Lubricious Transfer
Multisite Performance on the Internet

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Connecting . . .

Five minutes to curtain. The stage manager’s control booth
looks like a scene out of Apollo 13. Research assistants,
board operators, and network technicians stare intensely
at cameras, computers, and television monitors. I check
the status of our network connection. It has been una-
usually slow all week, busy with heavy traffic. But this is not
an everyday event, not a normal network, and certainly
not the time for a stalled connection. Tonight, perform-
ers in New York City and Santa Cruz, California, are
preparing for Lubricious Transfer, a collaborative work
specifically developed for simultaneous live performance
at two sites. This unusual dance performance is con-
ected by a high-performance communication link called
the “Abilene” network. Technically, Lubricious Transfer
requires continuous two-way streaming of six channels
of video and twelve channels of audio between New
York University and the University of California, Santa
Cruz. That is, three video streams and six audio channels
in each direction. For our performance to work, we need
guaranteed, uninterrupted connectivity of approximately
100 megabits per second (Mbps). Consumer-grade DSL
connection is about 10 Mbps. At the moment, the live
feeds from local and remote sites show clear signals. We
see the stages and hear the audiences.

Ever since Sherrie Rabinowitz and Kit Galloway
secured funding from NASA to bring remote participants
together to dance in the Satellite Arts Project (1977), artists
and performers have converged across time and space to
produce what has been called “telematic” or “Internet”
art. These late-twentieth- and early-twenty-first-century
artists interact via computers, digital media, and telecom-
munications systems to create collaborative works of art
and multisite performances in the place between real life
and virtual reality. These so-called “net artists” have cre-
ated an aesthetic that harkens back to the work of French
artist Marcel Duchamp (1887–1968) and the international
Dada arts movement that began in Zurich in 1916. Dada
championed the random as a means of expression. Some
of its members, for example, created poetry that relied on
instructions and chance word variations. Later, inspired
by Dadaism, choreographer Merce Cunningham worked
with musician John Cage to develop a method known as
“Chance Operations,” creating dance and musical phrases
using such methods as dice, cards, or coins to deter-
mine order, number of repetitions, direction, and spatial
relation. The net analogue of such instructions is “code”: 
the algorithms or set of steps for solving problems that form the basis of all software and computer operations. Early net artists embraced the bugs and viruses that these codes carry, accepting mistakes, artifacts, and ruptures as emergent properties of a technologically mediated environment. The power of chance invention produced a net aesthetic that can create an “out-of-body experience,” the telematic artist Roy Ascott said, “joining up with others in the etheric, electronic, and totally timeless space.”

Curtain time. I look at the clock, glance at the monitor. I feel the stage manager’s eyes on me. I take a deep breath and nod. She smiles tensely. I watch house lights darken in New York and then California like a rapid eclipse of the sun. In the control booth, I hear the technical director speaking into his headset. Fifty cast and crew coast-to-coast are all ears. Places. Lights, cameras, and computers set. Cue 1: GO. The stages glow as that familiar “Connecting . . .” symbol projects onto sixteen-foot-tall screens encircling the stages, illuminating the performers. A geeky, squawking “handshake” sound file plays the forgotten noise of interacting telephone modems from yesteryear. The ellipses flash in sequence. It’s an insider’s joke that everyone knows. I hear the ripple of laughter cascade from California to New York and back again. It’s a quintessential moment of shared experience, all pretensions dropped. A dancer onstage suppresses a smile. I’ll talk to him later about that. But what can I say? Giddiness is in the air, literally. Three, two, one.

Waiting . . .

