



HP Consolidated Client Infrastructure

Secure your data, ensure continuity and reduce costs



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Introduction

HP Consolidated Client Infrastructure (CCI) is a desktop-replacement solution that enables enterprises to enhance data security and business continuity, while lowering total cost of ownership. End users can access their personalized environments, applications and data from almost anywhere, with the same high-level desktop experience. System administrators manage the system with the same proven, powerful tools long used by the HP BladeSystem portfolio.

CCI is similar to server consolidation in that it centralizes resources for better utilization, management and cost savings. In the CCI architecture, access, computing and storage are managed from the data center, removing the most vulnerable links in the infrastructure—desktop PCs—and replacing them with HP BladeSystem Blade PCs.

CCI delivers significant benefits for your enterprise:

- Greatly increase data security, compliance and disaster tolerance
- Ensure business continuity and compliance
- Provide a robust end-user experience with minimal down time
- Dramatically reduce total cost of ownership

Secure Data

Numerous well-publicized thefts of personal computers with huge amounts of sensitive customer data have recently hurt the reputation and bottom-line of many large corporations, along with incurring legal risks for these companies. For all companies, both small and large, data security is a primary concern.

With HP's Consolidated Client Infrastructure, data resides only in the data center. Graphical representations of the data, rather than the data itself, are encrypted and sent to user access devices. Users can access data and applications from almost any internet-connected device, without having to carry sensitive company or client data outside the office.

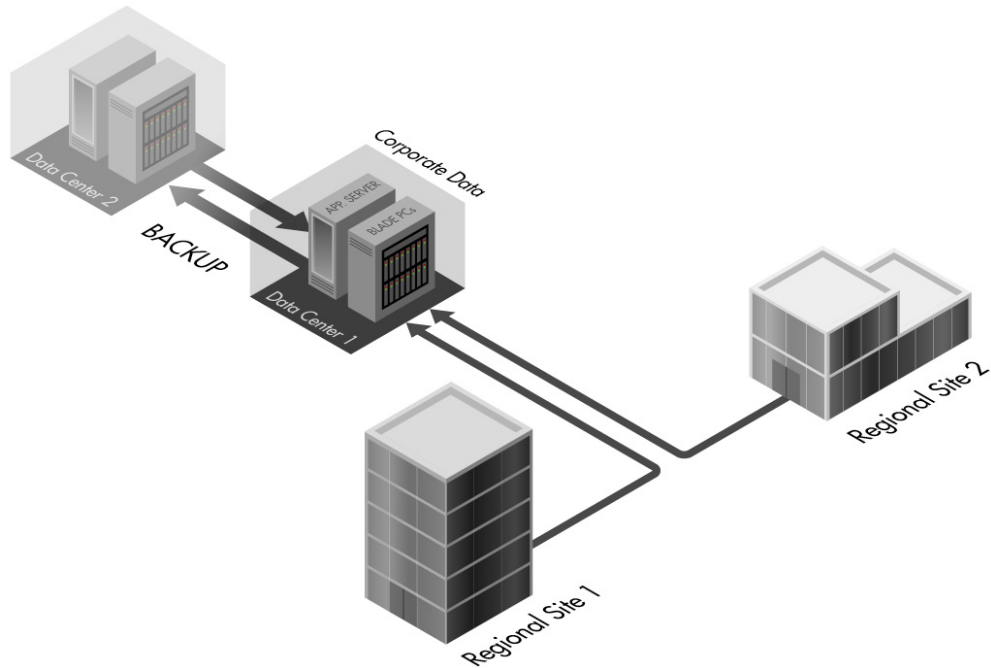
CCI minimizes risk of data theft that can damage your customers' trust and your company's stock price. At the same time, you can rest easier knowing your enterprise is Sarbanes-Oxley and HIPAA compliant. CCI protects your data and your business.

