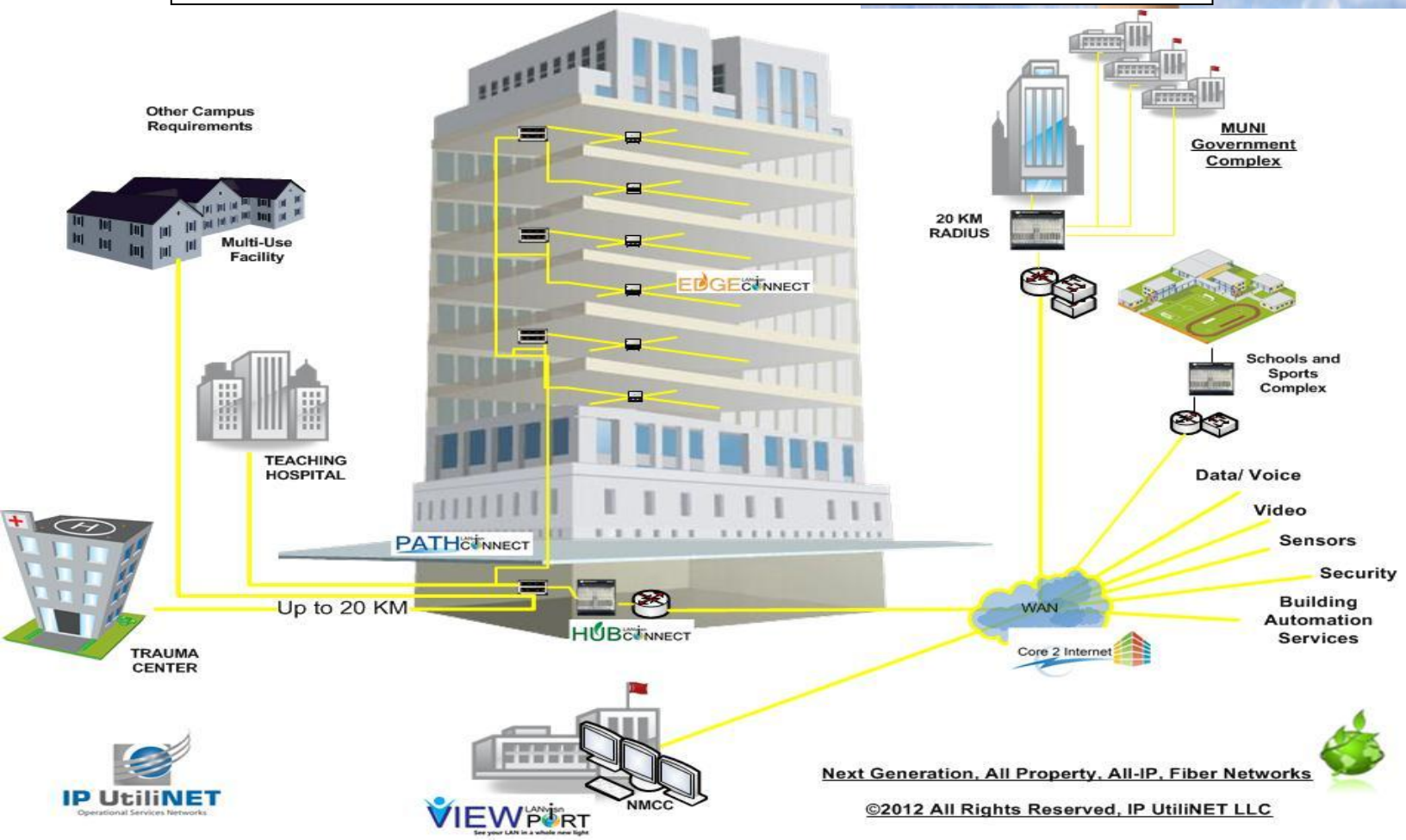
GPON Primer

You're next generation network may be a GPON network

There is not an elected official, business decision maker, or technology professional that can justifiably ignore the economic and technical benefit of GPON Technology. Learn how the next, or third generation of all-property multiservice networking technology can improve services, eliminate complexity, and **reduce budgetary consumption.**

Decision Ahead



Reader ROI – Learn about:

