



REDEFINING THE WORLD OF PAYROLL + HR

## Overview

**Country or Region:** United States  
**Industry:** Professional services

### Customer Profile

Paylocity provides hosted payroll and human resources solutions and services. The company has 325 employees and is based in Arlington Heights, Illinois.

### Business Situation

Paylocity needed a software platform capable of delivering mission-critical levels of scalability, reliability, and security for its hosted solution.

### Solution

The company selected Microsoft software and now runs its hosted solution on the Windows Server 2008 R2 operating system and Microsoft SQL Server 2008.

### Benefits

- Strong reliability, scalability, performance, and security
- Continual product innovation through adoption of new Microsoft software
- Ease of administration and management
- Low total cost of ownership
- Strong customer satisfaction

## Hosted Solution Provider Achieves 99.99 Percent Uptime While Supporting Rapid Growth

“Our upgrade to Windows Server 2008 R2 and SQL Server 2008 really improved website responsiveness, helping us to support our continued rapid growth.”

Chuck Cooper, Chief Information Officer, Paylocity

To succeed with its vision for delivering a hosted, web-based payroll processing solution, Paylocity needed a software platform capable of providing superior levels of availability, scalability, and security—as required to compete with much larger companies. In 2004, Paylocity adopted a strategy based on Microsoft technology, and over the past seven years, it has evolved that strategy, continuing to take advantage of the latest software from Microsoft. Paylocity now runs its hosted solution on the Windows Server 2008 R2 operating system and Microsoft SQL Server 2008. The company’s choice of Microsoft software has helped Paylocity achieve the reliability, scalability, and security required to support around-the-clock access by more than 6,000 customers with millions of employees over the web—maximizing customer satisfaction and fueling continued business growth.



“To effectively support our rapid growth rate and compete against the three big companies in our industry, which are many times larger than us, our business strategy has been to leverage Microsoft technology innovations.”

Chuck Cooper, Chief Information Officer,  
Paylocity

## Situation

Paylocity provides payroll, human resources, tax filing, and time and labor management solutions through a software-as-a-service (SaaS) model, along with complementary professional services. The company has twice been named the Payroll “Service Bureau of the Year” by the Independent Payroll Providers Association (IPPA) because of its 97-percent client retention rate for 10 years running. In addition, Paylocity has been recognized by Inc. Magazine six times as being among the nation’s fastest-growing, privately held companies.

Founded in 1997, Paylocity started as a reseller of a third-party, client-server application. Paylocity customized the solution for on-premises installation at customer sites, with payroll information generated by the software sent by File Transfer Protocol (FTP) to Paylocity for processing. However, that business model presented key disadvantages that were hampering business growth: The need for geographic proximity to customers limited market size, and there was only a certain degree of customization that could be achieved. Most importantly, licensing a third-party technology prevented Paylocity from achieving true differentiation in the marketplace.

In 2003, the company decided that it was time for a change. “We wanted to control our own destiny, and saw the opportunity to build our own software-as-a-service solution for delivery over the web as a means to that end,” says Chuck Cooper, Chief Information Officer at Paylocity. “We set out to create a solution for midmarket companies with 50 to 5,000 employees, and to differentiate ourselves by combining a better product with great service. Clients want simplicity, cost-effectiveness, and ease of adoption and management; and a web-

based delivery model is ideal for meeting all of those criteria. In addition, we saw how it would enable us to easily scale geographically, as nothing would need to be installed on-premises at customer sites.”

To succeed with its vision, Paylocity needed a software environment capable of providing superior levels of availability, scalability, and security. “We needed a platform capable of delivering all the mission-critical attributes, as necessary to meet customer needs and compete with much larger service providers,” says Cooper. “Scalability was especially important because, at the time, we were growing at a rate of 60 percent per year. Of course, we also had to deliver uncompromised availability and be able to secure our solution for delivery over the web.”

