

White paper

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Regional Networks – Empowering Regional Stakeholders

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From telephone service to pervasive high-speed wireless networks – competitive, cost effective, cutting-edge communications now.

Let's face it, for the last 100 years or so, if people wanted to communicate with each other over any type of distance, there were only a few companies that had the ability to deploy and commercialize the requisite infrastructure. And if you happened to live in a part of the world that lacked a large centralized population or was in the midst of difficult terrain, chances were that you had to wait longer than other regions for quality services; and when you got them you were often stuck with a monopolistic vendor and spotty service.

Thankfully those days are gone. Almost daily we see new and exciting technologies available allowing people to communicate in ways never dreamed possible. And with collaboration between governments, industry, investment capital and entrepreneurs these are services running over technologies which, when properly planned, can be cost effectively deployed to most all parts of the world.

A great example of the business model that best leverages the strength of a specific region, such as CSME, is a Regional Network. What is a regional network? A network that is specifically constructed to aggregate data and voice traffic from a known set of locations. That traffic, as we all know, has great value to the entity that owns it. The question is this: Why shouldn't a region use its own traffic as a major bargaining asset in order to negotiate with technology companies and service providers to get the services they want. Answer: it should, hence the idea behind Regional Networks.

Large corporations have been developing WAN's (Wide Area Networks) for years in order to get volume discounts from communications providers and to insure the quality and security of their own corporate communications. Of course there is (or, perhaps more accurately, was) significant cost to deploying these types of networks, making the cost/benefit justification out of reach for most prospective participants. However, the recent telecom meltdown has left surviving companies hungry for new business opportunities and has brought many costs down to a more affordable level. When you combine that with the advances in networking technology, blending all types of voice and data over all types of terrestrial, wireless, undersea and satellite networks, the possibilities are really limitless.

Traditionally large telecommunications companies would be required by governments to build infrastructure into rural and difficult to reach parts of the world. Often these large companies considered these requirements a cost of business, rarely looking to innovate or deliver the best of class services. Today that reality has changed dramatically. There is a new breed of network owners who are able to competitively bid for traffic. Bandwidth is cheap, and by connecting regional traffic to one or more of these networks, you have a

valuable currency which will continue to grow as more services come on line. The trick then is to build a business case properly, find funding consistent with the aspirations of the project and implement with many conservatively chosen milestones to keep things on track.

How did we get here?

To understand the potential value of owning a regional network it is important to first consider how telecommunications companies have traditionally made money. Traditional telephony voice service has always been about network utilization. First a telephone network is built with both local and long distance exchanges. Then customers of all types within that coverage area place calls over that network. The amount of use of the network is of course what enables the telephone company to recoup its investment and to make a profit. This is a gross simplification; however the idea is fairly straightforward. And, as telephone companies increase the types of services offered over their network, they have a single goal in mind -- to increase network utilization. Over time however as the number and type of available networks have increased, the market has assigned greater value to the ownership of the traffic over the ownership of the network infrastructure itself. I.e., a network is only as valuable as the traffic and content on it.

What is network traffic?

In the traditional world of networking there were primarily 2 types of network traffic.

1. Voice traffic
2. Data traffic

The distinction between these two types of traffic was created by the differences between the networks required to deliver them: voice (telephony) networks and data networks. Over the years large corporations, telephone companies as well as many entrepreneurial ventures built out their own dual network systems to meet the ever increasing traffic demands.

The advent of IP (Internet Protocol) and its adoption as a mainstream networking standard allowed for all information travelling over a network to be treated in the same way (generally speaking), thus eliminating the need for proprietary networks designed to carry a single type of signal such as voice. The convergence of fiber networking and IP caused a significant re-examination of the logic of building and maintaining dual networks. Given that traditional voice networks were made from copper wire with a very limited carrying capacity, terminating in highly mechanized proprietary switchboards and related devices, it was logical that the market would turn towards the fiber networks and standard computerization of data networks to build its future.

The massive build-out of these network types culminated in a saturation of available network capacity in the late nineties which was a large factor, if not the driving factor, behind the telecommunications market meltdown and sell off in recent years. It is important to note that this meltdown was not caused by the shortcomings of fiber networks, or even some type of fault with the IP itself – it was caused by an aggressive build out which was too far in front of the services, software and business models which are necessary to let the market take advantage of its capabilities.

