



# OneCleveland: Connecting the Digital City

*A digital landscape created with fiber-optic  
and broadband wireless technology connects  
the digital campus to the digital city*

By **Lev Gonick** and **Priya Junnar**

A new urban landscape characterizes cities around the globe, eclipsing the smokestacks of the 19th century and skyscrapers of the 20th century, yet the topography of the 21st century digital cityscape is almost invisible. Once the realm of dreams and science fiction, multi-textured layers of digital infrastructure and technology-enabled services have converged into tangible realities that are transforming the way in which people define community, work, education, and social experiences. Present mostly in academic settings, this new digital landscape—created with fiber-optic technology and broadband wireless—opens up rich possibilities for collaboration and mutually beneficial projects between the 21st-century campus and the digital city.

In sharp contrast to the limits of interaction imposed by geography, architecture, and physical distances characteristic of cities and universities in the past, the digital infrastructure of the new millennium can redefine the city's ecosystem as one intimately connected to—and interdependent with—with the university's. This paradigm shift morphs the traditional dichotomy between town and gown into a collaboration that can promote regional development, economic growth, and public welfare.

Such a shift is unfolding in Cleveland, Ohio, where Case Western Reserve University (Case) is a founding member of OneCleveland, a nonprofit entity created to provide gigabit connectivity to Cleveland's nonprofit institutions and pave the way for a growing metropolitan provision of widespread and free regional Wi-Fi access. Incorporated in October 2003, OneCleveland connects the greater Cleveland area to promote economic development and growth and improve the lives of its citizens. OneCleveland links the entire nonprofit spectrum—education, culture and the arts, research, health care, and government—for collaboration and innovation on a large metropolitan scale.

With vision from Case President Edward M. Hundert and technical leadership from Case Information Technology Services, the university has led the

effort to create a platform for partnership among nonprofit institutions, organizations, and government agencies in the area. Member organizations (more than 150 new organizations have asked to join the original seven subscribers) will use the shared network to create and deliver new services for the public welfare, share information, collaborate, and operate more efficiently and cost-effectively.

The vision for OneCleveland is to help the creative workforce of the region become agents in the reinvention of their own futures and that of the greater region. OneCleveland is an enabling platform that leverages the new digital cityscape to create opportunities in the areas of research, experimentation, jobs, wealth, and a new sense of community. As a result, a growing number of transformative applications in health care, arts and culture, research, government e-services, regional transportation, and education are being developed and deployed.

### **Connecting the Digital Campus to the City**

In many cities around the world, the college campus is a suburban enclave within the heart of the city, largely detached, isolated, alienated, and oblivious to the urban realities of the surrounding city landscape. In other settings, the university campus is the exclave on the edge of the city, distant from the realities of inner-city life and, as an independent city-state, mostly indifferent to the surrounding neighborhood and its problems.

Traditionally, one of the most enduring challenges for a college or university and its host city is managing their relationship. For many university presidents, civic relations is the pursuit of détente with local city councils.

Ironically, one of the major intellectual challenges on the 21st century campus is solving the conundrum of civic responsibility and the role of higher education. In meetings such as the January 2004 meeting of the Association of American Colleges and Universities, university leaders grappled with the future of liberal education.<sup>1</sup>

The future of democracy itself maps to the collegiate experience of civic engagement. Volunteer services in the community, work studies, legal and health clinics, internships, co-op programs, and related social programs contribute hundreds of hours toward the betterment of our campus and civic communities. Expanding those services and collateral learning experiences creates an important programmatic orientation to the challenges of university-city relations.

Another dimension, a deeper and arguably more profound structural layer, now presents itself as an opportunity for the college campus and the city in the future. Over the past 20 years, the wired campus emerged as yet another academic feature that was disconnected from the reality of the city. The convergence of town-gown priorities now positions ultra broadband strategies and university leadership to deliver advanced information technology capabilities to achieve community priorities for economic development, learning, job training, research support, public preeminence, and distinction among other cities.

Transforming the city has become the focus of strategic relations between the university and the city. *The Princeton Review* and other college rating publications might consider adding a new, and arguably critical, weighted dimension on how well universities leverage the power of digital infrastructure to transform cities around the world. Thousands of miles of digital infrastructure make the value of the intersection of college and town more transparent than ever and position the university to be more relevant than ever to the future of the city.

Technology-enabled applications informed by community priorities contribute significantly to the vitality of the inner city. Connecting schools, community centers, museums, and libraries, for example, is an important prerequisite to addressing the current digital divide. The academy's ability to take the scientific and medical breakthroughs for which it is known and address the needs of cities through network-enabled

delivery systems serves as a model of collaboration and cooperation that improves the quality of life within the city.

