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DUPAGE NATIONAL TECHNOLOGY PARK

- BROADBAND COMMUNICATIONS SERVICES

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THE DEVELOPMENT

The DuPage National Technology Park, under development by Centerpoint Properties is an 800 acre realestate development located in western DuPage County, West Chicago, IL. The DNTP will play host to local, regional, national, and international organizations seeking a location for business with strong demographic attributes, and cutting edge technology infrastructure. To this end, Centerpoint has solicited the participation of today's top communications providers to serve the tenants of the DNTP, providing resilient cutting edge transmission technologies, and high speed optical Metropolitan and Wide Area Networks.

TECHNOLOGICAL SERVICE FEATURES

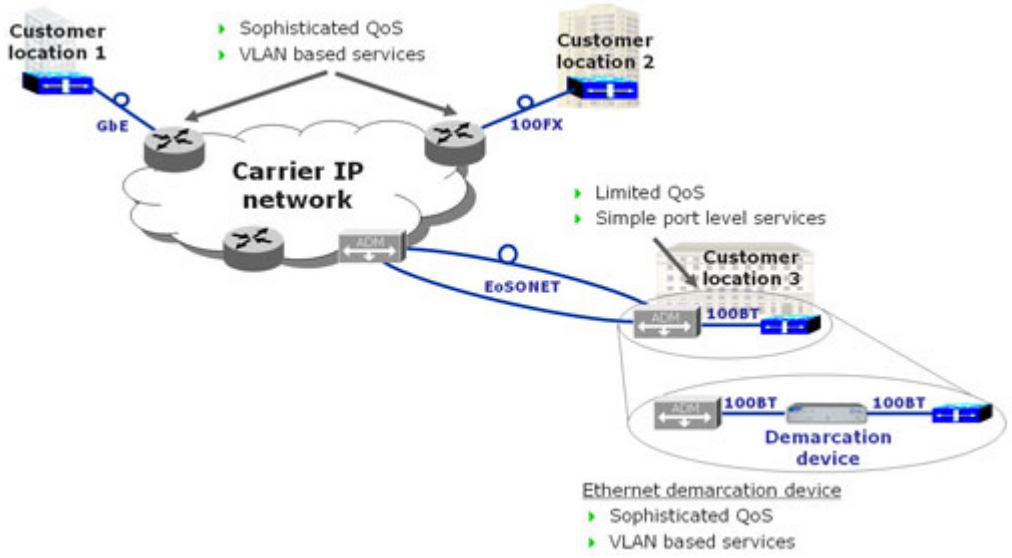
First, we offer a "Net-Neutral" infrastructure. This means we entertain connections from all service providers and network operators. Second, we utilize fiber optic based communications, and media to deploy services. Our ability to accommodate our tenant's needs can typically be implemented in a matter of weeks instead of months. Third, we employ Ethernet based communications protocol, making virtually all transmission protocols available through our facilities. Fourth, we have fault tolerant facilities and systems assuring our tenants 99.98% uptime. Fifth, we built our network with the latest technologies, employing DWDM (40G ready), Reconfigurable Optical Add-Drop Multiplexing (Bandwidth on Demand), Ethernet Demarcation Service, and much more. In addition to the intra-park telecommunications services, we have prepared for bandwidth requests from tenants reaching outside the DNTP. Our fiber based service extends to other suburban Chicago locations, and deep into the Chicago Loop. This means that tenants will have low cost transmission service to their downtown locations, as well as to long-haul carriers extending connections outside Illinois. Our Net-Neutral policy levels the playing field for tenant access to those carriers already providing service to tenant networks outside of the DNTP.

INTRA-PARK COMMUNICATIONS SERVICES

Today, the demand for new, high-speed services has never been higher. The widespread adoption of broadband Ethernet and the rollout of IP based services have given enterprises unprecedented communication possibilities, while at the same time requiring service providers to refresh network transmission technologies. Business services, such as managed Ethernet and storage services, increase enterprise productivity and present new

challenges for both network providers and enterprises to keep pace with demanding applications.

At DNTP, we have designed a Metropolitan Area Network capable of delivering protocol agnostic and scalable bandwidth allocation for our tenants. Our Optical+Ethernet platform lets tenants expand capacity and rapidly deploy premium services across our MAN/WAN infrastructure at a minimum cost. We believe one size does not fit all. Individual tenants have individual needs, which is why our services can be tailored to your specific requirements. Our Ethernet Demarcation technology is already Metropolitan Ethernet Forum (MEF) compliant, with a host of management reporting tools available to our tenants. A typical DNTP Ethernet demarcation diagram is shown below:



The end result is a highly optimized solution that provides bandwidth and access to other carrier services from your DNTP building location to the world.

