



Connectivity

Volume 1, No. 6

A Newsletter from UNL Information Services

August 2006

In This Issue...Render Farm • Firewalls • Invoice Locker • Also available at <http://www.unl.edu/is/connectivity.shtml>

Harvesting Images

IS plants Render Farm

Spring is a season for planting. Farmers place seeds in orderly rows; watering and fertilizing, allowing the crops to sprout and flourish. Information Services associates Aditya “Turi” Ivaturi and Andrew Frye are not farmers, but this past spring, they started planting a farm of a different sort.



3D room imagery processed by the IS render farm

Computer animation requires the use of “render farms”—a computer cluster with the horsepower to process all of the geometry, viewpoints, lighting and textures found in a single 3-dimensional image. Individual frames can then be compiled to create moving architectural walkthroughs of a building yet to be built—or, as in so many popular films, bring imaginary characters to life.

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What IT is...

Information technology is only as good as the people who install and support its ongoing usage. UNL Information Services is fortunate to have an outstanding staff dedicated to providing the very best in IT service. Always professional, they strive to keep their skills ahead of the curve in an ever-changing environment. As we begin a new fiscal year, I want to take this opportunity to thank them for their continued service.

I also want to recognize our partners in CIT, Shared Services and the various distributed technology units on campus. Finally, a special thanks to Dave DeFruiter and the NU Tech organization he helped establish.



Kent Hendrickson,
Associate Vice-Chancellor,
Information Services

In a continuing effort to secure UNL’s information infrastructure, Information Services has recently implemented multiple Cisco Firewall Service Modules (FWSMs) into the University’s network architecture. While it is a common practice to secure a company or organization’s perimeter to keep out malicious attacks, the FWSMs take a slightly different approach.

“The last thing we want to do as a University is to dictate blanket restrictions on how people and departments utilize the network,” continued Reimer. “So we don’t have some monolithic wall circling the perimeter of the UNL network. We do have firewall-like functionality integrated with our routers securing us against the most common threats, while

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Advanced Pain Relief

A new way to firewall

A firewall can be either a software or hardware device that blocks hackers, viruses and other dangers from zapping your computer network. It sifts and sniffs incoming information and if it flags any portions of the data, it doesn’t let it through. Not properly implemented, however, a firewall can block users from outside access or it can bog down a program’s performance—becoming a virtual pain.



Those perceptions, while valid, are a thing of the past, explains Zac Reimer, Network Security Analyst. “Firewall technology has advanced drastically in the past 10 years, allowing nearly all network applications to operate transparently through a firewall.”



Social Security Number Reduction Project

MILESTONES:

- 08/01/2006** Self-report SSN Usage
- 08/07/2006** SSN Inventory Report to Chancellor’s SAT
- 09/15/2006** SSN Exemptions Granted with Best Practices
- 01/01/2007** All Non-Essential SSN Use Eliminated

www.unl.edu/is/ssn.shtml

Fit Not to Print

UNL Technology Bills Go Electronic

UNL communications technology comes in all kinds of innovative flavors: land-line, wireless, broadband, audio/video conferencing, voicemail, text messaging...so, wading through a paper bill at the end of the month may seem a bit unappetizing. That's about to change. On July 1, Information Services Communications and Operations introduced Invoice Locker—a paperless bill system designed to electronically distribute communication invoices. Paper bills will be discontinued after August, 2006.



"Telecom bills for the University have grown to about 86,000 pages a month," says

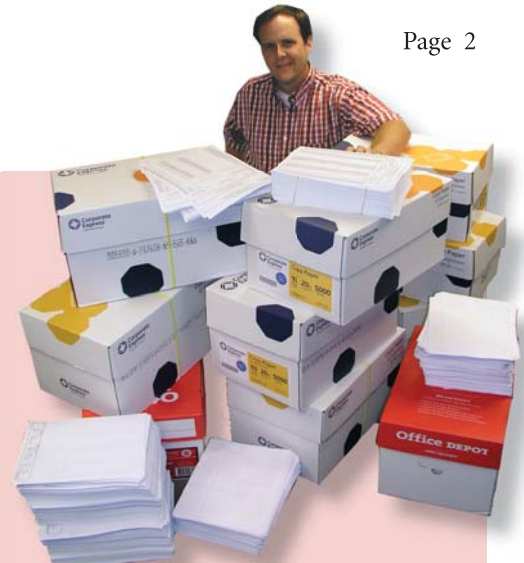
Richard Horner, Invoice Locker Project Lead. "It is a lot of paper to print, sort, send through the mail, and for our clients to work through. Invoice Locker is an economical, efficient bill delivery system. The bill is the same; the delivery has changed."

