Agile, scalable, secure Data Center Interconnect (DCI) for the enterprise cloud
Cloud IT prompts a re-evaluation of data center interconnect needs

With data volumes pushing into terabyte territory and enterprises increasingly reliant on cloud-based apps, the cost benefits of using traditional service provider-managed data center interconnect (DCI) services are eroding.

Managed DCI services are becoming expensive to scale, are inflexible and take too long to provision. They are simply not agile and flexible enough to meet the dynamic nature of the cloud.

In addition, many enterprises want more control over their DCI, particularly to ensure data compliance, integrity, security and sovereignty.

Consolidating and virtualizing data centers and moving to the cloud significantly reduce IT costs and improve efficiency. But DCI solutions need to change to take full advantage of new agile, flexible and dynamic cloud IT models.

That’s prompting many large enterprises with scale, security and agility needs to rethink their DCI approach—opening up new opportunities to re-architect the network for the cloud.

A private cloud DCI solution based on dark fiber is a strategic investment that provides scalability, control and security to support an enterprise’s private and hybrid cloud strategy.

The savings achieved through consolidating and virtualizing multiple data centers and moving to more agile, flexible cloud IT models mean that the cost of building a private cloud DCI solution can be offset significantly. And the risk can be reduced by using a network integrator to provide a range of services covering all aspects of the implementation process—from consulting to design, build, integration, deployment and maintenance.

Private cloud DCI is a valid option for many large enterprises to support their cloud strategies—particularly when scalability, control and performance are essential and data security, sovereignty and integrity for regulatory compliance are crucial business priorities.
Savings from data center consolidation and virtualization can significantly offset the cost of private cloud DCI

Consolidate and virtualize data centers and move to cloud IT

Private cloud DCI

= 

Increased agility
Increased security
Increased flexibility
Greater performance and scale
Improved utilization
Less complexity
OPEX savings
Better control
The cloud drives the need for agile, scalable DCI bandwidth

When planning for a private cloud DCI, it is important to determine how much bandwidth is needed, particularly for future cloud IT needs.

DCI bandwidth is likely to grow significantly because of data center consolidation, which drives convergence of data center architecture.

Upgrading data center servers and switch fabrics increases traffic within the data center, but it also increases traffic between data centers.

Distributed cloud applications are also driving traffic between data centers, which is growing faster than either traffic to end users or traffic within the data center.

The Global Cloud Index predicts that by 2020, DCI traffic will account for almost 9 percent of total data center traffic.

A recent Nokia Bell Labs study indicates a 430 percent increase in DCI traffic in metropolitan area networks between 2015 and 2020 due to the cloud.¹

When does private cloud DCI make sense?

Private cloud DCI using dark fiber is best for enterprises that need very high bandwidth, physical security, and complete control of their data centers, their network, and the data that flows over it.

Overall, the costs of a private cloud DCI solution can be significantly less than a managed DCI solution, especially when consolidating and virtualizing data centers. The reason is that the cost of dark fiber linking fewer data centers is often less than the cost of managed DCI services between multiple data centers.

This is particularly the case when future bandwidth needs are included, as managed DCI services start to become cost prohibitive at the high bandwidths needed for distributed cloud applications.

Using leased fiber is a good economical choice for private cloud DCI, particularly as bandwidth can be increased at marginal incremental cost by lighting additional wavelengths on existing optical networking equipment.

What is the business case for private DCI?
Nokia has developed a business case to illustrate the benefits of private DCI compared with managed DCI services.

The business case uses an example of a typical large enterprise with 15 sites. It compares the prior mode of operation (PMO), which uses a managed DCI service between its two main data centers, with a future mode of operation (FMO), which uses private DCI based on leased dark fiber and self-managed optical network equipment.

The graph shows the incremental cash flows generated by the FMO. The blue bars show the initial investments required, with the red line showing a cumulative view of the incremental cash flows generated.

Where the red line crosses the zero axis, it shows that the project has generated as much cash flow as the PMO would have done. From this point forward, the project generates higher cash flows compared with not doing the project.

The grey bars show that the project generates net OPEX savings from the first quarter. The FMO has a discounted payback period, or breakeven point, occurring in the 12th month or the fourth quarter after the start of the project.

Click here to find out more.
A private DCI case study—major European retail bank

Created by the merger of several banks and faced with the challenge of consolidating multiple IT infrastructures, this major European retail bank wanted to create an IT strategy for the future that could also embrace the emerging cloud opportunity.

The bank wanted to simplify IT processes across its multiple subsidiary operating groups to gain efficiency and lower costs.

To comply with banking regulations, the bank needed to separate traffic across the different subsidiary groups.

The bank recognized the need to consolidate and interconnect its eight existing data centers and respective IT infrastructures.

With the emerging cloud opportunity, it wanted a solution to meet current and future DCI needs while providing future support for a private/hybrid cloud.

The bank was also not happy with the inflexibility, poor response times and costs of its service provider-managed network solution.

Nokia’s DCI solution for the bank combines a scalable, flexible and secure optical infrastructure using leased dark fiber with an IP overlay that provides separation and control of inter and intra data center traffic for the different subsidiary groups. The IP overlay also enables flexible access to off-premise data center and IT hosting facilities.

Unified management covering both optics and IP provides common network element and service management to ensure lower operating costs and greater network control and efficiency.

Nokia’s solution has helped the bank to achieve its goals to:
- Simplify IT processes
- Increase efficiency and reduce costs
- Control, secure and separate traffic between different subsidiary groups
- Ensure it can meet future needs.

The bank has since increased its network bandwidth at marginal incremental cost. It has also expanded its Nokia solution to interconnect its data centers and major branch sites, creating a private WAN that supports its private/hybrid cloud strategy.

Meet your business needs with Nokia Cloud DCI solutions

Nokia offers a choice of solutions to meet the varying needs of enterprises seeking to build their own private DCI in support of private and hybrid clouds.

These solutions include the 1830 Photonic Service Switch (PSS) that provides scalable, high performance and secure DCI with the capacity, flexibility and agility to support different cloud types over metro, national and international distances. Nokia Cloud DCI solutions also include IP and software-defined networking (SDN) solutions for both the data center and the WAN.

By offering converged management, as well as automated and on-demand networking enabled by SDN, Nokia delivers agile, dynamic, flexible and cost-effective DCI solutions for the cloud.

Nokia Cloud DCI solutions are used by service providers and enterprises in the financial, healthcare, consumer and industrial sectors for business-critical applications, such as business continuity and disaster recovery. They are also widely deployed in the government, oil and gas, transportation and utility sectors for mission-critical DCI applications.

Click here to find out more about Nokia Cloud DCI solutions.

Click here to find out more about Nokia Cloud DCI for Enterprise.
Reduce risk and time-to-market with Nokia DCI Professional Services

Nokia Professional Services can help you achieve business success by reducing risk and time-to-market for your private cloud DCI build-out with a range of services covering all aspects of the implementation and deployment process, from consulting to design, build, integration, deployment and maintenance.

Nokia DCI Professional Services provide rapid deployment capability for cloud DCI build-outs and include two critical components to make your business a success.

Consulting services provide financial analysis and modeling, high-level network architecture design, and certification as a service.

Build, operate and transfer services provide a comprehensive solution to help you cost effectively roll out, operate, and manage your network; reduce operational risk and time-to-market; and alleviate expertise and resource constraints.