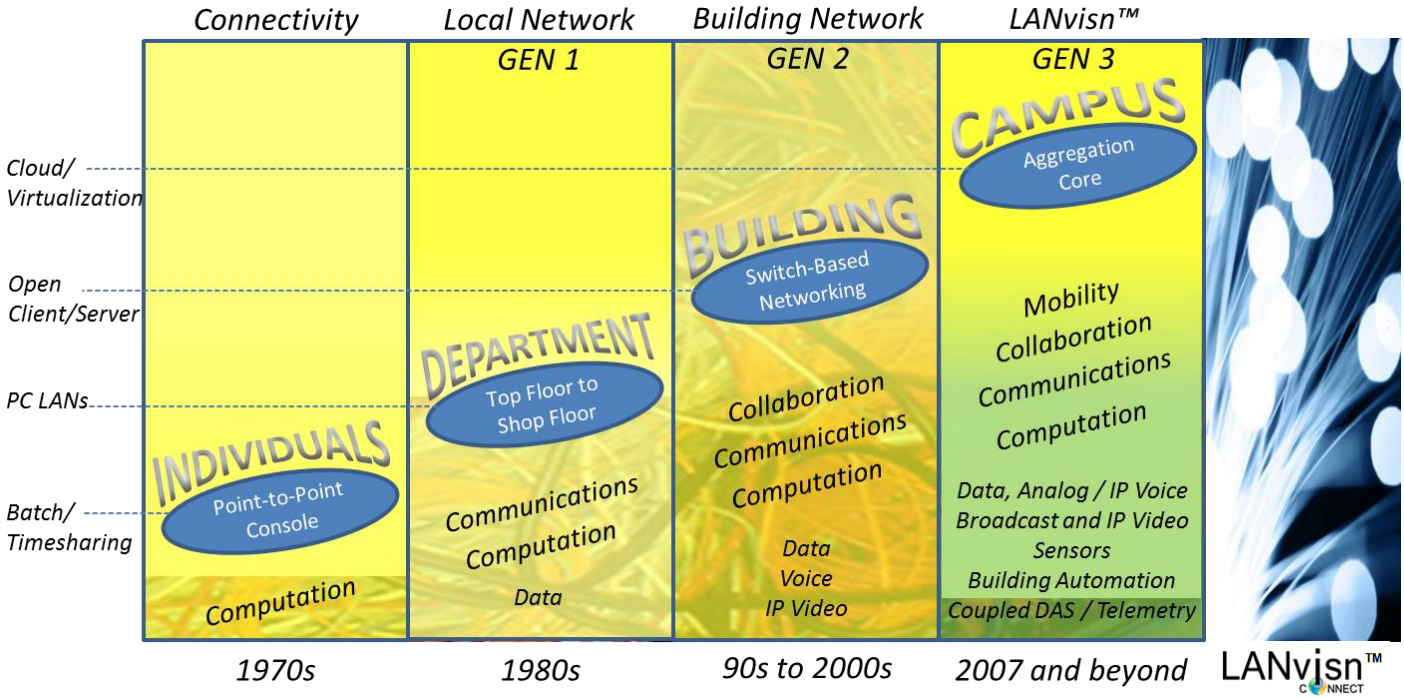
A. **The evolution of the network architecture to LANvisn™**
B. **What current network vendors don't want you to know**
C. **Three S's - Simple, Smart, Sustainable – from any viewpoint**
D. **How LANvisn™ networks put people back to work, for good**

IP UtiliNET's LANvisn™ Cloud Networking Solutions

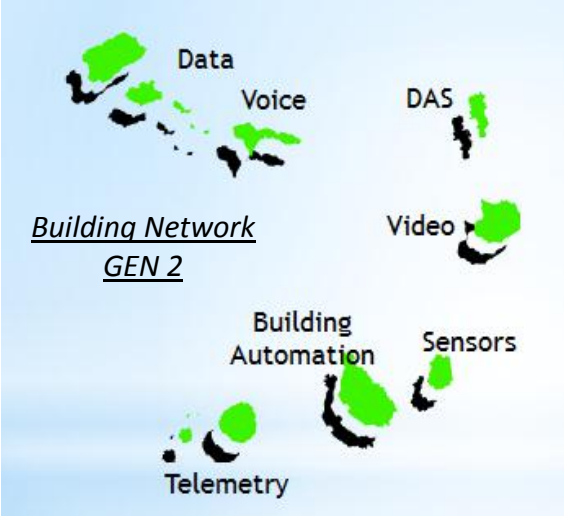
Next Generation Multi-Service GPON Networks, Today

Next-Generation
Cost Reduced
Multiservice
Network Solutions
for
Today and Tomorrow's
All Property
Communication
Needs

Telecommunications companies have impressive expertise in using outdoor long distance fiber networks to provide today's triple play architecture. However, it is a very different challenge to design secure multiservice networks that specifically meet today's fixed, mobile, and sensor intensive in-building and campus communications environments. IP UtiliNET is a leading innovator in mature, disruptive, all-fiber (f3Cs), all-property, multi-service networks that eliminate expensive and power hungry network distribution switches. The company has more than 5 years' experience in the design and implementation of in-building standards based multi-service networks that meet the technical and budgetary needs of customers who seek cost reductions, elimination of repetitive cable and switch upgrades, unmatched scalability and increased workforce productivity. LANvisn™ Clouds are the industry's first, practical, high performance carrier grade f3Cs network solution for local area networking. As the sole provider of LANvisn™ Clouds and the inventor of the "Hierarchical Element Manager" (HEM©) configurable mid-span, IP UtiliNET offers customers an immediate growth path to next generation LANvisn™ networks that cost 60% to 80% less than current switched networks. LANvisn™ Clouds can collapse up to 8 overlapping network functions including broadband video and provide a 25 year lifespan. LANvisn™ Clouds – Simple, Sustainable, Smart.



Gen2 Networks – Islands of Connectivity



Since the 1970s industry has been building a chain of independent islands that provide point solutions for a range of communication needs. During this period, technologists evolved to building shared bandwidth and then switched networks in support of client/server systems while other services were implemented using various types of cables and systems hardware. Switched networks improved workforce capability as applications expanded beyond the data-center and ran on local and remote terminals such as the VT100 which was released in 1978 – as shown here;

As data and Local Networks began to improve business capabilities, the phone companies were making changes to the voice systems which began to operate in the US in the late 1800's. In fact, the rotary dial phone was patented in 1891 and was the technology of choice until it was replaced by the push button phone. Push button phones found their way into government, business, and consumer hands in the 70's with full adoption in the 90s. Today, rotary dial phones do not operate on some telephone switches and in most cases are considered a novelty.

In 1980, the Ethernet standard (IEEE 802.3) gained commercial introduction and switched networking began to evolve. Systems that communicate over Ethernet divide streams of data into frames which can then be shipped over the wire to another destination. I have always likened this to a train in which each boxcar has content that is unpackaged at it's destination. Ethernet frames incorporate other protocols such as Transmission Control Protocol (TCP), and Internet Protocol (IP) or TCP/IP. These protocols are the important protocols that led to the launch of the World Wide Web in the early 1990s.

