IBM PureSystems: A game changer in the development, deployment, and management of IT applications

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IBM PureSystems is the first offering in a brand new system category from IBM — a new class of systems known as "Expert Integrated Systems." The technology is designed to get IT organizations up and running in as little as four hours, cutting months off the time required to deploy new applications. IBM PureSystems combines the flexibility of a general-purpose system, the elasticity of the cloud, and the simplicity of an appliance. This introduction explains further and describes how application development tools and the Rational solution for Collaborative Lifecycle Management (CLM) complement IBM PureSystems to provide a streamlined application development, test, and production environment.

Today's enterprises need to innovate and stay competitive by bringing products and services to market faster, cheaper, and with lower risk than ever before. To do this, their IT organizations need to simplify the IT lifecycle by adding automation and reducing human intervention, thereby increasing speed of delivery, improving productivity, and saving money. Well, this is no small task.

But what if IT teams could capture and automate what experts do, from the setting up infrastructure to deploying their applications? This would free them to participate in true business innovation, rather than remain bogged down in time-consuming maintenance tasks.

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Unlike Oracle, HP, Dell, and Cisco, IBM's solution offers a complete ecosystem to support and nurture business's IT application needs, integrating more comprehensive development, deployment, and management into their IT lifecycle. This article introduces the new capabilities provided by IBM PureSystems and presents a variety of real business scenarios where this new
category of technology can help IT teams make a real, positive difference to their company's bottom lines.

The article also describes how application development tools and the Rational® application lifecycle management (ALM) solution complement IBM PureSystems to provide a streamlined application development, test, and production environment for IBM clients.

**The new IBM PureFlex System and IBM PureApplication System**

The first two members of the IBM PureSystems family are the IBM® PureFlex System and the IBM PureApplication System.

**IBM PureFlex System**

Expert at sensing and anticipating resource needs to optimize your infrastructure:

- Factory integrated and optimized system infrastructure
- Integrated management
- Automation and optimization of expertise

**IBM PureApplication System**

Expert in optimally deploying and running applications for rapid time-to-value:

- Expert designed, integrated, and optimized application-aware platform
- Workload patterns based on years of testing and deployment expertise
- Simplified management with a single console

In the marketing literature, you will read "All IBM PureSystems are fully optimized, born virtualized, have a no-compromise design with system-level upgradability, and they are designed for the cloud."

But what does that mean, exactly? And what makes IBM PureSystems an expert integrated system? Here are several answers.

**Built-in expertise**

- Pre-optimized for web and database application workloads
- Workload patterns codify IBM, partner, and client expertise
- Resilient, secure, virtualized, and scalable infrastructure

**Simplified experience**

- Seamless integration throughout the IT lifecycle
- Single point of platform management
- Integrated monitoring and maintenance
Integrated by design

- Repeatable self-service provisioning
- Integrated and elastic application and data runtimes
- Application-aware workload management

Of course, no new system can live as an island in your data center. It must be integrated into your existing environment, as well as into your development and deployment lifecycle. The remainder of this article describes the fundamental capabilities of IBM PureSystems, along with the benefits that address the complex needs in today's IT organizations.

How PureSystems helps streamline your business

IBM PureSystems projects deliver significant value across four key IT goals:

- Consolidation
- Optimization
- Innovation
- Acceleration of the move to cloud computing

Let's look at each of these.

Consolidation: How application portfolio management can clarify the value of IT assets

The IBM application portfolio management and application onboarding solution provides flexible workload patterns to help you consolidate and manage existing applications within the new IBM PureApplication System. These workload patterns can be used without any modification to enable faster and better-informed decisions. Bottom line: Consolidating systems and applications helps reduce operating expenses.

Some may consider application portfolio management as an initial step in understanding and consolidating your applications and systems. But really, it should be incorporated as an ongoing process that uses information and analytics to produce objective and transparent decisions about investing, consolidating, modernizing, or replacing applications.

Why? Many IBM customers are facing escalating IT operational costs caused by a mixture of x86 servers and vendor middleware. Increasing server and application sprawl is also adding to complexity and impacting business agility. As a result, application maintenance costs now consume 70 to 80 percent of IT budgets. Organizations simply need a better way to control and manage their IT operational expenses.

The answer is an application portfolio management strategy and IBM's application onboarding solution. These can help you manage your application portfolio and select the right applications to migrate to IBM PureSystems. You can start by leveraging IBM® Rational® Focal Point™ to inventory, assess, and prioritize your application implementation projects.
After your applications are better understood and managed, you can integrate them into your IT workload lifecycle with workload deployment patterns included in IBM PureSystems. You can create your own patterns, as well. This provides continuous application delivery with reduced cost and risk and ensures consistency throughout the lifecycle, end-to-end.

**Optimization: How to streamline development and testing across IT teams**

Most enterprise shops have hundreds of developers aligned with different business units and IT groups. Traditionally, each team has their own custom set of development and off-the-shelf software applications for their target development platform. This hinders mobility and requires additional support and training as IT resources are reassigned to different tasks to support continually changing business goals.

Organizations are looking for ways optimize their development and test environment by leveraging a common set of tools to develop, deploy, and test within the same environment as production. The solution is a multiplatform development and test environment that offers integrated development tools, compilers for IBM® Power Systems™ and testing capability to rapidly build, deploy, and test applications for IBM PureSystems systems.

