IPTV Gets Real

TWO SELF-PROCLAIMED LITTLE GUYS IN THE BRONX HAVE BEEN DELIVERING IPTV FOR THE PAST THREE YEARS, WAY LONGER THAN THE BIG GUYS, AND WAY BEFORE THE TERM IPTV WAS BANDIED ABOUT. HOW DID THEY DO IT? BY KEN GORDON
Urban Telephone & Video has been turning the same nifty triple-play—IPTV video services, voice telephony, and high-speed Internet connectivity—delivering all three services over phone lines to residents of the South Bronx, USA, The (Real) World, while the major players have struggled.

The headquarters of Urban Telephone & Video (www.urbandsl.tv) can be found in a stately old bank building on a bustling, commercial stretch of 149th Street in the Bronx. To get to the offices on the upper floors, you have to ask a living, breathing elevator operator to take you. This anachronism is particularly striking because the building also happens to house one of the most advanced television distribution systems in New York. I came here to meet Doug Frazier and Stuart Reid, UTV’s enterprising, fifty-something cochairmen, and to find out how they built it. The Bronx is up, indeed.

MDU guys
Back in the early 80s, Frazier and Reid started working together as cable installers. Actually, back then, it wasn’t even cable, which at the time didn’t exist in the outer boroughs of New York. They worked for a guy who had a license for MDS (Multipoint Distribution System), which delivered subscription television over the air via microwave. At first it was only a single channel, HBO, but eventually grew to a then-whopping three channels, all transmitted from the Empire State Building. Frazier and Reid would install a receiver and a mini-cable head-end in each building, and then wire the apartments from there. In doing all of this, Frazier and Reid discovered something few people would have believed: the market viability of the South Bronx. Even in 1984, Reid explains, people were willing to pay $30 a month for HBO. “That’s how hungry the market was for alternative programming.” They were also “flabbergasted” at the quality of home electronics they saw, adds Frazier. “They had some top-flight shit in there.”

“We were in poor neighborhoods, low-income neighborhoods, and we’d go into their houses, and they were, like, laid out,” continues Reid. “They were hungry for services, and that fueled us even more in our quest, ‘Hey, we’re onto something here. Underserved market.’”

That quest was to get a franchise of their own. “Everybody thought we were crazy,” recalls Frazier. “How could two guys from Nowheresville get a franchise in the number-one market in the country to provide anything? That was pretty far-fetched.”

In the meantime, they kept working as contractors, installing and servicing cable systems around the Bronx, New Jersey, and as far away as Philadelphia. In doing so, they learned the ins and outs of the cable business, developing a specialty in MDU (Multiple Dwelling Unit) implementations; i.e., apartment buildings.

Broadbandwagon
In 1992, Frazier and Reid got their big break when the city of New York decided to create a citywide, broadband franchise for voice, video, and data services. They became one of five founding franchisees—alongside the likes of AT&T, Cablevision, and Time-Warner—suddenly finding themselves in direct competition with billion-dollar corporations. For any two individuals, let alone two working-class African-Americans, this was a remarkable turn of events. It’s easy to indulge Frazier in a little hyperbole (if it even amounts to that) when he says, “That was the largest franchise that had ever been given to somebody that looked like us, ever, in the history of this country.”

They credit the city for the foresight to create these new franchises
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below:
The Motorola Next Level Residential Gateway—or, as it’s known in the Bronx, a Super Modem—is the hardware interface that delivers UTV’s triple-play services.

PHOTO COURTESY OF URBAN TELEPHONE & VIDEO

at a time when most people had never even heard of the Internet, let alone broadband. But they also had enough experience with cable technology to know it just wasn’t ready for triple-play. During this time, they shut down their cable contracting business and took some less-intensive work in forensic engineering and proposal writing to pay the bills. And they waited, watched, and read everything they could find on the various network technologies that were beginning to emerge from the Internet boom. “We made the rounds to all the companies that were selling the widgets and gidgets, and to our satisfaction, they didn’t have things figured out,” says Frazier.

As the millennium rolled over, they noticed that a few rural telephone companies were having some success delivering television service on a DSL platform—IPTV. They recognized that a similar solution might work in the Bronx, and started running their own tests on some of their fellow office tenants in the old bank building. The tests worked. At the same time, Frazier says, “just as fate would have it, we met Jeffrey,” referring to Jeffrey Citron, chairman and CEO of Vonage (http://vonage.com). Voice over Internet Protocol (VoIP) was really conceived for the broadband cable platform because most DSL providers—like the rural telcos—were already in the phone business. Frazier and Reid weren’t, and saw VoIP as a means for them to offer phone service without having to invest in an expensive voice switching infrastructure. They became one of the earliest packagers of Vonage’s service.