Ensure Business Continuity

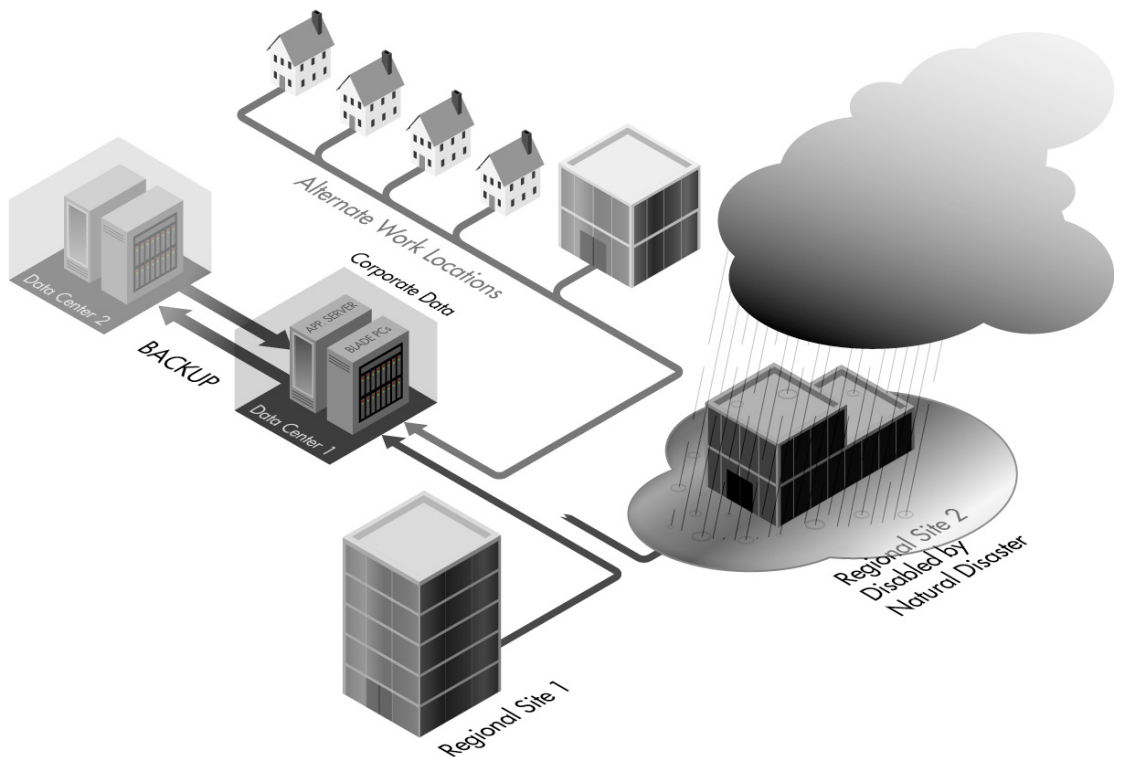
Disaster survival statistics show that many organizations do not invest properly in business continuity planning (BCP). 44% of businesses fail to reopen after closing due to fire and 33% of those that do reopen fail to survive beyond 3 years.¹ A University of Texas study found that 94% of companies suffering a catastrophic data loss will not survive, as 43% do not reopen and 51% close within two years.²

Business continuity planning ensures that when disaster strikes your users can work, customers receive services and revenue streams are protected. Consolidated Client Infrastructure provides particularly robust frameworks for business continuity. If a workplace is unavailable due to fire, flood, or snowstorm, employees can continue to support customers from any internet-connected device, at a satellite office or from home. And support staff can focus on system recovery while employees and your business continue to function.

During normal operation in a CCI configuration, regional sites connect with the data center over the network:



When disaster strikes and a regional site becomes unavailable, users can connect immediately from alternate office and home locations. They access the same applications and data, without significant loss of business continuity:



Optimize User Experience

With traditional PC environments, the user experience can be inconsistent and unpredictable. If a user works on another machine, he or she has to make sure they have all the files they need, in addition to having copies of all their programs. If a user's computer goes down, there can be significant downtime leading to a poor end-user experience as they wait for IT to deliver a replacement PC.