In 2004, Paylocity launched Web Pay, its hosted solution, on Windows Server 2003 and Microsoft SQL Server 2000. At the time, the company had four web servers, one database server, 1,900 customers, 83 employees, and U.S.\$7.8 million in annual revenue.

Over the next few years, the company upgraded to SQL Server 2005, moved to 64-bit servers to take advantage of additional physical memory, and transitioned to separate transactional and reporting databases that were linked by transactional replication. Because of an ever-increasing number of servers in its datacenter, Paylocity adopted a virtualized IT infrastructure. “We were growing so fast that we were going to run out of power and cooling capacity, yet we still had time on our data center lease,” recalls Cooper. “We adopted Windows Server on VMWare to address those issues, and have been using it successfully ever since.”

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By 2008, that IT infrastructure had grown to 12 web servers, 1 active transactional database server, and 2 reporting database servers, supporting 4,200 customers.

### Solution

Paylocity originally chose Microsoft software because it met all mission-critical requirements. "To effectively support our rapid growth rate and compete against the three big companies in our industry, which are many times larger than us, our business strategy has been to leverage Microsoft technology innovations," says Cooper. "Our clients trust Paylocity to ensure that their employees are paid accurately and on time, and we trust the Microsoft platform to ensure that we continue to achieve that goal—even as we continue to grow at a rapid pace."

Paylocity also chose Microsoft software because it offered superior developer productivity. "We had ambitious goals but a very small development team when we started this project," says Cooper. "We looked at both Microsoft .NET technology and Java, and realized that Microsoft .NET would better enable us to more quickly and easily deliver a rich and robust solution."

By late 2010, Paylocity was once again ready to take advantage of newer Microsoft software to support its continued rapid growth. Paylocity upgraded its IT infrastructure to the Windows Server 2008 R2 operating system. The web servers run Windows Server 2008 R2 Standard with Internet Information Services (IIS) 7.5, the latest web application platform from Microsoft. The database servers run Windows Server 2008 R2 Enterprise and Microsoft SQL Server 2008 Enterprise data management software, and SQL Server Reporting Services is used extensively. Paylocity uses the Microsoft Visual Studio 2010 Premium development system for

new software development and relies on Microsoft Visual Studio Team Foundation Server 2010 for all aspects of application lifecycle management.

"We rely on our hosted solution even more than you might expect," says Cooper. "Not only does it support more than 6,000 customers with millions of employees, but it's also used by our own staff to both manage our client's payrolls and run our own business. We also use various Microsoft Dynamics products to support sales lead management and accounting."

"Windows Server 2008 R2 Enterprise offered significant improvements in reliability, security, and scalability, with support for up to 256 logical processors, which provides plenty of capacity to support our continued rapid growth," says Cooper. "We also identified several new and improved features in SQL Server 2008 that we were eager to adopt, such as compression of log files, table partitioning, and dynamic views."

To minimize downtime, Paylocity planned for an across-the-board upgrade of its IT infrastructure. "Because we have a solution that is accessed by our customers literally 24/7 [24 hours a day, seven days a week] throughout the year, when we do have a major release with scheduled downtime, we make several environmental changes at once," explains Cooper. "For example, when upgrading to Windows Server 2008 R2 and SQL Server 2008, we also installed a new storage area network. Everyone agrees that we have a much more stable system, and we've seen the fastest performance benchmarks we've ever seen, with average webpage response times of less than one second."

After testing the new environment, Paylocity upgraded all 25 web and

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database servers on a Saturday. “We completed the upgrade with no issues at all,” says Cooper. “In fact, the week following the upgrade was one of the busiest of the year in terms of server workload, and everything held up remarkably well.”

#### **Current Architecture**

Today, the IT infrastructure supporting the company’s hosted solution consists 43 virtual servers running on 9 quad-core Xeon 5500 servers, each configured with 72 gigabytes of memory and 2 host-bus adapter Fiber Channel cards. The web server tier includes 12 virtualized servers, all of which run Windows Server 2008 R2 with IIS 7.5. Paylocity uses vMotion from VMware to move the virtual machines from one physical server to another to evenly distribute the load.

