

# Why the Cloud Matters to HVAC Contractors

There's a silver lining in this cloud, and HVAC contractors are going to want to know about it.

By Bill Wright

**F**ield professionals routinely face the challenges of handling a complete sales presentation, then the design-to-commissioning cycle, concluding with customer service interactions, often entirely on their own.

HVAC contractors are required to spend most of their time on the go, moving from one customer site to another, all the while taking a wide variety of calls and requests for their attention.

Contractors are using a variety of different systems to create, access, and edit project information about HVAC loads, equipment installed in buildings, proposals, sales or service appointments, customer notes and history, and more. For the most part, these systems are disconnected from each other and are rarely linked (or easily linked) to the computer system at the main office.

This creates the need for a considerable amount of manual communications within the company. The potential for errors as information is passed from one person to the next is high and also makes it difficult to find specific information when it's needed later on.

The current approach to designing HVAC systems can be dramatically improved by giving everyone involved in the process easy access to a common computing platform. That way, contractors can monitor and interact with project information at any time and from any place. The computing platform needs to support load calculations and equipment selection, and also complete customer interactions



PHOTO BY: MYCHAL BEAN

Jon Wayne Heating & AC's Comfort Advisor, Carlos Felix, uses Wrightsoft to explain to homeowners how their home's size and build affects the HVAC system that their home will require.

throughout the sales cycle.

The system must enable multiple users to collaborate and share information. Field professionals must be able to easily and reliably write new data from the field. Since a data communications failure at a critical moment in the selling process can lose a sale, all sales representatives and other contractor employees must be able to read and write data with high reliability. It's absolutely critical that project information not be lost, so "durability" (in the parlance of techies) must be essentially perfect. The highest level of data security is required to protect confidential customer information.

Over the last decade, increased computer, networking, and data storage capabilities have enabled data centers to deliver computing services in real time over the Internet. Amazon, Google, Apple, Microsoft and other companies have developed multiple data centers that provide computing power to users over the Internet.

The huge growth in web-enabled computing services — now known as the "cloud" — has taken flight, thanks to the large scale pooling of technical talent and innovation, chiefly the work of experts within a few companies. Operating on a global scale, these companies have created a capability with immediate and far-reaching impact.

In the past, only very large companies had the resources to build data centers capable of providing leading edge computing services. The cloud evens the playing field by providing state-of-the-art computing services to everyone on a pay-as-you-go basis. Demand for these services is growing rapidly.

## Faster, Better Tools

Seeing an ideal opportunity to improve its services and user outreach, managers at HVAC design software company, Wrightsoft, moved quickly into cloud computing.

I was convinced that cloud computing would offer immediate and broad scale improvements to everyday contractor operations. After all, there are no risks or compromises — only faster, better, more accessible tools and communications.

With many cloud-accessed web services, there's a guaranteed access time of 99.95%. Data durability in the highest-level data storage is equivalent to losing only one item out of 10,000 every 10 million years. It doesn't get much better than that.

## Bringing Load Analysis Software to the Cloud

The cloud provides a platform for housing tools such as Right-J Mobile (for Manual J load calculations) and Right-Mobile Consultant, a web-based sales tool that automates repeatable sales processes.

Wrightsoft developers used a single data object to encapsulate everything involved in an HVAC project – location, building details (BIM), equipment data (BOM) and system design information. They designed all programs that touch the data to jointly access and integrate with it, making it possible for users to share information for common use cases.

## Here's an Example

A typical use occurs when headquarters receives a new sales lead and creates a new project file with the customer contact information. The field sales consultant visits the customer's site for the information needed to calculate loads and to make equipment selections.

Using a mobile device, the consultant analyzes the HVAC loads, selects the equipment and writes the proposal. During the process, the consultant realizes that additional information is needed. The consultant completes the proposal except for the missing information and saves it to the cloud. Headquarters uses a desktop computer to review the proposal and adds the missing information. Then they notify the consultant that

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## Virtualization

**C**rucial to the cloud is the concept of "virtualization" which allows dynamic instances of computer images to be readily cloned. Virtualization has had a major impact on enterprise computing by configuring servers, storage and networks into readily available pools of resources that can be applied on demand to meet the needs of business and dynamically scaled to match current loads. The concept of cloud computing goes beyond virtualization by coordinating the delivery of resources in order to automate the provisioning and configuration of virtual machines.

Hardware load balancers are a common network appliance used in traditional web application architectures. In modern cloud systems, these load-balancers can dynamically shift sudden increases in user traffic to new virtual servers, yielding a scalable, automated intelligent system.

The accessibility of the cloud has been complimented by the proliferation of mobile 3G and 4G services that enable users to access the cloud from customer sites or anywhere else where they have a wireless connection. The number of cell towers increased from 183,000 in 2005 to 253,000 in 2010. Currently, 96% of the U. S. population has wireless data access and all major population centers have 3G wireless data services, which are suitable for accessing the cloud on a laptop or tablet computer. Large metropolitan areas have even faster 4G service and 4G is being rolled out to smaller areas as well. So chances are that wherever HVAC sales representatives go they will be able to access the cloud via a wireless data service. —BW

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the proposal has been completed. The consultant accesses the proposal from the cloud and emails it to the customer.

After the customer accepts and the company's installer shows up, tablet in hand, he opens the project file and sees the notes left by the consultant. This way, no promises are left unfulfilled.

### Years of Info Access

Several years later, a service technician is called to the site and needs information about the equipment that was used. He accesses the project file from the cloud, getting all the information he needs. After the problem is corrected, he makes an entry to the project file.

A few more years pass and a different field service technician is called to the site. He accesses the project file and sees that the first field service technician had previously been on site. He calls the first field service technician to discuss the project. After he fixes the problem, he adds new information to the project file.

The ability for each of the involved parties to seamlessly participate in the equipment selection and field service process offers huge benefits to the contracting firm and end-user. Technicians can use a tablet computer to enter projects into the system while other people on the extended team – including equipment manufacturers, consultants, and others – can


help to ensure that the highest quality standards are met.

If the customer calls in with a question while the person who performed the load calculation is out of the office, the question can easily be answered.

### Where the Rubber Hits the Heat Load

Use of the cloud to enter sales information also simplifies business management. A sales manager can see what projects are in the pipeline, which ones are about to close and which sales consultants have the best closing ratio. From the equipment manufacturer's perspective, the cloud makes it possible to support dealers at the project level to a much higher degree than is currently possible in areas such as financing, permits, and code compliance.

Wrightsoft has developed HVAC load analysis software based on cloud technology that delivers immense capability, inexpensively. Contractor data can be entered and accessed by any authorized professional. By enabling professionals to collaborate with ease while solving customer problems, this

new technology can enable HVAC contractors to provide a much higher level of customer service while reducing costs. 



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