GIS Plugs Into the Cloud

More Dynamic Applications for Location Intelligence
Drive Growing Preference for SaaS Delivery

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ABSTRACT

TERMS SUCH AS CLOUD COMPUTING, ON DEMAND AND SOFTWARE AS A SERVICE (SAAS) HAVE BECOME PREVALENT AMONG GIS USERS. CLEARLY, MORE DYNAMIC APPLICATIONS FOR LOCATION INTELLIGENCE HAVE SPARKED A GROWING INTEREST IN ALTERNATIVE MEANS OF DELIVERY, AND THIS WHITE PAPER OFFER INSIGHT ON THE FACTORS AT PLAY, INCLUDING:

• MARKET TRENDS THAT HAVE LED TO INCREASED DEMAND FOR SPEED AND FLEXIBILITY;

• THE SEVEN MUST-HAVE BENEFITS OF SAAS DELIVERY;

• WHY ON DEMAND APPLICATIONS ARE PARTICULARLY RELEVANT TO GIS USERS; AND

• IMPROVEMENTS IN SYSTEM AND DATA SECURITY THAT PROVIDE NEW-FOUND CONFIDENCE

AS MARKET LEADERS HAVE ESTABLISHED A PROVEN TRACK RECORD AND IN-HOUSE IT TEAMS HAVE GAINED CONFIDENCE IN INDUSTRY STANDARDS, GIS USERS CAN EXPECT MORE ON DEMAND SOLUTIONS IN THE YEAR AHEAD.

Figure 1: UI modernization pressures being pushed down on systems

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GIS users are no strangers to innovation.

However, given the role that location intelligence plays in mission-critical decisions, developments have been more evolutionary than revolutionary. Each new technology must prove its value before gaining widespread adoption.

Software as a Service is the latest GIS innovation to make the jump from trial to trusted. Referred to a SaaS, On Demand or Cloud Computing, it describes an approach to delivering solutions where providers host and manage software and associated data on behalf of their clients.

A full decade after such applications were first developed and piloted, SaaS has now become a more preferred method of delivery—and just in time.

An explosion of GIS applications along with expanded user populations have added pressure to already-strained IT resources. The sheer amount and growing complexity of location data and images necessitate increased capacity and bandwidth. Combined with heightened expectations for speed, many organizations have needed to employ outdated data, inefficient workflows or costly solutions. Cloud computing has changed the dynamics.

This Pitney Bowes Business Insight white paper examines the seven benefits of SaaS delivery that are most relevant to groups that depend on location-based information:

• Lower total cost of ownership

• Quicker time to value

• Greater resource utilization

• Continuous improvement

• Lower risks

• Enhanced customer experiences

• Intelligent collaboration

Not all SaaS applications are equal, however, and IT managers play an important role in assessing the reliability, stability and security of any off-site hosting platform. Given the long-term constraints of legacy systems, however, organizations are no longer asking "why SaaS" and have begun to focus on how and when.

On Demand and SaaS have finally come of age

Cloud computing is an approach to information processing where computing technology, including software and data, is provided as a service. In 2009, this method of delivery reached critical mass and accounted for more than 15% of all new software installations.

Delivered on demand, often on a pay-per-use basis, SaaS offers speed, flexibility and scalability that are highly valued in today's world. Clearly, market conditions have played a role in the emergence of SaaS as a preferred solution:

Globalization and e-commerce have changed the competitive landscape, making it easier for organizations to expand into new markets. The corresponding increase in competitive activity has heightened the importance of efficiency and customer loyalty.

Mobile technology and broadband networking have created a more agile workforce, forcing IT executives to find new ways to provide secure access.

The economic environment remains difficult, and organizations continue to take cost-saving measures. Capital investments are under constant scrutiny, making it more challenging to respond rapidly to changing business requirements.

Just as importantly, the emergence of standards with regard to security, privacy and risk management have created an environment where SaaS providers often exceed even the most stringent in-house practices.