In 2004, the Voice over Internet Protocol (VOIP) standard was introduced commercially. Networks, once the domain for data transmission began to carry voice. During this time the video industry began to work with video codecs which allowed for transmission of video or streaming over IP networks. This introduced additional packet traffic to what has become a very crowded highway. Today, CAT5,6,and 7 structured cabling networks provide data, voice, and IP Video for wired and wireless devices which are demanding more and more bandwidth.

Islands of Connectivity – A Deeper Dive

Demand for Ethernet network services is causing cable and switch upgrade lifecycles to shorten while demands for your budget soar. Demand translates technically to bandwidth needs which are served by direct wire and wireless extensions. Demand translates financially to increased budgetary cost and loss due to more frequent turnover of cable and switch hardware, more power consumed, more complexity, high maintenance costs, and increasingly frequent cable and switch upgrades. There are four "classes" of network connectivity through which **wired and wireless** Internet Protocol (IP) services are provided;

1. **Fixed** – Desktop and Workstation computers, Printers, Thin Terminals, VOIP phones, RFID portals and sensors, fanless computers, shop floor equipment
2. **Portable** – Laptops and limited network tablet devices that connect to wired or wireless services
3. **Mobile** – Smart phones, rugged handhelds / scanners that typically connect to wireless in-building ,cellular, or satellite services
4. **Vehicular** – Public Safety, First Responders, Public Transportation, Local Service Fleets such as Taxis and other in-motion vehicles.

Current Gen2 networks provide data to these "classes", in some cases -VOIP, and in still others IP Video. Analog, or 2-wire phone, security sensors, broadband video and other services are pushed off to other forms of network connectivity. These "other" services require consulting and integration in order to achieve interoperability which increases bandwidth demand. Since current structured cabling networks do not have the capacity, distance, and capability to truly scale across multiple services as bandwidth increases more monies must be spent for upgrades and replacements.

Video distribution uses a dedicated point to point "coax" copper cable plant because existing Local Area Network (LAN) cabling plants do not have the capacity and the distance capability to carry broadcast signals. Coax copper cables are extremely thick, single copper strands that use a lot of shielding. Traditional copper based network cabling is thinner by comparison and made up of multiple copper strands but are not nearly as thin and capable as f3Cs fiber.

> "One strand of singlemode fiber which is about half the size of a human hair can carry as much data as a copper cable that is four inches thick."

Sometimes, customers choose to run video over existing LAN cabling. Existing LAN networks were not designed for video so programmers resort to streaming and other “timing” tricks. Unfortunately, existing LANs can slow down or stop completely when lots of streaming video, voice, and data traffic is traveling through a building or campus network. This is called network congestion and lack of capacity, two phrases that your cable and network salespeople love to hear. They will offer an upgrade every time. Network congestion should be called antiquated architecture, inability to scale with services, or too little copper in the core. LAN networks have a designed in capacity constraint and the fact that traditional networks were not designed for video is why IT or the video / security services team will typically recommend an overlapping and costly coax network. From a services perspective, there are three areas in which additional and wasteful coax cabling can be found;

1. **Cable TV** – Distribution of live broadcast services
2. **Security** – Connectivity to cameras and other non-IP elements, Sensors and Building Automation systems
3. **Specialty** – Video Conferencing, Signage, Medical Images, RFID

Analog telephone, alarm systems, and building automation and security systems rely upon twisted pair cabling. Twisted pair cables carry low voltage DC for miles and are part of the origins of nationwide communication networks. Linemen on horseback installed twisted pair cabling in the late 1800s for the telegraph / Morse code and teletype systems. When the outside cable is brought into a building it is connected to a “punch down” block and then connected to wall jacks. Todays’ LAN or structured cabling networks evolved from these early communication systems and are installed using multiple twisted pairs of copper cable.

Distributed Antenna Systems (DAS) which are used to augment public safety and **cellular repeater** networks are implemented using coax and in many cases, single mode fiber. These plants typically utilize some type of core amplifier and connect via a dedicated cable plant to antennas that provide send/receive services. They extend dedicated outdoor wireless functionality and coverage to indoor environments but are separate and distinct from each other and from wi-fi in functionality.

The technology industry markets “a world without wires” when working to sell wireless delivery capability and we are all too often having discussions with customers about capability versus capacity. The simple fact is that wireless networks (Wi-Fi) will always suffer or excel as a direct result of the capacity of the wired network that it connects to. Wi-Fi may be very capable technically, Wi-Fi may out-perform any competitors but the simple fact remains that Wi-Fi relies upon some type of wire somewhere. Shown to the right; the IP UtiliNET MW5400 wallplate edge access sensor.

All networks have the same characteristics – Core, Transport, and Edge. Telephone, Electricity, Water, GAS, and Sewage serve specific services and are mature or at least we know what to expect when we order that service. Each “utility” service is comprised of it’s core offering – Telephone, Voice / Electricity, Electrons, Water, Molecules….etc. We cannot say that existing Gen2 data networks are mature. We can make the comparison that the data network is designed for bits – simple 1’s and 0’s. Unlike these other services data networks technologically are continuing to expand based on demand for various types of services.

Existing copper based structured cabling LAN networks were designed for data. Voice due to its native data format has been added although current networks do not always handle the Quality of Service well. Broadband video, analog systems to include building automation, DAS, and cellular repeater systems are typically relegated to specialty networks as a copper based core network is not capable of servicing and scaling to meet the broad needs of todays wired and wireless systems.

