Long Distance Operator

Museums Keep High-Tech Exhibits Running Via PC-Based Operating Systems and Support Networks

by Judith Rubin

From a laptop at his office in Orange, Calif. - or from wherever he happens to be traveling at the time – Mad Systems' Maris Ensing can troubleshoot and repair a sophisticated exhibit control system in Buford, Georgia without ever leaving his seat. Via a secure Internet link, he can view the facility's system operating screens and make changes or recommendations, without any need for a site visit. "For most of us, getting to a computer is a matter of minutes, a lot faster than getting in a car or on a plane," says Ensing. "More than 90% of the time it is simply a matter of logging in and having a conversation with someone at the museum, showing them what happened and what we're doing to fix it."

Ensing is CEO of Mad Systems Inc., an AV systems integration company that specializes in the museum market, providing what Ensing calls "educational infrastructure." Mad Systems designed and installed the custom control system that operates all the exhibits and the award winning Blue Planet Theater at the Gwinnett County Environmental and Heritage Center in Buford, GA, a new facility that opened in September 2006. Mad likewise provided the control system for all the new exhibits at the award winning Griffith Observatory in Los Angeles, the celebrated 1935 facility which reopened in November 2006 after four years of renovation.

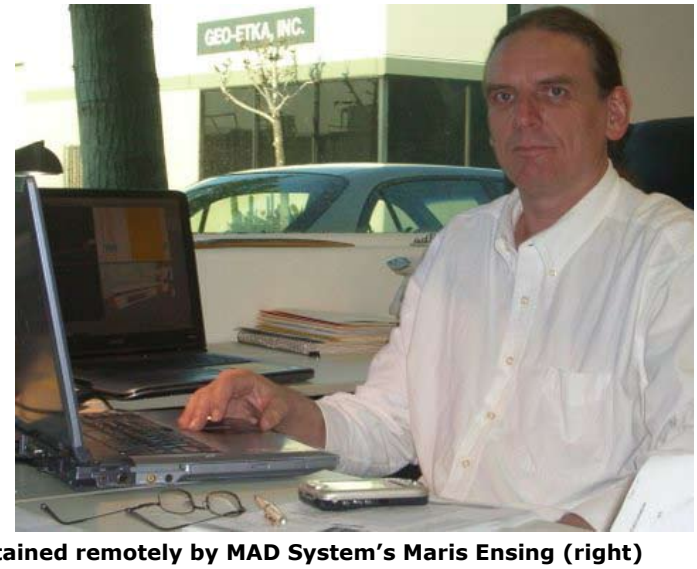
Both institutions – large museums with complex multimedia features and demanding operating schedules - opted to activate a VPN link empowering Mad to furnish remote support if needed. Because the backbone of their control systems is a series of dedicated, networked PCs and servers, implementing the remote link is a natural extension of what's already there.

Each uses the support system in its own way.

Gwinnett

"God will give you a storm every now and then," says Steve Cannon, Executive Director of Gwinnett, "and it may wreak a little havoc on your servers. The power company will put their two cents in, and give you a spike. Our system was designed with several presets, and you've got to be pretty savvy in how you bring the system back up and reset those after a blackout, or it can mess up your schedule. With the online interconnect to our system, the people at Mad can see problems remotely. They can work interactively with our staff to resolve problems, looking at the system while they talk with them over the phone."

Centerpiece of the 59,000-square-foot, $16.6 million Gwinnett facility is the Blue Planet Theater, which uses water to tell the story of water via a mix of audiovisuals and multimedia including high-def video projected onto a waterscrim (a surface made up of many very fine jets of water),



Exhibits inside the Griffith Observatory (left) can be maintained remotely by MAD System's Maris Ensing (right)

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>
> **Steve Cannon**
> **Gwinnett Heritage Center**

mist, simulated rain and waterfalls, a 9-foot-diameter reflecting pool from which a topographical map emerges to become a projection surface, lighting, and effects such as seat rumblers. The Blue Planet Theater received a 2007 MUSE Award from the American Association of Museums (AAM), distinguishing the work of the creative team headed by design firm Van Sickle & Rolleri, Ltd. and including media producer Cortina Productions, fabricator Exhibit Concepts, and Mad Systems.

Cannon described Gwinnett's busy weekly schedule. "Weekdays, 10:00 am-1:00 pm, we run a K-12 program with 300-400 kids a day coming through here. Kids can be rough on equipment - that is no secret – and making an instant repair is a focal point. From 1:00-5:00 pm we may be in the conference market. From 3:00-7:00 pm we serve the academic market. Saturdays, we operate as a fullblown museum. On a Sunday at 10:00 am, we might have the ribbon cutting for a 5k race, and later a corporate dinner or wedding that could go to 2:00 am. At 7:00 am Monday, we start all over again. When you try to work around these different schedules, it becomes complex. If a component goes down, you've got to get it back into service real quick."