## **The Great Connected Society?**

Can public investment in digital infrastructure both protect the public interest and help catalyze private entrepreneurial activity in a manner consistent with the historic deployment of public infrastructure works like roads, airports, and other public authorities? Seventy years ago, under President Franklin D. Roosevelt's New Deal, some \$17 billion was spent through public works projects supporting the creation of critical national infrastructure, jobs, and public art. The New Deal also contributed an unprecedented economic stimulus that prompted aggregate economic growth and job creation. While historians and partisans may debate the issues, public power, public transportation, and public construction—all hallmarks of the New Deal—did not transform America into either state socialism or unbridled free market capitalism. Rather, public investment balanced public good with the creation of private wealth.

Major American cities, including New York, Chicago, Philadelphia, Detroit, Los Angeles, Cleveland, St. Louis, Baltimore, Boston, and Pittsburgh, served as destinations for both the domestic and international flow of persons pursuing wealth, health, and quality of life. The 20 million urban dwellers in America's largest 10 cities created enclaves of wealth and health, but the dynamic also created its own contradictions that exploded 30 years later in the 1960s.

At that time, in the middle of escalating civil violence and the growing unpopularity of the war in Vietnam, President Lyndon Johnson went to Ann Arbor, Michigan, to outline his Great Society policy premised on the transformation of life in the city, the transformation of the U.S. education system, and the greening of America. The public policy portfolio that is the legacy of the Great Society has its share of critics; nevertheless, it stimulated economic development, helped frame an alternative

role for America in the world economy through the Peace Corps, and turned the collective attention of the nation to America's inner cities. Houston, Dallas, and Washington replaced Boston, Pittsburgh, and St. Louis among the largest 10 cities in the nation, but the 25 million people in those cities faced two interrelated realities: residents' flight to the suburbs and the persistent underdevelopment of the city proper, a caustic mix that would define American urban life for at least 30 years.

America's urban landscape now has shifted again. New urban centers in Phoenix, San Jose, Jacksonville, and San Diego are eclipsing cities like Detroit, Cleveland, Pittsburgh, and Baltimore. The complexion of America's cities has also changed. Spanish and a host of Asian languages now are commonplace in our cities.

Yet, to date, no general framework or broad platform exists upon which to map the unique historic challenges of reinventing the cities of the industrial age and, at the same time, to position our "new" cities for sustainable growth and greater socioeconomic harmony. The already challenging design parameters are only getting more complex. In addition, many of our nation's greatest intellectual assets and centers of learning are physically bound to cities at their nadir. Out of this mix emerges the core proposal for the digital city.

## **A Modest Proposal for Urban Revitalization**

As the recipients of billions of dollars of public investment and private philanthropy, America's colleges and universities stand poised to make a difference to the future of the cities where which they reside. The leading-edge entities in the knowledge economy—universities such as Johns Hopkins in Baltimore, MIT and Harvard in Boston, Case in Cleveland, Carnegie Mellon in Pittsburgh, Washington University in St. Louis, and dozens of other university, research, and education facilities—hold the keys to the digital city.

It is not only our fiber optic infrastructure, which has been around for many years, that provides us with the

opportunity to contribute to a broader social and economic transformation. More importantly, it is our keen understanding of how networked applications and scientific inquiry have been transformed by our investment in digital infrastructure.

The digital city of the 21st century is defined by the transformation of the basic frameworks of human interaction. Those interactions—social, economic, political, and cultural—are informed by the interplay of history with the opportunities and challenges of the new digital urban reality. The digital city is among the most fertile terrains for both intellectual discourse and pragmatic social policy in the 21st century. Leveraging the digital infrastructure for the public good is the basis for a coherent strategy for reinventing urban life, for rational and plausible regional economic strategies, and for positioning the university as relevant to the future of the city. The digital city also represents a framework for sustainable growth and greater socioeconomic harmony.

Planning for the digital city provides the single most potent opportunity for imagining and building a common future. In the context of the global economy, in which goods and services transcend municipal and national boundaries with the click of mouse, it is vital that we transcend the parochial 20th-century debate of public investment versus private investment in the future of the digital city.

## **Why OneCleveland in Cleveland?**

The digital city is emerging as a pervasive form of human organization, informed by the knowledge age. While Cleveland possesses a constellation of unique economic, political, and social factors, the OneCleveland story is scalable and replicable in other cities.

Cleveland was the first city in the United States to light its streets, in 1879. Today, Cleveland lights its streets with wireless Internet access riding on top of one of the world's most robust and integrated fiber optic infrastructures. At a keynote address at Cisco System's Global Summit on the Future of Higher

Education (<http://www.case.edu/menu/president/cisco.htm>), Case's President Hundert outlined the opportunity in what he described as "a civic dialogue on reinventing the region." The conversation is slowly, and admittedly unevenly, involving our elected and community leaders, our technology and traditional economic sectors, university presidents and inner city computer center organizers, public arts coalitions, and public library officials.