Ultimately, the result of the demand for a variety of services has created toxicity and risk that is unacceptable. Here are some facts to consider:

- An estimated 65 Billion feet of telecom and signal wire is installed in US buildings today, this exceeds power wire.
- As much as 14.5 million miles of abandoned communication cable exists in buildings today. Much of this cable is coated with harmful Teflon and other carcinogens as below.
- Cables that are abandoned and installed in ceilings, building risers, air handling systems, ventilation systems, stairwells and more are a fuel source for fire, smoke, and lethal toxic fumes that can incapacitate and kill. This is especially true in risers.
- Between 1998 and 2008, cable production and implementation grew at an annual average rate of 52%. Much of this cable was simply placed on top of existing cable, thereby adding additional fuel for fire. The rate of cable expansion doubles every decade.
- Residents and Firefighters face a toxic stew of carcinogens that are released in daily in-building circulated air and in fires. Hazardous toxins include Lead, PVCs, Halogens, Cadmium, Dioxin, Teflon, Neoflon, FEP, and more.

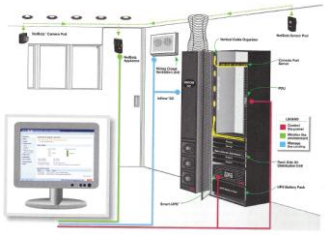
If 60% of COST could be eliminated, what would happen to your budget?

What Gen2 Vendors Don't Want You to Know

Current generation networks are outdated, costly, and needlessly complex

Structured cabling networks were never designed for broadband video and are not currently employed and usable for much more than wired and wireless data, voice and IP video services. Other communication type networks are being deployed at additional cost. This adds complexity, risk, and cost to any institution.

It's not just the complexity, it's the increasing costs of added power consumption



Gen2 networks are point to edge distribution networks that consume an increasing amount of power. The industry is talking about "edge routing" which brings more intelligence to the typical IDF or telco closet and added local switches. This intelligence adds more heat and in turn the industry has adapted by providing Air Conditioners for this power hungry electronic gear. In June of 2012 LEED is forcing property owners to account for telco closets as 24X7 operational office space. In some cases this move will cause LEED measurements to drop by 30%. Mobility is driving the need for increased wireless access and this drives additional needs for wireless switch / controllers and power consumption.

Featured on the left is a picture of two wireless controllers. The blue cables that run to the right connect to port injectors which provide Power over Ethernet to Wireless Access Points. On the right is the shelf of port injectors each requiring an AC cable and a wire from the controller.

Every technology has a usable service lifetime

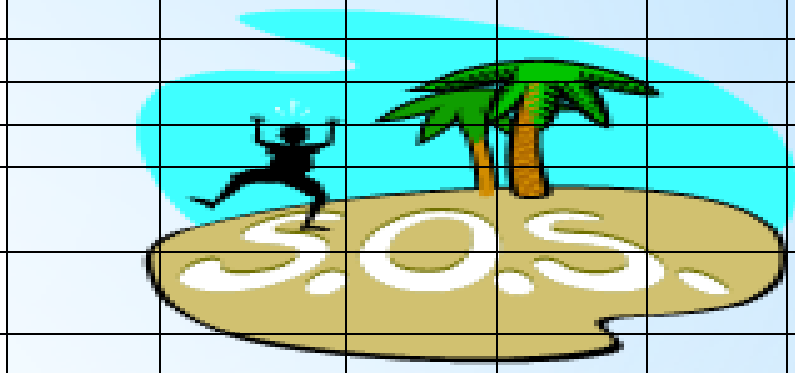
Switched Networks have served their purpose and are reaching end of usable life. Networks were designed for data and are implemented over copper cabling that gets thicker with each generation. Copper cables are limited to 300 feet from a switch and switches are limited to 4 hops from a core switch meaning that additional core switch ports are needed when servicing larger buildings. Voice and IP Video have been added over the years. Voice, IP Video, and Data increase congestion and results in network bottlenecks that drive the ever present need to upgrade. As laptops, tablets, smart phones and other mobile devices proliferate along with users that demand more, faster, the rate of demand becomes exponential. Current Gen2 networks require constant attention, constant upgrades, and more and more budgetary consumption. This leaves precious fewer dollars for the services that users are demanding.

What are the costs of your network related Present Mode of Operation?

Gen2 vendors have conditioned the market to solve capacity problems at the pace of switch and 300 foot radius copper cable connectivity. Demands for data, voice, and IP Video are increasing exponentially as fixed, portable, mobile, and vehicular access demand faster information flow. These factors are leading the industry toward more distribution switches and thicker copper cabling. In addition to the growth in traditional networks are overlapping systems that add to cost. Vendors of these systems are adding devices that operate using IP leading to additional need for switched networking capacity. Your Vendors are not sitting down with you today and discussing your total cost of operations to your institution as there is only more cable and more piles of switches in their future.

♦= support / /a= active device / coax, 2-wire cable typically home runs / coupled = uses f3cs fiber

Layered Services	Hardware	Energy (mth)	Maint (mth)	Staff (mth)	Total	Gen2	Gen3
Data / IP Video						♦	♦
Voice						♦	♦
Video (COAX)						coax	♦
Sensors						2-wire	♦ / a
Security						2-wire	♦ / a
Building Automation						2-wire & coax	♦
DAS						coax	♦ coupled
Telemetry						coax	♦ coupled



Budget

LANvisn™ CONNECT

Beyond exponential service demands, how severely will Gen2 networks be affected by mobility?

Several factors are shaping the future of your current network and your ability to budget for the bandwidth changes that are going to force you to consider upgrades even if you have just completed one. IP Video, driven by the proliferation of portable and mobile devices will chew up bandwidth faster than any data and voice service. The second is the emergence of 1 Gigabit Wi-Fi known as 802.11c and 802.11ad. 802.11ad operates in the 60GHz range unlike existing a, b/g, n and emerging 802.11ac. These factors will crush your current bandwidth in 2013. Your existing cable plant and budget will not scale to meet these demands thus a migration to Gen3 must be considered.

