



HP BladeSystem: an Adaptive Infrastructure out of the box

Things you can do with HP BladeSystem that you can't do with traditional infrastructures:

- Deploy new servers and storage in minutes, not days or weeks
- Wire your infrastructure once and change on the fly
- Cut time needed for common maintenance tasks by 90 percent¹
- Reduce power consumption up to 30 percent² without sacrificing application performance
- Add shared storage and data protection solutions inside without adding cables
- Cut the number of cables by 94 percent³
- Provide high availability for every application at a negligible cost

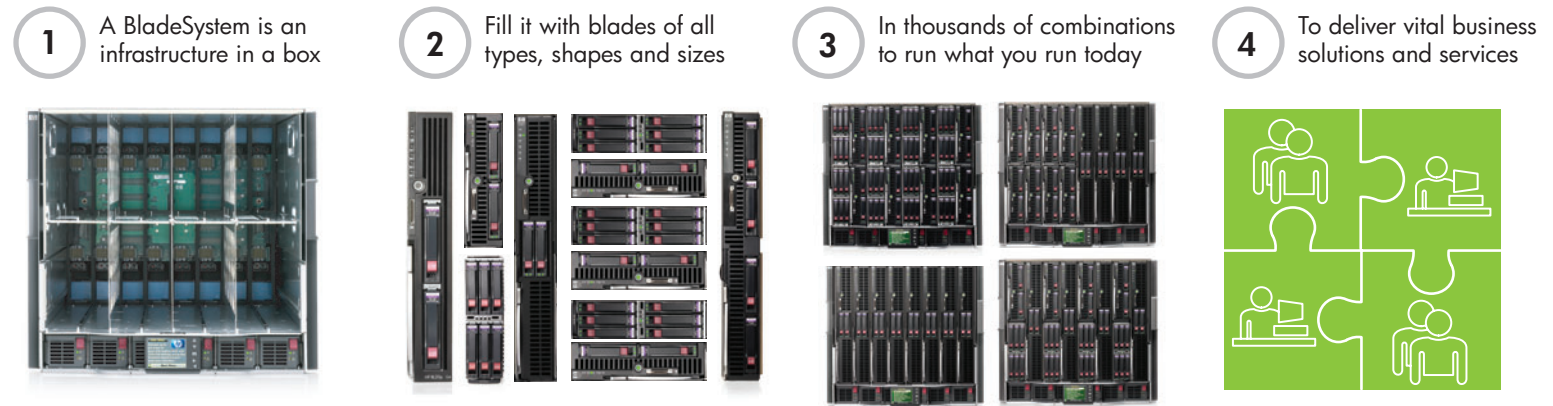
¹IDC, "Forecasting Total Cost of Ownership for Initial Deployment of Server Blades", June 2006.

²Sine Nomine Associates, "A Comparison of HP BladeSystem with Thermal Logic Technologies to Competitive Systems", February 2007.

³Comparing all cable requirements of 16 c-Class server blades versus 16 standard 1U servers.

Figure 1. BladeSystem basics

Simplify and transform your infrastructure into something more useful to your business.



For 40 years, infrastructures were built the same way—lots of boxes, connected with lots of wires and maintained with lots of people. In the meantime, business expectations of technology changed. Problems came from the way infrastructures were built, the silos they created and the complex processes needed to maintain them. The bigger the infrastructure, the bigger the pain.

HP BladeSystem helps ease the pain. Around the world, leading companies use HP BladeSystem technology to build a stronger IT foundation for their business.

BladeSystem basics

A BladeSystem is simply a smarter way to build an infrastructure that supports the vital applications your business requires—with fewer wires, lower electric bills and none of the headaches from the choices you have today. BladeSystem helps you save time and money. You can reinvest savings back into your business. With a streamlined foundation in place, you can deliver top line business results to grow faster, get to market quickly and empower your employees, partners and customers.

No one knows exactly where their business will be tomorrow. But wherever you take it, the HP BladeSystem will be ready when you get there.