With CCI, the entire user experience is improved in multiple ways:

- Users can access their work from most any internet-connected device. Once they log in, the desktop experience is the exact same as their previous session.
- Because both applications and data reside near each other (rather than being distributed across the network), application response times for end-users are faster. And because only representations of data are sent over the network, gains in application processing are preserved to user's desktop experience.
- Because user data resides in the data center, users never have to remember to back up their work. Data is protected by periodic, enterprise-wide procedures.
- Maintenance such as system updates and virus scans can be scheduled during off hours, so user workflow remains uninterrupted.
- When a blade PC fails in the data center, the Session Allocation Manager software dynamically allocates another HP Blade PC to the user. After logging in again, they are back up and running, without having to wait for resources from IT.

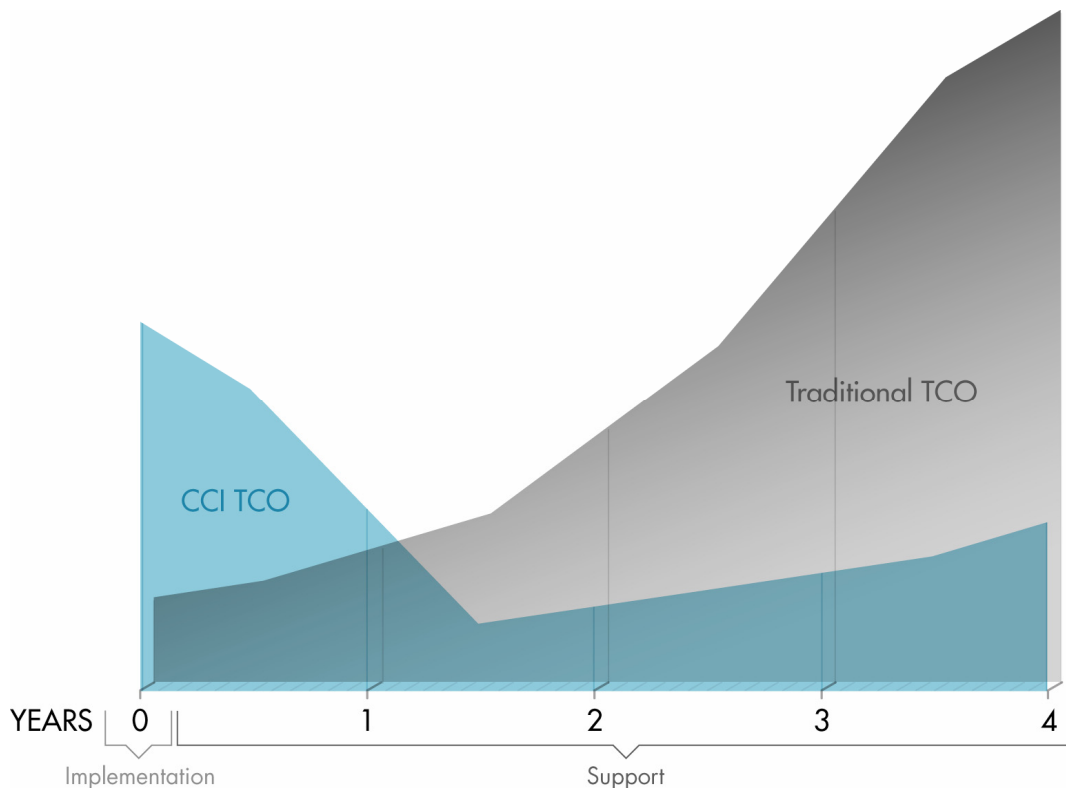
Reduce Costs

In a traditional PC environment, organizations must maintain user uptime across widely distributed PCs. Standard industry estimates suggest that 80% of the total yearly cost of traditional PCs is support cost.

With the HP CCI architecture and blade PCs, centralized support resources maintain and manage the environment for thousands of users remotely. When systems need to be updated across the enterprise, the updates can be done in hours rather than weeks. This reduced support effort frees up IT personnel to focus on more strategic initiatives.