Gen2 Networks – The Energy Effect

Demand for communications and electronic services are causing consumption to increase dramatically. The industry is projecting an increase of 44 percent by 2035. To meet this reality, utilities are planning to build new energy plants, new transmission lines, and adding “smart grid” technologies. These companies simply pass cost increases to business and consumers. Rate increases are already being requested and implemented.

Electric Bills About To Spike

Oct 5, 2011 12:14 AM EDT - http://www.thedailybeast.com/articles

“Current trends in energy supply and use are patently unsustainable – economically, environmentally and socially. Without decisive action, increased fossil fuel demand will heighten concerns over the security of supplies and energy related emissions of carbon dioxide (CO2) will more than double by 2050.”

Source: http://www.iea.org/papers/2011/smartgrids_roadmap.pdf

Gen2 structured cabling LAN networks require lots of power and have followed the distribution of applications from the datacenter to the Personal Computer. The first generation of data networks were implemented for connectivity to “dumb” terminals and mainframe or “green screen” applications using point to multipoint architecture. Current second generation LANs followed application expansion and drove feature / functionality to the edge of the campus network. This point to point “switched” network architecture resulted in lots of distribution switches, typically installed every 300 feet or so. Today, IT professionals are busily consolidating and virtualizing servers in an effort to reduce the cost of operations. Ultimately, this consolidation is leading to “cloud” based services or a return to centralized datacenters. This migration of application services will be more effectively served by Gen3 Point to Multi-Point f3Cs LANvisn™ Cloud technology. Demands for network services are continuing to increase while you are being forced to continually reduce your budget.

How much energy is consumed by distribution switches in your current data network?

Gen2 Networks – The Switch Effect

The networking industry sells ROI, Performance, and Functional data that is designed to encourage you to consume hardware incrementally. Demand for network services is increasing exponentially which is driving increasingly shorter upgrade, replacement, and augmentation lifecycles. While this may be great for companies that are in the business of providing distribution switches, cables, cooling systems, and energy, it is highly disruptive to your budget, your staff, and it is detrimental to your profitability. In 2008, Cisco published a public information paper entitled; "Ethernet Power Study of Cisco and Competitive Products". We extracted the HP and Cisco comparative data and added a current Gen3 LANvisn™ column:

	Gen2 LAN gear - SUNSETTING		
	HP ProCurve 3500yl	**Cisco 3750-E**	**IP UtiliNET LANvisn™**
Power per switch	**212 W**	**143 W**	**NOT NEEDED**
Power in a 3 switch rack	**636 W**	**429 W**	**NOT NEEDED**
Heat dissipated in BTU (1 watt = 3.41 BTU)	**2168.76 BTU**	**1462.89 BTU**	**NOT NEEDED**
Power consumed in cooling 1 BTU	**.105 W**	**.105 W**	**NOT NEEDED**
Power consumed for cooling	**227.71 W**	**153.60 W**	**NOT NEEDED**
Total power consumed	**863.71 W**	**582.60 W**	**NOT NEEDED**
Cost per Kwh	**10 cents**	**10 cents**	**NOT NEEDED**
Cost per day	**$ 2.07**	**$ 1.39**	**NOT NEEDED**
Cost per year	**$ 755.98**	**$ 510.36**	**COST ELIMINATION**

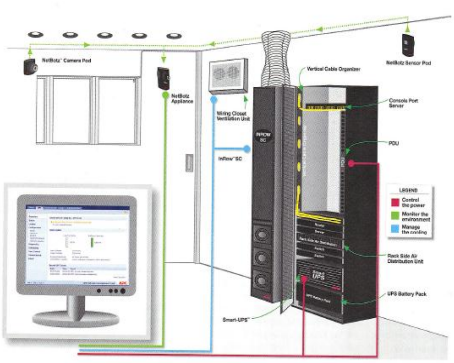
Is it better to save $245.62 incrementally (diff. in cost per year) or will your board vote to eliminate cost altogether? Is a decrease in power consumption better or is net elimination preferred? Is it better to decrease the carbon emission by close to a ton as in the example above – or is it better and more sustainable to eliminate the cooling needs completely? Current generation networks provide significant cost elimination as described herein are simply more sustainable.

The highest return on investment comes from the elimination of consumption.

Gen2 Networks – The Business Effect

> *"The board and the customers are expecting me to do all with less people, less time, and less money, and they are refusing to fund additional budget"*

Throwing people, hardware, and money at any system that is outdated is needless and wasteful. It increases cost, risk, and complexity. Your existing second generation Local Area Network (LAN) undergoes cable and/or switch migration every 2-4 years. Emerging third generation (GEN 3) LAN technology eliminates the need for these lifecycle upgrades through the elimination of the expensive network distribution switches and the copper cable that connects them.



For 25 or more years, second generation networks have required telco closets. Recently, these closets have become mini datacenters, complete with power hungry air conditioners that help to cool an increasing number of "intelligent" network distribution switches. This is consuming more of your budget in terms of short lifecycle; acquisition, operation, maintenance, and staff.