The IBM multiplatform development and test solution helps boost productivity and enables you to leverage new technologies quickly with IBM’s integrated tools, compilers, and runtimes for IBM PureApplication and NGP Systems. You can better tune and automate systems and applications to improve application performance, scalability, and reliability.

For example, imagine that your team is developing application patterns and related artifacts, as shown in Figure 1.

**Figure 1. Developing application patterns and artifacts**

You can use the IBM PureApplication System to streamline the process through these steps:

1. Connect IBM® Rational® Application Developer directly to any number of IBM PureApplication Systems.
2. Acquire application patterns from PureApplication System into your workspace.
3. Express application patterns in terms of Rational Application Developer workspace projects.
4. Develop code as usual. Publish application patterns to PureApplication System.
5. Work on patterns collaboratively, and watch for changes from your teammates.
6. Export and import patterns, manage preferences, and more.
Consider these benefits of using integrated tools, compilers, and run times with IBM multiplatform development and test solutions:

- 22-37% improvement in developer productivity with modern, integrated tools and compilers
- Simplified, accelerated development, deployment, testing, and maintenance of applications for IBM PureApplication Systems
- Improved efficiency with leading compiler optimization technology when used in combination with IBM Power Systems compilers

**Innovation: How managing the application lifecycle more effectively benefits your organization**

For IT teams, what does the often-used concept of "innovation" actually look like? It comes in the shape of new applications and services that meet new business needs in a timely, cost-effective manner. This means that you can better manage the application lifecycle from inspiration to creation to use. These capabilities are possible after consolidation and optimization, as described previously.

In a typical organization, the lack of collaboration and communication among customers, development, and operational teams and other stakeholders greatly increases the risk of building products and services that fail to meet actual business needs. The solution is application lifecycle management (ALM). It's how organizations can improve project success rates while controlling costs associated with software errors.

The IBM ALM solution enables you to gain end-to-end visibility and traceability across teams, projects, platforms, and processes for faster time to market. By managing the application lifecycle more effectively, you can deliver higher-quality software and deliver services faster, because you will have better team collaboration, automation, and governance across platforms.

IBM software ALM solutions provide:

- 15 to 20% decrease in development cycle time through a common team infrastructure for collaborative lifecycle management, or CLM (see Resources for more information)
- Improved communication and collaboration between development teams, resulting in greater productivity and reduced costs
- Reduced time in debugging applications through a common communication platform, thereby improving operational efficiency

**Acceleration of the move to cloud computing: How to quickly enable secure, integrated cloud environments**

All too often, a lack of coordination between development and operations teams causes delays and added costs in the rollout of new capabilities vital to the business. Problems most typically stem from time-consuming manual processes and handoffs between different stages of software delivery. In the past, successful deployment in the development phase has not been a predictor for success in deployment to other environments.
IBM's deployment planning and continuous build, integration, and delivery solutions help you plan, automate, and govern infrastructure provisioning, middleware configuration, and application deployment. The goal? You can repeatedly set up and use well-defined, standardized environments in a cloud-based infrastructure, thus eliminate costly manual errors by using automation, plus dramatically reduce provisioning times.

Teams can automate application build, testing, and deployment for cloud environments. IBM deployment planning and continuous build, integration, and delivery solutions enable you to automate workload deployment, as well as to accelerate application delivery into development, test, and production environments.

As Figure 2 shows, unified application lifecycle management reduces deployment time by automating delivery of application workloads.

Figure 2. Unified application lifecycle management workflow diagram

Summary

Today's IT organizations can take advantage of IBM PureSystems to address key IT needs:

- How to better consolidate workloads for lower TCO and to reduce complexity and sprawl
- How to tune and automate systems to optimize them for their environments
- How to deliver capabilities more rapidly to fuel innovation
- How to enable fast, secure, and integrated cloud environments if organizations choose to go in that direction

With IBM PureSystems, you can consolidate systems and application workloads to reduce the total cost of ownership for your IT infrastructure. Development, test, and production environments can run on a shared infrastructure, configured in common ways. This helps ensure that deployment automation and the applications themselves will behave as expected in production, just as they do
in development and test environments. By adopting Expert Integrated Systems, you can simplify and reduce your data center complexity and sprawl. Workloads can be managed intelligently and controlled from a single point, and the environment will provide dynamic scalability to help meet service levels.

New capabilities can be delivered rapidly to help improve time to market for new services, and capacity to handle changes in demand can be added cost-effectively and automatically. Finally, this can all be done in a way that accelerates the use of cloud environments that help extend current investments through open standards and help efficiently share IT resources to improve the economics of IT.

IBM capabilities can help you get the most benefit from PureSystems as quickly as possible, as well as to minimize disruption and complexity of managing the service lifecycle. IBM helps you close gaps in your enterprise IT processes and get applications up and running faster, so you can achieve these results:

- Reduce cost and risk associated with implementing new infrastructure by managing IBM PureSystems as part of your service lifecycle.
- Minimize disruption and complexity with continuous build, integration, testing, and delivery as part of the application lifecycle.
- Manage service lifecycle across heterogeneous platforms.

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