In addition to reduced support needs, CCI provides the following cost savings:

- Interruptions to workforce productivity are minimized, because updates take place in the data center and can be scheduled during off hours.
- User access devices are solid-state, which means they have no moving parts to wear out and thus need to be replaced less frequently.
- Heavy processing happens in the data center, so user work environments require less energy for power and cooling.
- Blade PCs have less power requirements than desktop PCs or traditional servers, because certain components such as power supplies can be shared across multiple blade PCs.



TCO Savings

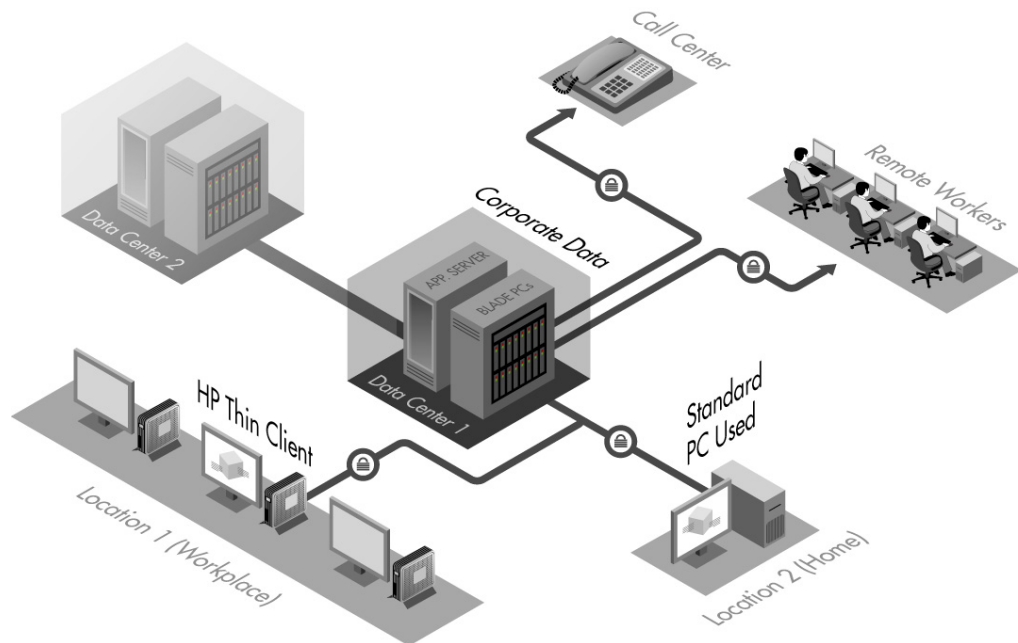
Although there is a higher initial implementation cost for the Consolidated Client Infrastructure when compared to traditional distributed PCs, the costs are recovered quickly, however, as support costs for traditional distributed PCs escalate much faster. Traditional PCs require much more support resources as they age than thin client devices. HP estimates that during the first 4 years of a CCI implementation companies can save up to 50% in total cost of ownership over typical desktop PC lifecycles.³

To mitigate the initial cost of moving from a traditional desktop PC architecture across an entire organization, the CCI solution is a scalable architecture that can be implemented first within user groups in your organization that will benefit most from the architecture:

- Offshore users who need access to corporate intellectual property, proprietary code bases or sensitive customer data.
- Call center employees who need to access homogenous set of applications.
- Knowledge workers who access multiple applications, including offsite workers without access to IT support.
- Financial users who require always-on availability and must deal with heat and space constraints.
- Patient care and insurance employees accessing sensitive patient records in hospital rooms, clinics, and business offices.

How CCI Works

The Consolidated Client Infrastructure improves system architecture by centralizing data, applications and computing power in the data center. Users log on to HP Blade PCs using HP thin clients or other access devices, including home PCs. The operating environment and applications are delivered seamlessly over the network as graphical information, to secure data and reduce network latencies. To ensure continuity, data centers can be redundant. The HP Session Allocation Manager (SAM) software serves as the connection broker and provisioning tool between end users and computing resources.



