

Infinera Case Study: Covage



Covage Offers an Innovative Model for French Telecom

Telecom operator Covage built and operates 13 local broadband networks in France. In 2008, Covage built a nationwide backbone network. Infinera's unique Bandwidth Virtualization™ architecture enabled Covage to offer flat-rate pricing for services, independent of distance. This mold-breaking innovation is helping Covage Networks become a highly competitive, aggressive new player in the French telecom market.

In 2004, the French government committed 3 billion Euros (about \$4 billion) to support public-private partnerships to bring broadband to France's underserved regions. Covage, a joint venture of Canadian telecom operator Axia Netmedia and France's Vinci Networks, built 13 broadband networks in partnership with local French regions like the Seine-et-Marne department east of Paris, and depressed industrial areas like the city of Clermont in the center of France and Arras in the north of France. Covage has provided connectivity to hundreds of schools, hospitals, enterprises, homes, and local government offices.

Nationwide Network for France

After building successful local networks, Covage faced difficulties finding the backhaul capacity to the core of the Internet it needed to sell more services to its local customers. The problem was that the large operators who offered those national backhaul services relied on traditional DWDM optical systems for their capacity. Those systems typically required a 12-14 week lead time to add new circuits, requiring Covage to plan for additional capacity needs months in advance. Accurate planning that far ahead is very difficult in the Internet age.

Covage decided the only solution was to build its own nationwide network, linking its access networks to each other, to Paris, and to the core of the European telecom network. Vincent Couaraze, Director for Covage Networks, the new company that would own and manage Covage's nationwide backbone network, looked at a range of DWDM suppliers, including companies based in Europe, North America, and Asia. He and his team chose Infinera because the speed and



Vincent Couaraze, "Our business approach is built on the Infinera technology".

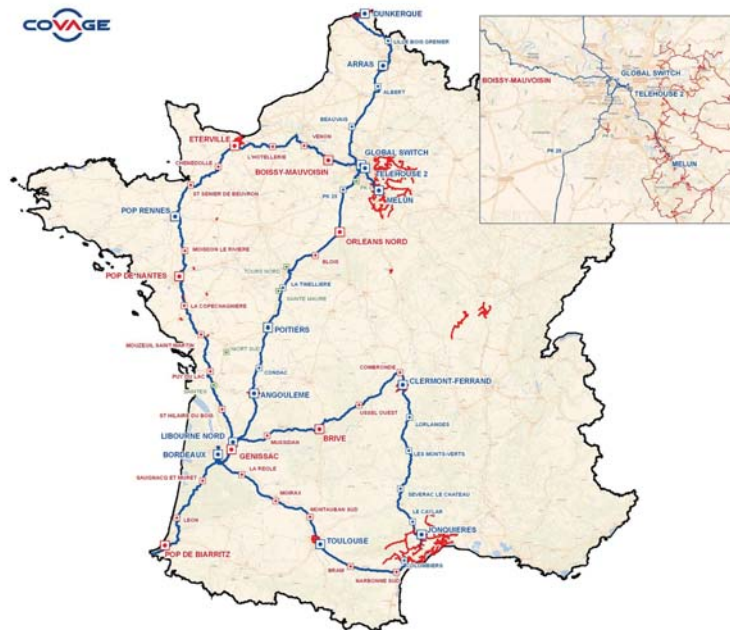
flexibility of Infinera's digital architecture would allow Covage to implement the business model they were seeking to build. In his early career at other French operators and transmission suppliers, Couaraze had worked with SDH optical systems. SDH technology allowed operators to set up

optical circuits very quickly. Over the last 15 years, SDH was replaced by DWDM to deliver more capacity on an optical fiber—but that transition came with costs.

"Traditional DWDM technology solved the capacity problem, but then we had no flexibility," says Couaraze. "You could not create, re-route or delete circuits quickly. When I saw Infinera, I was really impressed. It was the perfect mix, the best of both worlds. You had the circuit-oriented architecture and flexibility of SDH, combined with the capacity of traditional DWDM."

The Covage team found the Infinera network quick and easy to install. The Infinera DTN optical system is based on Infinera's large-scale photonic integrated circuits (PICs) which integrate more than 60 optical components, and 100 Gigabits/second (Gb/s) of optical capacity, into a pair of chips each less than 5 mm wide. The high level of integration reduces the number of circuit packs required for an optical system significantly, and the number of fiber connections by as much as 97%. In addition, Infinera's IQ™ network operating system with its GMPLS intelligence automatically discovers and maintains an inventory of all the assets on the network the moment they are connected to the network, making it easy to configure and manage the network.

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Covage Nationwide Network.