Horner describes Invoice Locker as a "stepping

stone" to database-driven billing. "We knew we wanted to transition away from printing bills, but we were sensitive to changing the type of bill our customers were used to seeing. We also wanted to do it in a way without negatively impacting rates."

Bill reviewers are authorized through the full client version of Lotus Notes. "We need to identify and authenticate clients to match them to the bills only they are authorized to see," says Horner. "Since Lotus Notes users are already authenticated, it provides a secure delivery environment."

When the month's current invoices are ready for distribution, IS will load them into the Invoice Locker application. Users will be notified of bill posting by email and can access Invoice Locker using the link included in the email. The actual bill is opened through either Adobe Reader or the Lotus Notes viewer. Current and past invoices are viewable by division or date.



Richard Horner and the former monthly paper bill delivery

The customer may choose to print and/or download the PDF bills to local storage.

"Invoice Locker will help our clients by providing timely distribution of invoices, a location to view their billing status and hopefully, get some of the clutter off their desks," added Horner. For more information on Invoice Locker, go to:

http://telecom.unl.edu/centrex/billing/billing_information.asp

Render Farm (continued)

"Andrew and I have talked about the need for a cluster at UNL since last fall," says Ivaturi. "There is real need for image rendering for departments like Architecture, Deal Labs and Film and New Media."



Render farm's processing power produces 3D images faster

"The idea is to provide the University with high quality rendering options," says Frye. We know animation software packages like Lightwave and 3ds MAX are being used on campus. We want to make this available to departments as well as for student projects."

The cluster would allow remote access from any designated workstation on campus. "Users are authenticated through Active Directory," explained Ivaturi. "Our queuing software allows users to copy files to the network drive and rendering of the individual frames begins. Just to give you an idea, Andrew had created an animation that took approximately 15-20 minutes to render on his

computer. The cluster rendered that same animation in less than a minute."

The cluster is made up of multiple servers with a storage capacity of 1.5 terabytes—with a potential expansion of up to 20 TB. Multiple jobs can be rendered simultaneously and batched by priority. "Right now we're doing a lot of testing and system configuration," explained Ivaturi.

The system was purchased as a result of an internal IS proposal process to kick-start innova-

tive new projects with one-time funding. "We're really excited about the rendering cluster," says Kent Hendrickson, Associate Vice-Chancellor of Information Services. "The proposal was well-researched and matched up very well with our strategic plan. There is great potential."

Ivaturi and Frye are quick to point out that the cluster is a starting point for the University. "This system isn't going to be the answer for all of the University's rendering needs," continued Ivaturi. "But it is a starting point and gives us some experience with rendering." The system will be piloted by selected groups throughout the year and is expected to be in full production by fall, 2007. Users are required to purchase licenses for the animation software of their choice.

For more information on the rendering farm, contact Andrew Frye in the New Media Center at afrye2@unl.edu

Firewall (continued)

allowing much higher performance than a standalone firewall." IS intends the FWSM architecture as a customized service that departments and colleges can use to protect their own networks and systems.

The numbers are impressive. Each FWSM can handle up to 100,000 connections per second, up to 1 million concurrent connections and over 5 gigabits per second of throughput. "The performance level is higher because the firewall functionality operates at the switch level instead of over the network cable," says Reimer. Scalability is license-based: a single FWSM can run up to 250 virtual firewalls.

"We currently have multiple academic and research groups using this firewall technology," says Reimer. "We're also in the process of migrating many IS servers and networks over."

Implementation of the Firewall Service Modules requires logistical planning of the network. "That means we carefully coordinate this process with the department making the request." Reimer says.

For more information on implementing the Firewall Service Module system in your department, contact Zac Reimer zreimer2@unl.edu