In the years since the collapse of the Internet bubble software and hardware products have matured to a point where the idea of building a single network to run all of your communications over, is not only preferable to building and maintaining dual networks, it is also increasingly cost effective to do so. Cost effective that is, assuming you have an ability to access the part of this equation which has the most value – the traffic – voice, data, video, peer to peer, mobile – all of it. All of this brings us to the present reality that

although the business models and usage levels are slowly catching up with the glut of network capacity – bandwidth today remains a buyers market.

Why build a Regional Network?

Let's briefly consider the variables in play:

- Aging traditional telephony networks with limited features facing a rapidly eroding customer base.
- Large global tier-one networks with vast amounts of available capacity – cheap.
- Rapidly maturing available product service offerings which thrive on cheap network capacity
 - VOIP
 - IM
 - Peer to Peer networking
 - Gaming
 - Music & Video Services
 - IP based business software
 - Mobile Communications
- Idle network design/installation assets
- Certain regions of the world do not have multiple alternatives when considering their telecommunications alternatives
- Steady and predictable growth in user traffic

The most valuable asset in the current market is the user traffic – not the technology. Just as corporations building their WAN's (wide area networks) have long understood – when you roll up all of your available user traffic, it can and should be considered a very valuable asset.

Consider the potential: by aggregating all voice and data traffic a region would have significant buying power or in other words a way to leverage upgrades from current carriers; an incentive to entrepreneurial enterprises just getting into the business; an opportunity for competing carriers to enter markets they have been unable to serve in the past; or simply a method by which that traffic can be routed to ensure you are getting the best possible price and service at a particular time of day or night.

In short, the network is the conduit and the asset is the traffic, and there is any number of carriers hungry for that traffic.

The reduction in overall system pricing as well as emerging capabilities and uses has fuelled lower-capacity installations previously considered uneconomic for regional networking solutions. For example, Looking at the source of regional network contracts over the last two years shows that 56 percent were purchased by traditional customers (new and old style carriers), 7 percent were from diversified energy companies, 34 percent from companies not associated with fixed line provision, and 3 percent from alternative carriers in newly deregulated markets.

So, why build a regional network?

First: to round up and aggregate all available voice and data traffic (think WAN) available to you.

Second: to deliver that traffic to the carrier or carriers who best meet your needs from a service and cost model.

Third: to rapidly advance telecommunications services and competitiveness in regions which have been traditionally underserved

There is a significant shifting in the telecommunications industry and at this particular juncture there is opportunity for underserved regions to move to the front of the line.

What is a Regional Network?

From a purely technical perspective there are various definitions which have been given as to what constitutes a Regional Network. Generally it is regarded as having a route length of below 4000km and not needing the transmission 'tweaks' of a traditional system in terms of dispersion, gain, tilt and other factors.

From a business perspective, Regional Networks must deliver network connectivity that meets the "4S" of telecoms: Superior Cost Effectiveness; Simplicity; Security; and Scalability.

A Regional Network can address a fundamental need for regional connectivity and functionality which is relatively inexpensive to implement, reliable, and is simple and cost effective to operate and upgrade as capacity needs grow. By way of example, in 2005 bandwidth demand is growing at a conservative rate of 5-10 percent per annum. However, this growth is not being reflected in bandwidth pricing, in fact the reverse can still apply. Thus typically for every 1 percent that a carrier loses in revenue due to capacity price erosion they need to recover approximately US\$180M in operational cost savings. These risks can be offset by aggregating both voice and data traffic on a common network as well as building links to wireless and mobile networks, thus significantly expanding the potential product and service offerings on a single network. However, the price and time pressures in this market are substantial. Careful planning and serious attention to operating margins and profit potential are critical to the success of this type of network.

Regional networks offer the potential to meet many regional communications needs. The great variation in regional system requirements requires very careful business planning. For example, a satellite solution may appear to offer a quick and cheap-to-implement solution relative to a submarine system, but the satellite alternative offers less capacity/availability, less reliability, higher operating costs, and an inability to upgrade. As a rule, the commercial and technical submarine solutions available today are far more flexible than those designed to meet the needs of traditional systems designed to cross continents and oceans.

Common challenges to building a Regional Network

There are several challenges which can be expected when undertaking the build out of a Regional Network.

The first commercial challenge is the formulation and the financing of the business plan. Regional networks, with their more modest capital requirements, regionally-driven demand and faster implementation, are generally easier to fund than traditional large scale systems. However, financiers still require extremely robust risk analyses, sustainable operational business plans and short payback periods before they are convinced a project is worth funding.