The transactional database that supports the web tier is also hosted in a virtualized environment, where it runs on Windows Server 2008 R2 Enterprise and SQL Server 2008 Enterprise Edition. To maximize availability, the database is configured as an active-passive cluster using failover clustering in Windows Server 2008. The database is approximately 500 gigabytes in size and averages 2,600 transactions per second, with a physical input/output (I/O) rate of 50,000 kilobytes per second. Enterprise-class storage is provided by a Hitachi ASM2500 storage area network.

The reporting tier, which is based on SQL Server Reporting Services, resides on three additional virtualized servers and is supported by a separate reporting database. Paylocity uses transactional replication to copy data from the transactional database to the reporting database, with changes typically replicated in less than four seconds.

“We selected SQL Server Reporting Services as our reporting engine because it allows us to programmatically create our own reports,” says Cooper. “This has allowed us to build our own front-end Report Writer, which allows nontechnical users to create their own reports with just a few mouse clicks. Just as important, the scale-out architecture for SQL Server Reporting Services helps ensure that we can continue to keep up with an ever-increasing reporting workload.”

#### **Important New Capabilities**

In implementing the versions of Windows Server and SQL Server it uses today, Paylocity took advantage of new and improved functionality in those products to improve performance, security, and scalability. Features in Windows Server 2008 R2 that the company adopted include:

- Active Directory Federation Services 2.0, which Paylocity uses to enable single sign on (SSO) among its various payroll, human resources, time and labor, and tax services products. The company also uses Active Directory Federation Services 2.0 to integrate with hosted solutions from business partners.
- Improved static compression in IIS 7.5, which reduces the processor and memory utilization associated with compressing static content before transmitting it from the company’s web servers to a customers’ web browsers.

Paylocity also took advantage of several new and improved features in SQL Server 2008, including:

- Backup file compression, the use of which has delivered an 80 percent decrease in disk space used for backups and a 75 percent reduction in the time required to complete those backups. “In



the past, backups did not always finish before the start of the business day but now they do," says Cooper. "Backup file compression has also made it much faster to copy a full database backup to our quality assurance lab and disaster recovery data center, even though the actual size of our database has grown fivefold in the past couple of years. We can now replicate the data in our production environment to our test environment on a daily basis instead of a weekly basis."

- Table partitioning, which enables Paylocity to run simultaneous database queries against different partitions of its largest database tables, while restricting lock escalation to only the affected partition instead of the entire table. "With table partitioning, we were able to improve the performance of calculating a payroll batch by more than 150 percent," says Cooper.

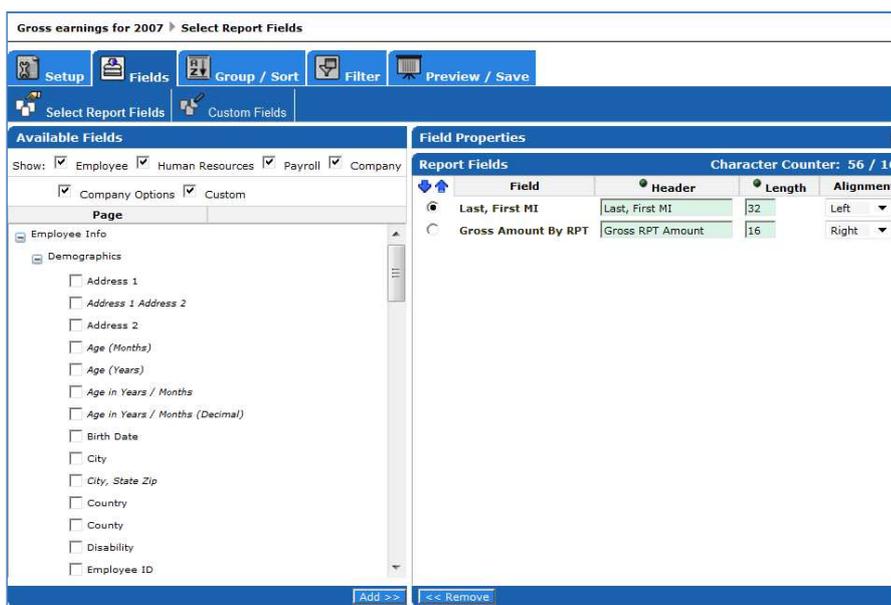
- Dynamic database views, which have improved the company's ability to see what is occurring inside its databases and prioritize the performance-tuning of stored procedures.