The last piece of the puzzle came in the form of the Diego Beekman Houses, a 1,200-plus unit, 38-building apartment complex nearby that was being bought out by its tenants. As part of its plans to renovate and rehabilitate the complex, the newly created Diego Beekman Mutual Housing Authority, with the South Bronx Overall Economic Development Corporation (www.sobro.org), came up with a Smart Building initiative that would provide computers and broadband Internet access to all of its residents. Frazier and Reid—based largely on their local reputation from their cable days—scored the contract. By the end of 2002, UTV had launched, delivering full triple-play services to its first customers.

Full service, networked

The hardware at the customers’ end that serves as the gateway to these services is the awkwardly named Motorola Next Level Residential Gateway, a tricked-out set-top box that combines outputs for video, data, and telephone in a single unit. Frazier and Reid quickly ditched the name in favor of the more approachable Super Modem.

The Super Modem incorporates three MPEG-2 decoders so it can drive as many TVs in an apartment, and comes with a wireless remote for each. The one in the same room as the Super Modem uses standard infrared, while the other two operate on a UHF frequency, through walls. “It bugs people out,” says Frazier, “because they’re in their bedroom, and they’re clicking the channels—and there’s no box.”

Because this is IPTV, with each household on a dedicated circuit, only the channel (or three) being watched is carried at any given time. “It’s a switched video network; it’s not a broadcast
network," says Reid. "In cable, all the channels are broadcast to your set-top box, all the time, always sitting right there."

This allows for greater flexibility and personalization. For example, the system also features a customizable program guide from Gemstar that allows users to browse and organize channels in any order they want. "We don’t treat people like they’re in the fourth grade," Frazier says of the cable company, "and give you a list of channels that you have to memorize. We tell our customers, ‘Look: Just press Guide, and read.’ It’s been a big hit.” Customers can program different channel combinations on each TV. For instance, you can remove whole channels from the TV in the kids’ room. There’s even an on-screen caller ID.

UTV offers a variety of pricing plans that combine different tiers of basic and premium channels, online access (data customers get a static IP address), and voice services. Basic triple-play services start at $90 a month—a pretty good deal. They haven’t implemented any video-on-demand or interactive programming as of yet, nor are they offering HDTV, primarily because they haven’t detected any customer demand for them.

Little guys
UTV is a very small company. Frazier and Reid share a small, L-shaped office with each other and the Network Operations Center (NOC). Along the axes of the L are two long rows of racks filled with receivers, encoders, routers, and switches, all awash in the steady drone of the ventilation system. They have about 15 employees, with a technical crew that deploys out of another office on-site at Diego Beekman, and a few virtual customer service reps who work out of their homes.

Atop Reid's desk, a few tidy stacks of addressed envelopes await postage—this month’s customer invoices, he confirms. Frazier and Reid refuse to disclose how many customers they have on their network, but it’s not hard to figure that the number is probably a rounding error for their fellow broadband franchisees.

With all of the hype now swirling around IPTV, and with the combined media and telecommunications galaxies waiting to see what happens when the Baby Bells get into the television business, it’s stunning that a pair of self-proclaimed little guys in the South Bronx have been up and running for three years.

As it turns out, it seems that one of UTV’s biggest advantages is precisely that it’s little. Reid is quick to point out that with only the two of them running the show, strategic corporate decisions are made as quickly as a conversation across the room. They also have the freedom to experiment and indulge in plenty of trial and error without the scrutiny of shareholders and the press.

Moreover, as local operators, they don’t have to overcome the
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massive regulatory hurdles currently facing the giant telecoms. This puts them, however incongruously, in a similar category as those rural telcos—because from a regulatory perspective, UTV's citywide broadband franchise is all they need to reach some 8 million customers in all five of New York City's boroughs. One municipality, one market, one franchise.

TV from home
Perhaps the biggest advantage of all is UTV's deep understanding of their customer base, which is more intimate than any market research budget could possibly buy. Put simply, they know where their customers live, having visited countless apartments, basements, and roofs in the last 20-plus years.

The difference can be seen in UTV's programming. Sure, of their 300-plus total channels, the vast majority are the same as you'll find on most cable systems. But a few of them definitely are not. Recognizing that some of their customers, as Frazier delicately puts it, "are not sophisticated about the Internet," UTV licenses a number of media streams off the Internet, converts them to MPEG-2, and routes them onto their TV platform as TV channels so their customers can find them easily. They superimpose the source's Web address along with a small, analog clock face. This serves as a straightforward reminder to viewers that they're watching video straight off the Internet, and not to worry whenever the stream hiccups or freezes for whatever reason.

In particular, with the demographics of the south Bronx in mind, they look for television and radio channels from the Caribbean and Latin

Under the Hood

Urban Telephone & Video's IPTV implementation distributes video information from satellite receivers to customers' TVs, encompassing a wide variety of different equipment in between. Frazier and Reid performed most of their integration themselves, so they're understandably reticent about scooping too many details. Without giving away too many secrets, here's a broad-strokes overview of their system:

Channel Acquisition
The bulk of UTV's 300-plus video channels are acquired via satellite. Most of the mainstream channels are sublicensed from the Dish Network and DirectTV, while other channels, such as the adult programming, are received on larger, conventional satellite dishes. These also receive a set of digital music channels. Altogether, they have a modest dish farm on the roof that feeds to the NOC downstairs. They also receive some over-the-air channels via conventional antennas.

