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The Cost of Ubiquity: Universal Service Does not Have to be Universal

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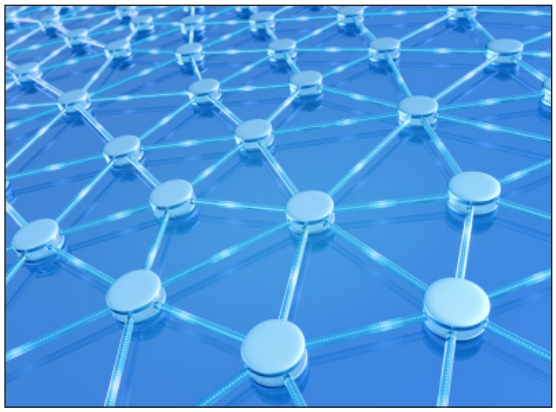

There are places in Africa where a guy lugging a car battery on a bicycle will charge your cell phone for a few cents. There are other shops in the world where people can swap dead phone batteries for a charged one like some of us swap out the empty propane tank for our gas grill. In many parts of the world, there isn't an electric outlet every few feet or even in every building and if there is, there are times during the day when there is no power anyway or the cost per kilowatt is too steep. Even if there was a mandate for universal service, the economic and infrastructure realities of the locale make delivering it impractical, so individuals and communities work with what is available and come up with practical alternatives.

As nations and network operators consolidate infrastructure to create even larger public networks capable of delivering greater capacity, there are places all over the planet where broadband access via a single, nationalized network is unrealistic. These are places that, whether by choice or necessity, people and businesses are located and those people and businesses require communication connectivity just like they require water, power, and transportation. And just like water, power, and transportation; these individuals and businesses have no illusion that they will have access to the same services at the same price as someone located in a city. There is no interstate highway connecting employees to an off-shore oil platform and there's no fiber ring connecting cattle ranches in the outback of Australia. Why? Because it costs too much.

One Size Does Not Fit All

Operators calculate the cost per home passed and it's an important metric. The cost to connect 100 customers in a six story apartment building is significantly less than the cost to connect 100 customers scattered across the Serengeti. Any construction project has three key elements – time, quality, and cost. The rule of thumb is that you can only have two of the three. If you want it fast and cheap, the quality won't be as good; if you want it cheap and good, it will take some time; if you want it good and fast, it's expensive. Construction of remote broadband communications networks, wireline or wireless, follow that adage. If you want fast, high quality broadband today, it's expensive. If you'll settle for slower service that is affordable, you can have it now. If you want high speed at a lower cost, you'll have to wait.

Solving the problem of really remote access will be done locally, not from some center of government or global headquarters building. Large, community-based deployments are a cost-effective way to deliver services to many users in a small geographic area. It worked for water and electricity. Coverage is ubiquitous as are operations and maintenance, making services affordable for the customer and profitable for the provider. Population density makes it very cost effective to implement hub-and-spoke or ring architectures to deliver water, power, and network connectivity. Less population, however, means

more expense – unless the architecture changes. One well per water customer would be ridiculous in any city or town but it's a necessity in rural areas and, over the life of the system, the cost is manageable.

The challenge for network operators and users is to change the architecture. Maybe it means using small cells or power lines, maybe it means locating antennas on grain silos, or maybe it means using satellites. Users are finding ways to get network access because they need to be connected and operators are devising ways to deliver. There might be bandwidth constraints or problems finding reliable power, but all over the world operators are overcoming these challenges and managing limitations. Service offerings are the result of consumer and business demand, not government-mandated universal service. The answer may not be scalable to a large provider, but it works locally and should be enabled and supported by regulation, not buried. A bonus for those users and operators is that their own local solution will likely benefit others that are facing those same conditions and circumstances in another corner of the world.

Instead of delivering high capacity broadband to a community, remote operators need to deliver broadband to individuals. Satellite service providers claim 12Mb download speeds and as I'm writing this, my provider is delivering me 6Mb download speed because my broadband is distributed across the entire neighborhood. Satellite providers use tiered pricing based on usage, which might make the monthly cost higher, but not out of line for really remote access, and we'll all probably be switched to usage-based billing before too long anyway.

