Telecommunication Trends in Kitsap County

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Continuing to Extend E-Commerce Services:
When considering the impacts of technology on the economic development of a community, our thinking must extend well beyond the "Internet Presence" issues of e-commerce. To prosper, Kitsap County needs to actively pursue the means to extend service to commercial and non-commercial projects, both existing and planned. Community planners must include e-commerce infrastructure in their plans so both the business parks and our residential areas can enjoy the technology services our high-tech society now demands.

Installation of High Bandwidth Communications:
The semi-rural nature of Kitsap County is an enticement to live here. This semi-rural nature has also hampered the installation of "high capacity" communications throughout the area. Thanks to several initiatives, high bandwidth connection (fiber optic cable) between Seattle and Kitsap County continues to become more diverse. Until recently, a single carrier provided access to and throughout Kitsap County. This carrier transports the majority of all communication to and from the area. Other Kitsap County telecommunication providers lease services from that sole carrier to connect to Seattle and beyond. There are local telecommunications companies who control other available connections including older microwave links normally used for voice circuit connections to Seattle. With the completion of the extension of the NOANET through Shelton and into Kitsap County, as well as extension of AT&T Fiber from Tacoma, Kitsap County will have at least three distinct fiber routes into the county, with more to follow. A true diversity of choices is now available in the county for the first time.

The NOANET leg has now been completed into North Kitsap and additional routes are being added to potential customers, and to provide redundant, diverse paths for stability and survivability. NOANET recently completed a "dark fiber" agreement with QWEST, to provide a fiber link across Bainbridge Island to the Kitsap Peninsula. When completed, this project will provide NOANET (and thereby KPUD #1) with a complete SONET ring based on the NOANET fiber network and the QWEST submarine fiber across Puget Sound.

There are a small, but growing, number of companies now connected to the KPUD fiber network. Work continues to extend the fiber network and / or services carried on the fiber network to the end user. The City of Poulsbo has committed to the network, with commitment expected from the City of Bainbridge Island as well.

Problems Distinct to Kitsap County:
Communications within the county are further complicated by the existence of four distinct service areas served by three telephone companies (Qwest, Sprint and CenturyTel). Establishing voice or data routes, between these service areas, inserts additional costs ranging as high as 40-60%, as well as creating management and maintenance problems that would otherwise not occur.

The vehicle transportation choke points at the Tacoma Narrows Bridge and Kitsap County ferry terminals parallel the problems of inadequate telecomm / data infrastructure. The inability to transport people and goods efficiently to and from the peninsula mandates that a method of relief be found. To fix the transportation issue without spending hundreds of millions of dollars is not possible. The only viable alternative, widely recognized as effective and immediately useful, is substantially upgrading the telecommunications and data delivery infrastructure.

Fiber cable infrastructure has, until now, not been built by large communication companies due to lower financial rewards when compared to large business areas such as Seattle and Bellevue. There are additional regulatory restraints on the Incumbent Local Exchange Carrier (ILEC) (the telephone company) that has hampered infrastructure buildout. Other independent providers have reviewed the market area and have, until now, chosen not to build to the Kitsap County / West Sound area.

Options Being Considered and Projects Underway:
There are several Projects in the planning process or underway to improve Kitsap County's telecommunication services. AT&T acquired local cable companies. They upgraded and extended the cable infrastructure. COMCAST has now completed the purchase of AT&T cable, and the transfer of operations is ongoing. Qwest continues to extend fiber through the county and onto the Olympic Peninsula.

Qwest and Sprint have upgraded their interconnect within the county, with Sprint opening a major node in Poulsbo. Smaller companies are extending wireless and DSL services in several areas of the county. Cable modems are becoming widely available for home use. Qwest DSL is becoming more available, and Qwest has begun to undertake extending DSL to the F2 facilities, thereby extending the range of DSL availability. CLEC's such as NewEdge Networks have co-located equipment and are providing service in Bremerton, Silverdale and Poulsbo. High speed access is now widely available in most of the county, through at least one of the mentioned technologies. There remain remote areas that are either under served or not served at all. For the most part, these are remote households in rural areas located away from population centers.

Public Utility Districts In Process of Putting In Fiber Optic Backbone:
A recently passed Washington State bill permits Public Utility Districts to provide facilities in rural under served areas that would not otherwise have options for high-speed telecommunications services. This situation is in a state of flux, with the start of the build-out of a new fiber optic backbone by Kitsap Public Utility District #1. Kitsap PUD #1 is working in conjunction with Mason County PUD #3 to bring fiber optic infrastructure through Belfair, along highway 303 to the Port of Bremerton, and then through Bremerton to the north end of the county. The first connection will be for a demonstration project at the Port of Bremerton in mid April 2001. The first customers at the Port of Bremerton industrial park are on line, and the build-out to other customers is underway.