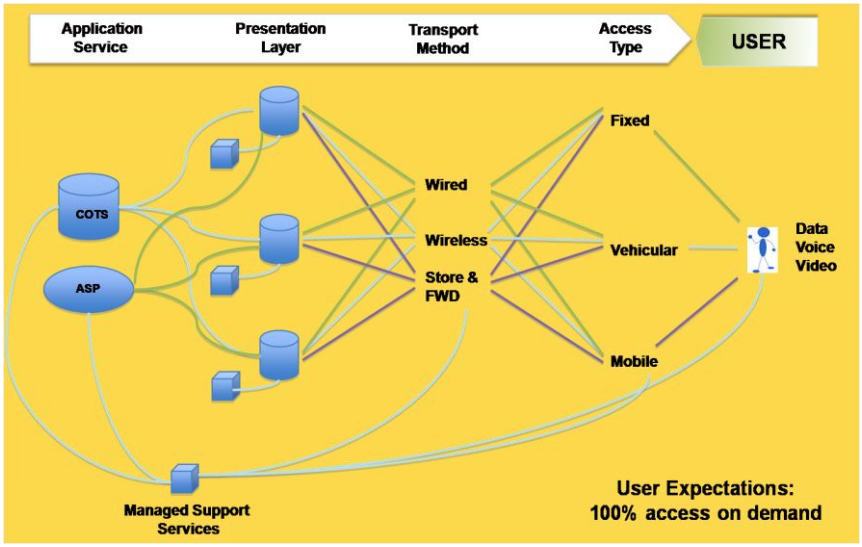
Gen 3 LAN technology eliminates the need for <u>all</u>, not some of these costs.

Second generation networks are based on a can and string model with copper cable and network switches every 300 feet or so. Today, you are paying for "upgrades" and expansions of cable plants and network switches with increasing frequency. These networks were designed for data and through innovation have added voice and wireless extensions. Current LAN networks were never designed for broadband video.

The third generation of all property multi-service networks allows complete elimination of those expensive network switches and all of the copper cabling in the distribution architecture. These third generation networks were designed first for video and easily support voice, data, and sensor/security requirements at significantly lower cost.

You can't fix an inefficient system by throwing hardware, people, and money at it.

Gen2 Networks – Access Anywhere 2012

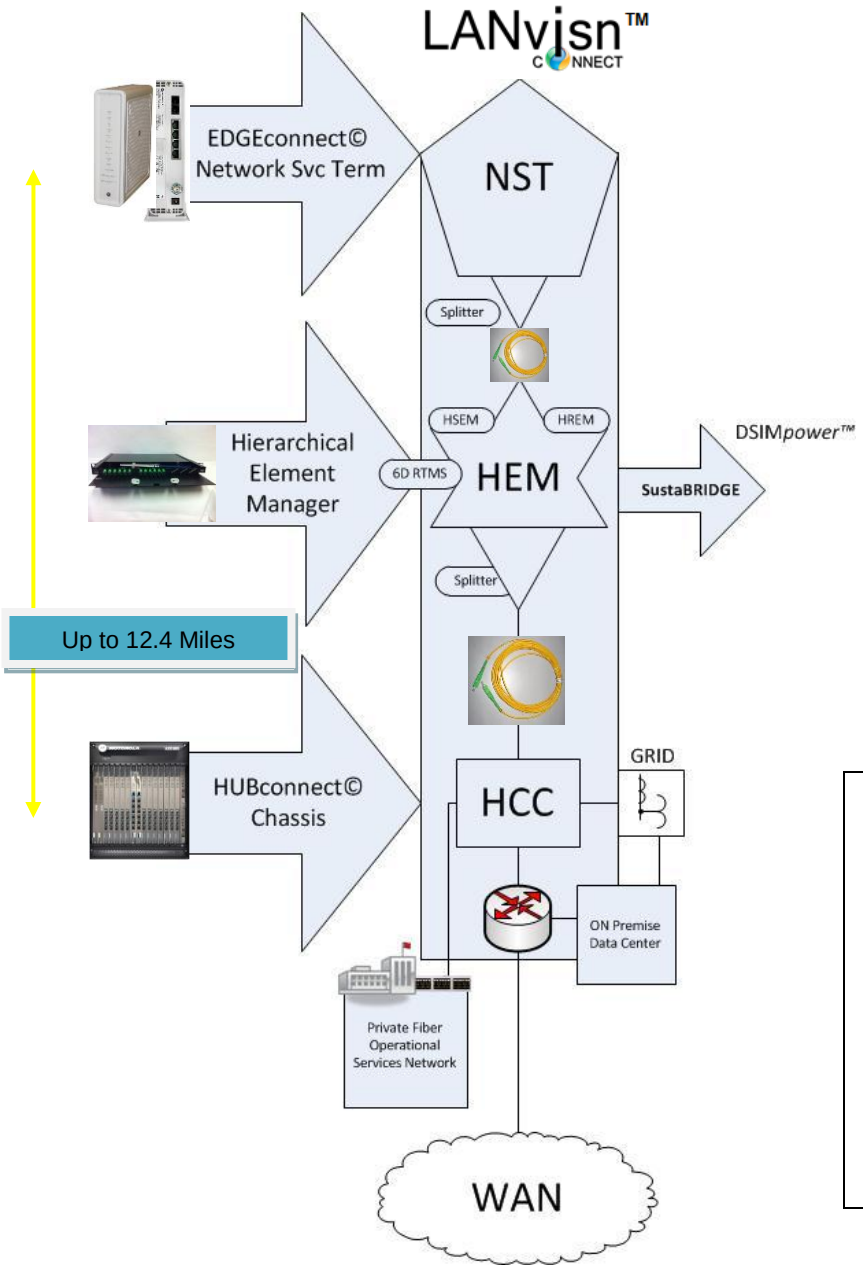


Users are demanding access to data, voice, and video content in all fixed, mobile, portable, and vehicular environments. This is driving applications into locally virtualized private and remotely hosted private and public clouds. Gen2 switched networks were designed for data. Voice over IP increased network traffic via fixed phones on desks first. VOIP has spread to portable via the Skype protocol and mobile via applications and micro-cell systems that complement cellular tower usage. All of these environments require monitoring and management in support of end users who want access to everything on demand.

