

Figure Y: The trench diagram

IP Networks provides a simple 5Mbps transport or IP/transport product that normally can replace a T-1 data circuit provided by a traditional telecommunications company. Typically, this might serve a floor of workers in downtown San Francisco. Personally, I am always amazed when a business spending perhaps \$50-100,000/month for office space and \$250-750,000/month on personnel salaries would not consider an “or” decision on connectivity for data/IP alternatives that are around \$1,000/month. Remember the quotation earlier? In this case, the outage risk and cost of recovery would dwarf the cost of a second connection. By referencing the above scenario, I don’t necessary think a rational decision is to replace the ILEC with us, but rather to use both the ILEC and IP Networks since we’re able to provide the required capacity and redundancy. When it comes to data centers and other mission critical facilities I think the economic and reliability arguments are even more compelling. Customers of these facilities must know whether they have commercial/carrier redundancy or true physical redundancy and at what levels (i.e., building entry, local loop, metro level, etc.). **Figure Z** depicts local loop diversity that IP Networks has achieved serving a site in San Francisco.

It is important for customers to know their total network path so they have a complete picture of physical diversity. For example, on the San Francisco peninsula, many telecommunications providers were required to go into a common

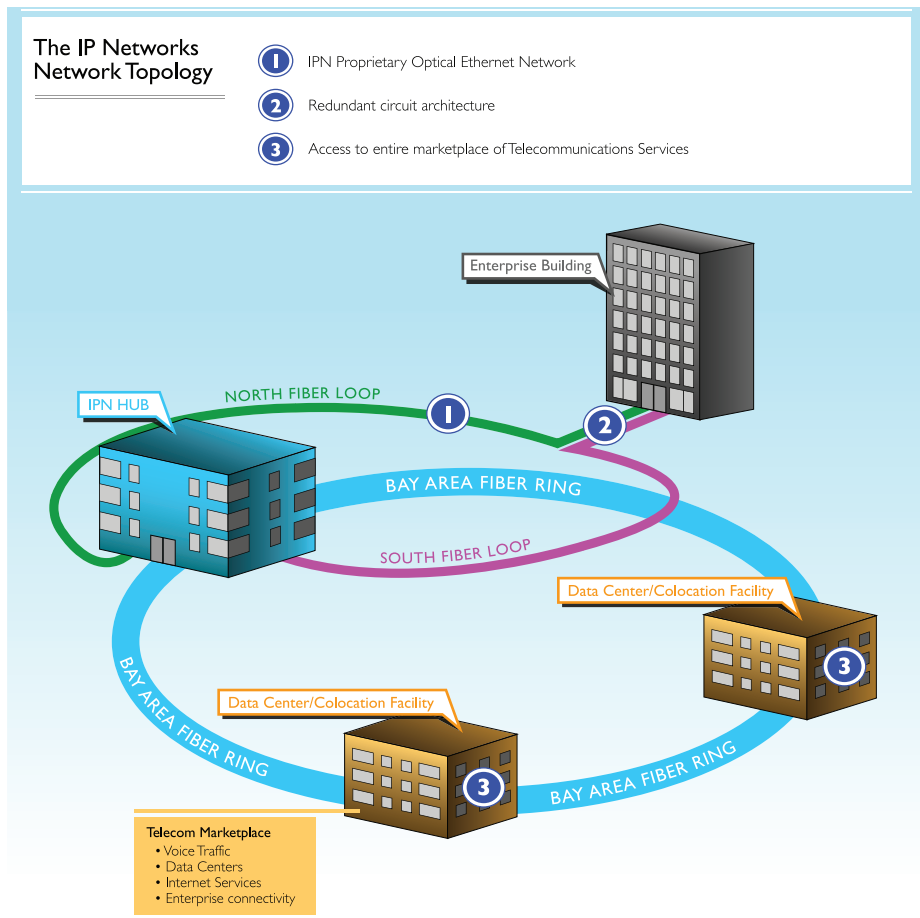


Figure Z: Aerial view building.

trench known as the “El Camino Trench.” This was done to minimize the environmental and community impacts, but it created a potential single point of failure if a carrier or customer has all its telecommunications paths in that trench. The nice thing about the telecommunications utilizing electric infrastructure is that it either deeper in joint trenches or often runs in a completely diverse path. For example, IP Networks uses PG&E-based paths to run fiber that is physically independent of other fiber paths on the San Francisco peninsula.

In conclusion, customers who achieve both commercial/carrier and physical diversity and redundancy will mitigate their risks and take a big step toward the quest for zero downtime. The telecommunications alternative described in this article is another tool in the toolbox.

About the author

Roger Gray: Mr. Gray is currently the Chief Operating Officer COO at IP Networks in San Francisco. He has nearly 25 years of leadership and management experience in the electric utility industry; including expertise in the following areas: operations, planning, asset management, financial planning, budget and risk management, project and construction management, telecommunications, business development, information technology, and electricity markets. His academic background includes degrees in Electric Engineering Power Systems and Computer Science and course work in Public Policy all from UC Berkeley.