Case is situated in Cleveland's University Circle, home to many cultural and educational institutions, including the Cleveland Orchestra and the Cleveland Museum of Art. More than one hundred years ago, far-sighted planning brought these institutions together (along with the Cleveland Institute of Art, the Cleveland Institute of Music, the Cleveland Natural History Museum, the Cleveland Botanical Gardens, Western Historical Society, and dozens of other nonprofit organizations), with the expectation that University Circle would serve as a magnet to attract residents and visitors. Nearly 15 years ago, in another prophetic move, the leadership of University Circle made a leap of faith and connected those same institutions with a fiber backbone. Today, the same 19th-century organizations contribute to a strategy that enables the talented people at work in the Circle to originate and disseminate research, experimentation, instruction, and performance around the world.

Traditionally a large player in University Circle, Case has made its advanced physical and technical infrastructure and buying power available to other nonprofit Circle players, including many of the smaller institutions. By offering services such as network and phone connectivity, Case has been able to deliver lower costs and faster network services to University Circle member organizations. While the fiber network housed at Case served as the catalyst for the project, however, OneCleveland is the convergence of historic threads and political will that have helped shape the technology policies of Case and the other OneCleveland members.

Another key thread leading to OneCleveland was the establishment of the

Strategic Technology Alliance at Case. In this instance, Case coordinated a strategy that built both a buying club for members and a selling club for select vendors. This alliance resulted in win-win situations for University Circle as well as many regional nonprofit members who otherwise would have had to negotiate individual vendor and buyer relationships (<http://www.case.edu/its/strategic>).

An ambitious goal such as OneCleveland required sustained engagement with both the technology leaders of Greater Cleveland as well as the business and civic leaders of the community. Nortech, Northeast Ohio's Technology Coalition, is a group of technology and business leaders with a vision to enhance the prosperity of the region through science, technology, and innovation (<http://www.nortech.org/>). Nortech's leadership embraced the initial effort, which quickly evolved into one of the coalition's major regional initiatives.

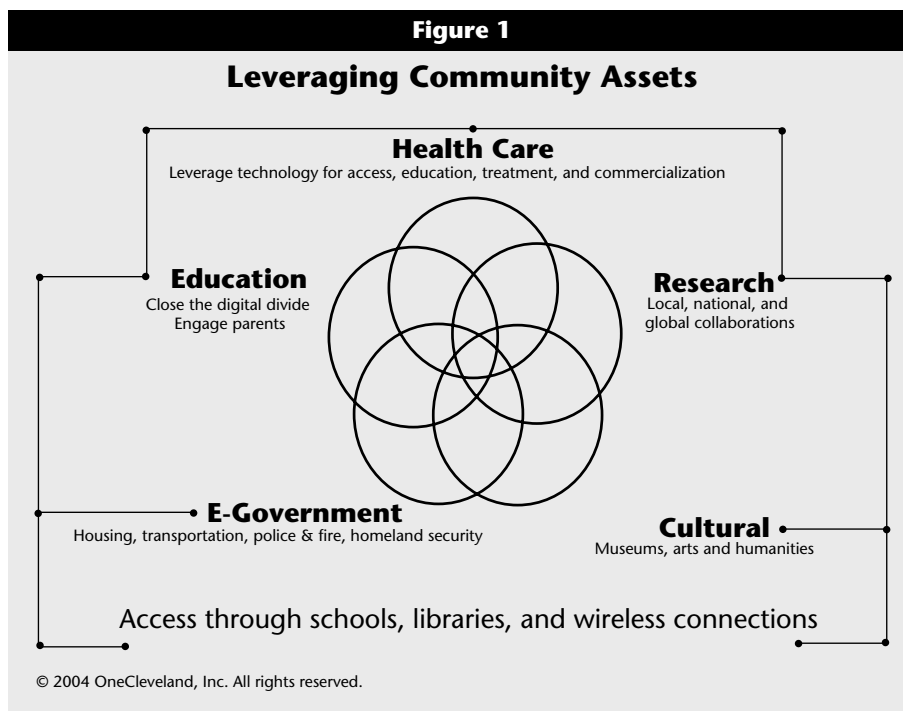
In May 2003, Cleveland Mayor Jane Campbell convened a meeting of CEOs of major government and nonprofits along with the leadership of Nortech and OneCleveland to discuss the project. As she outlined in Council Chambers (see Figure 1), the constellation of the

region's key economic sectors—health care, advanced research, and cultural attractions—were well positioned to create what she termed "a common platform for innovation and creativity."

OneCleveland facilitates synergies in many spheres. OneCleveland, although initiated at Case and then embraced by most of Cleveland's University Circle institutions, including the Cleveland Museum of Art, Cleveland Institute of Art, and Cleveland Institute of Music, has evolved into a formal nonprofit organization anchored by the City of Cleveland, Cuyahoga Public Libraries, Greater Cleveland Regional Transit Authority, Case Western Reserve University, WVIZ/WCPN, Cleveland State University, and the Cleveland Municipal School District.