According to the YouTube Blog, in mid-2007, 6 hours of video were uploaded to YouTube every minute and in January ’09 it grew to 15 hours per minute. In 2012, 20 hours of video are uploaded to YouTube every minute and we’ll see 24 hours – a day’s worth of video uploaded to YouTube, every minute, very soon. This is just one of the many video intensive social media websites. Many of the social media sites, Facebook, Hulu, Netflix, Twitter and others simply did not exist prior to 2004 and all of them can be watched from just about anywhere, anytime.

Gen2 structured cabling networks are at their physical, financial, and functional limit. The total impact of mobility, modality, and centralization of content is driving the need to reconsider the network architecture as a whole. Data, Voice and a literal explosion of video content, driven by social media is driving the need to provide non-fragmented all property network services.

LANvisn™ Clouds – The IP UtiliNET Emerges



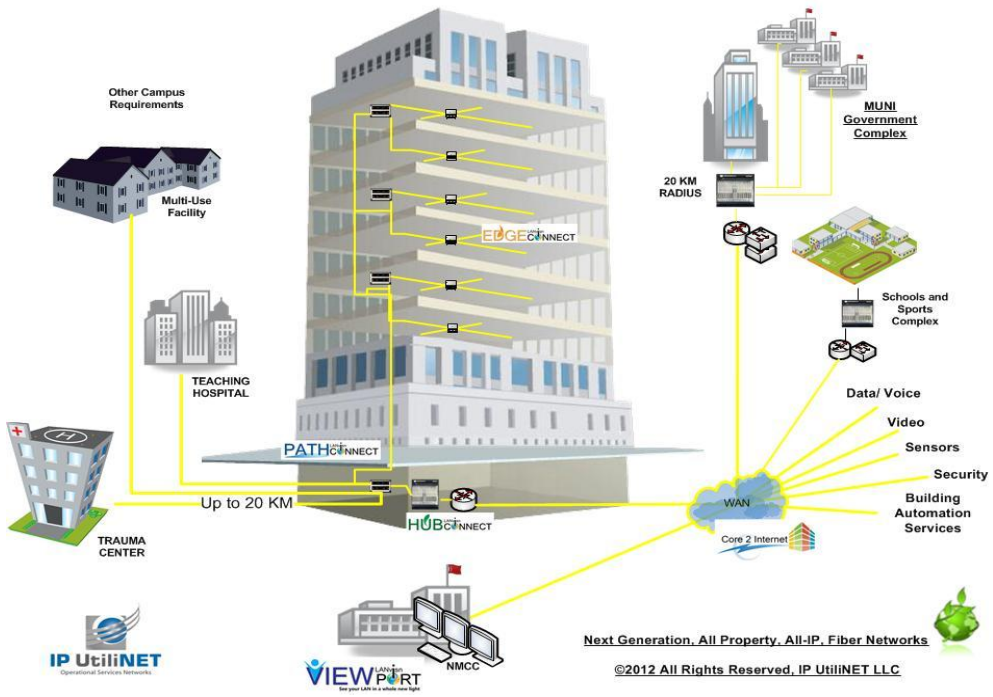
IP UtiliNET provides next generation LANvisn™ Clouds as All-Property, All-Fiber, Operational Services Network technology. We are experts in design, deployment, and operation of this technology. We provide full lifecycle services to include support for your staff. Our mature, industry standard technology is certified by the US Department of Defense. Based on the internationally recognized GPON standard, the technology is specified by US General Services Administration for all migrations and net new builds and has received US Department of Defense "JITC" Security Certification and US Army directive via this existing task order:

> **"Current commercial technologies, such as Gigabit Passive Optical Network (GPON) technology and broadband wireless networking, have been proven to reduce cost by up to 60 percent for network devices and to reduce time to market in the modernization of campus networks. All camps, posts and stations undergoing modernization shall aggressively adopt GPON and broadband wireless networking technologies by fiscal year (FY) 2013 in order to decrease operating costs and capital expenditures."**

Networks consist of Core, Transport, Edge, At a high level, if you understand the way that the telephone or any other networked system works, you will understand LANvisn™ Cloud Optical LAN technology. It's time to drop the switch and get on with the aggregation core.

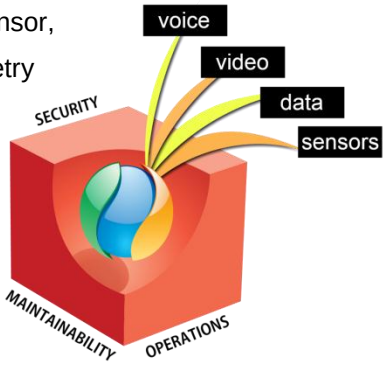
➔ LANvisn™, only from IP UtiliNET

LAN **Vital IP Services Nucleus** (LANvisn™), based on Passive Optical LAN is the next generation all-fiber, multi-service distribution method for cost reduced, high performance, in building, across campus, and municipal LAN services.



Available from IP UtiliNET, LANvisn™ is the product framework that enables a wholly new generation of reduced cost campus wide network services. A single Hub Connect Chassis provides connectivity in an area of 724 square miles with no distribution switches and supports over 8,000 network connections. The chassis is infinitely scalable and is US Department of Defense security certified.

A LANvisn™ network is non-fragmented and provides voice, video, data, sensor, enhanced security, building automation services, and coupled DAS / Telemetry functionality. This is a next generation transition to a multi-service architecture that is optimized for virtualization and “cloud” services. Cost reduction comes from the consolidation of overlapping networks and the end of the costly cycle of network distribution switch and inside plant physical cable upgrades.



