Dandin Chronicles 2.3

A Different Kind of World,
A Different Kind of Company:
The Importance of Symmetry

Dandin, EDUCAUSE and the
AN-MSI Project

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A Different Kind of World, A Different Kind of Company

CEO Dewayne Hendricks on the importance of symmetric bandwidth, in the EDUCAUSE project and beyond

Particularly in the AN-MSI project, EDUCAUSE is looking for ways a rural school or college can act in a support role for the community, providing advanced networking services for e-business ventures and the like. The educational community has for some time demanded symmetric bandwidth, because they feel that their constituency needs to be producers instead of just consumers of data.

Streaming media will be coming down via the Internet, but there is a corresponding need for people to produce streaming media. The iMac DV is a prime example of the trend where people will be capturing and producing video and moving it around on the net, and the machine is being sold on that basis.

Most of the industry, the common carriers, are in denial about this. Billions of dollars are being spent on laying in place asymmetric networks. At the same time, they're consciously suppressing symmetric bandwidth as a source of potential competition—if they give their end-users as much bandwidth upstream as downstream, these people can become producers, and you can have people setting up their own broadcasting networks.

That's the big fear, and I really see the incumbents standing firm on this. They do this in a couple of ways. They basically say that people don't need this; they're spending a lot of money to do that.

The other approach is that they're just not going to allow it. Here in Fremont, because the city government got involved and took TCI/AT&T to task, when you call about @Home service here, they specifically have to tell you up front about the bandwidth upstream being limited to 128 kilobits. It's starting to hit the press that the networks aren't producing the bandwidth that people need, and they're in revolt.

The common wisdom now is that businesses need symmetric bandwidth. If businesses need symmetric bandwidth, why don't people?

Some of the incumbents say, "We'll post your website on our servers that are on the backbone, so nobody's going through to the machine in your home." They offer arguments for this that make it sound like it's a good deal, and for some people it is, if you just want to have a personal web page and there's not going to be a lot of traffic on it.

But then you get people who are really doing something, and they produce some content that people out there want to see, and they want to keep it on their own premises, for whatever reason.

People are going to want to produce, and as they keep pushing this bandwidth upstream and the networks fall apart, it's going to get pretty dicey. Those are the issues, and I think it's going to be a battleground, because the networks aren't being built to be symmetric.

The common wisdom now is that businesses need symmetric bandwidth. If businesses need symmetric bandwidth, why don't people, especially when they're running businesses out of their homes? That connection isn't being made—people at home are being perceived as couch potatoes, and this notion of doing home business doesn't arise.

Dandin has made a choice to go along with EDUCAUSE in seeing the need for symmetry. The network we're going to be putting in in Tonga will be symmetric, because we really feel that when you're putting an infrastructure in you need to do it the best way you know how, and you can't discriminate who's going to be a producer and who's going to be a consumer.

Dandin, EDUCAUSE and the AN-MSI Project

Later this year, Dandin will deploy wireless Internet connectivity in several remotely located colleges in the United States under the auspices of EDUCAUSE. These installations mark the beginning of a four-year project funded by the National Science Foundation.

EDUCAUSE (www.educause.edu) is an international nonprofit organization of over 1600 colleges and universities, as well as about 160 technology vendors, devoted to promoting the use of information technology in higher education. It spearheads policy initiatives, provides information and educational resources, and sponsors a number of conferences annually.

The particular project with which Dandin's involved—the NSF Advanced Networking Project With Minority-Serving Institutions (AN-MSI)—came about because of a longtime acquaintance between Dewayne Hendricks, now CEO of Dandin, and Dave Staudt, EDUCAUSE's Networking Extension Director.

Before coming to EDUCAUSE, Staudt spent 27 years at NSF, where he first met Dewayne in connection with some grant proposals. "I dealt with one of the proposals that he was submitting, and after that, every time Dewayne came in, we always talked. When I came to EDUCAUSE, we wrote a proposal to NSF to do outreach to minority-serving institutions. That resonated with NSF, and they funded it.

"Part of it was satellite and wireless stuff, and I thought of Dewayne and called him. And we are underway."

The NSF granted EDUCAUSE $6 million over four years, the purpose of the grant being "to materially assist Minority-Serving Institutions as they develop the campus infrastructure and national connections to become and remain full participants in the emerging Internet-based 'Information Age.'" Partnering with NSF and EDUCAUSE in the project are the American Indian Higher Education Consortium (AIHEC); Education, Outreach and Training Partnerships for Advanced Computational Infrastructure (EOT-PACI); Hispanic Association of Colleges and Universities (HACU); National Association For Equal Opportunity in Higher Education (NAFEO); National Association of State Universities and Land-Grant Colleges (NASULGC); and The College Fund / UNCF.