Economies of Small Scale

For every locale in every region of the world there is a need for communication service providers. Where an AT&T or Vodafone will not be successful with their giant retail business models that rely on economies of scale; smaller operators will succeed and in the end there are hundreds more Tier 2, 3, and smaller operators than there are Tier 1. Small operators benefit from understanding local economies and operating realities. A small operator in the Caribbean offers pre-paid broadband to the large number of bankers and businessmen that regularly visit the island. It's more expensive than local service, but less expensive than roaming and wildly successful. By becoming part of a larger alliance, small operators ensure global coverage for Tier 1 providers, while offering their own customers that same advantage.

Building connectivity into virtually any product or offering makes network operators less relevant on their own, so small operators need alternative

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sources of revenue. Small network operators are usually located in areas with small utilities and business units. Those operators are uniquely positioned to manage network services and infrastructure for their business customers, whether located nearby or headquartered a world away from this remote outpost. For vendors selling systems to small operators, the ability to scale down and deliver reliable capability at a lower cost is important as are hosted, managed, and cloud services models. Multi-tenant systems that can be remotely managed and upgraded are valuable to network operators and businesses of any size but especially to small organizations. Managed or hosted services ensure security, technology refresh, and regular maintenance that many businesses are unable to adequately manage or afford. Fully automated functionality with on-line control of configurations and parameters reduces the amount of expertise required in the field while minimizing travel and support costs.

Operators of every size need the ability to support customers using automated, on-line and cost-effective tools for order management, CRM, and customer care. ConceptWave offers a line of integrated, customer-facing products based on a centralized product catalog. The ConceptWave solution enables operators large and small to define and deliver any combination of connected products tailored for individual customers and locations from a central data source.

Forced Evolution Is Not the Answer

The perceived necessity of network connectivity means that communications infrastructure will likely become more – not less – regulated in the future. The plus side of regulation is that coverage becomes ubiquitous and everyone has access to the same services at the same cost. The downside is that ubiquity dictates a "lowest common denominator" approach. If service offered on a remote island or mountaintop is, by law, the same as mid-town; the result is that the service in mid-town won't be very good. Innovations that could be profitably installed in mid-town are cost prohibitive everywhere else and so nobody gets an upgrade. That's not what we want either and that's why most nations ended the reign of monopoly network operators.

Nationalized networks present the same risk. National broadband networks deliver ubiquitous coverage, but that approach could also stifle innovation. What is empowering today – 10G everywhere, mobile broadband, fiber – might not be enough tomorrow and then what? If the infrastructure is amortized over 20 years and is antiquated in 10, will countries reinvest or will they wait? There is no incentive or business argument to upgrade and no competition to force the issue. The alternative is evolution. Early adoption of innovation is expensive so population density is important to realize even a break-even return on investment. Once proven, however; innovation becomes best practice, widely available, and costs go down. At that point, a business case can be made to deliver any feature, function, product, or service profitably anywhere.

Local providers can and are innovating to profitably meet demand for higher capacity, higher speeds, and greater access to products and services from remote or rural locations. Innovation in densely populated markets leads to evolution in small and remote markets. Customers everywhere are demanding connectivity and capacity and capability is being delivered consistent with the unique needs and constraints of each locale. It might cost more or take longer to deploy, but it will happen. When the only demand is regulatory, there is no incentive to innovate or push your vendors to come up with alternatives to large, public network architectures. Subsidizing the cost to build the network and regulating tariffs lead to immediate gains, but in the end, evolution is the only way to profitably move forward.

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Universal service is intended to deliver the same types of innovation to everybody, everywhere. The unintended consequences are that innovation is either stifled or bypassed completely and those best suited to develop local innovation don't. Demand will drive remote access and businesses that operate in remote locations will always look for more cost-effective ways to operate which continues to drive demand for better solutions in remote areas. Forcing the issue won't get the job done. For now, users in really remote locations will pay more and most don't expect any special treatment.

About ConceptWave

ConceptWave is a leading provider of customer, product, and order lifecycle management solutions that enable communications service providers to rapidly introduce new market offers and to empower superior customer experience. ConceptWave's unique offer is to provide an end-to-end catalog-driven suite of order fulfillment automation software with ConceptWave Order Care and Rapid CRM. ConceptWave products and solutions enable service providers to address competitive requirements and simplify the management of customers, products, and orders, for any product, on any network, in any market, using any channel. ConceptWave is headquartered in Toronto with presence in Americas, Europe and Asia.