Even though it just recently completed its infrastructure upgrade, Paylocity isn't standing still. Developers have migrated the company's hosted solution from Microsoft ASP.NET 3.5 to ASP.NET 4 for the company's upcoming release, featuring a new Employee Self-Service Portal. Paylocity is developing its Time and Labor Management product using the latest ASP.NET Model-View-Controller (MVC) pattern—often referred to as ASP.NET MVC 3. The company is also participating in a Microsoft technology adoption program for Windows Workflow Foundation, and is looking at using Microsoft BizTalk Server 2010 to support its integration needs.

"We plan to use workflows to support additional business processes, such as human resources-related work streams," says Cooper. "We already have the customer data in our systems and, with the new workflow innovations from Microsoft, we're able to easily take advantage of that data to deliver new customer offerings."

Finally, Paylocity also is keeping an eye out for new technologies—such as Windows Internet Explorer 9—to recommend to customers. "With Internet Explorer 9, we're seeing a 30 percent performance gain in the rendering of our Employee Template feature, which enables users to design the layout of employee-facing webpages—something we attribute to the improved JavaScript performance in Internet Explorer 9," says Cooper.

Figure 1. Paylocity used the programmability of SQL Server Reporting Services to build an intuitive Report Writer for use by nontechnical customers.





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Mike Haske, Vice President of Sales and Marketing, Paylocity

### Benefits

Since 2004, Paylocity has taken advantage of Microsoft software innovations to support and fuel business growth—and to keep its hosted service up and running smoothly. Today, the company relies on Windows Server 2008 R2 and SQL Server 2008 to achieve the reliability, security, and scalability needed for 24/7 access by its more than 6,000 customers.

“Microsoft software gives us choice and flexibility in meeting customer needs, while at the same time providing great scalability and dependability,” says Cooper. “Just as important, we get all of the great ‘extras’ out-of-the-box—features such as Active Directory Federation Services 2.0 and SQL Server Reporting Services that we’ve used to deliver an even better solution. Seven years ago we adopted a strategy based on using Microsoft technology innovations to compete against much larger companies and, if our continued rapid growth is any indication, that strategy has continued to serve us very well.”

Mike Haske, Vice President of Sales and Marketing at Paylocity, adds, “Our software is phenomenal! It has enabled our sales management team to attract the best talent available in our industry from coast to coast to help us expand from two markets in 2007 to more than 30 markets today. Our sales force is now significantly more productive and our new sales have quadrupled since 2007.”

### High Reliability

Because customers use its hosted service 24/7, 365 days per year, Paylocity has a goal of 99.99 percent service level availability—equal to about 52 minutes of unplanned downtime per year. “Windows Server 2008 R2 and SQL Server 2008 have been rock solid, enabling us to hit our target service levels,” says Cooper. “The few

minor issues that we have experienced have been hardware-related. In the past seven years, we’ve only had to call Microsoft for support twice.”

### Superior Scalability and Performance

The company’s recent upgrade has improved application performance, helping Paylocity to support business growth and keep customers happy without excessive investments in additional hardware. “Our upgrade to Windows Server 2008 R2 and SQL Server 2008 really improved website responsiveness, helping us to support our continued rapid growth,” says Cooper. “Over the past two years, webpage response times have decreased by 60 percent while our overall web traffic has tripled.”