Private Network Linking Bremerton, Port Orchard and Silverdale:
In addition, smaller projects are underway including the installation of a fiber-optic infrastructure "build" in downtown Bremerton by Convergence Technologies / NW Commnet that will quickly expand to cover locations in East Bremerton and Manette. This network is connected via wireless, wired and fiber-optic systems to provide networking for Medical Facilities, Doctors offices, and multi-location businesses and agencies. Currently, a multi-office agency is being serviced as well as a downtown call center. This construction is in conjunction with projects in Silverdale and Port Orchard that will expand a private network between Silverdale, Bremerton, and Port Orchard. This network is now in service and is continuing to expand.

Carrier Grade Co-location Facility Planned for Bremerton:
A carrier grade co-location facility is planned for Bremerton. This facility provides environmental and technical facilities for co-location and hand off ("meet-me") for high speed telecommunications services between carriers. It will also provide equipment co-location space for internet access. Emergency generators, HVAC, fire protection and high security are planned for an initial 1100-square-foot facility. Up to 10,000 square feet which is expected to double in the first year. Up to 10,000 sq. ft. are available in the facility, if needed. Currently, Qwest Fiber is available, NOANET/KPUD #1 Fiber is in construction and AT&T fiber is available at the building. Three distinct, diverse Giber Networks are or will be available with Qwest and NOANET/ KPUD#1 Fiber.

Many Smaller ISPs Are Merging or Closing:
There is an continuing shakeout in the high-tech telecommunications industry that is seeing small ISPs merge or close, although that process has slowed in Kitsap County. Competitive local exchange carriers, specially those concentrating on DSL, are dropping service or closing entirely. The CLED DSL provider turmoil has ended and the market has stabilized around a few large and regional DSL providers. Despite this retrenchment, several companies continue to thrive and competitive options are becoming more available.

Competition Effects Pricing:
Once high bandwidth communications infrastructure is built in Kitsap County, the area can experience similar service pricing as areas on the east side of Puget Sound. Seattle, Bellevue and Redmond markets have communication competition. This has helped to drive the end use costs lower. The existing TELCO pricing model used in the West Sound areas imposes the addition of expenses to be added when extending service from Seattle to Kitsap County.

When additional high bandwidth connections cross Puget Sound and fiber cable is constructed throughout Kitsap County, service will be more widely available, the cost will be lower and the new connections will provide the same access to band width as the East Sound. The improvement in cost and availability will make Kitsap County as much a player in attracting business as any east side area. Other demographics will help boost the economic potential in Kitsap County once this project is in place.

What Is High Bandwidth?:
What is this "high bandwidth" we are so concerned about? It is simply "the size of the pipe". The following chart gives you a reference for what it means to have at T-1 or a DS-3 or an OC-3 connection into a neighborhood, a business park, or a community. It is not trivial information.

BANDWIDTH CHART

Connection	Bandwidth	Payload
DS-0 (POTS)*	64Kbps	1 DS-O
DS-1 (T-1)	1.544 Mbps	24 DS-0's
DS-3 (T-3)	44.7 Mbps	28 DS-1's (672 DS-0's)
STS-1/OC-1	51.84 Mbps	1 DS-3 (672 DS-0's)
STS-3/OC-3	155.520 Mbps	3 DS-3's (2016 DS-0's)
STS-12/OC12	622.08 Mbps	12 DS-3's (8064 DS-0's)
STS-48/OC48	2488.32 Mbps	48 DS-3's (32,256 DS-0's)
STS-96/OC96	4976.64 Mbps	96 DS-3's (64,512 DS-0's)
OC-192	9953.28 Mbps	192 DS-3's (129,024 DS-0's)
OC = Optical Carrier (fiber)	*POTS = Plain Old Telephone Service	STS = Electrical Radio

The "Last Mile Link":
The key link to all the wonderful high speed "pipe" that makes it all work is what is known as the "last mile link". This is the link that reaches the end user. With advances in technology, that last mile link will be delivered several ways, including wireless, fiber optic cable, and legacy copper. Wireless technologies have matured remarkably during the past two to three years and now offer a very competitive means to deliver volume voice circuits as well as data. The "last mile" remains the toughest part of the telecommunications equation, and innovation will continue to drive effective and affordable solutions to this problem.

Kitsap County Needs to Be On the Communications Super-Highway:
With the extending of fiber optic networks, super high speed connections are potentially available. With the accelerating evolution of data technologies, existing copper is being used for higher and higher speed connections. Many of these elements are in place, in construction or in planning. Key will be the old mantra, "location, location, location". Just as communities died when they were bypassed by the railroad, by highways and by the interstate, the health of communities will increasingly depend on not being bypassed by the "communications super-highway". We need to make sure Kitsap County thrives in the continuing telecommunications revolution. As was stated at a recent EDC forum, Kitsap County has no other choice. If Kitsap County is to grow and prosper, high speed connections to Seattle and beyond is essential. Happily, that important evolutionary step is well in progress. And, many more improvements are on the way.