configuration designed to fit your specific requirements. This includes shared services such as test centers, architecture support, quality gateways, deployment and operations.



Why zSeries servers are the right choice for ACE

Server functionality represents the heart of an on demand business, and zSeries servers represent one of the strongest hearts available, having historically set the standard by which many other server platforms are measured. Profound characteristics in architecture and system design distinguish zSeries servers as a cornerstone for your ACE solution:

- zSeries servers promote on demand computing with their inherent ability to pool resources and apply them dynamically whenever and wherever they're needed.
- zSeries servers are designed to provide a fluid, yet security-rich environment in which applications, data and business processes have access to various resources managed with greater flexibility, higher utilization levels and lower overall cost.
- zSeries servers support open standards and are able to run Linux alongside traditional operating systems, so you can run and integrate new applications quickly and easily with virtually unmatched reliability.
- zSeries servers offer self-healing, self-managing features so your system can constantly fine-tune itself to help provide optimized levels of performance for today's demanding requirements.

Whether you need to scale up for growing workloads, or use virtualization to scale out and integrate various systems, zSeries servers are designed to help you integrate your business processes, lower costs, optimize your IT investments and drive your core business. Virtualization technology on zSeries servers can make it possible to consolidate and efficiently manage ten to hundreds of virtual servers on one platform, rapidly deploy new virtual Linux servers in minutes and ultimately reduce costs and complexity associated with managing server farms.

zSeries architecture supports a broad range of strategic software and middleware, including the Linux and z/OS® operating systems; select IBM WebSphere®, Lotus® and Tivoli® products; and the IBM DB2® database server. WebSphere Application Server for z/OS, a Java™-compatible Web services application server, is specifically designed to utilize the unique qualities of service provided by zSeries hardware and the z/OS operating system.

Here are some more reasons the zSeries platform is right for ACE:

Systems management and workload controls: Installations today process different types of work with different resource requirements. Effective systems management makes the best use of resources and can help maintain the highest throughput while achieving the best possible system responsiveness. z/OS Workload Manager (WLM) makes this possible by allowing you to define performance goals and assign a business importance to each goal. You prioritize the business goals and the system is designed to dynamically allocate and monitor resources such as CPU and storage to meet those goals. These workload priorities can change over a 24-hour period—the zSeries platform can manage that change, re-prioritizing work dynamically as the workload shifts.

The zSeries Intelligent Resource Director (IRD) then directs the physical resources to the logical workload. The unique workload and self-management capabilities provided by WLM and IRD are designed to allow z/OS to handle unpredictable workloads and meet response goals through effective use of CPU and I/O resources—and with limited human intervention for setup and operation—making it one of the most advanced self-managing systems on the market.

zSeries servers promote on demand computing and are designed to provide a security-rich environment.

IRD and WLM help establish a more synergistic relationship between the operating systems and the hardware with respect to the allocation of resources among logical partitions. The WLM component of z/OS is responsible for ensuring that customer policy goals are met for the set of diverse applications and workloads that a customer may run. zSeries servers are also able to extend this capability to manage workflow across clustered systems. In a clustered environment, you can make changes or adjustments on the local system, or redistribute work across all systems in a cluster as needed. Leveraging these components across multiple systems can allow you to manage your entire infrastructure as a single entity, driving resources to the most critical work at the most critical times—without having to manually manage workflow.

WLM and IRD are part of the IBM autonomic computing initiative, which aims to help customers reduce the cost and complexity of their e-business infrastructures and overcome the challenges of systems management using systems that self-optimize, self-configure, self-heal and self-protect.

Availability: zSeries servers took first place in a 2002 Gartner Group study that rated availability characteristics by platform. Finishing well ahead of other industry leaders, zSeries servers received scores of a perfect ten in each of ten technology categories.¹



IBM customers in the automotive sector have moved to IBM @server systems running Linux to integrate business processes, lower costs and optimize IT investments.

IBM @server z800

The built-in availability features on the zSeries platform help you avoid both scheduled and unscheduled outages and aid in disaster recovery. How? By detecting potential problems at the earliest possible moment and taking the necessary actions to correct them, thereby helping to reduce any impact they might have on your applications and data.

The zSeries platform offers leading-edge fault tolerance and error checking. If a failure occurs, the built-in redundancy on the zSeries platform will shift the work over from failing components to ones that remain operational, without interrupting end-user service. Failed components may be removed and replaced while the

system is still active. Failing applications, caused by system or process failures, can be automatically restarted on still-healthy systems by the Automatic Restart Manager, which recovers all work in progress at the time of the failure. New work requests are directed to other data-sharing instances of the server to provide continuous application availability, masking the failure and subsequent recovery from end-users.



The application availability features of the zSeries platform are right for an on demand environment.

zSeries servers also deliver exceptional application availability within a systems image, which can range from a single system with up to 32 processors to a cluster of up to 32 separate zSeries systems. Leveraging key infrastructure components, such as Workload Manager, and several application routing technologies, business applications can be updated or revised and rolled into production—with minimal impact on business flow. End-users may continue to process business requests without interruption to their service, allowing high availability to support an on demand environment. Applications can be moved among different systems without user interruption, making use of data sharing, application cloning and the coupling facility.