Top four reasons to buy a BladeSystem

HP BladeSystem eases many of the infrastructure pains you feel around cost, time, change and energy.

1. **Cost:** BladeSystem is up to 42 percent less expensive to buy than standard infrastructures.⁴

How we do it: BladeSystem is consolidated by design and multiple server and storage blades can share or reduce resources—such as fans, cables, network switches and power supplies.

2. **Time:** BladeSystem increases administrator productivity up to tenfold for many common IT tasks—such as deployment, patching and recovery.

How we do it: A simple, modular design and useful features help save administrators' time, speed deployment and simplify maintenance tasks.

3. **Change:** BladeSystem lets you add, replace, move or recover blades and virtual servers in minutes instead of days or weeks, without involving lots of administrators.

How we do it: The all-in-one design speeds solution integration, growth and recovery time. Useful features like hot plug devices, Onboard Administrator and Virtual Connect make staff more responsive to both unexpected and planned changes.

4. **Energy:** BladeSystem uses 30 percent less power per server than Dell 1U servers⁵ and pushes 47 percent less air for the HVAC system to cool⁶.

How we do it: Thermal Logic technologies efficiently allocate power and cooling and provide consistent availability of all systems inside the enclosure. Intelligent monitoring and hundreds of internal sensors help regulate power usage and the thermal impact on your larger environment.

⁴Based on HP comparison Internet list price of 320 ProLiant BL460c blades versus 320 ProLiant BL360 servers with identical configurations and Ethernet and Fibre Channel network infrastructure.

⁵Sine Nomine Associates, "A Comparison of HP BladeSystem with Thermallogic Technologies to Competitive Systems", February 2007.

⁶HP BladeSystem TCO tool calculation with 64 BL460c versus 64 ProLiant DL360.

"Today, with the help of the HP BladeSystem, VMware and HP Virtualization Management software, we are actually delivering more servers for less money to our internal customers. If we had to do that a few years ago, I'm not sure how we would have managed it."

Dean Buker, Manager, Network and Systems, Polaris

External storage

HP StorageWorks offers choices of NAS and SAN solutions that can be accessed by one or more servers in the BladeSystem and managed together.



Blades

We offer a choice of blades including servers, virtual servers, storage, tape, workstation and PC.



Power and cooling

BladeSystem supports a variety of power connections for different requirements in different environments.



Networking and connectivity

A wide choice of switches from your favorite brands and standards to connect and manage your network.



OS and applications

We certify a variety of operating systems to support thousands of applications for the BladeSystem.



Management modules

Built-in interfaces provide assistance at every step and powerful management software helps increase productivity.



Enclosures

BladeSystem comes in two sizes for different-sized environments.



Services

HP Services and partners help you realize the full potential of your technology and keep your environment up and running.



Meet the portfolio

HP offers a complete portfolio of hardware, software and services to help you build the perfect BladeSystem—without compromise.

Blades	We offer a choice of blades including servers, virtual servers, storage, tape, workstation and PC.
Enclosures	BladeSystem comes in two sizes for different-sized environments.
Power and cooling	BladeSystem supports a variety of power connections for different requirements in different environments.
Networking and connectivity	A wide choice of switches from your favorite brands and standards to connect and manage your network.
External storage	HP StorageWorks offers choices of NAS and SAN solutions that can be accessed by one or more servers in the BladeSystem and managed together.
Management modules	Built-in interfaces provide assistance at every step and powerful management software helps increase productivity.
OS and applications	We certify a variety of operating systems to support thousands of applications for the BladeSystem.
Services	HP Services and partners help you realize the full potential of your technology and keep your environment up and running.

protection without adding more cables or special management. And you can run your same business applications, trust the same HP server and storage components and connect to your same networks.