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Not surprisingly, Gartner ranks cloud computing as one of ten strategic technologies for 2010. Based on current data, industry analysts forecast the SaaS market to grow at twice the rate of traditional enterprise software through 2011 – with 40% of all new business applications being SaaS-based by 2014.

The seven must-have benefits of SaaS

Unlike outsourcing—where companies pay third-party providers to perform functions—SaaS only changes how such solutions are delivered. In the process, however, organizations can expand their capabilities beyond the traditional resource constraints.

This is particularly relevant in the context of GIS, spatial analysis and location intelligence, where the core value of On Demand applications help organizations meet today's most pressing demands. The scalable, plug-and-play nature yields benefits across seven dimensions.

Lower Total Cost of Ownership. In most cases, organizations subscribe to On Demand solutions under pay-as-you-go terms based on flat fees or system usage. No investments in hardware or long-term software license agreements are required, so organizations can save money right from the start. Costs and resources to deploy new IT initiatives are significantly less. Plus, with fewer servers to maintain, less data to manage and no need to support constant updates, backups and versions, firms can accrue additional savings over time.

Quicker Time to Value. With no up-front capital expense, most organizations find that once a recommendation is made, internal roadblocks are few and the process to review and approve new initiatives can be significantly faster. No hardware installation is required, and solutions can often be deployed in a matter of days. Best of all, applications are immediately available to all users—regardless of location.

Greater Resource Utilization. SaaS provides organizations with a great degree of flexibility. If GIS business requirements change, organizations can easily expand, modify or end service without the financial exposure associated with in-house systems. The ability to rapidly scale software access enables organizations to respond to market opportunities quickly, unencumbered by limited IT resources, systems queues or data capacity constraints. IT execs can then focus in-house resources on other mission-critical programs where On Demand applications are unavailable or simply impractical.

Continuous Improvement. SaaS providers host and manage all software and data on behalf of their users, so organizations always benefit from the most up-to-date software, the latest upgrades and the most current version. Instead of waiting to receive and implement new releases on pre-set schedules (perhaps once a year), users can simply log on and enjoy every enhancement, including updates to all third-party data sources. With regular data updates, applications run using the most current—and most accurate—information available. Plus, users benefit from a steady stream of incremental improvements vs. major-all-at-once changes.

Lower Risk. Operationally, organizations can shift the burden of a successful deployment and management to the SaaS provider – the party with the most expertise and experience with the systems and software. While there may be a perception that an outsourced solution increases risks, leading vendors will often offer greater reliability, more secure environments, better privacy safeguards and built-in redundancies that exceed in-house expectations.

Enhanced Customer Experience. Suppliers of On Demand solutions are not interested in one-off transactions; their profitability depends on stable, growing, long-term relationships. As such, vendors need to "win" their customers' business day in and day out. Often, that translates into more intuitive, easy-to-use interfaces,

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increased availability and high levels of performance. The ability to track and monitor usage also provides the application development team with direct insights on ways to improve workflows and usability over time, which can often lead to more frequent updates.

Intelligent Collaboration. For many organizations, the inherent connectivity of SaaS may be the most important benefit of all. In today's era of collaboration, the ability to support 24/7 community computing—anytime, anyplace, across all time zones—can provide significant advantages. On-demand data portals ensure consistency across an enterprise, and facilitate data sharing within and across departments.

SaaS advantages especially relevant for today's GIS market

On Demand applications now add value across a broad range of business needs, but are particularly relevant in environments that rely on spatial data and location intelligence where managers must deal with issues around growing complexity, data security and cost management.

The sheer volume of data

The one thing certain about the future of data is more data. 70% of all business data has a location component, and as organizations capture, store and archive more information, the need for location intelligence grows exponentially. In many organizations, geocoded address information has become the common language that allows users to make connections across disparate systems. Unfortunately, without the shared access of SaaS, many users cannot readily access all of the necessary data sources; and with infrequent updates, the available data may not always reflect the most current information.

