

INSTANT BANDWIDTH

TIME IS MONEY: CHANGING THE SERVICE OPERATIONAL PARADIGM WITH INFINERA INSTANT BANDWIDTH

Network operators face many challenges that span multiple business and operational aspects. These include the constant drive to increase revenue (top line), the need to reduce operational expenditure (OpEx) and increase profitability (bottom line), and the urgent desire to broaden customer base and increase competitive edge. One operational challenge for network operators is to achieve fast and seamless activation of new capacity, when and where it is needed. This process requires expensive “truck rolls” for equipment installation, and from the moment a new demand is identified it may take months to complete it. That translates into extended time to revenue, with a direct negative impact on service providers’ top lines.

Infinera Instant Bandwidth—Industry-leading Fast Service Activation

Infinera solves operators’ challenges through the implementation of software-defined capacity (SDC). SDC describes the ability to provision and transfer optical capacity around the network via software control – essentially software-defined networking (SDN) applied to the optical layer. The industry’s first instantiation of SDC occurred when Infinera introduced the concept of Instant Bandwidth in 2012, enabling software activation of service-ready optical capacity in 100 gigabits per second (Gb/s) increments within just a few hours on networks powered by the XTC Series.

Infinera Raises the Bar Again

Since then, Infinera has extended Instant Bandwidth to a variety of hardware platforms, such as the CX Series, XT Series, XTS Series, and GX Series. Infinera has also amplified the scope of the solution by introducing transferable licenses and bandwidth license pools. In addition, Time-based Instant Bandwidth has increased the flexibility of SDC by enabling software activation of bandwidth licenses for limited durations. The new network bandwidth metering and license management applications powered by Infinera’s Network Insight software take Instant Bandwidth one step further.

The Network Insight license management application enables automated bandwidth license assignment upon service activation; the operator is no longer required to explicitly map licenses to service endpoints.

In order to facilitate flexibility to accommodate unplanned capacity and forecast uncertainty, Infinera offers the option to temporarily exceed the existing license pool. In case of overconsumption, periodic reconciliation of used capacity against entitlements will result in an invoice being generated by Network Insight.

Infinera’s Instant Bandwidth solution is a true game changer from both business and operational perspectives, as it enables a perfect match between the timing of capital expenditure (CapEx) and service revenue, thus accelerating time to revenue from months to minutes. It also reduces OpEx by streamlining operations and eliminating truck rolls. Moreover, it is a key enabler of automation throughout the network and across all operational levels, which is a vital element in building the foundation for cognitive networking. The following highlight the flexibility offered by capacity licenses today:



- Transferable licenses:** This model introduced the ability to use software to move bandwidth licenses across the network without restrictions as traffic demands change, whether planned or unplanned, or fiber cuts occur. Bandwidth licenses are not fixed to a specific transponder or chassis, nor to a specific hardware platform. A bandwidth license activated on a particular line module can be transferred so that the capacity can be activated on a different line module in the network as needed – for example, capacity that is affected by a fiber cut can be transferred to a protection service. This helps reduce CapEx by reducing idle capacity provisioned specifically for network resiliency and making deployed licenses more agile to suit the network’s requirements. The license transfer is automated as services are activated.

- **Bandwidth license pools:** Network operators can store and reuse a pool of software licenses when and where needed, allowing the deployment of capacity in minutes, at the same time as a revenue-generating service is activated. Operators are offered the option to temporarily exceed their license pool and receive an invoice in case of overconsumption using periodic bandwidth metering reports enabled by the Network Insight software.



- **Time-based licenses:** Instant Bandwidth also offers a time-based on-demand capability. It enables network operators to temporarily activate line-side bandwidth, with deactivation at the end of a customer-specified time period. It helps fine-tune bandwidth characteristics to more closely match traffic patterns, short-term service demands, or stopgap activities that result from network disruptions.



Tangible Benefits

Instant Bandwidth solutions deliver significant and tangible benefits for operators, such as:

- Accelerated and increased revenue due to faster service activation, as depicted in Figure 1
- Significantly lower operating costs through automated operations (no truck rolls or on-site provisioning visits)
- Improved return on investment from achieving a perfect match between the timing of CapEx and service revenue
- Reduced business risk from avoiding network capacity over-engineering for the uncertain capacity requirements of emerging applications such as 5G or the Internet of Things
- Increased competitive edge and addressable market due to quick service provisioning and activation

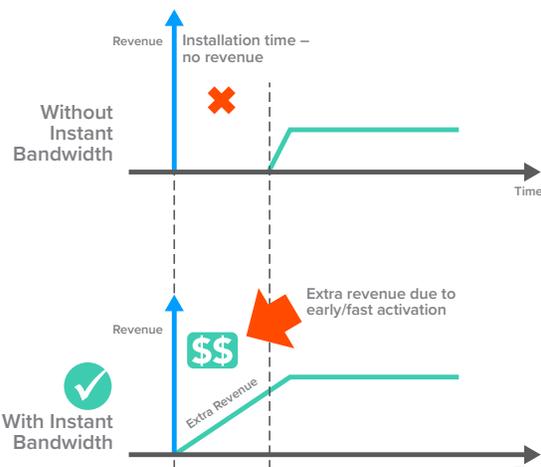


Figure 1: Higher service revenue due to faster activation

Target Applications

Network operators can leverage Infinera’s Instant Bandwidth solution in a wide variety of applications to accelerate service turn-up, reduce costs, and maximize return on investment (ROI). These applications include:

- **Network maintenance:** Operators can leverage Instant Bandwidth features such as transferable licenses to route traffic over different spans during maintenance periods. This leads to maximum ROI by enabling capacity activation on backup routes, thus eliminating the need for excess capital investment for capacity that will only be used for a short period of time, as shown in Figure 2.