The Internet is a publicly accessible worldwide system of interconnected computer networks that transmit data using universally accepted standards, the Internet Protocol (IP). Despite the tendency to think of networks as connecting computers, they actually connect people using computers to mediate the exchange. Hypertext Markup Language (HTML) may not be the most significant advance in computer science over the past fifty years, but it represents a whole new way for people to communicate. Internet, a public/private research consortium experimenting with high-bandwidth transmission of data, understands that the great success of the Internet is not in its technology but in its human impact. Their main goal is to develop networks like Abilene that guarantee quality service and reduce network congestion. Because interactive multimedia requires multiple stages of processing—from audio/video capture and data compression that allows the signal to “stream” over a network to data decompression and computer generation for playback—transmission takes time. Slow computers and congested networks mean greater delays. The longer the delay, the more one waits for something, anything to come across the blank screen. In radio, unexpected silence is called dead time, because when someone stops talking it usually means they have stopped breathing. In the world of net artists, it’s called . . .

Nothing. I glance at the monitors. Blank. I look onstage where the “Connecting” ellipses flash mockingly . . . where’s New York? In California, a quick-witted stagehand strolls on stage with a dry mop, sweeping around the dancers, humming to himself. The audience roars its approval. They think it’s staged. I can’t breathe. A split second later we hear the roar from California to New York and back again. A portal opens. The images of dancers in New York pop onto the screens in California (and vice versa). It reminds me of the first time I saw a television switched on. I was five and it was like magic.

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an eye. Another performer in New York sees that and moves in response. The audience in New York sees both together, but the audience (and performers) in California sees the New York contribution 200 milliseconds after the first movement was performed in California. Our performers liked to joke that if you “blink twice you'll miss the show.”

While the seemingly simple act of establishing an Internet connection has the immediate presence/absence consequence, latency has more basic artistic ramifications. First, audiences in local and remote locations are not seeing or hearing the same thing at the same time. And second, it is virtually impossible for performers to work in unison for more than a few happy accidental moments. Accordingly, artists using the Internet for distributed performance have created models other than traditional ensemble coordination to realize their aesthetic goals. The composition of the work must reflect the realities of distributed realization. And yet, the experience at either of the live sites is much like a traditional concert. The sound and video quality is virtually indistinguishable, and the combined creative efforts of choreographers, composers, dancers, and musicians can lead to a performance that meshes powerfully.

Transferring . . .

Thirty seconds on. The middle screen is flashing on, off, on, off. It creates a surreal, slightly irritating vision, as though someone is flipping a light switch. Is it the net-

work, the computer processor, the video camera streaming from New York, the projector displaying the image in California, or just a ghost in the machine? Later, I am told that the audience thought it was an innovative turn, making the experience hypermediated by simulating the flickering image of a congested network. I am not that clever and, at the moment, I am not amused. I turn to the technical director and give him a pleading look. Please. Make. It. Stop. As though on cue, he reaches down and pushes in a cable the last -nth of an inch. Like magic (again), we return to a clear, crisp, nonflickering image.
of New Yorkers dancing across a California stage. I begin breathing (again).

We billed _Lubricious Transfer_ as a dance experiment in transcontinental collaboration using the Internet to broadcast to local and remote audiences in Santa Cruz and New York City. Our conception of _Lubricious Transfer_ was inspired by the ways electricity transmits the expressive and sensual nature of the human form: neuro-muscularly between mind and body, visually between embodied form and a viewer’s eyes, and technologically in data streams between East and West coasts. In this last way, we envisioned remote performers united in an aesthetic interplay. In reality, though, our chief artistic challenge was to make clear to our audiences that two groups of dancers, on opposite ends of the country, were performing together, interacting live. As my New York-based creative collaborator, Ben Munisteri, put it: “Here is a litmus question we may need to ask ourselves periodically during the creation of this piece: is this different than if live dancers merely performed with recorded images on stage?”

The first time I watched a multisite distributed performance, I was not impressed. I thought musicians were performing in front of a videotaped performance. One person on one side would do something and then the other person of the other side would do something. It was stilted, awkward, and not at all aesthetically interesting. I was more impressed by the happening-like spectacle of the event: computers, musicians, and images all striving to reach the other side. It seemed unplanned, improvisational, and chaotic. I returned the next night and saw something different. Cascades of images achieved an impressively impressionistic quality. The audience didn’t push any buttons, but they were implicated in the network. The transfer of information bypassed the autonomous status traditionally ascribed to works of art. It reminded me of the British art critic Lawrence Alloway, who once commented about network art, “all of us looped together in a new and unsettling connectivity.” I saw potential.