HP innovations that solve common infrastructure problems:

- **Rising energy costs:** HP Thermal Logic technology improves energy efficiency every second of operation, saving up to 30 percent in power.⁷
- **Network complexity:** HP Virtual Connect architecture lets you wire the infrastructure once, then add, replace or recover blades on the fly, without impacting networks and storage or requiring multiple experts at each step.
- **Complex management:** HP Insight Control management includes built-in control interfaces in a simple, single package with all the tools needed to deploy, maintain and optimize your infrastructure.
- **Unreliable service delivery:** HP NonStop midplane separates network and power midplanes and eliminates active components to provide reliability for the total system. Redundant power, cooling management, network and server features maintain consistent service delivery.

How the portfolio works together

BladeSystem is designed to share components between enclosures, making it fast and easy to create, customize and grow. You can add storage expansion and data

⁷Sine Nomine Associates, "A Comparison of HP BladeSystem with Thermal Logic Technologies to Competitive Systems", February 2007.

HP BladeSystem enclosures

In either enclosure, we can build custom, integrated solutions shipped fully-configured in one box from HP Factory Express or your local reseller, that are ready to plug in and let you get back to work.



The BladeSystem c3000 enclosure

A smaller, versatile design, ideal for small sites like business offices or branch locations that only need four to eight server or storage components at a time. Ideal because it plugs right into the wall, uses standard power and doesn't need special air conditioning. It also includes many useful features to help a small staff be more productive with less effort.



The BladeSystem c7000 enclosure

A larger modular block of infrastructure. Ideal for bigger data centers, it holds up to 16 different types of server and storage blades, with twice as many interconnect expansion slots available to run nearly any application in a dynamic, high-performance IT environment.

Will BladeSystem run my current OS and applications?

Yes. HP BladeSystem is ready for the applications you rely on today and for those you may add in the future. BladeSystem supports two lines of HP servers blade: ProLiant and Integrity. In most cases, any software application that is certified and supported by the operating system will run on HP BladeSystem; however, exceptions can and do exist.

- ProLiant server blades support Microsoft® Windows®, Linux OS, NetWare and Solaris.
- Integrity server blades support HP-UX, HP OpenVMS, Microsoft Windows and Linux OS.

For more information, visit:

www.hp.com/go/proliant/microsoft

www.hp.com/go/proliant/linuxcert

www.hp.com/go/integrity/OSmatrix

Be energy-thrifty with Thermal Logic

New, more powerful processors have brought higher energy bills, a bigger load to cool and the potential for overheating. Built-in HP BladeSystem Thermal Logic technology helps overcome power and cooling problems and keep energy costs within your power budget.

- Provides real-time power and cooling dashboard for instant insight
- Automatically adjusts and shifts power and cooling based on load
- Has efficient fans that pull more air to the right place while using less electricity
- Cuts annual power costs by 30 percent versus 1U rackmount servers⁸
- Has single- or three-phase power options available
- Has N+N and N+1 power supply redundancy for configuration flexibility
- Includes hot pluggable power and cooling components for easy upgrades

⁸Sine Nomine Associates, "A Comparison of HP BladeSystem with Thermal Logic Technologies to Competitive Systems", February 2007.

Become change-ready with HP Virtual Connect

Virtual Connect makes it faster and easier to deploy a new server or connect to a network or SAN, using fewer administrators and resulting in fewer cables and switches to manage.

- **Simplify networks:** reduce your cables 94 percent⁹ without adding switches to manage
- **Simplify server connections:** separate your server LAN and SAN management and free administrators from the time-consuming demands of server changes
- **Change servers in minutes, not days:** wire-once and add, replace and recover servers without affecting LANs or SANs

Work time-smart with Insight Control

From the enclosure-mounted display or from nearly any web browser, HP Insight Control puts information at your fingertips—saving you time with simple and reliable provisioning, monitoring, change management and control. It collects thousands of points of instrumentation and data—from power and cooling to connectivity and performance to help keep things up and running. With Insight Control you can:

- Reduce the time needed for many common IT tasks by up to 90 percent¹⁰
- Remotely access iLO 2 controllers built into each server blade through one link
- Control the infrastructure from end-to-end with built-in automation, a wizard-driven interface and single sign-on, role-based security
- Get system health and performance monitoring, simple provisioning and recovery, and vulnerability scanning and patching

How are blades used now?