The result is an optical system that can be installed, commissioned, and managed in a fraction of the time required by a traditional DWDM system and with fewer engineers. Covage built a 3,700 kilometer network in just 12 weeks in total, explains Norbert Blanchard, Covage's Technical Operations Director. "We were able to deploy the network in a timely manner with a small number of engineers compared to a traditional DWDM system."

Distance-Independent Pricing

Covage's business plan is to become an aggressive player in France's wholesale telecom market, offering services to other telecom companies and enterprises. Vincent Couarraze and his team developed a sales

The twin competitive advantages of distance-independent pricing and speed of service delivery are made possible by Infinera's unique Bandwidth Virtualization architecture. An Infinera network is initially deployed with a minimum of 100Gb/s of line-side capacity on every link in the network. All that is required is to install the Infinera client-side modules (TAMs) at both endpoints, and then use the Infinera software to provision the circuit. The operating cost of provisioning a 100 km service or an 800 km service is typically the same. "We deliver services in two to three weeks, while our competitors talk about 12 weeks or more," says Mr. Couarraze. "That's helped us win business against all the large operators."

"With us, customers get one simple price, and they appreciate that."

—Covage sales manager Christophe Berthenet

proposition based on simplicity. Covage sells services, including guaranteed 1Gb/s, 2.5Gb/s, and 10Gb/s, at one price for each service, irrespective of distance. A 1 Gig service has the same monthly price whether the distance between the endpoints is 100 km or 800 km. Covage offers services between many Tier 2 cities in France, where there are typically only one or two competitors. The incumbents' ability to deliver services is limited by their reliance on older DWDM systems with long lead times for new service additions.

Covage also believes it has a competitive edge on price, with prices some 30% below those of the traditional operators. Infinera's cost-effective capital cost and operating cost help enable that.

In 2009, Covage Networks' business grew by leaps and bounds. It signed a 5Gb/s connection for datacenter interconnection between Paris and Orleans for ARAMICE, IT department of health care companies AUDIENS, MORNAY and NOVALIS-TAITBOUT. It also signed a



contract with Adista, a nationwide French operator of data centers and IP solutions for enterprises, involving Gigabit Ethernet connectivity between ten points on the Covage network. Another recent success was the agreement of a major French bank to re-locate a data center in Clermont, based on Covage's commitment to build out its Infinera network to that city and provide high-bandwidth, reliable connectivity for the data center. "Customers don't understand why, when they go to a traditional operator, they get a different price each time they ask for a quote," comments Christophe Berthenet, manager of large account sales for Covage Networks. "With us, they get one simple price, it's the same every time, and they appreciate that."

Mr. Couarraze says traditional operators are sometimes reluctant to light additional wavelengths on a route out of concern that the new wavelength could have an impact on some of the existing waves and customer services. Infinera's Bandwidth Virtualization eliminates that problem, because typically all the necessary capacity is already in place on the network to support more services.

The end result of Covage Networks' entry into the wholesale market is positive for everybody involved: the French government is realizing its goal of bringing affordable broadband to hundreds of communities around France; Covage is able to invest in those government programs because it is supplementing its income from the local

broadband services with revenue from its new wholesale business; and Covage's wholesale customers are able to buy big bandwidth more cost-effectively than ever before because of Covage's simple value proposition and its Infinera-powered network.

"As newcomers to the wholesale market, we needed a simple, powerful business strategy," concludes Mr. Couarraze. "Our business approach is built on the Infinera technology and what it enables us to offer our customers."

Industry Comment

French Broadband Policy: Supporting Local Needs, Competition

In 2009, President Obama launched the US broadband stimulus initiative with a budget of \$7.2 billion. France launched its own national broadband policy back in 2004. It was less ambitious than the US's program, with a price tag of 3 billion Euros (about \$4 billion) but had several interesting aspects that differentiate it from the American approach and make it worth watching. The two most notable aspects are local flexibility and an emphasis on competition.