From within and outside the DNTP we believe WDM solutions provide the most flexible and scalable solution for adding new high-speed OTN based wavelength services, interconnecting core routers and switches, integrating legacy networks and relieving infrastructure fiber exhaust. A simple network diagram showing our deployment architecture is shown below:

Our goals in providing access to our communications infrastructure and services are:

- Lowest cost per Mb transport
  - 10Gbit/s TDM technology, 40G ready
  - C-band / L-Band channel grid (32ch each)
  - Superior 10Gbit/s reach
  - Full G.709/OTH feature set – from access to core
  - Access to optical layer performance management features

- Cost/performance optimization for all network requirements
  • ROADM ready
  • Modular amplifier and protection schemes for ring topologies

TELECOMMUNICATIONS SERVICES FROM OUTSIDE THE PARK

Centerpoint Properties has invested in the latest optical transport technologies to link the DNTP to a host of telecommunications carriers. We have insured that any tenant of the DNTP has a host of choices available, as if your Park building location was situated in Chicago's downtown loop area. Since we have made this investment as an amenity of the DNTP, and we have adopted a Net-Neutral policy for our facilities, our tenants' interest in communications services with the carrier of their choice is protected.

NETWORK NEUTRALITY-

The DNTP tenant will have access to a multitude of telecommunications carriers, local, long-distance, and international over our existing infrastructure. We support our tenant's needs for access to a wide variety of telecom carriers located within the DNTP NetPOP, as well as, our co-locations established in the Chicago Loop. Our open policy will work both ways, for specific tenant requests to connect to individual carriers for private networking, and for carriers to establish a demarcation point at our NetPOP within the DNTP communications infrastructure. In working for our tenants in this fashion, the DNTP is capable of offering a wider variety of choice, and more competitive priced communications services to our tenants.

APPLICATIONS SUPPORTED –

Since our deployment plan has been created based upon the latest technology, we have plenty of capacity to offer our tenants. Our chosen technology can accommodate Ethernet up to 10GbE, ESCON, FICON (1/2/4Gbit/s), Fibre Channel 1/2/4/(8)/10Gbit/s), Coupling Link (1/2Gbit/s), Sysplex Timers, ATM and SONET/SDH with 155/622Mbit/s and 2.5/10Gbit/s, and finally OTH services (OTU1, OTU2) at 2.7/10.7Gbit/s rates. Today, even applications at 40Gbit/s (OC-768/STM-256/OTU3) can be covered. Protocol conversion is unnecessary in our DWDM systems, so there are no limitations regarding bit-rates, protocols or latency. Application performance is at native speed.

New protocols are also accommodated by our DWDM systems: in particular 10G Ethernet LAN PHY, not easily transported over SONET/SDH circuits, can be provided over our facilities and at native speed. The same holds true for real-time video such as SDI, DVB-ASI or HDTV and new storage protocols such as 4 and 10Gbit/s Fibre Channel. Furthermore, we can accommodate legacy service providers and their SONET/SDH customer base using our DWDM platform. Using our leading optical networking platform, our tenants can utilize built-in SONET/SDH and OTN/G.709 framing because we have Generalized Framing Procedure (GFP/G.7041) with Virtual Concatenation (VCAT) and Link Capacity

Adjustment Scheme (LCAS/G.7042) for data and storage services. This flexible and accommodating architecture lends itself to a multitude of storage manufacturers, and storage protocols. By making this investment for our tenants, we have set the stage for a network infrastructure that will not only accommodate communications needs today, but well into the foreseeable future.

In summary, our best of breed DWDM systems allow application-specific configurations. Their functionality and performance can be tailored to our tenant's specific requirements – a capability that provides significant economic and operational advantages over locating your business outside of the DNTP.