There are many reasons you might need new server, storage or network equipment. In big data centers, BladeSystem offers a common, shared infrastructure that can support multiple types of ProLiant and Integrity servers and support different OSs and applications in one box so you can react quickly without losing productivity. Large online environments, clusters and virtual environments all benefit from the lower cost, fewer cables and improved power and cooling capabilities of BladeSystem.

To grow your business

OpSource: With the low cost and simple configuration of the HP BladeSystem, OpSource was able to cost-effectively expand their Software as a Service (SaaS) business model to smaller opportunities with an incubator program.

To support your business

Parts Now!: “We’re a 100 percent in-house sales company, so our infrastructure is crucial. If our servers should happen to go down at a key time during the day, we could lose anywhere between \$100,000 to \$200,000 per hour. Our server environment is crucial, and I’ve been fortunate that the system hasn’t been down for more than an hour since June of 1999.”
—Joe Dempich, Director of IT, Parts Now!

To simplify your business

Publicis Groupe: Consolidated 500 servers down to only 200, while still delivering the same number of applications and improving overall system performance. Simplification made them more predictable. In the past, when they needed to add disk space for a customer, it took weeks and some downtime to bring customers online. With the HP BladeSystem and HP SAN, Publicis can access new disk space within an hour of the request.

To secure your business

Agricore United: Implemented a low-cost, disaster recovery solution with VMware and BladeSystem to support 300 sites across three time zones. “HP enabled us to reduce our annual IT budget by over \$300,000 while providing a truly state-of-the-art disaster recovery solution. We knew we could build a better DR environment, and with HP’s help, that’s exactly what we have.” —Guy Wood, VP, Management Information Systems, Agricore United

Follow these links to see more examples of how businesses use BladeSystem, www.hp.com/enterprise/bladepystem/customervideos and www.hp.com/enterprise/bladepystem/casestudies.

⁹Comparing all cable requirements of 16 c-Class server blades versus 16 standard 1U servers.

¹⁰IDC, “Forecasting Total Cost of Ownership for Initial Deployment of Server Blades”, June 2006.

Busting the blade myths

A lot has changed about blades since their introduction by HP in 2000. In 2006, HP BladeSystem c-Class portfolio completely changed the industry. Yet many myths remain.

Myth	Why it's wrong
Blades are too expensive.	By sharing more components and eliminating many others such as wires, fans and power supplies, blades are up to 42 percent less expensive to buy than comparable rack servers. ¹¹
Blades only include servers.	HP offers many types of blades including server blades, PC and workstation blades, as well as disk, tape, NAS and SAN storage blades.
Blades are only for big data centers.	The smaller, versatile BladeSystem c3000 was built for small rooms not originally designed for lots of servers and storage. It includes simple management tools along with efficient cooling and power that plugs into a standard outlet.
Blades need too much power and cooling.	With a pioneering design and Thermal Logic technologies, HP blades use up to 30 percent less power, generate less heat and push less hot air into the data center to lower the stress on air conditioners. ¹²
Blades are not as powerful as rack servers.	HP blades have the same powerful features found on traditional ProLiant and Integrity servers, including memory, I/O, expansion and hot plug storage; but in a smaller size.
Blades are not a good platform for virtualization.	With Virtual Connect and built-in Virtual Machine Management, plus high-performance networking and redundancy across the system, blades are a powerful and efficient platform for virtualization.

Why HP?

Infrastructure is at the heart and soul of HP. The BladeSystem brings 60 years of hardware, software and service expertise into one architecture and applies it to your individual business problems. The DNA of our outstanding product lines are built directly into the HP BladeSystem. We also take the most useful capabilities invented for BladeSystem and integrate them back into our traditional product lines, so everything from HP truly works better together—just as you expect it to.

We bring together the best from outside HP, too. Through the HP Solution Builder program, hundreds of companies build innovative technologies and create solutions exclusively for the HP BladeSystem. This means you can connect to the networks and storage you use now, rely on the standards you're familiar with, and run the same operating systems and applications you run today.