Network Operations Center (NOC)
A few floors below, the NOC includes a Tut Systems digital head-end (which handles all of the MPEG-2 encoding), video and data servers, routers, and switchers. These all connect to optical transmitters, which transfer the outgoing data onto fiber for distribution out to the buildings.
America that aren't otherwise available. Some of these channels look pretty bad, of course, and Reid relates a telling anecdote about a big argument they had with their engineer over the quality of the feeds. At one point, they decided to remove a channel from Puerto Rico. "The phones rang off the hook. 'Why'd you take it off?!' . . . 'The technical quality's not good enough' . . . 'We don't care! That's TV from home!'"

Added to this international fare are several, ultralocal channels of their own creation, including Webcams of traffic on local bridges and tunnels, and what Frazier dubs "The Out-The-Window Channel"—the window in this case being one near Reid's desk, out of which a couple of camcorders are aimed to show the weather conditions on the street below.

Another example is a channel for local advertising. Making use of the pride small local businesses have in their storefronts and awnings, they take photos of them and run them on a channel as a slide show. Thus Famous Cutz Barbershop and Liang's Garden Chinese Food & Pizza to Take Out get cheap, targeted airtime—with phone numbers and specials listed on-screen. It's a televised version of the yellow pages.

The hi-fi zone

Reid and Frazier have intentionally kept their operation small, local, and below the radar while they get UTV up and running, but now they're looking to grow. They would love to cross the river into Manhattan, for instance, and tap other underserved markets in the city—or served ones, for that matter. Naturally, says Reid, "Right now we're actively looking for both capital and strategic partners to help us expand the network."

All the while, Frazier and Reid continue to look for new and innovative technologies they might implement for their customers. This year, they started adding Wi-Fi access nodes to all of their buildings, which allowed them to introduce a new product offering: Wi-Fi telephone service. (They like

Fiber Distribution

UTV's franchise allows them to run their own fiber network through conduits under the streets from the NOC. They've installed an OC12 optical circuit for each building, providing a blazing 622 Mbps of bandwidth per circuit. This is the urbanized version of FTTC (Fiber-To-The-Curb), sometimes referred to as FTTB (as in Fiber-To-The-Basement).

VDSL

In the buildings, UTV uses a VDSL solution from Motorola called the Multi-Service Access Platform, acquired in their merger with Next Level Communications, which includes the Residential Gateway (aka Super Modem) set-top box.

VDSL (Very-high-speed Digital Subscriber Line) is a new form of DSL that achieves superfast speeds at the expense of limited range. But in this case, according to Frazier, limited range is enough to reach about 250 stories up from the basement—far enough for UTV's purposes.

In the basement, a DSLAM (Digital Subscriber Line Access Multiplexer) converts the optical signals from the OC12 back into electromagnetic signals (and vice versa for the upstream data) for the individual lines that connect to the apartments. The final loop upstairs is carried on the building's existing, twisted-pair copper infrastructure, allowing a maximum of 56 Mbps per circuit.
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to say this actually makes them a “quadruple-play” provider.)

The Wi-Fi phone resemblance a slightly large cell phone, and comes with a supercheap, 300-minute calling plan for $10 a month. With hot spots in all of their buildings, the phones will work in their customers’ homes and around much of the neighborhood. They’ll also work anywhere in the world in range of an open hot spot. They’ve proved to be popular among their customers, who have taken to calling them Hi-Fi phones.

Here is the love

It’s easy to see Frazier and Reid maintain a strong bond to their customers, and they liken UTV, its customers, and the community to a family. They donate broadband and TV service to the community centers in the neighborhood—centers they grew up going to as kids. They speak eloquently and passionately about economic development, opportunity, and the digital divide.

They conduct computer classes at the centers on a volunteer basis.

“We haven’t worked in 22 years,” says Frazier. “This is love here.” He tells a story about how his teenage son asked him last year whether he was going to work on Christmas Eve. “I said, ‘That ain’t work, that’s love.’ And I actually came to work, and got stuck in here.”

“Locked him in the building!” Reid laughs. “They locked the building up, and nobody knew he was in here. There’s so much noise. Christmas eve, I get a call about nine o’clock: ‘Stu, I’m in the building and I can’t get out.’” Reid sprung his partner and saved Christmas for the Frazier clan.

“We’ve been very fortunate, in our opinion, to be allowed to do this,” says Frazier, with heartfelt satisfaction—and a wry smile, adding, “There have been a lot of times when people have thought that we were downright out of our minds.”

Ken Gordon is a freelance writer, designer, and cable subscriber in the borough just south of the Bronx.