

The Internet, e-Commerce and Facilities Management

By Eric Teicholz

INTRODUCTION

The Internet has already dramatically altered facilities management and how FM practitioners interact with their design consultants. With the rapid deployment of e-Commerce, this relationship will again undergo a dramatic change. This article explores the new web technologies in the context of facilities management.

FM TECHNOLOGY EVOLUTION

Computer-Aided Facilities Management (CAFM) goes back almost 20 years when vendors such as Archibus (<http://www.archibus.com>), FM:Systems (<http://www.fmsystems.com>), SPAN (<http://www.peregrine.com>), Drawbase (<http://www.drawbase.com>) and Aperture (<http://www.aperture.com>) started linking database applications to CAD programs in order to perform facility related functions. Initial applications, besides FM CAD tools, were mostly related to tracking space and physical assets such as furniture and equipment. Occupancy drawings, depicting physical location and departmental organization of staff, were often developed by getting lists of staff and locations from corporate Human Resource (HR) or Information Technology (IT) groups and re-entering this data into the CAFM system. As PCs became more powerful, and CAFM more mainstream, vendors evolved along two paths: either they developed additional FM applications (e.g., work, real estate, and cable management, space planning); or they built links to established third party software packages that performed these functions.

With the advent of more powerful databases in the early 1990's, it became possible to disburse applications and databases throughout the enterprise, which in turn eliminated much data redundancy and sped up processing time. In general, however, the software architecture of most FM vendors was based on an integrated suite of software sharing information between applications.

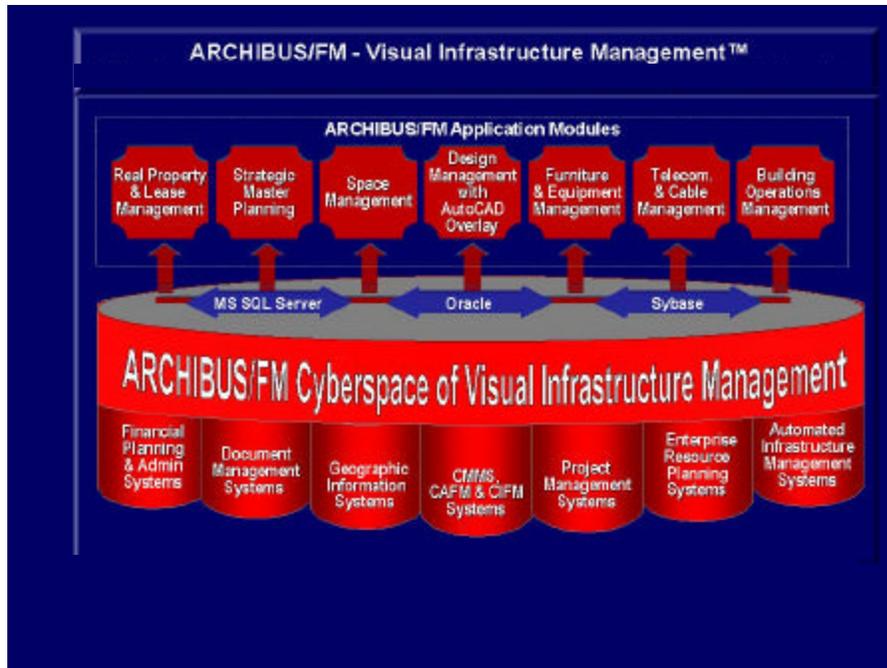


Figure 1: ARCHIBUS/FM Software Structure

THE INTERNET

A little over nine years ago, a scientist figured how to link together similar data stored on different computers by simply clicking on a picture or a word. This discovery, along with a mechanism (hypertext markup language or HTML) for describing how a site appears on a screen and an easy-to-use common access/navigator tool (the browser) for moving between sites, led to the formation of the World Wide Web (WWW)¹. The Web was initially adopted by CAFM vendors as a simple reporting mechanism. CAFM output reports were generated in an HTML format and posted on corporate Intranets to internal clients that could access the reports using a browser. These static reports were somewhat clumsy since they had to be posted on the Intranet site and then accessed by remote users. The data was only as current as the last posting of information.

Reports soon became dynamic using technology that enabled the report to be generated on the fly by interacting with the CAFM software directly. In the network speed was sufficient, Intranets were deployed to distribute dynamic reports and drawings to interested individuals. CAFM vendors still used the web as a reporting mechanism and did not take advantage of the fundamental Web element to effortlessly link multiple web sites together. To maintain integrity, the software was still centralized and tightly integrated. It continues to be difficult and expensive to link external software programs to CAFM systems on the Internet.