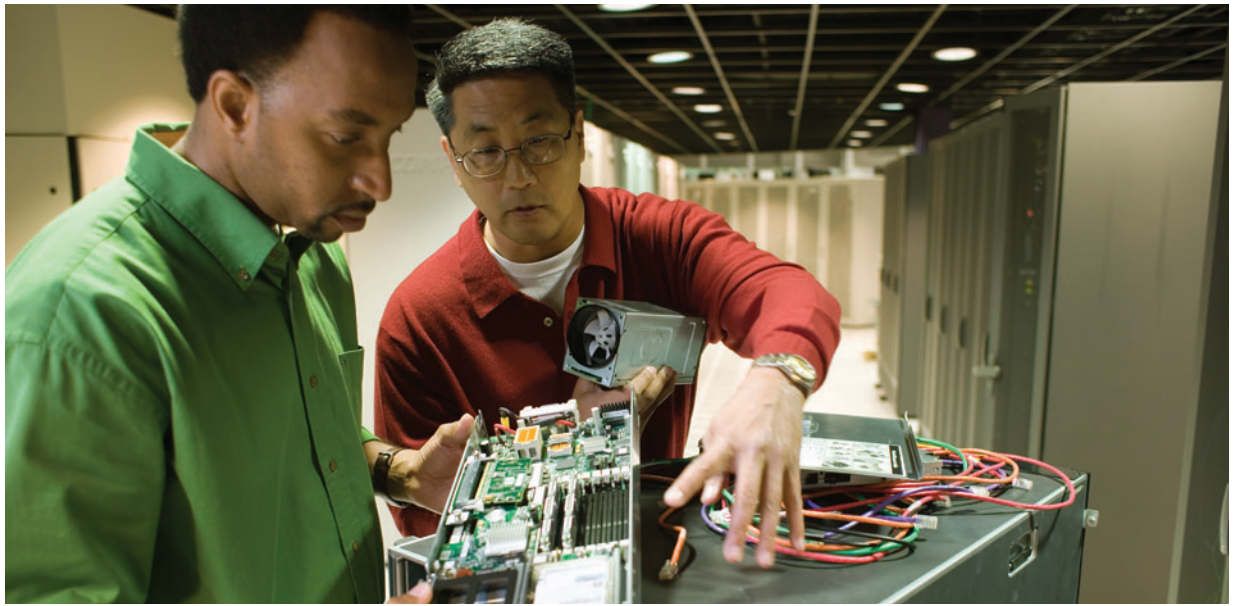
For more than 11 years in a row, HP servers have been the most popular servers in the world¹³, and for even longer, HP has sold more storage and data protection solutions worldwide than anyone else¹⁴. Other blade designs cut features to try to save things like space or power or push a "one-size-fits-all" solution. Some offer limited choices of servers, storage, networking or software compatibility. Even though our blades offer more memory, network performance and proven features such as hot plug disk drives, we get more into each enclosure. The HP BladeSystem infrastructure is a better choice to simplify your infrastructure.

¹¹Based on HP comparison Internet list price of 320 ProLiant BL460c blades versus 320 ProLiant BL360 servers with identical configurations and Ethernet and Fibre Channel network infrastructure.

¹²Sine Nomine Associates. "Comparison of HP BladeSystem with Thermal Logic Technologies to Competitive Systems". February 2007.

¹³Source: IDC, Q406 Worldwide Quarterly Server Tracker, February 2007.

¹⁴Source: IDC, Q107 Worldwide Quarterly Server Tracker, May 2007.



Solution Blocks take out the guesswork

HP offers BladeSystem Solution Blocks that deliver proven application solutions to simplify nearly any environment. Solution Blocks cut the time and effort needed to create, combine and upgrade business solutions on a BladeSystem. These application solutions include:

- A range of pre-tested and qualified Solution Blocks of common applications like e-mail, disaster recovery, ERP, CRM, business intelligence and more
- Toolkits with easy-to-use guides and deployment scripts to quickly configure and deploy a set of inter-related business applications on BladeSystem
- Flexibility to configure and combine different Solution Blocks in one box to build customized solutions of inter-related applications consistently and quickly

Modular and expandable by design, Solution Blocks make it easy to add or expand business applications without extra planning, wiring and configuring.