NETWORK CAPACITY –

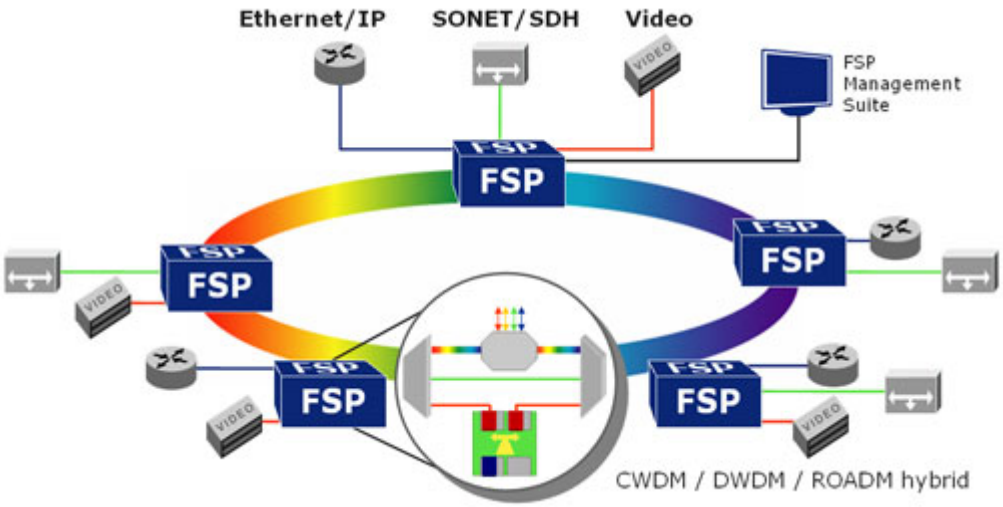
In most metro core backbone networks of other service providers, there are legacy technologies creating a bottleneck that does not allow effective cost/Mb provisioning. With the DNTP's leading DWDM systems, we can deliver cost-effective fiber relief with up to 80 wavelengths at native interface speeds of up to 40 Gbit/s. That is a great deal of capacity in terms of today's bandwidth utilization. Our technology partners have researched not only today's top optical transport manufacturers, but also enterprise's emerging applications to come up with the optimal design and price performance for our DNTP tenants. The DNTP optical systems can also accommodate:

..Wavelength group add/drop granularity
..Optional group amplification for express traffic

The DNTP to Metro DWDM infrastructure

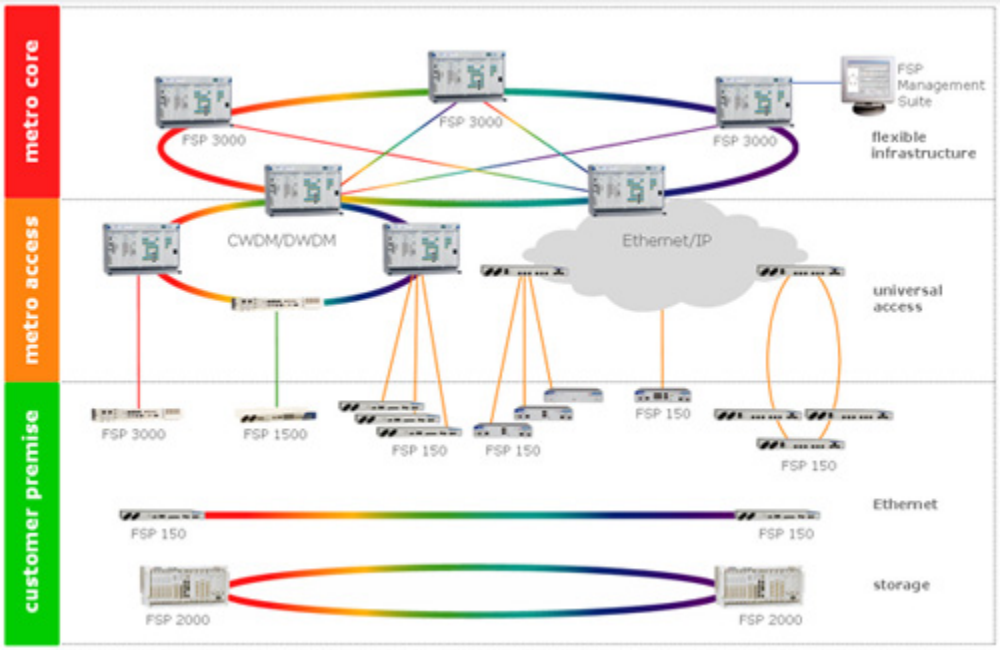
A metro DWDM infrastructure (Figure below) enables DNTP tenants to:

:: rapidly add scaleable capacity to existing fiber infrastructures,
:: flexibly extend network infrastructure to any metropolitan distance,
:: cost-effectively roll out any number of high-capacity applications, and
:: profitably support all data, storage, voice and video applications, either transparently or via GFP/SONET/SDH/OTN.



DNTP tenants will find our DWDM infrastructures to be the most cost-effective option for scaling networks, especially where bandwidth needs are not uniform. Legacy SONET/SDH capacity upgrades (e.g., from 2.5 to 10 Gbit/s) is a pain staking process, leading to high upgrade cost, and long lead times. With our DWDM deployed, our tenant is able to add capacity in a non-uniform fashion – only in areas where capacity is needed, as it is needed.

