INFINERA CLOUD XPRESS

Break Free with Extreme Simplicity, Hyperscalability
Power and Space Efficiency, and Built-in Security

Transforming Data Center Interconnect for the Cloud Era

The world is migrating to the cloud. Cloud services, including infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (SaaS) are booming. Enterprises are adopting hybrid cloud strategies combining public and private clouds. Cloud-based content providers are growing at an astounding rate. As cloud adoption grows, cloud network infrastructure expands, with larger hyperscale data centers and an explosion of regional data centers in every major metro area around the world. Metro cloud ecosystems grow to enable richer interconnection and better service experience for users, wherever they are.
Interconnecting data centers with simplicity, scalability, efficiency and security is a key challenge for cloud and content providers, enterprise cloud customers and everyone participating in the metro cloud ecosystem. The Infinera Cloud Xpress Family is purpose-built to meet this challenge.

Why Data Center Networks Need the Cloud Xpress Family

Whether it’s used for search, social networking or enterprise business applications, the cloud, a distributed computing model built upon multi-server and multi-data center infrastructure, has become ubiquitous. In fact, enterprises find immediate value in the cloud as it is one-third as expensive to rent a cloud server as to own one. Demand for these applications has led to the exponential growth of the cloud, which in turn is dramatically transforming IT and network architectures. The rise of compute-and-storage virtualization was the technology driver to make the cloud viable, and the network is the critical glue that ultimately makes a cloud a cloud.

Cloud growth drives tremendous demand for bandwidth to interconnect data centers. For example, a single social media web request is distributed across several hundred servers within and between data centers. A leading provider quantified the impact of a single 1 kilobyte (KB) request to require 930 KB of internal network data transfers. Another provider found that each search query generates internal network messages that travel an average distance of 2400 kilometers (km), most of which is between data centers within the cloud. Interconnecting these data centers and continually adding data center interconnect capacity to enable cloud growth requires:

- High capacity with rapid scalability
- Simplicity and automation
- Space and power efficiency

Increasingly, cloud networks also require built-in, in-flight wire-rate data encryption capabilities for high security without compromising on scalability, simplicity or efficiency.

In short, cloud data center operators need the Infinera Cloud Xpress Family of rack-and-stack network appliances that offers simplicity,
scalability, efficiency and security, so they can spend more time driving growth in applications and services, and less time worrying about their networks.

**Purpose-built for Data Center Interconnect**

The Infinera Cloud Xpress Family is built for scale and simplicity as the industry’s only data center interconnect system based on super-channels and optimized for the cloud. A super-channel is an evolution in fiber optics communications in which several individual optical dense wavelength-division multiplexing (DWDM) channels are combined to create a composite signal of the desired capacity, provisioned in one operational cycle using only a single pair of optical fibers. Only Infinera has developed the advanced, large-scale photonic integrated circuit (PIC) technology that is a key component in enabling super-channels. The PIC combines hundreds of discrete optical functions into a fingernail-sized chip, dramatically reducing the space and power requirements for transport networks. Infinera’s PIC technology has been proven in carrier networks for over a decade and has clocked more than two billion hours of reliable operation.

The latest generation of PIC technology is built into Infinera’s Infinite Capacity Engine, which delivers multi-terabit scale with high efficiency. The Cloud Xpress Family uses PIC technology, including the Infinite Capacity Engine in the Cloud Xpress 2, to deliver simple, compact, rack-and-stack network appliances that can be deployed rapidly and easily, similar to the compute and storage domains of data centers. Provisioning is a simple three-step process that can be managed with a wide range of tools: direct command line interface (CLI), the preferred choice for many data center operators; the Infinera point-and-click network management system Digital Network Administrator (DNA); or API-driven SDN control, with standard protocols such as NETCONF and YANG. Support for zero-touch provisioning can even eliminate hands-on configuration completely. The PIC technology in
the Cloud Xpress Family also enables Infinera’s Instant Bandwidth capability, which allows operators to rapidly add bandwidth in 100 gigabit per second (Gb/s) increments without having to deploy and install additional equipment after the initial installation.

**The Infinera Cloud Xpress Family**

The Infinera Cloud Xpress Family includes multiple models, all of which are purpose-built to handle massive traffic flows between metro data centers over WDM super-channels.

The first generation of the Cloud Xpress includes four models supporting varying configurations of 10 gigabit Ethernet (GbE), 40 GbE and 100 GbE Ethernet ports for client-side connectivity, and a 500 Gb/s super-channel output.

The second generation, the Cloud Xpress 2, is based on the Infinite Capacity Engine, delivering multi-terabit super-channel scale. The first Cloud Xpress 2 model is optimized for scalable 100 GbE data center interconnect over a 1.2 terabit per second (Tb/s) super-channel output. Multiple Cloud Xpress 2 platforms can be stacked and managed as a single node delivering up to 27.6 Tb/s over a single fiber pair.

Several Cloud Xpress models, including the newest Cloud Xpress 2 model, are designed to support in-flight wire-rate data encryption (encryption software license required for activation) to help ensure the security of all traffic as it travels between data centers.

Learn more at www.infinera.com/go/cloud