_Midpoint_. The dancers transform into streaks of color on screen. We’ve raised the stakes by adding another element into the data processing. We’re manipulating the video feed from New York on the fly, using a graphical programming environment called Jitter from Cycling ‘74. It adds color and special effects to the projected images. We see dancers’ bodies outlined in white, turned electric blue, and then saturated in a sea of saffron orange. Movements are shifted in time, repeated, and reversed. The images are enlarged to giant size, then disappear in a burst of stars. Each effect brings a new surprise, eliciting audience exclamations. All eyes are riveted to the scene, shifting between live and projected dancers; no one’s experience is quite the same as the next person’s.

Why is live multisite dance different from dancing with a videotaped image? Because the actors and audience believe it is so. In rehearsals, when computers fail to boot up or networks fail to connect, performers behave differently. Working with videotaped images is a secure medium. You know exactly where, when, and in what sequence those images will appear. It can make a performance feel safe though less vital. Audiences, on the other hand, may have to accept the distributed nature of a performance as an act of faith, but they also can sense interdependency with, between, and beyond actors. Audience members come to live theater to experience “something.” Art is the shaping of some material to provide aesthetic experience: a situation where one apprehends and in some sense enjoys meaning immediately embodied in “something.” A good audience knows when that something happens and when it does not. If that something depends on connection, then a recorded image is a poor substitute for the real thing.

Net art and distributed performance are motivated by all the same things as other art forms: desire, ideology, technology, and the urge to communicate a memory, experience, or ordeal. But it is also propelled along by a peculiar passion for experimentation. The main criticism that I have heard over and over is that any work that begins with or exists within the Internet environment could never rise above that limit to achieve the status of art. I do not agree, and that is why we produced _Lubricious Transfer_. In an art-historical sense, we wanted to test the limits of immediacy, navigating past the commercial format normally associated with browsers and pop-up windows, to amplify the themes of presence/absence, transmission, information, and networks formerly investigated by minimalism and post-conceptual art. We wanted to turn the idea of randomness on its head. We wanted controlled overload, planned deconstruction of space and time, less spectacle for the sake of spectacle. We composed movement and music that would look and sound good independent of preconceived reference points. We envisioned polyvocal images that united, rather than colonized, bodies in the electronic fetching of information and attention.

_Finale_. Dancers on both coasts move into formations that create the illusion of a never-ending line disappearing
into the horizon through a trick of space and time. In reality, it is a circle, bending from California to New York and back again. The piece concludes with slow falls, fading lights, and a last leap through the liquid (silver spandex) screens to the other side. Connection... done.

The irony, of course, is that what we achieved was in spite of overwrought theorizing. The most satisfying moments were unplanned, ruptures in the script. The miscues, mistakes, and artifacts enriched rather than impoverished the work. Our attempt to harness the power of the Internet—much in the way dancers harness the kinetic energy of their bodies—broke down in the face of unexpected variations in latency and design. Our clean, streamlined choreography became at times enmeshed in a miasma of images and bodies. Roy Ascott summarizes this experience nicely: “Networking is a shared activity of mind and a form of behaviour that is both a dance and an embrace. It brings about a convergence of ideas from scattered sources, which, then, amplified, plotted, or stacked, diverge out into branching pathways of meaning.”

In the end, perhaps the most compelling aspects of multisite performances are not artistic or technical but the sense of creative kinship and cultural exchange generated by these projects. The sheer technical challenges of distributed performance require individuals to collaborate across disciplines and traditional roles, choreographing on one side of the room and then stepping over (literally and figuratively) to the other side to work with programmers and designers. Artists learn to be production coordinators. Technicians learn to be craftspeople. To create a multisite, shared performance experience using an interactive media environment and high-bandwidth networking technology is to create a new kind of community. One where the resources of the World Wide Web are not merely repurposed for creative ends but are also electronically enlivened and enriched through the intersection of embodied, humanizing chaos on our ordered, technological society.

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