This software model is becoming increasingly unworkable for a number of reasons. For one thing, new vendors are increasingly offering stand-alone FM software applications on the Internet. Such services as fleet management, space planning, help desk and work management, furniture layout, asset management, room scheduling, project management, etc. are all being offered as stand-alone web-based applications. These applications are fragmenting the FM function itself for many organizations because the provision of these functions is so easy and inexpensive on the web that much FM functionality is shifting to non-FM professionals. VISIO 2000's (<http://www.visio.com>) FM templates are an example of such functionality that is available for just a few hundred dollars. This web application migration is impacting current CAFM vendors because of overlapping functionality and a very different cost model for web-based products (people do not seem to want to pay for information provided on the Web). Seeing this trend, some CAFM vendors are trying to incorporate some of the stand-alone applications (i.e., FIS's support and use of VISIO 2000 as a front-end to their software). In the long run, however, the web-based applications are likely to pose a threat to traditional CAFM vendors unless they change their Internet software architecture as well.



Figure 2: VISIO 2000 FM Template

Project/collaborative web sites represent another major impact on how facility managers and their design consultants are doing business and using FM technology. There are currently over 60 software vendors offering project web site software – primarily for managing construction projects.² These sites traditionally offer document management services and track project



Figure 4: Autodesk's Buzzsaw web site

E-COMMERCE AND FM

To use Internet parlance, we are entering a B-B ASP world. That is, financial venture capital funds fueling Internet start-ups (e.g., Softbank, CMGI, ICGE) are betting "big time" on the Business-to-Business (B-B) Application Service Provider (ASP) model. This means that businesses will be hosting e-Commerce web applications for other businesses. The projected numbers are significant: in 1998, B-B revenues were \$12B, of which 'services' accounted for \$1.4B (there is no breakdown for A-E-C services); in 2002, there will be \$131.2B B-B commerce with 'services' accounting for \$18.4B of that figure. This represents over a 10-fold increase in e-Commerce services in four years! Project construction web sites, for example, will not only share documents but construction materials and services will most certainly be purchased on-line with manufacturers literally bidding on-line for the business.

To cite a parallel, in the December 3 edition of the Wall Street Journal, General Motors and Ford, "icons of the Old Economy", announced plans to establish online bazaars for all goods and services they buy – "everything from paper clips to ... contract manufacturing." The motivation is to cut costs. It is estimated that billions of dollars will be saved over their

current procurement processes for goods and services. All suppliers will have to go through their sites by the end of 2001. In the A-E-C services world, there are literally hundreds of companies being formed that are trying to be the e-marketplace where it is possible to bid on and procure building supplies and services from manufacturers and consultants worldwide.

The author is involved with an Internet B-B ASP furniture start-up called e-Furn that will illustrate how the web and E-commerce will influence the life cycle of furniture. E-Furn grew out of a 'bricks and mortar' furniture service company that developed databases for manufacturers that were in turn distributed to dealers and major corporate accounts. The dealers often would perform 'value added' services such as design, costing, procurement and installation. The company also distributed software that enabled dealers to perform 3D design with a specific furniture line and then create a detailed bill-of-materials list for the resultant solution. With the e-Furn Internet portal, the software services will all be on-line. Users (businesses, not just dealers) will be able to compare hundreds of furniture lines, select the one that best meets the design/cost criteria, and then send the resultant order initially to the dealer and, in the long run, directly to the manufacturer. Services such as pricing, procurement, move management, inventory (of existing furniture), corporate standards, move simulation, accounting, disposal through auction, etc. will all be performed on-line.

What is becoming increasingly clear is that the Internet will continue to exert an ever-increasing influence on how we do business. Design consultants need to understand B-B ASP implications and be ready to host design and other services for their clients linked to e-Commerce sites.

About the author

Teicholz was trained as an architect at Harvard and taught at the Department of Architecture, Graduate School of Design, for 15 years. After leaving Harvard, Teicholz founded Graphic Systems, Inc. (<http://www.graphsys.com>), a FM technology consulting company. He is the author of nine books and hundreds of articles on technology and facilities management. He is currently completing "Facility Design and Management Handbook" for McGraw-Hill. He can be reached at teicholz@graphsys.com.

Footnotes

¹ The Internet actually existed for almost twenty years before this but was used almost exclusively as a communications mechanism between universities and large research centers.

² Dr. Joel Orr publishes an excellent newsletter tracking project Extranets. The newsletter, called Extranet News, is available free of charge from Joel's web site (<http://www.extranets.cc>).