Gwinnett keeps two staff members dedicated to the operating system: an AV electronics specialist and an IT associate. "It takes 56 servers to run that system. Your unskilled staff can't maintain it, but someone trained in AV multimedia and computers will do just fine," says Cannon.

Inevitably, there are times when the full staff isn't available, or a situation arises that calls for custom settings. "We benefit from the service relationship," says Cannon. "I can call anytime, and Mad Systems gets back to me in a reasonable time. Maris and his team will call you back."

Griffith

Griffith Observatory's redo budget was $93 million and the facility has some 70,000 square feet of exhibit space. According to deputy director Mark Pine, they don't actively use the remote support so much as depend on its being there as backup. "Remote access was very valuable in the first days and weeks before

The exterior of Griffith Observatory and deputy director Mark Pine *Images courtesy of Wikipedia and Mad Systems*

and after reopening, when we had issues we could not deal with on our own," says Pine. "As time passed, our staff learned more how to do things themselves. Anything controlled by a computer is likely to have problems now and then. We do a little bit of that every day – resets, workarounds, patches - but the need gets less and less. We don't have a lot of problems - which is exactly the way you would want it to be - but knowing that the [remote support] capability continues to exist is reassuring. The whole point of it is that you don't use it. The system was built well to start with."

Griffith rarely departs from its set schedule. "We are in the same mode all the time, and only closed on Mondays," says Pine. "The system is preset to turn on earlier for school programs Tuesday through Thursday, and to accommodate the weekend operating hours. Sometimes, for special events, we need to go in and manually turn things on." Griffith's tech staff of seven are responsible for maintaining all the building operating systems in addition to the exhibits, the Samuel Oschin Planetarium, the Event Horizon theater and the sales system.

Pine directed an exhibit design team that included, along with Mad Systems, designer C&G Partners LLC, exhibit fabricator Maltbie Inc., and media producer Russell Brosnahan Haffner Multimedia. In addition to providing the master control system (which includes some 80 computers and servers) for Griffith's exhibits, Mad applied its engineering and tech wizardry to several custom displays, notably the telluria (working models of the solar system that demonstrate the effects of the Sun and Moon on Earth's environment) and Magic Boxes (animated miniature object theaters that illustrate significant astronomical principles and moments in history). Griffith Observatory was honored with a 2007 Design Award for its exhibits, from the Society for Environmental Graphic Design (SEGD).

So far, the biggest system operations challenge was due to a fire in Griffith Park. "We had to shut every system down," recounts Pine, "- not just all of the exhibits, but things that hadn't ever been shut down before, so that we could shut down the AC in order not to ingest smoke into the building - and then leave, because the fire was approaching." The operation was a success. "The Observatory was essentially completely unaffected by the fire," says Pine. "We had been able to turn it all off and bring it all back up again afterward."

Don't Write Grandma a Note

Ensing is the first to agree that the remote support system should be relied on primarily as a comfort factor. "If it's something you have to have to keep the system alive, then the system wasn't built properly to begin with. But it allows us to see a client through. When they have us on the other end of the line, they have that extra bit of security."

It also isn't a complete substitute for the occasional site visit. "Not

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all facilities can afford to retain significant maintenance staff," says Ensing. "It's desirable to check on the facility a couple of times a year just to make sure everything is OK, take the opportunity to discuss things, help train any new staff and keep an eye on the behavior of the system as necessary."

"These PC-based systems are so flexible in terms of what they can do," continues Ensing. "For instance, you might find that you have a need to do audio editing, and the system will support it. You might have a special event – for instance, the auditorium of the Blue Planet Theater is a beautiful room for a wedding. We could show them how to use the lighting cues to spotlight the wedding cake. Or you might want to run Christmas music in the retail space, or check on the remaining lamp hours in the projector. It all comes out of the combination of running PC architecture throughout and having the link to control it remotely."

But, Ensing warns, this versatility mustn't result in cluttering up the PCs with unnecessary software. "It's capable of anything that a bunch of networked PCs is capable of, but if you start loading things on and tinkering, bad things can and most likely will happen. These are dedicated system machines, specifically designed to run a museum and run shows, with minimal extraneous software to ensure stability. They are not office machines, and you have to look after the integrity of the system. You will not use these PCs for games or to write your grandma a note. The museum must strictly limit who has access."

Keeping Up

"You've got to have one of these systems if you want to be in the market or be ahead of the market," says Cannon, "especially if you are in science education as we are. Our business plan calls for an aggressive timeline. Every three to five years we may do a total changeout. Mad is a great resource for trying to think of what is the next latest and greatest. Even using the most current technology on the market - the day you buy it, it's old. If a facility takes a year to design, and 18-24 months to build, you're looking three years out. I don't know that we have one thing in this building that is on the shelf – they are all custom things that fit our educational programming. I couldn't have asked for a better design team, and Mad quickly became a very viable partner in their ability to solve tech problems to enhance the customer experience."

For more information:
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