Scope of the AN-MSI Project

As that list suggests, the particular needs of the participating institutions vary considerably. Some colleges have a relatively clear idea of their Internet roadmap; others are just beginning to grapple with the issues. Some are better funded than others; some are located in rural areas while others are urban.

Nonetheless, says Staudt, they have some things in common: "Typically, they don't have enough money. They can't afford the kind of networking expertise they need."

The project's goals, Staudt explains, are threefold. "One thing we'll be working with them on is helping them upgrade their campus networks. We're trying to develop some campus-network templates, architecture templates, that these campuses can select from; that are well designed and have the ability to use a variety of different makers' hardware and software, so we're not getting locked into any one provider; and that have scalability, so if they're little and are going to get big, they can grow gracefully and with a minimum amount of expense.

"The second thing is that we will be working with them on Internet connectivity. That may be terrestrial, but more likely, for the case of the tribal colleges, it will use some satellite and wireless connectivity stuff, and that's where Dewayne and Dandin come in.

"The third part is that we'll be doing some remote technical-support centers. The idea here is that if these folks just can't attract networking people who can make the networks run the way they need, maybe we could have some centers of highly qualified networking people that we could pay whatever it takes, and who we could provide pretty interesting jobs to, who could do things like the campus-network architecture and the upgrades and stuff like that, and consulting with the campuses on security matters and on virus protection, and whatever else they want to do."

Dandin's Role

Dandin's role in the project offers an opportunity to apply the technology being developed for the Tonga project in the United States (more precisely, on Indian reservations, where regulatory exemptions are more likely to be forthcoming). Later this year, as part of the project's first step, Dandin will deploy its first Internet links to several selected campuses.

Says Staudt, "Dandin's role would be the connection of rural sites, starting with the tribal colleges and any Hispanic institutions that have connectivity problems because of the cost, or the fact that telcos don't want to put a line clear out there.

Dandin would assist with the connectivity for Internet connections and, hopefully, for telephony.

Telephony, Staudt admits, is technically not part of the project, but Dandin's VoIP capability is serendipitous in that "the FCC is very interested in getting telephony throughout the reservations for those people who want it but can't get it.

"We ought to have something in place by the end of the summer," Staudt continues. "That means we have to identify the two or three or so places where we're going to put in Dandin ground stations; do some wireless outreach, you might say, from the ground stations. That means that we've got a very short fuse here, like just six months or so."

Explains Dandin's Greg Jones, who's leading the project: "Once the EDUCAUSE sites are determined, we do a site survey to find out where the best location on each one of those sites is to install the VSAT. Normally that's near their networking facility. The VSAT consists of a satellite dish, a transmitter-receiver, and an interface to their network. You plug their router into the VSAT box, the VSAT box talks to the satellite dish, the dish talks to the geosync satellite, which then in turn talks back down to the ground station of whoever the VSAT provider is. From there you're plugged into the Internet."

Currently exploring options among various VSAT providers, Greg says one difficulty is finding vendors who support the symmetric bandwidth EDUCAUSE requires: "A lot of satellite providers are based on asymmetrical models, because it's easy to get lots of bandwidth from the satellite, and it's harder to get bandwidth to the satellite. It requires more power sometimes, or sometimes a bigger dish."

Still, he anticipates no major technical challenges in the project. "This is stuff that's been done for a long time. It's pretty straightforward," he says. "There are no major road hazards other than getting agreements in place and contracting for services and determining bandwidth requirements."

Beyond 2000

The existence proofs furnished by this year's work will fuel further projects for the rest of the grant's four-year life. Staudt says, "Toward the end of the second year, we will put out a call for an additional set of institutions who may be interested in the project by that time. And then we probably can do one more cohort, too, in the fourth year. The measure of success would be that we have worked with and served all the institutions that wanted to play in this field that we're working in."

One of the project's other goals, Staudt says, is to help in-

stitutions find funding to keep their networks up and running after this project ends. This, says Greg Jones, is especially critical because " you're putting these kinds of systems into locations that didn't have the money or the infrastructure to begin with. You hope that the people who are getting the systems in can continue to support the system."

Still, he says, it's often the up-front costs that keep these sites from getting connected; the ongoing cost is fairly minimal.

"One of the key things that we want to do is assure the continuity of the progress we make on this award," Staudt says, adding that he's hoping to garner support from the private sector.

"We'll be mounting an effort to go after funding sources to give them a coherent picture of what the needs are and what the benefits would be of providing assistance to this project.

"There is this great concern about the digital divide. They can help to bridge the digital divide by bringing online these people who are on the reservations, or in remote areas, or who are at schools where they just don't have the money to get up to speed, and therefore their education is not up to the level of a well-connected school. So it's a movement upward of society, and bridging this gap.

"What we're trying to do is demonstrate feasibility," he adds. "Where there are other places that like that idea, then we can see what we can do to find more funding, with something we can point to that works and that people who are using it like."