## Technical Specifications

From the perspective of the architecture of a metropolitan network, OneCleveland represents something of a paradigm shift. To date, there are two dominant models of metropolitan networks: the traditional telco deployment strategy (whether traditional RBOC [Regional Bell Operating Company], ILEC [incumbent local exchange carrier], or CLEC [competitive local



exchange carrier]), and more recently acquisition of fiber by cities or other legislative bodies. As educational institutions, we have traditionally leveraged the traditional telco model for lateral access to points of presence and then either continued with dedicated leased circuit lines or, more recently, carried our IP traffic over state or regional fiber acquired by higher education consortia such as Ohio's Third Frontier Network (<http://www.tfn.oar.net/>).

In general, higher education's commodity Internet access was designed, built, and operated as a discrete service line. Earlier, our needs were unique; now, we have standard operating procedures that are easier to reproduce than change. While we have seen some examples of service lines being blurred between the boundaries of education segments or between education and government, we are not aware of a metropolitan strategy to blur the lines between the entire public and nonprofit sectors.

Both the technical and financial dimensions of the OneCleveland initiative represented significant efficiencies and savings. In the pre-OneCleveland architecture, it was not uncommon for traffic to be routed from a community college via a fractional T-1 line in suburban Cleveland via a local central office (CO) to the point of presence (PoP) in downtown Cleveland, over dedicated circuits to Columbus, back over additional dedicated circuits to the Cleveland PoP, and then back over T-1 lines to a distance-learning origination site at the Cleveland Museum of Art or another content provider in University Circle. While this architecture imposed a relatively trivial inconvenience for simple e-mail traffic on the Web, this architecture led customers to believe that the technology was a significant rate-limiting feature of their desired educational experience. The incumbent technical infrastructure also proved to be fairly costly.

Rather than overbuilding or building-out the Case IT infrastructure in isolation, OneCleveland is committed to creating greater value through leveraging the community's considerable assets in health care, research, education, govern-

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ment services, and the arts and cultural community. The goal of OneCleveland is to provide these nonprofit members with a single integrated, high-speed, optical metropolitan network at competitive pricing, along with support for canopies of wireless connectivity. To this end, OneCleveland has leveraged existing relationships and networks to acquire several hundred miles of dark fiber throughout Northeast Ohio and has identified more than 1,500 technical, physical, and intellectual assets, including organizations that we plan to connect with our metropolitan fiber optic and broadband wireless strategy.

Specifically, OneCleveland has four access rings in the region, with options on several additional rings. The network architecture is supported by three core Cisco 6509 Catalyst switches supporting dense wave division multiplexing (DWDM) services. Services between the core switches are now supported with one-gigabit Ethernet transport (with planning for a 10-gigabit core), and both intra-OneCleveland transport and IP services to the Internet are provisioned today at one gigabit for each asset on the metropolitan network. (See Figures 2 and 3.)

Our technology and business plans support significant enhancements to bandwidth both through provisioning of lambdas wavelengths, if necessary, as well as additional ISP provisioning through OneCleveland's partnership with Global Crossing.

OneCleveland's wireless cloud of 802.11g and 802.11b radios are currently managed by individual institutions. These include a mix of Cisco Aironet radios and Vivato phase array panels. As the emerging 802.16 standard leads to new products, we expect to leverage

wireless services through the leadership of WVIZ, the Public Broadcast Service (PBS) television station and steward of the region's valuable instructional television fixed service (ITFS) channels, along with other opportunities.