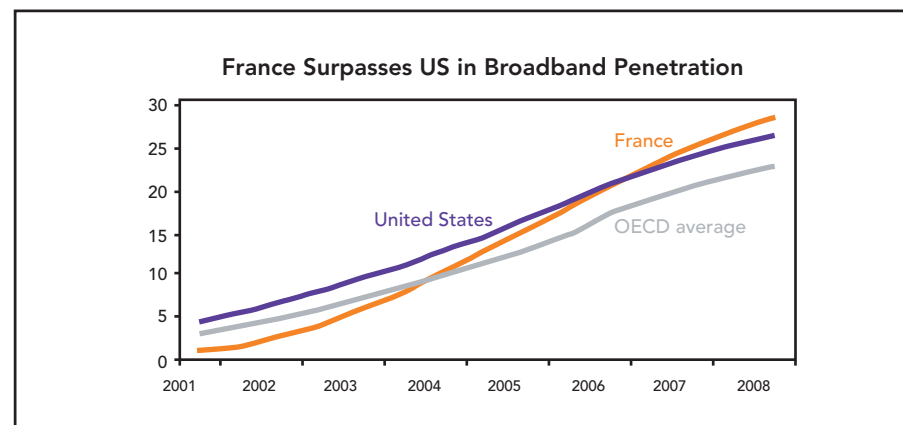
The French policy relies on a model known as Delegation of Public Service or DSP to create public-private partnerships to build regional and local broadband networks. In this system, a French local or regional government selects a private company to build and operate a network, typically for a fixed period of 20 years. To win the DSP contract, the company must make certain commitments. For example, the Seine et Marne department east of Paris specified a network that would offer broadband availability to every one of its 1.25 million inhabitants and 52,000 businesses. To win that contract, Covage developed a proposal that included a mixture of fiber for densely populated areas

and Wimax for the more rural parts of the department. The private sector participants make a substantial investment in these networks. For example, in Angoulême, in southwestern France, the regional government contributed 4.5 million Euros towards the network, while private partner Covage committed to contribute 11.5 million Euros.

Local Flexibility

The French system allows for significant local flexibility in the aims and technologies used

in these networks. Some of the local governments focus on extending broadband to every residence in their community; but many others are more concerned with using broadband to stimulate the local economy and increase competitiveness and employment. One common aim is to stimulate the creation of new IT businesses to deliver and support a new generation of broadband-based services such as data centers, web services, or telemedicine.



Broadband penetration per 100 population, US, France, and OECD average of 30 industrial nations. (Source: OECD)

According to a recent study by Ovum (1), a total of 119 DSP proposals are under consideration in France. Of those, 56 programs have already launched commercially. Many of those programs are in small cities, large towns, or suburbs. This is in contrast to the US broadband stimulus, which favors rural and remote areas. The French government is famous for its centralization—in France all 95 prefects (equivalent of a US state governor) are appointed by and answerable to the national government in Paris. Yet in the case of broadband policy, France has empowered local areas with more flexibility to pursue their own social and economic objectives than the US broadband stimulus has allowed for.

Creating Competition

President Obama's broadband stimulus focuses on bringing broadband to residences. By contrast, the French policy has focused very specifically on creating competition in the telecom market to enable more services at more competitive prices. The French government recognized that only a handful of very large cities had a truly competitive choice of telecom operators, while much of the rest of the country was reliant on one or two incumbent operators with consequent disadvantages in price, speed of delivery, and choice of services. The broadband policy aims to improve that situation. Gerard Hardy, a senior consultant to the city of Angoulême explained the aims of its broadband policy this way: *"Optical networks in business zones will enable telecom operators to offer more bandwidth, with a broader range of services (symmetrical bandwidth at variable speeds, VoIP services, videoconferencing, tele-surveillance, automatic data archiving, security management). The network will also allow companies with several locations in Angoulême to purchase high-performance, secure private networks at attractive prices."* (2)

To make all these services viable for Angoulême, the local government agreed with Covage a menu of prices similar to the prices available in Paris, Bordeaux, and other large French cities. "Nothing is achieved if services are made available at prices nobody can afford," Mr. Hardy explained. Angoulême also stipulated the creation of a "carrier hotel" to allow multiple operators to interconnect at attractive prices. The local government, said Mr. Hardy, "wants to create a situation where national operators can be present here, as well as local operators offering value-added services, such that a dynamic market can develop in Angoulême. The broadband network constitutes for Greater Angoulême a major competitive advantage for its technology development, and more generally for its economic and social development."

"Our aim," explains Vincent Couarraze of Covage, "is to be an 'operator for the operators', a broadband, open-access network to facilitate the presence of other operators

in all of our DSPs." Covage already has more than 30 other telecom operators as customers, running services over its 13 DSP networks or its nationwide backbone network. Infinera plays an important role in that strategy. The Infinera platform, with its digital intelligence, enables features like speed of service delivery, service flexibility, and diversity to be delivered to Covage customers. Indeed, it can give regions with the Covage network a competitive advantage over larger cities which are dependent on older DWDM platforms without that speed and flexibility. "We beat the competition every time when it comes to delivery time for a wavelength service," concludes Mr. Couarraze.

Notes:

1. *The French approach: an alternative model for broadband deployment, Ovum report by Charlie Davies, published 2 September 2009.*

2. *www.angouleme-developpement.com, Quotes from newsletter dated 24 January 2007.*



Angoulême benefits technologically and economically from its Covage network.



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