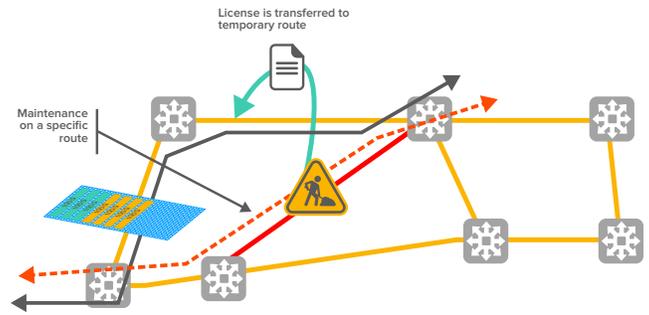


Figure 2: Transferable licenses for network maintenance

- **Seasonal capacity spikes:** Instant Bandwidth’s features quickly provide additional capacity for seasonal, planned, or unplanned spikes in traffic demand (summer festivals, major sporting events, etc.). Bandwidth license pools and transferable licenses ensure quick turnaround for capacity activation and lower operating costs by eliminating truck rolls and on-site provisioning visits, as shown in Figure 3, while avoiding capital lock-in for temporary capacity requirements.

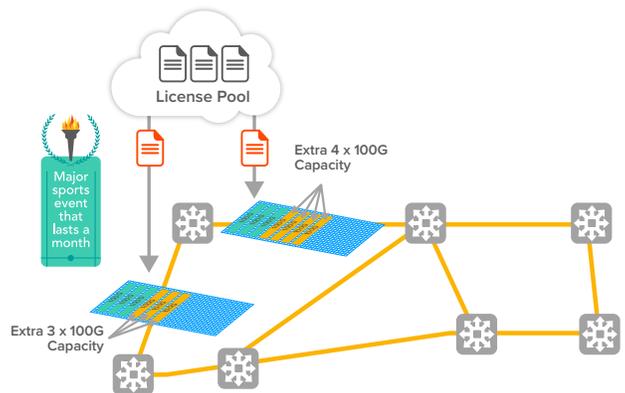


Figure 3: Seasonal capacity spikes with Instant Bandwidth

- **Ethernet business services:** The remote, easy, fast activation of Ethernet services for enterprise customers enabled by Instant Bandwidth allows operators to leverage service velocity as a competitive edge, while achieving higher service revenue due to faster activation, resulting in shorter time to revenue.
- **Data center interconnect (DCI) as a service:** Network operators can use Instant Bandwidth’s transferable licenses to remotely increase capacity for DCI services based on the time of day or application requirements. Fast, remote in-service bandwidth increases require no truck rolls, and the ability to reuse bandwidth licenses for other requests allows operators to maximize ROI and reduce CapEx and OpEx, as shown in Figure 4.

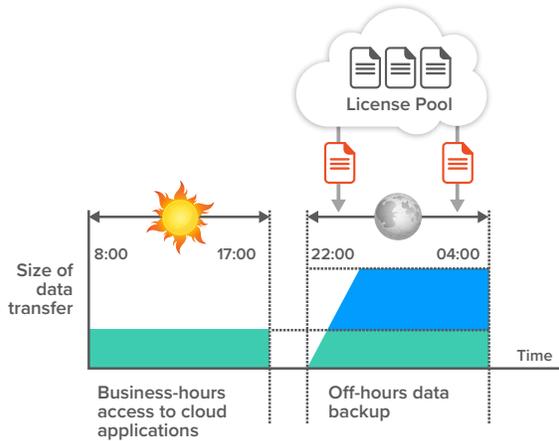


Figure 4: Dynamic DCI based on time of day

- **Infrastructure for emerging technologies:** The network impact of new bandwidth-hungry technologies such as fiber to the home and 5G is often difficult to predict. Network operators can leverage the capabilities of Instant Bandwidth to deploy a forecast-tolerant infrastructure that supports the deployment of these technologies across their life cycles, from controlled field trials to limited geographical coverage to full deployment. Instant Bandwidth enables operators to provide the right amount of capacity without network overbuilds, while minimizing the business risks associated with deploying new technologies, like avoiding early or excessive CapEx and OpEx. Transferable licenses provide the flexibility to switch capacity from one test area to another, thus increasing an operator’s ROI.

Summary

Infinera solves network operators’ challenges with Instant Bandwidth, enabling the software activation of optical capacity in minutes, as a service is activated, and taking service automation to a whole new level. Instant Bandwidth is a true game-changer from both business and operational perspectives as it enables a perfect match between the timing of CapEx and service revenue, thus accelerating time to revenue from months to minutes. It also reduces OpEx by streamlining operations and eliminating truck rolls.