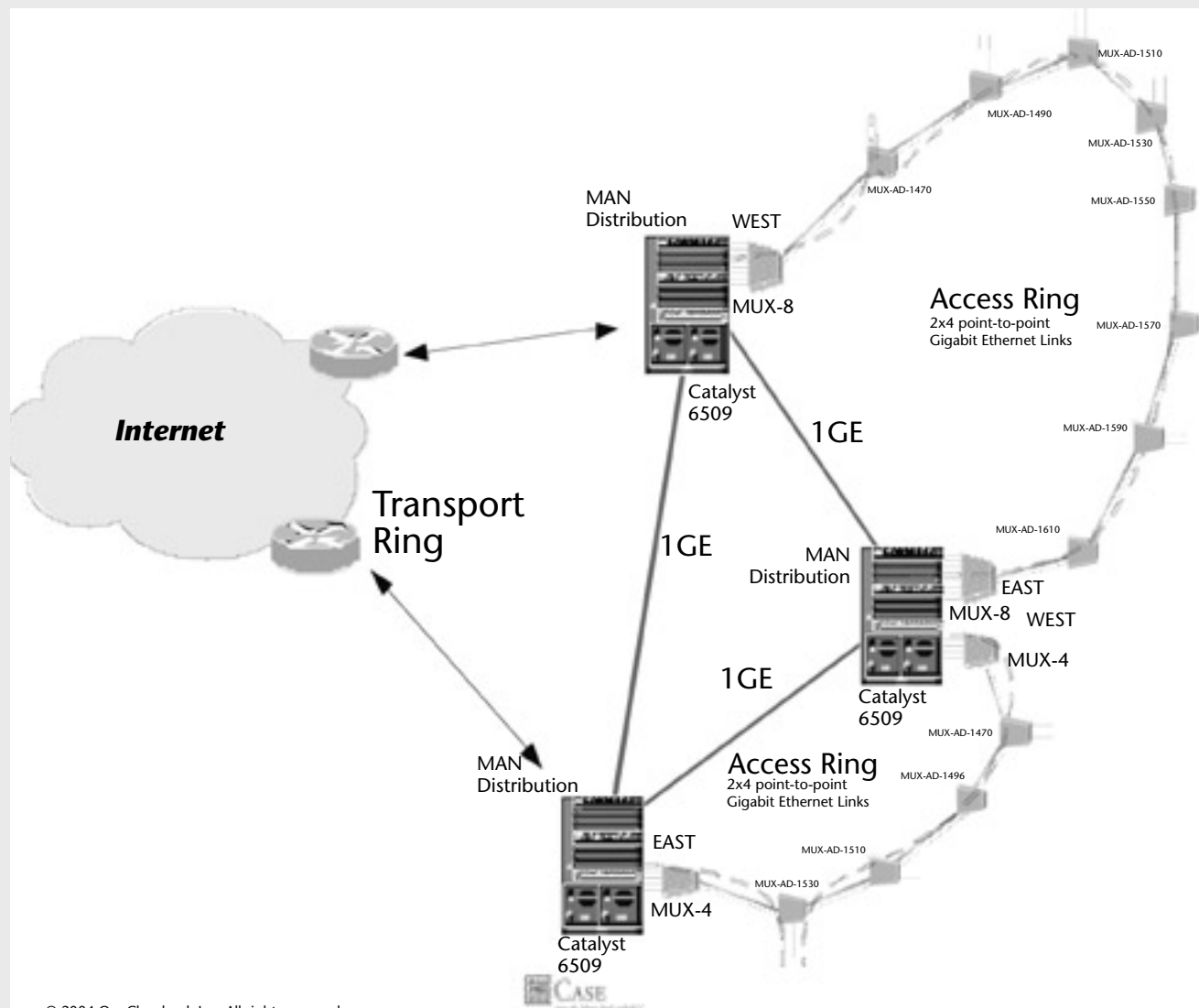
The design, build-out, and now operation of the OneCleveland network moved from rollout status to a more robust environment through a formal request for information (RFI) process. In our assessment, there were both strategic and tactical reasons to leverage OneCleveland as a public network infrastructure, maintained and operated by the private sector. Our preexisting investments from regional fiber providers, electronics vendors, and others, along with our need to continue to drive value to customers without creating large organizational overhead, led us to engage IBM Global Services as our prime integrating service provider. OneCleveland itself is staffed by one paid professional and one technical director on loan from Case.

In the pre-digital city, IT professionals find themselves in a predictable annual tradeoff between bandwidth and budget. In OneCleveland and other emerging digital city environments, community owned and/or managed optical networking infrastructure and broadband wireless services smash the old paradigm by delivering unprecedented bandwidth at competitive prices. This unprecedented level of bandwidth gives OneCleveland members the following capabilities:

- The Cleveland Museum of Art delivers high-definition video to the County Public Library System using gigabit transport in a grant from Institute of Museum and Library Services made possible through the OneCleveland ultra bandwidth delivery infrastructure.
- Our PBS affiliate can send video-based IP packets to the approximately 120 schools in the public school system, supporting both teacher education and direct delivery of content to the 75,000 students in the Cleveland School System at gigabit speeds.
- IP transport off OneCleveland goes onto Ohio's Third Frontier Network, Internet2, the National LambdaRail, or the commodity Internet.

**Figure 2**

## OneCleveland Network Rings Linkage



- Access of up to gigabit speeds includes support for burstable needs from OneCleveland subscribers.

However, OneCleveland offers more as an infrastructure technology build-out and a civic project. First, wireless services open and available to the public have become a growing feature as institutions join OneCleveland. To date, we have more than 2,000 free public wireless access points throughout the region. We're embarking on a collaborative research project with Cisco Research on provisioning services through a federated identity schema

for the multiple constituencies and patrons associated with OneCleveland institutions. We are discussing WiMax (802.16) services with Intel, mobility services with Neteam and the Regional Transit Authority, early exploration of a OneCleveland Java card for provisioning secured services to citizens of the region, and a community utility project that is just getting off the ground with Sun Microsystems.