The upgrade has also improved reporting performance. “During peak periods, we run more than 20,000 reports per day, with an average report generation time of seven seconds, even though many of the reports are large and complicated,” says Cooper. “That’s a significant improvement over what we were seeing before the upgrade, when reports took an average of 11 seconds.”

### Strong Security

Paylocity has been able to maintain strong security, which Cooper attributes to two things: the integrated security model built into the Windows Server operating system, and guidance provided by Microsoft on how to best take advantage of it. “We haven’t had a single security breach since launching our hosted solution seven years ago,” says Cooper. “We’ve had external penetration testing done, with good results—and give a lot of the credit for those results to the Claims-Based Identity and Access Control guidance provided by the Microsoft Patterns and Practices group.”



“Over 90 percent of our customers would refer us to a friend or business associate.”

Jenifer Page, Vice President of Operations, Paylocity

#### **Continual Innovation**

With feature-rich software and a world-class development environment, Paylocity has been able to continually and rapidly innovate—as necessary to stay ahead of competitors with hundreds of times as many developers. “We’re the small guy going up against several multibillion dollar competitors, and have been able to compete successfully by leveraging the enormous investments continually made by Microsoft in research and development,” says Cooper. “When I consider all of the new capabilities we gained through our latest upgrade—including Active Directory Federation Services 2.0, static compression, log file compression, table partitioning, and dynamic database views—it’s like getting 10 additional developers for less than the price of one developer’s annual salary.”

#### **Ease of Administration and Management**

Even with 43 virtual servers, the company’s production IT infrastructure requires very little hands-on administration. “Microsoft software makes system administration and performance tuning easy, which is why we’re able to get by with only six system administrators and three database administrators,” says Cooper. “Choosing Microsoft Dynamics software has also contributed to ease of administration, as we’re able to maintain and support those systems with the same tools and skillsets that we use to support our hosted solution.”

#### **Low Total Cost of Ownership**

With Microsoft software, Paylocity is able to invest more on innovation with respect to its own products and less on hardware, licenses, maintenance, add-ons, and consulting—contributing to a low total cost of ownership. “Microsoft software is well worth the investment—in addition to the extensive capabilities it provides, it essentially runs itself and, through that

capability, helps pay for itself,” says Cooper. “We could have spent many more times on Oracle to get the same performance that we get with SQL Server.”

#### **High Customer Satisfaction**

For Cooper, customer satisfaction is the ultimate gauge of whether his strategy to run the business on Microsoft software is working. Recent survey results reflect that he’s made the right decision. “Clients have been extremely happy with Paylocity and our Web Pay product, as shown by recent customer satisfaction surveys,” says Jenifer Page, Vice President of Operations at Paylocity. “Over 90 percent of our customers would refer us to a friend or business associate.”

## For More Information

For more information about Microsoft products and services, call the Microsoft Sales Information Center at (800) 426-9400. In Canada, call the Microsoft Canada Information Centre at (877) 568-2495. Customers in the United States and Canada who are deaf or hard-of-hearing can reach Microsoft text telephone (TTY/TDD) services at (800) 892-5234. Outside the 50 United States and Canada, please contact your local Microsoft subsidiary. To access information using the World Wide Web, go to:

[www.microsoft.com](http://www.microsoft.com)

For more information about Paylocity, visit the website at:

[www.paylocity.com](http://www.paylocity.com)

## Microsoft Server Product Portfolio

For more information about the Microsoft server product portfolio, go to:

[www.microsoft.com/servers](http://www.microsoft.com/servers)

### Software and Services

- Microsoft Server Product Portfolio
  - Windows Server 2008 R2 Standard
  - Windows Server 2008 R2 Enterprise
  - Microsoft SQL Server 2008 Enterprise
- Microsoft Visual Studio
  - Microsoft Visual Studio 2010 Premium
  - Microsoft Visual Studio Team Foundation Server 2010

### Technologies

- Active Directory Federation Services 2.0
- Internet Information Services 7.5
- Microsoft ASP.NET 4
- Microsoft SQL Server Reporting Services

### Hardware

- 12 custom-build quad-core servers

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