Capacity On Demand: In the highly unpredictable world of e-business, you should get what you need—when you need it. And you should pay for only what you use—when you use it. That's the basic principle underlying IBM @server Capacity on Demand for features.

You need the flexibility to rapidly increase or decrease your computing capability as requirements change. This may mean a permanent capacity increase for planned growth or a temporary capacity increase for seasonal or unpredictable peak periods. IBM offers a fast, non-disruptive way of activating “extra” processor capacity as you need it—Capacity

Upgrade on Demand (CUoD) for a permanent increase of processing capability, and On/Off Capacity on Demand² (On/Off CoD) for a temporary capacity increase that lets you revert back to your previous processing level.

Security: In order to adequately manage your security infrastructure, you need to understand your enterprise's security needs and policies, and then obtain, configure and control the products and services necessary to implement those policies. zSeries servers can help you manage your security facilities, whether you are protecting a single processor or a massive cross-platform network that includes UNIX®- and Microsoft® Windows®-based systems.

Smart businesses will take the right measures to secure their infrastructure now because the cost of not doing so is high. zSeries servers can help protect your business on a number of fronts. With leading-edge technologies such as high-performance cryptography, large-scale digital certificate support, industry-leading Secure Sockets Layer (SSL) performance and advanced resource access control function, zSeries servers offer robust security features designed to meet the needs of e-business and help you protect your investments and assets with an eye toward the future. Intrusion Detection

Services are designed to allow zSeries servers to resist network-based attacks while embodying industry and international standards.

TotalStorage systems

Data proliferates rapidly in today's on demand world, and your ability to leverage that data across your enterprise can be the difference between success and failure. IBM's integrated storage solutions include everything from tape, disk, Network Attached Storage (NAS) and Storage Area Networks (SAN) to consulting and implementation services. All are designed to help you seamlessly store, manage and access your data.

IBM TotalStorage® products for zSeries servers include:

- **IBM TotalStorage Enterprise Storage Server (ESS):** helps set new standards in performance, automation and integration and has capabilities that support continuous availability to data for the on demand world.
- **IBM TotalStorage Virtual Tape Server (VTS):** an enterprise tape solution designed to enhance performance and provide the capacity required for today's backup requirements. The adoption of this solution can help reduce batch processing time, total cost of ownership (TCO) and management cost.

zSeries servers are designed to offer capacity on demand and to help you store, manage and access data.

Service and support

ACE solutions include a portfolio of technology services that can be configured to suit the specific requirements of your automotive business. These services include access to technology and ready-to-use platforms.

IBM Global Services utilizes existing services for installation, customization and tuning of the Integrated Platform for e-business on zSeries servers. Existing IGS services include:

- Linux for zSeries Rapid Deployment Service
- IBM Installation Services for DB2 Universal Database™ Enterprise Extended Edition for AIX®, Microsoft Windows 2000 or Microsoft Windows Server™ 2003, Sun Solaris, HP/UX and Linux
- IBM Installation Services for WebSphere Application Server
- IBM Network Consulting, Integration and Deployment Services— for highly secure networks
- Linux for zSeries Solution for e-business

IBM Business Continuity and Recovery Services offer:

- Backup and recovery options for your multi-vendor information technology
- Services to help you assess and improve the recoverability of your IT infrastructure
- Continuity services designed to protect your critical business processes
- Services to help you assess the impact of a disruption to your critical business processes
- Continuity services designed, operated and managed for you by IBM

IBM Global Financing offers total solution financing, which provides innovative and tailored solutions designed to make the acquisition of the Integrated Platform for e-business on zSeries servers manageable and affordable. IBM Global Financing can help your business:

- Manage budget constraints by helping you finance a complete solution with favorable terms
- Reduce large upfront costs with deferrals and flexible payment structures
- Afford more, and pay less by getting a more complete solution while making low monthly payments
- Lower your TCO by financing the solution instead of outright purchase
- Meet changing capacity requirements by adding capacity or upgrading to meet dynamic business demands
- Simplify budgeting and administration by combining hardware, software and services into a single contract

Summary

The on demand era is radically changing the way companies do business. IT infrastructures are becoming more complex every day, making it more important than ever for your business processes and systems to be integrated end-to-end. The IBM Automotive Common Environment (ACE) solution, with the zSeries server as its backbone, can help you transform your automotive business from a silo-based environment to a more uniform platform of hardware, software and middleware. In the end, ACE can help make your business more nimble, more responsive and more resilient—on demand—and give you a significant competitive advantage in the marketplace.





For more information

To learn more about how the IBM Automotive Common Environment custom solution can help your business achieve measurable results, contact your IBM sales representative or go to:

ibm.com/industries/automotive

For more information about IBM @server systems, visit: **ibm.com**/servers/eserver

For more information specific to IBM @server systems, visit:

zSeries: **ibm.com**/servers/eserver/zseries

pSeries: **ibm.com**/servers/eserver/pseries

xSeries: **ibm.com**/servers/eserver/xseries

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¹ "OLTP Server Evaluation 3Q02,"
Gartner Group, October 17, 2002

² On/Off Capacity on Demand available only on
the IBM @server z990

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