As with a number of other community technology initiatives, OneCleveland helps position the region as having a platform of innovation and

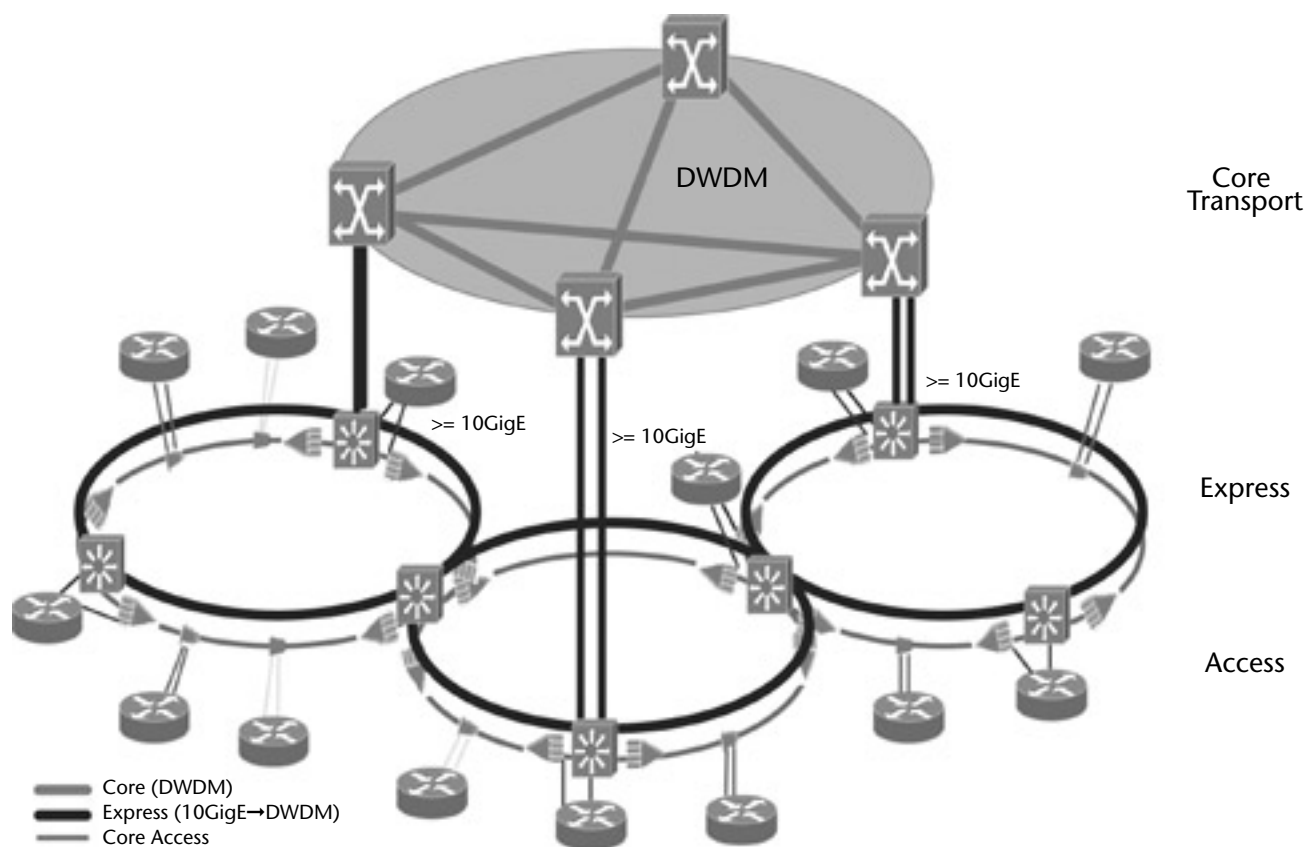
creativity, which attracts technology vendors and entrepreneurs. The Cleveland Convention and Visitors Bureau, the Greater Cleveland Partnership, and other major civic organizations are now working with OneCleveland to address the question of how they can leverage the infrastructure to provide value to their business service lines.

### OneCleveland Business Model

The overall business model is informed by the same logic as the build-out of the leading statewide networks like Ohio's

**Figure 3**

### OneCleveland Network Rings Architecture



Third Frontier and the national research and experimental optical networks like National LambdaRail. The central value proposition is the acquisition and ownership of fiber assets and the electronics that light those services rather than managed services and dedicated circuit leasing. The OneCleveland model shows an overall savings of 50 percent or more, and for many agencies and institutions the savings are even more pronounced. As we develop optical wired services, many OneCleveland subscribers are providing free public wireless access around their institutions through implementations of VLAN services that isolate guest public access from trusted services associated with institutional goods and services.

