

Real-Time Network Provisioning Is Now a Reality

New Agile Options for Your Network that Match the Agility of the Cloud

The hallmarks of today's IT infrastructure requirements for digital business are speed and agility. All critical IT resources—compute, storage and networking—must deliver on these twin demands to meet changing organizational needs in near real time. Yet, some enterprise network implementations aren't nimble enough for the IT management teams. Without a new class of dynamic network services delivering real-time provisioning, progress in digitally transforming the business will grind to a halt. IT and the network management team need modern network services that are as dynamic as any cloud environment. Without network dexterity, it is far more difficult to meet the demands of the business today, and it becomes just about impossible in the future.

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Some network service providers have offered scalable bandwidth products for years, so that, for example, a 1 Gbps circuit can burst up to 3 Gbps on demand and in real time. This powerful capability has been used by savvy enterprise network and infrastructure operators to smoothly meet unpredicted needs as well as accommodate planned events that require temporary bandwidth increases in their private connections to cloud providers.

However, this type of service hasn't solved the problems that plague agile infrastructure managers as they turn up new public and private cloud assets in new regions and sites to entirely new cloud providers. Network managers would have fewer headaches if network providers could enable on-demand provisioning and billing that match cloud provider billing.



Workload and demand uncertainty often lead organizations to purchase a bandwidth level with significant headroom in case of higher future demand—and they end up paying for more bandwidth than they actually use. Committing to unused bandwidth is not a cost-effective way to manage network traffic, but not having enough bandwidth when needed can make business grind to a halt. When bandwidth is lacking in the private connection, users can be forced to move their connectivity to the Internet, where service-level agreements are unlikely to meet their needs and the risks of cyberattacks are greater. Both options can end up being costly to businesses, so the faster a private connection can be provided, the better it is for the bottom line.

Put more simply, network services that connect to the cloud must act like cloud services. The National Institute of Standards and Technology (NIST) model for cloud services provides clear direction on what functionality is necessary. The definition lists five key attributes: on-demand self-service, broad access,

resource pooling to leverage shared resources, rapid elasticity/expansion, and measured service (pay for what you use). It makes clear that the starting point for how network provisioning processes must be enhanced.

Perhaps the greatest enabler for next-generation provisioning is the move to automated provisioning. Next-generation network solutions will use APIs that can be put into application code that supports dynamic network provisioning based on performance levels. This provides what is effectively a totally automated process for ensuring adequate bandwidth for application performance without any human intervention—network provisioning at the speed of business, a requirement for digital business.

Consider the use case of a network that can automate the deployment of additional bandwidth based on a planned or known event—for example, to support weekly or monthly archival backup traffic so that the task doesn't impact the performance of other applications.



Choosing the optimal dynamic network solution

It is obvious that as businesses transform to “digital” processes, they will require new methods of network provisioning to ensure application performance, cost efficiency and overall network agility. However, the use of on-demand or new dynamic network connections—self-serve capabilities that let the customer create or delete network connections in real time—must be optimized in the same way cloud service utilization is optimized. The key is to ensure that no surprises result from choosing a service that has limitations in design and implementation. To ensure you obtain the optimal solution, consider the following requirements:

1. Choose a best in class network service provider:

To find a best-in-class network service provider for dynamic connectivity capabilities, start by identifying those that have a substantial ecosystem comprised of three key components: broad industry relationships; direct connectivity to key cloud service providers, SaaS providers and new application hosting providers; and modern technology that can support modern workload approaches such as serverless, autoscaling workloads. It is critical that any network service provider you choose be able to support any current and likely future usage models. This ensures that your dynamic network capability will work across all or nearly all workloads, not just a few.

2. Provider should have a substantial network backbone:

The second, and perhaps most important, requirement is that the network service provider has a large and substantial

network backbone that is broadly available. This is critical. Some vendors will promise a software-defined networking solution but cannot provide it consistently, since they must cobble together connections (sometimes even using the Internet), where they don’t have their own network, if they have any network at all. Such ad hoc network integration can take days or weeks—clearly not what dynamic infrastructure requires. If an initial project focuses on a major city that is already well-served, its ample infrastructure may mask problems that will occur when additional locations in new regions must be served by dynamic network infrastructure.

3. Usage-based cost model: An optimal dynamic network solution must also have a cost model that is strongly aligned to a usage-based network offering. Usage-based billing is a must-have for any dynamic network service. This ensures that customers are fairly charged for dynamic bandwidth based on the actual use and that the pricing model does not penalize the customer for using it.

4. Ability to choose connectivity type: Another factor that will have substantial impact on your decision is the availability of multiple connectivity types of private network bandwidth to data center and cloud providers. There are many workloads and data sets that could require a 10 Gbps wavelength service or a 3 Gbps Ethernet connection, or perhaps, in some scenarios, the best option is connecting via an IP VPN. Working with a provider that has multiple network types to support all workloads can dramatically simplify and enhance your hybrid cloud and multi-cloud strategy.

5. Assess your current WAN: Take stock of both your short- and long-term WAN implementation, and identify where you will gain the greatest value in being able to turn up new connections to your data centers and clouds. To start, working with your incumbent network service providers will often simplify the business relationship aspect, since contract language, billing, and other terms and conditions have already been internally approved. However, that should not be a “go/no-go” consideration. Many incumbent vendors don’t have a truly useful dynamic network offering, as described above. From an operational perspective, leveraging current network connections to your data center(s) makes it much simpler and faster to deploy a dynamic connection solution to augment current capacity or react to new needs. This also makes it much simpler to holistically manage the different bandwidth options that are being used, both static and dynamic.

6. Consider the geographic breadth of network requirements: Finally, as noted above, the geographic breadth of the network is an important decision point. A truly global network that has already proved itself across a wide range of regions is critical to ongoing success. When evaluating the coverage of a specific vendor’s network, it is important that you look beyond your own facilities and locations. Dynamic network capabilities will often be used for brand new connections to cloud services or even other business partner organizations. There may also be future data sovereignty requirements that result in the need to connect well beyond the roster of current sites of your organization.

Network service providers that have the broadest geographic coverage should be more favorably considered than those that don’t. It is well within the realm of possibility that within 24 or 36 months, the dynamic network may connect to literally thousands of locations at different points in time. The last thing IT or network admins want to learn after the fact is that they cannot serve some locations, creating exceptions that will require substantial manual intervention and potentially one-off bandwidth contracts.



Key takeaways

To support a digital business, infrastructure must be able to meet the speed, agility and application performance levels demanded by the business and its customers. While great strides are being made by cloud providers for the compute and storage elements of IT infrastructure, networks have not progressed as rapidly in terms of that same agility and dynamism. However, new offerings that can deliver truly dynamic network abilities with effectively real-time provisioning will completely change the game. Using these solutions in combination with the traditional network bandwidth will enable a comprehensive solution for truly agile and dynamic digital infrastructure.

To ensure that your organization makes the best possible choice, focus on key criteria including a substantial partner ecosystem, a strong backbone network, a true pay-per-use cost model, multiple connectivity types and geographic breadth. The concept of dynamic connection utilization is quite straightforward, but there are many details that will impact your choice and result in either a comprehensive offering that truly enhances network agility or one that just creates more tasks that require manual intervention and stymie agility.

To learn more about the benefits of dynamic network abilities and how to make the best choices for your organization, please visit our [CenturyLink® Cloud Connect – Dynamic Connections](#) page.

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