Another challenge is to minimize operation and maintenance (O&M) costs. With the majority of marine maintenance agreements operating on a capacity-independent per km charge structure, lower capacity regional networks incur a much higher O&M charge per bit than traditional systems. This is further complicated for a regional repeatered system that requires different techniques and equipment to maintain compared to the terrestrial network.

There is a major commercial challenge in that the cable owner can only meet its long-term business directives if it can sell and provision additional capacity at a profit. However traditional systems capacity is added only in large bandwidth steps and is expensive and time-consuming to provision. Furthermore, they are often the sole domain of the original supplier to price and implement, reducing competitive pressures.

A common challenge to regional networks with a significant undersea component occurs when the length of the regional network is just too long to be achievable by un-repeatered technology. Then it requires more expensive cable, submerged amplifiers and associated power feeding and test equipment. It also needs an approach to the operation and control of the repeatered equipment that is different to their terrestrial network. On that basis, a system that is only a few kilometres beyond the un-repeatered limit will incur total costs that are typically 60 to 100 percent higher than if it had been achieved using a terrestrial un-repeatered solution.

Uniqueness of Caribbean Regional Networks

So what makes Caribbean Regional Networks unique? In many other parts of the world, the communications backbone is comprised of terrestrial networks, whereas in CSME it is comprised of submarine networks. As such, CSME takes center stage in the deployment and commercialization of submarine cable technologies. And, as entrepreneurial groups around the world wrestle with how to fund, deploy and commercialize these submarine regional networks, they will look to CSME as the model.

In addition to the submarine-centric nature of a CSME regional network, it is also the case that the backbone for CSME is external to any one country as opposed to many other markets where the backbone is internal to a particular country. As a consequence, the internal telecommunications infrastructure of any country in CSME is only as good as the regional submarine cable to which it is connected.

Finally, given the two foregoing factors, CSME countries connected by one or more regional submarine networks become part of a "Regional Network Demand Cycle." The quantity and quality of traffic that a participating CSME country delivers to the regional network increases the value of the regional network itself. In turn, the quantity and quality of other traffic on that regional network increases the amount of traffic flowing in and out of that participating country, and thus increases the amount of traffic on the participating country's terrestrial network.

Conclusions

Despite the technical and financial challenges, Regional Networks offer a new opportunity to re-examine a communications strategy for a given area. Consider the increasing importance of being linked in to the rest of the world via powerful high speed, reliable and highly functional networks, whether it is for business, education, government, or personal use. The economies of the future will utilize the tools and capabilities built upon these types of networks as the foundation for growth.

Finding innovative ways to leverage growing assets, such as user traffic is a powerful tool for putting together a world class business plan creation, solution design and implementation team. Carefully considering some of the common challenges and planning a realistic timetable to profitability and growth are good business practices in any endeavour, but of particular priority in the case of Regional Networks given the significant transformation and current fluidity of an industry that had for better or worse been rock solid for almost a century.

Whether or not a Regional Network is ultimately the right solution for your needs, it is worth very serious consideration before you sign on to any new plan for communications investment. The market is very much in a state of transition with all of the accompanying potential risk and reward that brings. It has been almost 100 years since this much was at stake in the communications industry; if we get it right, it may be another 100 years until it has to be done again.

**Additional information:
About Global Marine**

Global Marine has been in business for well over a century and continues to be the pre-eminent provider of submarine cable installation and maintenance services in the world. Since the installation of the first telegraph cables in the 1850s, it has been essential for system owners to produce detailed cable maps to plot the location of a cable on the seabed, keep it maintained, and ensure that information is regularly updated.

Global Marine has remained at the forefront of cable installation and maintenance ever since. Operating with the world's most advanced fleet of cable ships and subsea vehicles, it is a market leader in marine cable installation and maintenance for telecommunications, as well as scientific research, oil, gas, utilities and the renewable energy sector.

It has installed more undersea fibre optic cables than any other operator. More than 50% of the world's buried fibre optic cables have been installed by Global Marine Systems and, between 30 and 40% of all subsea cables repairs and maintenance are undertaken by the company. It continues to develop sophisticated tools and techniques to plan, install and maintain cables in order to improve the resilience of its customers' systems. With a highly experienced and knowledgeable workforce operating cutting edge systems, it ensures its customers receive the most innovative and forward-looking solutions for their specific needs.

Global Marine is at the forefront of data record management and continually develops new technology to meet the needs of the submarine cable industry. Its developments in state of the art geographical information systems and computer mapping technology play a vital part in the drive for greater system security.