Redirecting IT investments from operating budgets to capital and then to new projects is not an easy thing to

do. OneCleveland provides IT leaders with an opportunity to engage their business officer colleagues as well as other organizational leaders. It is clear to nearly everyone that taking dollars off the table is one important motivator for many subscribers to OneCleveland. In a region that desperately needs to augment its overall IT spending in order to catalyze the kind of change required to propel the region into the 21st century, the organizational and bureaucratic tensions and the educational opportunities are equally great.

OneCleveland has captured the imagination of technology and political leaders. Technology leaders embrace the project as a scalable and replicable model for cities across the nation and around the world. Pundits like the senior editor of *InformationWeek*, John

Soat, see OneCleveland as a glimpse into the future.

Not only is the OneCleveland project visionary in its approach to exploiting technology resources, it is an example of how communities will be networked in the future, and it places Cleveland among the leaders in that area.<sup>2</sup>

FCC Commissioners like Michael Copps see OneCleveland as an existence proof for the nation of the value of cooperation:

Together they are developing a backbone infrastructure to enhance economic opportunity and education in city neighborhoods. They know that access to broadband is critical to the future of their community and the future of the country, and they are doing something about it.<sup>3</sup>

## Application Development with OneCleveland

From the outset, OneCleveland has tried, with varying success, to project to the external community that the project is about much more than building infrastructure. We have spoken about OneCleveland in the context of a broader commitment to create IT jobs in Northeast Ohio, to enable new forms of regional prosperity, and to demonstrate the value of the digital promise by focusing on initiatives to enhance, and where possible, transform the human experience.

Cleveland, home of some of the world's best known hospitals, is now engaged in a series of ambitious projects facilitated in part by OneCleveland, known as the Advanced Biomedical Tele-Collaboration Testbed in Survey, Anesthesia, and Emergency Medicine. A national center for medical simulators that focuses on medical training and health error prevention will be connected to regional health care facilities through regional and national networks and nationally, offering access to procedures, operations, whole-body mannequins that respond physiologically, and team training in virtual reality environments—all enabled through collaborative network services.

Cleveland's cultural and arts organizations are now leveraging OneCleveland to address community priorities. Cuyahoga Public Libraries and the Cleveland Museum of Art have new programming offerings that will connect the museum to all the regional libraries and deliver high-definition quality, two-way interactive video over OneCleveland, allowing library patrons to enjoy the high-quality programming provided by the museum's curators and other education staff.

The Rock and Roll Hall of Fame, in collaboration with Case, is planning an integrated digital archive that will join a unique repository associated with American popular culture, enabled over OneCleveland. OneCleveland will not only provide a fiber optic umbilical cord between the lakefront and University Circle, some 10 miles

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away, the initiative will also support various infrastructure goals, including programmatic content in the form of our American Music Master's series, ongoing research activities on American Popular Culture, joint live performance art, and a full collaborative program in education and pedagogy for the archives.

Ideastream, which consists of our local PBS and National Public Radio affiliates WVIZ and WCPN, has long provided leadership in the delivery of K-12 video education content. A founding member of OneCleveland, Ideastream leads the nation in public broadcasting, positioning itself in our community as a leader in the delivery of converged multimedia and public affairs content. Ideastream's new home at the ideacenter in the heart of the Cleveland Playhouse District will facilitate more public access to the arts by connecting theaters and many ancillary services of the arts community to the general public via OneCleveland. Digital cafes and school trips to digital studios connected to other digital studios around the world help many urban dwellers understand the extent to which they can fashion a world of opportunity and discovery through ideastream and its partnership with OneCleveland.

The Greater Cleveland Regional Transit Authority (RTA) is embarking on redevelopment of a major artery from downtown to University Circle. Another charter member of OneCleveland, the RTA Board has supported a new initiative to provide mobile IP services, enabled through partnership with OneCleveland. Riders of the Light Rail from suburbs like Shaker Heights will be

able to connect to the Internet, as will riders on the bus lines up and down the Euclid corridor.

Finally, OneCleveland's ability to collaborate with local entities like Cleveland Public Art has spawned numerous preliminary conversations and opened possibilities for collaborations with innovators around the world. Collaborations between the New Orleans Jazz Festival and Cleveland's Tri-C Jazz Festival; performance art in the park with New York City (NYC) Wireless and Cleveland's Wade Oval; a joint live performance with Austin City Limits and the Rock Hall; and national and international calls for digital art installations are all part of the new digital canvas that OneCleveland could offer its community.