A growing number of users

Once in the domain of GIS specialists, today location intelligence drives day-to-day decisions in virtually every facet of a business, from marketing and sales to operations and risk management. With the proliferation of consumer-oriented mapping applications and more intuitive interface designs, companies need to put geo-analytical tools in the hands of an increasing number of users.

The shift to customer-facing applications

In addition to providing direct access to GIS tools to in-house decision makers, sales teams and call center staff, many organizations are finding ways to cut costs and improve service delivery by deploying self-serve tools that customers can navigate on their own. In telecommunications, for example, customer learn whether coverage is available for certain services; in property insurance, policyholders view the path of oncoming storms; real estate brokers showcase homes; citizens locate nearby government services; utilities pinpoint where it is safe to dig; and most every business provides consumers with store-mapping capabilities.

Growing complexity of data

Today's leading spatial analysis tools can process an enormous amount of data from multiple sources, volumes that can overwhelm in-house servers and desktops. Going forward, as more organizations incorporate 3D imagery and more precise mapping graphics, speed and capacity will be in even more demand. The unlimited computing power of On Demand solutions will help organizations solve problems that previously were beyond their reach.

Increase in mobile applications

Mobile GIS technologies including GPS, smartphones, mobile apps and wireless communications are creating many opportunities for innovation. Field-based GIS is an area that is particularly relevant to industries that deploy service teams, such as utilities. Today, individuals can collect, view, validate and update spatial data in real time, on location.

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The other growth area involves location-based services, which is particularly attractive in industries where location-convenience is a key benefit to consumers, such as banking, retail and restaurants.

Speed of innovation

GIS and location intelligence are evolving at such a rapid pace. IT organization can easily be overwhelmed by the speed of change. The fact that SaaS users often benefit from an ongoing stream of enhancements and upgrades make it easier to respond to market opportunities quickly. Likewise, companies cannot afford to be constrained by long-term licensing agreements when new and improved applications are available.

Success factors: security, scalability and expertise

As location intelligence plays a role in supporting mission-critical applications, many GIS users have stood on the sidelines waiting for the dust to settle before migrating to SaaS. Today, the demand for On Demand has taken off as market leaders have established a proven track record and GIS managers and IT teams have confidence in industry standards.

Top-tier technology vendors have made systems and data security the top priority, but IT still needs to validate whether potential solution providers adhere to industry best practices.

In many cases, an On Demand solution may be more secure than in-house alternatives, providing a safer environment than traditional GIS. When comparing possible vendors, look for:

• infrastructure redundancy

• 24/7 physical security

• multiple firewalls

• intrusion detection

• encrypted disk partitions

• SAS 70 Certification

The long-term stability and financial wherewithal of a company are also important factors to consider. Pitney Bowes Business Insight, for example, deploys SaaS on PBBI-owned equipment, using PBBI-owned software, managed by PBBI employees. Data and software solutions are hosted at redundant sites across both the U.S. and Europe. This built-in capacity, financial strength and long-term commitment to the industry helps ensure that clients can enjoy security, scalability and expertise both today and tomorrow.

Pitney Bowes leads with MapInfo® Stratus™

Since introducing the world's first desktop GIS application in 1986, Pitney Bowes Business Insight has helped organizations find new ways to profit from the power of location intelligence.

Building on their pioneering efforts in cloud computing, including Spectrum™ OnDemand, Envinsa® Online Services and VeriMove™ Access, Pitney Bowes Business Insight also makes it easy for GIS users to take advantage of the speed, flexibility and cost-savings achievable through SaaS.

MapInfo® Stratus™ enables organizations to rapidly deploy online web mapping, so owners of spatial data can share information with decision makers, employees, customers, citizens, business partners and other stakeholders. Delivered as a SaaS solution, it has little or no maintenance cost and is managed through a Web-based administration console.

This next-generation of web-mapping is built upon a foundation of PBBI strength, stability and reliability, and users benefit from a secure hosting environment, SAS 70 standards and network redundancies. In addition to rapid deployment and an enhanced user experience, organizations can take steps to eliminate hardware costs, optimize IT resources, reduce total cost of ownership and respond quickly to new business demands.

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