Finally, the DNTP's leading DWDM systems provide a cost-efficient combination of fixed DWDM and fully-automated ROADM capabilities in a single platform. Non-restricted uses of wavelengths at any node, combined with single wavelength add/drop capability; transform DWDM into a flexible, high-capacity metro core network.



NETWORK MANAGEMENT - NOC COVERAGE

The purpose of NOC Services is to provide timely and critical information regarding the state of the network so as to improve the uptime and availability of the DNTP network services. Our support strategy includes both reactive and proactive solutions.

DNTP Communications NOC services include the following:

- 24 x 7 Service Desk
- 24x7 Live Network Monitoring
- Incident Management
    - o Fault detection and analysis
    - o Incident recording and classification
    - o Notification and escalation
    - o Investigation, diagnosis, resolution, recovery and closure
- Problem Management
- Change Management
- Capacity Management
- Service Level Agreement (SLA) Management
- Extensive Web-Based Reporting
- Redundant Network Operations Centers (NOCs)

Senior network engineers with multi-vendor and multi-technology expertise support the NOC. Combined with detailed processes and procedures, the NOC helps quickly identify the root cause of problems and improve uptime of customer networks.

The benefits of DNTP's NOC services include:

- Improved network and application availability
- Continuous improvement and accountability
- Access to world-class capabilities; highly-skilled engineering talent
- Fast problem resolution
- Lower Total Cost of reliable network service
- Reduced unnecessary on-site visits for diagnostics of equipment failure
- Mitigate customers' business risk and insures legal compliance
- Offer customers disciplined Change Management procedures

Our approach to NOC Services centers on People, Processes, and Technology. The yield is unequaled customer support. The NOC embodies the best combination of these three important elements for monitoring and managing customer networks anywhere.

In summary, the array and depth of Communications services provided at the DNTP are cohesive, flexible, with unmatched cost-effectiveness for any business enterprise locating operations at the DNTP.

DATA EXCHANGE - iNAP
(www.ngnap.com)

The DNTP's technology partners will also have a full service Data Exchange located right on the Park. The distributed Integrated Network Access Point (iNAP) was founded based upon the technology and architecture employed in the highest speed research and education network in the world, StarLight. Based upon their architecture, the INAP is capable of increasing internet exchange speeds by 40 times that of the existing NAP. Coupled with the increase in connection speed is the lower port cost offered to DNTP tenants, making the combination a critical network component more cost effective than previously offered port speeds.
Services to the iNAP are accessible over the DNTP intra-park fiber facilities, while also providing flexible (multiple) peering arrangements from a single connection over a redundant fault tolerant architecture. Again, the underlying protocol is Ethernet, in various connection speeds from 100M to 10G. Since the distributed nature of the iNAP design is unique; integrating the NAP nodes into a common facility, our tenants can arrange for multiple connections at different physical locations ranging from the DNTP to the Chicago Loop.

Features of the iNAP node located at the DNTP will include:

- Choice of interconnectivity bandwidth: 100 Mbps, 1 Gbps, or 10 Gbps – all with granular fractional speed selectivity
- Private and public peering
- Multi-homed Internet Access for enterprises
- Co-location hosting services for high volume content distribution
- Access to transit services or choice of transit providers
- Distributed IXs with choice of connection point (Peering Fabric)
- Direct MAN or WAN links to cooperating IXs - future
- Metro Ethernet Layer 2 Secure VLANs
- Very high switching performance and port redundancy
- Ability to scale bandwidth to meet demand with minimal disruption of existing infrastructure. Our switches support high density 10 GbE and are capable of scaling gracefully to incorporate next generation Ethernet interfaces (100 GbE)
- Carrier-grade device "zero packet loss" reliability plus support for network layer redundancy features at reasonable cost
- Security and QoS features allowing robust segmentation to isolate and control traffic flows
- Extensive traffic statistics on bandwidth consumption and planning path for capacity expansion

By providing the latest, highest capacity optical switch technologies, we are able to offer DNTP tenants a "one-hop" connection to the internet backbone. This capability along with the DNTP metro infrastructure provides DNTP tenants with an unprecedented networking capability for IP communications.

Connection speeds offered in the INAP will range from 100Mb through 10GE. Today, the Chicago NAP offers connection speeds from DS3 through OC-12, which will continue to be supported in the iNAP. As connection speeds continue to evolve to faster standards, iNAP will keep pace with new offerings including OC-768 and 40GE interfaces, and 100GE when commercially available. Peering arrangements will be supported in a Multi-Lateral Peering Arrangement, as well as multiple types of Private Peering. iNAP has developed offers of flexible peering support from multiple or single connections.