Application development, entrepreneurial activity, start ups, educational content creation, and new service offerings from governments and health care agencies will serve as the measures of OneCleveland's success in the years ahead. Addressing community priorities as a whole is OneCleveland's loftiest ambition. As syndicated columnist and prescient observer of urban America Neal Peirce recently observed, OneCleveland "is the most exciting vision yet ... [They] want to create a national model of applying ... technology to bolster culture, advance learning, better health services, and spread economic opportunity to pockets of extreme poverty."<sup>4</sup>

## **Open Source IT Governance in the Digital City**

The digital city is not just about reinventing government, although reengineering the delivery of government services is important. It is not just about reenergizing the economy, although that is a critical objective. It is not just about delivering new models for health care, although we acknowledge the urgent need to address the very real challenges of a broken system. It is not just about improving the quality and delivery of the public education system, although that too is a priority.

The digital city is about how redistribution of power in the digital city will



reflect significant changes in human interaction enabled by technology. As we have come to understand, the Net does not respect boundaries, hierarchies, or traditional forms of power. Information in the digital city is characterized by the distinct tendency to prefer to circulate freely, without censorship or editorial review.

The single largest challenge in the digital city is building a new civic consensus. Power in politics has usually been defined as power over other people, some agency, or some other set of players. The nature of the digital city—informed by a distributed architecture that encourages distributed communications—means that power in the new digital city will consist of leveraging individual power to work together. Much more than semantics, power in the digital city portends a new, inverse form of Robert Michel's iron law of oligarchy, which asserts that rule by a few is unavoidable in a large, complex organization. Where we see digital cities at work, we see the leveraging of technology and the redefinition of service models to meet the needs of the public. In contrast to Michel's early 20th-century concept that technology alignment, service models, and public needs were variables at odds, in the early 21st century, technology can align with service models to meet public needs. To the extent that inter- and intra-agency and organizational functions can be combined and a new service framework derived in the 21st century, it is probable that the new law of the digital city is at work. The new logic is a form of open source economic development and citizenship, a truly new framework that acknowledges and fosters the inherent attributes of distributed power in a networked society.

Likewise, to the extent that public investment in both human and technology bandwidth fails to produce more effective models of service delivery, it is probable that the dead weight of the pre-digital bureaucratic and hierarchical order still dominates. To be clear, the digital city is all about new models of power, service, and civic engagement that are anything but ineluctable. Tra-

## **Where we see digital cities at work, we see the leveraging of technology and the redefinition of service models to meet the needs of the public.**

ditional forms of power are slow to give way, as patterns of human behavior and our sense of identity are slow to change. In the emerging digital city, leaders are redefining power in order to collaborate and transform by leveraging the infrastructure, systems, and outcomes made possible by marrying human ingenuity, vision, and the institutional missions of its residents.

### **Lessons Learned**

OneCleveland is governed by a forward-thinking group of technology leaders. It draws inspiration from the demonstrated power of working together, as evidenced by new leadership in the region. From our experience, building-out a community-centered metropolitan network follows no easy-to-replicate formula. Beyond technical consensus-building and drawing from the inspiration of the leaders of the region, OneCleveland's "secret sauce" is building relationships. The relationships that are easy to bring to the table have been those among the forward-thinking executives in the technology vendor community. OneCleveland has found corporate leadership remarkably open to the undertaking, providing investments of both staff and technical resources. As always, the more challenging relationships have been among the institutional leaders. To the extent that OneCleveland has succeeded, it has come through asking institutional leaders to be community leaders, to help in this transformational project.

Finally, we have learned that two dimensions of OneCleveland elicit genuine interest: the applications now being developed and delivered over

OneCleveland, and the language of transformation and reinvention that city leaders from the mayors to community center directors understand that OneCleveland enables.

### **Conclusion**

Digital infrastructure, in and of itself, is not the story here. A relatively small cross-section of the community finds the digital infrastructure of interest. Through strategic access to the underlying technologies and infrastructure, however, universities can pave the way to a cohesive and collaborative 21st-century digital city.

Case and OneCleveland have helped define the leadership role that universities—often pioneers and early adaptors of technology advances—can play in morphing town-gown relations into community renewal and transformation through the use of digital infrastructure and technologies. OneCleveland is part of an experiment with origins in Case's commitment to transform itself and help shape the role of a great university of the 21st century. To the extent that we succeed, OneCleveland offers a possible model for civic engagement. It also generates a force that may contribute to the ability of any American city to re-imagine its future identity. *C*

### **Endnotes**

1. "Practicing Liberal Education: Deepening Knowledge, Pursuing Justice, Taking Action," 2004 Annual Meeting of the Association of American Colleges and Universities, January 21–24, 2004, Washington, D.C., <<http://www.aacu.org/meetings/annualmeeting/AM04/resources.cfm>>.
2. J. Soat, *InformationWeek*, February 9, 2004.
3. M. J. Copps in a Federal Communications Commission statement, <[http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-244841A4.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-244841A4.pdf)>.
4. To read Peirce's entire column, see <[http://seattletimes.nwsource.com/html/opinion/2002033733\\_peirce13.html](http://seattletimes.nwsource.com/html/opinion/2002033733_peirce13.html)>.

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