Business leaders confirm that the desire exists to reduce or eliminate the costs of continuous replacement. We provide LANvisn™ Clouds as a future proof networking system that allows you to focus your budget on the effective delivery of services. Next Gen LANvisn™ networks offer a chance to dramatically improve services and reduce costs. A LANvisn™ network will create new jobs, new competitive opportunities, and improve management and delivery capabilities for IT professionals while lowering cost for Government and Enterprise.

Solution Benefits = Increased ROI

Budgets matter in any business or government entity. The chance to eliminate a significant one time and recurring cost does not occur very often. The migration to a next generation, all-fiber, multi-service network will provide the best Return on Investment as compared to any existing structured cabling network;

Passive Optical LANvisn™ Networks are your best choice;

Current Copper Based LAN Network	LANvisn™ Clouds
High Initial and Recurring Expense	Lower Cost to Implement in building and throughout a campus
Recurring switch and cable forklift upgrades	Collapse overlapping network services – eliminates forklift upgrades
High Operating Cost	Significant reduction in budgetary consumption
Voice and Data capable with limited QOS capability	Voice, Video, Data, Sensors any configuration. Port and Bit level control maximizes QOS
Migration to Edge Routing and Layer 3 "intelligence" calling for AC in telco closets	No power consumed in passive middle. Chassis does not require an Air Conditioned room
Fragmented data and voice network that was never designed for video	Non-fragmented point to multi-point fiber network, designed first for video
Fragmentation limits security capability and adds cost	Port and Bit level control, non-fragmented, no added cost
Voice and Data with up to 8 overlapping communication oriented networks	Capability to collapse network services to a common Operational Services Network platform
Gen 2 – Point to Point Distributed Edge Services	Gen 3 – Point to multi-point distributed core
	US GSA, US ARMY are specifying GPON networks
Sales Approach is to eliminate personnel just to add more foreign manufactured hardware	Sales Approach recognizes personnel value and shifts budgets from churn to service delivery
Symmetric Workgroup Communications	Symmetric Workgroup Communications with port level QOS and data center/internet ZERO obstruction QOS

LANvisn™ Passive Optical Networks are All-Property, All Fiber systems that reduce the cost, complexity, and confusion of current wired communication networks. In the third generation, networks of all types migrate to non-fragmented fiber-optic utilities without requiring workforce elimination.

Summary

In creating this paper, we wanted to clarify some of the decision points regarding current LAN migration decisions while introducing next generation LANvisn™ Clouds. This is especially important for the customer who is considering a cable or switch upgrade. If you find yourself in this position today, we expect that this paper has equipped you with enough information to act, at least before your competition does.

Our journey began in 2007 with a frustrated CTO of a large multi-site campus who told us; "I spend 60% of my time evaluating line of business requests for data oriented network services. Of that, a bit over 40% of my budget goes to fulfilling less than 50% of the requests at three of my locations. The board and the line of business executives are expecting me to do all with less every day. I get less people, less time, less money, and they are refusing to fund additional budget. I end up saying NO a lot."

In later interviews we discovered seven overlapping communication oriented wired and wireless network services that did not operate over existing LAN cables. The overlapping services were managed using four budgets by three internal non-IT organizations The CIO told us that customer perception of IT service was "needs improvement." Executives agreed and told us that the one thing they would improve was; "IT responsiveness to connectivity requirements."

Simple, Right? Just hire more people, increase the budget, add capacity = more cost. This has an immediate negative effect on revenue, and consequently on profitability. It does not match the "do all with less" business requirement. This leads to frustration, poor morale, unhappy leadership, and all too often personnel transition.

Georgia based CIO, Existing Fortune 50 Mfg. Customer:

……

"I find that we are accomplishing more with less bandwidth. We believe that this is due to the elimination of congestion and packet loss that resulted from the elimination of legacy distribution switches"

……

It is not the fault of the people. Our root cause analysis always points to an inefficient, outdated, and multi-layered second generation Local Area Network (LAN) infrastructure. As a budgetary or technical leader, you have the incumbent responsibility to choose the most effective path forward. The most cost effective choice is LANvisn™ Clouds. The best way to complement the migration to public and private clouds, improve security, reduce cost, and eliminate the waste of today's switch and cable networks is

Don't let waste and inefficiency account for 60% of your network budget.

How to Move Forward

LANvisn™ Clouds are the less costly investment for your local area and campus network because of the nearly limitless bandwidth capacity and ease of upgrade. LANvisn™ Optical LAN technology is the next generation of network technology. It delivers significant cost reduction, energy reduction, and environmental benefit to customers choosing to move forward. For many, we are helping to address the question of how to move forward, while our customers make decisions on when.

We provide the capability to complement the migration to public or reduced cost sustainable wired and wireless technologies. We work with individual site and campus customers who seek to reduce acquisition, operations, and maintenance costs while delivering an increased level of performance services. In an era of budgetary consciousness, our team is focused on solutions that reduce budgetary consumption – or we are not having the right conversation.

IP UtiliNET is committed to maintaining leadership in multi-service optical networks through its "LANvisn™ Clouds" solutions program and it's "Academy for Industry" human capital certification and development program. IP UtiliNET's proven technologies, design expertise, quality driven processes, and operational depth ensure that its in-building and campus-wide multiservice networking solutions will enable customers to cost effectively reduce current switched network complexity, cost, and inefficiency.

We are focused on solutions at the campus and individual building level. With a widening range of Federal, State & Local, and Enterprise customers we continue to excel through focused services to our customer base.

For More Information

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With a GO decision, we conduct the work and remove the excess for environmentally beneficial disposal.

Simple, Sustainable, Smart ….