With the Consolidated Client Infrastructure, HP Blade PCs are assigned to users in one-to-one relationships. Each user accesses the same, consistent high-level desktop experience, without being subject to resource constraints based on the activities of other users, no matter how many users are on the system. CCI delivers better enterprise scalability, without compromise.

Hardware and Software

Consolidated Client Infrastructure includes the following hardware components:

- HP Thin Clients are simple, reliable access devices that connect to the data center for applications, data and processing capabilities.
- HP Blade PCs provide processing power while residing securely in the data center.
- HP BladeSystem Switches support a range of standards-based advanced switching to optimize traffic flow in the data center.
- HP BladeSystem PC Enclosures consolidate the essential elements of the data center: power, cooling, management, connectivity, redundancy and security.
- HP StorageWorks All-in-One systems combine shared application server storage, a Windows-based file server, data protection and management software in a single intuitive and reliable system.

System administrators keep the CCI system running smoothly with the following time-tested management tools:

- HP Systems Insight Manager (SIM) and the HP Integrated Administrator (IA) provide infrastructure management.
- HP PC Session Allocation Manager (SAM) provides computing resource allocation and provisioning.
- HP Rapid Deployment Pack (RDP) software provides image deployment and management.
- Microsoft Remote Desktop protocol allows the thin client access devices to connect to the blade PCs.

While existing desktop PCs can be used as access devices, HP recommends upgrading to thin client devices to further reduce support costs and increase end-user productivity to receive the following benefits:⁴

- Thin clients have no moving parts, reducing hardware failures and support expenses. Additionally, thin clients last longer than traditional desktop PC.
- Thin clients boot up in less than half the time as traditional desktop PCs.
- Thin clients can be deployed in about one third of the time as traditional desktop PCs.
- Virus and worm attacks are less successful on thin clients because many of the system files on which they prey are not present. The XP Embedded (XPe) operating system on thin clients contains only a subset of the files in Windows® XP.
- Power consumption for a thin client is 89% lower than a typical, two-year old PC.

Licensing, Warranty and Support

HP Blade PCs ship with Microsoft Windows® XP Professional Blade PC Edition. The operating system is fully licensed and supported by Microsoft, which means you never have to worry.

All HP CCI hardware is backed by a three-year warranty. Additionally, HP Blade PCs are covered by three years of “Advanced Exchange”: If a blade PC fails—which is rare because unlike a typical PC the only moving part it has is the hard drive—you just call HP to request a new one. The new blade arrives in a business day. It’s that simple.

To ensure that each CCI implementation goes smoothly, HP offers a range of support services:

- HP provides TCO and ROI analysis services to determine the right solution for your business.
- HP offers CCI Design and Implementation Services to help you plan and manage the entire deployment.
- HP Services offers file exchange and data migration planning and support.
- HP Financial Services provides tailored financing solutions that maximize asset value and total cost of ownership through the IT lifecycle.
- HP Educations Services offers a five-day, hands-on CCI training class for your IT staff.

HP is committed to providing a superior customer experience throughout the technology lifecycle.

For More Information

[HP Consolidated Client Infrastructure](http://www.hp.com/go/cci/), <http://www.hp.com/go/cci/>

About HP

HP is a technology solutions provider to consumers, businesses and institutions globally. The company's offerings span IT infrastructure, global services, businesses and home computing and imaging and printing. For the four fiscal quarters ended Oct. 31, 2006, HP revenue totaled \$91.7 billion. More information about HP (NYSE, Nasdaq: HPQ) is available at www.hp.com.

Notes

¹ Business Continuity Planning - A safety net for businesses.

<http://www.iwar.org.uk/infocon/business-continuity-planning.htm>, October 2003

² University of Texas Center for Research on Information Systems, Datamation, June 1994.

³ Business HP estimate of total cost of ownership savings due to CCI implementation over a typical desktop PC implementation during a 4-year period based on a hypothetical customer with 10,000 users in a single environment with 70% concurrent access. HP Services can work with you to perform TCO and ROI analysis to find the right solution for the unique needs of your business.

³ Disk imaging time savings and power consumption estimates provided by HP Engineering.

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