As part of the iNAP services a full NOC, operational 24/7 has been included. The redundant iNAP exchange design and on-site sparing will provide the SLA of 99.999% uptime required of a facility with these credentials. As part of the iNAP connection, fully managed NAP connections, access circuits, and lambdas are made available from the Chicago area's carrier hotels in the city and from the outlying bandwidth concentration points. High speed wireless access has also been designed and is planned to be made available in early 2009.

SECURITY

The single biggest challenge for any security appliance, firewall or IPS is delivering security at the performance levels required by today's networks. Put simply, the speeds of networking technologies have far surpassed the capabilities of today's security appliances to monitor, analyze, filter, and defend the network. The result is a dilemma for corporations – slow the network and ensure security or provide a high speed network with reduced security protection.

Resolving this tradeoff creates a parallel and daunting challenge for security vendors. Delivering inspection and fire walling services at Gigabit speeds is enormously challenging – but adding the requirement for flexibility so that the security appliance can adapt to and defend against new attacks has never been accomplished until now.

First generation security devices attempted to resolve this challenge by running security software on faster and faster microprocessors. While this improved speed somewhat, the maximum performance remained well below Gigabit speeds. The second generation of devices used hardware to assist the software in an effort to offload some of the "security work". This did improve performance but again topped out near 1 Gigabit per second. The second generation also suffered from being exceptionally expensive which limited its adoption in the market.

In sum, security appliance systems have existed on a hard divide – deliver the software flexibility necessary to deliver adaptable security rules or provide high performance by utilizing dedicated, permanent silicon-based computing systems such as those delivered from ASICs but give up flexibility in trade.

The iNAP employs the first of a new generation of security appliances. It is based on a fundamentally different technology called DPI (Dynamic Parallel Inspection), which

provides the performance of custom hardware but the flexibility of software. DPI overcomes the software-hardware conundrum through the patented use of a massively parallel inspection process deployed entirely in field programmable gate array technology (FPGA).

Dynamic Parallel Inspection uses an innovative extension of a well known super computing taxonomy, known as multiple instruction, single data, and takes advantage of the flexibility and dynamic characteristics of FPGA hardware processing. In multiple instruction single data designs, a single compute resource is broken up into "blocks" which all simultaneously perform tasks on the same unit of data. As a line-rate system, for 10 Gigabit deep packet inspection, each "block" is a continuous stream of 128 bit data blocks from the 14.88 million packets per second in a 10 Gigabit stream. The FPGA is allocated into hundreds or thousands of "blocks" and in each block the desired security rules are embedded in the gates of the FPGA. Then, as a packet moves through the system, each block applies all of its rules simultaneously.

By splitting security rules into many discrete engines that can run on the same data in parallel, and by embedding these rules in the gates of an FPGA, DPI can achieve both record-breaking inspection throughputs of 14.88 million packets per second, while doing so in less than 16 microseconds.

Finally, each of the security rules which are embedded in the blocks can be changed dynamically. As new threats emerge, new rules can be written and pushed into the blocks. This can be done online, on the fly, or offline. In fact, these rules can be changed in a production system and are applied in less than 1/10th of a second. During the application of new rules, the system will maintain all state and continue to apply all existing rules without interruption.

In sum, DPI achieves both the dynamic, real-time flexibility required for today’s fast-changing IPS requirements, while introducing the industry’s first line-rate 1 Gigabit and 10 Gigabit inspection and prevention system.

Regulatory Compliance Applications: The ability to continuously guard, monitor, and capture key data are also key elements of both the Sarbanes-Oxley Act (SOX) of 2002 and the Health Insurance Portability and Accountability Act (HIPAA) of 1996. Both were driven by the need to improve how we report, govern, and disclose public information and manage confidential record keeping. For organizations, compliance with these acts is a problem of network visibility – providing information to key officers so they can attest to the integrity of their financial controls for Sarbanes-Oxley, or the integrity and security of health information for HIPPA. Through this optional security technology the INAP can identity traffic by any nature – machine, address, traffic type – and provide line-rate monitoring and packet capture of potentially thousands of search strings. INAP customers can employ this technology at key network intersections and provide compliance visibility to these regulations.

In summary, the addition of the iNAP to the attributes of the DNTP will provide tenants with a low cost, high bandwidth access to internet backbone facilities. Additional savings in access cost are provided in the metro networking DNTP architecture over native Ethernet connections. New technology, coupled with a lower pricing structure affords DNTP tenants a cost advantage over other potential facility locations, and improves the ability to grow, invent, and access existing and evolving client markets. These electronic advantages will prove beneficial when locating enterprise business operations at the DNTP.