Our partner community

The HP BladeSystem Solution Builder Program is a global community of technology and service delivery providers who collaborate with HP and one another to define, deliver and deploy customer solutions built for HP BladeSystem.

The Solution Builder Program is building the broadest offering of blade-based solutions by connecting the leading IHVs, ISVs, SIs and VARs. Together we are extending the opportunities for blade architectures across the data center as part of the goal to “blade everything”—from desktop to data center.

HP service partners

From preliminary assessment and planning through delivery, integration, and ongoing support, HP and HP Service partners have the specialized expertise to assist your team. HP Factory Express services speed implementation with plug-and-play blade solutions that are pre-integrated and configured to your specifications. And HP offers comprehensive porting and migration services to ease the move from proprietary systems to a Microsoft or Linux blade environment.

HP can help you make the most of your people, processes, and systems through comprehensive services for IT consolidation—from assessment and planning to implementation. Get your BladeSystem solution up and running rapidly with HP Installation and Startup Service for HP BladeSystem Infrastructure and ongoing care with hardware and software support, helping to deliver increased uptime and productivity for ongoing support of HP BladeSystem environments. HP Education Services offers targeted training that equips your IT team to smoothly deploy an HP BladeSystem infrastructure, streamline technology migration and shorten your time to ROI.

The smartest way to invest in IT

Not every technology acquisition has to be a traditional cash-and-carry transaction. HP Financial Services offers a variety of customized leasing and financing options to make your HP BladeSystem purchase painless and keep your technology expenditures in line with your overall budget. For more information, visit www.hp.com/financialservices.

For more information

For more information about HP BladeSystem and related solutions for your business, contact an HP representative, your local HP Business Development Partner or visit www.hp.com/go/bladefsystem.

Have more questions? Our user community has answers. Find a reseller, meet other users, get practical advice and share your success. Visit the HP Blade Connect online community at www.hp.com/go/bladeconnect.

Evaluate

The BladeSystem Evaluation Center contains interactive demos, videos, webinars, TCO calculators, detailed technical data and more. It's simple, flexible and easy-to-use, just like BladeSystem itself. Visit www.hp.com/go/bladefsystem/evaluate.

HP Services

HP Care Pack services for BladeSystem are easy-to-buy, useful packaged services that extend and enhance the warranty coverage on your HP BladeSystem solution.

To help deliver speedy project implementation, fast problem resolution and ongoing system performance optimization, we developed a portfolio of HP Care Pack services to support the full lifecycle of your BladeSystem solution. Service options include:

- **Installation and Startup for HP BladeSystem Infrastructure service**—helps get your BladeSystem up and running with less disruption to your IT operations.
- **Enhanced Network Installation and Startup service**—verifies correct implementation of network protocols and provides access to advanced features that can enhance the performance, scalability and reliability of your network.
- **BladeSystem hardware support services**—provide fast, reliable problem resolution and are available for the ProLiant BL server blade, BladeSystem SAN switches and StorageWorks tape blades.
- **VMware Capacity Planning Assessment service**—supports migration planning and provides assessment of your current IT infrastructure.
- **Proactive BladeSystem service**—delivers the reliability and operational efficiency your business needs to simplify management and enhance performance.

Experienced HP Services professionals work with you to:

- Align the performance, reliability and asset utilization of your HP blade technology with your IT operational objectives
- Simplify IT operational procedures by leveraging HP best practices
- Enable cost-effective management of your HP blade solution with ongoing advice from HP technical experts
- Improve your IT staff skills through targeted HP technical or training services

Service coverage spans all of your BladeSystem equipment including enclosures, power supplies, server blades (ProLiant and Integrity), storage blades, and blade SAN and network switches.

For more information, visit www.hp.com/services/bladefsystemservices.

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